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The Semantics of Polysemy

Reading Meaning in English and Warlpiri

Nick Riemer

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Abbreviations

1	first person singular
11	first person dual
12	first person dual inclusive
122	first person inclusive plural
111	first person exclusive plural
2	second person singular
3	third person singular
33	third person dual
333	third person plural
ABL	ablative
ADM	admonitive
ALL	allative
ALY	Alyawarr
AN.POSS	anaphoric possessor
ARR	Arrernte
ASSOC	associative
Aust	Australian
AUX	auxiliary
AUX.ADM	auxiliary admonitive
AUX.COMP	auxiliary complementizer
AUX.FUT	auxiliary future
AUX.POT	auxiliary potential
AUX.REL	auxiliary relative
AUX.USIT	auxiliary usitative
CHAR	characteristic
Da	Danish
DAT	dative
DD	double dative
DS	subject complementizer: different subject, contemporaneous
DEF.SPEC	definite specifier
DESID	desiderative
DIM	diminutive

DU	dual
EL	elative
EMPH	emphatic; emphatic demonstrative
ERG	ergative
esp	especially
FOC	focus
Ger	German
Goth	Gothic
IE	Indo-European
IMP	imperfective
IMPER	imperative
INCPT	inceptive
INF	infinitive
INST	instrumental
INT	intentive
INTERJ	interjection
IRR	irrealis
LG	Low German
LOC	locative
M	metaphor
m/context	metonymic extension to the context in which the action of the verb occurs
ME	Middle English
MED	*Middle English Dictionary*
m/effect	metonymic extension to the effect of the action of the verb
mod	modern
m/sel	metonymic extension by selection of a consituent of the verbal event
NEG	negative
NOM	nominative
NP	noun phrase
NPST	non-past
NSM	Natural Semantic Metalanguage
O	object
obs.	obsolete
OE	Old English
OED	*Oxford English Dictionary*
OF	Old French

OFris	Old Frisian
OHG	Old High German
ON	Old Norse
ONF	Old Northern French
OSw	Old Swedish
PART	participial
Pg	Portuguese
PL	plural
POSS	possessive
PP	prepositional phrase
Pr	Provençal
PREPAR	preparative
PRIV	privative
PROG	progressive
PROP	proprietive
proto-G	proto-Germanic
PRSNT	presentational present
PST	past
PURPV	purposive
PV	preverb
RDP	reduplication
REFL	REFLEXIVE
REL	relative
Rom	Romance
S	subject
SEP	Syntactic Evidence for Polysemy Principle
SER	serial
Sp	Spanish
sp.	species
spec	specially
SS	subject complementizer: same subject, contemporaneous
Sw	Swedish
TOP	topic
TRNSL	translative
usu	usually
vi.	intransitive verb
vt.	transitive verb
WlpD	Warlpiri Dictionary database
WS	West Saxon

Introduction

According to a commonly evoked self-image, linguistics studies the interrelations of form and meaning in language. Yet while issues of phonological, morphological and grammatical structure have been the objects of comprehensive study, the sophistication of linguistic theorization of meaning has noticeably lagged behind that of its analysis of form. This in spite of the fact that statements about meaning are inevitably required by linguistic theory, both in their own right, and as part of the justificatory basis for higher-level phonological and morpho-syntactic generalizations. Linguistic theory therefore needs a rigorous characterization of meaningfulness both as one of the chief linguistic phenomena it must explain, and in order to ground its analyses of form in a conceptually satisfying way.

The comparative neglect of meaning in linguistics has opened an unfortunate gulf between the academic study of language and those other disciplines, like philosophy, general semiotics and anthropology, which privilege the investigation of linguistic and non-linguistic meanings, and often emphasize the interpretative character of any trans-subjective – to say nothing of cross-linguistic – research. The humanities thus find themselves in the paradoxical situation that it is the discipline most centrally concerned with language – linguistics itself – that has least to say about what is, surely, the central linguistic phenomenon. Indeed, it is hard to escape the conclusion that many linguists believe that it is only precisely by *avoiding* the 'sophistication' of these other disciplines that hard-won generalizations about linguistic form can be held immune from the perceived threats of other disciplinary frameworks. Consequently, any claims to authority to which these frameworks might otherwise seem entitled are often discounted, either by the disciplines concerned being dismissed as simply irrelevant, or, not infrequently, through their demonization as 'relativistic', 'fuzzy', or 'postmodern'. Hence a raft of common attitudes in linguistics, ranging from the almost complete neglect of the theorization of meaning in Anglo-American and continental philosophy, to the imperative apparently felt by many semanticists to insist on the informational, determinate and reductive character of word meanings, at the expense of greater sensitivity to the role of context and variability.

From its beginnings in the study of categorization and metaphor to its more recent concerns with emotive aspects of language, cognitive linguis-

tics has tried to remedy this situation. In its identification of meaning and mental structure, cognitive grammar has broadened the scope of linguistic research, giving proper recognition to a host of phenomena which had to be ignored under earlier, more austere conceptions of language. In breaking with the predominantly formalist, syntactic concerns of the Chomskyan mainstream and placing semantics at the heart of its project, one of the most salutary achievements of cognitive linguistics has been to restore to the appreciation of language the phenomenon of meaningfulness in all its multifaceted indeterminacy. In the vocabulary of cognitive linguistics, the non-truth-functional aspects of meaning, largely stifled under more formally oriented conceptions of semantics, can be brought to light and given legitimacy as valid objects of linguistic research. The emphasis from the start of the cognitive linguistics tradition on imagery, metaphor, and figurative language has revealed multiple dependencies between linguistic expressions and other aspects of cognition, dependencies which now form an inalienable part of our knowledge of the wider psychological context of linguistic facts, and which will have to be accounted for somehow in any definitive theory of language.

As a result of this expanded focus, the cognitive movement has been able to greatly swell the range of disciplines with which linguistics can carry on a conversation. Under transformational-generative grammar, linguistics had attracted the attention of certain philosophers and psychologists who saw in the young theory the promise of a hitherto elusive scientific understanding of language. This attention was largely, however, one-directional: philosophers' interest in linguistic conclusions about language structure was not, it would seem, reciprocated by any particular attention on the part of most linguists to philosophical approaches to meaning. Chomsky's equal concentration on both the philosophical foundations and the empirical details of generative grammar was only rarely matched elsewhere in either the generative paradigm or its successors. But if few in linguistics have shared the breadth of Chomsky's concerns, the cognitive linguistics paradigm, for one, has been distinguished by its openness to ideas from outside its immediate disciplinary ambit. As a result, linguistics in its cognitive guise has begun to take its place as part of a continuing conversation not only with philosophers and psychologists, but also with literary scholars, semioticians and anthropologists.

One of the effects of this new immersion in a stream of diverse theoretical and disciplinary currents has been to dilute the self-assurance and proud isolation that characterized cognitivism's immediate generative forebears.

As a result of this open-mindedness, cognitive linguistics in recent years has demonstrated a receptivity to sceptical scrutiny of its most defining assumptions. Research by scholars such as Croft (1998), Sinha (1988), Geeraerts (1993) and Gibbs (1999) has complexified and problematized such fundamental notions as linguistic representation, conceptual content, metaphor and polysemy. Just where this research will lead is far from clear. But since a discipline can only benefit from an exacting scrutiny of its key notions, the net result of this new sceptical turn of enquiry can hardly fail to be positive.

The scrutiny, however, has only just begun. For all its recent attention to key notions, most cognitive linguistics adheres to a fairly traditional conception of the nature of its subject matter and the aims and significance of its activity. The reader of the now voluminous literature in cognitive semantics (CS), in particular, may sometimes be struck by two distinct, and apparently contradictory, aspects of the way in which researchers describe their activity. On the one hand, cognitive semantics is often implicitly seen as part of the wider disciplinary project of linguistic science: the title of Ullmann's influential 1962 book, *Semantics: an introduction to the science of meaning*, also identifies the presupposition of much cognitive semantics research. From this scientific construal, cognitive semantics inherits some far-reaching metaphysical and epistemological preferences, such as the desire for detailed, constrained and psychologically realistic theoretical models, and the expectation that the linguistic structures uncovered by the investigator will be of such a kind as to be eventually susceptible of empirical testing at the hands of experimental disciplines (principally psychology and neuroscience). At the same time, however, the cognitive semantics literature is full of acknowledgments (albeit usually only passing ones; cf. Rice 2003: 256) of the fundamentally subjective nature of meaning, and of the fact that central theoretical features of the explanation of semantic phenomena have no other justification than the subjective judgement of the investigators. The tension between these two points of view is, I take it, obvious.

The contrast between these two aspects of semantic research motivates the ideas in the present book. Polysemy is, as recognized by Ricœur (1975: 148), the central phenomenon of lexical semantics, and its study opens a window onto a vista of important questions. Accordingly, the book's principal aim is to present an analysis, using a typology of metaphoric and metonymic meaning relations, of some richly polysemous verbs in English and Warlpiri (Pama-Nyungan, Central Australia): percussion/impact, or 'hit-

ting' verbs (cf. Riemer 2002a). This task occupies the book's second half. But the analysis offered only makes sense in light of the positions adopted on a range of important theoretical questions concerning the nature and epistemological status of semantic constructs, which are discussed in chapters one to three. More than the descriptive details of any analysis of polysemy networks, these theoretical questions are, I believe, among the most pressing and unresolved of all the problems confronting research in cognitive linguistics. Their treatment in the book's first three chapters is fuelled by two complementary ideas. The first is the idea that the oft-remarked subjective character of semantic analysis is irreducible, and that real empirical progress in all varieties of linguistics is dependent on an acceptance of this fact. The corridors of many linguistics departments ring with proclamations of the discipline's empiricism and scientificity. If these often seem intended as much as rallying cries put out to distinguish linguistics from other disciplines in the business of language study, as they do the results of serious epistemological reflection, they nevertheless express a firmly-held part of many linguists' self-image. Accordingly, my aim here has been to consider in what sense adjectives like 'scientific' and 'empirical' are appropriate to cognitive semantic research specifically, in light of what is argued to be the irreducibly interpretative character of the study of meaning. This enquiry is directly connected to the book's second motivating idea: the intuition that whatever their status as science, analyses of meaning of the sort currently propounded in cognitive linguistics remain genuinely useful and explanatory – despite, or rather because of, the acknowledged subjectivity at their core. If this explanatory power turns out not to be a 'scientific' one, then so be it: in the context of this book, the aim is to articulate an epistemology for the knowledge delivered by cognitive semantic models like the ones proposed here that preserves their explanatory value regardless of their ultimate status as 'science'.

More immediately, the present ideas about polysemy can be seen as the development of two observations in the fairly recent history of cognitive linguistics. The first is Geeraerts' remark, at the end of his much discussed analysis of polysemy and vagueness, about the essentially interpretative nature of semantics:

> if we abandon the vestiges of objectivism in our methodological self-conception, the presupposition that there is a unique meaning itself can be rejected. Rather than a single unique meaning, there would only be the interpretations that we impose on the material – and our interpretative activities need not yield a unique result. (Geeraerts 1993: 261)

The second is a somewhat more recent comment by Gibbs and Matlock (2001: 214) to the effect that many cognitive linguists see the aim of their activity not as the uncovering of any fundamental psychological facts about language, but as the provision of 'representational schemes' for the construal of linguistic data. Neither of these observations is developed in its original context. Taken together, however, I believe they indicate both a significant possibility for the epistemology of cognitive semantics, and a challenge to its habitual construal as science – a construal which, for the sake of the theoretical coherence of the discipline, I believe needs to be confronted soon. These themes are outlined and developed in chapters one to three. It would be unrealistic to expect that the conclusions reached will not clash, sometimes radically, with various standard beliefs about the nature of language and the place of (cognitive) linguistic research within the panorama of disciplines studying it. At the very least, however, the book will have achieved its goal if it stimulates an acknowledgment of the importance of the questions it addresses, rather than, necessarily, an acceptance of the particular answers which it suggests.

For all its appeals to science as the ultimate guarantor of its methodological respectability, linguistic research, especially in semantics, has remained remarkably independent of contemporary developments in a discipline intimately connected to its own concerns, cognitive science. Given the prominence of philosophical debates in cognitive science, this independence is consistent with the linguistic attitudes to philosophy mentioned earlier. In spite of its statements at the institutional level (*Cognitive Linguistics*, for example, labels itself a 'journal of cognitive science'), and its inherent interest in the details of psychology, cognitive linguistics has largely followed most other branches of the discipline in maintaining a considerable distance from the mainstream currents of cognitive science research. The usual view, one gathers, is that the stimulus for solutions to linguistic problems will come from within linguistics itself, and that as a result others' investigations into cognition are not of immediate relevance. Since descriptive and typological concerns constitute almost as important a centre of gravity for cognitive linguists as for their colleagues in the broader discipline, this neglect of other research into cognition may not be particularly surprising. I believe that it is, however, counterproductive, and that attention to the wider problematics of cognitive science can be illuminating for the very questions that have newly emerged as topics of scrutiny in cognitive semantics. Thus, cognitive semanticists' recent examinations of the notions of mental representation, conceptual content (mental im-

agery), polysemy and metaphor can all be fruitfully brought into contact with sometimes longstanding debates in cognitive science.[1] I have tried to make some of these connections clear, especially in the opening chapter of the book.

These remarks necessitate an immediate caution. My training is as a linguist, not as a cognitive scientist or philosopher, and it is linguists who constitute the primary intended audience of this book. If one thing is certain about the arguments made here, it is that they are entirely conditioned by particular issues of linguistic semantic description. Consequently, they may well strike those with different training as partial, amateur, or otherwise unsatisfactory. Cognitive scientists and philosophers, however, have not hesitated to comment on aspects of language and on the details of linguistic theories; believing that such cross-disciplinarity is necessary to any comprehensive account of linguistic phenomena, I intend to claim an analogous prerogative here. As I hope will become clear, the questions addressed in this book are inescapable and go to the heart of the linguistic theorization of meaning; as a result, linguistics cannot, I believe, afford to ignore them.

This, then, is the view of semantics that motivates this book. To conclude these introductory remarks, a few indications about the arrangement of the contents.

The first chapter explores the consequences of the foundational postulate of mainstream cognitive semantic theory, the identification between meaning and conceptualization. If this identification is to act as a genuine motivating principle for the theory, it should have direct consequences for the type of analysis to which it gives rise, by imposing constraints on what may and may not be advanced as an analysis of linguistic data within the theory. The argument of chapter one, however, drawing on the later Wittgenstein's critique of the possibility of mental representation (2001 [1953]), is that the identification between meaning and conceptualization imposes *no constraint whatsoever* on the nature of the resulting analyses of actual linguistic expressions, and that any proposed analysis of a meaning (conceptualization) is as a result inherently arbitrary. The identification between meaning and conceptualization, that is, equally authorizes *any and every* analysis of a given linguistic item: one can offer any analysis of a meaning and, with equal justification in every case, claim that it corresponds to a conceptualization. This arbitrariness is clearly profoundly at odds with the claims of scientificity, psychological realism and empiricism to which many cognitive linguists might lay claim, since a theory claiming to represent an ultimately neurological cognitive reality should dictate a precisely

defined, constrained and non-arbitrary set of theoretical analyses if it is to respect the ideals of scientific practice mostly assumed in linguistics.

The present use of Wittgensteinian arguments to motivate a critique of aspects of cognitive science is in no way innovative. Chomsky's comment (1986: 223) that the Wittgensteinian critique is the "most interesting" of the various critiques of generative grammar yet presented makes it all the more remarkable that linguistics has largely passed over it in silence. In contrast, the Wittgensteinian critique of the possibility of mental representation has stimulated an entire current of philosophical literature (Baker 1981; Kripke 1982; McGinn 1984; Summerfield 1996), and along with similar arguments inspired by Heideggerian phenomenology, it has already been made the basis of a critique of cognitive science *tout court* by Dreyfus (1992), a critique which a major player in the field can acknowledge 'may yet win the day' (Clark and Toribio 1994: 428). This critique, it is important to emphasize, can be levelled quite generally at *any* attempt to fix or specify the meaning of a language expression, and therefore affects any linguistic theory, whether cognitivist or not, in which such an attempt is made. In its explicit identification between meaning and conceptualization, however, cognitive semantics lays itself open to the Wittgensteinian argument in a particularly acute way, and I believe that cognitive linguists can only benefit from confronting it head on. As I hope to show, even though Wittgenstein's critique seems decisive, an acknowledgment of its validity in no way threatens the descriptive practice of cognitive semantics, nor detracts from its value as a genuine explanation of linguistic phenomena. What it does do, however, is force investigators to reconsider the broader explanatory context against which the claims of cognitive semantics research should be judged, and to reassess the extent to which 'scientificity' should be elevated as the overarching methodological criterion of the success of a linguistic theory.

This discussion of the identification of meaning and conceptualization leads in chapter two into a consideration of the metalanguage in which cognitive semantics analyses are couched. The CS analysis of the meaning of a given word is constituted by its specific metalinguistic description of the conceptualization claimed to underlie it. These metalinguistic descriptions provide the raw material which is, in principle, eventually to be submitted to the test of empirical experimentation. As a result, the question of the nature of the metalinguistic vocabulary in which conceptualizations are described takes on considerable importance. If, in standard CS, a word's meaning can be represented as a set of relations between a schema, its in-

stantiations and its extensions, or as an 'idealized cognitive model' embracing a set of related conceptualizations, the particular way in which each of these individual conceptualizations is represented metalinguistically becomes crucial. Given that any meaning is open to a variety of different, often incompatible, descriptions, the choice of the optimal description is a prerequisite if the analysis is to attain a minimal degree of empirical specificity. Such a degree of specificity, it is important to note, is desirable in a linguistic theory whether or not it adopts an identification between meaning and conceptualization. Whatever a theory's ultimate commitments about the nature of meaning and its identification with or distinction from broader mental process, only a precise set of analyses of individual meanings can provide an explicit basis on which its proposals about the nature of meaning may be compared with those of its rivals, and brought into relation with other branches of linguistic and non-linguistic enquiry.

In this perspective, it is striking that one of the most strongly held methodological tenets of cognitive linguistics has been the necessity to avoid the 'exclusionary fallacy': the idea that a unique description must be sought for a given linguistic fact, and that alternative analyses of the same phenomenon are not to be tolerated (Langacker 1987: 28). The condemnation of this methodological principle as fallacious has had the undeniable advantage of exposing the unwarranted stipulation and arbitrariness that often characterized linguistic models, particularly under the generative paradigm. But if the point is well taken that, for example, the explanation of deverbal nouns like *stapler* need not simply be seen as an alternative between pure derivation and pure lexicalization (Langacker 1987*:* 28), the issues in the analysis of meaning are somewhat different. Whereas for *stapler* rejection of the exclusionary fallacy involved a tolerance of only *two* characterizations of a phenomenon, the number of alternative characterizations in semantics is inestimably greater. As is well appreciated, the description of meaning is infinitely less constrained and more open to varying characterizations than is the description of morphology or syntax. As a result, semantics has much more to lose by a tolerance towards alternative descriptions, and runs the risk that any analytical specificity about the nature of a single meaning/conceptualization will be lost in a scatter of divergent but equally endorsed analyses.

The issues at stake can be appreciated by considering the different possible descriptions of the elements of the conceptual schema underlying the noun *tree* (Langacker 1987: 373). A tree could be defined as a 'a tall plant with branches, leaves and bark' (Langacker 1987: 374), as a 'tall woody

green object that grows in the ground', or as 'a natural thing which can be climbed and chopped down'. Each of these descriptions assumes a particular point of view, a particular 'scale' of presentation, and contains a different mixture of functional/interactional, visual and imaginative perspectives. Clearly, it would not be justified to elevate any one of these descriptions as uniquely corresponding to the underlying conceptualization of the 'tree' schema – this would precisely be a case in which the exclusionary approach would be fallacious. Yet descriptions of the nature of the conceptual category 'tree' will vary depending on which of the characterizations is adopted at any one time. For example, the adoption of the description 'a tall plant with branches, leaves and bark' entails that pines, which have needles instead of leaves, must be seen as an extension from the category (Langacker 1987: 374), a consequence that is avoided under the other characterizations. Clearly, it is a matter of some importance for our understanding of this category whether pines do or do not constitute a central instance. Analogous questions, obviously, can be posed in connection to every other linguistic item. As a result, the question of how to choose the optimal metalinguistic description of a given category is pressing.

This consideration of questions of metalanguage is begun in chapter two with a treatment of one of the main alternatives to standard cognitive semantics accounts of meaning, the Natural Semantic Metalanguage (NSM) theory of Wierzbicka and her colleagues, which attempts to ground semantic analysis in a set of primitives. This approach is sometimes considered to belong to the cognitive linguistics movement, broadly conceived (Goldberg 1996, Dirven to appear), and it highlights some of the main epistemological and methodological issues involved in developing metalinguistic descriptions of meaning. If the NSM attempt to found semantic analysis on the existence of putative universal synonymy relations in the lexicon is successful, then the beginnings of an answer will have been provided to the very questions of metalinguistic indeterminacy raised in the previous paragraphs. As noted earlier, the Wittgensteinian critique made in chapter one constitutes a powerful argument against *any* linguistic theory which claims to offer a unique and definitive analysis of a word's meaning, and therefore applies directly to NSM. I have chosen, however, to couch my critique of NSM on a lower level by accepting, for the sake of argument, the theory's presupposition that a unique analysis of meaning is in principle attainable, and by arguing that the theory fails to meet its own criteria of methodological adequacy, and that as a result its attempt to restrict the canon of me-

tasemantic definienda does not provide a sure footing for semantic description.

If the arguments of the first two chapters are correct, and it is accepted that linguistic semantics cannot be grounded in either conceptualization or primitives, what *does* provide the basis for semanticists' descriptive practice, and what type of knowledge do semantic descriptions deliver? The last section of chapter two sketches an answer to this question, locating the explanatory power of metasemantic descriptions of meaning in their status as interpretations. These interpretations are not part of a scientific enterprise in the (paradigm) sense of science that applies to chemistry or neuroscience, but they should nevertheless, it will be argued, be considered as a valid part of the understanding of the nature of language in linguistics.

Any theory of polysemy needs a rigorous means of determining whether a word has more than one meaning and, if so, just how many meanings it has. In particular, a theory like the present one which analyses the metonymic and metaphorical links between word senses would seem particularly compromised if it cannot adequately justify the decision to treat the word in question as displaying a variety of senses as opposed to only a single one, and if it cannot determinately distinguish the senses between which the metaphorical and metonymic links are proposed. Chapter three therefore discusses the important question of sense individuation in cognitive semantics. Starting from the investigations of monosemy and polysemy of the early 1990s (Geeraerts 1993, Tuggy 1993), the determination of trustworthy criteria for sense division has been the subject of animated debate in recent cognitive linguistic research. The most recent work, however, has evidenced a growing scepticism about the very necessity of sense individuation to cognitive analyses of meaning (Taylor 2002; Allwood 2003), and a consensus seems to be emerging that the question of how to distinguish whether a word has more than a single sense is misguided: to ask whether one of the possible readings of a word corresponds to a distinct meaning is to fall victim, it is argued by many scholars, to a false dichotomy.

Chapter three takes issue with this emerging consensus, arguing that the dichotomy between monosemy and polysemy, far from being false, is in fact *necessary* for any semantic theory which aspires to an adequate degree of specificity. Only a theory which provides a definite account of the semantic structure of a given word, including a precise description of the number and the nature of the divisions between the different meaning elements it postulates within it, offers an adequate basis for further theoretical

refinement, cross-theoretical comparison and, for cognitivist theories, experimental clarification. An openness to alternative modes of description is certainly, as noted earlier, a valuable counter to unwarranted stipulation in proposals about the nature of meaning. But a refusal to endorse a definitive analysis of semantic structure robs a theory of the chance to develop the detail of its own modelling, and of any chance of empirical testing: experimentalists need something precise to get their teeth into, and it is only on the basis of definite proposals about the nature of the underlying linguistic mechanisms that linguistic models could be submitted to experimental control. This is not to require a semantic theory to contain something equivalent to the traditional notion of 'separate meaning', in the sense which has occupied most of the debate so far, that of distinct and independent components of the semantic information collected in a single word: the analysis of a word as monosemous or polysemous may need to be relativized to a specific level of lexical access or abstraction. Nevertheless, it is clear that for any semantic description of a word on a given level of lexical abstraction, there is no other possibility than that the word's meaning be considered as representable by one gloss-group (monosemy), or by more than one (polysemy). The question of whether a word has more than one meaning, and, if so, how these meanings are to be distinguished, is therefore fundamental.

For example, the meaning of the French adjective *drôle* on a particular occasion of use could be described (in English) either as 'amusing, peculiar' or, simply, as 'funny'. The first description distinguishes two readings as separable elements within the meaning of *drôle*, the second does not. The choice between these two means of glossing therefore carries with it an implicit commitment about the polysemy or monosemy of *drôle* on some level of lexical structure. Even if neither of these particular descriptions is claimed to reflect a permanent, unchanging aspect of the semantics of *drôle*, being simply claimed instead to be operative on a single occasion of use, the choice between them carries very different implications about the nature of the underlying linguistic mechanisms postulated to exist. Adopting 'funny' as the semantic description allows us to think of the semantic structure of *drôle* as unitary (monosemous). But if 'amusing, peculiar' is chosen instead, then the analysis has implicitly posited a duality in this structure, and will have to provide an account of how the two separate notions expressed by each gloss are associated. This is the case regardless of one's broader view on the stability and permanence of semantic distinctions. The choice between the two interpretations of the meaning of *drôle* is

obviously important if it is taken to correspond to a difference in the number of unchanging, fixed meanings which are to be attributed to the adjective, considered as an abstract lexeme with a stable and permanent number of senses. But the question of the number of meanings attributed to *drôle* is just as important if the two possible sets of glosses are simply seen as contingent, passing semantic distinctions, moulded by functional and discourse pressures, which temporarily arise out of the adjective's undifferentiated 'meaning potential' (Allwood 2003). Regardless of the broader position adopted on these questions, the demands of analytical specificity require that a determinate analysis be reached of the meaning of the word on a given occasion of use: on one such occasion, is the semantic structure underlying *drôle* one which involves one element (represented by 'funny'), or two (represented by 'amusing' and 'peculiar')? Without a precise answer to this question, the possibility of theoretical specificity and real experimental testing does not exist.[2]

In accordance with the importance claimed to attach to the question of meaning division in cognitive semantics, chapter three closely examines all the available criteria on which a word could be diagnosed as polysemous or monosemous. In line with its adoption of interpretation as the governing notion behind semantic description, it is argued that a content-based (definitional) principle of meaning division is the only viable one on which semantics may be adequately based. On this principle, a word is polysemous if its meaning is susceptible of more than a single definition. But since the sense divisions produced by a content-based principle will differ according to both the metalanguage chosen, and the particular interpretation adopted of the semantic content of any given word, there would seem to be an uncomfortable degree of indeterminacy in the theorization of the nature of the divisions between different word senses. It will be argued, however, that this indeterminacy does not entirely strip metaphor and metonymy of their explanatory power, and the last part of the chapter advances an interpretation of the tropes which shows that their explanatory potential is considerably greater than that which might be implied by the indeterminacy of the metalinguistic glossing on which they depend.

The next three chapters constitute the empirical core of the book. Chapter four turns to the discussion of percussion/impact (P/I) vocabulary specifically, introducing the particularities of the typology of polysemous meanings advanced. Motivating this typology is the insight that the processes of semantic extension which create polysemous meanings of P/I vocabulary are amenable to strikingly concise description, in terms of only

four categories of polysemous relation: metaphor and three types of metonymy. These four types of meaning relation provide, it is argued, an illuminating categorization of the polysemous meanings adopted by P/I verbs in both the languages examined. In order to introduce this categorization, chapter four characterizes the basic P/I scenario expressed by the verbs discussed, sketches the four categories of polysemous relation proposed, and advances some proposals on the vexed question of the distinction between metaphor and metonymy, clarifying the principles on which the present differentiation of the tropes is achieved. The model of polysemy is then applied in the next two chapters to two very different bodies of data: Middle and Modern English in chapter five, and Warlpiri in chapter six. As well as directly exemplifying the workings of the typology, these two chapters foreground the many minute, interpretative decisions about the meaning of percussion/impact verbs on which the theoretical superstructure rests. Since these interpretative questions bear directly on the analysis of the verb's polysemous senses, they constitute a central part of the overall treatment. This attention to the descriptive base of the analysis will, I hope, reveal the large role in semantics played by subjective decisions of the investigator which are not disciplined by any explicit or formal decision procedures.

The brief concluding chapter ties together the epistemological and descriptive threads of the argument, showing that the explanatory value of the analysis of polysemy lies in its status as a motivated redescription, or typology, of its subject matter. This is not, it is argued, a form of explanation that is 'scientific' in the sense of the word usually assumed in linguistics, but this fact alone should not diminish recognition of its explanatory nature. There are other ways for linguists to express confidence in the results of their research than by billing it as science. Acceptance of the fact that the knowledge delivered by semantic analyses like the present one is a type of knowledge in its own right is thus one of the main goals of this book.

The research presented here is intended, then, both as a contribution to, and as a critique of certain aspects of, cognitive semantics. But the critique of certain standard CS assumptions is intended to be as much of a contribution to the paradigm as are the positive theoretical proposals and analyses of actual data. Furthermore, I sometimes (as in the last section of chapter three) present a possible development of aspects of CS theory which I have previously (in chapter one) argued against. As a result, readers reluctant to accept the earlier arguments are offered an alternative (and in my view less satisfactory) approach to the initial problem, which preserves the standard

assumptions of CS. In its dual nature, the research here is profered in the belief that progress in the field will arise out of a detailed and critical examination of both conceptual foundations and empirical consequences, and that these projects should not be divorced from each other. Since the arguments put forward affect basic assumptions characteristic of the cognitive linguistics paradigm in general, I have not couched the discussion in the technical vocabulary of either Lakovian or Langackerian cognitive linguistics. The theory of polysemy adopted here does not depend on the specific assumptions of either framework, but is to be understood against a general cognitivist picture of the organization of lexical categories. As a result, the choice of any one specific terminology would have been misleading. Where relevant, however, I have tried to show the specific points at which *both* theories are concerned by the issues raised in these pages.

Chapter 1
Cognition and linguistic science

1. Introduction

A psychological conception of linguistic meaning has long been characteristic of studies of polysemy, making modern cognitive approaches to language the avatars of a well-established tradition (Nerlich and Clarke 1997). Cognitive linguistics is not alone, of course, in assuming a mentalistic orientation towards its fundamental constructs: in much linguistic semantics, as in much linguistics generally, the same orientation is standard. In this respect, linguistics contrasts with the dominant current in analytic philosophy, a discipline to which it has often claimed a close relation. Frege (1848–1925), Bréal's somewhat younger contemporary, inaugurated a tradition of philosophical analysis which explicitly repudiated any treatment of either mathematical or linguistic terms as psychological entities. This breaking of the link between meaning and mind instituted a divorce between analytic philosophy and linguistics which the later philosophical interest in generative grammar only partly resolved.

The attraction of an anti-psychologistic perspective on semantics derives from the fact that it is precisely on the question of linguistic meaning that the attempt to develop a psychologically integrated theory of language faces its most telling conceptual and empirical challenge. This is because, quite aside from any methodological questions about the nature of the evidence involved in studies of meaning, and the justification of the inductive conclusions they support (see e.g. Croft 1998), the project of relating semantic facts to general aspects of human cognition requires both a comprehensive model of (non-linguistic) cognitive functioning and a principled characterization of the notion of 'semantic fact' (cf. Harder 2003). Without these, any theory of the relation between language and mental process lacks a conception of both of its initial terms. The fact that in neither case is a comprehensive or widely accepted theory presently available suggests that the results of any linguistic inquiry into meaning must be taken as strictly contingent on the outcome of further research.

The questions addressed in this monograph are at the centre of the cognitive linguistics life-world. The following chapters will develop an analysis of the polysemous senses of a prominent class of verbs – percussion/impact (P/I) verbs, i.e. verbs whose meanings are translated by words like 'hit' – in English and Warlpiri, a Pama-Nyungan language of central Australia. This analysis is presented within a typology of semantic extension based on ordinary language paraphrase. This typology analyzes the polysemous senses of the English and Warlpiri P/I verbs as exemplifying four possible categories of relation between the core and the polysemous meaning, three of them metonymic and one metaphorical. Under this interpretation, the phenomenon of polysemy emerges as amenable to rather concise description: demonstrating this, in fact, is one of the book's main charges.

In its installation of metaphor and metonymy as the key notions in an understanding of polysemy, this theory falls at the centre of cognitive linguistic concerns with mapping the radial arrangement of lexical categories. By contrast, the broader explanatory framework in which these explanations figure departs in some radical ways from the orthodoxy of current cognitive linguistics thinking. The aim of the first two chapters of this book is therefore to motivate the particular type of semantic analysis adopted by arguing for an approach to meaning that privileges the notion of interpretation over other possible axes of inquiry (truth, reference, cognition/conceptualization, primitives, uses). To this end, chapter one problematizes the standard cognitive semantics identification between semantic and conceptual structure (Langacker 1987: 5), arguing that this identification does not provide any explicit set of guiding hypotheses for semantic study. As a result, it does not impose any constraints whatsoever on the resulting analyses of meaning, such as would be required by a theory with aspirations towards scientific rigour and certainty:

> A [linguistic] theory must also be restrictive, by limiting descriptive options to a narrowly specified range that rules out many conceivable alternatives. It should further provide a principled means of choosing among competing analyses. (Langacker 1987: 48)[1]

For a work of cognitive linguistic research, this may be an unexpected starting point. The fact, however, that language is the intimate *product* of cognitive and brain structure does not entail an *identity* between semantic structure (meaning) and conceptualization, however the latter is specifically construed. To ignore the intimate relation between language and cognition

would certainly be to lose sight of the essential root of language in human subjectivity. But, as will be argued below, a psychologically realistic description of meaning will not necessarily involve either the assumption that meaning is to be identified as conceptualization, or the postulation of representational conceptual structures like those currently assumed in cognitive linguistics.

If the identification of meanings with concepts does not adequately ground semantic analysis, some other set of constraints may do a better job of governing the descriptive practice of linguistic semantics. In chapter two the most comprehensive alternative to mainstream cognitivist theories of language and conceptualization is considered: the Natural Semantic Metalanguage project of Wierzbicka and her colleagues. This approach will also be argued to fail to provide the secure basis for the analysis of meaning its proponents claim for it, but its discussion will allow clarification of a number of important issues in the use of ordinary language paraphrase to analyze meaning. As a result of the considerations in these two chapters, an interpretative role for semantic metalanguages will be promoted, and the adoption of an ordinary language metalanguage for the description of meaning in this book will be argued to be well motivated.

2. Meaning and interpretation

From its inception, cognitive linguistics has asserted the unified rather than modular nature of language. Divisions between the traditional domains of syntax, semantics and pragmatics have been taken to reflect differing heuristic exigencies rather than any fundamental split in the nature of the underlying cognitive mechanisms involved. Thus, syntax and lexicon are seen as constituting a 'continuum of symbolizing structures' (Langacker 1987: 3, a point foreshadowed in Putnam 1974), pairing units of form with units of meaning, and a contrast between semantics and pragmatics is rejected as untrue to the inseparability of language from human experience and action. Such a holistic vision of the psychological and social embeddedness of language is also assumed in this book. But the hypothesized non-modular character of the psychological competencies supporting language, and the denial of any split between inherent meaning (semantics) and enriched interpretation (pragmatics) must not blind investigators to the fundamental epistemological difference in their access to the different arenas of linguis-

tic analysis. In the context of the present study, two contrasts are crucial: that between the degree of observability of semantic data compared to the data of phonology and morpho-syntax, and the consequent distinction between the epistemic status of semantic versus non-semantic explanations.

2.1 Meaning and observability

The first difference between semantics and other arenas of linguistic analysis lies in the degree of interpretative activity needed to constitute the data being analyzed. It can be captured by the self-evident statement that *meanings cannot be seen*. In many types of science, the existence of unobserved (and often unobserv*able*) entities is postulated in order to explain observed facts. Electrons, molecular valence, and the average consumer are unobservables introduced to explain observed phenomena by extracting from them those regularities which ultimately enable their predictive control. In linguistics, unobservable properties of words are also postulated, which, in concert with the 'rules' of syntax and phonology, account for the existence of the observed linguistic facts. For example, the ungrammaticality of the sentence **him goes* in English can be explained by postulating the existence of various unobservable properties, such as the grammatical relation 'subject', the lexical property of grammatical valence, and the property of case. If rules are specified which govern the way these properties are manifested – such as, for instance, the rule that the grammatical relation of subject is associated with the single argument of one-place predicate verbs, and the rule that the grammatical subject must be realized by a subject-case noun phrase – the observed patterns may be predicted. The details of this analysis are not important. All that it is necessary to note is that the properties and rules invoked in the explanation of the linguistic fact are unobservable abstractions whose only function is to explain, and allow predictions to be made about, independently existing linguistic data.

If, in syntax and phonetics, unobservables are confined largely to the realm of theory, in semantics they penetrate into the very 'observational' data under investigation (cf. Higginbotham 2001: 147–148). A meaning can never be observed. Whereas the phonetic material and the combinatorial patterns of morphemes clearly stand out as identifiable, pre-existing phenomena, semantics, as the study of the meanings rather than the forms of linguistic units, lacks any overt subject matter which is open to unequivocal initial description. As a result, semantics lacks any subject matter which

does not already involve a high degree of interpretation in order to be initially constituted and displayed. The basic data of morpho-syntax and phonetics are, in a significant way, self-evident: they do not need to be constituted by interpretation on the part of the analyst. They can, of course, be initially described in any number of ways, but each description can be clearly correlated with a particular observable set of regularities which does not need to be constituted as the first step of its analysis: an investigator need only identify certain configurations of the vocal organs, or certain wave-forms on a sound spectrograph, or certain distributional regularities among morphemes in order to demonstrate the reality of the phonetic or morpho-syntactic phenomenon being studied. As a result, phoneticians and descriptive grammarians can achieve a reasonably high degree of consensus on the observational phenomena at hand (e.g. whether a language shows high rounded vowels, or whether it has free word order or not) regardless of the differences in their subsequent theoretical analyses of these phenomena. Semanticists, by contrast, do not enjoy the convenience of such a neat distinction between observation and theory, since there is no level of accessible, securely established phenomena for which semantics provides a theoretical account.[2] The meaning of an expression never lies open to inspection on the surface of the page, but can only be revealed in a representational metalanguage. In a sense, the data of semantics – meanings – do not exist without being named. Thus, before proposing an explanation for a putative semantic fact like the concrete/abstract polysemy of the preposition *between* (*between here and there* vs. *just between ourselves*), the investigator must initially accept her identification (description) of the meaning(s) involved as both valid and theoretically significant. This is rather different from the procedure in, for example, syntax, where the initial step of data-recognition is much less theoretically laden: a researcher identifies co-occurrence phenomena, word-order patterns, and the like, which can be readily assented to as at least factual (and, therefore, as potentially significant).

Semantics thus differs from other branches of linguistic inquiry in that there *are no pre-exisiting data* that unambiguously identify themselves in advance as its object of investigation. A fact about a word's meaning is never a *datum*, never something 'given' to the investigator as whole, fixed, and immutable: it is, rather, something which the investigator brings to life in a metalanguage, with all the possibilities of variation this entails. In semantics, in other words, a distinction between surface and underlying form has no relevance. The meaning of a word is always underlying. Many va-

rieties of semantics, indeed, have as their main purpose the task of 'giving the meaning' of a natural language string, i.e. the job of bringing the string's meaning to light by explicitly representing it in a metalinguistic medium, the properties of which explain intuitions about semantic phenomena like synonymy, ambiguity, contradiction, etc. Under this conception of semantics, the role of the theory is, in a sense, to provide the data: the semantics of a sentence is the hypothesized metalinguistic string whose properties explain facts about the sentence's relation with other sentences.[3] If the elements of the metalinguistic medium were taken as psychologically real, a further explanation of their nature would in principle be possible.

This is not a denial of the reality of the manifold situations and facts that we are accustomed to think of as involving meaning. The point is simply that for the purposes of principled study, there is a fundamental difference in the way that an investigator must approach the study of meaning in comparison to the study of other aspects of language. Since meanings are not observable, semantics is always the study of underlying, rather than surface, forms. As a result, any theory of meaning faces the initial, definitional task of determining how these underlying forms should be brought to light. The importance of this task is underestimated at the risk of a serious misconstrual of both the subject matter, and the results, of semantic research.

2.2 The definition of metasemantic terms

In addition to the contrast between the observable subject matter of morpho-syntax and phonetics, and the unobservable subject matter of semantics, another distinction needs to be recognized between semantics and other linguistics subdisciplines. This distinction concerns the status of the metalinguistic terms in which explanations are couched. Because, as we have been arguing, its subject matter can only be constituted by interpretation, semantics differs from other branches of linguistics in that the analytical terms used in its descriptive apparatus are identical in kind with the elements that constitute its object of study: both are meanings (cf. Warren 1992: 33–34). This can be contrasted with, for example, phonetics, where the data to be described are completely different types of things from the terms of the descriptive formalism used to analyze them. Thus, the objects of study in articulatory phonetics are the speech-producing organs in the real physical world, while in acoustic phonetics the objects of study are the physical properties of speech sounds. In both cases these objects are differ-

ent kinds of things from the elements of the technical vocabulary in which they are referred to, described and analyzed. This technical vocabulary is constituted not by actions of the body or by sounds in themselves, but by meaningful expressions in language, like *plosive* and *frequency*, within a particular descriptive framework.

This fact has important consequences for the nature and aspirations of semantic theory. In phonetics, each of the terms of the descriptive apparatus is a meaningful item which can be defined. Textbooks and manuals (like Ladefoged 1993 or Laver 1994) exist, in fact, precisely in order to define the meaning of the terms of the study. Phonetics is not, of course, alone in this respect. To the extent to which its subject matter is construed as concerning non-meaningful elements, any field of linguistic inquiry is characterized by a division between the meaningful elements of its theoretical/descriptive apparatus and the non-meaningful elements of the object of study. Such a division is characteristic of paradigmatic scientific disciplines such as physics and chemistry, in which the 'meaning' of theoretical terms in the explanatory apparatus ('photon', 'ionic', 'gold molecule', etc.) is fixed through reference to inherently non-meaningful, extra-linguistic circumstances such as, ultimately, the readings of scientific instruments. In the most ideally objective linguistic case, there can be arguments about which terms of the explanatory apparatus should be accorded primitive status, but whatever is chosen as a primitive of an analytical framework is a meaningful term which can be defined by pointing to the element of the object of study to which it corresponds.

This division between a meaningful theoretical apparatus and a meaningless set of observation phenomena is the very source of the explanatory power of the descriptive apparatus. In any branch of linguistics whose subject matter is the formal (non-meaningful) properties of linguistic units, the meaningfulness of the analytical vocabulary, and hence its referential and explanatory utility, derive from and are anchored in ostensive reference. Phonetics can point to a particular configuration of the vocal organs as the meaning of 'plosive'; in syntax, particular combinatorial patterns can be identified to show the meaning of 'transitive'; and arrangements of phonological material can be singled out as the meaning of 'infix' in morphological analysis. There is a sense, then, in which these branches of linguistics find their subject matter waiting for them in language, so that their task consists largely of identifying and classifying them. This is not to deny that a variety of possible classifications is possible, nor that one's view of what really exists in language is dependent on what classificatory scheme

one is using. The point is simply that the descriptive metalanguage refers to independently existing entities which do not depend on the metalanguage for their very identification.

Semantics, by contrast, does not straddle any such division between its subject matter and the analytical metalanguage in which this is explained. Regardless of the particular type of theory-specific semantic representation in question (whether a set of semantic primitives, an ordinary language paraphrase claimed to reveal the conceptual structure of the expression involved, or a diagrammatic representation), linguistic theory is not yet in a position to analyse meaning in non-semantic, non-intentional terms. That is, when a metasemantic representation is given of the meaning of a definiendum, this can necessarily only be achieved by reference to the meaning of a definiens: 'bachelor' means 'unmarried male' (or 'man who has not married thought of as one who could marry if he wanted to'); 'kill' means 'cause to die'. Yet both definiens and definiendum are meaningful terms, differing only on which side of the direction of analysis they are located. 'Unmarried male', a metalanguage definition of 'bachelor', is a member of the same object language – English – as 'bachelor' itself, and equally open to and in need of definition. Given the inadequacy, for the psychologically oriented purposes of linguistics, of extensional accounts of meaning, semantics seems to have no way out of the necessity of offering definitions of meanings in terms of other meanings, and is accordingly condemned to the irreducibly tautological or circular procedure of explaining the meaning of a term with another meaning. The inevitability of such a practice has been enshrined by Goddard (1994: 7) as the 'Semiotic Principle'.

This is not to say that such definitions are not in some way explanatory: on the contrary, defining 'bachelor' as 'unmarried adult male', or whatever, establishes a correspondence between two previously unrelated items of the lexicon and explains the fact that the two expressions are interchangeable in a large number of cases, and share many of the same referential and truth-conditional properties. Under a certain vision of linguistic explanation, however, semantic analyses of this sort remain unsatisfying because of the tautology inherent in their procedure. Semanticists have traditionally tried to escape this by claiming special qualities for the elements of their chosen metalanguage that exempt them from the need of definition. This can be done in a number of ways; in this chapter and in the next two important proposals about how to ground the study of meaning non-tautologically are discussed. We will first discuss the identification between meaning and

conceptualization, characteristic of cognitive semantics (CS; Lakoff and Johnson 1980, Johnson 1987, Lakoff 1987, Langacker 1987, Talmy 1999, Lakoff and Johnson 1999, Taylor 2002), and then in chapter two turn to Wierzbicka's Natural Semantic Metalanguage (NSM) framework (Wierzbicka 1972, 1980, 1985, 1987, 1991, 1992, 1996, 1999; Goddard 1991; Goddard and Wierzbicka 1994, 2002). Apart from being particularly thorough-going in their analyses and far-reaching in their claims, these theories adhere to a set of methodological criteria which are particularly relevant in light of the purposes of the present study. In cognitive semantics' attempt to ground the analysis of meaning in conceptualization, and in NSM's concerns with the development of a language-neutral descriptive vocabulary, the theories highlight issues of metalanguage, culture-specificity and psychological naturalness that are at the heart of the questions addressed here. Furthermore, in spite of the broad kinship sometimes seen to hold between NSM and cognitive semantics (e.g. Goldberg 1996), at least some cognitive semantics scholars take the theories to be mutually incompatible. Thus, Lakovian cognitive semantics specifically rejects the existence of semantic primitives (Lakoff 1987: 279), while other scholars have expressed strong scepticism about details of NSM definitions (Geeraerts 1993). NSM theorists, for their part, would reject the Lakovian proposal that many basic level concepts are 'directly understood', since in NSM most would be taken to consist in configurations of more basic concepts (on the relation between CS and NSM, see Goddard [to appear]). From another point of view, however, cognitive semantics and NSM may be seen as complementary. Thus, NSM can be seen as an articulation of the conditions on a metalinguistic paraphrase: the theory spells out in detail what is and is not an acceptable definitional paraphrase of a meaning. Cognitive semantics, for its part, can be seen as a theory of the ways in which different paraphrases relate as elements of mental models, and of their wholesale relations to cognitive structure.

Each theory, if true, should command significant authority in both its theoretical underpinnings and empirical support. In this chapter and the next, I show how the account offered in this book differs from each of these well established methodologies. Discussion of cognitive semantics and of NSM will provide a useful point of comparison on questions of the nature of meaning and its relation to language and conceptualization, through which the distinctive features of the approach adopted here will be made clear.

3. Meaning and conceptualization: Cognitive semantics

In cognitive semantics, an identification between meaning and mental content provides a way out of the tautology of semantic analysis. Meaning, in CS, quite simply *is* conceptualization, and a correct analysis of individual meanings is the same as a correct characterization of the concepts to which they correspond. Scholars working within the paradigm have mainly concentrated on the empirical details of CS models, and have not devoted great efforts to articulating an epistemology for their research. As a result, the grounds for CS's claim to represent the fundamental nature of language have been left rather inexplicit. Instead, the validity of CS constructs is taken to come from the status of the paradigm as part of the scientific and empirical enterprise of linguistics. Thus, it has been asserted by two leading scholars that CS analyses have the same status as other scientific hypotheses (Lakoff and Johnson 1999) – and, by implication, the same degree of authority. Exactly what is meant by 'scientific' in contexts like this is not always entirely clear, and definitions of what it is for a linguistic theory to be scientific vary widely throughout the discipline (for a sample, see Milner 1989: 23, 50–51, Auroux 1994: 7, and Wierzbicka 1996: 379–381). We will return to this issue at several points below. However this may be, in its refusal to commit the 'exclusionary fallacy' (Langacker 1987: 28)[4], much of the CS paradigm seems to embrace a tolerance towards heterogeneous theoretical treatments of the same phenomenon. In this it seems rather foreign to science's single-minded pursuit of a unique, predictive and maximally general explanatory metalanguage.

Not everyone in CS shares Lakoff and Johnson's commitment to science. Based on the fact that ultimately only subjective decision procedures exist to check the validity of a proposed analysis of an expression's meaning, many researchers prefer to dwell on the subjective and interpretative rather than the scientific aspects of the CS enterprise (Warren 1992, Tyler and Evans 2001). For these scholars, it would seem, CS offers a compendious metalanguage in which semantic study can be freed from the limitations of earlier approaches to meaning. Under this rationale CS is an interpretative activity first and foremost, more akin, perhaps, to a constrained version of literary criticism than to empirical science. The implications of such an interpretative view of the discipline are rarely drawn out. Yet the degree of a discipline's scientificity is inversely proportional to the extent to which the validation of its hypotheses depends on subjective decisions about the interpretation of data. This brings CS into conflict with the scien-

tific methodological ideals from which linguistics draws so much of its authority. The authority of paradigm sciences like chemistry comes precisely from the fact that their results are governed by explicit decision procedures, and not dependent on the type of subjective individual decision essential in fundamentally interpretative disciplines. The hypotheses of paradigm sciences, in other words, are the results of constrained experimental investigation, not of subjective interpretation. As a result, the experiments which test them are replicable by different researchers.

Attempts in the philosophy of science to articulate a criterion of scientificity which would demarcate genuine from non-genuine scientific practice have always failed. We will not therefore be concerned here with the question of CS's correspondence with any putative criterion of absolute or universal scientificity. Instead, we will try to assess the extent to which CS practice matches the *image* or *ideal* of scientificity as this is commonly understood in linguistics, regardless of how justifiable this may be. For Lakoff and Johnson, belief in CS's scientificity is justified by the fact that its results 'can be used to make predictions and can function in explanations' (1999: 109). This is, however, a necessary but not a sufficient condition on a theory's scientificity in the sense in which this is understood by most linguists: anything can function in predictions and explanations, given liberal enough criteria. There is, we may propose, a further condition on a theory's scientificity, in the sense commonly accepted by most linguists: *empirical identity conditions for its theoretical postulates*. The existence of such conditions is a necessary precondition of a theory's scientificity, since without fixed conditions governing the use of a theoretical postulate, the postulate can be made consistent with *any* set of facts, rendering genuine explanation and prediction impossible. Thus, paradigm scientific theories are characterized by the existence of a set of explicit empirical identity conditions governing the application of theoretical terms. In chemistry, for example, there is a battery of experimental tests which can determine whether a particular molecule is hydrogen. Thus, hydrogen can be shown objectively to be the correct description of a given element, and it is not open to the investigator to choose an incompatible theoretical description like 'helium' or 'radium'. Similarly, less observational postulates like 'gene' are used in clearly defined empirical circumstances, and cannot be invoked in an ad hoc fashion. There is thus a non-arbitrary relationship between theoretical terms and the empirical circumstances which call them up. The investigator does not, characteristically, have a choice about how empirical facts are to be named: a single molecule cannot be described as

both hydrogen and gold; an electron cannot be called a proton or a neutrino. Theoretical descriptions in science are thus to a significant extent imposed by the subject matter and the investigator has very little latitude in the theoretical characterization of a particular fact within a given theory.

If a theory has empirical identity conditions for its postulates, prediction and explanation become possible. But for a theory to be scientific in the typically understood sense, this prediction and explanation must be of a particular type: they must be causal (see Barberousse, Kistler and Ludwig 2000: 102 for discussion). Many theories which we would not want to call scientific enable prediction and explanation, but these are characteristically non-causal in nature. We will illustrate non-scientific prediction using an example of Searle's (1992: 60). Searle describes a theory of cocktail parties which includes among its hypotheses the statement "big cocktail parties are likely to be noisier than small ones". This theory allows correct predictions to be made about cocktail parties, but it is in no way scientific. The theory can be used to predict, in a general sense, relative noise levels of different parties, but it goes nowhere towards explaining the causal mechanisms that account for these levels, and it will not issue in detailed predictions about the nature of individual parties. Theories can be predictive, then, without being scientific. Likewise, theories can be explanatory without being scientific. The Newtonian theory of mechanics is known to be false and is therefore not part of the scientifically best description of the world, but it nevertheless provides a good explanation of the behaviour of the tides (Ladyman 2001: 197). While it explains (and predicts) this behaviour, it does not correctly describe the nature of the causal interactions that fundamentally account for it, since matter does not behave according to Newtonian principles on the most fundamental level. Thus, it is not enough for a linguistic theory to be predictive and explanatory for it to be considered scientific. If a linguistic theory is to be called scientific, it too should provide an explicit causal account of language within conceptualization, showing how language is integrated into the succession of causal states that constitute the process of cognition. A commitment to a causal analysis of cognition is the one made by scientists outside the CS paradigm (e.g. Fodor 1987); causal explanation, indeed, has been advanced as the general goal of science (Popper 1992 [1959]: 39). It is therefore, I would argue, the appropriate goal for CS as well if it is to take its scientific aspirations seriously.

How far does CS meet these two criteria of a theory's scientificity? If CS's identification of meaning and mental content proves not to have the 'scientific' methodological virtues its proponents claim, the theory's at-

tempt to ground meaning in conceptualization will have been undermined, and we will have no reason to believe that the requisite exit from the tautology of semantic analysis has been provided. We will consider the two criteria in reverse order.

Causal explanation. Like all linguistic theory, CS addresses itself principally to linguistic competence, not performance. It sets out to describe an idealized system taken to underlie linguistic behaviour. While this description is meant ultimately to articulate with a causal, scientific explanation of actual language use, such a causal, predictive account is not itself one of the theory's goals. CS theory does not attempt to characterize the causal succession of cognitive states which result in linguistic tokens. As a result, it is not in a position to make any predictions about events of actual language use. Like other linguistic theories, CS fits rather than predicts facts of language. When a linguist says that a certain linguistic model 'predicts' certain facts, what is typically meant is that the model is consistent with linguistic facts which did not form part of its initial data-base. This is very different from the predictive, causal explanations of experimental sciences, where theoretical models are used to characterize a succession of causal states. Because of this, theories like physics can forecast the value of variables which are completely unknown before the implementation of specific experimental conditions. Like all linguistic theory, CS makes no claim to predict unknown variables in this manner.

Empirical identity conditions. On the first criterion, CS fares no better. Far from providing clear empirical identity conditions for the application of its theoretical constructs, CS has not yet even evolved a stable set of theoretical terms that would form a constrained metalanguage for the representation of meaning. As a result, there are no settled theoretical characterizations in CS of any semantic fact, only a variety of differing interpretations of the conceptualizations hypothesized to underlie individual words. As in other linguistic semantic theories, different investigators produce often radically different theoretical descriptions of the semantic content of the one lexeme (to say nothing of how it is to be related to broader cognitive function), and there is, as yet, no consensus in the scholarly community on the details of the semantic analysis of even a single word. This is for no other reason than that very few areas of the vocabulary even of English have been systematically studied by more than one scholar. As a result, there has been virtually no scrutiny of proposed analyses of individual lexical items within the discipline. Where there has been collective investigation of a single item, divergent treatments are the norm rather than the ex-

ception: as well as the protracted controversy over the semantics of *over* (Brugman 1983, Lakoff 1987, Vandeloise 1990, Dewell 1994, Kreitzer 1997), the disputes over the semantics of the word *fruit* (Geeraerts 1993), and the question of the status of the metaphor THEORIES ARE BUILDINGS (Grady 1997) all demonstrate the highly heterogeneous nature of existing cognitivist conceptions of meaning. CS, in contrast to other branches of linguistics such as phonology, is thus very far from possessing a constrained theoretical vocabulary whose application is dictated by empirical identity conditions. Instead, what is found is a wide scatter of alternative proposals about the best theoretical description of semantic facts, with, as yet, no clear way of discriminating between them.

In the current state of the paradigm, the best that could be claimed by an advocate of CS's scientificity is that it is at a prescientific point in its development. Even this description, however, would be highly misleading. As will be argued in this chapter, claims of scientificity for CS are more than premature: they fundamentally misconceive the nature of the study of meaning. As will be argued below, CS does not only fail to provide the detailed, causal type of predictive explanation required of a scientific account of language; it also fails to meet the essential precondition of this explanation, the establishment of empirical identity conditions for its theoretical constructs. In 3.3, this failure will be derived from CS's commitment to a particular type of representationalism in its conception of meaning. The result of this commitment is that CS analyses are not only unscientific, they are *inherently* unconstrained and indeterminate. As a result, they are unable to provide a way out of the tautology of semantic analysis.

In its identification of meaning with mental experience, CS is one of many descendants of a theory of meaning associated largely with British empiricism (especially Locke).[5] At root, this theory is a systematization of a common understanding of language, the understanding of words as standing for 'ideas'.[6] Since this theory is a necessary part of the conceptual background of modern cognitive semantics, it must be given a prominent place in any discussion of the latter's epistemological status. This treatment of CS therefore begins with an exploration of the lineage, both popular and intellectual, of the identification between meaning and ideas, and a discussion of its explanatory contribution, problems and possible alternatives (3.1). Next, the distinctive nature of CS representations is discussed (3.2), and a sceptical challenge to these representations is mounted (3.3.1). The final section, 3.3.2, sketches a possible response to this challenge, considering its implications for the scientificity of cognitive semantics, and con-

cluding that the identification between meaning and conceptualization does not significantly constrain the nature of the resulting semantic analyses, which are, as a result, fundamentally indeterminate.

3.1 Ideation and theories of meaning

This section outlines the background to the 'ideational' theory of meaning (3.1.1). It then locates the type of explanation gained by the identification of meanings and mental experience in the notion of 'property correspondence' (3.1.2), and discusses two objections to the identification, the arguments from generalizability (3.1.3) and from causation (3.1.4). In response to these objections, an alternative view of language is sketched which does not rely on the postulation of mental content underlying words as their meanings (3.1.5). As a result of these considerations, the intuitive plausibility of ideational theories of meaning is challenged.

3.1.1 Meanings become ideas

One of the earliest senses of the verb *mean* in English is 'intend', or 'have in mind as a purpose or intention' (OED *mean* 1a). In using language it is a common experience that one's purpose could have been equally well fulfilled if a different form of words – often, a roughly synonymous one – had been used instead of the one actually chosen. As a widespread metaphor has it (cf. Reddy 1993), thoughts, images, or intentions lie inside – or behind – each instance of actual words, and these are often amenable to either a more or less detailed verbal phrasing than the one chosen at any one time. An identification of meaning with mental experience is facilitated by the fact that as hearers, too, it is common experience that language activates ideas. A sentence like *I swerved across the lawn and chased my moonlit shadow among the flower beds*, for example, will typically trigger some mental experiences in a hearer (the images of lawns and shadows, perhaps, or memories of having swerved or chased in the past). A hearer will also probably attribute similar internal experiences to the speaker as part of the explanation of why the words in question, rather than others, were chosen: presumably, in choosing the words she chose, the speaker intended the hearer to have similar internal experiences (ideas) to those she had.

Facts like these suggest a close link between language and mental experience, motivating the conclusion that meanings are to be identified, precisely, with the mental experiences that are most familiar: conscious ideas, concepts, or mental pictures of some kind. This identification was made explicitly by Locke, following Aristotle: "Words in their primary or immediate Signification, stand for nothing, but the *Ideas* in the Mind of him that uses them…." (Locke 1975 [1700]: Book III chapter 2; italics original).[7] Theories which make this identification between meaning and mental content we will call *ideational theories of meaning*.

Many words, of course, quite clearly fail to evoke or be evoked by accompanying ideas, mental images, or conceptualizations which are immediately present to the mind. So-called 'function' words, such as *if*, *not*, *like* or *very* are a case in point. But many other, 'content' words such as *good*, *bad*, *do* or even *life* seem just as hard to match with concepts that can be revealed through introspection. Further examples of words which fail to correspond to any introspectively obvious 'idea' appear in (1) below:

(1) *above*
big
enough
foil (v)
get
have
keep
kind of
last (v, a)
make
only
probably
put
quench
rife
take
whereas

The capacity of language to evoke mental episodes in human beings is presumably subject to interpersonal variation. The exact membership of the list in (1) is therefore not important: the point is simply that for any given speaker of English, there will be at least some words which cannot be

matched with introspective content. This absence of consciously apprehensible mental experience associated with the words in question necessitates the assumption that the ideas or mental representations with which meanings have been identified are associated with the words unconsciously. We will refer to this development of the ideational theory as the *conceptual theory of meaning*. Thus, the 'conceptualizations' identified by contemporary cognitive linguistics as underlying language must be taken as features of what Lakoff and Johnson (1999) call the 'cognitive unconscious', a postulated level of explanation quite independent of, and irreducible to, either the conscious, phenomenal experience of language, or the neural circuits on which it is implemented.[8] The postulation of this level of explanation is what allows the construal of meaning as mental content to be upheld.

3.1.2 How do concepts explain meaning?

It is important for what follows to appreciate the hypothetical nature of the 'cognitive unconscious' and of the conceptual theory of meaning. The postulation of unconscious conceptualizations is a hypothesis designed to explain the facts of language within a particular linguistic theory: it is not self-evident, and therefore has to be argued for rather than taken as given. Based on the fact that particular instances of language sometimes seem to be associated with prominent mental experiences, lexical meanings were initially (e.g. by Locke) identified with introspectively available items of mental content (ideas or concepts). In response to the fact that much of the lexicon cannot be associated with any such introspectively obvious content, the concepts were attributed (e.g. by Lakoff and Johnson) to the unconscious mind. As a result of this shift, the particular statements of the meanings of individual lexical items gained an impressive new status. Following their indenture as constituents of the unconscious mind, they no longer needed to function just as informal, preliminary *descriptions* of the semantic aspect of language, and, as such, open to a variety of heterogeneous explanatory treatments. They could now be claimed to be accurate characterizations of the very nature of the cognitive content of language itself, and, as such, to be part of the actual mechanism of language production. Statements of meaning no longer simply *named*, in an imprecise way, certain semantic properties of language, which would then be submitted to a variety of explanatory accounts. Instead, they took on the status of characterizations of the very mental competence (conceptualization) which *ex-*

plained language, by describing the nature of the psychological underpinnings of linguistic ability. As a result of this move, a rather direct connection was forged between the external manifestations of language and the mental processes that produce them. The use of a word is explained by its meaning; when its meaning is identified with a latent mental conceptualization, a bridge is created over which external language use can be connected with the inner mental processes that determine it.

The explanatory efficacy of the conceptual theory of meaning is guaranteed by a particular relation between the explicandum (the pretheoretical understanding of a word's meaning) and the explicans (the conceptualization, the unconscious concept with which the meaning is identified) that we will refer to as 'property correspondence'. This term names the following straightforward fact: the unconscious conceptualization identified with the meaning of a word *x* contains a specification of the properties considered to belong to the sense (meaning) of word *x*, rather than to that of word *y*. The physical and functional properties represented as belonging to the conceptualization associated with the word *rock*, for example, correspond to the properties taken to constitute the sense of *rock*: hardness, heaviness, a particular range of colours and textures, a particular place in human experience, and so on. The conceptualization 'rock' thus recapitulates on the mental level those external properties of actual rocks which are conventionally taken as constituting the sense of the word: the properties of rocks as 'presented' in reality are 're-presented' mentally as parts of a conceptualization, i.e. as constituents of a mental model which forms part of the psychological competence underlying linguistic behaviour. It is this 're-presentation' that makes the conceptualization in question the conceptualization 'rock' rather than something else.

The conceptual theory of meaning, then, does not involve any striking additional explanatory content over and above the attribution of a word's sense to the unconscious psychology of speakers. The notion of a concept as the meaning of a word does not impose any fundamental reanalysis of the particularities of this meaning. (In a strictly referential theory of meaning, contrastingly, conventional understandings of a word's sense are not relevant.) Rather, it constitutes a particular interpretation of this meaning as an element of the unconscious mind. The person who is told that the meaning of the word *rock* is a concept – the concept of rocks – does not have to learn any new facts about the meaning of *rock*. The old definition of the word, by which *rock* means something hard of a certain typical physical constitution, does not need to be discarded. What is added to this is simply

the specification that these typical and well understood features of rocks are to be understood as corresponding to concepts in the unconscious mind. The question of which concept is matched with which meaning is answered by the notion of property correspondence: the meaning of the word *rock* is identified as the concept 'rock', and the justification for this is that the 'rock' concept reflects the properties of real-world rocks, as perceived by the senses and as grasped by other cognitive modalities. The notion of property correspondence, then, determines which concepts are identified with which meanings. Without a notion of property correspondence, it would be possible for the concept of 'rock' to refelct the properties of real-world flowers, the concept of 'flower' to reflect the real-world properties of cars, the concept of 'car' to reflect the real-world properties of anger, and so on. Needless to say, such a shuffling would deprive the postulation of unconscious concepts of any degree of intuitive plausibility.

As we will see below, however, there are other ways of involving the brain/mind in the production of language than crediting it with the possession of concepts displaying property correspondence with their referents. There are, indeed, a number of problems attendant on the postulation of concept(ualization)s underlying words as their meanings (see Allan 1986: 86–88, ter Meulen 1988: 434–436; Taylor 2002: 61–72). The most significant of these problems will be described in 3.3; for the moment, two objections to the ideational/conceptual theory of meaning concern us: the argument from generalizability failure and the argument from causation. Naturally, neither of these objections is conclusive: all they do is indicate questions that an ideational/conceptual theory of meaning must answer if it is to be maintained.

3.1.3 The argument from generalizability failure

The first argument against an ideational construal of meaning is that conscious mental images cannot be assumed to be generalizable either inter- or intra-individually. This generalizability failure gives rise to a paradox concerning the evidence used to justify an ideational approach. We will contextualize these points through consideration of the word *above*. On writing this word, it seems plausible to me to claim that something like a picture flashed into my mind, in which I was standing looking at something on top of a wall in front of me: this thing was *above* me. This mental image, it might be proposed, corresponds to, and is evidence for the reality of, the

concept 'above': more technically, the concept can be said to consist of a configuration of a trajector in a particular spatial relationship to a landmark. Obviously, however, the specific mental image of the object on the wall is a particular and individual one: it cannot be guaranteed to be present on every future occurrence of the word *above*, and it certainly could not be generalized and claimed as the representation of *above* for all speakers of English. There are many uses of *above*, like those given in (2), which cannot be correlated with the image that flashed into my mind, because they do not contain walls, objects or, indeed, any physical verticality at all.

(2) *They're really arrogant: they think they're above everyone else.*
The sky is above the earth.
Above all, never call it an "emergency".
What a brilliant film. I mean, it's just way above all the rest.
Above the sixth heaven is the seventh.
Above the green block is a red block.
The magma is above the core.
We stood above the opening.

If the image cannot be correlated with these tokens of *above*, each of which may in fact have associations with quite *other* mental images, what use can it be as an analysis of the meaning of the word? Whatever the details of this meaning, it is surely a basic requirement that it be able to explain all, or at least many, standard examples of its use. As discussed above, there is, of course, a standard response to this problem, consisting in the invocation of an *unconscious* concept or scenario ABOVE consisting of a central case linked to the cases in (2) via the operation of various conceptual mapping relations like metaphor (Lakoff 1993; Dirven and Pörings 2002). Claiming the concept to be unconscious neutralizes the threat of generalizability failure by removing the possibility of trivial empirical disconfirmation: the image I experienced of the object and the wall is naturally not always present because the actual image corresponding to the concept of 'above' is abstract and only instantiated unconsciously. (Indeed, according to Lakoff [1987: 420] it is of the very nature of some of the conceptualizations posited in cognitive semantics that they *cannot* be concretely imagined.) Notice, however, that in positing an unconscious and more general 'concept' than any which is accessible to introspection, this standard response diminishes the relevance of the most obvious, introspective evidence for the idea-

tional theory by positing concepts at a greater level of abstraction than is actually ever introspectively experienced.

The ideational theory thus faces a dilemma. If it takes concepts as consciously accessible, their relevance to the explanation of language can be called into question through the argument from generalizability failure. But if, in response to this problem, concepts are taken as unconscious and abstract, the main reason to believe in them – association with introspectively available content – has been removed. The other types of evidence that have been given for the ideational/conceptual theory in its 'prototype' version (experimental evidence from psychological sorting tasks, exemplar (goodness of example) testing, memory tasks etc.; see Rosch 1978; Kleiber 1990; Taylor 2003) were never meant to dictate any single theory of conceptual representation and are open to a variety of interpretations, not all of which necessitate the ideational theory (Cruse 1992). The ideational/conceptual view therefore can only be maintained at the expense of diminishing the relevance of the very introspective evidence that initially made it attractive (cf. Lyons 1977: 113).

3.1.4 The argument from causation

We can now turn to the argument from causation. Consistent covariation between a mental image and a lexical item would not be enough to guarantee a causal relation between the two: the image's presence on even every occurrence of "above" could not be used as evidence against the claim that the image was an epiphenomenon. Yet it is precisely a causal role that the image should play if its identification as the meaning of 'above' is to be useful in the theory of language (for instance, if the semantic representation is seen as providing the input for the syntax, we had better make sure that we are dealing with the real semantic representation, and not an epiphenomenon).

3.1.5 An alternative: use without meaning

Prima facie, these two arguments would seem to cast some doubt on the explanatory efficacy of the ideational/conceptual theory, at least in its naive version. If they are accepted, what alternatives exist for understanding the relations between language, mind and world? The tendency to identify

meaning and mental content is so strong that it is easy to forget that there are other ways in which meaning might be understood. The purpose of this section is indicate one such way, not in order to develop any detailed proposal for a non-ideational/conceptual theory of meaning, but simply in order to sketch the broad lines on which such a theory might be constructed.

One particularly important alternative to ideational/conceptual theories of meaning can be suggested through an analogy with money (cf. Wittgenstein 2001: §120). Just as a unit of currency like a five dollar note has a certain value or buying power which is correlated with a particular quantity of goods or services in the world, so a word can be said to have a value – its meaning or force – which is also correlated with objects or particular configurations of objects in the world. Thus, in a shop that sells nuts, a five dollar note can be exchanged for a certain quantity of nuts – a different quantity from the one that could be bought for fifty dollars, or for five cents. In a similar way, words can also be 'exchanged' for things in the world. If I specify that I want peanuts by saying the words "peanuts, please", the events that ensue in the world are different from the events that ensue if I say "pecans, please", "walnuts, please", or "no nuts today, thank you". In the case of money, there is clearly no such thing as the underlying 'concept' or 'idea' of five dollars, which could be paraphrased or defined in a fixed and determinate way, and which fixes the quantity of goods and services with which this amount is correlated in a general sense. Even though in any one transaction the amount of five dollars has a fairly narrow range of possible applications, a narrow range of things it can buy – applications which buyers certainly remember and appeal to in order to assess any future proposed price – its value is determined not by any explicitly statable inherent 'content' or determinate underlying 'idea' associated with the unit of five dollars, but, ultimately, by the intentions of the people using it: if I want something badly enough, I will spend more than I otherwise would, and if the vendor wants to sell something badly enough, they will be prepared to discount it strongly.

The buying power or value of five dollars thus varies from one transaction to another, depending on the precise nature of the commercial relation involved, the nature of the wider economy, and, in particular, on how good the vendor and the buyer are in their respective roles. Nor does five dollars have a fixed value of the sort that could be specified by 'translation', so to speak, into another currency: the value of five Australian dollars in Euros or Solomon Island dollars depends on exactly the sort of micro- and macro-interactions that govern its exchange for things in the world. A currency is

thus a system which symbolizes value by correlating 'referents' in the world (broadly speaking, commodities) with abstract units of worth. Even though, however, these units have certain minimal structural properties (five dollars is five times the value of one dollar, and one tenth the value of fifty), none has any inherently defined value associated with it: what a piece of currency can be exchanged for emerges out of its use in transactions, and no explanation of these transactions would be viable that took as basic a notion that specified 'the (unchanging, determinate) value of five dollars'.

The analogy with language may now be drawn. Language, on this view, might also lack fixed and determinate meanings, an explicit content, whether mental or otherwise, that determines what words refer to, what they may be exchanged for, in spite of certain minimal structural properties that govern their form, as expressed in phonological and morpho-syntactic generalizations. In this perspective, a word's meaning on any one occasion is the result of a (very) complex set of micro- and macro-systemic factors, but, just like the value of money, this meaning should not be seen as grounded in any absolute content, determinate idea, or fixed representation, but as variable and negotiated by participants in the course of language use.

The notion that the meaning of a word consists in the way it is used is most strongly associated with Wittgenstein in the second period of his philosophy, especially *Philosophical Investigations* (2001; Williams 1999 discusses the relevance of Wittgenstein to cognitive science). The Wittgensteinian identification of meaning as use was explicitly formulated in opposition to an 'ideational' construal of meaning (see Harris 1988: chapter four). Which view of meaning is correct is not yet an empirical question, but one about the terms in which enquiry into meaning is best couched. Adopting a Wittgensteinian heuristic will impose a particular orientation on semantic research: if one sees meaning and use as linked inextricably, it will be necessary to pay much closer attention to the particularities of individual language in context than it is if one sees meaning as a relatively context-independent feature of lexical items. In particular, adopting the Wittgensteinian view of language in a thoroughgoing way would necessitate sacrificing much of the adequacy we see in metalinguistic definitions like those of theoretical linguistics as *theoretically* satisfying representations of meaning able to take their place in a scientific theory of language. We will return to this issue in 3.3 below.

3.2 Cognitive semantics and ideation

Having shown two arguments to which naive ideational theories of meaning are vulnerable, and having broadly outlined an alternative, this section describes the particularities of the identification between meaning and mental content advanced in cognitive semantics (3.2.1), and goes on to discuss the question of the neuroscientific (3.2.2.1) and psychological (3.2.2.2) reality of CS representations of meaning. To anticipate the conclusions, it will be argued that we should be very cautious about advancing strong claims of either the explanatory indispensability or the psychological reality of current CS representations of meaning. This conclusion prepares the ground for the main argument of the chapter, the Wittgensteinian critique of CS presented in 3.3. The result of these critiques will be to legitimate an interpretative rather than a scientific view of CS research.

3.2.1 Mental structures in cognitive semantics

Cognitive semantics has strongly embraced an ideational approach to meaning by advancing an identification between meaning and (unconscious) conceptualization as an explicit theoretical postulate with direct consequences for the relation of linguistic semantics to other domains of cognitive research. The central insight here is the equation between 'semantic structure' and 'conceptual structure', according to which the meaningfulness of language is understood as grounded in, and as reflecting, the meaningfulness of (embodied) thought (Johnson 1987). In Lakovian varieties of this picture,[9] the meaning of a lexical item is taken as corresponding to an element of an 'idealized cognitive model' (ICM):

> In summary, linguistic expressions get their meanings via (*a*) being associated directly with ICMs and (*b*) having the elements of the ICMs either be directly understood in terms of preconceptual structures in experience, or indirectly understood in terms of directly understood concepts plus structural relations. ... Language is made meaningful because it is directly tied to meaningful thought and depends upon the nature of thought. Thought is made meaningful via two direct connections to preconceptual bodily functioning... (Lakoff 1987: 291)

For Langacker as well the structure of semantic networks, like the other postulates of cognitive grammar, is to be seen as ultimately grounded in the reality of cognitive processing:

> Cognitive grammar takes seriously the goal of psychological reality in linguistic description. The word "goal" must be emphasized. It is not suggested that a strong claim of psychological reality can be made for any particular linguistic analysis as currently constituted. The description of a language is nevertheless a substantive hypothesis about its actual cognitive representation, and linguistic investigation is an empirical enterprise, its claims to be tested against the facts of cognitive structure. Our present inability to observe these facts directly does not render them forever inaccessible in principle. (1987: 56)

> The structure of a lexical network is given by a set of categorizing relationships between nodes. Each such relationship is a cognitive routine, more specifically an established comparison event assessing one node in relation to another. (1987: 379)

> In the final analysis, a schematic network is a set of cognitive routines, entrenched to varying degrees; despite our inevitable reifications, it is not something a speaker *has*, but rather what he *does*. (1987: 382; italics original)

According to a common assumption in such semantics, basic-level terms (*cat*, *dog*, *flower*, *stone*, etc.) are 'directly understood', and the meaning of superordinate, subordinate and figurative expressions is derived from that of basic level terms via mediating structural links (Lakoff 1987: 291). As a result of this conception of semantic structure, cognitive semantics seeks less to identify the constituents of individual senses – since these are often 'directly understood', such a project is less pressing than in other types of semantics – than to display the *relations* existing between members of a single semantic/conceptual network.[10] If this means that there is less to say about the specific analysis of individual senses, this is offset by a gain in explanatory effect: in the identification of meanings with conceptualizations, cognitive semantics achieves a reduction of meaning to a non-linguistic level, transcending the limit on semantics expressed by the Semiotic Principle through a direct identification between meaning and cognition.

As a species of ideational theory, cognitive semantics is open to both the generalizability and the causation problems sketched above. As we have already partly seen, however, the CS response to these problems is more principled than that of its naive precursors. The causation problem is lessened through cognitive semantics' commitment to a neurological level of explanation. The conceptualizations posited as underlying linguistic mean-

ing are theoretical entities justified by their place within a scientific theory of language: they therefore will eventually be able to be brought into correspondence with the terms of a neurological account of brain function (see the next section and 3.3.2). In answer to the generalizability problem, the necessity of positing unconscious conceptualizations is justified through the theory's grounding in the commonalities of bodily experience and the shared physical nature of the human brain: the conceptualizations are as they are because of their grounding in basic experiential regularities (such as the experience of the body as a container, or the correlation between quantity and height in piled objects) which are common to all human beings, and whose mental representation is constrained by the same neural architecture. The unconscious structures posited in cognitive semantics are thus introduced not in order to permit the maintenance of concepts as identifications of meaning in the face of their introspective absence, but as elements within an empirical investigation of the mind. Research in cognitive semantics is, in other words, subject to Lakoff and Johnson's 'cognitive reality commitment', according to which an "adequate theory of concepts and reason must provide an account of mind that is cognitively and neurally realistic" (Lakoff and Johnson 1999: 79).

3.2.2 Conceptualization, theoretical reduction and psychological reality

The challenge for cognitive linguistics is therefore to relate its distinctive conceptualist explanations of semantic phenomena both to the scientific explanations of cognition and hence of language that will eventually be furnished by neuroscience, and to the understanding of embodied cognition that has been developed in psychology more generally (see Grady 2000 for some pertinent observations). Especially given the cognitive reality commitment of CS, it is essential for cognitive linguistics to be clear on exactly how its explanations relate to those developed elsewhere in cognitive science and in empirical investigations of the brain. This question has not often been broached within the discipline. Yet it is crucial, for without an explicit view of the particular explanatory burden of cognitive linguistics, mistaken expectations about its explanatory power and confusion about the nature of its results is almost inevitable. This section argues that in both cases the theory faces significant hurdles. First (3.2.2.1) the relation between CS and neuroscience is discussed, before a treatment of the relation between CS and psychological realism in 3.2.2.2.

3.2.2.1 Cognitive semantics and neuroscientific realism

Current descriptions of the place of CS in cognitive science sometimes suggest either that CS presently enjoys a similar level of indispensability and explanatory necessity to neuroscience itself, or that its constructs will eventually be able to be validated by neuroscientific research (cf. Cuyckens and Zawada 2001: xvii). If this were the case, we would have good reason to be confident that CS provides a rigorous, non-tautological ground for semantic study. This section argues, however, that any such confidence would be misplaced, for two reasons. First, since CS does not yet have a resolved theoretical analysis of any conceptualizations, any claims of its scientific necessity and explanatory indispensability are premature. Secondly, the very nature of CS analyses would seem to place them among a class of explanations which are *inherently* approximate and informal, and therefore not able to be brought into any strict relation with the precise empirical constructs of neuroscientific research.

The nature of relations between different explanatory levels in cognitive science, and the possibility of reductions between them, is a highly controversial issue (Fodor 1975 and Churchland 1986 contain classic statements; Searle 1992: 46–49, McCauley 1998 and Clark 2001 contain a summary of some recent positions). It is clearly the case that 'the world clusters into multiple levels of organization' (Keijzer 1998: 273). Phenomena cohere on many levels of structure other than the one described by physics. In particular, it is obvious that no attempt to explore day-to-day mindful, intentional behaviour, including language use, could be profitably undertaken using terms of physics, the most detailed explanatory theory available. As a result, a mode of description using higher level vocabulary, such as the semantic stock-in-trade vocabulary of CS and other approaches (terms like 'trajector', 'inanimate' and 'volitional'), will always have a role in descriptions of mind and language. In the same way, an understanding of cookery could not be inculcated in purely chemical terms: instead of reference to elements and molecules, the coarser delimitations of the physical world provided by the names of ingredients (vegetable oil, self-raising flour, whole eggs, sour cream, etc.), form the appropriate level for describing and explaining cooking. The vocabulary of cookery and of ordinary descriptions of linguistic behaviour, then, cannot simply be eliminated: in order to talk about these subjects usefully it is necessary, precisely, to *ignore* the more fundamental descriptions of chemistry or neuroscience, which are

quite simply irrelevant for the purposes of describing cooking and linguistic behaviour as such.

Equally important, however, as the realization that different descriptive levels are appropriate for different descriptive and explanatory goals, is the realization that each level carries with it its own degree of precision and explanatory traction (Atlan 1986: 79; Varela, Thompson and Rosch 1991: 100–103), and that the degree of predictive and explanatory power often diminishes as the level of the description becomes coarser. The degree of explanatory power expected of a particular theory should therefore be appropriate to the level on which its explanations exist. For example, explanations of the processes involved in cooking food will necessarily be less powerful and predictive when couched on the level of ingredients than on the level of chemical reactions: to get a precise prediction about the behaviour of a newly assembled cake mixture during baking, for instance, precise information would need to be supplied about the chemical composition of the ingredients, covering variables which are simply too detailed to form part of the normal vocabulary of cooking (precise characterizations of the composition of the ingredients including detailed specification of variables like acidity, minute descriptions of the energy reactions taking place in different parts of the mixture during baking, and the like). Similarly, explanations of an instance of human behaviour (someone's getting up from their seat in order to open the door, for example) in terms of folk psychological constructs such as beliefs and desires are less precise than explanations which predict the fine details of the behaviour on the basis of neurological facts. Because of these differing explanatory potentials, it is important not to confuse explanatory levels. The level chosen must be appropriate to the degree of explanation desired – if what is wanted is a precise and predictive explanation of the chemistry of water, sugar and egg white interactions, one does not go to a cookbook.

The technical CS representations of idealized linguistic structure are obviously less fundamental than neuroscience's detailed, biologically-based explanations of particular instances of language use. They would seem, however, to be more fine-grained than the informal metalinguistic descriptions which arise as part of speakers' everyday reflection on their own linguistic behaviour. Since they seem to fall into this middle ground between exact science and informal description, we should not necessarily even *expect* CS constructs to attain a degree of exactitude that would allow them either to approach the predictive and explanatory power of neuroscience, or to allow its constructs to be matched with neuroscientific ones in any de-

terminate way. In their use of ordinary language as the instrument of analysis, CS constructs are at present much closer to the constructs of interpretative disciplines like literary criticism or history than to the formalized, mathematical constructs of the exact sciences. Like the explanations in literary criticism, historical research, cookery or folk psychology, they contain an approximativeness, an error-tolerance and a predictive laxity which prevent them from figuring as parts of a rigorous scientific enterprise like the one to which neuroscience belongs. As already noted, the CS identification between meaning and conceptualization has not so far strongly determined the specific characterizations of conceptualizations themselves, which may be described in many different ways. Because of this indeterminacy, CS semantic analyses cannot yet be claimed as indispensable to the explanation of linguistic phenomena, but only as highly general and preliminary first steps in the development of a principled theory of meaning. If the details of a word's semantic analysis are not yet settled in the broader theory, how can such an analysis be claimed as part of an integrated scientific enterprise that could issue in rigorous predictive explanations?

A similar understanding of the nature of cognitive semantic representations of meaning seems to be widespread, though often not articulated, among practising cognitive linguists. As documented by Gibbs and Matlock (2001: 216), many cognitive linguists entertain varying degrees of scepticism over the mental reality, and hence the scientific validity, of the structures CS identifies as the meanings of lexical items (cf. Boroditsky 2000 for some psychological evidence that (partly) supports CS representations).[11] Given the considerations being urged here, such scepticism is surely justifiable. One suspects, indeed, that if pressed, many cognitive linguists would hesitate in the degree of scientificity they would be prepared to claim for cognitive linguistics, and would be reluctant to echo Lakoff and Johnson's (1999) commitment to the explanatory indispensability of the layer of conceptualizations, the notion that an ultimately explanatory account of language will make use of CS-style representations:

> A full understanding of the mind requires descriptions and explanations at all three levels [i.e. the neural, phenomenological, and cognitive unconscious levels: NR]. Descriptions at the neural level alone – at least given our current understanding of it – are not sufficient to explain *all* aspects of the mind. Many aspects of mind are about the feel of experience and the level at which our bodies function in the world, what we have called the phenomenological level. Other aspects of mind depend on the effects of causally ef-

> ficacious higher-level patterns of neural connectivity, which constitute the cognitive unconscious. (Lakoff and Johnson 1999: 104)[12]

Instead, such sceptics might incline towards the very attitude that Lakoff and Johnson seem themselves to implicitly endorse in this very passage: the expectation that our current understanding of the neural architecture of language will some day attain a level of adequacy at which it will support a fully explanatory account of language encompassing all the phenomena which cognitive linguistics takes as central. (This attitude is even more justifiable in the light of the 'cognitive reality commitment' mentioned above, especially given the neural realism it enjoins.) CS analyses thus may, in one form or another, be useful for the informal, prescientific description of language. It seems likely, however, that they will remain higher level forms of explanation, with all the approximativeness and lack of predictive traction this entails. As a result, it would be a mistake to expect that they will ever achieve a level of detail, predictive power, and explanatory indispensability comparable to the one that will presumably be attained in neuroscience. In order for them to do so, indeed, they would first need to attain a level of formalization which would rob them of their present character. We should therefore cultivate modest expectations about the final place of CS in a neurally realistic theory of language.

3.2.2.2 Cognitive semantics and psychological realism

Orthodox cognitive linguistics is not only committed to developing an account of language that is neurally realistic; it is also committed to the more immediate goal of relating language to understandings of mental process as developed in psychology and cognitive science generally.

As a result of developments in these disciplines (e.g. Elman 1995a, b; Thelen and Smith 1994; van Gelder 1995; Clark 2001), the mental processes behind language are increasingly being revealed as thoroughly dynamic and holistic in nature, a point already stressed by Johnson:

> Grasping a meaning is an *event* of understanding … What we typically regard as fixed meanings are merely sedimented or stabilized structures that emerge as recurring patterns in our understanding. ... Anglo-American analytic philosophy [and consequently linguistics: NR] has steadfastly resisted this orientation in favor of meaning as a fixed relation between words and the world. It has been mistakenly assumed that only a viewpoint that transcends human embodiment, cultural embeddedness, imaginative under-

> standing, and location within historically evolving traditions can guarantee the possibility of objectivity. (Johnson 1987: 175)

A similar set of considerations seems to motivate Langacker's specification of the meaning of 'conceptualization' in cognitive semantics:

> The term conceptualization is interpreted quite broadly; it encompasses novel conceptions as well as fixed concepts; sensory, kinesthetic, and emotive experience; recognition of the immediate context (social, physical and linguistic); and so on (Langacker 1990: 2)

This recognition of the dynamic nature of conceptualization has a paradoxical implication for cognitive semantics. The conclusion that "human embodiment, cultural embeddedness, imaginative understanding, and location within historically evolving traditions", as well as mental experience *of all kinds* should be restored to a central position in the understanding of language can be argued to run directly counter to CS' commitment to the existence of stable, representational conceptual structures within human cognition. In order to give full due to the embeddedness of meaning in holistic experiential process and in historical and cultural contingency, it is necessary, in the eyes of a growing number of researchers in cognitive science generally, to abandon the belief in the very metasemantic representability of meaning on which cognitivist semantic analyses depend. In advancing representations of meaning claimed to reflect psychologically real conceptualizations, cognitive semantics is open to the charge of ignoring precisely the roles of (individual, cultural, historical, discourse) context and of non-cognitive (e.g. affective) factors in the explanation of language (cf. Gibbs 1999), and of treating the experiential gestalts which constitute the psychological circumstances of conceptualization as though they were reducible to static structures open to representation in a standardized metalanguage (whether pictorial or descriptive). How, one might ask, can perceptual, motor, and emotional modes of cognition, as well as conceptual ones, all be collapsed into a single representational format that is then attributed to the language user's conceptualization? A static CS representation, which collapses an inherently temporal, embodied process into an inert structure, is, it might be felt, merely one way of gathering together the most central aspects of a semantic phenomenon in an easily apprehensible form. Clark sums up a growing mood when he states that "it is surely highly implausible that our brains (which are not so very different from those of some non-language-using creatures) should themselves use anything like the [representational] format favored by the thin projections of

our thoughts onto public mediums like paper and air molecules" (1997: 57–58).

To take the characteristic programmatic statements of Johnson and Langacker at their full face value, however, is to offer a serious challenge to the claim of psychological reality which might otherwise be attached to CS representations. Atemporal, schematic, and summary representations of concepts such as those advanced in cognitive semantics should not, in other words, be confused with the temporal, embodied, integrated mental processes themselves. If Johnson and Langacker are to be taken seriously, the consequence is that CS paraphrases, diagrams and other metasemantic descriptions should not be seen as psychologically real characterizations of actual mental content which can be attributed to the subjectivity of language users, but as necessarily selective representational schemes which abstract out a static structure from the temporality and multimodality of online conceptualization. Because of the exigencies of description, these representations necessarily privilege the abstract, generalizable and intellectual aspects of meaning over concrete, particular (context-dependent) and non-intellectual ones. But given the aspiration of CS to relate meaning to the *ensemble* of embodied experienced, the absence of emotion and context from the abstract and schematic representations of current CS, while more or less inevitable, could be seen as a case of the theory being unable to live up to its own methodological prescriptions (cf. Geeraerts 1993, Gibbs 1999).

3.2.2.3 Summary: the place of CS in a scientific theory of language

The arguments in this and the preceding section have led to the following conclusions. First, given the provisional, indeterminate nature of CS representations of meaning (to say nothing of our present highly circumscribed knowledge of the neuronal architecture underpinning language), current CS analyses must be taken as defined on an extremely high level of abstraction which is tolerant of many possible alternative formulations, and which thus could not, in its present form, be translated into a physically detailed theory. It would be a mistake to suppose that at this stage of its development CS can determine unique characterizations of linguistic facts. Instead, what is offered by current CS analyses is a spectrum of alternative accounts of phenomena, all of which are taken to be equally explanatory. CS analyses of meaning cannot therefore be considered as furnishing representations for

which we should yet expect any close neurological correspondence, and they should not as a result be seen as indispensable to the scientific explanation of language.

Second, it is unclear how the static and conceptual nature of CS representations is supposed to do justice to the dynamic nature of the embodied psychological processes on which linguistic behaviour is claimed, both by CS scholars and by a growing number of psychologists, to depend. The static, informational nature of CS representations seems ill suited as a mode of description of the holistic, embodied psychological processes thought to support language. In particular, the absence of affective or emotional factors from the characterization of meaning in CS, as elsewhere in linguistics (except in so far as they are taken to be connotational and hence inessential), would seem a particularly significant omission.

As a result of these two criticisms, we should be very cautious about advancing strong claims of either the explanatory indispensability or the psychological reality of CS representations. But this caution ignores a more fundamental objection to be made against the CS notion of a conceptualization or mental representation. As will be demonstrated in section 3.3, the postulation of *any* explicit, determinate representational structure as an analysis of the meaning of a term is subject to serious challenge.

3.3 Representation, cognitive semantics and Wittgenstein

The deeper problem that we will now discuss with the CS notion of mental representation is less often noticed, although it has occasionally been partially intimated, especially in metaphor research (Murphy 1996; Gibbs 1999). It may also, along with the concerns mentioned above, motivate some researchers' preference for an emphasis on process rather than on representation in the discussion of semantic competence (Langacker 1997, Johnson and Lakoff 2002).[13] It is a problem which can be taken as subsuming the earlier, more general arguments against an ideational approach to meaning from generalizability and causation. The exposition of the problem in this section is as follows. First, the problem itself, the Wittgensteinian critique of the objectivity of representational correlation is described (3.3.1). Next, a common response to it is given (3.3.2). Lastly, it is suggested that this response is only feasible if a commitment is abandoned to the psychological reality of semantic representations in general (3.3.3).

Once again, the result of the discussion is to deeply problematize the claim of scientificity which might otherwise be made for CS representations.

3.3.1 The indeterminacy of representational correlation

The problem is as follows. As pointed out most forcefully by Wittgenstein (2001: §§139,40; see Baker 1981, Kripke 1982, McGinn 1984, Summerfield 1996 for discussion, and Block 1990 for an assessment of the implications for cognitive science), there can be no determinacy in the correlation between a particular representational structure advanced as a term's meaning, and the patterns of use in language which this structure must be taken to ultimately explain. Any representation requires a set of rules which specify the way in which the representation is to be interpreted.[14] Yet these rules cannot dictate any single pattern of use for the representation, since they are themselves in need of principles of interpretation defining how they are to be interpreted, and so on. An infinite regress of interpretation is initiated that prevents the incorporation of any representation in a pattern of use (as we will discuss below, this is a similar problem, though a more powerful one, to the cluster of notorious regress and causal subsumption issues in cognitive science: see Von Eckardt 1993:x; Edelman 1992: 29). One particularly important 'pattern of use in language' of a word is its denotation: the set of referents to which the term is conventionally accepted as correctly referring. Statements about the nature of a representation, regardless of how holistically it is specified, are therefore by themselves inadequate as analyses of a term's meaning, since they do not prescribe any single set of uses, whether these uses are considered as denotational (i.e. as specifying the referents which the term may have) or as combinatorial (i.e. as specifying the strings in which the term may appear).

The elusive rules which would ideally fix the correct interpretation of the representation are neither the syntactic rules which, in the traditional linguistic picture, govern the inclusion of lexical items in phrasal structures, nor the pragmatic ones which specify how utterances receive their contextual interpretation. (Whether syntactic and pragmatic principles are different from semantic ones is here beside the point: all that is relevant is the fact that the characterization of a word's conceptualization is done separately from that of its pattern of (syntactic, pragmatic) use in language: there is no single structure that will simultaneously specify all of these at

once, even if the principles are all thought of as belonging to the same cognitive structure.) This is because these syntactic and pragmatic rules already assume that the linguistic unit in question has a determinate denotation, a 'literal meaning' on the basis of which its syntactic and pragmatic behaviour may be calculated. Yet it is precisely the existence of a literal meaning or a determinate denotation which the Wittgensteinian objection calls into question.[15]

This problem can be illustrated with a representation of the trajector-landmark configuration postulated as one of the meanings of *above* in (3)–(6). To correctly assign the denotation of *above*, these representations require interpretation principles that lead from the represented trajector-landmark configuration to the denotation, and specify that *above* is only to be used to describe something higher than something else, and not something lower. But how is this specification to be enforced? It is perfectly possible to claim, for example, that the same repeated image of *above* licenses all four denotations in (3)–(6), via four differing interpretation principles:

(3) The circle is above the square

(Interpretation principle: arrow indicates higher point)

(4) The circle is below the square

(Interpretation principle: arrow indicates lower point)

(5) The circle is to the north of the square

(Interpretation principle: arrow indicates north)

(6) The circle is at the same point as the square

(Interpretation principle: arrow indicates identity of position)

Since an unlimited number of interpretation principles can be imagined, the one image can be correlated with an indefinite number of denotations in language: any further condition we might wish to place on the image in order to exclude disallowed uses will itself necessitate its own principles of interpretation, which themselves will need interpretation, and so on, unleashing an infinite regress. For example, if the interpretation principle of (3), "arrow indicates the higher point", is incorporated into the representation of the concept of *above*, it will still be necessary to specify an interpretation of this interpretation which will guarantee the correct application of the word. For example, we need to exclude the following interpretation of "arrow indicates the higher point":

(7) The higher point is the point in which the head of the arrow *originates*.

Under this interpretation, the head of the arrow is represented as originating in the square, and coming to rest at the circle; the square, therefore, is the higher point, licensing the sentence *the square is above the circle*. This interpretation is entirely compatible with the principle of interpretation

given for (3) – it is, in fact, an interpretation of the *way in which* the "arrow indicates the higher point".

To claim that the possibility of this interpretation does not pose a problem, since no one would seriously propose it, or since it relies on a willfully 'unnatural' reading of the interpretation principle, simply misses the point. Definitionally, *above* is, surely, a rather elementary word, which will figure as part of the definition of many other words (*raise*, *higher*, *elevate*, *top*, etc.), but which will not itself be easily explicable in terms of anything much simpler (Wierzbicka 1996: 59); it is hard to imagine a simpler characterization of the scene referred to by "above" than the one represented by the diagram in (3). This means that any attempt to place conditions on the interpretation of the diagram will inevitably involve more complicated notions, notions which will themselves consequently require elaborate interpretation of the type being proposed. To be credible, these interpretations must be immune from just the type of sceptical demand for interpretation being made here, and not simply rest on an inexplicit claim of 'naturalness'. The belief that pictures like (3) "*forced* a particular application upon us", as Wittgenstein puts it, our belief that there is only one 'natural' way of taking the diagram or the phrase "arrow indicates the higher point", 'consisted in the fact that only one case and no other occurred to us' (2001: §140, italics added): it is only because the interpretation of "above" as corresponding to the situation in (3) is so entrenched that we do not usually notice that the picture can in fact be interpreted in a variety of ways.

The fact that this objection has never been seriously considered in recent linguistics constitutes, in my view, a serious gap in the project of analyzing meaning representationally (for discussion of these arguments, see Kripke 1982, McGinn 1984, Williams 1999 and, more generally, Dreyfus 1992 and Shanon 1993). To see the issue in particularly sharp focus, let us consider how, in CS as in many other semantic theories, the link between the meaning of a word and its referent is usually conceived of as established:

> Say, you are looking at (and thereby directly experiencing) a cat on a mat. Since both *cat* and *mat* are basic-level concepts, you will have a perception of the overall shape of both, as well as a perception of the relationship between them. Your perceptions of overall shape for the cat and the mat are preconceptually structured experiences of the cat and the mat. Your perception of the relationship between the cat and the mat is a preconceptually structured experience of the kinesthic relations ABOVE, CONTACT and SUPPORT. This makes the situation one that is directly understood.

> The fit of the direct understanding of the sentence to the direct understanding of the situation works like this:
>
> -The mental image associated with your basic-level concept of CAT can *accord* with your perception of the overall shape of a cat.
>
> -The mental image associated with your basic-level concept of MAT can *accord* with a perception of a mat.
>
> -The image schemas that constitute your understanding of ON can *accord* with your perception of the relationship between the cat and the mat. (Lakoff 1987: 293; *accord* italics added)

The relationship between the meanings of (the mental representations evoked by) *cat*, *mat* and *on* and the perceived situation to which they are applied is therefore one of fitting ('accordance'): the concepts match or 'accord with' the speaker's perception of the referents of their lexical expressions.[16] The same process is described by Langacker (1987: 371) as follows:

> Whether by schema or by prototype, categorization resides in a comparison event of the form $S > T = V$. It is achieved when the conceptualizer succeeds in observing within the target (T) a configuration that satisfies some or all of the specifications of the standard (S). More precisely, V – the magnitude of discrepancy between the standard and the target – is required to fall below a certain threshold of tolerance.

The Wittgensteinian point, however, is that the Lakovian notion of fitting or the Langackerian one of 'specification satisfaction' has no claim to objectivity. There *is no single way in which a particular representation fits or satisfies the specifications of its referent*, since a single image or concept must always be supplemented by principles of interpretation which specify the ways in which it is to be taken as fitting or according with the referent of which it is proposed as the meaning. Regardless of how detailed a particular representation is, it can *never* carry its principles of interpretation with it: these must always be invoked subsequently so that the way in which an underlying representation accords with its denotation can be enforced.

The Wittgensteinian point affects *any* proposed representation of a term's meaning, regardless of what this representation is like. Thus, exactly the same interpretative problems bedevil the representation-denotation relation if the representation is taken to be an abstract structure in a Platonic

world of forms, a purely linguistic or logical paraphrase devoid of any mentalistic relevance, or a set of referents in the world. Any semantic theory which proposes analyses of the meaning of a word will have to explain how the analysis is related to the term's denotation and other uses, and the arguments given concerning the indeterminacy of this correlation will challenge this explanation. Feature decompositions, dictionary definitions, NSM paraphrases, and the paraphrases of P/I expressions and the analysis of their relations advanced in this book are all vulnerable to such a charge. Because of this problem, the set of glosses by which a meaning is accurately characterized cannot be determinately closed. Since the particular way in which the glosses characterize the meaning must be interpreted, one set of glosses can, in principle, be made to refer to any meaning, given the interposition of sufficient interpretative principles. Since, as we have seen, these are in any case infinite in number, the entire dependency between a meaning and a unique set of glosses disappears, and it becomes impossible to impose *any* objective constraints on what should count as a permissible semantic analysis. In a sense, then, the force of Wittgenstein's argument is that words simply do not have meanings – not, at least, in the way that 'meaning' is normally understood.

The devastating effect of the Wittgensteinian critique should not be underestimated. Its effect is to open a deep trapdoor under all statements of meaning. The argument shows that there is a disturbing sense in which *any one semantic analysis is as good as another*. The claim that one analysis of the meaning of a word is more accurate than another can always be met by the rejoinder that the alleged explanatory deficit of the competing analysis is corrected by the interpretation principles to which it is submitted. Since, for Wittgensteinian reasons, these are always infinite, any two semantic analyses are absolutely equivalent in the amount of supplementation they require in order to be made adequate representations of the meanings of which they are proposed as analyses. The 'correct' representation of a meaning and the 'incorrect' one need exactly the same number of interpretative principles to specify the *way in which* they represent their denotata – an infinite number. An apparently unconvincing semantic analysis can therefore be justified through the addition of an unlimited number of ad hoc interpretative stipulations, since infinitely many of such principles are inherently required by the logic of the representational system. If the Wittgensteinian argument is correct, there is, in other words, no such thing as the more parsimonious analysis.

This is not to say that some semantic analyses seem intuitively plausible while others do not, that some seem simpler or more elegant than others, or that some can be more easily made to seem consistent with experimental psychological findings. The Wittgensteinian argument does not rob semantic analyses of these prima facie characteristics, or remove a role for methodological decisions by researchers about what criteria to apply in adjudicating between competing analyses of meaning – quite the contrary. What it does is show that all representational semantic analyses are *equally* remote from constituting an answer to the detailed, causal questions which a scientific theory of semantics must confront, and that, as a result, *all* that investigators have to go on are methodological and aesthetic considerations about intuitive plausibility, analytical elegance and parsimony, and compatibility with psychological evidence. Yet these methodological considerations are highly subjective, and cannot be used to furnish replicable decision procedures which would discriminate between the right and wrong semantic analysis and remove a role for the investigator's judgement. The force of particular methodological considerations will vary from investigator to investigator and depend on a wide range of metatheoretical considerations which cannot be made objective. In contrast to hard sciences, there is a consequent deep lack of any firm criteria which would furnish CS with a means of settling the details of the semantic representation of a given linguistic unit. The prospects for escaping from the current scatter of divergent semantic analyses of words like *over* do not seem good.

A comparison between an analysis in semantics and in chemistry can sharply highlight what is at stake. A chemist asked to analyze an unknown substance can apply a series of chemical tests. In each case, the result of the test either imposes or excludes a particular set of predefined chemical analyses. The final analysis of the composition of the substance is couched using the 'primitives' of chemical analysis, the elements of the periodic table. These are a finite set of 'primitives' which, in concert with appropriate laws, feature in precise predictions about the behaviour of substances in a variety of different experimental situations. The analysis of the substance as having a particular chemical composition is thus inseparable from the prediction that it will show causal relations of the type specified by the relevant laws. While a chemist can reject the analysis imposed by the experimental findings and interpose any number of ad hoc assumptions in order to legitimate a heterodox conclusion, this conclusion would only be worth reaching if it (or, rather, the amended theory of which it formed a part), made correct empirical predictions. The worth of scientific analyses

in chemistry, in other words, is ultimately measured by the empirical consequences which they predict.

In semantic analysis, by contrast, an entirely different logic is at work. There is no equivalent of the experimental test which imposes or excludes a particular analysis. The only data that can be brought to bear in order to discover the meaning of a word are, in one way or another, data about use. Yet the Wittgensteinian argument of the indeterminacy of representational correlation shows that *any* specification of meaning can be made consistent with *any* use. Not only, then, is there no accepted predefined metalanguage in which analyses of meaning can be couched. Even if one were found, there is no sense in which a fact about the use of a word could impose or exclude a particular semantic analysis, since, for Wittgensteinian reasons, the way in which a particular representation of a meaning is correlated with a denotation (or any other kind of usage) cannot be determinately specified. The result of this is that a proposed semantic analysis cannot be imposed or rejected because of its empirical consequences, since, strictly, there are none: any hypothesized semantic representation is as compatible as any other with any denotation, since in order to make the denotation-meaning correlation work, an infinite number of additional interpretative principles is always needed.

One particular aspect of cognitive semantics affected by Wittgensteinian attack is the theory of conceptual metaphor (Lakoff and Johnson 1980; Lakoff 1993, etc.), which, in depending on a symbolic, representational account of meaning, inherits precisely the problems about 'fitting' that have already been mentioned. If a metaphor is a mapping that establishes a correspondence between two conceptual domains, what governs the interpretation of each side of the mapping (cf. Gentner 1983, Lakoff 1990, Brugmann 1990, Turner 1993)? The existence of similar problems for the theory of metaphor has occasionally been recognized in the cognitive semantics literature (Murphy 1996, Gibbs 1999). What has not been recognized, however, is the fact that metaphor is only a special case of a quite general challenge to the representational metaphysics of CS. We will return to this question in chapter three.

Taken together with the preceding arguments from generalizability and causation, the Wittgensteinian argument poses a significant threat to the scientificity of any representational model of language, a threat to which cognitive semantics has been largely oblivious. In this it is no different from the classical cognitive science from which it inherits so many background presuppositions. We have seen that, in essence, the Wittgensteinian

argument is a critique of the very idea that words have meanings. This violation of a fundamental assumption about the nature of language has excused cognitive science and linguistics from a headlong confrontation with Wittgensteinian objections. But if the argument from the indeterminacy of correlation has only rarely been visible in the shadows and cracks of the classical cognitivist edifice, it is one on which a number of opponents of the cognitivist paradigm have heavily relied, whether in Wittgensteinian or in phenomenological guise. As a result, the project of describing meaning through representational structures attributed to the mind has been discredited in many types of semiotic and philosophical reflection (e.g. Dreyfus 1992, Shanon 1993). Students of cognition have also begun to shed their commitment to representational structures. Since the connectionist turn in cognitive science (Smolensky 1988), symbolic representations have increasingly fallen out of favour (Clark 2001).[17] Many neurologists, for their part, also explicitly reject the expectation that brain states bear the kind of symbolic representational relationship to their referents in which the structure of the referent is mirrored by the structure of the representation (see for example Damasio 2000: 320–321; Edelman and Tononi 2000; Farber, Peterman and Churchland. 2001).[18]

In linguistics, however, the issue of the status of semantic representations has hardly been discussed (but cf. Sinha 1988 and Vandeloise 1990). The rare CS researchers who seem to acknowledge the force of Wittgensteinian or similar objections seem to suggest that it is still possible to maintain a representational account of meaning in spite of them. Langacker, for example, affirms, *contra* a widespread misconception about cognitive semantics, that linguistic structures are "procedural" in nature, consisting in what a speaker *does*, not in a "list of instructions to be consulted and followed, nor in "representations" she or he is able to examine" (1997: 239). He also, consistently, states that "language is unlike a typical code, whose elements do have fixed and well-defined values" (1997: 237), even believing that it "may be that a lexical item is never used with precisely the same value on any two occasions" (1997: 237). It is not clear from this passage whether Langacker has a specifically Wittgensteinian critique of representations in mind: Wittgenstein is certainly not mentioned anywhere in the text of the article from which the passage comes. Nevertheless, I will try to spell out a possible development of Langacker's observations by making a physicalist response to the Wittgensteinian critique. This response is along essentially the same lines as the one discussed by Block (1990) in reference to the pictorialist/descriptionalist debate over

mental imagery within classical cognitive science and the Wittgensteinian challenge to representation. Like that response, the one offered here only overcomes the Wittgensteinian challenge by denying the psychological reality of the intentional, conceptualist level of description: the level of the 'cognitive unconscious' claimed by Lakoff and Johnson to be indispensable to a complete account of the mind.

3.3.2 The physicalist response

The response is as follows. The attribution of semantic representations to language users as constituents of their linguistic and conceptualizing abilities should not be taken wholly literally. A CS representation such as the diagram of *above* already discussed is not to be understood as a static structure existing in brute form 'in' the mind of a speaker. Rather, it is an analytical convenience permitting the schematic and summary display of the relevant semantic properties of the preposition in question. It is to be considered as a shorthand, atemporal characterization of a particular procedural regularity that characterizes a certain aspect of cognitive functioning: English speakers' tendency to use a particular preposition in reference to particular perceived spatial relations. This regularity will ultimately be explicable by pointing to an ensemble of causally successive states of the brain: the static CS representation, is just one way of summarizing the phenomenon in an easily apprehensible and heuristically attractive form:

> *Representation* is a term that we try carefully to avoid, since it calls up an idealized cognitive model of mind with disembodied internal idea-objects that can somehow correspond to states of affairs in the external world. According to our experientialist view, neither image schemas nor any other aspect of conceptual structure are "representations" in this sense. An image schema is a neural structure residing in the sensorimotor system that allows us to make sense of what we experience. (Johnson and Lakoff 2002: 250; italics original)[19]

On this view, the indeterminacy of the correlation between a term's denotation and the CS description of the conceptual 'content' of its meaning is simply an artefact of the mode of representation of the semantic facts. Because the CS description is not to be taken as a direct description of the brain, but merely as a model summarizing a manifold of complex, ultimately neuronal, processes, no indeterminacies attendant upon the use of representations compromise the theory. When translated into the details of

a specific description of what is occurring on the level of neural architecture, such an account will, of course, enable a specific, causal and retemporalized description of the processing stages involved, and no infinite regress of interpretations will have been encountered.

The gap in the explanatory power of symbolic representations is, on this view, a necessary result of the fact that such symbolic representations cannot form part of a closely articulated, causal account of linguistic behaviour.[20] Something other than supposed representational correspondence is needed in order to integrate concepts into the causal chain that produces (and hence explains) language, since the actual applications, including denotation, which words take on in real contexts must, in principle, be independent of any representational content associated with them, whether we choose to think of this content as ideas, images, conceptualizations, mental representations, or cognitive models. A neurophysiological account of meaning, by contrast, will supply a detailed description of the causal succession underlying language, couched in inherently non-semantic terms, and focussing on the 'mediating processes which actually generate behavior' (Keijzer 1998: 298).[21] By definition, such an explanation will not need to posit symbolic representations. The reliance on such representations is thus imposed by the current unavailability of explanations of language which cut closer to the bone. The diagrammatic and descriptive representations of meaning currently preferred in CS are convenient ways of displaying facts about linguistic meaning: they should not be reified into psychologically real entities.

To proffer this kind of response to the Wittgensteinian critique would be to do no more than give full due to the physicalist assumption of cognitive science (i.e. the assumption that there are no other structures underlying thought than the physical structures of the brain). Although cognitive science formulates explanations in terms of hypothesized symbolic (representational) structures (in cognitive semantics, meaningful structures like conceptualizations, frames, ICMs, mappings, etc.), it also assumes the existence in the brain of "(neurally instantiated) processors that operate on the symbolic structures on the basis of the *physical* properties of the structures" (Block 1990: 591; italics added). The only properties of symbolic structures, in other words, that can be causally relevant to their neural processing, are the *actual physical properties* of the brain hardware as described in neurology. Without this assumption, cognitive science could hardly maintain its commitment to physicalism. If the meaning of a mental representation R for a subject S "consists of the set of all possible determinate

computational processes contingent upon entertaining R in S" (Von Eckardt 1993: 298, cf. Dennett 1982–1983), these computational processes are ultimately to be explicated in purely physical terms. "Thus', in the words of Block (1990: 591), "though the structures [of symbolic representation] have meanings, the [neural] processors can take account of these meanings only to the extent that these meanings are reflected in their physical properties". The explanation of semantic facts in terms of intermediate, cognitive representational structures, all of which are prey to Wittgensteinian attack, therefore boils down to a level where the explanation is *solely* in terms of the physical properties of the neural architecture, and the laws of nature – a variety of scientific explanation which does not posit any representations and which is therefore not subject to the Wittgensteinian challenge.[22] The symbolic representations of CS may therefore provide a useful way of summarizing certain semantic properties of words, but it will always be on the neurobiological level that the real explanatory work is done. As noted by Clark (2001: 29), a commitment to the existence of symbolic representations must be understood as 'a commitment to the existence of a computational symbol-manipulating regime *at the level of description most appropriate to understanding the device as a cognitive (reasoning, thinking) engine*'. Representations are thus 'fully compatible with the discovery that the brain is at bottom some other kind of device' (2001: 29) – a discovery which neurobiology is dedicated to making. In the present context, the emphasis here must be on the words 'at bottom': when we come to ask the detailed, explanatory questions that will lead to a predictive scientific account of linguistic performance, it will be the neurobiological level of physical law, not the linguistic level of indeterminate representational symbols, on which the answers will be found.

3.3.3 Consequences of the physicalist response for the psychological reality of CS

A reply along these lines might strike many readers as attractive. Something like it is certainly implicit in the frequent acknowledgements made by cognitive linguists of the importance of neural research in testing and grounding the constructs of the higher level cognitive sciences, linguistics included (cf. Cuyckens and Zawada 2001: xvii). It will be clear, however, that such a response is incompatible with a continued commitment to the explanatory necessity of the cognitivist level of explanation. This is be-

cause such a response presupposes that cognitive semantic constructs are, in fact, fully reducible to neural ones, and that the neural level of explanation is the one at which the fundamental explanation of cognitive phenomena is achieved. For a proponent of this response, it follows that symbolic representations have to be abandoned as necessary elements of the explanation of cognitive functioning. While this functioning may need to be *described* in non-neuronal terms, these higher level descriptions will not issue in the detailed, predictive explanations of language behaviour that characterize science. The patterns of neuronal activation underlying an utterance of the preposition 'above' are not representations whose fundamental behaviour can be accurately revealed by, for example, a spatial diagram: they are physical processes in the brain which will be fully explained when given a nomological account in terms of the best scientifically available understanding of neural functions. Unlike the representational account, this scientific account will show how the connection between conceptualization and denotation is instantiated by specifying, in detail, the causal, law-governed succession in the brain that correlates the use of speech sounds with the presence of referents in the speaker's cognitive environment.

As symbolic representations, CS analyses do not form part of any such causal story. Rather, CS constructs are interpretations of meaning which gather together various aspects of language and relate them to each other. As such, their main function is to reveal commonalities between aspects of grammar which might otherwise have been treated as unrelated. Thus, a standard CS account of the metaphorical structuring of the domain of time in terms of the domain of space, or of the domain of love in terms of the domain of journeys, are proposals about the relations between separate lexical/constructional elements, ultimately explaining the polysemy of certain lexemes (e.g. why *in* has both temporal and spatial readings). This is, however, a very high level of 'explanation' which is significantly different from the detailed causal explanations which would account for linguistic behaviour on either the computational or the neurobiological level.[23] Accordingly, supporters of an account of meaning using symbolic representations like those of CS are obliged to exercise caution in making claims of psychological reality and explanatory necessity for the postulates of their theory. These representations may certainly be taken as *referring*, in a summary and shorthand way, to psychologically real processes, in the same way as the descriptions of cooking also refer, loosely, to real interactions among molecules on the chemical level. They cannot, however, themselves be considered as fundamental components of the explanation of language,

and any theory which involves them, as representations, in its account of cognitive functioning and claims explanatory necessity for them would seem to be evading the central explanatory question of how the interpretation of these representations is made.

Along with similar concerns, the Wittgensteinian interpretation problem confronting CS analysis has been made the basis of a wholesale critique of the very possibility of understanding human behaviour in computational terms, as the operation of a set of algorithms (Dreyfus 1992) – a critique which a prominent cognitive scientist admits "may yet win the day" (Clark and Toribio 1994: 428). As we have seen in the previous section, reduction of symbolic representations to a level of nomological description does not make representations any more determinate: it eliminates them from the analysis. In light of this view of the nature of CS representations, the following statement by Lakoff and Johnson seems to overstate the case:

> When, for example, we say that a construct of cognitive science such as "verb" or "concept" or "image schema" is "real", we mean the same thing as any scientist means: It is an ontological commitment of a scientific theory and therefore can be used to make predictions and can function in explanations. (Lakoff and Johnson 1999: 109)

If the arguments made above are accepted, the constructs of CS are significantly different from the constructs elsewhere in science. That they are ontological commitments of the theory goes without saying; that they can be used as part of rigorous predictions and explanations, however, is far from clear. A construct like 'verb' indubitably has a role to play in pretheoretical descriptions of language. But such a construct does not have genuine explanatory traction in the same sense as constructs in the physical sciences, since it does not form part of a causally explicit description of the processes involved in creating and processing language: not only are there no laws of language which feature the concept 'verb' and which can be used to predict the actual production of verbs, given the existence of other specified circumstances; on the argument above, there can be none. If a construct of linguistics lacks such explanatory efficacy, it is misleading to describe it as 'scientific': to do so would be to lend it a spurious air of certainty which could mislead non-linguists, as well as linguists themselves, into supposing that language is understood in the same way as the subject matter of mature physical sciences like chemistry. And if these reservations are made even for so tested a member of the metalinguistic vocabulary as 'verb', they are even more appropriate for the more recent items of the CS metalinguistic inventory, like 'concept' and 'image schema'.

The explanatory inertia of the CS' analytical machinery is revealed by the fact that neither Lakoff (1987) nor Lakoff and Johnson (1999) propose any intermediate level of conceptual *manipulation* that explains how constructs of CS like image schemas actually function to produce actual instances of language. CS has no description of any general processes which operate on its conceptual representations in order to instantiate them in actual linguistic contexts. Instead, the theory simply puts forward representations of the conceptual structures that supposedly underlie language, and there is very little detailed specification of the ways in which these conceptual structures combine and interact either with themselves, or with other cognitive processes. There is not even the more fleshed-out level of rule-governed manipulations of representations characteristic of (especially classical) cognitive science (cf. van Gelder 1995: 354–5).

The reason for this absence, I suggest, is that an account of the process by which CS representations are instantiated in actual language use would necessitate the development of a technical level of description which would deprive the theory of the degree of intuitive plausibility it enjoys in its identification between meaning and 'concepts'. Identifying semantic and conceptual structure, and uncovering a web of connections between semantically similar sentences locks CS theory, perhaps despite itself, into a powerful folk-theory of language (the one essentially described by Reddy 1993). It is this compatibility, I suggest, that is the main source of the persuasiveness of the CS picture: the intuitive appeal of cognitivist theories of language stems from the idea, now firmly rooted in our naive beliefs about language, that meaning is a matter of concepts. Conceptual representations of some kind are very naturally (for us) thought of as underlying words as their meanings; thus, a theory like CS that claims that this is indeed the case, and uses this fact to motivate a general exploration of the different semantic networks operative in language, is likely to enjoy great intuitive appeal. In contrast, we have no folk theory of how a link is effected between these conceptual meanings and the linguistic tokens in which they figure. Indeed, this linking problem does not even arise for the folk theory of language, since it is in the nature of a conceptual representation that it reflect on the mental level the real-world properties of the referent itself: this is the principle of 'property correspondence' discussed above (3.1.2). Since the need for such a linking theory is not perceived on the folk level of explanation, its omission from the cognitive semantics account more easily goes unnoticed. Without such a theory, however, the CS account must be taken as incomplete. The use of symbolic representations in the analysis of

language entails a high degree of fluidity, slippage and lack of precision. In order to support the analytical rigour to which science must aspire (empirically motivated, non-arbitrary, and causal explanation), analysis of the facts of meaning cannot rest at this inexplicit level, but will have to be related to an empirically more fundamental one on which explicit hypotheses can be tested and disproven.

The cognitive semantics postulation of concepts is reminiscent of the Aristotelian postulation of natures. In Aristotelian physics, the properties of entities in the world were explained as deriving from their essences or natures: the reason a stone falls is that this is its nature (Rosmorduc 1985: 100). This explanation fails to give any articulated causal account of what it is about a stone that makes it fall; it simply attributes the fact that stones fall to a hidden explanatory level, the level of stones' nature, the only purpose of which is, precisely, to provide the otherwise missing explanation. Yet this explanation of the fact that stones fall does little more than identify the fact as a recurrent and predictable fact about stones, and does not bring us any closer to a detailed understanding of the conditions under which falling occurs.

3.3.4 Implications

Meaning, it has been argued, cannot be adequately fixed with reference to a symbolic representation claimed to capture aspects of an underlying concept, since the notion of symbolic representation is unable to do any of the explanatory or predictive work required by a scientific theory. Symbolic representations require grounding on a deeper level of neurophysiological, nomological explanation, the invocation of which makes the representational level explanatorily redundant, even though it may still serve as a useful and heuristically convenient way of representing semantic facts about words.[24] To claim that the level of conceptualizations is psychologically realistic and explanatorily autonomous is thus misleading, and invests the particular characterization of the conceptualizations with an undeserved air of certainty. Any semantic theory which ultimately sees itself as answerable to empirical research on the brain has already identified meaning with conceptualization in a trivial sense of this term. But given the objections outlined in this section, the concrete CS representations of the meaning of lexical items must (as is often acknowledged in CS theory) be taken as highly summary metaphors for complex and context-dependent proc-

esses – ones which are ultimately to be localized as series of events in the brain. The finally successful, scientifically sanctioned analysis of linguistic behaviour will penetrate to a level on which the causal chain of events leading to the production and reception of linguistic signals will be minutely described and representations will no longer need to be posited. Until this (presumably distant) time, investigations of meaning have no choice but to collapse these chains of causal interactions among aspects of neural hardware into static representations. These representations, however, must be recognized as provisional and partial stand-ins, not as psychologically real entities. The CS attempt to escape the tautology of semantic analysis through a scientific investigation of meaning cannot be considered successful.

None of these considerations suggests that linguists should abandon CS style representations. Faced with a Wittgensteinian critique, a CS researcher has three options. If the critique is rejected outright, CS can continue to pursue semantic analyses and claim them as scientifically authoritative. If the validity of the critique is acknowledged, then a researcher may either abandon CS in search of a more constrained, scientific understanding of language, or continue to undertake CS analyses while refusing to claim them as fundamentally scientific. It will be clear that this third option is the one advocated here. The consequence of the Wittgensteinian critique is that the identification of meanings and conceptualizations does not of itself impose conditions on what may and may not be admitted into the description of a meaning (conceptualization): any representation can be equally easily correlated with any denotation. Since, as we have argued, characterizations of meaning are not susceptible of genuine empirical testing, the only decision procedures available to check the validity of a proposed analysis of an expression's meaning are fundamentally subjective ones.

This is a conclusion which many researchers in CS seem to have embraced, albeit implicitly. Many linguists prefer to dwell on the subjective and interpretative rather than the scientific aspects of the CS enterprise (e.g. Warren 1992, Tyler and Evans 2001). For these scholars, it would seem, CS offers a compendious metalanguage in which semantic study can be freed from the limitations of earlier approaches to meaning. Under this rationale CS is an interpretative activity first and foremost, more akin, perhaps, to a constrained version of literary criticism than to empirical science. If CS analyses are, at root, interpretations of meaning which can only be assessed on subjective criteria, they nevertheless remain, for the CS paradigm, the only available description of the nature of the phenomena in-

volved. As a result, we have no choice but to continue using representational structures in our analysis of semantics, although their inherently informal nature deprives us of hard and fast criteria for discriminating between alternative characterizations. As already noted, the impressive amounts of evidence which have been assembled to demonstrate the dependencies between linguistic expressions and other aspects of cognition will have to be accounted for somehow in any definitive theory of language. For the moment, however, the representational nature of the description provides a crucial check on any semantic theory which claims to have achieved a determinate, scientific and explanatorily ineliminable analysis of the meaning of a linguistic expression.

Chapter 2
Meaning, definition and paraphrase

The CS project of grounding semantic analysis in the supposed nature of conceptualizations is, in one sense, a version of the longstanding attempt to relate linguistic meanings and aspects of reality. Instead of a correlation between words and external objects, however, CS would forge a link between words and configurations of the mind (or brain). But a precondition of this undertaking is the possibility of a principled metalanguage in which the meanings which correspond to conceptualizations might be non-arbitrarily characterized. The absence of such a metalanguage was identified in the previous chapter as one of the obstacles to the realization of a scientific semantics. In many respects, this is exactly the deficit which the Natural Semantic Metalanguage (NSM) proposes to supply. This chapter explores the structure of its attempt to ground semantic analysis in a set of universal primitives. As noted in chapter one, the existence of a principled, non-arbitrary metalanguage for semantic analysis, such as the one promised by NSM, would not answer Wittgensteinian arguments against the possibility of semantic representation. These arguments threaten the objectivity of *any* representation of the meaning of a word, regardless of the metalanguage used to phrase it. The discussion of NSM in this chapter, however, will be entirely independent of the Wittgensteinian critique. Although readers will doubtless notice many implicit connections between the Wittgensteinian argument and the arguments here, the conclusion that NSM does not, in fact, provide an adequate basis for semantic analysis will be reached for entirely independent reasons.

In sections 2–4 the particularities of NSM semantics will be subjected to close scrutiny. The conclusion will be that NSM fails to remove the fundamentally tautological character of meaning analysis and that it therefore cannot be used to provide semantics with a firm epistemological foundation. This is not just NSM's failing, however. As will be shown in detail in section five, NSM embodies in a strong form many of the presuppositions about the nature of meaning that are characteristic of descriptive semantics in general. NSM's failings, then, are for the most part the failings of descriptive semantics at large. Because the necessity for a rigorous metalanguage is as great for CS as it is elsewhere in the discipline, these failings

directly compromise the possibility of a scientific cognitive semantics. In light of these arguments, section six draws out a vision of the purpose and epistemology of semantic description in cognitive linguistics in which the tautological nature of semantic analysis can be embraced.

1. NSM and meaning

Whereas Langackerian cognitive semantics is largely the heir of an empiricist epistemology, NSM semantics is grounded in a version of conceptual analysis characteristic of Enlightenment rationalism, especially the philosophy of Leibniz.[1] The following quotation from Leibniz's *Of an Organum or Ars Magna of Thinking* sets out the argument's rationale and form:

> It is the greatest remedy for the mind if a few thoughts can be found from which infinite others arise in order, just as from the assumption of a few numbers, from one to ten, all the other numbers can be derived in order.
>
> Whatever is thought by us is either conceived through itself or involves the concept of another; and so on.
>
> So one must either proceed to infinity, or all thoughts are resolved into those which are conceived through themselves.
>
> If nothing is conceived through itself, nothing will be conceived at all. For what is conceived only through others will be conceived in so far as those others are conceived, and so on; so that we may only be said to conceive something in actuality when we arrive at those things which are conceived through themselves.
>
> I will illustrate this by a simile. I give you a hundred crowns, to be received from Titus; Titus will send you to Caius, Caius to Maevius; but if you are perpetually sent on in this way you will never be said to have received anything. (Parkinson (ed) 1973: 1-2)

Semantic analysis in NSM is accomplished through the reductive paraphrase of definienda into a metalanguage consisting of a subset of ordinary language expressions claimed to represent universal primitive concepts – the 'few thoughts' from which all the others can be derived. A recent version of the set of primitives (without the classification into types that standardly accompanies them) is given below:

> I, you, someone, people, something/thing, body; this, the same, other; one, two, some, all, much/many; good, bad; big, small; think, know, want, feel, see, hear; say, words, true; do, happen. move; there is, have; live, die; when/time, now, before, after a long time, a short time, for some time; where/place, here, above, below, far, near, side, inside; not, maybe, can, because, if; very, more; kind of, part of; like. (Goddard 2002: 14)

This is a list of the English words whose meanings are considered to be primitive. NSM hangs on the claim that each of these English words can be translated without addition or loss of meaning into every language. The list could just as easily, therefore, have been given in Malay, Mandarin, or Tartar. It is therefore necessary to distinguish for each semantic primitive between the primitive meaning itself, which can be expressed in any language, and the particular word which serves to express it in a given language. In order to achieve this we will follow the NSM typographical convention of using small capitals to indicate the primitive meaning itself (e.g. GOOD), and italics to indicate the 'exponent' of the meaning in whatever language is in question (e.g. *good* in English, *bon* in French, etc.). Because the primitives are claimed to be both indefinable and universal, the theory can simultaneously avoid the charges of circularity and terminological obscurity that "dog most other semantic methods" (Goddard 2002: 5). "Without a set of primitives", Wierzbicka notes (1996: 11), "all descriptions of meaning are actually or potentially circular.... Any set of primitives is better than none, because without some such set semantic description is inherently circular and, ultimately, untenable".[2] The set of NSM primitives, however, is preferable to a set of primitives established by stipulation because its membership is non-arbitrary: only those expressions which are found to be both indefinable and universally intertranslatable (i.e. those which have equivalents in each language), are accepted as semantic primes. The meaning of any semantically complex (non-primitive) word in any language therefore reduces to a configuration of universal semantic/conceptual primitives.[3] The primes and the definitions which they compose are, or correspond to, concepts. This aspect of NSM is stressed by Wierzbicka (e.g. 1996: 212: "To state the meaning of a word is to reveal the configuration of simple concepts encoded in it"), and it explains their identification as universal: it is because they are 'conceptual primitives' whose universality is grounded in the human genotype that the indefinable semantic elements are present in every language. The conceptual nature of NSM primes is, however, a marginal aspect in the NSM approach, as suggested by the fact that the quest for lexical universals has largely been conducted through

research in 'pure' definition, without close consideration of work on conceptualization.

The belief that responsible semantic analysis must be grounded in a level of elementary, primitive units, whether a system of meaningful primitives or a non-semantic medium, is implicitly or explicitly held by many semanticists (Fillmore 1971; Jackendoff 1983; Allan 2001: 281; for some criticisms of primitives see Aitchison 1994), but has rarely been pursued as single-mindedly as in NSM theory. Researchers working in this framework have applied their method to a range of languages as broad as most, if not all other competing descriptive semantic theories, and have articulated a set of explicit methodological tenets, many of which other investigators hold – often since, in one form or another, they are virtually inevitable in order to satisfy the demands put on semantic analysis as it is usually conceived. Like other, global aspects of the NSM paradigm, these tenets may not, as has sometimes been objected, have been as thoroughly theorized as would be necessary in order to sustain real scrutiny (see e.g. Walters 1995: 567 for some comments and cf. Pak 1984, Koenig 1995: 216). But given NSM's degree of methodological explicitness and its cross-linguistic scope, it is nevertheless surprising, and certainly unsatisfactory, that it has neither gained significantly more prominence in the semantic landscape than it presently enjoys, nor had the benefit of a sustained theoretical critique.[4]

This is all the more the case given that non-NSM analyses can be criticized – and frequently have been – for failures which the NSM method has been designed to avoid (see e.g. Goddard's 1994: 11 criticism of Katz and others, Wierzbicka's 1991: 203 criticism of Givón, and 1996: 166 criticism of Jackendoff). In particular, NSM stresses its adherence to two theoretical precepts which command widespread respect: the injunction to avoid ethnocentrism by striving to develop a maximally culture-neutral form of description, and to eliminate circularity and terminological obscurity by employing a natural and non-arbitrary metalanguage rather than a set of allegedly ad hoc technical or semi-technical terms. The fact that most scholars accept these desiderata, and would thus usually endorse, in spirit if not in letter, criticisms of other methods based on them, means that there is a sense in which NSM can be considered as, in many respects, the preeminent ordinary language definitional theory currently available.[5] Goddard (2002: 11), for example, introducing the NSM theory, notes that

> ...if the NSM approach is shown to be viable, then the study of semantics, and indeed, language description at large, can be grounded in a cross-linguistically valid and intuitively intelligible framework – a framework

> which, moreover, submits itself to a higher standard of verifiability than any rival method.

The importance of NSM in this respect is not sufficiently appreciated. Any semantic analysis which aspires to either culture-neutrality, or to a motivated analytical vocabulary needs to consider NSM's claims to have provided these already. Without an explicit position on NSM, any other semantic analysis – particularly one which, like the one to be developed in this book and many others in semantics and linguistics generally, uses ordinary language paraphrases – is open to NSM attack on grounds with which many investigators would concur. Revealing here is the fact that many criticisms of NSM are empirically grounded, based on the fact that such and such language lacks such and such an alleged primitive. These objections ignore the fact that NSM paraphrases, even if not universal, can claim priority by being so rigorously grounded in a constrained set of elements. Rarer are criticisms of the methodology targeting not its claims that the primes are universal, but the reductive drive at the heart of its conception of meaning. Many scholars thus seem prepared to accept an NSM paraphrase as a good analysis of the meaning of a term, even if they have doubts about the translatability of its elements cross-linguistically (see e.g. Kasevich 1997, Brown 1997). By contrast, it will be argued here that although NSM analyses, like the analyses of any other concertedly descriptive method, can teach us things about meaning, they do not enjoy any priority whatsoever on methodological grounds.

1.1 In what sense does NSM claim methodological superiority?

It is possible to distinguish two different claims of methodological priority which might be attributed to NSM. The first, weaker claim is the following:

(1) The NSM set of primitives provides the best currently available lexico-grammar for descriptive and comparative semantics.

This claim does not make any representations about the accuracy of the current explications using this lexico-grammar developed in NSM theory. It only says that the best currently available semantic descriptions will use the primitives, not that the actual, existing NSM definitions are the best currently available.

The second, stronger claim is as follows:

(2) The actual definitions developed in NSM are the best currently available definitions in descriptive and comparative semantics.[6]

Claim (1) is implicit in the entire NSM enterprise. NSM scholars have not, however, been as clear as they might about whether they claim (2) as well. In reply to criticism from Murray and Button (1988), Wierzbicka (1988b: 687) makes the following comment:

> I have never claimed, however, that the explications proposed in any of my books or papers are anything other than approximations, to be revised and improved as the work on the universal semantic metalanguage proceeds. Before we have established the "final", optimal version of the hypothetical "alphabet of human thought"..., no explications can be regarded as definitive anyway.

The current NSM definitions are, then, open to revision – within the terms of the theory itself, of course. Many statements made by NSM practitioners suggest that until then, however, NSM definitions as they presently stand – especially the best worked out of them – should be considered as, in the words of (2), 'the best currently available definitions in descriptive and comparative semantics'. A sample of the statements which lead to this conclusion is reproduced below:

> A linguistic definition is a *scientific hypothesis* about the concept encoded in a given word …. Like other scientific hypotheses, it cannot be proved right, but it can be tested and proved wrong – in which case it is discarded, or revised, and tested again. (Wierzbicka 1996: 239; italics added)

> Using the NSM approach it has repeatedly proved possible to defy the skeptics and to "define the indefinable", i.e. to explicate semantic nuances which have been claimed to be either impossible or excruciatingly difficult to describe. (Goddard 2002: 7)

> Scientific discourse about "humans" can have an *explanatory value* only if it can address questions which arise on the basis of people's fundamental conceptual models, models which cannot be reduced to anything else. … Complex and language-specific notions such as, for example, *belief, intention, emotion, sensation,* or *mood* have to be defined on the basis of those fundamental , universal and presumably innate "indefinables". (Wierzbicka 1999: 10)

> But the word *emotion* is not as unproblematic as it seems; and by taking the notion of "emotion" as our starting point we may be committing ourselves,

> at the outset, to a perspective which is shaped by our own native language, or by the language currently predominant in some academic disciplines rather than taking a maximally "neutral" and culture-independent point of view. (Some will say, no doubt: "nothing is neutral, nothing is culture-independent". To avoid getting bogged down in this particular controversy at the outset, I repeat: *maximally* neutral, *maximally* culture independent.)' (Wierzbicka 1999: 2; italics original)[7]

> Since the cognitive scenarios linked with *guilty* and *toska* can be stated in the same, universal human concepts (such as FEEL, WANT, BAD, DO, and so on), these scenarios can be understood by cultural outsiders, and the kinds of feeling associated with them can be identified, explained, and compared; and both the similarities and differences between scenarios lexicalized in different languages can be pinpointed. But the very possibility of comparisons rests on the availability of a universal *tertium comparationis*, provided by universal concepts like FEEL, WANT, BAD, GOOD, or DO, and universally available configurations of concepts such as, for example "I feel like this". (Wierzbicka 1999: 16.)

These statements of NSM's definitional success, scientificity, explanatory utility, objectivity (neutrality, culture-independence) and ability to capture 'people's fundamental conceptual models' (Wierzbicka 1999: 10), all hang on the greater adequacy of its actual definitions compared to the definitions of any competing theory. The fact that NSM credits itself with these qualities suggests that (2) must be taken as being asserted: if NSM definitions were not more successful, scientific, and explanatorily useful, and if they did not better express deep conceptual models, they would not be the 'best currently available definitions in descriptive and comparative semantics' (the best of the rival theories would be).

There is, however, an even more compelling reason for (2) to be attributed to NSM. As pointed out by Wierzbicka herself, the set of semantic primitives is only as good as its actual explanatory effectiveness: a set of universal semantic simples would be useless if it could not successfully explicate semantically complex meanings. Since the whole NSM method is geared towards the provision of successful definitions, the existence of primitives must be taken as inseparable from their explanatory effectiveness:

> The crucial point is that while most concepts…are complex (decomposable) and culture-specific, others are simple (non-decomposable) and universal (e.g. FEEL, WANT, KNOW, THINK, SAY, DO, HAPPEN, IF); *and that the former can be explained in terms of the latter*'. (Wierzbicka 1999: 8; italics added)

The theory therefore stands or falls just as much on the issue of the adequacy of its definitions as it does on that of the universality of its elements. If NSM is to be open to serious empirical testing, its explications of meaning cannot always be taken as provisional. The point must come where the paraphrases NSM offers are no longer promissory notes, but definitive analyses which can be submitted to decisive testing. We will return to this issue in the section on disconfirmation below.

2. Definition and semantic theory

In sections three and four some specific aspects of NSM methodology will be examined. This section discusses its broader ideology and construal of the task of linguistic semantics. One of the most original aspects of the NSM style of semantic analysis is the fact that it departs less from any developed theoretical understanding of those domains often taken as relevant to the analysis of meaning (e.g. conceptions of the nature of cognition, categorization, reference, or truth: cf. the importance of these questions in e.g. Jackendoff 1983, 1990, Lakoff 1987, and Allan 2001) than from some rather practical considerations about the nature of a particular metalinguistic practice, explanatory definition or 'explication', and the requirements that any actual definition or explication should supposedly meet if it is to successfully convey a word's meaning. The locus of NSM explanation is not therefore the question 'what is happening when I understand the meaning of a word?', but 'how can I explain the meanings of words (to others)?'.

For a modern theory of semantics this is a somewhat novel emphasis, and it is worth dwelling on. For it is not obvious that the task of understanding meaning – presumably the central task of semantic theory – should be identified so completely with that of providing explanatory definitions of individual words, in the sense of descriptions of separable semantic components whose composition results in the meaning of a word (cf. Wierzbicka 1980: 12–13). This is because there are many other metalinguistic practices, such as non-definitional paraphrase, text interpretation, specification of lexical relations, or etymology, in which meaning is just as crucially implicated and which, as a result, have equal *prima facie* claim as candidates for the paradigms of semantic theory.[8] Of course, it should not be denied that definitions constitute an important metalinguistic genre in our culture, as reflected in the existence of institutions such as dictionaries (and others, like cross-word puzzles). Nor should it be denied that the defi-

nition of a word bears *some* relation to what we will want to think of as its meaning. But the belief that any theory of semantics which, like NSM, aspires to empirical and methodological rigour, should adopt explanatory definition as its main task must be questioned: we should not take it for granted either that the ultimate results of semantic theory will necessarily resemble dictionary definitions (a point also made, for entirely different reasons, by Fodor et al. 1980; for a response see Wierzbicka 1996: 253-256), or that the best way to understand meaning is as a determinate object open to representation (whether definitional or not) in some metalinguistic medium (cf. Geeraerts 1993). A concern with explanatory definition may have dominated the philosophy of language of an earlier age (in the writings of Leibniz and Hume, to whom Wierzbicka often refers), but it has not commanded the same privilege either among twentieth century philosophers of language (such as Wittgenstein, Austin, Kripke, Quine and Putnam) for whom questions of use, translation and objectivity have been central, or in many recent theories of linguistic semantics, which have concentrated on words' relations to much broader contextual networks (frames, scripts, cognitive models, mental spaces).

There is a significant initial factor militating against the idea that explication or definition should be the privileged form in which the results of semantic analysis are presented. This is the fact that the model of definition familiar from modern dictionaries, and of which NSM is a refinement, is by no means universal. Not only has the type of information thought of as a word's 'definition' varied hugely even within the Western European tradition (Rey 1990), but, as many fieldworkers have discovered, other cultures show a variety of ways in which their members talk about the (correct) use of language. There seems to be no universal cultural practice in which explicit, summary, abstract and generalized paraphrases are provided of the meanings of individual words. The so-called 'vernacular definitions' of verbs in the Warlpiri dictionary database (Warlpiri lexicography group 1996), for example, are most often couched as a set of *examples* of typical events for which the verb would be an appropriate description, rather than as any sort of conceptual analysis or breakdown of the event named by the verb itself. As a result, such definitions are often circular. Thus, the following is a translation of the definition offered of the verb *pakarni* 'hit':

> *Pakarni* ('hit') is like when a woman, or a man or a child, hits (*pakarni*) something with a stick – a dog, or a goanna or another person in a fight. And it is also when a man or a woman chops (*pakarni*) a tree for firewood. (Warlpiri lexicography group 1996: *pakarni*)

Even within the Western definitional tradition such 'conceptual analyses' are by no means the only way in which meanings are conveyed: it may, for example, be a more common practice to mention typical instances of the definiendum, to describe its referent rather than its sense, or to specify the (sociolinguistic, pragmatic) circumstances in which the word is used (several of these practices, for example, were characteristic of 17th century French lexicography: Rey 1990, 1995). The provision of a set of *criteria* or *components* which break down a word's meaning into various facets, the characteristic procedure of both standard dictionary definitions and NSM paraphrases, is thus only one of a number of possible modes of metasemantic explanation.

This is not to deny the universality of talking in some way about what words 'mean', or of the practice of providing near synonyms in the same or other languages.[9] Nor is it to claim that cultural outsiders cannot be inducted into the game of explanatory definition: they certainly can. Rather, it is simply to point out that speakers of many languages lack any practice of word-based definition comparable to the definitional practice of dictionaries with which we are familiar. This generalization extends to speakers of English who have not been educated into the practice of definition.

The fact that semantic explication is thus rather heterogeneous cross-culturally is grounds for being suspicious that the canonical way of talking about meaning in our culture, definition, has any necessary methodological privilege.[10] In assessing the proper status of definitions in semantic theory it is necessary to distinguish the role with which they are credited from the actual sociolinguistic function they can be empirically established to have. We should ask whether definitions actually *reveal* the meaning of words, rather than simply suggesting or implying them. Are definitions *always* involved in the explication of meaning? Are they *necessarily* involved? Are there some meanings (e.g. colour terms, deictics, NSM primitives) for which definitions are less effective than others? If so, are we entitled to assume that the apparent effectiveness of definition for other expressions derives from their representing these expressions' meaning?

It is a deep belief about language that fully specified definitions are perfect representations of linguistic meaning. A word's meaning, on this view, *is* its definition. As a result, repositories of definitions, dictionaries, are often appealed to in order to adjudicate on issues of semantic propriety. The adequacy of existing dictionary definitions, however, is not uncommonly called into question, and it is often recognized that a dictionary's definition of a word may need to be modified under various circumstances. But if it

can be acknowledged that an *actual* dictionary definition may not be an absolutely exact representation of the meaning of a word, the assumption is much less often questioned – at least by descriptive semanticists – that an exact definitional representation of a word's meaning exists *in principle*, with our failure to phrase one successfully being a purely practical limitation of no theoretical significance. But the possibility should be considered that the limitations of definitions are in fact much deeper. Successful explanation of the phenomenon of meaning should reveal what it is in virtue of that the meaning of a word is what it is. Are definitions, then, explanatory in this sense? In short, is the explanation of meaning what definitions *actually do*, or is it, perhaps, just what we *think* they do? Is there any sense to this distinction? We can distinguish two parts to the question: a) how often, in the actual use of language, do definitions have a role in explicating meaning? and b) what, in fact, are our criteria for a meaning's having been successfully explicated?

In answer to the first question, it should be noted that a word's full definition is required much less often than assumed, whether for language teaching, for the explication of unfamiliar words to a native speaker, or for resolving lexical misunderstandings between speakers. Consideration of the historical recency of the type of definition found in modern dictionaries should make this claim seem less outlandish: modern dictionary definitions have only been available in comparatively recent times, but people have always been able to acquire new meanings, learn new languages and resolve linguistic misunderstandings. This is because the folk metalinguistic practices used to inculcate an understanding of meaning have never been confined to definitions like those found in dictionaries, even if they have sometimes intimated them. The dispensability of dictionary-style definitions in the acquisition of meaning is as true now, in the heyday of dictionaries and thus of definitions, as it ever was. As illustration, consider the way in which meanings are explained in real situations. In order to explain the meaning of the verb *paint*, for example, to a student learning English as a second language, one will rarely employ a definition such as "portray, represent by using paints, make (picture) thus, adorn (wall, etc.) with painting; cover surface of (object) with paint; apply paint of specified colour to", an abridged version of the definition in the *Concise Oxford*. Nor would one necessarily use a suitably simplified equivalent, like an NSM definition (Wierzbicka 1996: 254-255) which, because of its considerable internal complexity, is just as unlikely as the *Concise Oxford* entry to be of real use in language learning:

X painted Y with Z. =
(a) X did something to Y
(b) like people do
(c) when they want something to look good
(d) when X did it
(e) X put some stuff Z on all parts of Y that one could see
(f) if someone looked at Z at that time
(g) this person could say what colour Z was
(h) at the same time, this person could think that part of Z was water
(i) X wanted Z to be like part of Y
(j) after X did it, Z was like part of Y.[11]

In its internal constituency (subordination, *like* clauses), its use of deictics and variables, and its invocation of part-whole structure, the structural complexity of this paraphrase offsets any of the simplicity claimed for its lexical constituents. What is gained in the ordinariness of the vocabulary is arguably lost in the complexity of the syntax – an objection that applies to NSM paraphrases quite generally.[12]

Instead of employing any of these methods to teach the meaning of *paint*, one will mimic painting-behaviour, give examples of the verb in use, perhaps draw a picture or mention rough synonyms in English or another language, and, in short, encourage the learner to use the metalinguistic clues being given to identify a likely referent for the new term. If one does appeal to a definition-like structure, it will only be invoked in so far as it is necessary. That is, one will not, in the process of explaining a meaning, continue to elaborate the various clauses of a definition after the student has demonstrated understanding. There is a sense, then, in which a definition is redundant, and this brings us to the second question raised above, that of the criterion of understanding which demonstrates that a word's meaning has been successfully acquired. This criterion, apparently, is not understanding how the word should be defined, but being able to *use* the word appropriately (cf. Miller and Leacock 2000: 153). For most ordinary, non-technical words, the best way of deciding whether someone correctly understands what a word means is whether they succeed in using the word appropriately. To test that the word *tree, car* or *eat* has been successfully acquired, we are accustomed not to solicit definitions, but simply to observe the learner's linguistic practice: to check whether the words are used appropriately. After all, native speakers are not lexicographers, and can

often correctly use words of which they are unable to proffer a good definition.

It is being claimed, then, that the definitions found in dictionaries do not characteristically have a role in language learning. Not only, then, is our style of definition not necessarily encountered in other cultures' metalinguistic speech-genres, but even our own definitions are not what we think they are (cf. Brown 1974).[13] Definitions do not guarantee that words' meaning will be conveyed successfully. In so far as definitional structures are deployed in language learning, they are deployed inferentially, as one of a number of aids to understanding, none of which is decisive, and which are all sensitive, both in content and form, to the particularities of the learning situation. There is not, in other words, any unique definition or stratagem which alone will guarantee the acquisition of a meaning: the technique by which a meaning can be successfully taught depends on both the definer and on the person for whom the definition is being framed. Additionally, the utility of a definition is measured only by the extent to which it helps the actual learner use the definiendum successfully: a definition which seems to capture the essential aspects of a word's meaning, but which does not facilitate correct use, is surely unsuccessful. .

To summarize: a semantic theory built on a practice of definition risks having perfected the art of definitional explication without any developed notion of what meaning is. While a method built on definitional paraphrase may appear to demystify meaning[14], it remains open to the charge that it is merely a theory of a particular metasemantic practice, and not a theory of meaning in any theoretically deep or comprehensive sense of the term.

3. Grounding meaning

As noted earlier, any non-behaviourist semantic analysis is subject to an apparently insuperable methodological boundary condition: meanings can only be analyzed into other meanings. Goddard (1994: 7) expresses this as the "Semiotic Principle": "A sign cannot be reduced or analyzed into any combination of things which are not themselves signs". A second, normative principle specifies the *type* of sign into which semantic analysis should take place. This principle, which could be called the Assumption of Metasemantic Adequacy, is the assumption that "the meanings expressible in any language can be adequately described within the resources of that language" (Goddard 2002: 5). The signs into which meanings are analysed

will therefore be words of natural language rather than the technical formalisms of other semantic theories. In equating semantics with the formulation of definitions, and in stipulating that, as such, it is irreducible to anything non-linguistic, the validity of accounts of meaning based on reference, denotation, or neurophysiology is denied. Given these assumptions, and adding, uncontroversially, the methodological criterion of the undesirability of circular definitions, definitional paraphrase must be grounded in undefined elements which are not themselves susceptible of definition. It is only if the process of definition is halted at a level of undefined elements that definitions can be truly explanatory and a circular regress of definitions averted. Because the vocabulary of a natural language is, at least for practical purposes, finite, any attempt to define *all* its words will inevitably lead to implicitly or explicitly circular definitions, definitions, that is, in which the same expression appears as both definiendum and definiens.

The idea that a rigorous semantic metalanguage must only make use of a fixed number of elements is a powerful impetus at the centre of many semantic theories and in many explanatory frameworks in general. It is a common feature of perspicuous explanation that it characterize the data to be explained using a more constrained set of analytical terms than those in which the data are described pretheoretically.[15] For NSM the question is which elements of the language are to be taken as indefinable. As pointed out by Goddard (2002: 13), "one can never prove absolutely that any element is indefinable. One can only establish that all apparent avenues for reducing it to combinations of other elements have proved to be dead-ends." The elements identified as indefinable in NSM theory are those which are (a) semantically simplest and (b) universal. Notice that in order for a definition to succeed (i.e. for it to be explanatorily effective) it need only possess the first of these properties. While it is obviously ineffective to explain the meaning of a word in terms of something *more* complex, it is not obvious that the most simple meanings will *also* be those found universally.[16] The NSM identification between the simplest and the most universal terms therefore deserves some discussion. As noted by Goddard (2002: 9), "the ideal position from which to bear on the issue [of which words are definitionally most basic, i.e. simplest] would be to begin with a body of deep semantic analyses carried out on a purely language internal basis in a range of diverse languages". This would establish which terms needed to be considered as indefinable. The analyst would then go on and look at whether the set of indefinable terms matched up cross-linguistically. Understandably, however, this has not been the course that NSM investiga-

tions have taken. As discussed by Wierzbicka (1996: 13), it was hypothesized from the very beginning of the theory that the sets of semantic primitives identified in each natural language would match:[17]

> This expectation was based on the assumption that fundamental human concepts are innate, in other words that they are part of the human genetic endowment; and that if they are innate, then there is no reason to expect that they should differ from one human group to another. (1996: 13)

The identification of the simplest meanings of a language with the universal ones is therefore a significant aid in the isolation of the indefinable terms. Universality and simplicity cooperate in each other's discovery: if an element seems to be truly universal, it is likely to be indefinable, and if an element seems to be indefinable, it may well prove to be universal.[18]

4. NSM-specific issues

This concludes the general remarks on NSM. We will now turn to some arguments against specific aspects of the NSM programme. In this section I sketch some objections against two features of NSM which distinguish it from other semantic frameworks: its insistence that explications must be simpler than explicanda, and it commitment to a residue of indefinable terms.

4.1 Greater simplicity as the criterion of explanatory success

In order to be successful, a definition must, in NSM, be couched in terms of something simpler:

> Semantics can have an explanatory value only if it manages to "define" (or explicate) complex and obscure meanings in terms of simple and self-explanatory ones. If a human being can understand any utterances at all (someone else's or their own) it is only because these utterances are built, so to speak, out of simple elements which can be understood by themselves'. (Wierzbicka 1996: 11-12)

The nature of understanding presupposed here, however, is open to question. One may concur with the principle that a successful definition must explicate a definiendum through definientia which are simpler, without accepting the existence of a canon of (universal) terms which represent the

absolutely simplest possible elements of explanation. Simplicity, in other words, should not be assumed to be an invariant property of an expression that can be measured on an absolute scale. An identification of 'simpler' with "more intelligible" (Goddard 2002: 5) is therefore salutary. To label a sense as "more intelligible" ('more able to be understood') brings out the fact that intelligibility is something manifested in events of understanding. Something that may be more intelligible to one person may be less intelligible to another. 'Intelligibility', in other words, is a relational property: it can only be measured by how successfully something *is actually understood* by someone on some occasion. This relational character is obscured by the term 'simplicity', which suggests an unchanging property of an expression that is not dependent on the individuals trying to understand it.

What makes an explanation 'more intelligible'? Common sense suggests that the answer varies from case to case and depends on many variables. Appeal to experience, however, shows that in order to be effective, an explanation has to be couched not, as claimed by NSM, in terms of a simpler element (on a putative universal scale), but in terms of something the addressee of the definition *already knows*. Prior knowledge rather than anything else is the criterion on which successful explication depends. The following thought experiment is a stark illustration of this point. Imagine that a Georgian speaker is trying to explain to me (a native English speaker) the meaning of the word *c'q'al-i*. The Georgian speaker knows hardly any English, and I speak no Georgian. In particular, the Georgian does not know the English translation of *c'q'al-i*. She is, however, a chemist, and offers as her explication the formula 'H_2O', which allows me to identify *c'q'al-i* as meaning 'water'. As a theoretical and scientific definition, the explanation 'H_2O' is certainly less simple in the "absolute order of understanding" (cf. Wierzbicka 1996: 10) than the word of which it is offered as the explanation. As a technical explanation within scientific chemistry, it is certainly also not universal. Yet this definition would be successful, because the technical chemical terms of which it consists are already known to me.[19] Prior knowledge, therefore, rather than simplicity, must be taken as the criterial condition for definitional success, *contra* NSM. If it was rebutted that, for us, the defining chemical terms should be considered as simpler, this would still not demonstrate that simplicity is the relevant criterion. This is because even if simplicity is identified with prior knowledge, the latter provides the more concrete and easily verified means of identification of definientia: whether something is part of a person's prior knowledge could conceivably be established empirically (for example, by question-

naires and psychological testing); whether it is simpler is a much less straightforward, more metaphysical criterion.

In claiming universality for its simplest semantic elements, NSM escapes the previous objection by, in effect, asserting an identity between the simplest meanings and the already-known ones. Since the semantic primes are assumed to be part of an innate conceptual structure inherited by every human being, they are always available to the understanding as the building-blocks for more complex meanings: they are, in other words, always already known. The supposed innateness of the primes therefore constitutes a counter-argument to the criticism that NSM adopts in simplicity a mistaken criterion of explanatory success. But since semantic universals are hypothesized to exist precisely in order to render explanatory definition through simpler terms non-circular, a method of semantic analysis which takes prior knowledge as its criterion of explanation has no need of them. Only if greater simplicity is substituted for prior knowledge as the universal characteristic of semantic explanation does a level of ultimate simples become necessary: the process of definitional simplification cannot, clearly, go on for ever. But if semantic explanation is assumed to operate by relating definienda to meanings which are already known, no universal array of absolutely simple ideas need be supposed. It only makes sense to believe in the existence of semantic primitives if we believe that explanation proceeds via reduction to simpler elements. As the example of Georgian *c'q'al-i* shows, however, this is not necessarily the case.

If the argument here is accepted that prior knowledge, not simplicity, is the appropriate criterion of explanatory success, the NSM method of semantic analysis will begin to look increasingly unlike an adequate approach even to the definitional explanation of meaning: to define a meaning correctly we do not have to build it up out of a level of supposedly elementary particles, but only relate it to meanings with which the learner is already familiar. As noted initially, the sets of meanings related in this way will differ rather significantly from one learner to another. This is not a trivial point. We have mainly, in this discussion, been granting to NSM that it is possible to specify a list of criteria which can predetermine the possible success of a semantic explanation. We will end this section by calling that assumption into question. The contrary claim, in fact, seems closer to the truth: *whether a word is successfully explained or not by a given metalinguistic formula is not a question that can be answered in the abstract*. This is because successful explanation is subject to significant interpersonal variation: as is, I think, widely recognized among parents, language teach-

ers and general stakeholders in the ordinary day-to-day explanation of meaning, what works well for one person may not work well for another. Whether or not a word's meaning has been successfully explicated, and its understanding thereby achieved, cannot therefore be determined by the extent to which a proposed explication conforms to a pre-established scheme: an explication's effectiveness cannot be measured with an invariant algorithm, but is sensitive to the particularities of each situation in which the definition is needed – not just superficial ones, but deep particularities having to do with the cognitive, cultural, and historical contingencies of each individual in the learning experience. This is a truism which I take to be so obvious as not to require any argument. For the sake of completeness, however, I invite the reader simply to reflect on their experience in explaining meanings to others, and to recall, in particular, those occasions, which inevitably will have arisen, on which the 'correct' definition of a term has not been grasped by a learner, necessitating the discovery of an alternative stratagem.

The success of a definition, then, does not derive from the membership of its elements in a deductive system that captures the essential meaning of words through appeal to the "absolute order of understanding". Definitions are not abstract algorithms, but practical tools used by real speakers to solve real problems of understanding. They are thus not dependent on principles of logical coherence, but on whatever means work to communicate the meaning, whatever it takes for the learner to 'get it', including ostension, analogy, translation and, if necessary, circularity. The alleged impossibility of an algorithm to determine an expression's degree of simplicity and its consequent explanatory utility would not affect NSM if it did not claim for itself a high degree of *actual explanatory effectiveness*; if it did not, in other words, claim that the validity of its method is to be measured by the success of its definitions in actually explicating the meaning of definienda. This, however, is the claim very often made by NSM theorists. It is, for instance, the justification for the repudiation of circularity as a definitional tool (see e.g. Wierzbicka 1996: 274–278). But as anyone knows who has tried to explain the meaning of terms to language learners (whether it is a first or second language in question) explanation in even the simplest possible metasemantic terms may not succeed. Not only is a maximally simple paraphrase not a *sufficient* condition for successful explanation (in that as well as hearing or reading the definition, the learner, must also understand, or 'get' it), it is not even a *necessary* one: successful explanation is often achieved, for many concrete words, ostensively rather

than through paraphrase. In order to explain to a Chinese speaking botanist the meaning of the English word *conifer* we will adopt a very different procedure from the one we would use with a Chinese speaking four year old, but in each case the explanatory success of our definition must be measured by the only criterion that should surely count in an empirical theory, and the criterion which NSM in fact adopts: that of whether it succeeds in conveying the meaning of the word to the learner. The best definition will thus depend on a variety of contingent variables in the person to whom the definition is addressed. This is not, as might be objected, a trivial point about the necessity of idealization: it will not do to say that maximally simple definitions are those which *inevitably* lead to understanding under ideal conditions. The claim here is that meaning, perhaps unlike other components of linguistic description, is so deeply embedded in the particularities of individual and social variation that it is impossible to abstract a single, invariant paraphrase which can serve as the successful definition of a term. If we accept actual explanatory adequacy as the criterion of measurement for definitional adequacy, we must acknowledge that the means for creating a successful definition of a word will vary radically from one situation to the next and that as a result there is no such thing as a necessary condition of definitional success.

In its claim that definitions of a particular kind provide the only reliable mode of semantic explanation, NSM therefore presupposes a narrow model of *understanding*, according to which reductive paraphrase of definienda through simpler terms is the unique and universally viable mode of meaning explanation. The avowed motivation of the semantic theory to which this model belongs is the avoidance of culture-specificity through the development of a cross-culturally neutral lexicon. But in its assumption of a universal simplicity able to be captured in a unique metalinguistic format, it is open to the attack of reinstating an equivalent bias in this other aspect of its methodology.

4.2 Canonical contexts

The next issue to be discussed concerns the determination of the exact membership of the set of universal primes, and the methods used to discover whether a certain language contains an exponent of a putatively primitive meaning. As noted by, among others, a number of the contributors to Goddard and Wierzbicka (1994), many – we might add, perhaps all

– of the English exponents of the primes are polysemous, with only one of the many meanings expressed by each being identified as universal (for some discussion of this point, see Cattelain 1995). For example, in testing for the presence of an exponent of a primitive meaning in a particular language, it is not enough to simply ask whether the language in question has words for *I, you, someone, people, big, good, true* and the other exponents of the primes; instead, it is necessary to distinguish the sense claimed as universal from the others: is the primitive TRUE, for instance, better represented by the meaning present in (3) or (4)?

(3) *If you read it in a book it must be true.*

(4) *You must be true to yourself.*

In answering questions like this the theory encounters a problem of its own making. Because the direction of semantic explanation must always proceed from complex to simple, the allegedly universal sense cannot be distinguished in the most obvious way, i.e. simply by *defining* it through other words: since the semantic primitives are indefinable, any such attempted definition would inevitably use more complex language and hence be invalid. The solution to this problem is to "indicate for each proposed prime a set of 'canonical contexts' in which it can occur; that is, a set of sentences or sentence fragments exemplifying grammatical (combinatorial) contexts for each prime" (Goddard 2002: 14) which allows the primitive meaning to be identified. For example, only the (a) sentences below are considered to involve primitive senses of the highlighted verbs:

(5) a. *This person can't* move. (Wierzbicka 1996: 30)
b. *Her words* moved *me.*

(6) a. *(When this happened), I* felt *something good/bad.* (Goddard 2002: 15)
b. *I am* feeling *your pulse.*

Sentences like (5a) and (6a) define the canonical contexts (also called 'canonical sentences': Wierzbicka 1996: 30) which can be used to test the validity of NSM primes.[20] 'Merely listing the English word *feel*', for example, 'does not indicate which of these contexts is intended' (Goddard 2002:

15). The canonical contexts are supposed to make it clear which of the many possible meanings are intended as a semantic primes.

Sentences (5a) and (5b) are, however, multiply ambiguous (see Cattelain 1995: 166 for another example of this criticism). Thus, (5a) could have at least the following four interpretations, of which presumably only (one of the many possible interpretations of) the first is the one intended:

(7) *This person can't move (part of) their body.*
This person can't change their location.
This person can't change dwelling.
This person can't change their ideas [about a particular issue].

Likewise, (6a) could refer to either of the following situations, only the first of which presumably corresponds to the canonical context:

(8) *(When this happened), I had a good/bad feeling.*
(When this happened), I perceived something good/bad by touching it.

The existence of ambiguity in these canonical sentences is not accidental. Specification of a canonical context will never be enough to exclude all unwanted senses, since no sentence can uniquely determine a single meaning: the possibility of multiple interpretations can never be excluded, even in a rigorously formalized metalanguage. The canonical contexts thus do not provide an unambiguous delineation of a single meaning, but require significant contextualization in order to impose the required reading. To elicit from an informant an equivalent for 'move' in (5a), for example, an NSM theorist would have to engage in a considerable amount of stage setting – for instance, by asking the informant what one would say in certain characteristic situations in which the intended sense of *this person can't move* would be appropriate (someone confined to a wheelchair, say). In order to render these specifications explicit, replicable, and open to scrutiny – qualities which they must have if they are to be admitted as parts of a rigorous and scientific procedure – it would be necessary to use semantically more complex terms, thus reversing the only direction of explanation which NSM endorses. The inherent ambiguity of canonical contexts means that they require disambiguation through definition in language. Adequate disambiguation cannot be provided, however, without violating the main principle of the analysis, namely that some elements must be left undefined.

4.3 Scope

NSM analysis is only possible if a set of highly frequent and core words – the primitives of the theory – are left undefined. These are inherently exempted from semantic analysis: we can never know about their meanings. Given that only a fraction of even the English vocabulary – and even less in other languages – has been thoroughly expounded in NSM primitives, we are entitled to assume that the list of primitives will expand considerably, and that the rules of syntax governing its combinatorics will also be significantly amplified. The eventual NSM semantics and syntax, then, will resemble even more of a full-blown 'natural language in miniature' (Goddard 2002: 13) than it does now.[21] The upshot of this is that there will, in the final theory, be a substantial core of words about whose meaning we can say practically nothing. The most the theory will allow us to do is to distinguish various senses, although, as discussed in the previous section, it has not supplied the formalized basis for this that is required. In addition, these words will be the most universal and the most basic in the vocabulary of every language. One is entitled to ask whether this is a desirable goal of semantic theory. Does a theory which has nothing to say about basic meanings like *live, true, before, think, see* or *big* adequately fulfil the explanatory aims of linguistics?

5. More general issues

In this section we turn to criticisms of several aspects of the NSM programme which are not specific to NSM, but which it shares with other semantic theories. Because my main purpose is to challenge the claims NSM makes to methodological superiority, I will continue to frame my arguments in an NSM-specific manner, and leave it to the reader to generalize them elsewhere. Because other semantic theories are generally much less forthright than NSM about their own methodological virtues, these criticisms, though equally applicable, are less damaging.

5.1 Substitution as an index of identity

This section explores the status of substitutability in NSM and, by extension, descriptive semantics in general. (5.1.1) contains the main discussion

of the issue. In (5.1.2) implications of the argument for NSM's claimed non-objectivism will be considered, and in (5.1.3) a subsidiary problem will be noted.

5.1.1 Main discussion

In NSM as in other semantic theories, a minimum requirement on a term's definition is that it be substitutable for the term itself. The locus classicus of this requirement is its famous articulation by Leibniz: *eadem sunt, quae sibi mutuo substitui possunt, salva veritate* ("things are the same which can be substituted one for the other with truth intact"). In NSM, the principle in question can be reconstructed as having the following form:

(1) Substitutability
Linguistic elements (*x* and *y*) can be substituted for element *z*
['unmarried' + 'male' can be substituted for 'bachelor']
therefore
(2) Identity
The meaning of *z* is identical to (or composed of) the elements (*x* and *y*).
[the meaning of *bachelor* is or is composed of the two elements 'unmarried' and 'male'].

The substitutability principle is regularly appealed to in order to test proposed NSM analyses: if the semantic paraphrase can be substituted for the definiendum, then it is accepted as accurate. Note that in NSM – as elsewhere, apparently, in Leibniz himself – it is not identity of truth, but identity of *meaning* that is required between definiens and definiendum: only if the definiens can be substituted for the definiendum without loss or addition of meaning (*salvo sensu*) in the original context (*in locum*) is it accepted as its correct analysis (Wierzbicka 1988a: 12). The apparent circularity of this aspect of the argumentation will be considered shortly. First, however, it is necessary to observe that the conclusion from (1) to (2) is not *prima facie* warranted by the intuitive force of *identity* and *substitutability*. This is because substitutability and identity are quite different relations: put briefly, identity is about the inner essence of something, whereas substitutability is about equivalence *with resect to a given function* – it concerns, in other words, *the role something has in a particular context*. Whereas the semantic identity of a linguistic unit is assumed to be fixed – it has an in-

variant 'essential nature' which is precisely what semantic analysis aims to uncover – substitutability varies from one situation to another, depending on what is at stake in each substitution. The fact that one linguistic expression can be substituted for another in the context of a definitional practice therefore does not tell us anything more than that the two elements are functionally equivalent for this purpose. As a result, an attempt to argue from substitutability within a definition to semantic identity will necessitate a theory of the relationship between definition and meaning – a relationship which, if the argument of the previous section is correct, is substantially different from the one usually assumed. In the absence of such a theory, a semantic method which simply analyses expressions into a definitional metalanguage should not, strictly, be thought of as a theory of meaning, but as a theory of definition.

There are many non-linguistic cases in which truth-preserving identity and substitutability do, in fact, diverge. The situation in mathematics, in which a term (e.g. '3^2') is (numerically) identical to the element for which it can be substituted *salva veritate* ('9'), is thus entirely atypical.[22] In chess, for example, a pawn can under certain circumstances be *substituted for* a rook, without being in any way *identical to* a rook, even for the period of its substitution: it is a pawn *being used as* a rook. This remark applies even to a pawn piece that has been used to permanently replace a missing rook. Similarly, five two cent coins can be *substituted for* a ten cent coin, but this is not to say that the ten cent coin is identical to or constituted by five two cent coins: it has the same value in most, but not all, contexts (consider a rare ten cent coin whose face value is well below that of its value to collectors), but differs on most other dimensions of possible discrimination (size, appearance, metallic composition, history of use). To take a slightly different case also involving money, certain coins and notes can be used to buy – can be substituted for – different goods, without in any way being identical to, or consisting in, these goods. A voyage from Europe to Australia via the Cape of Good Hope can be substituted for a voyage via Cape Horn, and this *salva veritate* – in both cases, it is a voyage from Europe to Australia. Yet the two trips are in no way identical to each other. If, then, this lack of congruence between substitutability and identity seems often to hold, we should not assume without argument that it is suspended in the case of meaning.

The preceding paragraph has cast doubt on the proposal to see in *salva veritate* substitution a necessary indicator of identity: because of the variety of contexts in which something participates, it may contract relations of

substitutability with numerous other elements, none of which need be considered identical to it. We can now ask whether *salva veritate* substitutability *in all contexts* would overcome this objection: if two things can be mutually substituted in every (*de re*) context, are they not in fact identical? But here also we have to recognize that the distinction between substitutability and identity must be maintained. This is simply because of the fact that two elements can be truth-functionally (extensionally) identical, but differ in sense or intension. The following are examples of this situation:

oldest city in Australia; Sydney
human being; member of species which landed on the Moon
triangle; three-sided polygon

In all these cases[23] the expression on the right of the semicolon could be substituted for the expression on the left without loss of truth; as a result, it would, by the substitution condition, be considered identical to it, despite the fact that it differs in meaning. The condition of truth under substitution therefore cannot be taken as an indicator of identity of meaning, because it will ignore the distinction between a term's sense and its reference.

For this reason, preservation of truth is not the criterion adopted in NSM to regulate definitional substitutions: NSM scholars have repeatedly, and correctly, denied the accusation that their method is 'objectivist' in this sense (Goddard 2002: 8; a sense in which NSM *is*, in fact, objectivist will be distinguished below). Instead, the criterion of preservation of meaning is used: an NSM definition is accepted if it can be substituted *salvo sensu* for the definiendum (Wierzbicka 1988a: 12; Goddard 2002: 6): if, that is, it involves neither addition nor loss of meaning with respect to the meaning of the definiendum.[24] At this point an important problem arises, entirely parallel to the one alluded to above (note 17), which it will be useful to briefly recapitulate. This earlier problem was how to establish that the various exponents of the same semantic primitive in different languages have the same meaning (the Isomorphism of NSMs Principle: Goddard 1994: 12). *Know* in English and *tahu* in Malay, for example, can only be proposed as exponents of the prime KNOW if they have the same meaning (cf. Cattelain 1995: 165). Yet this is precisely the fact that it is necessary to justify, for without justification of the claim it will be impossible to head off a denial that *know* in English and *tahu* in Malay are semantically equivalent. To provide this justification it will not be enough simply to point to the fact that one is used to translate the other, or that bilingual native speakers say

that the two words 'mean the same thing': these are facts which are susceptible of a variety of interpretations. Instead, it will be necessary to offer some independent characterization of the meaning of *know* and *tahu*, so that the fact that these meanings are the same can be directly established. Given that the primes are indefinable, this is impossible in NSM. The necessity to demonstrate that two candidate exponents of the one primitive in different languages have the same meaning thus presupposes the availability of the very tool that NSM claims to be supplying, an accurate metalanguage.

Exactly the same problem arises in the attempt to verify that an NSM explication has the same meaning as its definiendum. For what is the metalanguage in which the meanings of a definiendum and an NSM paraphrase can be represented, in order to determine whether or not they are, in fact, identical? Without such an independent determination the argument for the correctness of the NSM paraphrase is entirely stipulative and circular: we are being asked to accept an NSM definition as a true representation of the meaning of a definiendum because it does not involve any addition to or loss from this meaning – because, in other words, it is a true representation of its meaning.[25] If an NSM paraphrase is simply accepted as a true representation in this way, without any independent justification or elaboration of the decision procedures justifying a judgement of semantic identity, the theory is very far from providing a non-arbitrary method of semantic description arising from 'a coherent semantic theory and well-developed semantic methodology' (Wierzbicka 1999: 23–24). Still less does it offer 'language-independent and 'culture-free' analytical tools' (Wierzbicka 1991: 148) which render its descriptions 'open to intersubjective assessment' (Wierzbicka 1999: 24), since the processes that validate a paraphrase as the correct definition of a term are not available to scrutiny. If the final determinant of whether a paraphrase fits the definiendum is the individual investigator's intuitive judgement, we have in no way attained a 'justifiable metalanguage' (Wierzbicka 1991: 148) which removes the distortions of our own language and provides a rigorous mode of representation. The linguistic definitions of NSM are not "scientific hypotheses" which "cannot be proved right, but … can be tested and proved wrong" (Wierzbicka 1996: 239). This is because genuinely scientific hypotheses, like those of chemistry, for instance, do not require subjective, introspective assessment on the part of the scientist as a central component of their testing. If a scientific theory predicts that an experiment will yield a certain measurable value for a variable, it is an objective matter – or as close to one as we are likely to

get – whether that value or another is in fact obtained, and the experiments by which this is tested are replicable by any member of the scientific community. By contrast, the judgements of semantic identity and difference through which a method of semantic description is tested are in no way like this, depending crucially as they do on introspective subjective assessments. As a result, not only are these judgements subject to culturally conditioned variability: even worse, they are subject to *individual* variability between different scholars from the same culture – as evidenced by the fact that different scholars might disagree as to whether a particular paraphrase is or is not semantically equivalent to the definiendum in question.[26] The all-pervasive subjectivity of the enterprise of meaning description is thus by far a more serious obstacle to a scientific semantics than any interference from cultural factors.

This is a duplication on a different level of the very problem for which NSM is suggested as the answer in the first place. As Wierzbicka puts it:

> To compare meanings expressed in different languages and different cultures, one needs a semantic metalanguage independent, in essence, of any particular language or culture – and yet accessible and open to interpretation through any language. (1991: 6)

But this point applies just as much to the comparison of meaning necessary to verify the accuracy of an NSM paraphrase as it does to the comparison of meaning which NSM claims to facilitate for ordinary linguistic semantics. If it is to be demonstrated, rather than merely asserted, that a definiendum and its proposed NSM definiens have the same meaning, some additional and accurate semantic representation is needed in which the meaning of both definiens and definiendum can be objectively examined. Paradoxically, however, such a metalanguage is precisely the tool that NSM claims to be uniquely supplying, and which we must therefore presume not to be available before the final realization of the NSM system. NSM frequently claims, indeed, that any other semantic metalanguage – including ordinary language, with its commonly decried inadequacies – is subject to the faults of ethnocentrism, circularity and terminological obscurity which "dog most other semantic methods" (Goddard 2002: 5), and which the developed NSM lexicon seeks to transcend. By its own admission, therefore, the semantic metalanguage necessary to assess the matching of definiendum and definiens does not exist.

This problem would matter less if NSM did not claim to provide a theoretically principled basis for semantic research which removes the distort-

ing ethnocentrism bedevilling other semantic theories. If NSM saw itself as one among a number of equally subjective, culture-specific modes of semantic representation, it would be no more or less affected than its fellows by its ultimate reliance on intuitive semantic judgements. It is argued here that these judgements are entirely inevitable, and that they install a degree of irreducible subjectivity into semantic analysis. If semantic analysis is irreducibly subjective, there is little point in trying to render it culture-neutral, since this will not remove the even deeper level of bias. As it is, however, NSM claims to be categorically different from comparable semantic theories in the scientificity, rigour and culture-neutrality of its method, and to "[submit] itself to a higher standard of verifiability than any rival method" (Goddard 2002: 11). But without a metalanguage in which the meaning of definiendum and definiens can be accurately and explicitly represented and contrasted, investigators' semantic judgements, as well as the intuitions and methodological proclivities on which they are based, are effectively placed beyond scrutiny, a fact which robs NSM of its claimed methodological superiority.

NSM theory thus presupposes a pretheoretical interim vocabulary in which initial observations about semantic facts can be couched, and judgements of semantic identity legitimated and made explicit. This vocabulary would be analogous, perhaps, to the ordinary vocabulary in which astronomical observations are couched, and of which astronomical theories are the refinements: observations like 'there is a stationary light thirty degrees above the horizon'. The failure of NSM to sustain its own claim to provide a maximally neutral medium for semantic description derives, it is argued here, from the fact that no such vocabulary exists: any semantic metalanguage depends on a high degree of subjective, intuitive semantic judgement.

So far we have been arguing that the absence of an objective metalanguage from the development stage of any NSM paraphrase compromises the ability of the theory to *justify* its particular final paraphrases. We will now extend the argument in order, ultimately, to show that without such a metalanguage, a semanticist cannot even *refer to* the semantic features of a word which need to be reflected in its definition without continually running the very risks (terminological obscurity, circularity) which only the finished NSM lexico-grammar will escape. Unlike the relatively neutral observational vocabulary of astronomy, which involves uncontroversial notions on which observers can agree (degrees above the horizon, cardinal directions, brightness, etc.) and which do not strongly determine any one

theoretical treatment, the initial observational language of semantics strongly influences the nature of the subsequent theoretical representation by constituting the very (culture-specific) terms in which the meaning of a definiendum is first represented, and which the NSM definition seeks to purify. Since these initial descriptions inevitably contain many semantically complex, multiply ambiguous words, they do not provide the firm and unambiguous basis for semantic description that NSM requires. If ordinary language semantic descriptions are thoroughly infected with obscurity, circularity and latent culture-specificity, they should not be relied upon at *any* stage of the process of semantic description: any preliminary characterization of an aspect of a term's meaning, on which the NSM paraphrase is based (e.g. "wetness, freshness, succulence" as relevant to the Hanunóo word *latuy*: Wierzbicka 1996: 307, following Conklin 1964: 191), can be claimed as an inaccurate because potentially ethnocentric, unclear, or overly complex.

Let us examine a particular instance of this dilemma, Wierzbicka's treatment of the Japanese noun *amae* (1996: 238–239). The development of this analysis is similar in many respects to that of the (much less encyclopaedic) analyses of P/I vocabulary that will be advanced in the later chapters of this monograph. As a result, it warrants close inspection. In developing an NSM paraphrase for this noun, Wierzbicka refers to many non-NSM descriptions and definitions of its meaning and that of related words, as found in existing lexicographical and other sources. These definitions are the pretheoretical descriptions that motivate the eventual NSM paraphrase, and they include the following:

> "helplessness and the desire to be loved", "lean on a person's goodwill", "depend on another's affection", "act lovingly towards (as a much fondled child towards its parents)", "to presume upon", "to take advantage of", "to behave like a spoilt child", "be coquettish", "trespass on", "behave in a caressing manner towards a man", "to speak in a coquettish tone", "encroach on [one's kindness, good nature, etc.]", "presume on another's love", "coax"; "take advantage of", "play baby", "make up to [someone] and get their sympathy", "coax", "act spoilt" (for *amae*, n); "depend and presume upon another's benevolence", "wish to be loved", "dependency needs" (for *amaeru*, vb). (cf. Wierzbicka 1996: 238–239).

These descriptions are, collectively and individually, highly ambiguous: how many different situations, for instance, can be conveyed by "coax" or "trespass on"? And if they are ambiguous, they are even more culture-specific: how much culture-dependent semantic complexity is contained in

notions like "be coquettish" or "act spoilt"? These descriptions, in fact, seem to be precisely examples of the "arbitrarily invented labels" which "can only conceal and obfuscate the language-specific character of the categories to which they are attached" (Wierzbicka 1996: 456, a point being made in reference to grammatical categories). If the NSM set of primitives is to supply "constant points of reference, which slippery labels with shifting meanings cannot possibly provide" (Wierzbicka 1996: 456), it must not simply inherit the weaknesses of the pretheoretical descriptions on which it is based. There is no point in an NSM paraphrase's being couched in universal vocabulary if the initial descriptions which it has been designed to reflect are themselves highly culture-specific.

As examples of ethnocentric, semantically complex, and ambiguous talk about meaning, the initial descriptions license a wide range of possible NSM paraphrases, and can only be used as input to an NSM definition after undergoing a particular interpretation. Yet, given the 'slipperiness' of the descriptions, there is no way to justify any one of the possible interpretations over another. In the case of *amae*, for example, it is clear that the NSM paraphrase developed "[o]n the basis of these and other similar clues" (Wierzbicka 1996: 238), represents just one of many possible preliminary meaning descriptions:

> *amae*
> (*a*) *X* thinks something like this:
> (*b*) when *Y* thinks about me, *Y* feels something good
> (*c*) *Y* wants to do good things for me
> (*d*) *Y* can do good things for me
> (*e*) when I am near *Y* nothing bad can happen to me
> (*f*) I don't have to do anything because of this
> (*g*) I want to be near *Y*
> (*h*) *X* feels something good because of this (Wierzbicka 1996: 239)

The NSM paraphrase is thus a refinement of (selected) pre-existing descriptions which, insofar as they are framed in ordinary language, are subject to its failings of ethnocentrism, culture-specificity, etc. Yet it is these descriptions to which the eventual paraphrase is explicitly tied. Wierzbicka justifies its various components in terms of their correspondence to aspects of the earlier descriptions, especially those in Doi (1981):

> Doi emphasizes that *amae* presupposes conscious awareness. The subcomponent (*a*) "*X* thinks something like this …" reflects this. The presumption

> of a special relationship is reflected in the component (*b*) "when *Y* thinks about me, *Y* feels something good". The implication of self-indulgence is rooted in the emotional security of someone who knows that he or she is loved: "it is an emotion that takes the other person's love for granted" (Doi 1981: 168). This is accounted for by the combination of components (*b*) "when *Y* thinks about me, *Y* feels something good", (*c*) "*Y* wants to do good things for me", (*d*) "*Y* can do good things for me", and (*e*) "when I am near *Y* nothing bad can happen to me". The component (*f*) "I don't have to do anything because of this" reflects the passive attitude of an *amae*-junior, who does not have to earn the mother figure's goodwill and protection by any special actions. The component (*g*) "I want to be near *Y*" reflects Doi's (1981: 74) idea that the baby in an "amae" relationship to the mother 'comes to feel the mother as something indispensable to itself" and that 'it is the craving for close contact thus developed that constitutes … *amae*'."

The line from any one of these statements to the component of the definition is far from unambiguous: the statements do not uniquely determine the particular NSM phrasing adopted, and the NSM phrasing does not uniquely connote the statements. It is therefore just one particular construal of these statements that is adopted, and others are concomitantly excluded.[27] For instance, Wierzbicka says that "the presumption of a special relationship is reflected in component (*b*) 'when *Y* thinks about me, *Y* feels something good'". But there are many ways in which a relationship can be "special"; the existing paraphrase therefore embodies just one of many possible construals, and the choice of this construal is not warranted by anything in the pre-existing descriptions: even though (b) may, in fact, be a good way of expressing part of the meaning of *amae*, there is no way of establishing this simply on the basis of the pre-existing reports. Similarly, it is possible to imagine many ways of paraphrasing the implication of self-indulgence rooted in the knowledge of being loved, different from components (b)–(e): what, for example, excludes a component like "Because of Y, I feel something good" as a partial representation of this confident self-indulgence? Again, component (g) is claimed to reflect the fact that the baby in an *amae* relationship feels the mother as "indispensable" to itself, a far cry from the mere physical proximity referred to in this component ("I want to be near Y"), and which might have been reflected in a paraphrase in a number of possible ways, including perhaps "when Y is not near me, I think like this: I cannot live". The NSM definition is thus developed on the basis of a raft of terms – "special", "self-indulgence", "indispensable", etc. – which in no way provide "a maximally 'neutral' and culture-independent point of view" (Wierzbicka 1999: 2). Even if the existing paraphrase is a good representa-

tion of the meaning of *amae*, and the alternatives suggested above not, the point still remains that we can have no other justification of the paraphrase's appropriateness than an intuitive one: since the preliminary semantic descriptions could motivate a number of different NSM realizations, according to the particular construals made of them, it is always up to the individual investigator to decide which paraphrase fits best. Given the divergence of possible opinions, this is hardly an open standard of verifiability at all, and NSM's claim to supply a maximally culture-neutral, non-arbitrary representation is therefore vitiated.

This is a problem from which no semantic theory may claim to escape. Any attempt to discuss meaning presupposes an initial metasemantic vocabulary in which the first, rough impressions of meaning are couched, and relies on the investigator's own intuitive judgements of identity and difference between definientia and definienda – quite in conflict with the foundational and purificatory instincts at the core of the NSM analysis.[28] Proposed refinements of this vocabulary will inevitably depend on the initial gross delineation of the semantic facts which it imposes. And in the absence of an independently justified metalanguage in which claims of identity between definiens and definiendum can be justified, the theory remains circular. As just observed, this is only a problem if unrealistic claims are made for the theory. A theory which claims an absolute contrast between its fully developed, 'purified' method of semantic description and its observational predecessors inevitably deprives itself of a means of justifying its choice of elements. In contrast, a method of semantic analysis prepared to acknowledge its own inevitably adventitious nature does not have to defend a claim of methodological priority over rival analyses.

A Wierzbickian might respond that the initial terms used to talk about aspects of a word's meaning during the evolution of a full NSM representation are no more than labels serving to name certain intuitively grasped semantic properties of the word in question.[29] The finished NSM paraphrase, on this view, would not be *shown* to be semantically identical to the definiendum, it would simply be endorsed as such after a process of introspection in which the investigator scrutinized their intuitions and determined that the definiendum and the NSM paraphrase matched in meaning. Intuited properties, however, while inescapable in semantic analysis, are, paradoxically, an unsatisfactory basis for the sort of analysis to which NSM aspires, given the vagueness and variability of intuitions within and between individuals, and the consequent unlikelihood that they could ever be disciplined stringently enough to yield semantic judgements of the requisite

certainty, delicacy, or depth. Even if such discipline was possible, the match between paraphrase and definiendum could only ever be asserted, never demonstrated – hardly a satisfactory situation for a methodology that claims to provide 'clear standards of precision' (Wierzbicka 1991: 283).

The last point is worth emphasizing. Intuitions themselves cannot enter directly into the explicit argumentation of semantic analysis, but must first be named in language. As intuitions, indeed, they are theoretically inert, since the nature of the semantic property identified by a named intuition (e.g. the aspect of 'positive evaluation' identified as part of the meaning of words like *nice*) can only be made precise through an elaboration of those conventionally accepted terms which can be definitionally related to, or accepted as satisfactory conceptual analyses of, the label in question. The conventional properties of the label must, in other words, coincide with the properties of the intuition. Thus, one may choose the label 'positive evaluation' for an intuited semantic feature of the words *nice, kind, tasty, happy, pretty*, etc. (Goddard 2002: 16), but this will only be accurate in the process of framing definitions of these terms as long as the meaning of 'positive evaluation' is itself compatible with the meaning of the words being defined. For example, it is possible to associate the noun *evaluation* with calculation and deliberation of a rather cold, detached and unspontaneous kind – quite frequent connotations of the noun, I suggest. If these connotations are mistakenly taken to be part of the intuited semantic content of the definienda, and enter into the subsequent definitions, the meanings of *nice, kind, tasty, happy, pretty*, which do not include these connotations, will be misrepresented in the finished paraphrase. [30] The point that a label like 'positive evaluation', when used to mark an intuited property, needs to be appropriately chosen is, no doubt, entirely obvious. Less obvious, perhaps, is the point that while the intuited semantic property may fall within the semantic range of the metalinguistic description chosen to label it (in the case of *nice*, 'positive evaluation'), many other semantic properties which have, in fact, *not* been intuited will also fall within this range: as has just been shown in the case of 'positive evaluation', the range of the application of the metasemantic label will usually be *greater* than that of the intuited semantic feature (this, simply because of the very imprecision of ordinary language which NSM recognizes and tries to escape). As a result, it will be necessary to specify some way of narrowing down the range of connoted semantic properties expressed by the label so that it applies to the intuited feature of the definiendum alone, excluding unwanted semantic properties. The claim made here is that language will never be able to be matched pre-

cisely enough onto intuitions for this (this is why there are so many possible ways of describing the meaning of a word, all of which conform to our intuitions), and that, as a result, there is an irreducible core of intuition in semantic analysis which prohibits the type of regimented and unique description of meaning which NSM claims to provide. Not only, then, are NSM analyses deprived of an objective means of justification for their analyses, but NSM investigators do not even have a way of objectively referring to the semantic features of definienda.

The chain of reasoning that issues in the finished paraphrase is not, therefore, of the kind characterized by the rigorous and deductive working out of argumentative steps, but one in which intuition, subjectivity, and hence indeterminacy enter at crucial points, especially as concerns the relation between a proposed gloss and the intuited semantic feature to which it refers. The justification for one particular semantic description over another cannot therefore be made objective and rigorous, but always rests on necessarily subjective, intuitive judgements of semantic appropriateness. To reiterate the point made earlier, this would not be a problem if it were not for the claim that NSM escapes the circularity and culture-specificity (i.e. subjectivity) of other analyses.[31] In order to escape ethnocentrism, it is not enough for a definition to be *framed* in supposedly universal terms: it must also *be based on culture-neutral evidence*. A definition does not stop being ethnocentric simply because its formulation uses universal elements, since it may embody an entirely culture-dependent perspective at a deeper level. This, I suggest, is always the case. NSM claims to do more than provide a lexicon of universal elements which can be used to couch definitions which would have the same meaning in any language. It also claims that the particular definitions it offers provide a sound basis for comparative research into meaning. Many scholars have doubted the first claim; here, I have tried to show that even if the primitives are accepted as universal meanings, the definitions in which they figure continue to embody highly culture-specific, subjective descriptions of meaning. To adapt a frequent Wierzbickian metaphor, we always see meaning through the prism of our own *selves*: even granting that the NSM primitives are universal, the theory cannot eliminate the subjectivity of the semantic judgements necessary to the development of its paraphrases. The view from nowhere (or from almost nowhere) promised by NSM is therefore illusory.

5.1.2 NSM and objectivism

We now must note a sense in which NSM remains thoroughly objectivist in spite of itself. Given that NSM aims to identify the meaning of each definiendum, and that the definiens must in each case therefore be unknown until after the NSM analysis has been achieved, there is (once a maximally simple and universal set of primes has been evolved) no other criterion to regulate the definitional substitution than preservation of truth. If it is acknowledged that intuitions are not reliable or deep enough to serve, and that the method of substitutability *salvo sensu* is circular, the only remaining criterion of whether an NSM paraphrase is an appropriate representation of the meaning of a definiendum is whether it is true under the same conditions. NSM therefore faces the paradox that the only possible justification of its method that would deliver it the methodological certainty it claims is the one it explicitly rejects.

5.1.3 Substitutabilty and omission of meaning

To conclude this section, let us consider a further problem with the use of substitutability. In order to sustain an argument to identity, substitution of a definiens for a definiendum without change in meaning must hold in *all* conditions, not just some. This is the only way in which the complete identity of the substitutee with the substitute can be guaranteed. But the NSM decomposition of a term into primitives targets purely the 'semantic invariant' or core of each word, and screens out all the non-recurrent aspects and shades of meaning that a word takes on from one instance to another. (This practice, indeed, is inherent to any program of word-type definition, and is already implied in the very hypothesis of word meaning.) This allows another failure of substitutability to be identified. For most words, an NSM paraphrase – or, indeed, any other definition – cannot be substituted without loss of a large amount of idiosyncratic semantic content, which we intuitively take as part of the word's semantic effect. For example, consider the following instances of *normal*:

(9) a. *I've got used to it, life seems normal now.*
b. *One o'clock is normal for lunch.*
c. *This baby is completely normal.*
d. *Everything's always normal and I just get bored.*

These instances seem to differ in their evaluative force. *Normal* in (a) and (b) seems to be evaluatively neutral: for something to be normal is to be neither particularly good nor bad. By contrast, in (c), *normal* is apparently positively evaluated, whereas in (d) it is negatively evaluated. In order to accommodate these differing evaluations into a paraphrase of the meaning of *normal*, we have two choices. Either we must recognize three distinct meanings, one for each evaluation, or we must omit the evaluative component of the meaning.[32] If we adopt the first solution, we will then be faced with a new set of problems. For consider the sentences in (10):

(10) a. *This baby is completely normal.*
b. *The results of your brain scan were completely normal.*
c. *The flight was completely normal.*
d. *The width of your little toe is completely normal.*
e. *The level of your natural proficiency at long-jump is completely normal.*

These sentences exemplify, let us grant, positively evaluated instances of *normal*: it is good if babies, brain scan results, flights, toe width and long-jump proficiency levels are (at least) normal. However, it is possible to discern slightly varying *degrees* of positive evaluation in these sentences. For example, it is presumably better for one's baby to be completely normal than it is for one's long-jump proficiency levels to be. How, then, are these varying evaluations to be represented? By distinguishing a separate sense for each one? Given that a virtual infinity of discriminating nuances, both evaluative and not, can be imagined for any given word, at what level of delicacy should the postulation of separate senses be suspended? How can this be done in a principled way?

Once launched, such a proliferation of senses seems essentially unstoppable: obviously, not all the nuances and connotations attaching to any occurrence of a word can be incorporated into its definition, since these are, by nature, only temporarily associated with it. This would lead most investigators to opt for the second possibility, that of only including as part of the 'meaning' of the definiendum the semantically invariant aspects. Thus, while everything in the paraphrase is (in principle) true of the definiendum, not everything in the definiendum is true of the paraphrase, since there is much that is simply omitted from it. In only characterizing the semantically invariant portion of the definiendum NSM paraphrases again fail substitutability.

5.2 Disconfirmation

NSM strongly asserts its empiricism and scientificity, and reductive methods in general appeal to semanticists desirous of a high level of explicit controls on the analytical process (cf. Jackendoff 1983, also grounded in a set of primitive – though not necessarily individually lexicalized – concepts; Goddard 1994: 14–20 contains a useful summary of modern work on semantic primitives/universals). We will not devote any discussion in this chapter to the empirical adequacy of NSM analyses, or to the evidential support for the universality of its primitives. On both counts, indeed, the theory has been criticized (e.g. Kemmerer 1999, Harré 1993). Instead, we will consider instead some more general features of the empiricism of descriptive semantics, particularly in its NSM form.

Since Popper (1992), an often accepted hallmark of empirical science has been the possibility of its results being disproven. In the era of post-empiricism in the philosophy of science, falsifiability is no longer a universally accepted characteristic of good science: on the arguments of Feyerabend (1993), indeed, no such a priori characteristics exist. Nevertheless, the extent to which a theory needs to be modified in the light of apparently disconfirming evidence can be taken as one potential indication of its empirical content. We will therefore consider what happens when a semantic paraphrase is disconfirmed by empirical data, as many proposed NSM paraphrases arguably have been. To make the discussion concrete, let us consider two examples. First, Wierzbicka's proposed definition of *sun*:

> *sun*
> something
> people can often see this something in the sky
> when this something is in the sky
> people can see other things because of this
> when this something is in the sky
> people often feel something because of this (1996: 220)

The definition in its current form fails to distinguish *sun* from *moon*: both are often visible in the sky, both permit other things to be seen, and both can be the cause of people's feelings.

Second, consider Goddard's definition of the verb *watch* (2002: 7; cf. Wierzbicka 1996: 251):

X was *watching* Y =
for some time X was doing something
because X thought:
    when something happens in this place
    I want to see it
because X was doing this, X could see Y during this time.

The problem with this definition is that it localizes the watcher's attention to a 'place'. As a result, it cannot be applied to watching people, since the thought 'when something happens *in this place* I want to see it' seems an inappropriate gloss of the meaning involved.

An NSM semanticist, like any other, could make two possible responses in this situation. The first response would be to modify the paraphrase to meet the objection. The paraphrase of *sun*, for example, could perhaps be corrected so as to exclude *moon*, although I do not have any specific suggestions on how this could be done using the current set of primives. Alternatively, it could be claimed that the counterexample constitutes a different (polysemous) sense of the definiendum, to which the paraphrase does not apply. In the case of *watch*, for example, the existing NSM paraphrase could be defended on the grounds that it only applies when *watch* has a non-personal object, instances like *The audience was watching the performers* constituting a different meaning. The first type of response, in which a better hypothesis is developed to incorporate previously recalcitrant data, is of the very essence of empirical science. The latter response, by contrast, is highly problematic, since, as we have just seen, there are no external controls on the postulation of polysemy. Without such controls, there is no way that the NSM program, or any theory of ordinary language paraphrase, can ever be conclusively disproven, since the researcher can claim that an apparent counter-example to their paraphrase just shows that the paraphrase needs more work, or that the meaning in question is different from the one being described – both of these points sufficiently ambiguous and lacking in clear decision procedures as to remove the possibility of clearly adjudication.

The possibility of maintaining a theory in spite of counterevidence, either through *ad hoc* modifications, or in the hope of systemic developments that will remove the problem, is in no way exclusive to NSM. It can never be conclusively demonstrated that a scientific paradigm should be abandoned. Instead, it is a matter for the general scientific community to decide when a theory's time is up, and this decision will be reached on the basis of

non-empirical (methodological, aesthetic) judgements about the theory's wholesale viability (Kuhn 1970). This means that the obstacles to disconfirmation just discussed are not necessarily a reason in themselves to abandon NSM's broader claims about the nature of meaning. NSM is in exactly the same position as any other semantic theory, and further facts might always be brought to light which explain apparent disconfirmations of NSM theory: this is a matter which needs to be left to the judgement of the linguistics community in general. Goddard (2002: 6), however, adumbrates a third, entirely different avenue of NSM response to empirical challenge:

> Perhaps the venture will work out well in some respects and not so well in others; there is no reason to assume *a priori* that it is an all or nothing affair.

This amounts to the suggestion to that NSM primitives might underlie some but not all of universal semantic structure. Given the theory's strongly universalist claims, however, this is not a possibility it can afford to entertain: the whole attraction of the NSM program, as of any theory of semantic primitives, lies in its claim to provide a key that unlocks *all* meaning. Exhaustivity is, indeed, integral to the notion of a set of semantic primitives: the semantic primitives of a language are, precisely, those words which are required for the definition of the *entire* vocabulary of the language. As a result, there is something paradoxical in the idea that a set of semantic primitives might apply to some but not all words. The 'alphabet of human thought' is not a real alphabet if it cannot be used to spell everything: if the primitives cannot be used everywhere, a critic might ask, why should they be used anywhere? We can grant to NSM the right to pursue its research in the face of disconfirming evidence, on the supposition that further facts will be uncovered which will bring failures of existing analyses under the explanatory control of the theory by showing why they fail and, ideally, allowing predictions to be made about whether a particular, as yet unexplored, area of the lexicon would be likely to yield to NSM analysis. We should not, however, accept the possibility of a restricted NSM that is used simply wherever it can be made to work, in the face of acknowledged failures elsewhere. Accepting this would be an annulment of the theory's claim of methodological rigour, and a dissolution of its broader metaphysical postulates about the nature of meaning. If some vocabulary proves to be resistant to definition using the set of primes, claims that the primes are the building blocks of meaning *tout court* become unsustainable, and the theory is left unable to answer the charge that those of its definitions which are

apparently successful are not in fact the correct semantic analyses of their definienda. Therefore, the only attitude to disconfirming evidence which NSM can afford to adopt is that later research will allow apparent disconfirmations of the theory to be brought under its scope and that, as a result, the theory can maintain its claim that the existing primitives underlie all meaning.

NSM scholars often seem to appreciate that the value of NSM theory lies in its universality: NSM's main attraction is that it provide a way of analyzing *all* meaning. Goddard himself, for example, in the very article from which the previously quoted comment is drawn, explicitly discounts the possibility of a partial NSM:

> …taken as a whole, the metalanguage of semantic primes is intended to enable reductive paraphrase of the entire vocabulary and grammar of the language at large, i.e. it is intended to be comprehensive. (Goddard 2002: 16)

In my view, such comprehensiveness must indeed be seen as integral to the NSM project, so that *any* degree of final acknowledged empirical failure should be enough to stimulate a revision of its theoretical claims (though not necessarily of its practice). This is a respect in which NSM is quite different from a semantic theory with less universal leanings. It is only because NSM aspires towards universality and comprehensiveness that its proposal to only use the primitives where they work becomes untenable. If the value of the primes is that they underlie all meaning, the theory cannot afford to restrict them to only that subset of meaning for which they actually work. A more exuberant theory of semantic description which did not claim a single metalanguage as the only possible analytical scheme for meaning would be much better able to respond to disonfirming evidence through the adaptation of its paraphrases to linguistic facts. Thus, while other semantic theories are in the same position as NSM, in that disconfirming evidence is not per se a reason for abandoning them, the fact that they are less constrained allows them more agility in responding to new facts: different words can always be chosen to escape problems. NSM, by contrast, inherently opts for an all-or-nothing degree of confirmability. Restricting its applicability to only parts of semantics should not therefore be an option.

6. Implications

The first two chapters of this book have tried to show that, far from being straightforward exemplars of rigorous scientific practice, mainstream cognitive semantics, NSM and descriptive semantics in general are beset by a host of methodological and conceptual problems which deprive them of the certainty that their most avid proponents would claim. Attempts in these frameworks to ground the analysis of meaning in either the nature of human concepts or the existence of synonymy relations within the lexicon have been argued to be deeply problematic, and the scientificity of linguistics semantics has consequently been put in doubt. No analysis, it has been claimed, operating with the representational techniques of semantics is in a position to justify any serious claim of scientific realism.

Let us briefly recapitulate the main specific arguments that led to this conclusion. The present chapter has argued that NSM's requirement that a definiens be simpler than a definiendum represents a misunderstanding of the nature of semantic explanation (section 2), that its use of canonical contexts does not fix the meaning of its primitives in the required way (4.2), and that its commitment to a level of indefinable terms exempts too much of the lexicon from any possibility of semantic analysis (4.3). Turning to criticisms of features common to both NSM and other varieties of ordinary language descriptive semantics, including cognitive semantics, the principle of substitutability (5.1) and the modes of response to disconfirming evidence (5.2) were both argued to be inadequate for a methodology that aspires towards empirical and theoretical rigour. As a result, NSM and, insofar as they share its commitments, other descriptive semantic theories, were argued not to meet the very standards of methodological rigour and empirical adequacy they set for themselves.

In the case of mainstream cognitive semantics specifically, similar conclusions were also reached in chapter one. As has been repeatedly maintained, the hypothesis of a relation between language and conceptualization is supported by a wealth of empirical data. For the reasons given in chapter one, however, this hypothesis cannot either depend on, or empirically justify, any single theory about this relationship. In particular, it should not lead to the wholesale *identification* of semantic and conceptual structure, since our knowledge of the latter is not yet sufficient to dictate any detailed conclusions about its relationship with either brain structure or the facts of language, both of which themselves remain the subject of controversy. In particular, the representational nature of current descriptions of conceptu-

alizations poses an apparently insuperable barrier to a scientifically realistic account of their relation with meaning: if semantic structure is identified with a representational conceptual structure, a Wittgensteinian attack on the objectivity of the correlation between meaning and denotation seems inescapable. In problematizing the relation between a term and its denotation, this Wittgensteinian challenge strikes at the very basis of semantic analysis. As discussed in chapter one, its most destructive consequence is that it renders *any* semantic description of a term equivalent to any other.

It was thus suggested that descriptive semantics in general lacks precisely the qualities to which its adherents, whatever their particular methodological preferences, usually lay claim as part of a 'scientific' linguistics.[33] In this light, the fact that the present study will embrace standard elements of the apparatus of semantic analysis, while refusing to claim any sort of methodological privilege for them, may seem paradoxical: how can an analysis like the present one, couched in terms of paraphrase, metaphor and metonymy, claim any value if the very notions out of which it is constructed have been argued to be fatally unscientific and indeterminate? To answer this question and, ultimately, to justify the particular type of analysis adopted in this monograph, we need to draw a contrast between two different questions that can be asked about meaning, and to show that they are, in principle, distinct.

In studying semantics, an investigator can be primarily concerned with one of two types of question. (In practice, virtually all semantic studies are concerned with both. Since the balance varies greatly from one study to another, however, the utility of recognizing the two types lies in their definition of the ideal end points of a cline: see Malt 1998 for a similar distinction.) One type of question is essentially descriptive, with the goal of characterizing the meaning of words in a way that adequately reflects their use by speakers and the relations in which they participate with other lexical items (both synchronically and diachronically) and other parts of the grammar. Very many studies in linguistic semantics and lexicography primarily address this sort of question. The most obvious example of this type of study is a mono- or bi-lingual dictionary; other examples would be standard studies of lexical relations (like Cruse 1986), alternations (like B. Levin 1993), lexical fields (Lehrer 1978; Backhouse 1994), and descriptively-oriented studies (like Atkins, Kegl and Levin 1988). Studies in historical semantics (Williams 1976; Evans and Wilkins 2000; Geeraerts 1994, 1997; Traugott 1985a,b, 1986a,b, 1989, 1991; Traugott and Dasher

2002) and grammaticalization also exemplify this type (Traugott and Heine 1991).

At the other end of the continuum there are studies whose main question is not 'what is the meaning of *x* and how is it related to the meaning of *y*?', as we might characterize the previous type, but rather 'what is meaning per se?' This we may call the 'ontological question'. The ontological question is often posed independently, for instance in enquiries principally associated with the philosophy of language (e.g. Quine 1953, 1960; Davidson 1967; Putnam 1975a, b). The ontological question, however, is typically bound up in or motivated by the task of answering the first, descriptive question: this relationship shows up the artificiality of the distinction. Thus, claims about the nature of meaning made by linguists working in a cognitive framework are often tied to close studies of the meaning of individual words, and the same is true of studies in prototype theory (Rosch 1978; Kleiber 1990), generative and formal semantics (Jackendoff 1983, 1990; Larson and Segal 1995) and of more general theoretical studies of meaning (Allan 1986; Lyons 1977; see Katz 1996 for a brief sketch of the mutual influences between linguistics and the philosophy of language).

What these last types of approach show is that it is possible to speak about meaning illuminatingly and in a non-vacuous manner without having a developed ontological theory of what meaning is. If this were not the case, it would be impossible to make commonplace and widely accepted judgements about words' general meanings (as seen in dictionary entries), their synonymy, antonymy, and other lexical relations. The use of these judgements in semantic analysis reflects its grounding in subjective perceptions of semantic facts. Semantic analysis can only proceed, in other words, by accepting the validity of ordinary pretheoretical judgements about the meanings of words and their relations. Without an acceptance of the naive judgement that *hit* and *strike* are largely synonymous, that *to hit someone* is *to do something to someone*, etc., no sort of semantic analysis would be viable. From this point of view, metaphor and metonymy can be seen as particularly powerful summaries of some of the intuitive bases on which naive semantic judgements rest: to say that a particular word-sense is 'metaphorical', in other words, is to claim that it is a characterized by a relationship of similarity with the prototypical use of the word; to claim that a sense is metonymic is to claim that it is characterized by a relation of contiguity. In both cases the technical terms serve to generalize over these informal judgements by assimilating different relations of similarity into

the single class of metaphor, and different types of contiguity into the single class of metonymy.

Theoretical semantics, then, with its paraphrases and technical apparatus, represents a refinement of preliminary, non-technical judgements about word meaning. Its legitimacy depends on the acceptance of a *relationship of translational equivalence* between the meanings of the object language and the meaningful paraphrases advanced as their metalanguage representations: the paraphrase is supposed to be as near an optimal representation (translation) as possible of the meaning of the definiendum.[34] This relationship can ultimately be grounded in nothing other than a subjective decision as to the appropriateness of a given paraphrase: it is the investigator who ultimately decides whether a paraphrase works. If I have rigorously developed a paraphrase for a word after carefully gathering data, attending to collocational and syntactic and psychological evidence, etc., there are no other criteria on which the suitability of the paraphrase can be tested other than my subjective judgement as to whether it 'fits' – whether, for example, there is any loss or addition of meaning when the paraphrase is substituted into different test frames. No automatic decision procedures exist which could eliminate this need for subjective assessment: as shown in the discussion of NSM, with its raft of screening processes to constrain proposed paraphrases, a subjective judgement is always needed that the proposed paraphrase fits the object language meaning being described.

This ultimate grounding in subjective decision is simply the theoretical analogue of the fact that, like statements of pain, statements made by speakers about what their words mean are not open to question by a third party, but have to be taken as representing, on a certain level, the real meaning of words in that speaker's idiolect (contrast Putnam 1975a, b). A genuinely scientific study which manages to take us out of the intentional realm of signification and answer the question of the nature of meaning by reducing meanings to a different (extensional) order of phenomena will obviate the need for these subjective decision procedures. Semantic facts will then become the province of the laboratory, to be established through the use of experiment. Such an 'advance' will probably only be made possible by the development in neurobiology.[35] The advent of a causal predictive theory of language use will render a theory of the linguistic system redundant. If we can predictively explain exactly why utterances have the form they do, and what conditions their use for different speakers, there is a real sense in which the theory of the linguistic system, understood as an abstract, transpersonal hypostasis, will not be needed. Instead, a theory of

the neurological system will have taken its place. Until the incorporation of semantic data into a genuinely scientific theory, there is, I suggest, little to be gained, and much to be lost, in the assimilation of semantics to the model of experimental science.

Accordingly, the analytical apparatus that will be employed in this monograph is a non-formal, ordinary language metalanguage in which, for example, the meaning of *strike* in the expression *strike a light* can be analyzed as 'create by striking', and this sense identified (for reasons to be explained later) as a metonymy with respect to the core meaning of the verb. This type of analysis is seen as primarily serving the first of the two types of functions of semantic study just described, the provision of an answer to the question 'what is the meaning of *x* and how is it related to the meaning of *y*?' It functions as a way of *representing* the meaning of P/I expressions in a way that seems subjectively and intuitively accurate, i.e. in a way that conforms to the pretheoretical ideas that allow us to speak non-vacuously about meaning in the first place. The metalanguage makes no claims to theoretical adequacy as an answer to the second type of question, the question of ontology: 'what kinds of things are meanings?'. In particular, no claim is made that the relations it posits and the meaning descriptions it proposes necessarily reflect conceptualization in any way. Nor does it carry any claim of uniqueness: there is an infinite number of ways in which the meanings discussed here could be illuminatingly analyzed: the particular description given here represents just one of these. As a result, it makes no claim to objectivity or scientificity: it is one of many conceivable descriptions of these semantic phenomena.

Psychological reality, then, is explicitly *not* claimed for the analyses in this book. For all its apparent perversity, the refusal to interpret these constructs as mentally real is motivated not only by the preceding theoretical considerations, but also by the cross-cultural and diachronic nature of the data analyzed in this monograph. When investigating the semantics of a language other than one's own, especially in a culture whose lived experience, institutions and 'world-view' are as removed from contemporary first-world experience as are those of both the Warlpiri and speakers of premodern varieties of English, doubts about the psychological reality of the terms of the metalinguistic description become acute. If we, academic linguists working in English, do not know how to accurately describe the relations between language and conceptualization for our own language, how can we hope to describe the way in which this relation might be con-

stituted among others, especially others, like the Warlpiri or speakers of, say, Middle English, whose lives are and were so different from our own?

One particular characteristic of the metalanguage of semantic analysis that will be used here is worth noting. This is that it makes no attempt to pare down the number of defining terms. In phonetics, morphology and syntax, the set of analytical terms is, or should be, highly constrained because of the fairly small number of variables in the data over which the apparatus has to generalize (for example, phonemic theory only has to provide an account of phonemic contrast over no more than the number of segments defined by the International Phonetic Alphabet; cf. Jackendoff 1990: 3-4). The situation in semantics, however, is completely different. This is because the number of variables over which a theory of word meaning has to generalize is at face value incomparably larger and more various than in these other, more circumscribed systems, comprehending a vast number of different categorizations of the physical, natural, cultural and imaginative worlds of human beings. As argued in this chapter, there is thus no reason to imagine that word semantics can be illuminatingly analyzed with a repertoire of primitive concepts of a similar order of magnitude to that of the theoretical primitives in other areas of linguistics, and there is no *a priori* reason to imagine that an extremely small number of metalinguistic elements is methodologically desirable. Given that any non-ostensive semantic metalanguage is inherently meaningful, it seems unwarranted to restrict the number of meanings available as definitions in the name of a (false) analogy with other branches of linguistics, or simply because a smaller number of primitive items is more tractable analytically. To do so, in fact, deprives the analysis of its most potent resource, the huge variety of different types of meaning already expressed within the lexicon. A far more satisfactory semantic analysis results if the full resources of the language can be employed in the explication of the meaning of terms, rather than a strangulated version using only a highly restricted set of privileged items admitted into the inner circle of metasemantic definitional terms.

Semantics need not, therefore, restrict its descriptive vocabulary any more than is *prima facie* reasonable. There are, of course, numerous rather trivial ways in which the metalanguage can be usefully freed of redundancy: for example, the true synonym (if any such exist) of a term in the descriptive metalanguage does not need to be part of the same metalanguage (although one has to consider issues like whether the different affective qualities of word-forms are to be considered part of their meaning). But

reduction of the metalanguage should only be a goal for as long as it does not lead to artificial representations of word meaning, and there may be other, more desirable goals which override it as a criterion. A minimal metalanguage, in other words, is not necessarily the sign of an adequate semantic theory. Semantics will only be in a position to offer an account of word meaning in a genuinely scientific descriptive vocabulary when it can escape the tautologousness of its own method by deriving the use of a word *x* (by speaker *y*, at time *z*, etc.) from a particular configuration of the brain which can be pointed to and integrated into broader causal chains, and thus does not need to be explained in language. (When this derivation can be made, the very notion of meaning will be, in a sense, redundant for scientific purposes.) Until then, the explanatory value of the semantic metalanguage is of an entirely different nature, and constraints on what are and are not legitimate members of it seem somewhat beside the point in their failure to recognize that any meaningful expression used as a definition implicates the analysis in tautology. The metalanguage used here does not, therefore, operate with an unchanging set of primitives à la NSM, but rather with a set of elements appropriate for each case individually, reflecting the shifting statuses of information complexity in differing semantic contexts. Indeed, I do not arrogate the status of primitive to any of the lexical items used in my expositions of P/I verb extensions: everything is, in principle, open to further analysis and definition (cf. Langacker 1988: 54).

This liberal attitude to both the membership of the metasemantic vocabulary, and the legitimacy of other, even incompatible, analyses of semantic phenomena does not mean that the regularities to be found in semantic phenomena are not real. These regularities, however, are always discovered within the framework of a metalanguage which is itself constituted by meanings, so that in pointing them out no more is really being done than redescribing patterns rather than explaining them. We can certainly look outside language for facts about society, the brain, cognition, etc. that may be relevant to explaining semantic data,[36] and these facts can, of course, be described in language. In the absence, however, of an objective, neurophysiological account of the phenomenon to be described, these extralinguistic facts can only remain probabilistic and suggestive.

Meaning can, therefore, be profitably discussed in ordinary language. Statements about word meaning are not, of course, alone in the quality of being worthwhile even without a full theory of the phenomena which they address. If observation sentences had no value, more adequate theoretical descriptions of the phenomena (which may, in turn, stimulate revisions to

the observation language) would never be able to arise. Ordinary language statements thus constitute an entirely legitimate medium of semantic analysis. Even though we have previously spoken as though neurobiology will be the discipline in which meaning can be scientifically described, the truth of the matter is that the predictive scientific explanations which neurolinguistic research will make possible will not any longer be explanations of *meaning*, but simply explanations of language behaviour which, if they could be generalized and made available, would perhaps make ordinary language talk of meaning entirely redundant. Whatever the desirability of such a watershed in neurobiology, however, the validity of the present style of meaning-talk will still have a place, just as the statement 'the sun came up' is still a perfectly descriptive and adequate statement for many everyday purposes, in spite of its lack of conformity with what we now know about the solar system.

What, then, is the value of descriptive semantic analyses like the ones that will be proposed here? We will be in a better position to answer this question after the analyses of Warlpiri and English polysemy have been presented, and the book's last chapter is devoted to this task. For the moment, let us note that descriptive semantics operates by constructing a more and more intricate network of connections between the different parts of the lexicon, setting up relationships of equivalence between words and other words and using metalinguistic glosses to reveal more and more distinctions in the meaning of object language definienda. As the web grows more intricate, dependencies between lexical items grow more prominent. To take a specific example, the more descriptive semantic analysis we do, the more obvious it will become that English expressions like those in (11) share a common meaning component which is susceptible of a unitary paraphrase:

(11) a. *to* hit *something* against *the wall*
b. *to* smash *a ball* into *the fence*
c. *to* kick *him* out of *the house*

Specifically, it can be useful to use a formula like (12) to describe the meaning of the highlighted verb-preposition combinations:

(12) to make x move against/into/out of y by hitting/smashing/kicking

This is a paraphrase which is useful for some purposes. It is, however, a description of the meaning, and should not be mistaken for a unique and reductive analysis which is made once and for all and which represents the only possible way of seeing the meaning of these verbs. Other descriptions are possible, and will be better for some purposes and worse for others. For example, the paraphrase in terms of *x make y move* has nothing to say about the connotations of these expressions, and is thus very bad at giving a detailed, encyclopaedic account of the knowledge that we may associate with them: the fact, for instance that *kicking someone out of the house* is something that usually happens in a situation of conflict, such as between a landlord and a tenant who has not paid rent, or between quarrelling partners. Conversely, this paraphrase is a lot better at revealing commonalities with other 'caused motion verbs' than one which risks obscuring similarities in an excess of detail. Whenever the suitability of a new metalanguage gloss as a representation of an object language meaning is assessed, a new fact is learned about the semantics of the definiendum. Varying the metalinguistic glosses applied means varying the distinctions in terms of which the definiendum's semantics are described. For example, describing the meaning of the Warlpiri kin term *ngati* 'speaker's mother, speaker's mother's sister' through an English metalanguage will reveal a different set of distinctions from the one that would be revealed if the metalanguage chosen were Arrernte. Naturally, both English and Arrernte are rich enough to allow the denotation of *ngati* to be uniquely identified, but the semantic descriptors in terms of which this unique denotation will be isolated emerge from quite different categorization systems for kin relations.

By paraphrasing extensions of P/I verbs in non-tautological language the analysis in this monograph represents their meaning through the use of different elements of the same linguistic system. It is therefore explanatory to the extent that it sets up correspondences between previously unrelated members of the system. There is no responsibility incumbent on the analyst, however, to make claims about what sort of things the meanings being represented are, and I make no attempt to do this. The situation of a semanticist is, I suggest, rather like that of a landscape painter. The painter's task is to select the shapes and colours which seem most representative of the subject in mind (observe that representativeness can be defined on many criteria, not just on a naturalistic one, although this is the relevant one to us). For a painting to be successful, no one demands that the artist offer any account of why a particular shape or colour on the canvas resembles that of the object in the world of which that part of the painting is a representation.

The artist does not have to produce a theory of the world showing how two separate objects both share the property 'having x shape' or 'having x colour'. Nor does the artist have to provide an account of what colour or shape, per se, 'actually is'. These are different activities from painting and form the subject of different disciplines: the practice of painting can continue in ignorance of them. Similarly, all the semantic analyst has to do is represent the meaning of words in an intuitively satisfactory way so that these representations can be used to talk about whatever semantic phenomenon is under discussion. A semantic analysis of a word thus presents not an explanation for the word's meaning, as such, but a redescription of it which reveals it under various aspects.

Even more than a painting, a semantic metalanguage can be seen as a tool: it exists not to sum up *the* meaning of an expression, but to bring to light those parts of an expression's meaning which are relevant to whatever problem is being discussed. For example, a representation of the meaning of the term *mother* will be very different depending on whether one is interested in producing a schematic anthropological study of English kinship semantics or in mapping the influence of cultural stereotypes on semantic representations. An explanatory representation of the meaning of *mother* tailored to one purpose would not be optimal for the other. Any semantic theory which claims, like NSM, that meaning is uniquely constituted by the elements which serve to represent it is, therefore, ignoring the fact that a metalanguage is a tool designed to serve specific ends, and that as the ends are different, so different tools will be appropriate.

Chapter 3
Evidence for polysemy

1. Introduction

Metaphor and metonymy have never been far from theoretical reflections on meaning in the Western tradition (Reisig 1839; Ullmann 1962; Jakobson and Halle 1971; Ricœur 1975). Nowhere has this been more the case than in Cognitive Linguistics. Yet the use of these tropes to understand the relations between different senses of a linguistic unit implies that the senses so related are, in some sense, distinct: if this were not the case, a treatment in terms of metaphor and metonymy could be charged with creating arbitrary and unnecessary semantic distinctions. The need to justify the differences of meaning postulated within a polysemous lexeme is a general requirement on any semantic theory, but it is especially pressing for any conceptualist interpretation of metaphor and metonymy, such as the one characteristic of 'standard' cognitive linguistics. Under the cognitive linguistics identification between semantic and conceptual structure, metaphor and metonymy primarily become relations between different conceptualizations, rather than simply between different parts of language. Thus metaphor, in the words of a recent cognitive formula (Barcelona 2000: 3), "is the cognitive mechanism whereby one experiential domain is partially 'mapped', i.e. projected, onto a different experiential domain so that the second domain is partially understood in terms of the first one". Metonymy, for its part, "is a conceptual projection whereby one experiential domain (the target) is partially understood in terms of another experiential domain (the source) included *in the same common experiential domain*" (Barcelona 2000: 4; italics original). If these definitions in terms of experiential domains are to be defensible, the initial separateness of the domains being mapped is an assumption which the analysis cannot do without. What is more, since language provides the main means for accurately identifying and delimiting experiential domains, the question of the separateness of the domains is to a large extent congruent with the question of the separateness of the meanings expressed by the linguistic units in question.

The notion of 'separate meaning' at stake here needs some commentary. Because of the holistic nature of the conceptual structures posited as the meanings of lexical items in cognitive linguistics, there is a sense in which the separateness attributed to meanings is never very strong. In a theory which sees word meanings as radial networks of interrelated conceptualizations, everything is already intimately connected: there are no categorical divisions between different senses which need to be bridged extra-semantically (by, for example, a theory of pragmatic interpretation). Instead, semantic structure already contains within itself the means of relating distinct aspects of meaning.

Nevertheless, it will be clear that the traditional cognitivist vision of semantic structure depends on the possibility of distinguishing separate aspects of meaning which are available to be related via conceptual processes like elaboration, extension, metaphor and metonymy. Implicit in the very notion of radial category – a category which has been axiomatic for cognitive linguistics – is the recognition that the concepts on the core and the periphery of the category are different. The recognition of the sense 'bound set of pages' as a central sense of the word *book*, and of the sense 'set of bets' as a peripheral one entails that the two senses are separate on some level of structure. The concept *book*, in other words, is said to cocategorize the two related concepts 'bound set of pages' and 'set of bets'.

But it is not just the cognitivist theory of conceptual metaphor and metonymy which presupposes a well-founded distinction between the different senses of a word. "The problem of sense determination", notes Rice (2003: 256), "plagues lexicographers and lexical semanticists" in general. *Any* analysis of an expression's semantics needs to demonstrate the non-arbitrariness of the particular elements of meaning which it distinguishes, regardless of whether these different elements are subsequently interpreted as absolutely separate senses or as distinct elaborations of a single sense. Especially in a theory committed to psychological realism, and in which meaning simply *is* conceptualization, the very postulation of relations such as elaboration, extension, metaphor and metonymy between different aspects of meaning entails that these different aspects actually be distinct at some cognitively real level. The fact that the 'meaning' of a word can be given many different metalinguistic descriptions is not in itself enough to guarantee the requisite level of cognitive reality: the fact that a distinction *can* be made between two putatively different aspects of a word's meaning in no way entails that that distinction actually *is* made.

Without a procedure for adequately distinguishing different aspects of the meaning of a word, any semantic theory which seeks to relate them, whether through metaphor, metonymy, or whatever other categories of meaning extension are posited, is threatened with arbitrariness. Research into the criteria on which a word can be diagnosed as possessing distinct meanings, i.e. as polysemous, therefore assumes fundamental importance. It is, indeed, a basic requirement on any semantic theory to show how many senses are associated with a single word, for, as Kilgarriff (1993: 379) puts it, "without identity conditions for word senses the concept remains hazardously ill-defined". Even a theory which wishes to remain uncommitted on the formal polysemy or monosemy of a word's semantic representation needs some guarantee that the semantic units it informally identifies and names within the meaning of the word are not arbitrary, and that their different names do not belie a deeper identity. The inability to meet this challenge is, I suggest, a problem for a semantic theory. If it "might be unclear, in any given case, whether a word should be regarded as polysemous or monosemous" (Taylor 2002: 464), and if the question of how many different meanings a polysemous word actually has is not open to objective checking, terms used to characterize semantic structure like "different semantic values" (Taylor 2002: 463) lack any theoretical explicitness, as does any other expression used to describe the different possible 'meanings' a polysemous word may display. Without an independent means of determining which of the possible glosses of a word constitutes a 'distinct meaning', as opposed, for example, to a contextual manifestation of the same meaning, any allegedly distinct meaning can be rejected as spurious. In questions of sense division, in other words, the much discussed 'exclusionary fallacy' (Langacker 1987: 28) is certainly not a fallacy. A well-founded account of semantic structure must exclude certain characterizations of sense. Without such an exclusion of certain semantic characterizations, *any* description of a word's semantics could be advanced, with considerations of intuitive plausibility providing the only means to regulate the proposed glosses. A distinction, that is, between *gloss* and *meaning* is crucial to linguistic theory. Any word can be given an indefinite number of different initial semantic descriptions or glosses. To gain analytical purchase, however, it is necessary to constrain this proliferation by identifying groups of glosses which can be considered as alternative descriptions of the same meaning.

A few examples may highlight the importance of a non-arbitrary principle of sense division. A claim such as that of Schütze (1997), for example, that simultaneous 'coactivation' of several distinct word senses is a ubiqui-

tous phenomenon in language,[1] needs a way of coherently demonstrating that the claimed coactive meanings are not, in fact, simply manifestations of a single monosemous sense (Pustejovsky 1995: 39 outlines a similar position, "the permeability of word senses": "Word senses are not atomic definitions but overlap and make reference to other senses of the word."). Schütze's claim (1997: 73) that both 'legal share' and 'a feeling that accompanies or causes special attention', are simultaneously present in (1), necessitates that these two glosses correspond to distinct senses, allowing a unitary definition of the words (such as, perhaps, 'concern', or 'stake') to be ruled out:

(1) *In Texas, Williams, a millionaire businessman with interests in oil, cattle and banking, was hurt among other voters who considered ethics an important issue.*

Similarly, using the fact that many languages have the same word for both 'big' and 'important' as evidence of a widespread conceptualization of degree of importance in terms of physical size presupposes an adequate theory of sense division which can demonstrate that these two glosses are not simply instances of a single monosemous sense (cf. Grady 1999: 80).

Equating every gloss of a word with a different meaning would not only do violence to basic intuitions of semantic identity; it would also make linguistic analysis virtually impossible for a theory committed to non-monosemous semantic representations (as opposed to contextual ones: Schütze 1997). In order to posit systematic relatedness between different meanings, or to extract syntactic or pragmatic generalizations from lexical behaviour – in short, in order to undertake any linguistic analysis which relies on individuations of word meaning – it needs to be shown that the demarcation lines grouping glosses into distinct meanings have been correctly drawn. This is not, it is argued, a problem of no importance, as certain scholars have suggested. If, as asserted by Fillmore and Atkins (2000: 101; cf. Ravin and Leacock 2000: 12), "there are no objective criteria for the analysis of a word into senses or for systematically extracting from corpus data the kinds of information useful to dictionary users", then the very project of meaning description within empirical linguistics, which rests on distinctions between word senses, will need to be reconceived. If "there is no such thing as a discrete word sense", but only usage patterns (Dolan, Vanderwende and Richardson 2000: 187), then the notion of semantic representation as a network of distinct paraphrasable senses is called

into question, and any attempt to postulate conceptual or other links between these senses is problematized.

In the face of these challenges, it is hardly surprising that the last decade has seen a flourishing of research into the question of how to meet this requirement satisfactorily. Following the seminal articles of Geeraerts (1993) and Tuggy (1993), cognitive linguistics especially has taken significant pains to develop sound decision procedures by which the requirement of sense individuation may be met accurately, avoiding both arbitrariness and stipulation. Geeraerts' (1993: 229) regret that the problem of sense-division "has received relatively little systematic and continuing attention" no longer applies. Even more importantly, it has from the very beginning of this research been shown that the very notion of a word's 'separate senses' must itself be significantly problematized in the interests of an adequate theoretical account. Recently , this scepticism about the utility of the notion of 'separate sense' has gained a full head of steam. Allwood (2003: 43), for example, attempts to transcend the reification of meaning implied by the monosemy/polysemy debate by speaking of a word's "meaning potential", which is "all the information that the word has been used to convey either by a single individual or, on the social level, by the language community". Words thus display a "continuum of meanings (determinations of meaning) rather than a small set of meanings" (2003: 55), and "the meanings which are actually constructed are always the products of memory activation and the application of contextually sensitive cognitive and/or linguistic operations on meaning potentials" (2003: 56). To try to differentiate between monosemous and polysemous words is thus to fall victim to a false dichotomy.

Allwood's dissatisfaction with the current monosemy/polysemy impasse is entirely in keeping with the spirit of these pages. I will argue, however, that the dichotomy between the two terms is not false, and that it should not be abandoned in favour of a more fluid "meaning potential". This is because the question of whether a word is monosemous or polysemous derives its importance from the prior question of the accuracy of the metasemantic glosses by which its meaning is represented. The plausibility of a word's being monosemous or polysemous, that is, depends on the way in which its meaning is initially represented metalinguistically. The connection between these two questions is made clear by a comment of Langacker's. The investigation of lexical semantics, notes Langacker (1987: 370), "requires the listing of all conventionally established values of a lexical item, as a minimal description of the empirical data. It further demands

an analysis of how the category is structured, i.e. how the different senses are related to each other." The question of a lexeme's monosemy or polysemy, then, is inseparable from the question of the optimal metalanguage for the description of its conventionally established semantic values, since only a well founded and accurate description of these values provides the requisite basis for an accurate semantic description: if the initial description of a word's values is arbitrary, then the very terms in which the question of its monosemy or polysemy is posed will likewise be arbitrary.

The importance of this problem can be further brought out by a consideration of Langacker's foundational exposition of the nature of linguistic categorization (1987: 373ff). For a child acquiring the word *tree*, a schema is abstracted from "ordinary specimens" such as "oaks, maples and elms" (1987: 373): these ordinary specimens "enable the child to extract a conception that embodies their commonality, while excluding the many properties that vary from one instance to the next" (1987: 373). When the child encounters "a tall plant with branches, leaves and bark he readily sees it as conforming to the specifications of [TREE] and takes it as a straightforward instance of the tree category" (1987: 374). Not all trees, however, are typical examples of the tree category. Consider the case of a child encountering a pine for the first time:

> [The child] will quickly learn to call it a *tree*, either from hearing someone refer to it in this way, or because this is the most nearly applicable term at his disposal. This usage implies the symbolic unit [[PINE]/[tree]], derived by extension from the original [[TREE]/[tree]]. The two symbolic units are identical at the phonological pole, but at the semantic pole [TREE] is only partly schematic for [PINE], since they conflict in one of their specifications (leaves vs. needles). (1987: 374)

'Pine', then, constitutes, at least in the first instance, an extension of the original category 'tree'. It will be clear that this description of the processes behind linguistic categorization depends for its validity on the accuracy of the distinctions attributed to the conceptualizer. It certainly seems plausible, given our characteristic assumptions about the mind, that something *like* this process underlies the child's ability to acquire the category 'tree' and to correctly apply it to appropriate objects in the world. For the purposes of a detailed, psychologically realistic description, however, we are entitled to ask for some evidence that the distinctions recognized in the above description are actually those which are psychologically active. For instance, is the child's initial conceptualization of the category 'tree' really of such a kind as to disqualify pines, making the node 'pine' an extension from the basic

tree schema? Is the specification 'with leaves' in the conceptualization of the category 'tree' to be taken entirely literally, so that needles are excluded, and pines made to constitute an extension from the category? Might not the child's conceptualization of the appearance of a tree be more accurately described as 'covered in green stuff', making 'pine' just as central a member of the category as the other species?

Similarly, how do we know it is the presence of branches, leaves, and bark which guarantee that the child will recognize an object as a member of the category 'tree'? Might not the perceptual bases of this categorization show much less congruence with our folk-botanical classification of the constituent parts of plants? Do we know that the child takes the bark as a separate constituent of the tree, as implied by Langacker's description? It is obviously true that trees have bark, but this fact alone does not allow us to assume that bark constitutes a separate element of the child's conceptualization. Langacker's description of this process is, quite clearly, intended as an idealization, and it would be unfair to insist on these details: the expository and exemplary role of the description of 'tree' is obvious. Nevertheless, a theory which aspires towards psychological reality has no choice but to consider, sooner or later, the question of whether the metalinguistic distinctions it recognizes within the meaning of particular lexical items may genuinely be expected to have psychological correlates in actual processing. This is especially so given the fact that very few domains of the vocabulary come, as does 'tree', supplied with an entrenched popular ethnoclassification, certified by botanical science, which provides an uncontroversial set of distinctions – branches, leaves, bark; maples, pines, oaks, elms – through which the real world referents can be described. These popular distinctions can be readily assented to by almost any English speaker, and consequently can be readily assumed to be reflected in the native conceptual distinctions of the categorizer – especially in a clearly expository and idealized context like the one in question. But if doubts are raised about the real conceptual distinctions at work for 'tree', even in spite of the convenience of this ready-made set of popular distinctions, how much less obvious are the terms in which other domains of the vocabulary are to be described? It is simply not clear what the appropriate distinctions are that should be attributed to the conceptualization of a hitting event, for instance, and the fact that the different stages of such events can be given a wide range of alternative descriptions suggests that a crucial stage of the analysis is the initial regimentation of the metalinguistic vocabulary in which the meaning of 'hitting' verbs is described.

A second example is provided by the proposed set of descriptions (glosses) 'ground, floor, flooring, soil, earth' for the French noun *sol*. These glosses constitute the initial terms in which the meaning of *sol* is represented and brought to light. But the fact that the conventionally established values of the noun *can* be represented by this set of glosses does not validate this set as the only, or as the correct, representation. Instead, it must be asked whether each proposed gloss corresponds to a separate conventionally established value of *sol* in the Langackerian sense, or whether it can be considered as expressing the same aspect of meaning as one of the other glosses: do 'earth' and 'soil', for example, really name separate conventionally established values of the meaning of *sol*, or are they alternative descriptions of the same value? After this question has been answered for each gloss (in a variety of possible ways, to be discussed in this chapter), the semantic analyst is left with either a single group of glosses or with several different groups. Thus, if 'soil' and 'earth' are determined to express the same aspect of the semantics of *sol*, 'ground' and 'floor' another, and 'flooring' a third, then the noun has been analyzed as embodying, on some level of representation, three distinct semantic configurations or conventionally established values. Even if the distinctions between these three configurations only become relevant at a rather specified level of lexical abstraction, with more abstract lexical construals obliterating them in favour of a more schematic, less differentiated meaning, the existence of three separate meanings on some basic level of semantic structure has clearly been postulated. And since semantic structure is taken to be identical to conceptual structure, this entails the further claim that these configurations are indeed, in the words of Allwood, "the products of memory activation and the application of contextually sensitive cognitive and/or linguistic operations on meaning potentials" (2003: 56).

This is the point at which the question of monosemy/polysemy merges with that of the accuracy of the initial description of the word's meaning through glosses. For any given level of lexical abstraction, there is clearly no other possibility than that a word's meaning be considered as representable by one gloss-group, or more than one. While the analysis of a word as monosemous or polysemous may well need to be relativized to a specific level of lexical abstraction (Taylor 2003),[2] for each such level there are only two logical possibilities: either the word's meaning can be adequately represented by a single gloss, in which case it must be considered monosemous, or it cannot, in which case it is polysemous. The dichotomy between monosemy and polysemy is therefore not a false one, since

monosemy and polysemy name the only two logical possibilities for the structure of a lexical category on a given level of lexical abstraction.

This chapter reviews the results of recent research and motivates the approach to meaning-division adopted in this book. It begins by considering the justification for the widely made assumption that polysemy is the default case in semantic representation, and argues that polysemy must be seen simply as a guiding interpretative perspective rather than as a hypothesis whose truth can be empirically demonstrated (section two). Section three considers the criteria that have been advanced to discriminate between monosemous and polysemous/homonymous words, demonstrating that *all* of them are inadequate on their own terms, regardless of the extent to which their results are mutually incompatible. Only the definitional criterion, however, gives access to the actual semantic content of words, and it is therefore the one adopted in this study. This is followed by an exploration of the multiplicity of definitional possibilities for a single Warlpiri verb, *pakarni* 'hit', which concludes that the delimitation of the number of word senses is always at the mercy of the metalanguage chosen for the analysis, and therefore open to potentially unlimited different analyses (section 3.5). To balance this scepticism, the last part of the chapter advances an interpretation of metaphor and metonymy which preserves some of their explanatory potential even in spite of the indeterminacy of the metalinguistic glossing on which they depend. To achieve this, it attempts to distinguish the varying degrees of psychological reality that can be attributed to glosses belonging to a number of different epistemic kinds (section 4).

2. The natural tendency of semantic description

An initial imbalance applies in any attempt to delimit the number of meanings expressed by a single word. This is the fact that the natural direction of semantic description is towards the distinction, rather than the synthesis of meanings within a word (see Ruhl 1989: ix–xii for discussion). Since a single word always appears in more than one context, contextual factors alone guarantee that differences can always be found between occurrences of the same word in different places: it "may be", notes Langacker (1997: 237), "that a lexical item is never used with precisely the same value on any two occasions". Because of this contextual variation, there is an almost infinite variety of glosses available for a single word, each reflecting the slightly different nuance present on each different context of use. Accord-

ingly, there is no clear point at which the differentiation of the uses of a word can be arrested: *something* can always be found to separate two allegedly identical uses, on some dimension of description. The most common pretheoretical characterization of this situation is the claim that every word has a slightly different *meaning* on each context of use. This conception of 'meaning', as something like the 'total content or effect of a word'[3] can be easily carried over into theoretical semantics (to say nothing of philosophy of language: cf. Quine's (1953) denial that two words can ever be genuinely synonymous). Meaning, on this view, is inherently various: any use of a word is likely to carry with it a slightly different semantic value from any other. The claim of a monosemically inclined analysis, that two glosses of a word in fact manifest the same meaning, therefore flies in the face of the natural tendency of semantic description.

A corollary of this natural tendency is that the explanatory burden on monosemic analyses is correspondingly increased. In refraining from attributing differences between usages or glosses to a word's semantic structure, such analyses must locate them elsewhere, whether in pragmatics, reference, or connotation. (Hence Croft 1998 can refer to the 'pragmatic model' of linguistic representation as a synonym for the 'monosemy model'.) In this way the explanation of apparently semantic aspects of the word is diverted to another modality of linguistic description. By contrast, the total explanatory responsibilities of polysemic accounts are rarely enforced. In contrast to the monosemic description, it is not usually seen as part of the responsibility of a polysemically inclined theory of word meaning to provide an account of the selection procedures by which, during language use, the correct sense is chosen out of the many possible ones available: it is simply taken to be enough that the appropriate polysemous reading exists for it to become active in live processing (cf. Ravin and Leacock 2000).

This disparity is somewhat remarkable. A semantic theory that postulates greater monosemy is only felt to be adequate as an account of semantic structure if it can explain how a single monosemic word can be susceptible of varying contextual readings. Thus, any theory of monosemy is taken to be incomplete without a theory of pragmatics describing the implementation of contextual enrichments of meaning. In contrast, the explanatory demands placed on an account favouring polysemy are altogether less strict. Here, adequate explanation is taken as achieved if a description can be given of each of the polysemous senses of the lexical item in question: in contrast to the monosemic account, no explanation is needed for

how the appropriate polysemous meaning is chosen on each particular occasion of use, and the very question of the principles by which the correct polysemous sense is selected during utterance production and understanding is not considered important. Yet the description of this process is highly problematic, the best current computational models significantly failing to match human ability in the task of 'sense resolution' (see Schütze 1997: 105–106 and Ravin and Leacock 2000: 25 for details), and this issue remains "one of the most daunting problems for automatic analysis of natural language" (van Deemter and Peters 1996: xvi). If successfully accomplished, however, an account of the process of polysemous sense-selection would be an exact counterpart to the account of pragmatics by which a monosemic analysis is typically expected to fill the gap between a monosemic meaning and its particular contextual readings. Sense-selection has, in fact, been so bypassed as a real problem in cognitive linguistics that the natural language processing approach to it can be discussed by an authoritative textbook of cognitive grammar (Taylor 2002: 472–474) as the main model worthy of attention. Yet many of the models in this framework use statistical, context-based heuristics for sense individuation which are rather remote from the conceptualist assumptions about meaning in cognitive grammar.

The fact that polysemy-based accounts are not usually required to supply an account of meaning selection is revealing. An independent and scientifically-minded observer looking in on linguistic theory could no doubt appreciate that a monosemic account of semantic structure has to explain how a specific contextual interpretation is reached on an occasion of use, on the basis of a single initial sense. But the same observer would surely also be justified in expecting a polysemic analysis of a meaning to explain the process by which one particular polysemous meaning is selected out of the many possible available: if the polysemic analysis cannot answer this, an important element is missing from the explanation of semantic processing. This independent observer, however, has not often had an answer, at least in cognitive semantics, where only the monosemic approach is typically held to its explanatory task. As a result, the onus of explanation is unjustifiably weighed in favour of polysemic accounts.

So far, then, I have suggested that polysemy-based accounts of semantic structure are more compatible with the natural bias of metasemantic description, and that they are incomplete without a credible theory of sense selection. Since the natural tendency of meaning description seems to favour a pluralistic conception of meaning, in which the senses of a word are

inherently multiple, any account claiming monosemy as the governing principle of semantic structure will appear to go against the grain of the most obvious description of the facts. The greater naturalness of the polysemic account has obscured the fact that a crucial part of the explanatory responsibility of this account – a summary of the principles governing the selection of the correct polysemous sense in a given context – has not been met. While a monosemic analysis is clearly perceived to require an account of contextual interpretation in order to attain explanatory adequacy, the entirely equivalent necessity for the polysemic account is scarcely even recognized. It is not my intention here to consider in any detail the question of how the polysemic account might explain the selection of the appropriate sense. For present purposes, it is enough to show that there is a neglected explanatory deficit in the polysemic account, and that this deficit should be borne in mind when assessing the relative merits of polysemic and monsemic interpretations of semantic structure.

We must now confront the question of whether the natural descriptive bias in favour of polysemy is justified by the real nature of the linguistic categories, or whether its apparent plausibility is simply an effect of the native tendencies of metalinguistic description. Tuggy (1999) advances three reasons that make an expectation for semantic categories to be polysemous inherently likely. All, however, are problematic. We will deal with each in turn.

1. "Both monosemy and homonymy amount to postulating negatives, and negatives are notoriously hard to prove. Homonymy says 'there is no connection (in the mind)'. Monosemy says 'there is no difference (in the mind)'. Polysemy says 'there is some connection…and also some difference'." (Tuggy 1999: 356). Thus, while empirical inquiry can provide evidence of the existence of a phenomenon (whatever the phenomenon is), lack of evidence cannot be used to prove that the phenomenon does not exist: we may simply not yet have discovered the right way of testing for it.

Rejoinder: This argument presents two problems. First, Tuggy's characterization of the claims of the different models of semantic representation is not quite accurate. The claim of a homonymic analysis is not that 'there is no *connection* in the mind'; the claim of a monosemic analysis is not 'there is no *difference* in the mind'. 'Connection' and 'difference' are not precisely defined theoretical terms; rather, they are pretheoretical and inexplicit ordinary language expressions, and as a result what their proper role is in the exploration of mental representation is quite unclear. Since every-

thing, as has often been observed, is like everything else, it will always be possible to think that any two meanings are connected: a homonymic analysis as Tuggy describes it ("there is no connection in the mind") will therefore always be disproven (cf. Sperber and Wilson 1995: 232). And since nothing, as is equally often observed, is quite like anything else, the monosemic analysis, in Tuggy's description ("there is no difference in the mind") will also *always* prove to be untenable – there always will be a difference there, if you look at it the right way.[4] As a result, everything reduces to polysemy. This unfortunate result is avoided under the correct description of the different claims. Homonymy claims that 'there is no link (of a particular theory-specific kind) between two semantic representations'; monosemy claims that 'there is not more than one semantic representation', while polysemy claims 'there are several semantic representations, characterized by mutual linkages (of a particular theory-specific kind)'. Described this way, the terms in which the claims are made are not informal and undefined (they are, after all, ultimately parts of a theory about the cognitive apparatus supporting language, in which undefined and informal terms can have no place). Consequently, they are not vulnerable to trivial disconfirmation of the sort demonstrated above. When the claims of the theories of mental representation are seen under the appropriate description, Tuggy's point is lost. Tuggy's initial implication, that science should not pursue negative hypotheses, would, if applied, have discouraged the development of the modern understanding both of the solar system, which postulated that *there are no (Ptolemaic) epicycles*, and of Darwinian inheritance (*there are no inherited acquired characteristics*). New hypotheses often entail the denial of the existence of whatever explanatory construct was previously invoked to account for the phenomenon under investigation. In the case of the monosemic/homonymic analyses of semantic structure, the denial of a meaning difference or connection has as a corollary the positive hypothesis of the existence of pragmatic processes which instantiate the correct reading of the term.

Second, the description Tuggy offers of the situation can easily be turned round so that it is the polysemic account which postulates a negative. Thus, the description of the homonymy analysis as the postulation of "no connection in the mind" could be given a positive rephrasing as the postulation of "the existence of two lexical entries". Similarly, the description of the monosemic analysis, "there is no difference in the mind", could be changed to "there is a single meaning". The polysemic analysis, for its part, could be couched negatively as "there is no single meaning". The

claims of the different views of lexical representation can be phrased in many equivalent ways; it would be a mistake to draw any conclusions based on just a single one of these descriptions.

2. Since monosemy and homonymy are endpoints of a continuum, polysemy, as the middle, should be the most frequent case (cf. Tuggy 1999: 357).

Rejoinder: This argument simply begs the question by restating its own conclusion in statistical terms. The very point in question is *whether* polysemy should be thought of as the most frequent case: the assumption that monosemy, polysemy and homonymy constitute the mid- and endpoints of a neat statistical curve is therefore exactly what Tuggy should be trying to prove. Since we do not have any idea of the real frequency of either monosemy or homonymy, we have no reason to assume that the midpoint between them has any higher likelihood of occurrence. To see the fallacy here, compare the following argument: since two wheel vehicles (motorbikes) and thirty-two wheel vehicles (certain large trucks) are endpoints of a continuum, sixteen wheel vehicles, as the middle, should be the most frequent case. This argument is clearly unsound: sixteen wheel vehicles are far less common than ordinary, four wheel vehicles (cars). The chosen endpoints of the continuum were in fact exceptional cases; as a result, a statistical argument based on them is invalid.

3. "Evidence for polysemy is not all that hard to find in many cases …. Analysts may have found it so often that they have empirically come to the conclusion that it is the default case" (Tuggy 1999: 357).

Rejoinder: The facts are not themselves in dispute. If polysemy turns out not to be the correct analysis, the so-called 'evidence' for polysemy will actually turn out to be evidence for a different analysis. Linguistic facts are susceptible of many interpretations. No complete account of semantic phenomena will be able to ignore the various types of facts to which linguists have appealed as evidence for polysemy. But an analysis which rejects polysemy will simply interpret these facts differently. That the current polysemic accounts are supported by linguistic evidence only means that they meet the minimum necessary requirement for a serious analysis. Existence of supporting evidence only makes the polysemic analysis seem good in comparison to a theory which lacks any supporting evidence. However, any serious theory will have an alternative story about the facts on which the polysemic account depends.

As a result of these rejoinders, I conclude, *pace* Tuggy, that there is no necessary methodological or theoretical reason to be biased in favour of a polysemic account of meaning (a point also argued for by Sandra 1998). Given this, monosemy may be an equally defensible expectation in explorations of semantic structure. Cognitive linguistics' postulation of polysemy is a working hypothesis about language structure; it should not be accepted as anything more.

3. Proposed evidence of semantic structure

In this section we will explore the various heuristics which have been used to distinguish monosemous from polysemous/homonymous words. Linguists have appealed to four main species of test in order to reveal the nature of words' underlying semantic representation: logical tests, 'syntagmatic' tests, paradigmatic tests, and definitional tests (the second category includes those tests usually called 'linguistic'; we have adopted 'syntagmatic' in order to include certain varieties of broadly similar test not usually considered to belong under the one rubric). These tests have been the subject of lively debate in recent cognitive linguistics. Against the background of Gibbs and Matlock's (2001: 216) denial of the relevance of cognitive linguistic analyses of polysemy to psychology, our conclusion will be that, taken individually, all of the tests are demonstrably inadequate as indicators of semantic structure. This conclusion allows us to avoid the highly delicate decisions about intuitions and their interpretation involved in discussions of whether the results of the tests clash (Geeraerts 1993, Dunbar 2001). Before examining the tests individually, however, it is worth considering some important methodological principles necessary to the interpretation of the results which they yield.

3.1 Tests must be absolute

As we will see below, many of the proposed tests clearly fail to draw the correct conclusions about the monosemy, polysemy or homonymy of a word in cases where the details of the word's semantics are not in question. In most of the examples we will consider, the test cuts too fine by diagnosing polysemy in a word which is clearly monosemous. Accordingly, I would like to propose the following methodological principle: *a single*

counterexample is enough to invalidate any proposed test. If a test has been shown to give the wrong polysemy reading on a single occasion, it should no longer be trusted as an accurate indicator of semantic structure. If a linguistic test is to provide a rigorous criterion for the demarcation of underlying semantic relationships, it must be absolute: *any* word which tests as polysemous (or homonymous, or monosemous) under one of the tests must be so analyzed. Otherwise, some additional criterion will be needed to adjudicate in unclear cases, and ultimately provide the justification for the analysis. The adoption of this principle would be no more than an acquiescence to a standard constraint on scientific practice: a hypothesis need only be falsified once in order to be disproven. Thus, if the hypothesis that a certain test is a reliable indicator of semantic structure yields a patently false result even on a single occasion, we have reason to dismiss it altogether. Scientists do not continue to measure phenomena using demonstrably faulty equipment; linguists should not do so either. A test that is only a "potentially reliable indicator" of ambiguity (Dunbar 2001: 9) cannot be used to justify the resulting theoretical analysis. Of course, it may be possible to refine the test in a way which excludes the problematic cases and defines a narrower (and hence less useful) range of application: Dunbar (2001: 5–6) proposes just such a refinement of some problematic instances of one of the syntagmatic tests. Nevertheless, the point remains that the newly refined test can be invalidated on the basis of just a single counterexample.

Is the demand that test results be exceptionless too stringent a constraint to place on linguistic analysis? What about the converging results of tests which when applied individually are admittedly imperfect, but which collectively all point in the same direction? In the context of a discussion on the necessary place of intuition in developing semantic analyses, Tuggy (1999: 354) makes a comment which might reflect many investigators' attitude: "Holding a pistol to the head of every claim, and saying, 'You have no right to exist unless you can prove to me already that you are true', can be a kind of filibustering technique that hampers rather than helps scientific discourse." To apply such an attitude here in support of the retention of inaccurate tests would, I suggest, contradict a basic evidentiary responsibility of empirical enquiry. It is a truism that empirical enquiry cannot limit itself to what is already certain, but must always go beyond already established facts in pursuit of new ones. Tuggy's criticism of the demand that every claim pre-prove itself is thus entirely appropriate: to require that any theoretical postulate be proven absolutely – if, that is, we can assume that

this is even possible – would remove any role for hypothesis in empirical enquiry. This demand is therefore not the one being made here. Instead of requiring all the elements of a theory to be proven, I am simply asking for elements of a theory which have been *disproven* not to be used. We do not have to prove every theoretical postulate we make: as Tuggy says (1999: 354), that would be impossible. We should just refrain from using theoretical postulates which have been disproven. Thus, while linguistic tests that are known to deliver false results can, perhaps, be used as rough and ready heuristic aids for the investigator, they cannot of themselves warrant any conclusions about underlying semantic representation. A theory is only as strong as its weakest link; the justificatory chain for linguistic hypotheses should therefore not be grounded on demonstrably unreliable tests.

3.2 A general condition on the use of linguistic evidence

The possible relations between a particular linguistic form and the set of glosses given of its meaning(s) can be imagined as arranged on a scale. At one end of the scale each gloss represents an entirely distinct and freestanding unit: this is the homonymy model, as represented by examples like English *bank* or French *voler*, in which each gloss represents an independent meaning which is not linked to the other in any way (‘financial institution’/‘river edge’; ‘fly’/‘steal’). At the other end of the scale lies monosemy, where a linguistic form is associated with only a single meaning: this might arguably be the case with, for example, the plural morpheme in English, for which several glosses are conceivable (‘more than one’, ‘many’, ‘non-singular’, etc.), but which is often assumed to be unitary in meaning, the different glosses merely reflecting alternative descriptions of a single sense. Between homonymy and monosemy lies polysemy, the situation in which a single form is associated with a number of independent but related semantic representations. The spatial and temporal senses of the preposition *in*, for example, are independent, distinct meanings, but they are linked to each other by virtue of their joint membership in a single semantic network: the temporal sense, indeed, is seen by many investigators as linked to the spatial one via the relation of conceptual metaphor. Much recent discussion has been devoted to the question of how far linguistic evidence can be used to decide between these different models of semantic representation in any one case (Croft 1998; Sandra 1998; Tuggy 1999). This question is largely independent of the question of the reliability of

proposed linguistic tests as indicators of semantic phenomena, a question which, as we have already seen, has itself been the subject of lively controversy, sometimes from the same authors (Geeraerts 1993; Tuggy 1999, Dunbar 2001).

The most important point to have emerged from the discussion of the evidentiary support for semantic analyses in cognitive linguistics (Sandra 1998; Tuggy 1999) can be summed up as follows: the details of a word's semantic representation cannot, in principle, be fully determined either by pure introspective evidence based on semantic intuitions, or by intuitions supported by linguistic test-frames. Thus, evidence that two manifestations of a putatively distinct word are different (either morpho-phonemically, syntagmatically or semantically) cannot rule out the conclusion that the associated semantic representations are linked (cf. Tuggy 1999), and evidence that a generalization or connection between two allegedly different senses of a word exists cannot preclude the possibility that they are, in fact, unrelated on some putative level of mental representation (Croft 1998). The truth of these claims is best demonstrated concretely, in the context of the specific tests and the details of the arguments they are used to substantiate. This will be our focus below. For the moment, however, we will simply state the net result of the considerations which will be closely examined in the next section: linguistic evidence is usually susceptible of a variety of interpretations, and typically significantly underdetermines the range of semantic representations which may be legitimately posited in any one case.

3.3 Non-definitional tests

In this section we will consider the logical, syntagmatic and paradigmatic tests for polysemy. After a short excursus on the semantic intuitions on which these tests rely (3.4), discussion of the definitional test follows in 3.5. The following terminological conventions will be adopted in the discussion that follows. If a word is said to be ambiguous between several senses, nothing is being said about whether the senses are to be considered as polysemous or homonymous. The claim, however, that a word is general between several senses is equivalent to the claim that it is monosemous.

3.3.1 Excluding monosemy

We will begin by considering the question of whether there is any evidence which can dispose us towards polysemy by excluding monosemy as a possible analysis. (As we will see below, any test which accurately excludes polysemy in favour of homonymy will also automatically exclude monosemy; for now, however, we will simply concentrate on the monosemy-specific test.) According to Croft (1988: 158), a word can be shown not to be monosemous "if there is any semantic idiosyncrasy in the relation between the general meaning U and its instantiations U1 and U2 across languages." A monosemic analysis, in Croft's description (1998: 154), posits "one independently represented unit in the mind with a general meaning U, [a/U]; (a/U1) and (a/U2) [i.e. specific contextual manifestations of the general meaning] are derived from the general meaning U and general cognitive principles relevant to the specific context of use." The cognitive principles concerned are taken to be general, i.e. universal, because the postulation of language-specific ones characterizes a different type of semantic situation, Croft's derivational model (1998: 153–154). Because the principles governing the instantiations of the monosemous meaning are general (i.e. universal), any differences in the way particular languages manifest the meaning are evidence that the word is not monosemous.

This argument, which I have only briefly summarized, is complex and raises many questions. How can the cross-linguistic identity of the general meaning be established? Will we not always be able to propose some semantic difference between two languages which removes the possibility of cross-linguistic comparison? Is not some parameterized variation in the details of cognitive principles, obscuring the cross-linguistic homogeneity of the meaning's instantiation, a possibility? In this case there could still be a single meaning, but the fact that languages manifested it differently would be due to variation not in the meaning itself but in the cognitive principles applying to it. Nevertheless, we can bypass these questions. This is because, as noted by Tuggy (1999: 346–347; italics added), the situation described by Croft would be "an argument that the form *need* not be monosemous, but it is not an argument that it *cannot* be monosemous." Even though, that is, other languages distinguish the forms, the particular language in question might not do so. The test Croft proposes therefore cannot be used to rule out an analysis of monosemy in any particular case.

3.3.2 Logical tests

The first type of non-definitional test we will consider is the logical test. Use of the logical test for ambiguity (i.e. polysemy/homonymy) presupposes the validity of the law of non-contradiction for the semantic representations underlying language. This law prohibits a proposition and its negation from being simultaneously true; assuming that it applies to the semantic information predicated of referents, a word (or phrase) is ambiguous on this test if it can be simultaneously true and false of the same referent (or if it can be asserted twice of the same referent, non-redundantly, a possibility we will not pursue here):

(2) a. *Bread is a* staple *(basic foodstuff), not a* staple *(stationery item)*.
b. *This man is a* minister *(priest), not a* minister *(politician).*
c. *The exam paper was* hard *(difficult), not* hard *(firm to the touch).*

Note that, in line with the constraint discussed above, the logical test only shows that a word is not general: in itself, it cannot discriminate between polysemy and homonymy.[5]

As observed by Geeraerts (1993: 232, following Quine 1960: 130), a third possible value in addition to true and false should be recognised as relevant to this test: nonsensical/irrelevant. Thus, a word which can be simultaneously true and nonsensical when predicated of the same referent is also revealed as ambiguous on the logical test. Under Geeraerts' interpretation, a word should be considered as ambiguous if it is nonsensical on one reading but not on another: thus, a sentence like *This chair is hard [firm], but not hard [to answer]* testifies to the ambiguity of *hard*, which must be credited with two different meanings, 'firm to the touch', and 'difficult'. Similarly, *This book is sad* gives a true reading for 'evoking sadness', and a nonsensical one for 'experiencing sadness', hence demonstrating the ambiguity of *sad*. (See Van der Eijk et al. 1995: 12–13 for quantificational and distributive variants of the standard logical tests for sense disambiguation, and Geeraerts 1993: 231–234 for further discussion.)

3.3.3 Against logical tests

An initial criticism of the logical test is that it assumes that extra-linguistic conditions – specifically, what can be true and false in the world – enter directly into the characterization of linguistic meaning. Anyone inclined to deny this will consequently have good reason to reject the logical test for ambiguity.

There are other reasons to reject the logical test, however. The following sentences simultaneously affirm and deny the emphasized word as true of the referent; by the logical test, the emphasized word should be considered as polysemous or homonymous with respect to the two glossed senses.[6]

(3) a. Said of a non-openable window:
It's a window *[transparent glass fitting] but it's not a* window *[openable transparent glass fitting]*.

b. Said of someone making a half-hearted attempt:
He's trying [going through the motions] but he's not trying [making a genuine effort].

c. Said of someone with mixed feelings:
He likes [is not averse to] it but he doesn't like [is not positively in favour of] it.

d. Said of a 'cloud with a silver lining':
This situation is bad [undesirable] but it's not bad [without any redeeming feature].

e. Said of a sixteen year old:
He's an adult *[mature] but not an* adult *[legally adult]*.

f. Said of a lane:
It's a street [thoroughfare taking traffic] but not a street [size able thoroughfare].

g. Said of red wine:
It's purple [burgundy coloured] but not purple [focal purple].

h. Said of performance poetry:
It's poetry [not prose] but it's not poetry [traditional poetry].

Such an interpretation, however, seems unwarranted: we surely do not want to recognize polysemy in *try* between the senses 'make a half-hearted attempt' and 'make a wholehearted attempt', in *street* between 'thoroughfare' and 'sizeable thoroughfare', or in any of the other cases (cf. Taylor 1995: 124; Cruse 1986). Rather, the correct analysis is that each of these words is monosemous, at least in respect of the senses distinguished in (3). The concept associated with each word, however, has various components, and the different parts of this knowledge structure are selectively highlighted by the affirmation and denial (cf. Geeraerts 1993: 247). The semantic representation associated with *try*, for example, includes the information that one can try to do something without being fully committed to it: this is the information highlighted by the denial of the verb in (3b). Similarly, our knowledge of *streets* includes the fact that they are sometimes quiet, and sometimes busy – dimensions of the meaning which are made salient in (3f). These instances of the logical test do not, then, prove the polysemy/homonymy of the words in question; they merely demonstrate the speaker's mutual entertaining of two different points of view, under only one of which the predicate applies. From one point of view – that according to which windows can be opened – the referent of (3a) qualifies as a window; from the opposite point of view, it does not. This does not impose the recognition of multiple separate senses of *window*, all of which would need to be listed in the lexicon; it simply indicates the fact that not all the attributes of *window* are considered criterial. Equivalently, *adult* in (3e) is surely not to be considered as ambiguous between 'adult (including teenagers)' and 'full (legal) adult'; all (3e) shows is that varying assignments of a single referent to the same category are possible: from some perspectives (perhaps maturity, employment status, financial independence, etc.), the individual in question can be considered adult, while from others (e.g. legal adulthood), he cannot.[7]

Instead, the possibility of denying and affirming the applicability of the words above would seem to have two sources. What seems to be at stake in (3a)–(3d) is a commonplace category membership phenomenon, with a contrast being drawn between the prototypical centre and periphery of the italicized words. In (3a), for example, the simultaneous affirmation and denial that the referent is a window seems to be motivated by the fact that the 'window' in question lacks a typical feature of the class, openability. In

(3d), the fact that the undesirable situation referred to may have some associated benefits compromises the extent to which it can be considered as purely 'bad': if some good results from it, its badness is mitigated. Similar category centrality issues can easily be constructed for (3b) and (3c). Examples (3e)–(3h) seem to involve the issue of paradigmatic contrast.[8] The possibility of denial or assertion of the proposition turns on the differing paradigmatic contrasts in which the emphasized words can be made to participate: the assertion of the word in question presupposes a broader paradigmatic contrast than does the denial. Thus, *adult* in (3e) can be contrasted either broadly with *child*, or more narrowly, with *child* and *teenager/adolescent*: the initial assertion *He's an adult*, it can be argued, contrasts *adult* with *child*, while the subsequent denial contrasts it with both *child* and *teenager*. Similarly, (3f) turns on the possibility of a two-way contrast between *street* and, say, *path*,[9] versus a three-way contrast *path, lane, street*. Example (3g) contrasts the paradigmatic pair *purple*/*brown* (say) with the triple *purple*/*magenta*/*brown*, while in (3h) the contrast is *poetry* versus *prose* as opposed to *poetry* versus *prose* versus *performance poetry*.

The logical test is not, then, a reliable indicator of ambiguity, even for those who are committed to a truth-functional view of meaning: it too often gives the wrong result. A sceptically minded reader might, in fact, wonder whether there is *any* lexical item which, given the right context, cannot be naturally affirmed and denied without any perceived semantic incongruity. And it would on reflection seem likely that, given the differing semantic features which can become salient in different contexts, simultaneous affirmations and denials of any word are conceivable. Indeed, it is not even necessary for the speaker to be able to articulate the distinction motivating a split judgement of the '*x* but not *x*' kind, for this judgement to sound natural: in this case, we would have a word proven to be ambiguous, but where the senses concerned were completely obscure. A diehard partisan of the logical test, therefore, would have to admit that monosemy would *never*, on the logical criterion, be a real possibility.

3.3.4 Syntagmatic tests

Several proposed tests of polysemy depend on the syntagmatic relations contracted by the lexical item under investigation. There are two main

types of syntagmatic test: anaphora-based tests (usually called 'linguistic' tests), and syntactic ones.

3.3.4.1 Anaphora-based tests

Anaphora-based tests ('linguistic tests'), "involve semantic restrictions on sentences that contain two related occurrences of the term under consideration...; if the grammatical relationship between both occurrences requires their semantic identity, the readings that can be attributed to the resulting sentence may be an indication for the polysemy of an item" (Geeraerts 1993: 229). Whether the grammatical relationship requires semantic identity or not is not, of course, self evident; it is tested by intuitions of whether sentences with particular reference assignments sound awkward.

Examples of the test are as follows:

(4) a. *I bought a* paper *[copy], and so did Murdoch [company]* (*do so* identity).
b. *I have a* pet *[pet dog], as do you [pet hamster]* (*as do* identity).
c. *Sarah is* mad *[insane], and so is Roger [angry]*.
d. *Sam is* reading *[a novel], and so is Christina [her email]*.
e. *Zbigniew is doing his* exercises *[kalisthenics], and so is Jerzy [homework tasks]* (*so* identity).
f. *The drummer is doing* time *[in gaol], but he can't beat it [rhythm]* (anaphoric pronoun identity).

The test does not require that the two occurrences of the word in question be overt: the two instancings may be implicit. Accordingly, contexts involving a verb with a multiple argument have been used to test polysemy (e.g. by Tuggy 1993). In (5), for example, the verb *like* has to be understood as governing both *blondes* and *racehorses*:

(5) *John likes blondes and racehorses.*

The 'meaning' (broadly construed) of the verb may differ with each conjoined argument:

(6) *George should consult psychiatrists and dictionaries more often.*

(7) *Mike has learnt patience and Vietnamese.*

If these sentences sound 'awkward' ('zeugmatic', 'crossed'), proponents of the linguistic test conclude that term in question is ambiguous (polysemous or homonymous), rather than general (monosemous).

3.3.4.2 Against anaphora-based tests

The greatest difficulty with anaphora-based tests is the fact that intuitions about their semantic naturalness are not stable, definitive or precise. Sentence (3b) above is clearly acceptable, and (3a) clearly awkward, it is true. But in sentences like (3d) and (3e) above, it is not only unclear whether the sentences are acceptable, but, if they are not, it is not certain whether the *type* of semantic incongruity in question is the same as that in the clearly zeugmatic instances. Other examples of unclear acceptability judgements are the following:

(8) a. *Mauricio is playing the piano [grand piano], and so is Conlon [pianola].*
b. *The orchestra are playing [a symphony], and so are Réal Ma drid [sport].*
c. *The Michelin restaurant judges are eating, and so are the sau sage dogs.*
d. *He lacks taste and company.*
e. *The fleet reached Samos and an end to the months of waiting.*

As pointed out by Tuggy (1993), the acceptability of an anaphoric test sentence is context-dependent:

> If I have been painting a watercolor landscape and Jane a portrait in oils, a sentence like (1) *I have been painting and so has Jane* is perfectly normal, indicating vagueness rather than ambiguity for *paint*. If I have been painting stripes on the road, however, while Jane painted a portrait, (1) feels zeugmatic: I do not believe I could utter it except facetiously. This indicates that *paint* is ambiguous. ... The acceptability of sentence (1) in the different cases is not a discrete, binary property..'.

Accordingly, anaphoric tests cannot be relied on to give categorical results: in many cases, it seems that the *referent* of the term is crucial in determin-

ing the acceptability of the sentence. Example (9) is instructive from this point of view:

(9) *Hank is courting Tina and a disaster.*

If Tina and the disaster are identical, or if the disaster is understood as a situation involving Hank and Tina, then the sentence sounds less zeugmatic than if the disaster referred to is something else (a ill-advised foray onto the stock market, for example). Consider also (10):

(10) *He changes uniform and sides.*

On the face of it this is, perhaps, slightly zeugmatic. The zeugma can be reduced or even eliminated, however, if the context of a sporting competition is assumed, and the subject is taken to be changing his uniform *because* he is changing sides. In (3d) in the previous section, any possible zeugma is eliminated if Sam is reading the novel on screen, or if Christina is reading a print-out of her email. These examples confirm the idea that the tests depend crucially on the reference of the term in question, with the closeness between the referents of the conjoined elements inversely proportional to their zeugmatic potential.[10]

The semantic incongruity effects obtained by conjoining words are, in general, extremely complex, and seem to be sensitive to a variety of contextual and linguistic factors. The conjoined adjectives in (11) produce an intuitive sense of clash akin, or perhaps identical, to a zeugmatic effect:

(11) *Orchids are white and impossible.*

This is no doubt due to the incongruity of *impossible*, with its implication that the noun of which it is predicated does not exist. Who, however, would be prepared either to argue from this to the non-monosemy of *are* (or, failing that, of *orchids*), or to claim sufficient certainty about their own intuitions to distinguish the type of intuitive semantic incongruity registered here from the cases of zeugma above? A similar case is the following:

(12) *There was a priceless 'drunk' here the other day when I was on guard... He made the most magnificent remarks en route and so did the chaps who were carrying him.* (OED *priceless* 3).

Here the perception of semantic incongruity results not from any polysemy in the constituents of the phrase *make the most magnificent remarks,* but from the inappropriateness of applying the entire phrase (ironic, indeed, in both applications) to such disparate referents.

In the following examples, zeugma seems to progressively diminish as the objects are first quantified, and then quantified contrastively (or, perhaps, simply as the lexical density of the clauses, and hence the distance between verb and objects, increases):

(13) a. *People played sport and music.*
b. *People played some sport and some music.*
c. *People played a bit of sport and a lot of music.*

Zeugma-like semantic clashes are not limited to verbal arguments. The following examples seem to have intuitively similar semantic clash effects, but would not be used to diagnose the non-monosemy of *vote* or *hit*:

(14) a. *Vote early and often.*
b. *He hits hard and first.*

This evidence gives us to conclude that intuition does not discriminate finely enough to support the precise judgements required by anaphora-based tests.

3.3.4.3 Syntactic tests

Certain approaches to semantics draw their criteria for lexical polysemy from syntax, justifying the analysis of a word as polysemous by the existence of differing syntactic options (valence, complement structure, construction, etc.) associated with each putatively separate sense (see e.g. Weinreich 1966, Goddard and Wierzbicka 1994). Any theory which uses syntax as the means of distinguishing different semantic representations is committed to discovering a semantic difference wherever there is a syntactic one (of the appropriately defined sort). NSM is one such theory. Goddard, for instance, analyses Pitjantjatjara *kulini* as having two senses, 'think' and 'hear', and justifies this by the fact that each sense has a different syntactic frame:

> [o]nly the 'think' sense can take a quasi-quotational complement introduced by *alatji* 'like this', as in example (3). Only the 'hear' sense can take a non-finite 'circumstantial' complement as in example (4).
>
> (3) *Ngayulu* *alatji* *kuli-nu,* *'Tjinguṟu-la…'*
> 1SG like this think-PAST maybe-1PL
> I think like this about it, 'Maybe we…'
>
> (4) *Ngayulu a<u>n</u>angu-ngku* *wangka-nytja-la* *kuli-nu*
> 1SG person-ERG talk-NOM-LOC hear-PAST
> I heard a person talking. (Goddard 1991: 33–34)

The case of Japanese *-ba*, glossed as 'if' and 'when', is revealed as polysemous between these translations since only the 'if' sense can be used with the particle *moshi* (Goddard 1998: 138). This appeal to syntactic facts as evidence of polysemy, which I will refer to as the 'Syntactic Evidence for Polysemy Principle' (SEP) has great heuristic appeal, especially for 'exotic' languages where intuitively grasped criteria for polysemy are hard for investigators to come by. It is also attractive to investigators who, like researchers in both cognitive grammar and NSM, see syntax as essentially semantic in nature, and who are accordingly committed to looking for semantic distinctions in syntactic ones.

3.3.4.4 Against syntactic tests

As noted, this hypothesis of a parallelism between semantic and syntactic structure assumes that differing combinatorial options of a word entail differing semantic representations associated with the word itself. This assumption is not, however, warranted. One can accept the proposition that every syntactic difference corresponds to a semantic one without assuming that the semantic difference is manifested in the word to which the optionality attaches. Thus, whereas sentences differing only in which syntactic option is realized will, *ex hypothesi*, have different paraphrases, this difference need not necessarily be manifested in the word whose polysemy is in question: this is something that will depend on one's theory of compositionality. (In construction grammar, for example, meanings can be instantiated by constructions rather than by lexical items; hence participation in different constructions tells us nothing about the number of lexical mean-

ings involved; see Goldberg 1995.) Even accepting that syntactic differences correspond to semantic ones, then, syntactic phenomena do not determine any single conclusion about the semantic representation of a word.

This section will present counter-examples to SEP.[11] An initial question, however, concerns the definition of 'syntactic option'. Exactly what counts as a syntactic option for the purposes of SEP?[12] My approach to this problem will be a pragmatic one: I will not attempt a formal characterization of 'syntactic option', but will simply demonstrate that SEP is false for a wide range of syntactic phenomena. As a result, any attempt to maintain SEP in the face of this evidence will have to formulate a highly particularistic definition of 'syntactic option', so as to exclude the examples below. The range of syntactic phenomena below includes complementizer options for nouns, adjectives and verbs, number concord, and transitivity. Exemplification is limited to English.

Verb concord with nouns denoting collectivities:
Nouns for collectivities may take either a singular or plural subject, yet we would not want to claim that such terms are polysemous.

(15) *The government (committee, team, board, family) is/are hostile to your proposal.*

Preposition choice after nouns and adjectives:
Many nouns and adjectives can govern different prepositions without, I claim, any difference in meaning.[13]

(16) a. *angry at/with*
b. *hate of/for*
c. *disagreement over/about (the price)*
d. *opinion on/about/concerning*
e. *different to/different from/different than*

Complementizer omission
A wide range of verbs allows ellipsis of the complementizer *that*. In no case, however, does this indicate a polysemous meaning of the matrix verb. Not does it indicate any polysemy of the complement clause. Thus, regardless of whether the optionality of the complementizer is associated with the matrix predicate or the subordinate clause, SEP is contradicted.

(17) *I said/remembered/knew/was worried (that) I had to go home.*

Complement structure of forget
Forget may optionally omit *to* in contexts like (18):

(18) (Q: *Why didn't you do it?*)
A: *I just forgot (to).*

Complement structure of try
Try may substitute *and* for *to* without any difference in meaning:

(19) *Try and/to put it back on*

Transitivity of protest, appeal, agree
Protest, *appeal* and *agree* may be either intransitive (phrasal), in which case they are construed with the preposition *against*, or transitive (simple). This syntactic difference does not correspond to any difference in meaning.

(20) a. *There was a demonstration to protest (against) the war on Iraq.*
b. *American Tobacco will appeal (against) this decision.*
c. *The meeting agreed (on) the proposal.*

Relative omission
The object relative pronoun in English relative clauses may be overt or deleted, but this optionality creates no meaning difference:

(21) a. *The events (which) we see occurring are very worrying.*
b. *They chose the one (which) they liked best.*

For any of these differences an investigator could claim the existence of a semantic difference between the synonymous options, justified precisely by SEP. In all cases, I suggest, such a difference would be illusory. SEP must therefore be discarded as a guide to polysemy.

3.3.5 Paradigmatic tests

The counterparts of the previous tests are those tests which depend on the paradigmatic relations entered into by lexical items. The first of these refers to morphophonemic relations, the second to semantic ones.

3.3.5.1 The formal test

According to the formal test, if a single lexical item has differing phonological or morphological realizations correlated with different possible glosses, it should be considered as polysemous. For example, only the intentional sense of the phrase 'going to' can be reduced to *gonna:*

(22) a. *I'm gonna get married.*
b. *I'm going to/*gonna the chapel.*

The fact that phonological reduction applies to only one variant shows that each must be distinguished conceptually. A morphological instance of this test would be the fact that *mouse* can, among some speakers, take a distinct plural form, *mouses*, in the meaning 'computer accessory', as opposed to *mice*, reserved for the lower mammal (Croft 1998: 166).

3.3.5.2 Against the formal test

As noted by Tuggy (1999: 348), the fact that speakers differentiate phonologically or morphologically between different variants of a single form can tell us nothing about how the meaning of the form is represented: words often present variant phonological realizations, yet one would not want to claim that every such difference corresponded to a difference in meaning.

3.3.5.3 The synonymy test

This test for ambiguity is widely discredited (Cruse 1986), but merits attention for the assumptions it enshrines about the nature of the lexicon. According to the criterion of synonymy, if a word-form has two glosses in a metalanguage, and separate object-language synonyms of each metalan-

guage gloss can be produced, then the word-form is not monosemous. For example, English *take* has two proposed metalanguage senses, 'attend (a course) in' ('I'm taking algebra this semester') and 'move to a different location' ('I took twenty cents from your bag'). Each sense has different synonyms in English: the 'attend course' sense is broadly synonymous with 'study' (I'm studying algebra this semester'), the 'cause change of location' sense is synonymous with 'remove'. Hence, by the synonymy criterion, *take* is ambiguous (polysemous/homonymous) between 'attend course' and 'remove'.

Other examples include:

(23) a. *spend* 'occupy an interval of time' (*pass*) vs *spend* 'use up an amount of money' (*use up*).
b. *face* 'front part of head, including eyes, nose, mouth, ears' (*countenance*) vs *face* 'visible surface of watch' (*dial*)
c. *tape* 'register audio/video in semi-permanent form on magnetic strip' (*record*) vs *tape* 'fasten using adhesive strip' (*tape up*)
d. *state* 'superordinate political body' (*nation*) vs 'nature of an en tity at a particular moment' (*condition*)
e. *red* 'pertaining to a follower of Marx' (*communist*) vs *red* 'the colour of London buses' (*scarlet*)

3.3.5.4 Against the synonymy test

The idea that any genuine synonyms exist is deservedly controversial. If, as many believe, it is false, then the possibility of the synonymy criterion is removed. Conceding for the sake of argument, however, that real synonyms exist, the arguments about substitutability given in chapter two call into question whether true intersubstitutability (synonymy) should motivate any claim about meaning equivalence. The criterion assumes that conceptual relationships are constant across the lexicon so that what is separate in one place must necessarily be separate in another. But even if two meanings are separately realized in different word forms, why should they not be combined indistinguishably in another? Isn't this sort of different perspectivizing characteristic of language? Aside from these questions, a host of more practical ones militates against the synonymy criterion as a viable test for ambiguity. In the first place, the question of what does and does not count as a synonym must be considered: are loan words, ad hoc coinages, and (for

bilinguals) words in other languages admissible? In light of these problems we will follow the usual policy and dismiss synonymy-based tests.

3.4 The place of intuition in ambiguity tests

The logical, anaphoric and synonym-based criteria for ambiguity rely on speakers' intuitions about the well-formedness of the test sentences which they ordain. The status of intuitions in cognitive linguistics, as elsewhere in the discipline, is therefore an important, though rarely theorized one. Intuitions about what a sentence means are, as noted by Tuggy (1999: 352), crucial evidence for any semantic analysis, because it is on the basis of naive judgements about meaning that a theoretical approach to semantics can find its initial pretheoretical foothold. It is necessary, however, not to overestimate the reliability of intuitive judgements. As is commonly acknowledged, intuitions are variable, uncertain, and frequently fail to sustain introspective scrutiny: one's initial categorical reaction to a linguistic form is all too often revealed as mutable, especially when the form is contextualized or recontextualized.[14] Indeed, the unnaturally decontextualized nature of the test sentences for which intuitive judgements are solicited is one of the main reasons for doubting their representativeness of any real natural language phenomenon: while grammaticality judgements may arguably be feasible for sentences stripped of any surrounding context, is it really possible to gauge the semantic appropriateness of sentences disengaged from their real-world and discursive environs?

It is of course undeniable that intuitions about sentences exist, albeit mostly variable and unreliable ones. The question is whether such intuitions should be taken as evidence of first-order semantic facts, or of second-order, metasemantic interpretations of these facts. This is particularly so given the normative dimension of a semantic intuition. An introspective judgement that a sentence like *John likes blondes and marshmallows* is 'awkward' or 'unnatural' is, arguably, no more than a prescriptive language attitude in disguise, a language attitude that registers the slight deviance of the sentence with respect to some unexplicated norm – a norm which, given an appropriate context, might not be operative. The normative nature of semantic judgement emerges in statements to the effect that such and such a sentence could only be used incorrectly, facetiously, or as pun – a claim, in other words, that the use of the sentence is limited to certain 'marked' discourse contexts, or that it carries with it a certain interpersonal meaning

('facetiousness', 'humour'). The fact, however, is that such marked sentences do exist, whatever we think about them as language users reflecting on our own linguistic practice. Surely the fact that they exist should be given more weight in our reflection than should the post-hoc attitudes that we have to them. We might well often utter such sentences without registering any strangeness, and when we reflect on our intuitions they seem less and less stable: what sounds like a marked use at one time may not sound marked at another. Judgements about whether a particular sentence sounds zeugmatic or not thus do not necessarily reveal anything about the inherent nature of meanings, but only facts about the ways we typically interpret them. Is there any real difference between the sociolinguistic judgement that a particular sentence could only be uttered facetiously and the semantic decision that it is zeugmatic, and if not, should this judgement have a status in semantics?

One area in which intuitions, including intuitions about the correctness of semantic paraphrases, should have no role, I suggest, is as *theoretical interpretations* of linguistic data. Tuggy (1999: 358; cf. Talmy 2000: 4–5) articulates a contrary point of view to which many linguists would be sympathetic: "If many speakers of a language coincide in an intuition regarding meaning (e.g., that a particular U_1 [utterance – check] and U_2 can be distinguished, or that they are the same meaning, or both), that intuition should be accorded a high degree of credence." By this criterion, however, the line is blurred between scientific and folk linguistics. Allowing 'intuitions' about the theoretical aspects of semantic facts to overly influence the development of their technical representations frustrates the scientific responsibility of linguistics, which is to develop a technical understanding of a non-obvious domain. To do this properly, it has to transcend intuitions, and should be open to the possibility that our intuitions are, simply, wrong (cf. Ducrot 1984: 13–14). Acknowledging the legitimacy of intuitions as Tuggy suggests seems too easy a way of giving the analyst's own theoretical preferences legitimacy. While a semantic investigator, like any other, is entitled to methodological and aesthetic preferences about the theoretical model being developed, these preferences should not be mistaken as 'intuitions' about semantic *facts*. The physicist has to transcend their intuitions about the gross, macroscopic properties of matter, which have no status in the development of physical models. For a linguist, intuitions about what is a good or a bad theoretical description are no more relevant than are the intuitions of physicists in adjudicating between different physical descriptions: all that counts are the empirical consequences of the rival hypotheses.

3.5 The definitional test

The (Aristotelian) definitional test identifies the number of senses of a word with the number of separate metalinguistic paraphrases needed to define it accurately. A word has more than one meaning if there is no single definition which can cover all and only the meanings in question (as in the case of homonyms), and it has no more meanings than the number of maximally general definitions necessary to define its complete denotation (Aristotle, *Posterior Analytics* II.13; Geeraerts 1993: 230). As noted by Geeraerts (1993: 236), the definitional criterion is the only one which is able to capture the truly semantic aspects of words, since only it as it were looks inside a word in order to report its semantic content. In a sense, then, the definitional test is the only one that can be seen as actually being about meaning: the other tests, which depend on words' logical, syntagmatic, and paradigmatic relations, could be seen as tests not of semantic content, but of use. Note that the more fundamental nature of the definitional criterion is reflected in its relation to the logical test, by which, under one interpretation, it seems to be required. The logical test diagnoses separate senses if the target word is *able to be simultaneously true and false of the same referent*. If the capability of simultaneous truth and falsity is taken to mean 'it is logically possible (i.e. possible without contradiction) for the target word to be simultaneously true and false of the same referent', the possibility of showing this presupposes the availability of a definition of the different senses of the word which can be used to determine whether contradiction exists.

3.5.1 Against the definitional test

Definitional or content-based tests for ambiguity are widely rejected (Geeraerts 1993; Schütze 1997: 69; Fodor 1998; Dunbar 2001), for several pressing reasons. Firstly, they presuppose that none of the metalinguistic definientia is itself polysemous: only in this case will the requisite minimality of each component of the definition be assured. This presupposition could only be verified by applying one of the other polysemy tests, and since, as we have already seen, these are all suspect, the definitional criterion is always in danger of being subverted by a latent polysemy. Secondly, in their emphasis on a set of discriminating features distinguishing definienda from each other, they embody a necessary and sufficient condition view of cate-

gorization: a word's definition is constituted by whatever set of features provides the smallest necessary means of distinguishing it from related words. From a cognitive linguistics point of view, the obvious response to this criticism would be to substitute a prototypical conception of category membership for a necessary and sufficient conditions one. The number of senses associated with a word would then correspond to the number of prototypical centres associated with the word's semantic representation.

This response immediately casts the analysis back onto considerations of metalanguage. In the absence of an accurate way of naming and distinguishing the different meanings under the scope of a prototype, a cognitive analysis is without any reply to a charge of imposing an arbitrary and language-specific sense-division. (It was, after all, precisely in order to ground the metalanguage adequately that the definitional criterion was initially invoked.) Since the meanings of any object language word can be described in a number of different ways, any particular choice of description will have to be justified. Particularly significant is the fact that different types of semantic description will not necessarily give consistent results as far as meaning division is concerned.

Let us consider the Warlpiri verb *pakarni* as an illustration of this point. *Pakarni* has a multitude of possible English glosses; just some are 'hit', 'strike', 'bump', 'crash into', 'slap', 'kick', 'knock', 'whip', 'run into', 'beat', 'thrash', 'thresh', 'thresh out of', 'get by hitting', 'get by threshing', 'hunt', 'hunt and kill', 'chop', 'cut', 'fashion into', 'chop (into)', 'chop out of', 'pierce', 'dig in(to)', 'thrust into', 'stick into', 'paint', 'put on', 'apply to', 'smear with', 'fill oneself with', 'stuff oneself with', 'have one's fill of', 'gorge oneself', 'try to catch up with', 'dance', 'perform', 'initiate', and 'circumcise'. To develop a typical cognitive semantic representation of this verb, the investigator must organize the glosses into groups, each of which represents a different meaning, and will be captured in a single metalanguage definition (note that it appears not to be possible to give a unitary definition for all these meanings in a natural English metalanguage). The most intuitive way of designating these groups of glosses would be to group similar glosses together as exemplars of the same meaning. Thus, 'hit', 'strike', 'slap', etc. could be seen as constituting one sense, distinguished both from 'paint' and 'smear with', which constitute their own group, and from the group consisting of 'fill oneself with' and 'stuff oneself with'.

Where this intuitive grouping results in synonymous or near-synonymous English glosses being placed together, it is an innocuous activ-

ity. In cases other than these, however, the grouping of glosses into meanings on the basis of their perceived similarity or difference is far from neutral, because the criteria of semantic similarity and difference are inevitably subjective, so that what one is responding to are the semantics of English glosses as they are relevant to Warlpiri, rather than the semantics of Warlpiri itself: the structure of the metalanguage is present in the analysis of the object language at a fundamental level (compare the experimental evidence of the role of language in determining perceptions of similarity in colour vocabulary reported in Kay and Kempton 1984 and discussed by Lakoff 1987: 330–334). The discussion in chapter two of the NSM interpretation of Japanese *amae* highlighted the particular interpretative decisions necessary to develop a unitary definition from a multitude of alternative glosses. The following discussion focuses on a related set of problems, those involved in grouping glosses so as to produce a set of polysemous definitions.

To see the problem, consider the Warlpiri dictionary's present arrangements of the glosses for *pakarni*, as well as some possible alternatives.[15] Following is a (slightly edited) selection of the most important of the dictionary's definitions and glosses (the numbering is my own, not the dictionary's):

> 1. xERG produce concussion on surface of y, by some entity coming into contact with y
> *hit, strike, bump, crash into, slap, kick, knock, whip, run into, beat, thrash, thresh*
>
> Where y is a game animal:
> *hunt, hunt and kill*.
> xERG cause some entity to move towards yDAT [DD], in order to hit (*pakarni*) y
> *take a swing at, hit at, strike (out) at*
>
> 2. xERG produce separation in y, by causing sharp edged instrument (typically axe) to come into contact with y, by forcefully manipulating said instrument
> *chop, cut*

3. xERG produce indentation in y (typically ground), by causing some sharp pointed entity to come into contact with y, by forcefully manipulating said entity
pierce, dig into, thrust into, stick into

4. xERG paint y
paint, put on, apply to, smear with

5. Idiom: xERG cause self to be excessively satiated, by ingesting large quantity of food or drink
fill oneself with, stuff oneself with, have one's fill of, gorge oneself

6. Idiom: xERG move along path towards y [DD], in order to be at same place as y
try to catch up with, try to reach

7. Idiom: xERG (typically man) performs y (=ceremony), by moving along a path in a stylized manner usually involving a high stepping movement of legs and forceful lowering of feet to the ground
dance, perform corroboree

8. Idiom: xERG (=initiated man) perform ceremonial actions for the benefit of y (=male human previously uninitiated) at circumcision ceremony
initiate, circumcise, make man

9. xERG (=head cold/influenza) produce characteristic effect on y (=being)
have a cold, have the flu, have pneumonia, have bronchitis

This is a comprehensive and principled interpretation of the meaning of *pakarni*, on most points of which the account in chapter six will be in substantial agreement. The division of glosses into different senses, each given its own definition, is accomplished by grouping together under the same definition glosses that belong to the same semantic 'area'. The points I wish to stress do not affect the credibility of this analysis and are not meant to call into question the dictionary's utility as a description of Warlpiri semantics, but only the extent to which it can be taken as the last word on the meaning of *pakarni*. There are three main points to be made: (a) the dic-

tionary's interpretation is only one of a number of possible interpretations of the verb's meaning, all of which result from differing similarity-based gloss-groupings; (b) the choice between it and competing interpretations must be made on extrinsic criteria (cf. Langacker 1987: 30), that is, there are no available data to which we can appeal to validate definitively one interpretation at the expense of others; (c) this is because the notion of semantic similarity cannot uniquely determine a single interpretation, but defines a field of multiple possible ones: the use of similarity as a criterion for grouping glosses into different senses means accepting an open-ended heuristic whose grounds can vary indefinitely both within one glossing metalanguage, and as a result of a different choice of metalanguage. These points will be illustrated in the following discussion.

The arrangement of glosses for *pakarni* into different sense classes can be done in a variety of ways, all dependant on the identification of semantic similarity between different glosses. The choice between these arrangements must be made according to other principles, which may enshrine certain methodological or theoretical presuppositions (such as the virtue of limiting the number of definitions), but which do not bear on the accuracy of one analysis over another as representing the 'actual' state of affairs. There are two types of possible variations to the existing grouping of glosses into senses: *splitting*, in which some of the glosses under a definition are moved into their own definitional class, and *joining*, in which two previously distinct definitions or parts of definitions are brought together as constituting a single sense.

Consider the gloss 'run into', by which *pakarni* is sometimes translated. There are grounds for treating this as the same sense as the sense presently glossed 'have a cold', in spite of the fact that these seem entirely different.[16] Both uses describe a painful physical effect being undergone by a human. We could capture the similarity between these previously unrelated glosses in a definition which joins them in a single category:

> xERG (=inanimate physical or non-physical entity) produce harmful effect on y (=human), by coming into contact with y.

This new definition illustrates both splitting and joining: first, subparts of different definitions are split from their former place, and then joined in a new definition.

Now consider the glosses 'chop' and 'cut' in relation to 'hit' and 'strike' (and synonyms). As will be discussed in chapter six, *pakarni* only means 'chop' or 'cut' when an axe or similar instrument is used: it is not ordinar-

ily a synonym of the primary 'cut' verb, *pajirni* – hence the specification of an axe as the typical instrument in the definition in 2 above. The proposal of a separate definition for the 'chop' glosses answers to the fact that in English a breach in the material integrity of the surface is not specifically conveyed by the use of verbs like 'hit' and 'strike', but must be signalled by the choice of a different verb, like 'chop' or 'cut'. An act of chopping can involve a degree of physical force and a physical routine identical to that involved in hitting: when one *chops* a tree with an axe, one also *strikes* it with an axe. Accordingly, there is justification for eliminating definition 2 and treating the 'chop and 'cut' glosses as falling under the same definition as the 'hit' and 'strike' ones, with the element of breach to the material integrity of the surface object being a constituent of the situation referred to by the verb rather than of its linguistically manifested meaning, this element being conveyed through other elements, like the overt mention of the cutting implement. It is thus an interpretative/theoretical matter whether *pakarni* has 'chop', 'cut' as part of its definition; either possibility is consistent with the similarity (and the other) criteria.

Reanalyses like this show the extent to which definitions – statements about the nature of an expression's meaning – are the result of interpretative procedures grounded as much in the semantics of the metalanguage as in those of the object language. The 'correct definition' of an object language term is thus not a single construct, but a field of alternative analyses that can be recast in a number of possible ways, provided that each is compatible with both object language and metalanguage. Given that there is a virtually unlimited choice of metalanguages, the number of competing representations of object language meanings increases exponentially. As a result, the proposal to ground criteria for sense division on definitional criteria is undermined. Definitions can legitimate an unlimited number of sense divisions. Any choice of which of the many possible definition-based sense individuations to endorse must be made according to other criteria, but these will necessarily involve *a priori* decisions which are not directly motivated by the object language, representing instead choices which have to be made *before* a final analysis of the object language can be reached.

These problems notwithstanding, some scholars have not hesitated to adopt a content-based criterion for sense division. As already noted, the acceptance of this criterion is usually implicit, as for example where an investigator simply assumes the validity of the metalanguage glosses proposed as analyses of an object language expression, or where the problem of the foundations of sense division is said not to be important. By contrast,

Tyler and Evans (2001: 731–732) are unusually straightforward about their acceptance of a purely content-based criterion of sense resolution:

> We suggest two criteria for determining whether a particular instance of a preposition counts as a distinct sense. First, accepting the standard assumption that the primary sense coded for by prepositions is a particular spatial relation between a TR [trajector] and an LM [landmark] (although we will nuance what 'spatial' means), *for a sense to count as distinct, it must involve a meaning that is not purely spatial in nature and/or in which the spatial configuration between the TR and LM is changed vis-à-vis the other senses associated with a particular preposition*. Second, there must be instances of the sense that are context-independent, instances in which the distinct sense could not be inferred from another sense and the context in which it occurs'. (italics added)

It will be seen that these criteria are essentially definitional and stipulative: a sense is separate if it contains a certain stipulated semantic content, which is established on a criterion of intuitive similarity just like the one considered above. Thus, a sense is distinct if it is not "purely spatial in nature". (The second criterion, that of context independence, depends on a prior division of the senses and is in this sense not a criterion of sense division at all.)

We have argued that none of the available criteria for sense division provides a principled basis for determining the number of senses of a word. Nevertheless, in spite of the signal indeterminacies to which it gives rise, we have claimed that a content-based (definitional) principle of meaning resolution is the only one to offer a genuinely *semantic* means of delimiting senses. Only it, in other words, allows sense division to follow directly from the representation of meaning, since a word has as many senses as it requires separate definitional representations. But none of this changes the fact that any semantic description with ambitions of cognitive realism requires a means of sense division which is not prey to the indeterminacies of definitional approaches. Equally, any semantic theory which adopts a definitional means of sense division at the same time as claiming to be cognitively realistic must be taken as, on some level, asserting the psychological reality of the meaning divisions it recognizes in a word. As a result, the decision to employ a content-based principle of sense division carries with it a responsibility to give an account of the activity of semantics which can reconcile the indeterminacy of meaning division with the scientific aspirations of a linguistic theory of meaning. If, as has been argued here, there are no accurate grounds to legitimate the sense division inherent in any con-

tent-based analysis, how exactly is the semanticist's activity justifiable within a study of language committed to the avoidance of arbitrariness? The task of the previous chapters was to advance a descriptive, instrumental answer to this question: linguistic analysis cannot aim to supply a unique analysis of any object language meaning, and should rather adopt an interpretative, instrumental role. We are now in a position to develop this answer further.

4. Categorization, semantic relations and referent typicality

The discussion so far in this chapter has identified another problem on top of those already argued to confront any attempt to understand semantic structure: even so basic a task as the delimitation of the number of senses held by a word is always at the mercy of the metalanguage chosen for the analysis, and open to potentially unlimited different analyses. Given this, what becomes of the explanation of polysemous senses in terms of metaphor and metonymy? Ideally, an investigator committed to the use of metaphor and metonymy as categories for the understanding of semantics would hope that they could have genuine explanatory relevance in the study of speakers' actual categorizing abilities. But since specific proposals about metaphorical and metonymic links between meanings depend on a prior individuation of the senses within a word, this explanatory relevance will be threatened if, as argued above, this sense-division is necessarily highly indeterminate.

This section outlines one line of justification, within a representational theory of meaning, for the use of metaphor and metonymy in the explanation of semantic structure. On the arguments of chapter one, a representational theory of meaning will not form part of a scientifically testable theory of language. To be made susceptible of empirical checking, conceptual representations like those of CS will have to be rephrased as parts of a detailed causal account of linguistic performance – a level which will eliminate the symbolic character the representations presently have. Since this level of specificity is not available to linguists, however, talk of representations is presently inevitable and constitutes our best – indeed, within CS, our only – available description of the nature of the phenomena involved. As a result, CS scholars have no choice but to continue advancing analyses of meanings as conceptual representations, although the inherently informal nature of these analyses removes any hard and fast criteria for discriminat-

ing between alternative proposals about the nature of these representations: because there is an infinite number of interpretative processes by which the matching between a putative conceptual representation and its denotation is implemented, all analyses of the content of the matched representations can be considered equivalent.

The present section is not, therefore, intended to annul the arguments of chapter one. A theory of meaning as conceptual representation is, for Wittgensteinian reasons, inherently unable to be incorporated into a testable scientific theory of the phenomena involved. It is, nevertheless, the only option available to researchers in the CS paradigm. As a result, although we may continue to use the theory, we should not expect that it will deliver results of a fundamentally scientific (testable, predictive) character. Since metaphorical and metonymic relations have been taken in CS to apply between conceptual representations, a Wittgensteinian rejection of the scientificity of representations is also a rejection of the scientificity of metaphor and metonymy. The purpose of this section is therefore to develop a particular construal of metaphor and metonymy within CS which might otherwise have gone unnoticed. We will suggest a certain interpretation of metaphor and metonymy on which the tropes can be taken as describing people's actual categorizing abilities, at least for a certain important class of referents (those glossed by what we will call S-glosses: see below). The claim that semantic relations like metaphor and metonymy can only be defined over metalinguistic representations of separate senses whose individuation is indeterminate does not, therefore, rob them of all empirical value: in insisting that their operation can only be described over such arbitrarily individuated senses, CS researchers do not abandon metaphor and metonymy altogether as potentially psychologically relevant principles, nor entirely sacrifice semantic description to a free-floating and unconstrained 'play of signifiers'. Metaphor and metonymy remain viable hypotheses about the nature of the cognitive principles underlying categorization in CS, at least for an important class of referents.

4.1 Metaphor and metonymy as reference phenomena

According to a common description, a linguistic expression is the name of a category which groups together a variety of disparate referents as exemplars of the same type (Brugman 1983; Langacker 1987: 369; Lakoff 1987; Ellis 1993: 29–33; Taylor 1995). There are two possible types of relation

between the participants in a linguistic situation and the referents of the words employed. The object, event, property or relation to which a linguistic expression refers may either be present in the immediate context of the speech situation and perceived by the participants in it, or not actually present, but 're-presented' in the minds of the participants as the objects of their thoughts. In order to generalize over these situations, we will speak of the referent as being 'manifest' to the participants in a linguistic exchange in both cases.[17] If an entity is manifest, it is present to the mind of the participant(s) in the linguistic event, either through being perceived (by sight, sound, touch, etc.), or by being re-presented (remembered, imagined, etc.). In what follows, we will assume that the process by which linguistic expressions are chosen to refer to manifest entities should, in the absence of an explicit causal account on a scientifically detailed level, be described as one of property-matching: the mind scans available conceptual (semantic) representations for a match with the properties of the entity currently manifest and the representation is chosen which most optimally fits these properties (van Leeuwen 1998: 266 and Hunt and Ellis 1999: 51 summarize this process for actual sensory input: the process for imagined or remembered referents is presumably rather different, but we assume that the process should be described as involving matching of some sort). This choice of the appropriate semantic representation corresponds to recognition of the referent. The semantic representation is associated with a phonological representation, the name of the concept.[18]

The process of categorization by which discrete entities in the world are cocategorized by the same linguistic expression may take a number of different forms. In the following idealization, however, just three will be distinguished: micro-level categorization, intermediate level categorization and macro-level categorization. Let us examine each in turn.

Micro-level categorization is the process involved in the ordinary, unmarked use of a linguistic expression for typical tokens of its class of referents, for example the use of the word *flower* to refer to a particular individual flower manifest to the speaker for the first time. This level of categorization is the site of what could be called the 'micro-polysemy' of words, that is, the potentially infinite minute differentiation to which referents and the nuances which accompany them are open while still counting as typical members of the lexical category in question (cf. Cruse 1986: 51; 2002). Particularly for objects and events on the Roschean basic level (the level of 'middle sized' objects with which people most often function in their day-to-day activities), members of the class of typical referents of a

given linguistic expression are characterized by an ensemble of functional and perceptual connections. The objects which we call 'flowers', for example, show a generic perceptual similarity and are the objects of a particular range of characteristic actions, like smelling, plucking, arranging, etc. For many theories of reference, including the one mostly assumed in cognitive linguistics, this ensemble of perceptual and functional similarities between the individual members of the category 'flower' is not accidental: it is the explanation for their co-categorization. On this hypothesis, speakers have access to some form of internal representation of these perceptual and functional similarities which allows them to match the properties of manifest flowers with the properties of the representation of the typical flower linked with the phonological representation of the word *flower*. On this theory, the use of the expression 'flower' to refer to a flower is the result of such a process of matching.

The micro-level of categorization is essential to speakers' ongoing ordinary use of language to refer to the world. Since the ability to cocategorize certain different entities as *flowers* is a criterial part of a command of English, the principles of perceptual and functional connection hypothesized to tie the class of flower-referents together, motivating the cocategorization, are relevant to the explanation of linguistic ability. We know that the newly bloomed geranium in the window box is appropriately called a *flower* because the principles that associate the phonological representation /flaU´/ to this particular manifest entity are a part of our linguistic competence – presumably an early acquired and quickly routinized part. As part of everyday, unmonitored language use, micro-level categorization has three important properties: a) it is almost instantaneous, in that speakers do not hesitate about how to name a novel prototypical token of the lexical category in question; b) it is in keeping with the normal usage of the speech community; and c) it does not involve any particular meta-linguistic awareness of a departure from the core use of the word – since the choice of the word to refer to the referent in question does not depart from any norms it is not likely to be thought of as creating a separate or different meaning of the word.

At the opposite extreme, macro-level categorization is the process in which atypical referents are assimilated to a pre-existing lexical category. This is the domain of many linguistic phenomena, including irony, exaggeration and other types of rhetorical effect, and, in particular, many types of consciously employed metonymy and metaphor, which, in English and many other languages, may be explicitly tagged as such through the use of

metalinguistic hedges like *so to speak*, *as it were*, and many others. In contrast to the unconscious nature of micro-level categorization, here the use of a lexical item for an atypical referent involves a high degree of self-conscious, metalinguistic awareness, since it represents a marked departure from the typical referential norms of the speech community.[19] Metaphorical categorization on this level ranges from more conventionalized, although still marked, uses like that of *bitter* in *Fred is bitter* and of *marry* in *to marry necessity to convenience*, to highly novel, culture-specific and short-lived categorizations like the following metaphor, which would be impenetrable without highly particularistic cultural knowledge:

(24) *[Australia has still] got enough batter on our sav to keep the world nibbling.*
(*Sydney Morning Herald*, September 14, 2001, Metro section, p.6)

In this sentence the image of nibbling a sausage fried in batter (a *battered sav*) is used as a metaphor for an attractive and interesting travel destination. Because the ordinary meaning of the metaphorically used terms are very clear for all these cases, such uses will be taken as involving a departure from the word's typical sense: a person is not usually said to taste *bitter*, abstract concepts cannot *marry*, and the world cannot collectively *nibble* a single *battered sav*. The particular types of atypical categorization also vary from culture to culture: as observed by Goddard (1996), it seems likely that conscious lexical metaphor has become a much more prominent feature of Western languages than of many others; on the other hand, the Warlpiri initiation register (Hale 1971) involves types of atypical categorization (namely using a word to denote its opposite) that are not typical of either English or other European languages.

These two extremes jointly define the residual intermediate level of lexical categorization. This level comprehends an array of disparate categorizations which are neither absolutely typical of the lexical item in question, nor absolutely atypical. Examples of the types of phenomena on this level would include dead metaphors and idioms, slightly atypical referents, and some of what, following Cruse (1986) we may call 'contextually modulated' categorizations: for example the use of 'crush' to denote a gentle action requiring no force in the sentence *crush the petals between your fingers* as compared to its more prototypical use to name a fairly forceful action, as in *the cars were crushed under tons of concrete*.

As just observed, the quotidian and unconscious character of micro-level categorization means that the assimilation of a previously unencountered but typical referent token to the category of a particular lexical item would not be thought of as creating a new meaning for that lexical item. If our pretheoretical view of meaning had to recognize a new meaning for *flower* every time the word was used to refer to a new example of a flower, the very distinction between a word's meaning ('sense') and its use ('reference') would lose point. If meanings are to be paraphrasable in ordinary language, as the naive picture conceives of them, it is essential that they be descriptions which transcend the particularities of the referents to which they are applied. Macro-level categorizations, by contrast, are usually described pretheoretically as creating new meanings for the lexical item in question – the metaphorical and other non-literal meanings which our folk linguistic theories identify as different from the basic sense. A novel metaphorical, ironic, or otherwise non-literal use will generally be noticed for its deviation from linguistic norms: most often, we talk of the non-literal expression being used 'in a different sense' from its standard one. For intermediate categorizations, however, the naive picture of semantic structure is much less clear on whether a new sense is to be thought of as created. For example, putting aside the typical ways in which we have become used to thinking about such phenomena in theoretical linguistics, it is not prima-facie obvious whether the meaning of *crush* in the sentence *the paper is crushed* is different to or the same as the one in *his arm was badly crushed*, and this uncertainty is reflected by the differing classifications found in dictionaries. Thus the Collins COBUILD dictionary (1987) treats it as a separately numbered sense, the Concise Oxford (1999) as a subsense, and the Macquarie Dictionary (3ed) as the same sense.

Such examples could be proliferated indefinitely, and reveal that a good deal of uncertainty surrounds the pretheoretical understanding of 'separate sense', even as applied to one's native language. As Geeraerts (1993: 259) observes, 'our pre-theoretical notion of what a distinct meaning is, is not entirely clear', adding that, 'in that sense, any search for polysemy criteria will be hampered by the fact that we do not know precisely what it is we want a criterion for'. The apparent lack of any reliable criterion for sense resolution, and the consequent necessity to fall back on the definitional criterion, serve as striking confirmations of this point of view, since it would seem that none of the criteria proposed to ground the notion of 'separate meaning' as the result of an objective decision procedure is successful. If the present argument is accepted, a reason becomes available for

the lack of certainty in the naive picture of sense-division. The notion of a separate meaning isuncertain because its primary use is as a metalinguistic recognition of unequivocally atypical *referent* categorizations: the clearest instances of separate meanings are atypical referent categorizations which are inherently accompanied (and often created) by a high degree of conscious awareness. Since, by definition, most categorizations will not be unequivocally atypical, there is a large remainder of categorizations in which it is unclear whether the degree of atypicality has attained the threshold for recognition of a separate meaning. Since the notion of a separate meaning is characteristically used to register atypical referents, it is hardly surprising that its application to senses should cause difficulty.[20]

All three types of categorization must be accounted for by a theory of language. Not only must the macro-level connections that license atypical referents for words be explained, but a description of the process by which the typical referents of a word are recognized as such and categorized on the micro-level is called for. In cognitive linguistics, metaphor and metonymy have typically only been used to account for the two coarser levels of categorization. Since they have primarily been seen as operations linking different senses of polysemous words, within an interpretation identifying separate senses with distinct conceptual representations, they were primarily treated as explanations of intermediate and macro-level categorization, the forms of categorization most relevant to lexical polysemy as traditionally conceived. A large part of the novelty of Lakoff and Johnson (1980) lay in their insistence that metaphor was not simply a linguistic phenomenon, but a conceptual one, and a similar interpretation has also been urged for metonymy (e.g. Radden and Kövecses 1999): metaphor and metonymy are ways of thinking about (conceptualizing) things, not just talking about them. This interpretation of metaphor and metonymy as constituting the links between different conceptual senses of a word meant that the role of metaphor and metonymy as explanations of micro-level categorization was less emphasized.

Confining the application of metaphor and metonymy to the upper levels of categorization in this way is unnecessary. They are, in fact, equally profitably seen as the processes governing the micro-level categorization of disparate manifest entities as the referents of a single sense of a word. As noted above, this categorization is being assumed to occur as the result of a process of property correspondence between the representation in perception or memory of a manifest entity, and the semantic representations of possible linguistic expressions. In the case of someone looking at a gera-

nium and uttering the word *flower*, for example, the rationale for the categorization of the manifest flower as a 'flower' is the relation mentioned above of perceptual and functional similarity between the manifest entity and the semantic (conceptual) representation of a flower.[21] This connection, which is one of resemblance, is a metaphorical connection *par excellence* (cf. Grady 1999; Taylor 2002: 465). The mapping by which the functional and perceptual similarity between a novel flower referent and the semantic representation of the prototypical flower is registered can be considered as a process of category incorporation by which a new flower token is brought under the referential scope of a single word. In this respect, it is precisely equivalent to the process of metaphorical category incorporation by which, on the standard cognitive semantics picture, an instance of a schema from one conceptual domain is brought under the scope of ('mapped onto') a different conceptual domain. In both cases, it is principles of mapping which establish the link: mapping from one concept to another for the cross-domain mapping, and mapping from the properties of the manifest entity to the properties of a semantic representation in the referential case. To consider a metonymic example, it would be the relation of contiguity between the text and the physical object that would account for their both being referred to as *books*, as in *This is an enjoyable book [text reading]* and *This book is hard to carry [physical object reading]*. The text and the physical object constitute separate features of our perceptual and functional experience of books and, if necessary, they can be distinguished linguistically. The fact that they are usually not so distinguished, however, can be explained by the fact that both are typically conjoint physically, and by the fact that they have a joint functional role: books necessitate both a physical object and a content. These perceptual and functional links between the text and the physical object are precisely analogous to the links of contiguity that define metonymy (see Radden and Kövecses 1999: 47–49 on some perceptual bases of metonymy).

Metaphor and metonymy, then, are as appropriately invoked on the micro-level of categorization as on any other. The suggestion that the cognitive operations on all three levels involve metaphor and metonymy is in keeping with the desire in cognitive linguistics and elsewhere to break down the barriers between linguistic, perceptual and motor cognition and to assert the unitary (or at least linked) nature of these processes (Lakoff and Johnson 1999; Grady 2000: 338). Indeed, as Grady (1999: 96) notes, the cognitive mechanisms of perception are a precondition of the very ability to perceive resemblance. It would consequently not be entirely unexpected if

the types of cognitive process responsible for categorization in both visual and conceptual domains were similar.[22]

Under this conception of metaphor and metonymy, links of similarity and contiguity do not primarily serve to explain the motivation for one separately stored word sense being related to another; rather, they constitute the rationales on which disparate manifest entities are collectively *referred to* under the umbrella of the one linguistic expression (cf. Seto 1999: 91 for a similar formulation restricted to metonymy, and Rumelhart 1993: 72–74 for an acquisition-based perspective). In the case of micro-level categorization, this reference will occur entirely automatically: the process of matching between the perceptual representation of the manifest entity and the semantic representation will be thoroughly routinized, and as a result occur instantaneously and without the conscious exercise of the speaker's choice among paradigmatically available options. On the macro-level, contrastingly, the situation is reversed. Here the speaker is making an atypical referent categorization, either because there is no standard expression available to convey the desired meaning, or because other considerations militate against its use.[23] As a result, there will be no routinized process by which a word can be associated with the desired meaning,[24] and the decision as to what words to use will be brought to consciousness, potentially being solved in a number of different ways. One of these ways would be the metonymic path of labelling the desired meaning with the label for a semantic representation that is, in some way, contiguous to the semantic representation targeted. Another is the process of explicit comparison between different ideas which we are accustomed to think of as constituting metaphor.

This interpretation of metaphor and metonymy as parts of the explanation of referent categorization has the following consequence: metaphor and metonymy can still be advanced as the principles of explanation accounting for linguistic categorization without necessitating any commitment about which of the three levels of categorization is concerned. As a result, the analysis is not committed to asserting that the glosses which metaphor and metonymy are proposed to link constitute distinct senses (cf. Crisp 2002 and Haspelmath 2003 for like-minded attempts to make semantic/functional analysis independent of sense-differentiation or claims about conceptualization). The postulation of a metaphorical or a metonymic relation between two glosses does not, that is, entail that each gloss correspond to a separate sense. Given the theoretical problems in making the notion of a separate word sense coherent, this is surely salutary. Since metaphor and metonymy describe the principles of categorization by which objects are

referred to by the same word, they are neutral on the question of whether the glosses so related should also be thought of as separate senses. For example, consider 'narrative' and 'set of bets on a result' as possible glosses for the word *book*. As long as it is assumed that the distinction between a set of bets and an (abstract) narrative is one that speakers of English can make, then the postulation of a metonymic link between the two glosses can be plausibly claimed as a real aspect of the semantics of *book*. If *book* is monosemous, then the metonymic relation can be taken as describing the principles that link these two different *entities* and enable them to be co-categorized under a single linguistic label. Under this interpretation, the metonymy provides the rationale for the reference of the monosemous word. If *book* is polysemous, on the other hand, the metonymy can be interpreted as a relation between two distinct *senses*, or concepts: in this case, there is a conceptual relation. In either case, the metonymic link is fundamentally the same.

4.2 Constraints on the nature of the glosses

Metaphor and metonymy can only be explanatory of referent categorization in the way suggested in the previous section if the metalinguistic glosses of the senses which they relate express distinctions which are available to speakers on some level of cognitive structure: if 'narrative' and 'set of bets' do not express distinctions which are manifest to speakers, they cannot be considered cognitively real. The validity of postulating metaphorical and metonymic links between particular metalinguistic glosses can thus be guaranteed if these glosses identify features of referents that are salient on *one* of the levels of categorization (i.e. either the unconscious referential level, or the conscious conceptual one). Let us call this the Cognitive Salience Constraint on glosses. If the glosses related by metaphorical and metonymic processes obey this constraint, metaphor and metonymy explain referent categorization by describing the relations by which speakers' representations of manifest referents are matched with the semantic representations associated with linguistic expressions, and these links retain their explanatory value even if the precise level of lexical categorization at which the analysis applies has to be left indeterminate.

To see the import of the Cognitive Salience Constraint, consider two different glosses for *book*: 'member of the class of entities whose automatic processing is undertaken by totalizator machines' and 'member of the class

of entities whose structure was analyzed by Vladimir Propp'. Let us allow that these glosses adequately pick out the 'set of bets' and 'narrative' senses of *book* respectively. Unless a speaker actually knows about totalizators and Propp, and relates them to books in the ways specified, these glosses could not be advanced as even possibly relevant to the referent categorization processes involved in *book*. But if totalizators and Propp are familiar figures, they might well be relevant to a speaker's conceptualization of the category *book*, although only on the macro-level of categorization: they would not, presumably, enter into acts of direct reference, in which books are made manifest to speakers through their actual presence in the visual field.

The Cognitive Salience Constraint, then, defines an upper and a lower limit for glosses. At the upper limit, the constraint is a negative one: glosses which refer to aspects of referents which are not part of speakers' knowledge of the referents cannot enter into the categorization processes involving the referents. At the lower level, the constraint is positive: any gloss which identifies an aspect of a referent which is available to the senses of the speaker, and therefore manifest to her, can be considered as relevant to the categorization of a referent, since it defines a property of the referent which must at least be processed during the construction of the mental representation of the referent whose features are matched with an available semantic representation.

The present proposal to see metaphor and metonymy as descriptions of the principles of referent-categorization allows us to recognize that in spite of the fact that no one semantic analysis can ever be uniquely validated, a constraint can be introduced which modestly increases the psychological plausibility of any semantic analysis which obeys it. The existence of such a constraint on semantic analysis is not very surprising. Human beings perceive, interact with and refer to the same objects with the same brains: it would be extraordinary if these shared abilities did not have the effect of limiting possible semantic analyses in some way. The Cognitive Salience Constraint neither determines a unique set of metasemantic glosses – nothing removes the inherent indeterminacy of the analysis – nor guarantees psychological reality for those glosses which are used: it is a contingent matter, to be settled by empirical research, what (if any) features of objects do and not enter into the categorization process. It does, however, increase the plausibility of glosses which obey it as at least candidates for psychological reality. The next few paragraphs will attempt to calibrate the degree

of cognitive plausibility attaching to the glosses between which metaphorical and metonymic relations are proposed in CS theories of polysemy.

A CS analysis of an object language expression has two fundamental parts: (i) a characterization of the expression's semantic range, as described by the set of metalinguistic glosses proposed to translate the word's meanings, and (ii) a description of the links between the glosses (usually in terms of metaphor and metonymy), reducing the arbitrariness of the set of glosses by establishing relations between them, typically from the basis of an assumed core meaning. If a semantic analysis is to be psychologically plausible, both of these parts, the glosses and the relations, must be individually plausible. The psychological plausibility of metaphor and metonymy are not in question: relations of similarity and contiguity are ubiquitous in descriptions of mental activity. The glosses, however, do not enjoy a similar status, since it seems to be a fundamental circumstance of semantic analysis that there is no unique metalanguage gloss which can be advanced as the best translation of a word's meaning: not only is a variety of alternative translations possible within a single language, but there is also the initial choice of the metalanguage in which the translation is to be made. Let us call the complete set of metalanguage glosses of an object language expression 'G' (for 'glosses'). G comprehends all the possible translations of the object-language term in every possible metalanguage. (Needless to say, there is no word for which G has ever been anywhere near fully detailed.)

Note that G is entirely open-ended. The conclusion of chapter two was that the only criterion for a metalanguage gloss is whether it accurately represents the meaning of the object language definiendum, and that this criterion is an inescapably subjective one: what is an accurate representation for one person is not for another. Nevertheless, some procedures can be introduced to select those glosses which are of most interest to the empirical theory of language:

> MANIFEST PROPERTY SELECTION. Select only those members of G which express properties of the referent which could be manifest to the speaker/hearer.

Application of this constraint will produce a subset of G which we will call M (for 'manifest'). Recall that something is manifest to someone if it is available for processing. Sensory stimuli and concepts are all examples of manifest things. The exact membership of M is, of course, difficult to determine for any one speaker in any one situation. Doing so fully would require a complete characterization of the available and active mental rep-

resentations of the speaker/hearer: only if such a characterization were provided would it be possible to determine the full range of properties perceived and conceptualized in relation to particular referents. We can make the choice of glosses somewhat more concrete by refining M through the application of a further procedure:

> SENSORY PROPERTY SELECTION. Select only those members of G which express properties of the referent which could be sensorily (visually, auditorily, etc.) manifest to the speaker.

This procedure will define an even more restricted class of glosses. This class we will call S (for 'sensory'). For each set of glosses, let us consider a semantic analysis in which metaphor and metonymy are used to relate the selected glosses.[25] The semantic analyses thus defined will be called the G-analysis, the M-analysis, and the S-analysis. Our interest is in the contrast in the degree of cognitive plausibility of these analyses: the likelihood, within the CS theory of meaning, that the properties of the referent identified by the metalanguage glosses are manifest to a speaker/hearer and consequently capable of entering into the process of categorization on any of the three levels identified. Clearly, then, a G-analysis has no cognitive plausibility, because there has been no screening of the proposed glosses to remove those which are not manifest to the speaker. An M-analysis has a higher degree of cognitive plausibility, since all the glosses express properties which could be manifest to the speaker/hearer, either sensorily or through imagination (including memory). Just *which* properties of a referent contribute to its linguistic categorization, however, cannot be determined: we do not know, in other words, how to exclude those manifest properties which are merely coincidental. For example, the property of 'impute responsibility to [someone]' is conveyed, among many others, by 'blame', one possible gloss of the Arrernte verb *palimi*. We do not know, however, whether this property is actually involved in the categorization accomplished when the verb is predicated of a subject: perhaps the property of 'say [someone] did something bad', as conveyed by 'accuse', one of the other possible glosses, is the active one. Since any extension will be compatible with infinitely many intensions, this is a serious limitation to the psychologically plausibility of semantic analysis.[26]

As a subset of the M-analysis, an S-analysis is also cognitively plausible. However, since all the glosses express sensorily manifest properties of the referent, S-analyses carry a higher degree of cognitive plausibility. By definition, S-glosses express properties of referents which are sensorily

manifest to speakers/hearers. Since these properties are at least perceived by speakers, they are part of the categorization process, if only on the micro-level. We will illustrate this first from the so-called 'actual-potential' polysemy of *pakarni*, and then from the polysemy of the Warlpiri noun *pinti*. As well as demonstrating that we are dealing with S-glosses, we will demonstrate that metaphorical and metonymic links between them are plausible.

First, Warlpiri *pakarni*. We will limit the glosses under consideration to 'hit' and 'kill by hitting'. The properties of the referent conveyed by these glosses concern whether someone is dead or not as the result of a striking action. This information is available to Warlpiri speakers on the basis of perceptual evidence; we are therefore dealing with a set of S-glosses. As a result, these glosses are cognitively highly plausible as relevant to the categorization processes in which *pakarni* participates: Warlpiri speakers must at least cocategorize 'hitting' events and 'killing' events together on the micro-level. While the metalanguage glosses cannot be assumed to map completely congruently onto the categorizations of the object language they *can*, if the above constraint is observed, be assumed to name features of referents which are available *at the experiential level* to speakers of the object language, *even if they are not consciously conceptualized*. If they are experienced, they must enter into the process of categorization, if only on the micro-level. Whether this cocategorization is anything more than a micro-level, reference phenomenon, however, will depend on the details of one's semantic theory. If *pakarni* is seen as monosemous, then its use to mean 'hit' and 'kill' will be seen as simply occurring, on the micro-level, as part of the ordinary categorization of referents under the core, monosemous sense of the verb. In this case, the cocategorization of hitting and killing events is explained by the metonymic connection between the properties conveyed by these two glosses: hitting often *causes* killing. Warlpiri speakers can clearly *perceive* the difference between hitting and killing events, just as an English speaker can perceive the difference between a set of bets and a narrative, or a Polish speaker can perceive the difference between a hand and an arm. The fact that in all these cases the languages concerned use a single word to name both referents can be plausibly explained by the fact that the referents are associated by proximity or contiguity: for *pakarni,* in virtue of their temporal/causal proximity, in English and Polish, in virtue of their physical contiguity. This relation of contiguity is precisely the relation of metonymy.

On the other hand, if Warlpiri speakers' cocategorization of hitting and killing events is atypical and accompanied by a high degree of conscious metalinguistic awareness (for the meanings in question this possibility is surely unlikely), macro-level metonymy will be diagnosed, and the glosses of the two referents connected by the metonymic links will be seen as corresponding to senses of a more autonomous status. The proposal of metonymy as the causally relevant explanation, however, can be taken to apply regardless of the degree of typicality accorded to the metonymically related referents. If we believe that the categorization in question is unconscious, spontaneous, and typical, then we will be inclined to see micro-level metonymy, and not to think of the two glosses as corresponding to separate senses. For much vocabulary, the extent to which cocategorized referents are seen by speakers themselves as prototypical or atypical, and as therefore corresponding to distinct senses, probably varies from one individual to another. The description of the connection between them as metonymic or metaphorical, however, need not be affected by these variations, because it can be taken to characterize the way the referents are linked regardless of whether this is taken to be a micro-level, referential metonymic linkage or a macro-level, conceptual metonymic one.

Precisely the same considerations govern the interpretation of metaphorical senses. Consider the Warlpiri noun *pinti*, glossed as 'skin, bark, peel'. The question is how many meanings the word should be considered to have, and what the links between any such separate meanings might be. All three glosses are S-glosses: differences between skin, bark and peel are all clearly perceptible to Warlpiri speakers: these things, quite simply, all look different. Adopting a micro-level interpretation of the semantics of *pinti* would involve seeing the three glosses as not reflecting separately entrenched senses. Rather, the cocategorization of the three denotations would be explained by the semantic commonality between them: skin, bark and peel all constitute the outer, removable surface of natural objects. This semantic commonality is essentially a metaphorical one: skin, bark and peel are all *similar*, this similarity being captured by the superordinate description just given. Adopting a macro-level interpretation, on the other hand, would mean recognizing a correspondence between metalinguistic glosses and separately stored senses in the mental lexicon. In this case, 'bark', 'skin' and 'peel' would each refer to a separately entrenched polysemous meaning of *pinti*, one of which would have to be taken as the core sense, with the others related metaphorically to it. Given that Warlpiri speakers can certainly perceive a difference between the referents named by the

three glosses, the metaphorical link is part of Warlpiri speakers' linguistic knowledge *at least* referentially, on the micro-level of categorization.[27] As previously noted, whether it is also part of their cognitive representations of the semantics of *pinti* is a question that will ultimately only be made meaningful if clear brain correlates are identified for the notion of a separate sense. But our present inability to supply a rigorous neuroscientific criterion for separate mental storage which would, in principle, allow such details to be settled does not mean there are no illuminating conclusions for CS researchers to draw about the semantic structure of object language meanings. As long as it is assumed that metalanguage glosses express distinctions that are available to speakers of the object language at some level, either as features of the actual denotations as perceived by them, or as separately stored conceptualizations of them, then metaphor and metonymy have a potentially explanatory role to play in explorations of semantic structure in CS.

As most recently pointed out by Nerlich and Clarke (to appear), cognitive linguists have been equivocal as to whether metonymy should be seen more as a referential or as a conceptual phenomenon. Referential aspects of metonymy have been stressed by, among others, Dirven (1993), Taylor (1995), Seto (1999), and Warren (2002), while referential approaches to metaphor have been adumbrated by Steen (2002: 22). Glucksberg has insisted on the status of metaphors as 'categorical assertions' (2003: 92), while Grady (1999), in particular, has stressed the grounding of many metaphorical categorizations in intra-domain perceptual similarities (cf. Lakoff and Turner 1989: 90). Motivated by scepticism about the degree of coherence and objectivity inherent in the notion of separate senses, the account here extends these perspectives. The glosses of object-language words, the statuses of 'core' and 'extended' attributed to them, and the metaphoric and metonymic links by which the glosses are related, have to be interpreted quite strictly as theoretical terms within a metalanguage and not as necessarily revealing the status and interrelations between different senses in a psychologically realistic way for Warlpiri speakers. The division of the glosses of each word into 'core' and 'extended' meanings that will be made in the analysis in this book is therefore not to be interpreted as claiming that the different metalanguage senses attributed to a word all correspond to different polysemous senses. Rather, the status of these senses as either separate meanings on the macro-level of categorization, or as 'modulations' of the same meaning (Cruse 1986) on the micro-level, is left unspecified. The interpretation retains a minimal degree of psychologi-

cal plausibility within standard CS assumptions, however, if Sensory Property Selection is applied and only S-glosses are chosen from G. Clearly, this will only be possible for words referring to 'concrete' or perceptually available entities. The possibility of attaining a psychologically real characterization of more abstract referents does not therefore exist. For researchers committed to the typical CS understanding of the relations between perception, concepts and meaning, the distinctions and properties expressed by the metalanguage glosses after the application of this constraint characterize, at minimum, the perceptions of denotata that enter into the process of lexical categorization in the object language.

It may be felt that this proposal is small consolation. The most psychological reality we have felt entitled to claim for a semantic analysis is that it is a plausible hypothesis, within a representational theory of language, about micro-level categorization, as long as it restricts itself to S-glosses. Is this really saying anything more than that sensory percepts seem to be important determinants of reference and of conceptual structure? And how much of the lexicon lacks any possibility of S-glosses? Many culturally important, abstract words, lack clear correlations with S-glosses. Indeed, often it is unclear whether the standard analyses even employ M-glosses. But for some readers even the small degree of psychological plausibility claimed to be available may be too much. The above considerations take much for granted about the nature of the perceptual and conceptual systems and about the relation between them. Even if the Wittgensteinian objections of chapter one are put aside and an account in terms of symbolic representations is thought acceptable, it may be felt that the elaborate and speculative nature of the assumptions and hypotheses above deliver little of the psychological plausibility they claim.

Chapter 4
A four-category theory of polysemy

1. Introduction

The previous chapters have emphasized the irreducibly interpretative character of semantic study. A semantic analysis of a linguistic expression is not a definitive reduction of its meaning to something more fundamental, but a selective metalinguistic redescription advanced as semantically equivalent to the definiendum in some respect. As argued in chapter one, the use of high level symbolic structures, like diagrams or words themselves as representations of meaning implicates the analysis in an interpretational regress: in order to show the way in which a particular semantic representation corresponds to a denotation, the account must include rules which determine which of the many possible ways of construing the relation between denotation and proposed analysis applies. The fact that these rules themselves then need to be fixed by further rules, and so on ad infinitum, means that no analysis of the semantics of an expression is entitled to claim a definitive status. All analyses need to be supplemented by a set of interpretative rules, and this is a hiatus which will only be closed when a causal explanation can be given of language behaviour in inherently non-semantic terms: until then, any semantic analysis will always leave more to be said.

As a result, any semantic description will be inalienably partial, interest-relative and subjective. Partial, because of the permanent necessity to supplement it with interpretation principles. Interest-relative, in that the aspects of meaning chosen for investigation will be determined by the investigator's particular theoretical perspective: one cannot describe *all* of an expression's contextual effects. Subjective, since the justification for the proposal of any one element as part of an expression's meaning, or for a particular statement of the relations between different elements, will ultimately rest on an individual judgement of semantic plausibility which cannot be made objective. Regardless of the extent to which such a judgement is either replicated intersubjectively, or bolstered by facts about usage, the

decision that a particular analysis is the correct one is ultimately not a matter to be decided by objective standards. This lack of objectivity would be less of a problem if there were, in fact, a high degree of consensus among semanticists on the details of many words' meanings. The fact that this is not the case means that the inherent subjectivity of semantic analysis is more than an epistemological curiosity which can be safely left to philosophers of science, but a fundamental circumstance of semantics which has to be reconciled with linguistics' aspirations towards scientificity.

This sceptical view of the objectivity of semantic analysis raises the question of what criteria the investigator is to apply in arriving at a particular theory, and what the bases are for adopting one position rather than another. As we have seen, the Wittgensteinian critique of the possibility of objectivity in meaning description means that there is a crucial sense in which all semantic analyses are equivalent: each one requires supplementing by an infinity of interpretative positions. At the end of chapter two a semantic analysis was likened to a visual representation of a given scene: many different representations are possible, all of which bear some relationship to the scene itself, but there are no criteria on which one can be advanced over another as the 'correct' representation of the scene. (Even photographs, which since their invention have become the canonical format for accurate visual representation and might therefore be thought to supply an unmediated and realistic representation of a scene's actual nature, are themselves only particular construals of the visual 'facts', dependent on a variety of prior interpretative decisions concerning such variables as picture format, lens and film choice, etc.).

If this situation is not to cripple semantic analysis, a way must be found to allow investigation to proceed even in light of the indeterminacy and subjectivity argued to exist. Linguistics is no different in this respect from the other social sciences (Bohmann 1991). The following chapter advances a particular theory of polysemy, the application of which will be illustrated in chapters five and six. In the course of the exposition of this theory, claims will often be made about what is and is not the best way of interpreting particular phenomena, what the status of a certain fact is with respect to a particular theoretical question, and whether or not an existing analysis by another scholar should be endorsed. Indeed, it is in such claims that, like any other theory, this one has its distinctiveness. Given the above remarks, however, what grounds these positions?

The answer to this has two parts. First, the theory advanced here is not meant to be exclusive. In other words, an acceptance of it should not entail

the dismissal of incompatible theories as false: the semantic 'facts', in so far as any exist, sustain multiple interpretations, and the story told here about the meanings of percussion/impact vocabulary is just one of many. The theory adopts a very coarse redescription of the polysemous meanings of percussion/impact vocabulary. This necessarily diminishes the complexity of the meaningfulness of the expressions involved. In light of the previous remarks, it will be clear that this is in no way to be taken as a denial of the validity of different redescriptions. The purpose of the analysis here is to reveal semantic features of percussion/impact vocabulary at a high level of generality: a more encyclopaedic analysis of individual verbs would reveal a host of more specific, and equally legitimate, phenomena. Second, the particular positions adopted here are motivated by exactly the same considerations which govern all empirical endeavours in linguistics: compatibility with evidence, explanatory elegance, simplicity, and aesthetic appeal. The fact that these are deeply subjective criteria, however, in a way that is rarely fully acknowledged, means that the positions adopted on these grounds must be seen as highly provisional and, in a sense, inherently arbitrary (for germane remarks on simplicity, see Popper 1992: chapter 7). Like linguistic phenomena themselves, the theory is motivated but not determined by the data. We will return to this issue after an exposition of the theory. The next section introduces the type of semantic analysis proposed here. Section three characterizes the basic P/I scenario expressed by all the verbs discussed. This is followed by a sketch of the four types of polysemous relation proposed (section four). Section five discusses the vexed question of the distinction between metaphor and metonymy, and advances some proposals about their nature and interrelations.

2. The present account

Like many investigations of semantics and semantic extension, synchronic and diachronic, this monograph concentrates on a particular denotational subpart of the lexicon as the field of its analysis. Thus, all the extensions discussed apply to source meanings within the P/I domain. The domains of target meanings, however, do not directly figure as the heuristics according to which the extensions are analyzed (for further comments on the notion of semantic domain, see below). Instead, the analysis is based on four metaphoric/metonymic *processes* of semantic extension which 'deliver' the source P/I meaning into the extended domain: metaphor, and the three

types of metonymy (metonymic extensions to the effect and the context of the P/I, and metonymic selection of a subpart of the P/I event).

The reader will not therefore find denotational categories of extension like 'fatal injury' or 'motion' proposed as the main instruments of the analysis. These two meaning areas are both, it is true, ones into which P/I vocabulary is extended. But there is not always a one-to-one relationship between the means of extension that accomplishes this change of meaning and the semantic domain in which the extended meaning belongs. Thus, as outlined in the following chapter, extended meanings within what we may initially call the broad semantic area of 'motion', as in expressions like *to strike out across the fields* and *the ship beat down the bay*, are found in English P/I verbs as the result of a number of different means of extension (see sections 5.2.1, 5.2.6, 5.3.1, 5.4.1 and 5.4.4.1 of chapter five). A decision to propose the extension 'P/I > motion' as one of the regularities underlying semantic extension, therefore, would obscure the fact that P/I verbs become 'motion' verbs through a variety of extensional procedures. There is not, under the present analysis, any privileged relationship between the semantic domains of motion and P/I beyond that which results directly from the nature of the available means of extension. Motion is frequently expressed by P/I verbs because movement is both a subpart of the P/I event itself and a common context within which P/I takes place. This allows a meaning within the 'motion domain' to be the result of the third and fourth mechanisms of semantic extension proposed above, metonymic extension to the context in which the action of the verb occurs and metonymic extension by selection of a constituent of the verbal event.

I will have more to say on these specific extensions shortly, and will not elaborate on this explanation here. The point to note is only that the existence of a domain-based regularity between P/I meanings and a domain into which P/I is frequently extended may be misleading. For every semantic domain, like 'motion' or 'success' (as in expressions like *that answer really hit it*) into which P/I senses are commonly extended, there will be many more of which P/I is only very rarely an exemplar. Attempts to discover any satisfying regularity between P/I and domains into which P/I is extended therefore soon falter. A heuristic which offers much greater explanatory advantages is the one adopted here, which is to analyze the extended meanings through the means of extension that instantiate them, not through the semantic domains to which the new meanings belong. This means that the data can be accounted for with only a small number of principles, and allows us to recognize that even though the range of meanings which P/I

verbs take on is vast and open-ended, the ways in which these meanings may be taken on is rather limited.

In this respect, the four means of extension are like different modes of transport. Consider the situation of a theorist wanting to describe the movements of world tourists. These movements represent a huge and rather unordered mass of possibility. Which holiday destinations are chosen by which tourists, and the order in which they are visited, are affected by many complex variables and have a significant element of unpredictability: holidays are times when the typical ordered patterns of people's lives are disrupted. From this perspective tourists' activities are rather irregular and it is hard to imagine a convincing theory of tourist movement which could link certain locations and destinations by showing that, for example, people from the United States were universally predisposed to travel to France rather than Italy. Facts of that sort are simply unlikely to be true at this level of simplicity – or to be true in such numbers that they can be safely taken to define the research goals of a theory.

The means of transport used to move around the world, however, are much more highly constrained, and this fact can be used as a way to gain an understanding of the data that would otherwise be unavailable. To reach a destination, tourists may walk, travel by road transport, fly (by plane or helicopter), or go by sea: no other possibilities exist. Note that this imposes a considerable regularity on people's activities. The fact that (practically) the only way that people from Australia can visit Antarctica is by boat means that any tourist who goes there has arrived by boat, and means that only people who are prepared to travel by sea (because they do not get seasick, are not afraid of water, etc.) can go there. Conversely, someone who wants to take a boat trip for their holidays must choose a destination which is accessible by sea: it is not possible to go by sea from Sydney to Alice Springs, but it is possible to visit the Pacific Islands. Means of transport is thus a very useful and explanatory way to understand tourist movement, if one is prepared to accept the fact that the huge range of tourist destinations may preclude a convincing theoretical account from the point of view of choices made by individual tourists.

Similarly, in the case of P/I verbs it is the means of semantic extension which impose regularities on the domain into which the meaning is extended, and there may, in fact, be no inherent connections between domains which can be used to identify what is and is not a possible meaning of an extended P/I verb. Thus, the commonness of 'kill' as a polysemous gloss of the core senses of P/I verbs reflects the more general commonness of the

metonymic extension of a verb to express the effect of P/I, not any inherent connection between the domain of P/I and the domain of fatal injury other than the fact that a metonymic link exists between them.

3. The basic P/I scenario

We have identified semantic analysis as a process of meaning redescription by which a set of metalinguistic glosses is claimed to be equivalent, in certain respects, to a definiendum. Like most analyses in cognitive linguistics, the present study recognizes for each P/I verb a certain 'core' set of glosses taken to reflect the least marked, most prototypical use of the verb, and a set of non-core, or 'extended' glosses, constituting the polysemous senses of the verb and created by the processes of metaphor and metonymy. In the next section we will distinguish between two classes of non-core meanings: those which require a different redescription from the one applied to the core, prototypical use of the verb (metonymies), and those which do not (metaphors). As a necessary prelude to this, the purpose of this section is therefore to characterize the core sense of the P/I verbs. This will be done by describing a general P/I scenario common to all the verbs discussed. This general characterization of the basic P/I scenario is all that is necessary for the understanding of the polysemous meanings, and no further analysis or decomposition of the core meaning of each English P/I verb is provided, apart from the dictionary definitions used to characterize the meaning of each verb (see section two in the next chapter). In contrast to the description of the core meaning, semantic paraphrases are used for the characterization of extensions to the core. To illustrate this procedure, consider the approach to the extension of the verb *strike* to mean 'create by striking' as in the expression *strike a light*. To analyze this extension, it is enough to realize that the P/I verb has been extended so that its meaning now expresses, as well as the fact of P/I itself, the result of the P/I (the fact that a light is brought into being where one did not previously exist). This gives the paraphrase 'x make y by *striking*'. Beyond referring to the prototypical P/I scenario, and using commonly accepted ideas about the meaning of the verb *strike* such as those found in dictionaries, the analyst is not obliged to provide a precise semantic decomposition of the basic P/I verb for an analysis of its extensions to be valid.

The core P/I meaning of the verbs to be discussed can, then, be understood by reference to the following idealized percussion/impact scenario

(cf. Langacker 1991: 282–304; Palancar 1999: 58–61). In the scenario a moving entity, the *impactor*, comes into contact with an *object surface* at a particular *point of impact*. Note that the impactor may appear as either subject of the verb, as in (1), or governed by a preposition with the semantic role of instrument, as in (2) (cf. B. Levin's Instrument Subject Alternation, 1993: 149). In the latter case the impactor is manipulated by the verb's *agent*:

(1) *The stick hit the fence.*

(2) *She hit the fence with the stick.*

Where no instrument is specified, the presence of an animate subject of the P/I verb gives rise to an ambiguity:

(3) *She hit the fence.*

She is interpretable as either an agent hitting something (perhaps an instrument, perhaps a bodypart) against the fence, or as the entity in motion colliding with the fence (cf. Langacker 1991: 297).

Also note that an analogous contrast is evident in the grammatical treatment of the object surface. The point of impact on the object surface may be specified by a prepositional phrase, as in (4), which is an alternative to (5):

(4) *The ball hit him on the head.*

(5) *The ball hit him.*

(4) differentiates point of impact from object surface, whereas no such distinction is present in (5).

The impactor is characteristically moving at an accelerated speed, which causes it to strike the surface with a certain amount of force: it is this element of *forceful contact* which distinguishes a P/I event from the superordinate event type of *physical contact*. To see the importance of speed in the linguistic expression of a P/I event in English, consider how a situation is described in which both impactor and surface are in motion. Typically, the entity moving with the greater speed is the one selected as subject of the impact verb, i.e. the one that has the impact predicated of it. Thus, *The bul-*

let hit the running man, rather than **!?***The running man hit the bullet* – the latter is, in fact, most likely to imply that the bullet is stationary. Observe also that relative speed takes precedence over relative size as a criterion for subject selection. Thus, as will be demonstrated by the examples in this chapter, while it is more usual for the impactor to be smaller than the surface, this can be reversed when it is moving faster than the surface: cf. *The crashing meteor hit the helicopter*, when the helicopter is smaller than the meteor.[1]

The impact event has certain typical consequences, all results of the transfer of energy from impactor to surface. These include some or all of the following: movement of part of the surface, a change in the location of the surface, an alteration to the physical structure or mental state of the surface (which may be dented, breached, misshapen, put into pain, etc.) and the discharge of noise. These results are not considered themselves as necessary parts of the percussion/impact event, only as highly likely sequels to it: of course, it is merely a definitional matter as to where to place the boundaries of the impact event itself as distinct from its causes and effects, because any such segmentation of an essentially indivisible chain of events will be artificial. This has the consequence for our description of the nature of the semantic extensions that changes categorized as, say, involving a transfer of meaning from impact event to its effect (see section 5.2 of chapter five) would receive a different categorization under an alternative conception of the impact event.

The preceding description captures the purely physical constituents of a typical P/I event. The importance of this event in various contexts endows the impact/percussion forms with a host of additional associations, many of which become relevant as factors that motivate particular paths of semantic extension. These are on the whole idiosyncratic and will be mentioned as they become important, but one particular association is important enough to be singled out: because of the characteristic effect of a P/I event on its object surface, acts of P/I often take place in contexts of hostility or competition in which it is desirable for agents to inflict damage on each other or each other's property. This element of *detrimental contact* will figure in many of the semantic extensions to be described (cf. Palancar 1999: 58).

4. Four types of semantic 'extension'

The metalanguage adopted for the description of the meanings of P/I verbs is ordinary English, and the polysemous senses of P/I vocabulary are revealed by the paraphrases which they are given. As argued in chapter three, division of a lexeme into 'different' senses cannot be made objective, and any discussion of relations among different glosses of a word should not be taken as entailing the claim that the glosses represent absolutely distinct meanings. The statuses of 'core meaning' and 'non-core (extended) meaning' should therefore be interpreted in light of this caveat: there are many ways to gloss the meanings of a given lexeme, and a theory of the relationships between such meanings should be seen as entirely relative to the set of metalinguistic glosses by which the meanings are described.

Non-core glosses of P/I vocabulary in both English and Warlpiri can be classified into the following four types (the expressions 'metonymic' and 'metaphorical' in this list should be considered as elliptical for 'metonymic/postmetonymic' and 'metaphorical/postmetaphorical': this terminology is explained in section five below):

1. Metaphorical applications of the core verbal meaning (M)
2. Effect metonymies: metonymic extensions to the effect of the action of the verb (m/effect)
3. Context metonymies: metonymic extensions to the context in which the action of the verb occurs (m/context)
4. Constituent metonymies: metonymic extensions by selection of a constituent of the verbal event (m/selection)

These four types are, it is claimed, the only ones needed in order to account for the extensions of P/I verbs in English and Warlpiri. They therefore enable a significantly more constrained and parsimonious account of meaning relations than is provided by the battery of notions traditionally mobilized in the analysis of semantic relations, which includes such categories as specialization, generalization, analogy, meliorization, pejorization, synecdoche, understatement, as well, of course, as metonymy and metaphor themselves. Such categorizations are always possible, of course, and may be revealing for many purposes. But the four macro-categories of semantic extension proposed here show that the phenomena are also susceptible of a more constrained analysis, and can be understood as the result of quite broad and general processes.

As already noted, the distinction between a metonymic and a metaphorical non-core sense in this analysis is reflected by whether or not the sense in question receives a definitional paraphrase different from the one required for the core sense of the verb. The first means of semantic extension in the list above, metaphor, is a category-incorporation process which, I claim, does not issue in any new paraphrasable sense of the verb. The remaining three metonymic processes, which do receive different paraphrases, relate the core meaning of P/I verbs to three highly salient and linguistically significant categories of event: effect, context and subpart. Appreciation of relations between a particular event and these related categories is, arguably, a basic ability among language users: people can distinguish between an event and something that results from it, between an event and the broader context in which it is placed, and between an event considered as a whole and considered as a complex of subcomponents. This is not to make any strong universal claim about the nature of events in language, the universality of causation, or the cross-linguistic homogeneity of event structure. It is only to point out the surely incontrovertible fact that relations of cause-effect, event-context and event-subpart are ones which any speaker can perceive, regardless of the details of the construal of these events embodied in the apparatus of their language (cf. Langacker 1987: chapter 7).[2]

Since the purpose of the present section is only to introduce the typology, I will not enter at this point into a detailed discussion of each category for its own sake. Instead, I present a brief summary of each category and exemplify it with one of the non-core meanings to be discussed in the next chapter.

The first category, 'metaphorical applications of the core verbal meaning', differs from its neighbours in not being described as an extended sense. On the arguments of the previous chapter, indeed, the very notion of a semantic extension, implying as it does that a separate sense exists, has been problematized. The present analysis of metaphor represents one particular development of the rejection of the literal/figurative dichotomy that is a hallmark of the cognitivist approach to language (Langacker 1987, Taylor 2002). As such, it contrasts with many accounts in which metaphor is one of the main engines of polysemy and thus a means of semantic extension *par excellence* (Hock 1991, Sweetser 1990, Ullmann 1962, Bartsch 2002).[3] According to the present theory, and as argued extensively in the previous chapter, all that distinguishes a P/I term that appears metaphorically from a non-metaphorical, core use is the denotation of the arguments

of which P/I is predicated. *A P/I verb used metaphorically does not require any new gloss*: instead, the core P/I sense is predicated of a less than prototypical impactor and object surface. The following sentence is a clear example:

(6) 1470: *Thi febyll wordis sall nocht my conscience smyt.*
('Your feeble words shall not my conscience smite')
(*smite* 10b. vt. 1470)

Here words are presented as impactors, and conceived of as striking (*smiting*) the object surface (consciousness) in an act of P/I. Let us assume that such non-physical referents are not prototypical referents of *smite*, but that they are not absolutely novel ones, either: in the vocabulary of the previous chapter, we are consequently dealing with an instance of intermediate level categorization. Clearly, no new paraphrase of the P/I verb needs to be given: instead, it appears in its ordinary meaning, captured by the general P/I scenario described in section three above, as part of a metaphor which associates it with somewhat atypical referents. For this reason, *smite* is considered to appear in metaphorical *application* rather than as an *extension*, since no difference is postulated in the paraphrase of the verb between this applied use and the core P/I use, as described in the P/I scenario, that motivates the metaphor.

On this conception of metaphor, a metaphorical relation is proposed to exist between a non-core gloss of a P/I verb and the core P/I scenario if the event described by the non-core gloss can be plausibly mapped onto the core scenario of the verb. Since what is and is not a plausible metaphorical connection will always be a matter of opinion, it will be clear that this view of metaphor in no way removes the analysis from the realm of the subjective. In addition, since, as argued in chapter two, what is and is not a separate sense of a lexeme is genuinely indeterminate, the line between core and non-core senses is likewise unclear. The set of core and metaphorical meanings of a P/I verb is therefore constituted by those senses which do not require any additional paraphrase. The most clearly metaphorical senses are those in which the referents are the most clearly atypical; the least metaphorical (i.e. most core) senses are those with the most typical referents. Metaphor is thus not a means of extension in the present framework, but a means of associating the core meaning of the verb with atypical referents. Because of the ubiquity of metaphors with P/I verbs, however, and the importance of the recognition of the role of metaphor as the explanation of

certain appearances of P/I vocabulary which might otherwise be analyzed as extensions, all of the first part of the analysis of English (chapter five, section 5.1) is devoted to an exploration of the possibilities of metaphorical application of P/I vocabulary.

We now consider non-core senses which are correctly identified as extensions from the P/I sense. In these senses the meaning of the verb changes so as to convey some other event than merely P/I. In effect metonymies, for example, the verb comes to express the result of the P/I as well as its occurrence:

(7) 1755: *I must observe, that no man can strike fire with a feather.*
(*strike* 30a. vt. 1450)

Here *strike* has to be analyzed as 'make by striking': the verb's grammatical object, *fire*, does not undergo any act of P/I but is rather brought into being as a result of a P/I event. (This and similar examples are discussed in 5.2.5 of chapter five.)

In context metonymies, discussed in section 5.3 of chapter five, the meaning of the verb shifts so as to name the wider context or event frame in which the P/I occurs. In (8), for instance, *strike* is used to convey the wider event frame of 'fighting' which involves more than simple acts of P/I:

(8) 1601: *His present gift Shall furnish me to those Italian fields Where noble fellowes strike.*
(*strike* 35a. vi. 1579)

Fighting forms a context in which P/I is a prototypical event: in this extension the P/I verb invokes this entire event frame. Note that since the effect of an action can be seen as part of the context in which it occurs, extensions to the effect of the action can be seen as a special case of the present category: the interrelationship between these two divisions of the typology will be particularly relevant in the discussion of the Warlpiri material in chapter six. Note that example (8) could be argued to be a core use of *strike* with a pragmatic implicature of 'fight'. The distinction between semantic and pragmatic aspects of meaning is, however, not of interest to the present discussion. The metaphorical and metonymic relations proposed between glosses are independent of any contrast between coded and non-coded meaning, whether or not this distinction is considered viable (in standard cognitive linguistics, of course, it is not). In describing a relation as me-

tonymic/metaphorical, a semantic link is being posited between two glosses; no claim is being made about the cognitive mechanics by which the words are actually used and understood in language.

Lastly, in constituent metonymies (chapter five, section 5.4) the verb selects a subpart of the P/I scenario as its new meaning. For example, *thrash* undergoes an extension from its basic P/I sense – 'beat', 'strike', 'flog' – in which the verb is detransitivized so that only the arm movement involved in the basic action is conveyed:

(9) 1875: *He [a preacher] thrashed with his arms, as though he were about to strike.*
(*thrash* 8 vi. 1846)

The verb meaning in (9), which can be described as 'make wild movements' makes no reference to any object surface against which P/I occurs (cf. *The headmaster thrashed the pupil with the cane*): P/I has been factored out from the extended meaning of the verb.

The four categories do not necessarily appear in isolation, and we will see how a number of extensions whose rationale is at first sight less obvious can be satisfyingly accounted for as combinations of several of these processes. In particular, categories two, three and four may all themselves appear in metaphorical application, so that a verb manifesting this phenomenon will be described as, for example, an effect metonymy in metaphorical application. In addition, a constituent metonymy may undergo a subsequent extension so that it expresses the effect of the newly created meaning (a combination of changes four and two). I will not illustrate such combinations here; they are dealt with in detail in chapter five.

5. Metaphor and metonymy: boundary issues

Metaphor and metonymy figure prominently in most discussions of meaning relations as the primordial mechanisms of semantic extension from a 'basic' or 'core' meaning to an 'extended' or 'polysemous' one (on the question of the universality of 'metaphor' as a cognitive operation see Hobart 1982: 55–6; for an interpretation of metaphor and metonymy as the end-points of a continuum of mappings, see Radden 2000).[4] But whereas the history of rhetoric and semantics has enshrined the division of meaning extensions into (at least) these two processes, the precise lines on which the

division should be made, and the exact characterization of the terms 'metaphor' and 'metonymy' themselves, still remain far from agreed. The prevailing uncertainty over the boundary between the terms is a result of the fact that the two processes are mutually implicated to a very high degree, co-occurring as alternatives for the description of single extensions to such an extent that the postulation of two separate factors can seem forced. (On the so-called 'demarcation problem' for metaphor, see Cooper (1986) and Barcelona (2000); on metaphor see Lakoff and Johnson (1980), Johnson (1981), Ricœur (1975; 1981: chap.6), Gumpel (1984), Mac Cormac (1985), Turner (1987, 1990), Lakoff and Turner (1989), S. Levin (1977); Taylor (2002), Jakobson and Halle (1971), Ullmann (1972), Langacker (1987: 271–4), Lakoff (1987: chapter 5), Radden and Kövecses (1999) and Panther and Radden (1999) are important discussions of metonymy).

5.1 The demarcation problem

Recognition of interaction between metaphor and metonymy has now become commonplace in semantics, especially through the influence of collective volumes like Barcelona (2000) and Dirven and Pörings (2002). Warren (1992: 94) documents interaction between metonymy and metaphor in semantic extension, and Goossens (1990, 1995) demonstrates how the two are jointly bound up in semantic extensions in the domain of linguistic action; his theory will be an important reference point for our discussion. Where the account offered below will differ from Goossens' and similar approaches is in its response to the commonly acknowledged fact that a very large number of extended meanings are not amenable to characterization as either exclusively metaphors or exclusively metonymies with respect to the core meaning. Whereas this situation leads Goossens to postulate a set of essentially *combinatory* processes collectively named 'metaphtonymy' and covering 'metaphor from metonymy', 'metonymy within metaphor', 'demetonymization inside a metaphor' and 'metaphor within metonymy', the present account suggests that some extensions, rather than being amalgams of the two processes, as they are for Goossens, are *neither* any longer true metaphor *nor* true metonymy, but rather *postmetonymy* and (more rarely) *postmetaphor*, and that the relations governing these types of extensions are not, as for Goossens, combinatory ones, but rather conventionalized/generalized and 'post-categorial' ones. The full force of these terms will be explained presently, in the context of a survey

of some of the important points in the treatment of metaphor and metonymy in linguistics, in which I will try to show how the ideas of postmetonymy and postmetaphor can give an alternative to some of the perhaps less clearly formulated aspects of the current state of metaphor/metonymy research.

The terms 'metaphor' and 'metonymy' first appear in classical rhetoric: Aristotle defines metaphor as "the application [to something] of the name of something else" via various processes of analogy (*Poetics* 1457b). Similarly, in several early writers like Quintilian and Bede metonymy is defined in a way that accords it a superordinate status over possible types of meaning relation: following the word's etymological meaning it was simply described as the substitution of one 'name' for another (see Bredin 1984: 46). The tropes thus start their lives without the strict differentiation that subsequent analysis imposed on them – a result of the fact that they share a central feature: in both, properties of one idea, or of one linguistic sign, are attributed to another (cf. Lakoff and Turner 1989: 103–6; Radden and Kövecses 1999). But the particular attention paid to the role of metaphor in the second half of the twentieth century (for a useful summary see the introduction of Johnson 1981, the papers in Ortony 1993, and Goatly 1997), has only served to sharpen the need for a fuller recognition of the role of metonymy, a recognition which is now in full swing (Radden and Kövecses 1999; Panther and Radden 1999; Barcelona 2000; Radden 2000). This section suggests, however, that a little more ground needs to be covered if the full force of metonymy as a mechanism of semantic extension is to be appreciated.

Like synecdoche, the substitution of part for whole that is its close relative in the traditional classification of tropes (Seto 1999; Taylor 1995), metonymy is the class of extensions based on an interrelation between closely associated terms – cause and effect, possessor and possessed, and a host of possible others (cf. Bredin 1984: 48 for a summary). As discussed in the previous chapter, these can be subsumed under a unitary definition as extensions based on a more generalized 'contiguity'. Such a formulation of metonymy can be traced back to the *Rhetorica ad Herrenium*, attributed to Cicero, and is found in many central modern figures like Ullmann (1972: 212) and Jakobson (Jakobson and Halle 1971: chapter 5; Dirven 1993 discusses Jakobson's views in detail).[5] Whereas early theorists like Quintilian and Bede had seen no essential difference between metaphor and metonymy, the realization of a need to recognize the distinct role of contiguity-based effects marks the first phase of an encroachment by metonymy as the

interpretative principle onto territory previously accounted for as metaphor, an encroachment which the work of an increasing number of modern investigators can be seen as continuing. In spite of the prominence of metaphor as a subject of interest in linguistics and rhetoric, increasing notice has been given to metonymy as the explanatory principle for a large number of meaning relations (see especially Goossens 1990, 1995 and the contributions in Barcelona 2000). Gibbs (1993: 275), for example, seeks to provide an antidote to the view of metaphor as master-trope, while Taylor acknowledges the recognition that metonymy is "no less important" than metaphor as a mechanism of meaning association (1995: 122), and discusses the possible grounding of metaphor in metonymy (1995: 139), as Eco had done previously (1979: 68). In a similar vein, the Belgian rhetoricians calling themselves 'Group μ', allied with a rather different tradition of language studies, analyze metaphor as the product of two synecdoches (1981: 107–9).

This historical shifting of the boundary between metaphor and metonymy has not resolved all the ambiguities, however, and the distinction between metaphor and metonymy is still not entirely clear (cf. Cooper 1986). At this point, therefore, it is worth stepping back to appreciate where the ambiguities in the concepts might lie. Some of the lack of clarity in the discrimination of the ideas has been made very explicit in discussions of semantic extension, while other areas of ambiguity have not, to my knowledge, been given the weight they deserve.

There are two essential ambiguities in the demarcation of metonymy from metaphor. The most commented upon area of disagreement concerns the relation between metonymy/metaphor and semantic domains: according to some investigators, metonymies should be identified as intra-domain transfers, metaphors as inter-domain ones (Turner 1987: 21; Lakoff 1987: 288; Lakoff and Turner 1989: 103–4; Goossens 1990: 325; cf. Kronenfeld 1996: 7, 9; Radden and Kövecses, 1999). For others, however, identity of domain is an independent parameter from the distinction between metaphor and metonymy (Wilkins 1996: 274; Feyaerts 2000; cf. Engberg-Pedersen 1995 for some scepticism about the nature of semantic domains). The point of view adopted here is that it is unwise to use identity versus difference between the putative semantic domains involved as a basis for the differentiation of metaphor and metonymy: the determination of the two should not be based on considerations of semantic domain in the absence of independent (or at least agreed) means of delimiting these, because one's definition of semantic domain would be crucial for the classification of a meaning

transfer as one or the other (the same point is made by Feyaerts 2000: 62–4). Further, in section 5.5 below, I present evidence of how a misleading interpretation arises for certain semantic extensions if one adheres to an inter-domain/intra-domain principle of differentiation.

The second ambiguity attaches to all metonymies in as much as they are contiguity-based extensions, but it applies very noticeably when they affect morphemes which, like P/I terms, denote events, be they nouns or verbs. In a metonymic extension of P/I vocabulary, the meaning of a word changes to denote some 'contiguous' aspect of the circumstances of the act of percussion on a particular occasion, whether this is a constituent of the verbal event itself, or part of the wider physical and/or psychological-intentional 'frame' (domain, ICM) in which the event takes place. At face value, this characterization of metonymy unambiguously seems to delimit a certain class of events metonymically related to the P/I scenario. Some thought, however, will show that this notion of contiguity is open-ended (in a way about to be characterized), and it will become obvious that this open-endedness has serious consequences because it directly challenges the separability of metaphor and metonymy as different categories of semantic extension.

The open-endedness of metonymy consists in the fact that no principled line can be drawn between two different types of relation: firstly, the relation between events which are not part of a P/I event 'itself' but which are nevertheless 'contiguous' to it (traditional metonymies), and that between events which are neither part of the original P/I event itself, nor 'contiguous' to it in the traditional metonymic sense, but which have some other relation (like 'similarity') to the P/I event proper (traditional metaphors). The reason for this is as follows. In a verbal domain like P/I, the type of contiguity that is encountered obtains between points in a chain of causation in time (considering a *hit-wound* metonymy such as that found in English expressions like *badly hit*, for example, we say that the act of hitting is 'contiguous to' the act of wounding, with the contiguity forming part of the cause-effect relation). But the events being related in a P/I scenario are *possible* rather than actual: given that wounding is not always the sequel to hitting, does a word for 'hit' that is extended to 'wound' still count as a metonymy even where it is used for wounding not caused by an act of P/I? This dilemma does not arise with many of the noun metonymies typically used to define the concept. In the case of a metonymy in which the word for 'finger' is extended to the meaning 'hand', for example (cf. Wilkins 1996), the referents of source and target meanings are always contiguous.

But the fact that the contiguity between *hit* and *wound* is not necessary, but only possible, gives rise to indeterminacy between metaphor and metonymy because an act of wounding that is not caused by an act of hitting, but which is nevertheless conveyed through a verb meaning 'hit', is open equally to description as a metaphor or a 'metonymy-metaphor' (the verb construes the wound *as though* it were the result of an act of hitting) or as a metonymy (wounding can be the result of hitting).

To take another example, consider the following use of *kick*:

(10) *They had a disagreement and the landlady kicked him out of the house.*

In this sentence *kick out* means something like 'force to leave, expel'. Should this extension be considered as a metonymy or a metaphor? As a matter of fact, what happened in (10) was that the woman made the man leave the house. This was probably achieved by a variety of means (shouting, verbal threats, putting the man's belongings on the street, etc.) which may or may not have involved actual kicking. Even if actual kicking was involved, this was probably not enough on its own to force the man's departure: it is a rare person who can be kicked out of a building in the way that some smaller object like a ball can be, and only someone exceptionally persistent and aggressive would kick a person so hard and so continually that they would leave in order to protect themselves. Whatever the details of the scene were, the expression *kick out* is appropriate because it allows us to understand that as a result of some forceful action on the part of the woman, the man was made to leave, probably by coercion. In achieving this, the expression has clear metaphorical qualities: the situation is conceived of as similar to a real act of kicking in respect of both its result (the fact that the man ended up outside), and the relationship of control between the landlady and the man. *Kick out* also specifies the particular type of control relationship between the participants: even though the woman had power over the man, in that she could make him leave, this was only possible as the result of an action of some force, expressed through the choice of the verb *kick* instead of the more general *move* or *take*. Because of these metaphorical qualities, (10) would be appropriate even where the kicking out is achieved against the man's will but solely by non-physical means – through an eviction order, for example.

But *kick out* is just as clearly metonymically related to the meaning 'make leave', since kicking could well figure as one aspect of an attempt to

expel someone from a house. In this case, the extended meaning of the verb – 'force to leave, expel' – can be seen as the partial effect or the full intent of the verb's basic meaning, a cardinal metonymic relation. This metonymic connection exists even where the context is completely non-physical, as in the case of an eviction order, since the physical P/I source meaning of *kick out* 'cause to leave by kicking' is inherently activated by the simple presence of the verb *kick out* itself, which makes available the knowledge that someone could be expelled (partly) as the result of a kick. It is this continuing salience of the verb's basic meaning that legitimates a treatment of the extension as metonymic. The idea of physical kicking invoked by the use of the verb *kick out* is therefore present even in non-physical contexts where no real kicking takes place, so that metonymic factors can never be ruled out of a description of the extension (which would be a concept metonymy of the type 'FORM_A-CONCEPT_A FOR FORM_A-CONCEPT_B' according to the typology in Radden and Kövecses 1999).

As another example of the indeterminacy between metaphor and metonymy, consider the sentence discussed by Barcelona (2000: 37), *to keep my hand in I practise the piano on a regular basis*. This can be seen as both a metaphor and a metonymy. Metaphorically, *keeping one's hand in* stands for the more abstract and complex idea of *remaining practised*, which involves an ensemble of actions not just limited to the pianist's manual skill, but inextricably bound up with their mental and aesthetic competencies. This is a prototypical instance of the substitution that characterizes metaphor: the concrete concept of maintaining manual contact with something is used to express the more abstract, complicated and hard to define one of maintaining a particular (intellectual, musical) skill (cf. Sweetser 1990). But it is also a metonymy, because the use of the *hands* is a central part of the type of skill being maintained, and thus metonymically connected to the entire ensemble of actions through the part-whole relationship. In these and similar examples, therefore, metonymy and metaphor seem to be equally involved and it is *prima facie* unclear where the division between them should be placed.

It is possible to generalize about why this indeterminacy between metonymy and metaphor exists. Given that in metaphor a 'target' concept – for instance 'making someone leave the house' – is understood as equivalent to a 'vehicle' – for example 'kicking them out' – this equivalence has to be grounded in some feature of the vehicle.[6] Notice that the ground or justification of the equivalence need not be just one feature: mostly, in fact, this is not the case. Literary metaphors provide a limiting case in this re-

spect. In the literary metaphor "What's this flesh? A little ... fantastical puff-paste" (John Webster, *The Duchess of Malfi*, IV ii) there are not one or two, but many points of equivalence between vehicle and target, and this multi-equivalence is characteristic (although perhaps to a lesser extent) of non-literary metaphor as well. Since any point of equivalence corresponds to some element related to or part of the vehicle concept, this opens the way for interpretation of the connection between target and vehicle as a metonymic extension from the vehicle concept itself (a similar point is made by Barcelona 2000: 34). For example, in the domain of percussion and impact, any feature of a percussion event taken as the ground of the metaphorical comparison is equally open to interpretation as metonymically connected to the P/I event itself, thereby validating interpretation of the metaphor as a metonymy. In the use discussed above, in which the act of making someone leave a house (the target of the metaphor) is treated as *kicking* them *out* (the metaphorical vehicle), it is the very fact that kicking someone out of the house is a possible way of making them leave that means that these two events can be related metonymically, namely by the cause-effect relation. This allows what was previously understood as the target of the metaphor – a person being made to leave the house – to be equally well understood as metonymically related to the original P/I event.

5.2 The account in Goossens (1990, 1995) and 'post-categorial' extension

This sort of interaction between metaphor and metonymy is discussed by Goossens (1990, 1995) under the rubric *metaphtonymy*, which is a cover-term for four separate processes, 'metaphor from metonymy', 'metonymy within metaphor', 'demetonymization inside a metaphor' and 'metaphor within metonymy'. The process that most concerns us is metaphor from metonymy, which, in Goossens' framework, is the category of interaction that causes the most ambiguity. Goossens discusses a number of metaphors from metonymy in conventionalized or stereotyped figurative expressions for linguistic action, which all receive similar treatment. We can content ourselves with a single example, the idiom *beat one's breast*, meaning 'make a noisy open show of sorrow that may be partly pretence' (Goossens 1990: 332). This is a metaphor because it expresses one scene – the metaphor's target – in terms of a conceptually quite different scene, here a physical act. (Note that by the widespread criterion of inter-domain map-

ping this is not, in fact, a metaphor at all: no homology is created between the different internal constituents of the act of making an open show of sorrow and the act of breast beating, so mapping cannot be said to be involved; this point is taken up below). But there is a metonymic basis for the extension in the religious practice of beating one's breast while making a public confession: this context brings the vehicle and target concepts together, allowing the scenes to be related in a way that is metonymic rather than metaphorical. Typically when the expression is used this bridging context is not actual and the domains of confession and breast-beating are separated: hence, for Goossens, the expression should primarily be seen as a metaphor, but one in which metonymic factors are crucial. Goossens presents other examples of metaphor from metonymy, demonstrating that this phenomenon is very characteristic of semantic extension.

This highly successful attempt to find metonymy lurking under metaphorical beds is part of the trend in linguistics and rhetoric to reverse what Bredin (1984: 45) calls "metaphor's rise to power" as the pre-eminent figurative device postulated to explain semantic relations. The argument of this section, however, is that this process of remetonymizing metaphor needs to go one step further if a maximally coherent and illuminating picture of the tropes is to be achieved.

Much ambiguity between metaphor and metonymy, including even that found in otherwise salutary Goossens-like approaches, stems from an overly general conception of metaphor, the characterization of which we will now consider. In general, two possible approaches can be seen to the classification of metaphor, each of which focuses on a different aspect of the concept. The first approach can be termed the substitution theory (which not only applies to metaphor, but also to metonymy) and can be described as the idea that for something to qualify as a metaphor there must be a substitution[7] of one concept for another: this lies behind the root meaning of the word *metaphor*, 'transfer' or 'carrying-over', and corresponds to the subpart of the definition of metaphor that specifies that in a metaphor one entity (meaning, concept) is substituted or "used for" for another. The second part of the concept of metaphor specifies the particular nature of this substitution: metaphor is a transfer between two ideas *that are in some way similar*, in other words where one idea resembles the other. Problems encountered in some current metaphor theory may derive from too much reliance on the first part of the definition and not enough on the second: 'metaphor' is often simply used of an extension where there has merely been a substitution of one term for another when the substitution is not

obviously metonymic. An example of such an expression would be *strike an agreement*, where *strike* has been substituted for *make* or *reach*, and there is no obvious metonymic link between the meanings of the two verbs.[8] This 'substitution theory' seems to be what lies behind Goossens' decision to label *beat the breast* as a metaphor.

A second approach to the characterization of metaphor, more closely associated with the cognitive tradition in linguistics, concentrates on the second part of the definition, the ancient idea that metaphor is based on resemblance between vehicle and target concepts. The resemblance theory of metaphor, founded on Aristotle (*Poetics* 1457b), focuses on metaphor as a cognitive device – like charts, maps, diagrams and realistic paintings – which acts as a model to express the nature of otherwise hard-to-conceptualize ideas. This view of metaphor as a deep-seated cognitive process is, of course, at the foundation of many well-known theories of metaphor such as those of Lakoff and Johnson (1980), Lakoff and Turner (1989), Turner (1987) and Sweetser (1990). Under these approaches, metaphors are (cross-domain) mappings characterized by tight structural correspondences between vehicle and target where specific features of the vehicle can be linked to specific features of the target. To revisit a celebrated example, Lakoff can precisely identify the connections between a target concept, love, and the metaphorical vehicle used to conceptualize it, the image of a journey. In the following paraphrase, originally from Lakoff (1993: 208), the capitalized concepts in the target domain correspond to those in the vehicle domain:

> Two TRAVELERS are in a VEHICLE, TRAVELLING WITH COMMON DESTINATIONS. The VEHICLE encounters some IMPEDIMENT and gets stuck, that is, becomes nonfunctional. If the travelers do nothing, they will not REACH THEIR DESTINATION.
>
> Two LOVERS are in a LOVE RELATIONSHIP, PURSUING COMMON LIFE GOALS. The RELATIONSHIP encounters some DIFFICULTY, which makes it nonfunctional. If they do nothing, they will not be able to ACHIEVE THEIR LIFE GOALS.

This mapping is an instantiation of the Event Structure Metaphor, a high order conceptual mapping of event structure onto the idealized cognitive models of space, motion and force (Lakoff 1993). In this instantiation, lovers correspond to travellers, the love relationship corresponds to the vehicle, and the lovers' common goals correspond to their common destinations on the journey. The mapping is found in many common English metaphors

for love and the situation of lovers, especially in times of difficulty: a relationship is *stalled*, lovers cannot *keep going the way they've been going*, they *must turn back*. Alternatively, the participants in the relationship may say *look how far we've come*, *we can't turn back now*, *we're at a crossroads*, *we may have to go our separate* ways (Lakoff 1993: 206). This metaphorical means of conceptualizing the relationship makes available a concrete means of expression in which it can be discussed.

But such mappings are, according to Lakoff, more than purely a matter of language: the fact that one linguistic expression has been substituted for another is a necessary but not a sufficient condition for metaphoricity. This view of metaphor is "thoroughly at odds with the view that metaphors are just linguistic expressions" (Lakoff 1993: 209). A metaphorical mapping allows knowledge about the metaphor's source domain to be applied to the target in a way that fundamentally determines or influences the conceptualization of the target: metaphor is thus first and foremost a cognitive operation, and only derivatively the name for a certain class of linguistic expressions. This cognitive view of metaphor is compelling because it provides a clear definitional view of what constitutes a metaphor – it is a mapping between two concepts – while motivating this definition from functional considerations about cognitive processes so that it does not arise as merely an arbitrary matter of stipulation.

The previous chapters have argued that attempts like this to make semantic analysis non-arbitrary by grounding it in the nature of conceptualization cannot succeed: semantic analyses like the ones developed in CS are inherently interpretative, and there is never a single, non-arbitrary analysis which can claim priority over others by uniquely corresponding to a putative concept. Nevertheless, as noted above, the characterization of metaphor adopted here is very formally very similar to the Lakovian conceptualist understanding: metaphor consists in a detailed mapping between two referents, but there is no claim that this mapping characterizes any cognitive operation underlying language. Rather than a description of a psychological process, metaphorical mapping becomes a purely formal representation of a relation between elements in a metalinguistic interpretation.

Let us see how this perspective applies to Goossens' example of a metaphor – specifically, a metaphor from metonymy – the use of *breast beating* to denote a particular sort of hypocritical public confession. What we see is that this is not really a metaphor at all in the above sense, but only a substitution with no relation of resemblance between target and vehicle meanings. There is no homology between breast-beating and confession in terms

of a mapping of elements of the one onto the other (as there is for example between *head* and 'top' in the expression *head of the queue*): the only link between the vehicle and target is the original metonymic one, namely the fact that breast-beating accompanied confession. There is no obvious mapping that accompanies the extension: it is not as though the elements of the confession scenario can be easily projected onto elements of the breast-beating one, as is possible with extensions more naturally analyzed as metaphors.[9] The only thing that licenses the meaning 'confess publicly' is the original metonymic context; the meaning has subsequently become reinterpreted and conventionalized so that it can be applied even in contexts where it is not appropriate – that is, in contexts where there is a publicly made confession unaccompanied by breast beating.[10] The usage must clearly be given a different paraphrase from the one that would be attributed to the phrase *beat one's breast* when used in the P/I sense: to beat one's breast is not to strike one's breast repeatedly, but to 'make a noisy open show of sorrow that may be partly pretence'. The usage is thus neither a metaphor in the above sense, nor, any longer, a metonymy. Rather, the only explanatory principle to which we can appeal to account for the link between breast beating and public confession is a metonymic one, only it is not a full metonymy, but a metonymy that is no longer manifest in most of the occurrences of the expression, where no breast beating will occur. To bring out these considerations, I propose that expressions like *beat one's breast* are best thought of as neither full metonymies nor as metaphors, but as *postmetonymies*, where these are defined as originally metonymic semantic extensions which have been reinterpreted and conventionalized/generalized so that their use goes beyond the original P/I scenario, on which their reference no longer depends: their contexts of use have overshot the domains of their original appropriateness, without any subsequent metaphorical schema having taken over as the grounds of the extension.

Under this proposal, the term *metonymy* should be reserved for extensions in which the new meaning contains the original source meaning (in this case P/I). In this way the genuinely contiguous nature of the extension is preserved. For P/I verbs, an extension counts as metonymic only if there is an actual P/I event present in the situation to which the new meaning refers. Just as in a *finger* > *hand* metonymy there is (barring mutilations, deformities, etc.) always an unchanging real-world contiguity between the two terms, so for extensions of P/I vocabulary only cases in which there is also a real-world contiguity between the P/I event and the new meaning should be termed *metonymy*. Those extensions which have the same deno-

tation as these real metonymies, but where the context now lacks the original P/I event, should be called *postmetonymies*. This is a recognition of the fact that although metaphor and metonymy are the two basic explanatory principles for semantic extension, they cannot explain all cases directly: some extensions are the result of a conventionalizing or generalizing process by which a metonymically created meaning is then applied to cases which lack the original foundation in the source domain.

5.3 Postmetonymy exemplified

In this section I illustrate a further instance of postmetonymy drawn from English.

The expression *beat the breast* lost its status as a genuine metonymy and became a postmetonymy when the social practice that gave rise to it disappeared and the expression became idiomatic. This, however, is only one of the possible ways in which the metonymic character of an expression can be lost. More frequently, a P/I expression becomes postmetonymic not when, as in *beat the breast*, the disappearance of the referent destroys the original metonymic link, but when the expression is used to refer to a situation identical with the original metonymy in everything except the relevance of P/I: when, in other words, the category of event referred to by the P/I term widens to include not only those events directly related to P/I, but other events of a similar general kind which lack any relation to P/I but for which the P/I term is retained. An example of this is the following (the bracketed information underneath the OED citation specifies the headword, sense number, transitivity and date of the citation, and paraphrases the dictionary's definition of the sense along with any phrasal combinations in which it is found):

(11) *The enthusiastic Greeks strike up a chant.*
(OED *strike* 87c. vt. 1890 begin to play or sing [*strike up*])

This extension of *strike up* is analyzed as 'x make y move up by striking', with the chant being visualized as rising *up* from the singers. (This use of *up*, as well as being open to literal interpretation, is typical of verbs denoting the starting of an activity, like *start up*. It thus belongs in a network in English semantics in which activity is coded as *up*, inactivity as *down*: *break down, run down*, etc.) Chanting does not, however, involve P/I, so

the presence of the verb *strike* is initially hard to explain. The pathway of extension proposed here is the following. Firstly, *strike* undergoes a regular metonymic extension to the effect of the action of the verb in which it conveys the object being brought into being as a result of the P/I. This can be seen in the following example, referring to applause:

(12) *With a pot of good nale they stroake vp theyr plauditie.*
(OED strike 87c. vt. 1562–75 begin to play or sing [*strike up*]; *plauditie*: round of applause)

Metonymic usages like (12) establish the possibility of *strike up* being used to convey the bringing into being of sound, in this case the applause at the end of a performance; in the postmetonymic case (11), the verb is extended to cover situations with the same denotation – the bringing into being of sound – where there was no initial P/I event. The explanation of the extension is thus found in metonymic factors, but the postmetonymic context has overshot the original motivating context because there is no longer a P/I event involved. The fact that in (11) no 'real' striking occurred is not, I suggest, the most significant aspect of the linguistic context for the categorization of the extension. To explain the extension properly, it is important to label it in a way that characterizes its connection with the prototypical case of striking, rather than in a way that simply highlights the nonliteral status of the extended meaning, which is really all that the label 'metaphor' could do. By treating cases like (11) as essentially metonymic, we recognize that the processes that result in a substitution of one term for another are more explanatory and more worthy of being named than is the simple fact that a substitution has taken place (cf. Group μ 1981: 106).

5.4 Postmetaphor

In postmetonymies we have identified a second-order mechanism of change which represents the conventionalization and generalization of metonymy into contexts in which a description of the semantic relation between source and target can no longer be convincingly presented in metonymic terms, but whose origin and principle of explanation nevertheless remain metonymic in character. This raises the question of whether a similar phenomenon – postmetaphor – also occurs. Reflection on the phenomenon of dead metaphors shows that these are, precisely, postmetaphors: originally

metaphorical applications of a core meaning which have subsequently lost their metaphoricity and now refer to the original target of the metaphor, which is no longer related to the vehicle by any metaphorical mapping. For example, the use of *knock* to mean 'criticize' in certain varieties of English (I have in mind the Australian English use of the verb in a context such as *to knock someone about their haircut*, i.e. 'to criticize/tease someone on account of their haircut') originally had a metaphorical basis: acts of verbal abuse were identified with acts of physical P/I (compare OED *hit* 8c. 'criticize, make fun of, ridicule'). Today, however, no context of physical P/I is relevant to uses of the verb in this sense. *Knock* can still be used with the same referent it had when the metaphor was live – verbal abuse – but the metaphorical conceptualization of the referent has been lost. Metaphor is still, however, the only relevant explanatory principle for the meaning of *knock* in this sense: no metonymic qualities have come into play simply as the result of the meaning's conventionalization. But it is as a *postmetaphor* rather than as a metaphor *tout court* that the extension must now be understood.

More interestingly, inspection of the following extension of *knock* demonstrates a more complex example of postmetaphor, and shows that, like metaphor and metonymy themselves, their postcategorial counterparts are often found mutually intertwined. The relevant OED citations, which I take as exemplifying the same extension, are reproduced as (13) and (14):

(13) *Knocking up and down all over .. the country.*
(OED *knock* 5d. vi. 1886 move energetically, clumsily and noisily, or in a random fashion, about a place [with adv. or adv. phrase])

(14) *He had knocked about all over the Pacific...*
(OED *knock* 7b. vi. 1929 move about, wander, roam, in an irregular way; also to lead an irregular life [*knock about*][11]

In neither of these sentences is the connection between *knock* and the idea of motion obvious: *knock* seems to belong in the no-man's-land between metonymy and metaphor characteristic of postmetonymies. Decontextualized from these sentences, both a metonymic and a metaphoric connection between *knocking* and the manner of motion could be motivated: metonymically, by the forceful *knocking* action involved in foot or horse travel, between human or animal feet or parts of the vehicle (for example, a horse-drawn carriage) and the ground, or alternatively, metaphorically, by

seeing the usage as an image in which the area in which the motion takes place is treated as a container against the sides of which the moving body is striking. In the context of (13) and (14), however, neither of these interpretations is very forceful: neither the idea of a container nor that of contact between vehicle/feet and ground are at all prominent. We should therefore describe the appearance of *knock* as a motion verb here as a partly generalized postmetonymy/postmetaphor: *knock* can be used to express motion in these contexts because there are other contexts in which an obvious connection can exist between *knocking* and motion. The following citation, in which *knock* refers to impact between the ground and parts of a vehicle or (an animal's) feet, could serve as the metonymic foundation of the instances in (13) and (14) above:

(15) *He came knocking along the road in a great hurry.*
(OED *knock* 5d. vi. 1825 move energetically, clumsily, noisily or in random fashion about a place [with adv. or adv. phrase])

This OED quotation does not reveal whether we are to imagine the subject as on foot, on horseback or in a carriage, but in all three cases forceful impact between the ground and an impactor closely associated with the traveller is a salient feature of the situation. Leaving metonymic considerations, a *metaphorical* connection between *knocking* and the manner of motion is not attested in the OED but is, I submit, an entirely natural one:

(16) *I've been knocking around the world like a billiard ball.*

Cases like these license the use of *knock* as a motion verb, which may then appear postmetonymically/postmetaphorically in contexts in which in which it is hard to give an explicit metonymic or metaphorical description of the connection.

Because postcategorial extensions have an ambiguous status, being neither full metaphor nor metonymy, subjective judgments will vary as to the viability of a straight metaphorical or metonymic analysis in each particular case. In fact, it was my own experience (as a native English speaker) while investigating these data that my intuitions were somewhat flexible: an extension judged as a postmetonymy sometimes seemed to be more open to analysis as a full metonymy, sometimes even as a metaphor. That the categorization given above therefore reflects my own subjective and variable judgment does not reflect a defect in the analysis, as such indeterminacy is

inescapable in studies of this sort and is frequently commented on by investigators. Goossens (1990: 328–9) for example, in the course of the discussion of his categories 'metonymy' and 'metaphor from metonymy' notes that the "double possibility" of an item exemplifying both categories holds "in most cases" for items in a significant part of his database, and comments that "it is typical of these items that in context their interpretation will sometimes have to remain undecided" (see Warren 1992: 34 and Radden 2000 for discussion of some related points).

5.5 Metaphor, metonymy and semantic domains

Finally, the example discussed in this section returns to an issue raised earlier (section 2) and demonstrates that sameness versus difference of semantic domain should not be taken as the basis on which to distinguish metaphors from metonymies. *Slap* in (17) can be paraphrased as 'make move by slapping', which reveals its nature as a metonymic extension from the verb's basic meaning to the result of the verbal action:

(17) *Louise is coming to-night to see me slap the masked fellow to the dust.*
(OED slap 1b. vt. 1889 drive back, beat down, knock to the ground, etc. with a slap.)

Slap here is analyzed as 'x make y move by slapping', but it is unlikely that a slap, or even a series of slaps, in the sense of a "blow, esp. one given with the open hand, or with something having a flat surface" (OED *slap* sb.) would be enough to achieve this result: in order to knock someone to the ground a more forceful type of P/I with a more rigid impactor than the hand, which is jointed and thus weakened at the wrist, would be necessary (except in the case of an exceptionally strong agent and an exceptionally weak patient). There is thus a mismatch between the inherent semantics of the verb *slap* and the context in which it appears. One way to describe this situation would be as understatement: *slap* in (17) plays down the effort needed to overcome the opponent. I propose that the understating effect of (17) derives from its nature as a metaphorical application of the initial metonymic extension. The physical actions needed to bring down the *masked fellow* – presumably a whole repertoire of aggressive moves taking place in the context of a struggle – are represented as equivalent to a different class

of physical actions, slapping. The effect of this metaphor is to treat the metaphorical target (the actions that do in fact take place) in a way that makes it seem minor and inconsequential. The present meaning of *slap* can therefore be derived through a two-step process. First, *slap* is extended metonymically from its root meaning to the meaning 'make move by slapping'; secondly, this newly created meaning is applied in a metaphorical fashion to a situation which does not actually involve any slapping, but which is imagined as doing so in order to conceive of the event in a certain perspective (i.e. as unstrenuous and trivial). The fact that both the action really needed to down the opponent and the action of slapping are in the same general semantic domain of 'contact through impact' or some such is not relevant and certainly does not make (17) an example of metonymy, as it would for those analysts who define metonymy as intra-domain meaning extension. (17) counts as a metaphor (a metaphorical application of the initial metonymic extension to 'make move by slapping') because it uses one class of events as a conceptual model for another class, thereby imposing a particular understanding of the second class. The fact that both target and vehicle of the metaphor share the same general semantic domain issues not in a classification of the figure as metonymic, but simply as an understatement.

5.6 Conclusion

The proposal of postmetonymy and postmetaphor as supplementary categories related to plain metonymy and metaphor clarifies the relations between conventionalization/generalization and these two fundamental processes of semantic extension. Under this proposal, the relevance of metonymy or metaphor as the explanatory principle behind an extension does not disappear when an extended meaning becomes conventionalized or generalized, and the distinction between metonymy and metaphor is not complicated just because the original motivation of a meaning is no longer present. Rather, a metonymy that has become generalized so as to apply beyond the bounds of its original appropriateness is classified as a postmetonymy, and no metaphorical process needs to be invoked. In the same way, a metaphor does not suddenly gain any metonymic qualities just through its conventionalization, and is analyzed as a postmetaphor. By labelling an extension as a postmetonymy or postmetaphor, we recognize that metonymy or metaphor is still the relevant principal of explanation, but that the example in

question represents not an original instance of this metonymy or metaphor, but a conventionalization or generalization of it. This classification has the advantage of preserving the individuality of metonymy and metaphor as different semantic processes, even under conventionalization. The fact of an expression's conventionalization/generalization does not compromise the essential separateness of metaphor and metonymy: conventionalization leads to the postmetonymization of a metonymy and the postmetaphorization of a metaphor, not to the metaphorization of a metonymy or the metonymization of metaphor. This is not to say that metaphor and metonymy are never simultaneously present as mutually reinforcing factors behind a word's semantic extension: they frequently are. In principle, however, the two processes are distinct, and although a single expression will regularly be amenable to alternative or simultaneous analysis as both metaphor and metonymy, the viability of this double interpretation reflects not only the overdetermined and multifaceted nature of semantic extension but also the indeterminacy always present within the field of interpretative possibilities opened up by the use of a linguistic expression.

Chapter 5
Applications I: English

1. Introduction

We are now in a position to begin the analysis of verb polysemy proper. In this chapter the theory of polysemy motivated in the first three chapters, and described in chapter four, is applied to English P/I verbs. The chapter begins with a definition of the field of P/I in section 2. Section 3 discusses the sources of examples, and in section 4 some methodological observations about the treatment of the data are made. Section 5 is dedicated to a detailed discussion of each means of extension in turn, with a synoptic view of the extensions given in section 6, as they apply to the verb *strike*.

First, however, some notational conventions. In the examples, an asterisk indicates syntactic ungrammaticality. By contrast, an exclamation mark prefaced to a sentence means that in spite of its grammaticality it is semantically defective (nonsensical). To facilitate ease of reading, Old English characters have been replaced with conventional equivalents, vowel length has been marked with a colon (:), and spellings have been partly modernized throughout.

2. The domain of P/I in English

In this study, the concept 'domain of percussion/impact' (henceforth referred to either as 'percussion/impact', 'P/I', 'percussion' or simply 'impact': no differentiation is made between these uses) has no more than instrumental status, representing a class of denotationally similar verbs whose meanings express a certain type of action chosen as the starting point of the investigation (some of the verbs in the list, like *bump*, are included because they are historically P/I verbs whose meanings have subsequently changed to denote a slightly different type of event).[1] No claim whatsoever is being made about the cohesion of P/I as a lexical domain with its own distinct and autonomous structure. The verbs under discussion here are the names

of actions whose physical characteristics are similar to each other at a certain level of generality and which can therefore be analyzed, as below, using a common descriptive vocabulary. The identification of certain verbs as 'P/I verbs' thus represents no more than the application of a label to those verbs chosen to study: the notion of a domain should not be taken as making any strong claim or predictions about the verbs' behaviour.[2]

Given that the percussion/impact scenario is an event, verbs are the natural word category to express it, expressing, as they usually do, the temporal and perspectival/durational dimensions crucial to the understanding of events (cf. also Givón's 1979: 14 'time stability continuum' for lexical items, whereby verbs express rapid changes of state in the universe). In the list of P/I verbs below, the basic P/I sense as defined by the OED is listed, together with its transitivity, the date of its earliest citation in the dictionary, the verb's etymology and any previous or contemporary OED senses (the dating of senses is a complex issue to which we return in section 4). The OED's definitions should be taken at this stage as simply a preliminary sketch of the verbs' meanings, which will be analyzed more fully in later sections. A sense is considered contemporary to the P/I sense if it falls within a fifty year radius of the OED's date of the earliest P/I sense.[3] For each verb I include a sample sentence showing the P/I use, cited from the OED and showing the entry number, transitivity ('vt'. for transitive verb, 'vi'. for intransitive verb), and date of the citation.

bang 1. vt. strike violently with a resounding blow; thump, thrash. 1550.
etymology: Perhaps Scandinavian: ON *banga*, OSw. *ånga* 'hammer'; LG *bange(l)n* 'strike, beat'; Ger. *bengel* 'cudgel'.
1550: *Either yield to me the daie, Or I will bang thy back and sides*.
(*bang* v1. 1. vt.)

beat 1a. vt. strike with repeated blows. 1000.
3a. vt. said of the action of the feet upon the ground in walking or running. 1000.
4a. vt. strike (a man or beast) with blows of the hand or any weapon so as to give pain. 971.
6a. vt. of water, waves, wind, weather, the sun's rays and other physical agents: to dash against, impinge on, strike

violently, assail (poetical). 1000.
6b. vi. with *on*, *upon*, *against*. 885.
etymology: ME *be:ten*, OE *béatan* 'beat', ON *bauta,* Germanic **bautan.*
1798: *The Wedding-Guest he beat his breast, Yet he cannot choose but hear.*
(*beat* 1a. vt.)

bump 1a. vt. strike heavily, knock, thump. 1611.
5. vi. rise in protuberances, bulge out, be convex. 1566.[4]
etymology: onomatopoeic.
1768: *That antagonist, whom he bumps and pummels so furiously*.
(*bump* v1. 1a. vt.)

hit 1a. vt. reach or get at with blow/missile, strike. 1205.
previous senses: come upon, light upon, meet with, get at, reach, find 1075.[5]
etymology: Late OE *hyttan* = ON *hitta* 'hit upon, light upon, meet with' (origin obscure); Sw. *hitta*, Da. *hitte* 'hit, find'.
1743: *No person is to hit his adversary when he is down.*
(*hit* 1a. vt.)

kick 4a. vt. to strike (anything) with the foot. 1590.
earlier senses: 1a. strike out with the foot. 1386.
2. vi. show temper, annoyance, defiance, delight; rebel, be recalcitrant. 1388.
etymology: ME *kike*, *kyke*; unknown origin.
1842: *He reviled his Chancellor. He kicked the shins of his Judges.*
(*kick* v1. 4a. vt.)

knock 1a. vi. strike with a sounding blow. 1000.
etymology: ME *knokken*, Late OE *cnocian*, beside usual WS *cnucian*; cf. ON *knoka*, prob. of echoic origin.
1828: *She stood before her lover's door and knocked for admittance*.
(*knock* 1a. vi.)

slap

1a. strike or smack smartly. 1632.
contemporaneous sense: write or jot down quickly or smartly. 1672.
etymology: from *slap* adv. or sb.1
1887: *He slapped the palm of her hand very vigorously.*
(*slap* v1. 1a. vt.)

smite

3a. vt. administer a blow to someone with hand, stick etc. 1160.
contemporaneous senses:
4. vt. (Biblical) visit with death, destruction; overthrow; afflict or punish. 1150.
13a. vt. strike or cut *off* (part of the body) with a slashing blow. 1205.
previous senses: 1. pollute, blemish. 725 (obsolete; only one OED citation).
2. smear a substance on something. 1000 (obsolete; only one OED citation).
etymology: ME *smiten*, OE *smítan* 'daub, smear, pollute' = OFris. (and others) *smitan* 'throw'; OHG *smizan*, Goth. *bi-, gasmeitan* 'smear'. Sense development unclear: 'throw' perhaps original.
1608: *He smit the round Table wih his rod.*
(*smite* 3a. vt.)

stamp

1a. vt. bray in a mortar; beat to a pulp or powder; pound. 1000.
2a. vi. bring sole of one's foot suddenly and forcibly down (*upon* something) with the object of crushing or beating it down. 1340.
1c. vt. thresh. 1388.
1b. vt. crush or press (fruit) to extract the juice; press wine out of grapes. 1387-8.
etymology: ME *stampen*, OE **stampian*, proto-G. **stampo:jan*, from **stampo-z* 'pestle, mortar'.
1818: *Stamping upon the coals with the heel of his boot.*
(*stamp* 2a. vi.)

strike 25a. vt. deal a blow, hit with some force. 1300.
contemporaneous senses:
31a. vt. pierce, stab, cut person with a sharp weapon. 1300-1400.
58. vi. of a moving body, impinge upon, come into collision, contact with something else. 1340.
17. vt. lower or take down (sail, mast, yard). 1300.
previous senses: 1a. vi. make one's way, go. 1200.
1b. vi. of inanimate things. 1000.
1c. vi. of stream, run, flow. 1225.
3a. vt. go over lightly with an instrument, the hand, etc.; stroke, smooth, make level. 1000.
3b. shave. obs. 1205.
etymology: Proto-G. **stri:k-*: OE *strícan*, OFris. *strika* OHG *strihhan* 'pass lightly over a surface, go, rove, wander, stroke, rub, beat'.
1848: *You may strike me if you like , sir, or hit any cruel blow*.
(*strike* 25a. vt.)

(The history of *strike*, like that of *smite*, raises a number of questions. The issues relevant to the present study are discussed in section 5.4.3.)

thrash/ thresh[6] 4. vt. beat, batter, strike, knock. 897.
1. vt. (as in corn) separate by mechanical means. 850.
etymology: ME *thresshen*, OE *therscan*; ON *threskja,* Proto-G. **thresk-*, IE **tresk-*. The Proto-G. meaning was probably 'tramp or stamp heavily with the feet' (OED).
1400-50: *He laschis out a lange swerde..Threschis doun in a thrawe many threuyn dukis.*

'He whips out a long sword .. knocks down in a throw many worthy dukes.'
(*thrash/thresh* 4 vt.)
1638: *Swarms of Gnats, Mus-ke-toes, and such like.., stung and pesterd us..; they biting us, we thrashing them like mad folks.*
(*thrash/thresh* 3a vt.)

thump

1a. vt. strike or beat heavily, as with the fist, a club, or any blunt instrument, producing a dead, dull, somewhat hard sound. 1537.
1c. vt. of the feet, etc. to beat or strike (the ground, etc.) heavily and noisily. 1582.
3a. vi. to strike or beat with force or violence, with an abrupt dull noise; knock or bump with force. 1565.
etymology: Mod.Eng.; echoic formation.
1673: *In thumping the pulpit..has frighted some from their seats*.
(*thump* 1a. vt.)

touch

5. vt. strike or hit lightly (esp. with the spur, or in Fencing) 1330.
1a. vt. put hand or finger, etc. in contact with some thing so as to feel it. 1300.
2a. vt./vi. have sexual contact with 13--.
3a. vt. come into, or be in contact with. 1330.
12b. vt. lay hands on or meddle with so as to harm; injure, hurt in any or the least degree. 1297.
17a. vt. [mentally] apprehend, succeed in getting at, hit upon, guess or state correctly. 1325.
18a. vt. speak or write of, mention, tell, relate; mention briefly, casually, in passing. 13--.
20a. vt. pertain or relate to; have bearing upon, be business of, concern. 1325.
24a. vt. affect with some feeling or emotion; move or stir feelings of, produce an emotion in. 1340.
etymology: OF *tochier*, *tuchier* = MF. *toucher* 'touch' = ONF *toquer*, Pr *toquar*, *tocar*, *tochar*, Sp./Pg. *tocar*, It. *toccare* 'strike, smite, hit, touch', Rom. *toca* 'knock'.
1847: *With tremulous boldness she touches – then grasps your hand.*
(*touch* 1a. vt.)

3. Sources of examples

The examples on which the chapter's analysis is based are drawn from the copious citations accompanying entries on P/I verbs in the 20 volume *Oxford English Dictionary* (2nd edition) and the even longer (in volume terms) *Middle English Dictionary*. A smaller number of contemporary examples was also drawn from the *Collins COBUILD English Dictionary* (1995). Examples were obtained from dictionaries rather than from other corpora in order to access lexicographers' specialist knowledge and intuitions about meanings of words from earlier periods of the language. This maximizes the amount of information about word meaning available to the investigator of semantic extension, even where an interpretation different from the dictionary's is arrived at. I have not attempted to quantify the number of citations involving P/I verbs contained in these sources; to give an example, the OED's entry on *strike* runs for ten large, closely printed pages of small type, embracing 88 separate numbered senses, with about 130 separate citations on a randomly chosen page, while the MED's entry on *smi:ten* runs for nine pages, with about 72 separate citations on a representative page.

The following analysis makes no claim to have covered every single meaning the dictionaries attribute to the P/I verbs. Those that are discussed form a representative selection which includes the most common and important of the polysemies of the English P/I verbs; as well, many interesting though less frequently attested extensions are also considered. The selection that has been made from the dictionaries' entries thus claims to include everything essential to an understanding of the polysemy of English P/I verbs. In general, I have had to be far more selective with the OED entries than the MED ones, since the arrangement of senses in the former dictionary is much less systematic. The following list of criteria should clarify the main basis on which the choice of meanings from the OED was made.

(i) The OED frequently assigns individual sense numbers to uses of verbs that differ solely in transitivity or diathesis. While such alternations are crucial in determining the features of a verb's semantics, especially in so far as it influences syntactic behaviour, these phenomena, along with many of the alternations discussed in B. Levin (1993) are not taken as the principal examples of semantic extension. Instead, the focus will be on less regular polysemies which are found less systematically across a verb class. For discussion of finer-grained 'polysemies', their manifestation in lexical-

syntactic alternations and their distribution over verb classes, the reader is referred to B. Levin (1993) and Levin and Rappaport Hovav (1995); Atkins, Kegl and Levin (1988) is a detailed examination (from a lexicographical perspective) of the alternations of a representative English verb, *bake*.

(ii) Similarly, a use of a verb is often assigned by the OED to its own (sub)section when it is specialized to a particular grammatical subject or object. For example, *clash* (not in fact one of the P/I verbs discussed) is given an entry for its use when predicated of colours (*clash* 4c.: 'of colours, to go badly together, to kill each other'), but this would not be given any status in the following discussion, because it is simply an instance of an earlier meaning, 4a. 'to come into, or engage in, conflict' and its metaphorical extension 4b. 'come into conflict, be at variance; interfere, be incompatible; disagree'.

(iii) Subsenses that in other ways are substantially the same as earlier ones are also ignored: the citations for *strike* 38 'wound or attack with the heels, horns, tusks, claws, or any natural weapon' demonstrate that there is no reason to distinguish these from the basic P/I sense of the verb.

(iv) Phrases consisting of verb + non-prepositional/adverbial word (like *strike home*, OED *strike* 80) have been excluded, except insofar as they are special cases of extensions with less restricted distributions. Phrasal verbs have been included, as constituting a large proportion of verbal expressions in (modern) English (see Bolinger 1971:xi for details on their growth in the course of the history of English; see also Dehé 2002).

(v) Calque translations and senses referred by the OED to a foreign language source are often not taken into account, except where the foreign language influence seems only partly to account for the extension (e.g. *beat* 4b. 'fight' is attributed by the OED to French *se battre*).

(vi) Meanings are excluded which refer to esoteric technical arenas (bacteriology, electro-plating, telegraphy, sugar-boiling) or highly specific cultural practices (e.g. Backgammon), except where they can be incorporated as an instance of a more widely applicable extension.

(vii) Senses marked *dial.* ('dialectal') or *Sc.* ('Scottish') are ignored.

(viii) Senses marked '?' are ignored.

(ix) Senses classed as rare are ignored.

(x) The OED includes various non-verbal grammaticalized instances of P/I vocabulary in its citations of the basic verbs, such as the following instance of *bang*:

(1) 1832: *A 32 lb. shot struck us bang on the quarter.*
(*bang* v1. 8a. 1832 verb stem used adverbially with other verbs with sense of 'with a violent blow or shock')

Bang here appears as a modifier of a prepositional phrase, a function which it has taken on as a result of being grammaticalized. In spite of the dictionary's classification of this use under the verb *bang*, it is in fact best thought of as deriving from the noun. I will therefore not discuss this any further here, but refer the reader to Riemer (1998) where the process is thoroughly discussed.

In the analysis that follows, the OED's and MED's citations are not taken at face value: there is no obligation to adopt their interpretation of the groupings into which the citations of a word fall, and these groupings play no *a priori* role in the present analysis, which relies on the dictionaries only as a source of examples, specialist knowledge about earlier phases of English, and of possible theoretical semantic insights (see Leith 1997: 66-9 for useful comments on the codification of meanings, with special reference to the OED). This means that the analysis given for any one citation is not necessarily being claimed to be valid for the other citations found under the same OED or MED sense number: in fact, it will often be the case that the same dictionary sense heading provides examples of different means of extension, in spite of their common classification in the dictionary. In addition, there has been no attempt to screen the citations considered to exclude meanings judged 'poetic' or 'literary', in spite of the sometimes deliberately aberrant nature of these usages: in this respect the classification addresses itself to the totality of possible meaning extensions regardless of their generic provenance. (In any case, the decision as to whether a usage is literary or poetic is to a significant degree a matter of subjective personal perception, and usages which emerge in peripheral contexts like literary ones may often filter into more general acceptance.)

Here an important feature of the present analysis must be mentioned. Although examples are presented of particular words illustrating the various types of polysemy relation postulated to explain semantic extension, the present distribution of citations to illustrate each relation should be taken as largely accidental: all the categories of metaphor and metonymy, that is, should be taken as potentially applying to any P/I verb. Which verb exemplifies which category is largely an accident of the particular context of the citation in which it appears, and one can, as noted, often find a variety of motivations of extension among the OED and MED citations of a single meaning. Where this is not the case, citations exemplifying one means of extension are easily rephrased so that they exemplify another. The following analysis should therefore be interpreted as a low-resolution survey of the possibilities of meaning extension for English P/I vocabulary, rather than a fine-grained analysis of any one word; the fact that a given word exemplifies one type of meaning extension does not mean that the same word may not also exemplify others, nor that other words may not also exemplify the same mechanism.

4. Some methodological preliminaries

One of the purposes of the present study is to demonstrate the diachronic uniformity of semantic extension by showing that the same types of polysemy have existed throughout the history of English. This means that I deal with a wider chronological range of examples than is perhaps customary in studies of semantic extension, with the data base not being limited to contemporary English, but taking in examples from the Middle English period to the present day. (I attempt wherever possible, however, to provide contemporary parallels/analogues for the Middle English citations; in a couple of cases only an Old English example is cited).[7] This approach brings both advantages and disadvantages. The principal advantage is that it provides a greater range of evidence and counter-evidence against which the theory may be tested: if the citations were only drawn from contemporary English the data base would lack attestation of many semantic extensions which may not be current in the language now but have been widespread at various points in the past. Admission of historical data thus broadens the theory's empirical adequacy. The main disadvantages are that in discussing citations from older periods of the language I remove the possibility of recourse to native speaker intuitions, and run the risk of treat-

ing what could be seen as the many different linguistic systems that have characterized English throughout its history as though they were equivalent.

I suggest, however, that the benefits of the present approach – greater empirical adequacy – outweigh the problems attendant on a wide diachronic range of examples and that, further, the disadvantages of this diachronic sweep are not as great as they might first appear. There are three principal factors that serve to lighten the problems entailed by appealing to historical data. Firstly, the ways in which the English of a previous century differs from the contemporary language do not, to a significant extent, manifest themselves as wild-cards of unpredictable variation, but as a documented and well understood ensemble of structural differences. This means that many differences that might bear on semantic analysis can be identified and compensated for. For example, when dealing with Middle English examples one has to be aware of the fact that fewer possibilities of phrasal elaboration were available in the language then than in subsequent centuries when the number of phrasal verbs grew more strongly (on the origins of phrasal verbs in Middle English see Fischer 1992: 386, and cf. Visser 1963: 387-410; Bolinger 1971: xi; Hiltunen 1994; O'Dowd 1998 and Dehé 2002 on their development, syntax and status in English). Secondly, the OED, even though its actual definitions are often less than ideal from the point of view of semantic theory, preserves a wealth of native speaker intuitions which often reveal nuances of meaning that might not be apparent to the modern investigator. Indeed, the meaning citations often reproduce contemporary definitions of words, so that native speakers' 'intuitions' are in fact accessible to this extent.[8] Lastly, the domain of P/I has been remarkably stable in English, in that the core senses of its exemplars have remained largely the same throughout the course of their history: this continuity at least means that most of the P/I verbs in my data base can safely be considered the 'same' verbs over time in their relevant core senses, in spite of the diachronic range of their exemplars. These considerations, therefore, seem to me to justify the use of historical examples.

It is nevertheless useful to distinguish between the differing degrees of interpretative distance encountered in the discussion of examples from alien dialects of English. The examples that can be discussed with the greatest certainty are those that form part of the investigator's own idiolect: for this class of sentences there is presumably no one with more privileged access to the nuances and meaning relations they embody. But this special access may in fact harbour a hidden danger, in that the associations I attach to

particular P/I verbs may make me insensitive to the wider patterns of meaning in which they participate on a level of abstraction beyond my own idiolect. Thus, while the judgements made below about the meaning of P/I expressions in my own idiolect are accurate for me (or rather, they were accurate at the time of writing – differing judgements and associations over time introduce a further element of indeterminacy), no claim can necessarily be made about their representativeness in the larger speech community: some of my associations will be shared by other speakers, some will be different from but compatible with others' associations, and a small number may perhaps be both different from and incompatible with others' understandings. This is not, of course, something that makes me different from any other investigator working on English semantics: everyone has to anchor themselves in their own idiolect. Readers may sometimes, therefore, find themselves offering an alternative rationale for an extension, based on their variant construal of the citation in question.

There are then those examples which, though they have not in the past formed part of my own idiolect, could easily and naturally be adopted into it. These are examples of meanings which I understand and am able to interpret, and whose previous absence from my speech does not reflect any principled difference in the understanding of the word concerned, but is an entirely contingent matter that stems simply from the accidents of my acquisition of English vocabulary. This forms the largest class of examples from outside my own idiolect, and it embraces both the extended meanings which P/I words are made to assume by contemporary speakers, and extensions found in the historical record: there does not seem to be a significant difference between these two types of example in terms of their compatibility with my own dialect.

The last category is made up of those examples which I neither control as part of my own idiolect nor am able to adopt into it. These are the examples to which the least certainty of interpretation attaches: an investigator faced with this sort of material is only able to make an educated guess about the meaning relations that have produced an extension of this sort, based on a careful examination of the other attested meanings and applying insights gained during the examination of material over which greater certainty exists. (This is, of course, the situation that inherently exists when the investigator turns to a language of which they are not a native speaker.) Note that the age of an example is not the criterion by which this group is recognized: a particular extension of a P/I expression in some contemporary dialect of English may be much more obscure than a metaphorical

application in a thirteenth-century text. Interpretations of these extensions have been reached after a close consideration of the lexicographical evidence and, in some cases, examination of the original source, but this is nevertheless the class of extensions for which the greatest reliance must be put on the expertise of the OED's and MED's lexicographers. The interpretations of these meanings I propose are advanced in simultaneous awareness of the subjective nature of the enterprise and of the fact that assumptions always have to be made in the analysis of material if any progress is to be made.

Given the use of historical data in the study, the reader could be excused for assuming that the present investigation was intended as a contribution to diachronic semantics. This would not be strictly true (cf. Riemer 2003). The semantic extensions discussed in these pages are extensions (or combinations of extensions) from a core P/I sense to a non-P/I sense, and were all once synchronic polysemies of P/I vocabulary. That is, no claim of chronological subsequency applies to the extended sense over the P/I sense: the 'extended' sense is 'extended' only in the sense of being conceptually derived from and dependent on the P/I sense, without necessarily being subsequent to it. The historical range of examples means that these synchronic polysemies are documented at different stages of the language; the synchronic status of the analysis consists in the meanings being discussed as extensions from a core P/I sense without any reference to the chronological arrangement of one sense vis-à-vis another, or to the development of any extension through time. Except for the so-called 'postcategorial' extensions discussed in the previous chapter, ordered combinations of extensions and extensions based on the *with*/*against* alternation, polysemies of P/I verbs which lack this first-order status in comparison with the core P/I meaning are excluded from the analysis, since these would not be examples of extensions from P/I vocabulary but from the domain into which the P/I form had been extended.

Other considerations aside, this approach is recommended by the nature of the documentation of semantic change in English, which needs to be briefly discussed. Although in the citations I reproduce the OED's and MED's date of first attestation of a given sense, the dating of senses given by the dictionaries is unreliable and must not be taken to represent the actual order of attestation of senses in the written records. Görlach (1991: 137) lists cases in which the OED has ignored earlier attestations in dating its citations of words that entered the language in the Early Modern Period, while Schäfer (1980: chapter V) calculates that only in about 60% of cases

can the OED's first attestation date be taken as accurate: of the 40% of first attestations which can be antedated, about 30% will involve a shift of more than fifty years (1980: 67). In absolute numbers, Schäfer estimates (1980: 67) that about 16000 of these antedatings, or seven percent of the total number of entries in the (first edition) OED, can be antedated by more than a hundred years, changing their *century* of first attestation.[9] In the case of the MED, the date given is that of the manuscript in which the citation appears, and the date of composition of the text itself is often conjectural.

Note however that it could *never* be assumed that the order of attestation corresponds to the development of senses in the spoken language. Considerations of register, genre, individual and literary idiosyncrasy, as well as sheer historical accident, rule out the possibility that the complex interrelationships between the senses of words should be accurately mirrored in those texts which happen to survive and fall under the scrutiny of the dictionary's readers (cf. Visser 1963: 387-8). The dating inaccuracies of the OED and MED therefore do not compromise the truth any more significantly than would *any* ordering of senses found in the historical record, even a completely accurate one.[10] Compared to the difficulties entailed simply by reliance on written sources, the inaccuracies of any one possible attestation order are minor. This is no reason to belittle the great desirability of an accurate statement of the attestation order of different senses, but we should imagine the position we would be in if such an ordering existed. We would merely have a list of sense developments in the order found in those texts which happen to have reached us, and this would be only a subset of the number of texts actually produced, and would still fail to bridge the gap between spoken and written discourse. An accurately established, seemingly significant gap between two senses of a form in texts might not correspond to a gap in spoken language, but might simply reflect resistance to the use of the new meaning in a written context. The decision to deal only with synchronic polysemies of P/I vocabulary without reference to their chronological development is thus methodologically advisable given the nature of the evidence.

The treatment of extensions as synchronic polysemies raises two questions. The first concerns the basic characterization of a verb as a 'P/I verb': in what circumstances is it reasonable to treat the P/I meaning as the core meaning for a word which shows both it and non-P/I meanings? In other words, is it legitimate to derive the polysemies of words like *kick* and *beat* from the P/I meaning? Both *kick* and *beat* possess polysemous meanings from outside the domain of percussion/impact which are, according to the

dictionaries, more or less contemporaneous with the percussion meaning: to treat their P/I meanings as the core meanings from which the other extensions are derived may therefore be unwarranted. In light of the discussion in earlier chapters, our response to this problem will be clear. The analysis of a lexeme as 'essentially' having meaning *x* (or as belonging to domain *x*) is at bottom a subjective and interpretative matter: other interpretations are always possible, and each will bring its own explanatory dividends and deficits. The present decision to treat verbs like *kick* and *beat* in a way which privileges the P/I meaning is therefore simply an interpretative decision whose validity will be demonstrated by the nature of the analysis which this decision makes possible. An analysis which treated the P/I meaning as itself derived from something else could, in principle, be equally feasible.

The criteria, however, according to which a verb has been characterized here as having a core meaning within the P/I domain are not simply arbitrary. Verbs have been considered as having a core P/I meaning if the following criteria are met:

(i) The non-P/I senses are easily explained as extensions from the P/I-sense, whereas extensions in the opposite direction would be harder to account for.

(ii) Evidence exists of core members of the P/I domain (like *hit* and *strike*) entering the same domains of extension as found in the polysemy set of the verb in question.

(iii) Contemporary speaker intuition identifies the P/I sense of the word as basic (i.e. a P/I sense is given in answer to the question 'what does *kick*/*beat*/*hit*/*thump* mean?').

These criteria are satisfied by the words investigated in this survey, motivating their position as members of the P/I group (note that verbs like *bump*, which, as commented on, have altered their original P/I meaning, have to be claimed as historically meeting the third criterion).

The second (related) question concerns the status of polysemous meanings associated with the P/I verb: in a verb showing both a P/I sense and a set of other non-P/I senses, what is the justification for assuming that any given non-P/I sense is related to the 'core' P/I meaning rather than to one of the other extended meanings? The response to this question is similar: I

have simply assumed that the non-P/I senses can be related to the P/I ones, and gone on to develop a theory of the way in which this can be done. This is not the only assumption that would lead to a viable semantic analysis, but it is the one adopted here. There are exceptions, however: some polysemous meanings of P/I vocabulary seem to be obviously related not to the core P/I meaning, but to non-core meanings. These have simply been omitted from the analysis. This is not to say that any example which was problematic was simply assumed to relate to one of the non-P/I extended meanings rather than to the core P/I sense: the meaning in question must not only *not* be explicable as an extension from the P/I meaning, but it must also be able to be explained by one of the four types of semantic extension proposed, but starting from a non-P/I sense.

5. Polysemous extensions of English P/I verbs

The following pages detail a large number of different polysemous meanings taken on by English P/I verbs. Given that one of the aims of this investigation is to achieve a level of empirical adequacy in the treatment of polysemy, the abundance of examples may sometimes seem to come at the expense of a more tightly cohesive analysis. Within the framework of the four types of polysemy proposed here, the treatment is organized in a way which capitalizes on any similarities in the data by discussing denotationally similar polysemous meanings in the same place; in an area of linguistics where particularity reigns, however (cf. Evans 1997: 134), readers are asked to raise their level of tolerance for examples which show the identical process applying time and again in different meaning areas, but also to appreciate that the very variety of examples discussed is evidence of the wide applicability of the current typology.

5.1 Metaphorical applications of the core P/I meaning

Many uses of P/I vocabulary represent not extensions of the basic P/I meaning, but applications of this core meaning in a metaphorical context. In these cases the P/I verb retains its ordinary P/I meaning, and the P/I scenario is used as part of a metaphorical model for the target scene. In later sections of the chapter, in which genuine extensions of the P/I verbs are discussed, the nature of the extended meaning has to be revealed by means

of a paraphrase that exposes how the new meaning differs from the core P/I sense. Here, however, this is not necessary, since there has been no change to the meaning of the verb as such, given that it is the prototypical P/I scenario which is being used as the basis of the metaphor. Instead, a description is given of the metaphorical model in which the P/I form participates. Thus, *strike* in (2) will be presented as an example of the metaphor in which consciousness is treated as the object surface of a P/I event, and mental events (words, sights, sounds, ideas etc.) are treated as impactors:

(2) 1775: *Hold .. a thought has struck me!*
(strike 64 vt. 1606 [of a thought, idea] come into the mind of)[11]

Nothing more than the core P/I meaning, however, needs to be attributed to this occurrence of *strike*. In particular, note that while *strike* can be paraphrased as '(thought, idea) come into the mind of', as is done in the OED's definition, this paraphrase does not have any status within the current analysis. According to the theory of metaphor adopted here, *strike* in the above example has exactly the same meaning as it does in core appearances (i.e. 'hit with some force', or similar), and the paraphrase 'definition' represents an alternative, non-metaphorical (or differently metaphorical) description of the same state of affairs, not a description of the meaning of *strike*. The dictionary's definition quoted in (2) provides a way of understanding the *denotation* of *strike* by naming, or describing, the target concept which (2) metaphorically treats as a P/I event. To insist that metaphorical occurrences of P/I terms have different meanings attributed to them is to attach unnecessary significance to the role of the denotation of an expression in determining its meaning, and to ignore the role of linguistic expressions in establishing similarities between disparate features of reality by categorizing them as essentially the same. Particular members of the category may differ with respect to their status as prototypical or expected, but as long as they belong to the same category they do not differ in the semantic paraphrase with which their meaning can be represented.

The metaphors itemized below treat different events as P/I, and thus all contain P/I verbs. The situation is not so straightforward, however, with the nominal arguments associated with the verbs in these metaphorical construals, because various metonymic and other extensional procedures may apply to distance the nouns from the metaphors they are claimed to instantiate, destroying the straightforward mapping between the metaphorical rubric under which a sentence is discussed and the verb's arguments found

in the sentence itself. For example, (3) will be discussed below as an instance of the metaphor 'consciousness is a surface; mental events (words, sights, sounds, ideas etc.) are impactors', yet it contains no reference to either a mental event or the consciousness in which it is registered:

(3) 1663: *Lord Chesterfield .. is .. put away from the Court upon the score of his lady's having smitten the Duke of Yorke.*
(smite 11b. vt. 1663 inspire or inflame with love)

Nevertheless, it is claimed that this use of *smite* is most illuminatingly related to others in which these elements are made explicit, because we understand that no physical P/I is taking place, and are forced to interpret the sentence as referring to Lord Chesterfield's lady having made a particular mental impression ('love') on the consciousness of the Duke of York. Even though the participants mentioned in the sentence are not the mental impression but the agent who brings it into being (*his lady*) and not the consciousness but its 'owner' (*the Duke*), it is clear that the verb does not refer to a physical P/I event occurring between the lady and the Duke, but that instead a metonymic link is implied between the named participants and the entities to which they actually refer. Because of the complex nature of these links and the significant interpretative questions they raise, the reader's temporary indulgence is requested until the issues are fully discussed in 5.1.2: the present mention of the example is intended only illustratively.

There are many other ways in which the cited examples may depart from the paraphrase of the metaphor to which they are assigned: for example, the impactor and/or object surface may not always be overtly mentioned, their presence being inferable from the P/I verb. These 'partial' metaphors, it is claimed, can best be understood by reference to the fully elaborated version which is the starting point of the discussion.

The section falls into eight parts:

5.1.1 To use words is to subject them to P/I
5.1.2 Consciousness is a surface; thoughts and percepts are impactors
5.1.3: To attain a desired result is to hit a surface
5.1.4 Detrimental interaction is P/I
5.1.5 Requests are acts of P/I
5.1.6 Arrival at a location is P/I

5.1.7 Emotional attraction is physical impact
5.1.8 Metaphors with *touch*.

In the first seven sections, a large variety of metaphorical applications of P/I vocabulary is documented and analyzed. In the last section, the preceding material is contrasted with some metaphorical applications in which only *touch*, and not P/I vocabulary, is found. This discussion gives a picture of the specific metaphorical effect contributed by P/I expressions as contrasted with the more general vocabulary of contact. Many of the metaphors identified in the following sections correspond to ones previously identified by investigators including, and in the tradition of, Lakoff and Johnson (1980), Sweetser (1990) and others. I have not, however, usually drawn attention to these correspondences, since metaphor is not the main focus of the present account, and since this work is so well known.

5.1.1 To use words is to subject them to P/I

In the following citations, P/I (expressed as *beat*) is used as the metaphorical model for the manipulation of language: words are seen as object surfaces, and speaking them, writing them or thinking about them is conceived of as P/I. (This metaphor does not any longer seem to be active in contemporary English, creating an interpretative problem for a modern investigator.) A certain amount of variation can be discerned in the following citations as to how words are treated: they may be treated as *points*, as a mass (*discourse*) or as a collection of individual items (*details*), but what these instances have in common is their treatment of the use of language as a P/I event. The use of P/I typically expresses a particularly forceful or marked way of speaking or thinking: P/I vocabulary thus contributes a distinct metaphorical nuancing of the event, as in (4)–(5):

(4) 1612 *Often to inculcate and beat vpon this point.*
(*beat* 9 vi. obs. 1579 insist with iteration *on* or *upon*)

(5) 1636: *Beate this discourse of mine over and over untill you have gotten the habite thereof.*
(*beat* 8a. vt. obs. 1470 labour or 'hammer at' a subject, thresh out, debate, discuss, reason about, argue)

By contrast, the subjects in question in (6) are not the exclusive focus of the writer, but are only mentioned briefly: the verb chosen to convey this is therefore *touch*, which, as a general verb of contact, lacks the idea of force carried by *beat* in (4) and (5):

(6) 1895: *Subjects specially touched in particular passages of the Psalms.*
(*touch* 18a. vt. 13-- speak or write of, mention, tell, relate; mention briefly, casually, in passing)

The following use of *touch* exemplifies an atypical metaphor in which consciousness is an impactor which 'reaches out' to effect contact between itself and spoken words:

(7) 1611: *Hard it is, in such a great concourse (Though hearers' ears be ne'er so sharp) to touch at all things spoke.*
(*touch* 17b. vt. 1611 succeed in hearing, catch [*touch at*])

This metaphor shares the treatment of discourse as a surface with the previous examples, but differs in that it is the reception and understanding rather than the production of words that is metaphorically treated as physical contact (cf. metaphors like *to grasp an idea*). This example also contrasts in the choice of contact vocabulary rather than P/I to express the relation between consciousness and sense-data: as the context makes clear, the type of contact involved is only light and uncertain – the things spoken are hard to hear – and this contrasts with the more forceful interaction conveyed by P/I vocabulary.

5.1.2 Consciousness is a surface; thoughts and percepts are impactors

This is a highly productive metaphor for the treatment of mental processes. According to the most explicit version of the metaphor, internal mental events are individual entities and consciousness is the surface upon which they impact: someone experiencing a mental event is understood to be undergoing P/I between the individual entities and their mind. A contempo-

rary example of such a metaphor would be an expression like *to be struck by an idea*. Thoughts and percepts are conceived of as individuated physical things in motion into and out of people's consciousness, which may be localized in the mind, heart, or elsewhere, depending on the exact nature of the internal event concerned. This metaphor applies both to mental events which have an external sensory stimulus in some object in the real world, and to ones whose source is purely internal, i.e. where the mental event is a thought or emotion which is not directly stimulated by anything outside consciousness. Because of the semantics of English nominals referring to human beings, it often happens that the impactor 'slot' in the metaphor is occupied by the source of the percept rather than the percept itself. Thus, instead of (8), we could have (9):

(8) *I had only just arrived when the hideous sight of John and his motorbike struck me.*

(9) *I had only just arrived when John and his hideous motorbike struck my awareness.*

We understand in (9) that no physical P/I took place that had John as agent (indeed, John need not have undertaken any action at all); instead, it is the sight of him which is impinging on the speaker's consciousness. Similarly, the same doublet (8) vs. (9) illustrates how the object surface can be represented either explicitly as the internal consciousness – *my awareness* in (9) – or simply as a pronoun – *me* in (8).

The use of P/I vocabulary to convey these meanings is related to the more general linguistic construal of mental processes as physical ones (cf. Sweetser 1990). This construal allows intangible mental events whose nature is essentially obscure to be described and talked about in familiar and everyday terms as though they were just like other physical interactions. As we will see below, the physical treatment of mental events is also motivated by the fact that there is an interrelation between the physical and mental realms, in that a mental event may well be causally related to a physical event on the body which *is* in fact describable as P/I.

As the following examples will show, the mental events described by P/I vocabulary are typically forceful ones distinguished in this respect from the usual run of conscious thoughts. Just like a physical P/I event, their forcefulness may result in a damaging effect to the experiencer or in some otherwise 'striking' or noteworthy effect.

In (10) and (11) the object surface that undergoes the P/I is specifically treated as internal consciousness:

(10) 1470: *Thi febyll wordis sall nocht my conscience smyt.*
(*smite* 10b. vt. 1470 distress or perturb a person)

(11) 1728: *See what the charms, that smite the simple heart.*
(*smite* 11a. vt. 1663 strike or impress [the mind etc.] favourably or attractively)

(12) illustrates the crossover between physical and mental: the perception is first of all seen as affecting the physical bodypart (*the eye*), then as having purely internal impact (*the imagination*):

(12) 1759: *When the eye or the imagination is struck with any uncommon work.*
(*strike* 65 vt. 1700 impress or arrest [the eye, view, sight])

(13) expresses the object surface of consciousness – *the Heart* – explicitly as a prepositional phrase rather than as the P/I verb's grammatical object, which names the 'owner' of the consciousness (*Pope Julius*):

(13) 1712: *The News of the loss of Bologna, struck Pope Julius the 2d to the Heart.*
(*strike* 31b. vt. 1400 (of a feeling) pierce a person to the heart/quick)

In the next group of citations the object surface is expressed as the bodypart which receives the sensory impression, but we understand that it is the internal mental registration of the impression that is at stake:

(14) 1603: *If the cracke of a musket do sodainly streeke mine eares, in a place where I least looke for it.*
(*strike* 63 vt. [object always bodypart] 1596 [of sound, report] fall on, reach, catch the ear)

(15) 1596: *If..any ayre of musicke touch their eares.*
(*touch* 22 vt. obs. 1400 produce an impression on, strike, impress)

These two examples illustrate the contrast between the choice of P/I vocabulary as opposed to the more general vocabulary of contact for the expression of sensory events: *strike* in (14) expresses a sudden and sharp sound which is impelled to the notice of consciousness with some force, whereas *touch* in (15) is appropriate to the gentler, less abrupt influence of music.

The consciousness which undergoes the mental event is not explicitly mentioned in (16)–(18) below, and the object of the verb is expressed simply as a personal pronoun which, as above, is general between physical and mental readings:

(16) 1775: *Hold .. a thought has struck me!*
(*strike* 64 vt. 1606 [of a thought, idea] come into the mind of)

(17) 1870: *A sudden thought smote her.*
(*smite* 12 vt. 1870 [of thoughts] strike or occur suddenly to a person)

(18) 1914: *Lucky it hit him to buy the house…*
(*hit* 8d. vt. 1891 occur to a person, affect in a particular way, have an impact on.)

The conceptualization of the impactor as a thought makes it clear that we are dealing with a mental event (in (18), *to buy the house* has to be taken as standing for an idea or intention). Similarly, the nature of the impactor in (19)–(22) gives us to understand that it is in the internal mental realm that the impactor's effect is felt. Thus, *remorse* and *pain* in (19) and (20) inherently refer to internal consciousness, while in (21) and (22) it is not the mere existence of a *hornpipe* or a *funeral*, but the awareness and perception of them in the minds of people that is in question:

(19) 1849: *Tyrants, who, when at the height of greatness, were smitten with remorse.*
(*smite* 9. vt. 1300 infect, imbue, impress, strike suddenly or strongly *with* some feeling/sentiment)

(20) 1829: *The Usher took six hasty strides, As smit with sudden pain.*
(*smite* 9 vt. 1300 infect, imbue, impress, strike suddenly or strongly *with* some feeling/sentiment)

(21) 1885: *There is nothing knocks a country audience like a hornpipe.*
(*knock* 2c. vt. 1883 strike forcibly, make a strong impression on, move to admiration)

(22) 1628: *Anotomies and other spectacles of Mortalitie haue hardened him, and hee's no more struck with a Funerall then a Grauemaker.*
(*strike* 47. vt. obs. 1598 prostrate mentally; shock, depress)

Observe that the use of P/I vocabulary expresses a particular type of mental experience: the impressions in (19)–(22) are all harmful, unpleasant, or, in the case of (21), powerful, all qualities characteristic of the prototypical P/I event serving as the vehicle of the metaphor.

In (23) below, the instrument/impactor of the metaphorical P/I event – in real life, the words that form the content of the rebuke – are metonymically expressed by the word for the bodypart through which they come into being (*tunge* 'tongue'):

(23) 1382: *Cometh, & smyte we hym with tunge.*
(MED *smi:ten* 3 (e) vt. 1382 make a verbal attack on)

The use of *smite* allows the effect of the rebuke to be understood as similar to that of a physical P/I event, in that it is harmful to the object.

The absence of an absolute division between internal and external experience is highlighted by (24), in which the internal experience of fear is localized to the skin:

(24) 1535: *I am afrayed, and my flesh is smytten with feare.*
(*smite* 9 vt. 1300 infect, imbue, impress, strike suddenly or strongly *with* some feeling/sentiment)

The crossover between mental and physical realms is shown by the fact that a mental event like fear may have physical consequences ('crawling' or 'creeping' flesh, shivering, etc.). P/I vocabulary expresses the forceful nature of the experience of fear as well as highlighting the physical aspect of the experience.

In most of the examples so far, the grammatical subject of the active P/I verb has been the impactor in the P/I event. The following examples are more like (23), however, in that the subject is best understood as agent of the P/I. Thus, (25) is compatible with (26):

(25) 1945: *A man who has acquired a strong dislike of another person .. hits or .. criticizes him.*
(*hit* 8c. vt. 1843 criticize, make fun of, ridicule)

(26) *A man who has acquired a strong dislike of another person hits him with objections or criticizes him.*

(26) supplies a noun for the content of the criticism (the impactor in the P/I scene) and suggests that the subject of the P/I verb (*man*) is indeed the agent of the P/I, rather than the impactor, which is expressed by the phrase *with objections*. (27)–(30) are further examples where the verb's subject is agent of the P/I:

(27) 1906: *I refer to the practice of allowing any kicker in the city to avail himself of newspaper space to knock some public man or some public institution.*
(*knock* 2f. vt. 1892 speak ill or slightingly of, disparage, find fault with capriciously)

(28) 1565: *The chancellour .. hearing the grose and ruid speach .. thought he hat thame ovir near.*
(*hit* 8a. vt. 1375 affect the conscience, feelings, comfort, prosperity, etc. in a way analogous to physical hitting)

(29) 1711: *Phillis one Day .. smote the Heart of a gay West-Indian.*
(*smite* 11b. vt. 1663 inspire or inflame with love)

(30) 1663: *Lord Chesterfield .. is .. put away from the Court upon the score of his lady's having smitten the Duke of Yorke.*
(*smite* 11b. vt. 1663 inspire or inflame with love)

The hearer understands in all these contexts that no physical P/I is occurring: in (27) and (28) the impactors are the subject's words or the sense impressions conveyed by them, in (29) and (30) the impactor is 'love', and in all four cases the surfaces which the impactors strike are the awarenesses of their objects. *Touch* also exhibits the same use:

(31) 1677: *Our Saviour .. touched Martha for being troubled about many things.*
(*touch* 19a. vt. obs 1526: take to task, rebuke, reprove, censure, charge, accuse)

The agent of P/I is not always conceived of as a human being, however. In (32) the *heart*, as seat of emotions and conscience, exerts P/I on the subject:

(32) 1886: *I said good-bye with a coldness for which my heart smote me.*
(*smite* 10a. vt. 1382 of the heart, conscience: to discompose, disquiet, affect painfully)

Here *heart* is to be understood not as impactor, but as an agent of P/I, so that the sentence is compatible with specification of an impactor/instrument, as in (33):

(33) *I said good-bye with a coldness for which my heart smote me with guilt.*

This allows a differentiation to be made between two different mental events or aspects of the same personality. The single consciousness is treated as divided into two parts – the part responsible for the cold farewell ('me') and the part that subsequently regretted this ('my heart'): this division provides a way of dealing linguistically with contradictory internal impulses succeeding each other in time within the same individual.

In (34)–(37) the impactors are understood to be perceptions or mental experiences on the part of the patients of the P/I or contact verbs; the nouns used to refer to these mental events are the nouns that denote the actual things in the world that stimulate the experiences of them (note that *touch* also participates in this pattern):

(34) 1764: *On the entrance into this shrubbery, the first object that strikes us is a Venus de Medicis.*
(*strike* 66a. vt. 1672 [of something seen or heard] impress [a person] strongly, appear remarkable to)

(35) 1888: *The absence in him of prejudice and partisanship .. was what used to strike us most.*
(*strike* 66a. vt. 1672 [of something seen or heard] impress [a person] strongly, appear remarkable to)

(36) 1631: *It is inhumanity not to be touched with others needs.*
(*touch* 24a. vt. 1340 affect with some feeling or emotion)

(37) 1640-1: *The Scots being truly touched with Religion…*
(*touch* 23a. vt. 13-- affect mentally or morally, imbue *with* some quality)

In all these contexts the hearer understands that the P/I or contact event taking place has the consciousness of the experiencer as its object surface and some newly introduced mental experience as its impactor. In (37), for example, there is no question of some abstract thing called *religion* which physically makes contact with the Scots, just as in (36) there is no physical touching involved. In (34), physical striking is ruled out by the fact that the impactor is an immobile statue, meaning that a metaphorical reading of the scene is necessitated.

5.1.3 To attain a desired result is to hit a surface

This metaphor is perhaps based on the image of a missile or other impactor striking a target, and can apply whenever there is a particular outcome which an action aspires to attain but where the focus is on the uncertainty of whether or not it will succeed in doing so. Perhaps the most frequent contemporary example of the metaphor is in the expression *to hit the nail on the head*, which conveys that a point has been correctly made or an answer correctly guessed. The metaphor covers the achievement of a wide variety of different results: in the examples below it will convey conformity with someone's desires, the accurate representing of a colour in painting or the estimation of a particular unknown value. What these all share is the quality of being the most desirable out of a field of possible outcomes that a certain action may have. In this metaphorical understanding, the object surface stands for the result to be achieved, and there is typically an agent who tries to hit the surface with an impactor. The impactor can be specifi-

cally referred to as the action undertaken by the agent in order to bring the desired result about, as in (38) and (39):

(38) 1580: *[I] sought with deedes thy will to hitt.*
(*hit* 15 vt. 1580 fall in with exactly, suit, fit, be agreeable to)

(39) 1596: *Hath all his ventures fail'd, what not one hit?*
(*hit* 13 vi. obs. 1400 attain object aimed at or end intended; of events, to come to the desired end, to succeed, come off as intended)

In (38) the desired result is the pleasure or consent (the *will*) of the addressee: this is viewed as an object surface to be struck with the deeds of the agent; in (39) the object surface is unexpressed, but is understood to be the aim of the venture, whatever it was. More commonly, however, it is indeterminate whether the subject of the P/I verb is to be thought of as the agent or as the impactor, and in many ways the distinction in these contexts seems artificial:

(40) 1591: *G: That is stakemoney under the line, is it not so? T: Yea sir, you hitt it right.*
(*hit* 20a. vt. 1588 guess the right thing [*hit it*])

(41) 1842: *One of the most difficult things in painting is to hit the exact colour of the human face.*
(*hit* 14 vt. 1602 attain exact imitation/representation of)

(42) 1888: *I think, that so far as it is possible to strike an average, both the pecuniary and the social position of the American clergy must be pronounced slightly better.*
(*strike* 72 vt. 1729 determine, estimate [an average, mean])[12]

5.1.4 Detrimental interaction is P/I

The metaphors in 5.1.2 often referred to the damaging effect on a person's consciousness created by a mental event. The metaphors discussed here also depend on the harmful nature of P/I, except that the target of the meta-

phor is no longer internal. In (43) below, for example, the onset of an epidemic is treated as P/I:

(43) 1607: *Now the Red Pestilence strike al Trades in Rome.*
(*strike* 45b. vt. 1530 of a disease, attack or inflict suddenly, make infirm, lay low)

Such metaphors are very much still active in contemporary English, as the naturalness of (44) shows:

(44) *The virus will strike many Australians this year.*

A canonical act of striking is an isolable event in which the object surface comes under the forceful physical influence of the impactor, often sustaining damage as a result. These are the qualities mapped onto the circumstance of succumbing to disease or plague, which is likewise treated as an individual event, or as an event with a single source, with a similar damaging quality. The actual process by which disease is transmitted unfolds on a microscopic level which is not open to normal visual inspection: its treatment as P/I allows it to be assimilated to the same linguistic treatment given to ordinary-scale physical events.

Verbs of contact are often used to express the bringing about of non-physical influence between two participants, as in (45):

(45) 1613: *His Curses and his blessings Touch me alike…*
(*touch* 21 vt. 1470 be felt as the concern of or important to; affect, make a difference)

As this citation exemplifies, however, the verb is typically neutral as to the detrimental nature of the influence. The choice of a P/I verb, by contrast, inherently expresses a detrimental effect. For example, *strike* in (46) treats interactions within the realm of politics as though they were physical blows, instantiating a metaphor in which challenging someone's power is seen as striking them (the verb occurs in a conative frame with *at*):

(46) 1642: *The Regall Power was never before this time strucken at.*
(*strike* 32b. vt. [esp. in *strike at*] 1400 aim at the overthrow, destruction, defeat of)

In (47) rejection, as a harmful and unwanted effect, is categorized as an act of P/I, which is also typically damaging:

(47) 1895: *Some years ago, when a Suffolk gal kicked me.*
(*kick* 4c. vt. 1860 dismiss, discharge, reject)

In the following citation, an adverse non-physical form of punishment is treated as though it were a physical act of slapping:

(48) 1973: *Two young stepbrothers involved in a drug-crime .. were slapped with five years partial probation.*
(*slap* 1. 9. vt. 1968 to punish [someone] *with* a penalty, sentence, etc.)

Observe that a hearer who did not know the meaning of *probation* would be able to gain some understanding of the sentence solely as a result of their knowledge of what it is to be *slapped*, since this would tell them that probation was an undesirable event which inflicted an adverse effect on its undergoer. The metaphor thus has an informational content in that it reinforces the semantics associated with one of the verb's arguments. In the next example, theft is treated as P/I:

(49) 1963: *...you will never prove that I got it by knocking a safe.*
(*knock* 2e. vt. 1767 rob [object usually expression denoting a safe])

(50) 1591: *While hee was busie about that, the Nippe had stroken the purse.*
(*strike* 75a. vt. obs. 1567 steal, rob)

These instances perspectivize the thing stolen as undergoing an adverse effect: it is as though the thing stolen is attacked by the thief (the definition of this sense of *strike* in Partridge (1968) is instructive: 'to seize hastily or crisply, as if one were striking a blow').[13]

The following citation treats criticism as an act of P/I:

(51) 1904: *Of course there'll be plenty of cranks to knock this scheme.*
(*knock* 2f. vt. 1892 speak ill or slightingly of, disparage, find fault with capriciously)

Here it is the scheme itself that is conceived of as damaged by the P/I.

The claim made for all the metaphorical occurrences of P/I vocabulary in this and the previous sections has been that the core meaning of the P/I verbs in metaphorical contexts is unaltered: what has changed is the frame in which the P/I verb occurs rather than the verb's inherent semantics. As noted at the outset of 5.1, these metaphorical uses of P/I vocabulary should therefore not be thought of as extensions, but as *applications* of the basic P/I semantics to atypical arguments. Indeed, it is the very fact that the P/I verbs do retain their basic meaning that makes them available as metaphorical vehicles, since the ordinary physical P/I scenario possesses a familiarity and ready comprehensibility that allow it to be applied illuminatingly to a wide variety of situations whose nature would otherwise be hard to describe.

It is consistent with this characterization of metaphor that there should be instances in which it is unclear whether actual P/I is involved in the scene, such as in (52) and (53):

(52) 1450: *Nowe mon neuere saule ne body dye, But with wikkid peynes euermore be betyne.*
(MED *be:ten* 1a. (b) vt. 1225 punish)

(53) 1425: *The Lord beet Farao and his hous with moste veniaunces*.
(MED *be:ten* 1a. (b) vt. 1225 punish; *veniaunces*: 'vengeance')

Here the impactors are pain and vengeance, respectively. Both of these could but do not necessarily have to involve physical P/I, and the contexts leave it vague as to whether it is present: the pains and the vengeance may be being imagined as actual instances of physical beating, or they may be the result of other actions whose physical character would not be described as P/I. Cases like this fall midway between canonical physical examples of P/I and examples in which the use of P/I is most clearly metaphorical – for example, the occurrence in (47) above in which rejection is treated as P/I. The fact that no change occurs to the meaning of a P/I verb in a metaphorical application makes it possible for P/I vocabulary to appear in cases like (52) and (53) where the metaphorical or real nature of the context is ambiguous. This ambiguity resides not in the meaning of the verb, which is constant, but in the relationship between this constant meaning and the referent to which it is applied, in cases where it is unclear how far the scene is to be understood as involving physical P/I. These cases would require

more explanation in an analysis which posited a division between real and metaphorical meanings where metaphorical appearances of the verbs were treated as extensions, since (52) and (53) are indeterminate between metaphorical and non-metaphorical readings. In the present framework, however, the treatment of these cases is straightforward, because the fact that metaphorical occurrences of P/I verbs are not treated as differing in meaning from core occurrences allows them easily to accommodate cases where both or either the physical and the metaphorical readings apply.

5.1.5 Requests are acts of P/I

Hit and *strike* in the following sentence refer to the making of a request: the person of whom the request is made is seen as the object surface, and the impactor and agent are conflated into the subject of the verb:

(54) 1899: *...let's hurry by or he'll strike us for the price of a drink.*
(*strike* 75d. vt. 1751 make a sudden and pressing demand upon [a person *for* a loan, etc.])

(55) 1957: *I'll have to hit my old man up for a new bike.*
(*hit* 27c. vt. 1917 ask someone for [*hit up for*])

The role of *up* in (55) is unclear. In my own dialect of English, expressions with simple *hit* are acceptable in this meaning, and I will therefore concentrate on this variant:

(56) *I'll hit him for a loan*

.

(57) *Her father got hit for $10.*

This metaphor is related to those in 5.1.4 ('detrimental interaction is P/I'), in that a request could be seen as detrimental to the person of whom it is made, since it constitutes an interruption to their previous course of action, and may involve a claim over some of their time, money or property. The usage also should be linked to the metaphors in 5.1.2: the words of the request give rise to a mental event that impacts on the consciousness of the object. *Touch* shows a similar use: the choice of contact rather than impact vocabulary perhaps perspectivizes the request as less harmful.

(58) 1809: *If you could get me a commission, I could touch Dad for a few hundreds.*
(*touch* 16b. vt. 1760 'come down on', 'get at', 'tap' [a person] *for* money; succeed in getting money from; rob; [Aust. slang] swindle, cheat)

5.1.6 Arrival at a location is P/I

In this metaphor, a person in motion is treated as an impactor, and their arrival at a particular location or their meeting with someone else is treated as an instance of P/I with an object surface (cf. 5.4.2):

(59) 1890: *They struck the river within a day's ride of Rainbar.*
(*strike* 68a. vt. 1798 come upon, reach in travelling)

(60) 1948: *Go down this corridor, up the stairway at the end, straight on until you hit the second court.*
(*hit* 11 vt. 1075[14] come upon, light upon, meet with, get at, reach, find)

(61) 1877: *On Wild-Cat Creek..we struck a Mr. Silvers*.
(*strike* 68c. vt. 1851 come across, meet with, encounter unexpectedly)

P/I as the metaphorical vehicle for this idea suggests that the contact between the impactor and surface effected by the arrival/meeting is direct and total: it is not the case that the impactor touches and glances off the object surface, but the two come into full contact.

A different, more abstract type of 'arrival' at a point is described in (62) (note the phrasal elaboration with *on*):

(62) 1616: *You strike on truth in all things, sir*.
(*strike* 67 vi. 1616 hit or light *on, upon*)

In this sentence truth is conceived of as the object surface on or against which P/I occurs, and the agent and impactor are conflated as the subject argument (this sentence could also be seen as an example of the category 'to attain a desired result is to hit a surface', 5.1.3).

5.1.7 Emotional attraction is physical impact

The source of the following metaphor is somewhat obscure:

(63) 1885: *Did .. that young man .. seem struck up on Irene? asked the Colonel.*
(*strike* 87k. [1844]/1885 be bewildered, be fascinated with a person [passive: *be struck up with/on*])

The subject of the verb (*young man*) is treated as the object surface of a P/I event (he is *struck*), which forces him into contact with the object of his affection (*Irene*). P/I is, of course, common in the metaphorical treatment of this area in expressions like *to be smitten with*, but the precise details of the present image seem rather different. Indeed, in many ways (63) seems to be the converse of such expressions, because the object of affection is not represented as agent/impactor (cf. (29) above (5.1.2), *Phillis* [agent] *one Day .. smote the heart* [object surface] *of a gay West Indian*). I will not comment here on the role of *up*: there is not enough evidence to determine whether it should be taken as instantiating a caused motion meaning ('x make y move *up* by striking').

5.1.8 Metaphors with touch

In previous sections it has been useful to contrast the metaphorical perspectivization imposed by P/I verbs with that imposed by *touch* in similar contexts. It is also instructive to contrast the metaphorical applications which P/I vocabulary receives with the metaphorical uses to which *touch*, but no P/I verb, is put. This should give some idea of the specific quality that contact *by impact* as opposed to simple contact contributes to the metaphorical treatment of a scene.

In conformity with the common cross-linguistic tendency to use spatial terms as the metaphorical vehicle for the expression of temporal (and other) concepts (see for example Claudi and Heine 1986, Heine, Claudi and Hünnemeyer 1991), *touch* is used in cases which do not involve any physical contact, but instead only succession in time:

(64) 1794: *A series of writers touching upon one another.*
(*touch* 4b. vi. 1400 be contiguous *to*, have mutual contact; succeed continuously *upon*)

The writers are envisaged as contiguous points in a line. This seems to be a metaphor in my corpus for which contact verbs only and not impact verbs are used as vehicles.

Other metaphorical applications of *touch* appear in (65)–(67):

(65) 1697: *[These] Arguments touch only those particular Epistles.*
(*touch* 20a. vt. 1325 pertain or relate to)

(66) 1888: *He never identified himself with any school of religious thought, though he touched them all.*
(*touch* 20c. vt. 1611 have affinity with)

(67) 1883: *The price, after touching 88, fell back on French sales to 86.*
(*touch* 13a. vt. 1384 get or go as far as; reach, attain)

The element that these metaphors seem to lack is a suggestion of forceful contact: the type of relationship that holds between subject and object of the P/I verb is either temporary and inconsequential, as in (66) and (67), or neutral, as in (64): none of these cases has the suggestion of forceful contact between impactor and surface found in the cases that use P/I vocabulary.

5.2 Effect metonymies: metonymic extension to the effect of the action of the verb

In this section I show how a large number of extensions to P/I vocabulary can be seen as arising through the verb's meaning metonymically 'spreading' so as to convey not only the core P/I event itself, but also the effect this event has on the object of the P/I or some other closely associated participant. As cardinal transitives, English P/I verbs possess a basic semantics which is already compatible with specification of the action's result, in that one of their core arguments, the direct object, expresses the participant directly affected by the action of the verb (cf. Croft 1990: 66). The class of extension that is nearest, therefore, to the original meaning of the P/I verb,

is the one in which the nature of the result is specified by simply adding to the object argument a complement expressing the kind of result that takes place:

(68) 1375: *A whit kniht .. Baar him doun of his hors .. strok him stark ded.*
(*strike* 31a. vt. 1300-1400 pierce stab or cut [a person, etc.] with a sharp weapon)

Here the meaning of *strike* can be described simply as 'x cause y to be z by striking', where x corresponds to the subject argument, y to the object, and z is a variable over a number of possibilities, in this case *dead*. This differs from the basic meaning of *strike* only in that the verb now signifies that a change of state was achieved in the object as a result of the action described by the verb. The precise nature of that change (from living to dead) is conveyed not by the verb *strike* itself, but by a complement to the object argument: *strike* only expresses the fact that some change did in fact occur in the object. (69) is a wholly metaphorical version of the same extension: there is no real P/I involved, but *striking* is used as a metaphor for the invisible influence of a planet:

(69) 1628: *Some dismall planet strike you ever mute.*
(*strike* 46a. vt. 1534 deprive [a person] suddenly of life, or of one of the faculties, as if by a physical blow [with complement, as in *strike dead/blind/deaf/dumb*])

Exactly what this influence is like and how it is manifested are hard to decide: the use of P/I terminology categorizes the influence as an example of a highly prototypical P/I act, thereby assimilating the hard-to-understand case to an already understood one. Cases like (68) and (69) represent a minimal (and highly frequent) extension to the verb's meaning. Below, we will see examples in which the P/I verb's meaning undergoes more than just this minimal spreading, so that it specifies not only the fact that a change has taken place in the object as a result of the P/I, but also the particular type of change in question. In (70), for example, we have the same effect being achieved in the object as in (68), but this time the verb conveys it independently of any complement:

(70) 1580: *For lamb, pig and calfe .. tithe so as thy cattle the Lord doo not strike.*
(*strike* 45a. vt. 1375 kill)

Cases like this, in which the P/I verb expresses the type of change on its own and without the support of a complement to the object, are in this analysis simply a more developed form of the same means of extension, in which the verb conveys as part of its meaning information that in (68) and (69) was expressed by a separate word. (Note that a certain ambiguity attaches to the interpretation of this example, in that *strike* might be taken as conveying not specifically killing, but simply a more generalized detrimental effect. This is not problematic for the analysis, since the only claim is that the extended meaning of *strike* refers to the effect of the action of the verb, whatever that effect was.)

In extensions like (70) above which admit a volitional agent, it is often unclear whether the development is to be thought of as extending from the P/I action to its result, or to the intention of the agent to produce this result. The two are closely associated. It is worth noting the comments of Sperber and Wilson (1995:24):

> Humans typically conceptualize human and animal behaviour, not in terms of its physical features, but in terms of its underlying intentions. For instance, an ordinary-language concept such as *give*, *take*, *attack* or *defend* applies to various forms of behaviour which do not fall under any characteristic physical description, and have in common only the kind of intention which governs them.

Where the extended meaning of the verb embraces both the original P/I event and its effect, we have the basic metonymy, which may be applied both metaphorically and non-metaphorically. Where the P/I verb refers to a state of affairs that was not created by an act of P/I we have a postmetonymy. As discussed in 2.6, postmetonymies can often be analyzed partially as metaphors, leading to some indeterminacy between these categories.

I divide this means of extension into six categories:

5.2.1 Motion induced in surface by P/I
5.2.2 Change of state caused in surface by P/I
5.2.3 Change of mental/experiential state caused in surface by P/I
5.2.4 Change of physical structure caused in surface by P/I

5.2.5 Surface brought into being by P/I
5.2.6 Surface brought into being and made to move by P/I

5.2.1 Motion induced in surface by P/I

One of the most commonly expressed consequences of P/I is for the object to be set in motion as a result of the action of the verb, as in sentences like *she hit the ball into the fence*; the large number of extensions expressing this result are discussed in this section. The citations are discussed under three broad headings:

5.2.1.1 Dimensions of the basic extension
5.2.1.2 Metaphorical applications of the basic extension
5.2.1.3 Postmetonymies of the basic extension

These extensions have received a certain amount of attention from researchers interested in the interface between syntax and lexical semantics: Goldberg (1995: chap.7), for instance, has specifically denied that meanings like these reflect separate senses of the verb, suggesting instead that the 'caused motion' meaning is a property of the construction itself. Extension of verb meaning to express motion induced in the object is certainly a systematic phenomenon in English semantics, a circumstance that Goldberg's analysis makes very clear. The present approach, in which these caused motion meanings *are* (subject to some qualifications) taken as extended senses of the verbs, is not intended to deny the systematicity which Goldberg's account captures, nor to enforce a strong interpretation of the notion of 'separate sense' in use here (this would, in any case, be entirely against the spirit of chapter three); by remaining within the ambit of lexical semantics, however, I hope to be sensitive to the meaning variations evident among verbs undergoing this extension, and to highlight the way in which the meaning extensions treated in this section can be seen as arising naturally from the original semantics of the P/I verb.

5.2.1.1 Dimensions of the basic extension

In the following extensions the meaning of the verb can be analyzed as 'x make y move by P/I', with the particular choice of verb specifying the na-

ture of the P/I envisaged (cf. Goldberg 1995: 6–7). The great majority of the extensions discussed below include a prepositional phrase, directional adverb, or similar expression specifying the path of the motion, and in the most numerous class of examples the object of the P/I is also the entity in which motion is induced. Thus, the basic syntactic context for this extension is Subject-Verb-Object-Prepositional Phrase, as in (71):

(71) *Toby knocked the cup onto the floor.*

Knocked the cup onto the floor is paraphrased as meaning 'x made y move *onto the floor* by knocking', but a question arises as to which parts of this paraphrase are to be considered as the semantic contribution of *knocked* and which of *onto* (*the floor*). In the metalanguage paraphrase, caused motion is expressed by the main predicator ('make move'), but it does not follow from this that it is the main predicator in the object-sentence (*knocked*) that instantiates the caused-motion meaning. The joint occurrence of the verb and the directional Prepositional Phrase in most examples suggests that the role of the preposition in this extension needs to be carefully considered, in order to clarify what its role is in giving rise to the caused motion meaning. In my discussion of these points, I will mainly concentrate on *hit* and *kick*.

In the first place, observe that there are situations where a P/I verb on its own can express the fact that motion was induced in its object:

(72) *Mark hit the ball.*

(73) *Julia kicked the can.*

These sentences lack Prepositional Phrases, but unambiguously convey that the object of the P/I moved as a result of the verbal action. Motion induced in the object is therefore an integral part of the semantics of P/I verbs in the caused motion extension when their objects refer to small or easily displaced things. In these cases, in fact, it even seems artificial to differentiate between the core P/I sense of the verb and the caused-motion extension, even though 'x make y move by P/I' is applicable as a paraphrase for (72) and (73). Contrastingly, when the object of the P/I verb is larger and less mobile, caused motion is a less likely part of the meaning of the sentence:

(74) *Mark hit the car.*

(75) *Julia kicked the wall.*

Many cases are indeterminate and do not specify whether the object moved as a result of the P/I. Some examples of this are (76)–(78):

(76) *Wendy kicked the cat.*

(77) *Tom kicked the barrel.*

(78) *The bus hit the car.*

Collectively, therefore, (72)–(78) show that P/I verbs do not necessarily need a directional preposition in order to express caused motion. It therefore makes sense that caused motion can result as a meaning even in combination with prepositions which are neutral as to whether movement is involved, like *over*, *under*, *around, through* etc. (cf. Goldberg 1995: 158). This will be exemplified presently, in examples (84)–(86). First, however, (79)–(81) demonstrate that such prepositions do not necessarily include any motion component, since they are compatible with purely stative contexts:

(79) *The spoon is lying under the table.*

(80) *The ball is lying over the fence.*

(81) *The stone is lying around the corner.*

This can be contrasted with prepositions which do inherently express motion, like *to* and *from*, which may not appear in these contexts:

(82) **The spoon is lying from the table.*

(83) **The stone is lying to the corner.*

When the direction-neutral prepositions in (79)–(81) are combined with P/I verbs, however, a directional meaning results:

(84) *Robert knocked the spoon under the table.*
(= 'Robert made the spoon move under the table by knocking.')

(85) *They will hit a ball over the fence.*
(= 'They will make a ball move over the fence by hitting.')

(86) *We've kicked the stone around the corner.*
(= 'We've made the stone move around the corner by kicking.')

The meaning in these cases results from the combination of a verb which may or may not convey motion induced in its object and a preposition which, likewise, only optionally expresses motion (cf. Carter 1988). Accordingly, there is no reason to attribute this caused motion component of the meaning of (84)–(86) to the prepositions any more than to the verbs: it is the joint product of both (cf. Gawron 1985, 1986 and Pustejovsky 1991 for arguments that the caused motion meaning is derived compositionally from the meanings of the verb and of the preposition).

Prepositions like *to* and *from*, however, which do compulsorily express motion, probably should be seen as contributing a greater proportion of the caused motion meaning than prepositions which are motion-neutral. The extension to caused motion in such cases cannot be seen, however, as solely brought about by the directional preposition, since the extension is only found with a certain class of verbs, of which P/I verbs are a member. Compare the following examples:

(87) **He wasted the book from the table*
(In the reading 'he made the book move from the table by wasting.')

(88) **He used the book to the table.*
(In the reading 'he made the book move to the table by using.')

The impossibility of a caused motion reading in these contexts indicates that caused motion is not the independent contribution of the preposition, but is at least partly instantiated by the verb. There thus has to be a basic compatibility between the semantics of the main verb and a directional reading: it is never the case that the preposition independently conveys that motion is induced. In the extensions documented in this section, therefore, there is a continual interaction between verb and preposition, so that the extension 'x make y move by P/I' needs to be seen in many cases as dependent on and as a joint product of the P/I verb and the preposition indicating path of movement.

Observe that, as documented by (89), the extension is a deep-seated structural characteristic of English P/I verbs, as shown by the fact that it is found even in highly specific P/I verbs like *hammer*, which do not otherwise show many semantic extensions:

(89) *Thomas hammered the nail through the wall.*

Also notice that in the case of animate objects this class of extension expresses induced motion whether or not the motion is the result of the object's own volition: thus, (90) and (91) are ambiguous between readings in which the P/I is simply the stimulus on account of which the object initiates its own motion, and ones in which motion in the object is created solely as a result of the P/I without any intervening self-propulsion on the part of the object:

(90) 1387: *He beet out of Fraunce alle the tyrauntes.*
(MED *be:ten* 2b (d) vt. 1387 drive away; cf. *beat* 16. vt. 1325 drive by blows [a person, etc.] *away, off, from, to, into, out of* [a place or thing])[15]

(91) *He kicked the cat out of the house.*

This ambiguity is reflected in the semantic characterization I propose for these verbs, 'x make y move by P/I', since the predicate 'move' is unmarked with respect to whether the movement is controlled by the mover. Other extensions to the 'x make y move by P/I' meaning in which the object in which motion is induced is the same as the object of the P/I are cited in (92)–(97): in each case, the P/I verb is analyzed as 'x make y move by P/I':

(92) 1596: *He with his speare, .. Would thumpe her forward and inforce to goe.*
(*thump* 1b. vt. 1588 drive or force [*down, forward, off, out,* etc., or *into* some position or condition] by thumping.)

(93) 1612: *The Tennis-ball, when strucken to the ground, With Racket, .. doth back againe rebound.*
(*strike* 27a. vt. 1450 with complementary adverb or phrase: remove or drive [a thing] with a blow of an implement or hand.)

(94) 1719: *I knocked pieces into the wall of the rock, to hang my guns..up.*
(*knock* 6a. vt. 1610 drive by striking; force or send by means of a blow [*away, into, out of, off*])

(95) 1611: *Knocke off his Manacles.*
(*knock* 12a. vt. 1611 *knock off* a. strike off by or as by a blow)

(96) 1871: *They knocked out in this day as much gold as sufficed to make them afterwards two rings.*
(*knock* 14h. vt. [1871] earn [*knock out*])

(97) 1881: *Then there followed a great to-do .., furniture thrown over, doors kicked in.*
(*kick* 10a. vt. 1881 break down [a door, etc.] by kicking against outer side [*kick in*])

In one instance of the caused-motion extension of *strike*, the paraphrase 'x make y move by striking' has to be altered to 'x make x move by striking', or simply 'x move by striking':

(98) 1719: *Finding the Water had spent it self,..I strook forward against the Return of the Waves.*
(*strike* 48a. vi. 1660 to make a stroke with the limbs in swimming)

Here impact between the limbs or the trunk of the body and the surface of the water is the means by which motion occurs, and motion is created in the agent of the P/I rather than in the object surface. The altered paraphrase does not change the status of this extension as an effect metonymy; instead of motion being induced in the surface, however, it is induced in the impactor.

With the exception of the previous example, the grammatical object of the P/I verb has mostly been the same as the object in which motion is produced. This is not always the case, however. Citations (99)–(101) are instances where the entity placed in motion is one in close physical contact with the object surface, from which it is separated by the P/I event. Thus, in (99) the object surface is *my body*, in (100) it is *feet* and in (101) it is *his*

boots; in each case, it is something on or in the object surface that is dislodged by the action of an impactor:

(99) 1719: *The blow .. beat the breath, as it were, quite out of my body.*
(*beat* 15a. vt. 1607 force or impel a thing by striking, hammering [direction expressed by preposition])

(100) 1382: *Smytith awey the dust fro youre feet.*
(*smite* 13b. vt. 1300 strike or knock, drive or force with a blow or stroke *away, back, from, off, out, over,* etc; cf. 14. knock, beat *down* etc.)

(101) 1883: *Leonard was..heard stamping the snow from his boots.*
(*stamp* 3a. vt. 1470 with complementary adverb or phrase: affect in the specified way by stamping.)

To conclude this section, we turn to a contextual use of certain P/I verbs which is often glossed by dictionaries in a way that masks its fundamental identity of meaning with the extensions discussed here. Consider the sense of *strike* and *smite* below:

(102) 1831: *The soldier .. struck the head from the body.*
(*strike* 31c. vt. 1320 with complementary adverb or phrase: remove or separate with a cut.)

(103) 1330: *Mani hathen ther was .. the arm the bodi smiten fro.*
(MED *smi:ten* 4 (a) vt. 1330 cut off, sever = *smite* 13a. vt. 1205 strike, cut *off* [the head, a limb, etc.] with a slashing blow)

(104) 1390: *Thow .. hast .. an ax to smyte the corde atwo.*
(MED *smi:ten* 4 (c) vt. 1330 cut)

(105) 1425: *Take veel other motoun and smyte it to gobettes.*
(MED *smi:ten* 4 (b) vt. 1400 slice, cut, cut up)

The dictionaries' glosses of these senses specify cutting or slashing as part of the meaning of the verb. This is not an ideal analysis, however: P/I verbs in English do not ordinarily express cutting, which is conveyed by a separate class of verbs (*cut*, *carve*, *sever*, etc.; cf. B. Levin 1993: §21) and some

reflection will show that these cases need not be treated as exceptions. *Strike* and *smite* in these examples convey the fact that as a result of the action of the verb one part of the surface was severed from another. In the examples above it is clear that this can only be achieved by the action of a sharp-edged impactor which is manipulated *with a great degree of force, typically allowing the object to be severed in a single action*: the type of action required to achieve this degree of force is identical in every respect not to that found in a cutting event, but to the force encountered in a cardinal P/I event. The specification of an axe as the impactor in (104) is significant, because this is not the instrument typically associated with an action that would be described as '*cutting* the cord in two', which does not require its instrument to be manipulated with a high degree of force, but rather with one described as '*hitting* or *chopping* the cord in two', which would require force. *Strike* and *smite* need not, therefore, be considered as primary verbs of cutting in these examples: a more parsimonious interpretation is that they appear in the sense 'x make y move by striking/smiting', with the information that a sharp-edged object was the impactor being supplied by the knowledge that, for the objects of the P/I in (102)–(105) to be removed in a single blow, the P/I event must have some implement like a sword or a large chopping knife as its impactor.

5.2.1.2 Metaphorical applications of the basic extension

Many examples of the 'x make y move by P/I' extension must be understood as applying metaphorically. In these cases, the action described by the P/I verb is not one typically characterized in terms of a P/I scenario, but one in which P/I is used to express a particular understanding of the event, or to highlight one of its particular facets. These metaphorical applications of P/I vocabulary typically do not appear in isolation, but interact with other metaphors applying to its arguments. Thus, in order to understand what the P/I verb refers to, it may often be necessary to give a metaphorical interpretation to one or both of its arguments as well. In these cases it is the metaphorical understanding of the arguments that enables them to function as arguments of a P/I predicate when otherwise their semantics would preclude this. A particularly revealing example of this is given in (106):

(106) 1787: *I would rather be knocked down By weight of argument, than weight of Fist.*
(*knock* 10 vt. 1450 strike or fell to the ground with blows [*knock down*])

Knock down here simply means 'x make y move down by knocking', precisely the same meaning as in prototypical sentences like *The crowd knocked down the fence*. It is the metaphorical treatment of *argument* as a physical object with a definite mass that allows the phrase *weight of argument* to co-occur with the purely physical *weight of Fist* as instrument of the verb: no metaphorical understanding of *knock* itself needs to be assumed. (*Down*, by contrast, may need to be understood metaphorically when paired with *by weight of argument*, since it is probably not the case that the speaker is representing themselves as literally ending up on the ground as a result of this 'weight'. *Down* can thus be taken as zeugmatic, being interpreted literally for the *weight of Fist* collocation and, for *weight of argument*, as instantiating a version of a metaphor in which speech, coherence and viability are conceived of as occupying a high position, as in modern expressions like *to speak up* or *to tower over/dwarf other arguments*, and the opposite is conceived of as occupying a lower position: *his argument collapsed at that point*, *it was a pretty low-level argument*, etc.)

5.2.1.2.1 Metaphors for mental functioning

A common metaphor applying to P/I terms in this extension describes aspects of human mental functioning. According to this metaphor, which is a sub-type of the metaphorical treatment of sense-data and consciousness discussed in 5.1.2, ideas are things and people's minds are containers which they enter and leave. P/I vocabulary in the caused motion extension can then be used to express the process by which this movement happens:

(107) 1927: *I will have to knock that idea out of Lucy's head ....*
(*knock* 14i. vt. 1883 eliminate, remove forcibly, get rid of, destroy)

(108) 1612: *You may beat the Latine into their heads.*
(*beat* 15b. vt. 1533 to beat [a thing] into one's head, mind)

The meaning of the P/I verbs in these citations can be paraphrased as 'x make y move by P/I', where y stands for an idea, information or some other sort of mental 'content'. In both examples, the use of P/I vocabulary imposes a particular perspective on the situation by suggesting that the process by which the mental content is introduced to or removed from the mind is a rough or abrupt one: in (108) there may also be the suggestion that one of the means by which this is achieved is through real beating with the cane or similar disciplinary instrument. The metaphorical description of these situations as P/I is therefore not arbitrary, but serves to characterize each event in a particular way.

Compare the metaphor in (109):

(109) 1577: *To beate out the causes of these calamities.*
(*beat* 39f. vt. obs. 1577 work out, get to the bottom of a matter [*beat out*])

Causes are not concrete things in the world, but the results of interpretations of events made by human beings. They are metaphorically treated, however, as though they were real things that inhered in objects, which could be made to emerge as the result of physical actions. This is parallel to the way in which other mental constructs were treated in the examples above as objects which could be inserted into and extracted from mental containers. The use of *beat* in this example, paraphrased 'x make y move by beating' suggests that as the result of contact between impactor and surface the causes will be made to emerge. The choice of a P/I expression to describe this contact conveys that it is not just any ordinary contact between impactor and surface that will make the cause emerge, but only a particularly forceful one: the cause will resist coming out and can only be elicited with some effort.

A variation on the object-container metaphor can be found in the following example, where the mind is treated as a surface onto which an impression is introduced by an act of P/I:

(110) 1885: *The picture of the streets through which he was conducted .. remained forever stamped upon his memory*.
(*stamp* 8f. vt. 1662 impress or fix permanently [an idea, etc.] on the mind or memory.)

Once again, this perspectivization as P/I is not arbitrary, since the use of *stamp* in the metaphor in (110) reflects the immediate and involuntary nature of visual perception. For someone whose eyes are not closed, visual sensations are immediate and not open to conscious selection. Stamping is an appropriate image to express this, since it suggests an unvarying sight (*the picture of the streets*) being immediately imposed *in toto* onto the awareness of the object, just like an image is stamped onto a coin, for example. In (107)–(108), by contrast, the P/I verbs express the fact that the ideas were not entrenched in or removed from the mind immediately, and may in fact have met with some resistance to their manipulation. The choice of preposition also expresses this contrast: *into* in (108) focuses on the process of entering the mind and treats the mind as a three-dimensional interior in which a percept can have varying degrees of enclosure; *upon*, by contrast, views the mind as a surface which an image is either (*up*)*on* or *off*.

5.2.1.2.2 Metaphors concerning activities, functions and states

Another set of metaphors is used to describe people embarking on and ceasing an activity. There are two basic variants. In the first, people are seen as objects which can be impelled to and from certain activities, which are seen as locations; in (111) and (112) people go away *from* their work. The paraphrase of the verb in both cases is 'x make y move by P/I':

(111) 1941: *Romeo then bumped Henri Carrier, who was working at camp 12, and Henri, having no one to bump, is out of work pro temps.*
(*bump* 4a. vt. 1918 to dismiss from a position; to take the position of another, *spec.* by exercising the right to displace a less senior member of the organization.)

(112) 1955: *...the staff captain 'knocked off all the men from their duties'.*
(*knock* 12b. vt. 1651 cause to desist or leave off work [*knock off*])

The choice of P/I vocabulary expresses the relationship of control between subject and object. In a typical P/I scenario, for instance in *the man hits the ball (to the fence)*, the agent is in a position of control over the patient, and nothing intervenes between them: there is a direct transmission of the force constituting the P/I event and nothing is necessary to mediate between

agent and patient for the P/I to be accomplished. The situations envisaged in (111) and (112) share these features: in both cases, the agent is in a position of control over the patient, because the patient is subordinate to the agent in a hierarchy.[16]

In the other variant activities are treated as objects which may be affected by P/I events originating from people. The choice of P/I vocabulary metaphorically expresses that the activities are dislodged with a degree of force, i.e. that they are completed wholly and hastily:

(113) 1879: *If you have any business .. with me, the sooner we knock it off the better.*
(*knock* 12e. vt. 1817 dispatch, dispose of, put out of hand, accomplish; complete or do hastily [*knock off*])

This can be interpreted as an image in which the activity to be completed or accomplished is an object in some unspecified location, and its accomplishment consists in its being dislodged (*made to move by an act of knocking*) from that position. Note that the referents in this sense of *knock* in the OED citations are all non-concrete or highly general nouns – tasks, business, stanzas, words, things – and therefore highly amenable to metaphorical treatment as more individuated and concrete objects.

In (114), an undesirable activity is viewed as an object which can be *kicked*, i.e. removed by an act of P/I (this is classed here rather than in the section on metaphorical applications of the basic P/I meaning (5.1) because the habit is typically thought of as *disappearing* or *going away – made to move by kicking* – as a result of the P/I):

(114) 1972: *In a moment of weakness, I watched an episode of this [television serial] after having kicked the habit for more than twelve months.*
(*kick* 4f. vt. 1936 give up or overcome [a habit])

As well as metaphorically expressing movement into and out of activities, P/I imagery is used to describe people's movements vis-à-vis possible states or functions. The last example, (114), is intermediate in this respect: a habit can be seen as both activity and state. Compare (115), where being in office is a state which entails various activities (introducing legislation, setting policy, dealing with other governments, etc.):

(115) *The government has been kicked out of office.*
(cf. *kick* 12a. vt. 1697 expel or turn out with a kick, or in an ignominious fashion [*kick out*])

The details of this metaphorical mapping are a little different from (114) above. Here the state of being in office is treated not as an object but as a location out of which the government is *kicked*, paraphrased as 'made to move by kicking'. The appropriateness of *kick* as the verb to express this once again derives from features shared in common by a prototypical kicking scenario and the scene described. In both cases the patient argument is put into motion only as the result of a forceful action on the part of the agent: this corresponds to the fact that being in office is a desirable state which the government presumably does not want to relinquish, and will therefore only leave by force. *Kicked out* also highlights the damaging nature of the P/I: typically, being kicked will leave one bruised, in pain, and temporarily unable to function with the same degree of efficacy as before. This means that there is more expressed by the use of P/I vocabulary than simply the bringing about of motion. As well as signalling that movement is caused in the object, P/I vocabulary also expresses the damage that ensues to the object, making (115) also an example of the category 'Cause change of mental/experiential state in surface by P/I' (see 5.2.3). All these characteristics of being kicked have analogues in the present scene: a government can no longer function as a government after having been *kicked out*, and is often spoken of as wounded or damaged (*limping*, *in tatters*) as a result of an election loss.

In (116), old age is conceptualized as a location to which people are impelled as the result of an act of P/I:

(116) 1338: *thei were a partie smyten in to elde.*
(*smite* 15b. vt. 1338 bring into a condition by or as by striking; *elde*: old age)

Old age is typically not regarded as a desirable condition and people rarely enter it gladly. This corresponds to features of a P/I scenario: acts of P/I are forceful and thus can impel their object even against their will, and often result in physical and/or mental damage to the patient. These factors establish a correlation between the scenes of P/I and entering old age, motivating the choice of *smite* ('x make y move by smiting') as the verb to express the transition to this state. Like (115), (116) also expresses a detrimental

change affecting the inherent state of the object as well as the change in its metaphorical location brought about by the P/I, and is therefore also an example of the category 'Cause change of mental/experiential state in surface'.

A different metaphor, describing the fear of death, is found below:

(117) 1823: *I shall love to see the sense of approaching death strike the colour from that ruddy cheek.*
(*strike* 27b. vt. 1599 remove suddenly as with a blow, dash)

Like other mental events, the awareness of the presence of death is an internal, non-physical experience that is difficult to express except in concrete terms, regardless of how intense the actual emotions may be. It is this intensity, as well as the detrimental effect of the event, which motivates the metaphor *strikes* for the expression of the effect of the awareness of death. Like the other examples of this extension, then, *strike* is paraphrased here as 'x make y move by P/I'.

In (118) the condition of being in love is treated as an object (*love*) which may therefore be manipulated physically:

(118) 1938: *Most gentlemen don't like love, – They just like to kick it around.*
(*kick* 7c. vt. 1938 treat harshly, unfairly, contemptuously [*kick about, kick around*])

Kick around, analyzed here as 'x make y move around by kicking', can be metaphorically interpreted in two ways. Consistent with the OED's gloss, it can be taken as expressing the damage that ensues to the object surface of the P/I, which is viewed as being treated unfairly by being indiscriminately played with and abused, like a ball that is simply *kicked around*. Alternatively (and less consistently with the gloss), it could be taken as expressing a playful or unserious, but undamaging treatment of love. This latter reading is equally compatible with the metaphorical model of kicking (a ball) around. As in similar cases, the possibility of alternative interpretations does not pose any problem for the present analysis, since both interpretations depend on the fact that an attitude towards love is being conceptualized as *kicking around*. The fact that *kicking around* may be either damaging or playful is reflected in the differing possibilities for the interpretation of the metaphor, but does not call into question the initial analysis of the

use as metaphorical. Either interpretation is thus entirely consistent with the present account.

In (119) below P/I – in the form of *slapping*, an activity typically associated with physical reprimands, often of children – is used as a metaphorical model for verbal attack or criticism:

(119) 1973: *The police sergeant who conducted the prosecutions was often slapped down by the clerk of the court for leading his witnesses.*
(*slap* 10 vt. 1938 snub, suppress, rebuke [*slap down, slap wrist, slap face*])

The directional *down*, however, leads us to understand that as a result of this criticism the sergeant underwent motion: he was either literally made to resume his seat, or he metaphorically went *down* from a position of control to the opposite (the metaphorical value of *down* relates to many typical associations between *up* and positively valued positions of control and speech, and *down* and positions of subordination and silence: some of these can be seen in expressions like *to be under someone's control*, *to raise one's voice*, vs. *to quieten down*, etc.). This extension is consequently paraphrased as meaning 'x make y move down by slapping'.

In (120) and (121) violent acts of murder are metaphorically treated by way of understatement as less violent acts of P/I, *knocking* and *bumping*; *off* in both cases instantiates a metaphor in which killing someone is treated as dislodging them from some position (*off* is a particle which is very often found with the verb *knock*). This is a highly general metaphor which has a variety of more specific instantiations: cf. expressions like *off this mortal coil*, *to drop off the twig*. The paraphrase of the extension's meaning is 'x make y move off by P/I', where motion is used as a metaphorical model for the change from life to death:

(120) 1973: *In one village a white launched a murder campaign because 'he liked knocking off blacks'.*
(*knock* 12j. vt. 1919 to kill, to murder [*knock off*])

(121) 1910: *I've got several good reasons why I don't aim to get bumped off just yet.*
(*bump* 1c. vt. 1910 remove by violence; to kill [*bump off*])

A similar combination of extensions can be seen in (122):

(122) 1780: *They were so beat out with fatigue.*
(*beat* 39g. vt. 1780 overpower completely, exhaust [*beat out*])

This is analyzed as 'x make y move out by beating': the object can be conceived of as moving *out* from a state of competence to one of incompetence. (This may be compared to one of the standard ways of imagining mental and physical capability, namely as location *in* a particular domain: *to be in good (mental, physical) condition/shape*, *to be in control of oneself*, *to be in a state of readiness*, whereas the opposite is being *out of* this domain: *to be out of condition/shape*, *to be out of control*, *to be out of readiness*.) *Beat out*, however, has to be understood not literally – no P/I has necessarily taken place – but as a metaphor for the effect of fatigue, which is an experiential/sensory state as much as a physical one. This extension is therefore parallel to (120) and (121) above, expressing the death of the object, except that here we have the creation of a weaker effect (cf. also the appearances of *beat* in the previous section).[17]

5.2.1.2.3 Metaphors concerning monetary value

The monetary value of an object is regularly treated in fundamentally metaphorical terms which often involve P/I vocabulary: cf. expressions like *to knock (an amount) off the price*. The general metaphor can be described thus: the value/price of something is an object composed of different parts which can be removed or added to. The basis of this metaphor is clearly the image of a collection of currency in coins or notes. Thus, if an object's price is reduced, some of its constituents are removed. This can be expressed metaphorically as a portion of the constituents *being made to move off as a result of* P/I. An example is found in (123):

(123) 1889: *The steward graciously knocked off seventy-five per cent.*
(*knock* 12f. vt. 1811 strike off, deduct from an amount or sum)

The use of *knock* specifically conveys two things. Firstly, as a P/I verb rather than some other verb of caused motion it expresses the fact that some force (i.e. the authority of the steward) was needed to deduct as large a proportion of the price as seventy-five per cent. Secondly, *knock* suggests a

decisive action that occurred in a single movement: the steward assessed the situation and immediately effected the deduction on the spot, so the process of taking seventy-five per cent off could take place in a single go and did not need to be effected in a series of steps by different approving authorities.

The subcomponents that make up something's price or value are often seen as being oriented vertically. This is an example of the frequent metaphor MORE IS UP in which quantity is treated in terms of verticality (Lakoff and Johnson 1980, cf. Lakoff 1987: 276; the previous example is also amenable to this interpretation, even though there is no overt reference to verticality). In (124), prices are seen as attaining a certain height as the result of a P/I action, whereas in (125) it is the *reduction* of prices that is seen as following from a P/I event. In (126) the downwards direction is no longer overtly expressed: this renders an alternative analysis of *beat* possible, in which the verb does not deviate from its basic P/I meaning: if prices are understood metaphorically as physical objects, then we do not need to assume any deviation from the basic P/I sense of *beat* (applied metaphorically) in order to yield a satisfactory interpretation. The conceptualization of value as arranged vertically is so entrenched, however, that it is hard to think of (126) except in these terms.

(124) 1958: *It is wise at night to look out for places which bump up the prices without warning.*
(*bump* 1d. vt. 1940 increase or raise [prices, etc.] suddenly [*bump up*])

(125) 1793: *Thus monopoly will beat down prices.*
(*beat* 36d. vt. 1793 force down [a price] by haggling [*beat down*])

(126) 1630: *The broker that beateth the price with him that selleth.*
(*beat* 18 vt. 1592 endeavour to bring down, cheapen)[18]

In modern English, *bumping* is a sudden and unexpected P/I event which does not have as great an impact as other, more forceful P/I acts like *thumping* or *hitting*. Its use in (124) conveys that the rise in prices is sudden and insidious, liable to take potential customers unawares, just as being physically bumped would. The situation envisaged in (125) and (126) is quite different. Here the choice of P/I verb expresses the effort with which the reduction in prices will be achieved: in (126), for example, we understand

that it is the result of a process of negotiation in which there is a persistent effort on the broker's part to lower the prices, resisted by the seller. *Beat*, as the name of a more forceful P/I event, usually thought of as a series of individual P/I events, expresses this metaphorically.

5.2.1.2.4 Other Metaphors

In the following example, *stamp out* instantiates a metaphor in which diseases are treated as visible physical objects which can be affected by acts of P/I:

(127) 1883: *Earl Spencer .. remarked that in Scotland they had ... stamped out the disease altogether.*
(*stamp* 3d. vt. 1851 extinguish, extirpate, suppress [*stamp out*])

The disease is 'removed by stamping', i.e. 'made to go out by stamping', as though it were a fire.

In (128) below, a raid on an establishment is metaphorically treated as involving an act of P/I which causes its object surface to move *off* from one position to another. *Knock off* therefore receives the paraphrase 'x make y move off by knocking'. The exact nature of the positions concerned is not precisely fixed: we can characterize the move from one to the other as a transition from a position of accessibility, full functioning and stability to one of the opposite:

(128) 1939: *You .. acted as a so-called hostess at the Angel Club in Dean Street for a year before it was knocked off.*
(*knock* 12k. vt. 1926 arrest [a person], raid [an establishment] [*knock off*])

The verbal realm is the metaphorical target in the citation of *kick* below, paraphrased 'x make y move around by kicking':

(129) 1971: *They kicked the details around for a few more minutes and then left them to stew.*
(*kick* 7d. vt. 1939 discuss/examine [a subject, idea, etc.] [*kick about/around*])

According to the metaphor at work here, to discuss something in a group is to pass it from person to person, each member of the group kicking it in a particular direction, that is, experimenting with it under a variety of orientations and exposing different parts of it to view. The group as a whole cooperates to keep the object in the air between them: that is, the discussion is cooperative, geared towards keeping the topic under discussion, with no one member of the party monopolizing the idea (if this happens, the member concerned may be said to be *picking the idea up and running with it*). (3) may be compared with the previous example of *kick around* above, (118) in 5.2.1.2.2 (*kicking love around*): one of the suggested interpretations in that context was that a playful attitude to love was conveyed by *kick around*. Here also a similar meaning may be intended: if it was a more serious discussion a different verb might have been appropriate.

The two final examples to be discussed in this section neatly highlight the basis on which the present analysis distinguishes metaphors from metonymies. One interpretation of (130) below is that P/I is being used as the metaphorical vehicle for verbal confrontation (let us make the initial assumption that if the kicking out eventuated it would be simply by means of a spoken or written demand to leave):

(130) 1711: *[She] threatens to kick him out of the House.*
(*kick* 5a. vt. 1598 impel, drive, move by or as by kicking)

An analogous sentence with *kick out* was discussed in the previous chapter, where it was pointed out that on face value the expression has both metaphorical and metonymic aspects: metaphorical because P/I is being implicitly predicated of someone's words, which cannot be the subjects of P/I except figuratively, and metonymic because of the relevance of the fact that someone could be forced to leave a place (partly) as the result of a real kicking event. (This sort of 'relevance' was what led Goossens (1990) to treat similar expressions as 'metaphors from metonymy'). The present framework, however, does not posit an interaction between metaphorical and metonymic senses in these cases, but rather a continuum between metaphorical and non-metaphorical meanings of the verb, all of which feature the initial metonymic extension 'x make y move by P/I', which is the only metonymy present and not itself at issue.

In the set of cases at one end of the continuum the woman in (130) literally forces the man out of the house by kicking him, either moving him with each successive kick so that he gets closer and closer to the door, or

inflicting so much pain as the result of the P/I that he leaves of his own accord in order to protect himself. In these cases the meaning of *kick out* is non-metaphorical, and exemplifies the same initial metonymic extension as all the verbs in this section, 'x make y move by P/I'. In a second set of cases there is no actual P/I involved at all, and the *kicking out* is accomplished non-physically. In this case *kick out* is being used metaphorically, the P/I being predicated of whatever non-physical means was employed to secure the man's departure. In between these cases there is a continuum of instances in which a combination of physical and non-physical means is used to make the man leave. There is, therefore, an indisputable interaction between metaphorical and non-metaphorical uses of the verb, *à la* Goossens, but the non-metaphorical instances are not metonymic ones, but actual or 'literal'. Depending on the situation referred to by (130), therefore, we have a mixing of metaphorical and literal or core senses of *kick out*. The only metonymy in (130) is the initial extension whereby the verb denotes the effect it produces, namely movement in the object.

5.2.1.3 Postmetonymies of the basic extension

In the previous examples the relationship between the vehicle P/I scenario and its metaphorical target could be clearly specified, and the role of P/I in imposing a particular perspective on the target event was obvious. In many instances, however, there is no obvious compatibility between P/I and the target notion, and it is hard to specify exactly what the semantic contribution of P/I is to any metaphorical conceptualization of the scene. These cases are examples of postmetonymy: the use of P/I vocabulary in these contexts is licensed by a genuine metonymic connection in some other context, establishing a link between target and source meanings which is conventionalized and motivates the use of the P/I term even in cases where this original metonymic connection is missing.[19]

In yet other cases, it does seem possible to name what aspects of the treatment of the target event P/I terms metaphorically contribute, but these aspects are not specific to P/I and therefore only weakly explanatory, insufficient on their own to motivate the use of P/I vocabulary for the target meaning. This sort of situation is a mixed case in which both postmetonymic and weak metaphorical factors play a part: such extensions are particularly open to alternative treatments and the interpretations of the means of extension involved can vary widely. In cases like these I will try

to give as full an account as possible of the metaphorical understanding that the uses of P/I vocabulary impose on the scenes, but it should be remembered that if these seem inadequate, there is an additional or an alternative motivation: the extensions can also be seen as postmetonymies, depending on and licensed by different metonymic scenarios, which I will also attempt to characterize.

Strike exhibits a caused-motion sense which may be explained by postmetonymic factors such as these. The sense in question, however, is extremely ancient, so that its real story is probably to be found in the Germanic heritage of English (other Germanic languages show the same extended meaning in this root). The following interpretation, therefore, is designed only to point out some possible routes that might have led to this extension if analogous contexts can be found or hypothesized for Germanic generally. The meaning at issue can be paraphrased as 'x make y move down', applied to sails and ropes:

(131) 1745: *Both Ships struck their Yards and Top masts.*
(*strike* 17 vt. 1300 lower, take down[20])

(132) 1829: *At the first dawn of day, all was in motion; .. some striking the tent, yoking the oxen, and saddling the horses.*
(*strike* 22 vt. 1707 let down [a tent] for removal; cf. 23 vt. 1793 unfix, put out of use [sails, tents, etc.])

These are activities which do not seem to involve actual P/I: in the case of tents, one can imagine that one way the tent pegs might be removed from the ground is by being knocked out with a mattock, but other ways are equally conceivable, and in any case this does not apply to nautical contexts, where sails are lowered by rope and pulley (it may be in fact that the use of *strike* for tents is simply an extension of the nautical use in an analogous context[21]). P/I may, of course, be involved when the tent or sail hits the ground or deck, but this is not the event being described. We therefore need to find some reason that P/I is the domain chosen to express this meaning. (133) and (134) below are instances where the object of the P/I actually is made to 'move down' as a result of the impact (in the first example, we imagine an enemy standard being struck down in battle):

(133) 1440: *He .. Strake down a standerde.*
(MED *stri:ken* 2 (a) vt. 1425 knock [sb. or sth., an animal] down by smiting; ~ *doun*)

(134) 1612: *The Tennis-ball, when strucken to the ground, With Racket, .. doth back againe rebound.*
(*strike* 27a. vt. 1450 with complementary adverb or phrase: remove or drive [a thing] with a blow of an implement or hand.)

These extensions count as effect metonymies, and can be glossed as 'x make y move (down) by striking'. Meanings like (133) and (134) can be seen as the metonymic foundations on which the more obscure extensions in (131) and (132) depend: the metonymies establish an extended meaning for the verb, 'x make y move by striking', and this new meaning is conventionalized and reinterpreted as 'x make y move', P/I becoming an optional part of the meaning.

Money is often described as being manipulated via acts of P/I, as in the following examples (note that these are to be distinguished from the metaphorical uses of P/I vocabulary to conceptualize monetary *value* or prices in 5.2.1.2.3):

(135) 1952: *He wouldn't knock it [sc. money] back if you offered it to him.*
(*knock* 9a. vt. 1930 refuse, rebuff [*knock back*])

(136) 1934: *At the end of the week, he [the worker] is required to return or kick back part of his wages to a designated person, often a foreman or a bookkeeper.*
(*kick* 8b. vi/vt. 1926 return [money, stolen goods, etc.] to the person from whom they were obtained [*kick back*])

The P/I verbs here are analyzed as 'x make y move by P/I', but the motivation for the choice of P/I items to express this activity is rather obscure. Perhaps the only connection between *knocking back* and the act of refusal or return of money is simply that P/I is a possible means of making something move: if we imagine a heap of coins on a table, then it can be literally *knocked back* in the direction of a particular party; *knock back* as in (135) could then be used for this activity postmetonymically even if the means of making the money move back were just verbal, with no actual P/I involved.

Kick back in (136) is a more complicated case. This expresses an established convention whereby a worker automatically *kicks back* or returns a portion of their wages as part of a standing agreement. There may be a partial metaphorical motivation in that *kick back* might be taken to suggest the automatic and mechanical nature of the process: *kick back* (intransitive) is used of motors which fail to start properly (OED *kick* 8a.; compare the *kicking* of a gun, OED *kick* 3a., 4d.), a scene which has two relevant characteristics, the mechanized nature of the process and the fact that it does not represent the desired outcome, i.e. the engine does not start properly. Both these characteristics have analogues in (136), firstly in the established and automatic nature of the payment and secondly in the fact that it involves a failure of the wages to reach the employee intact. It may be thought that these are rather tenuous grounds on which to motivate a connection between metaphorical vehicle and target, a judgement with which I concur. But the very tenuousness of the motivation highlights the fact that we have to look for other factors to motivate the use of P/I to express the target meaning: these other factors, I propose, consist in a postmetonymic connection established by the fact that something can *actually* be made to move as the result of *kicking*.

To close the discussion of *kick back*, observe that (136) has an intransitive counterpart, as in (137):

(137) 1930: *Kick back with that hooch or we give you the works.*
(*kick* 8b. vi/vt. 1926 return [money, stolen goods, etc.] to the person from whom they were obtained [*kick back*])

This is probably best thought of as an example of a transitive/intransitive alternation, as also found in *knock* 12c. (above, n.16; for a general discussion of this alternation the reader is referred to Quirk et al. 1985: §16.19).

A variety of senses of *knock* also seem to require explanation at least partly in terms of postmetonymy. For example, this verb is often used to express theft or misappropriation:

(138) 1956: *Mr Goss had shown himself willing to knock off a pheasant himself.*
(*knock* 12i. vt. 1919 steal, rob [*knock off*])

(139) 1864: *The omnibus-drivers were expected to 'knock down' a certain proportion of the receipts.*
(*knock* 10i. vt. 1854 embezzle [*knock down*])

Understanding *knock* as 'x make y move by P/I', a metaphorical interpretation becomes available if we take the particles in (138) and (139) to mean *off the owner's domain of possession* and *down from accessibility by the bus company* respectively, viewing the act of robbery as involving displacing the stolen goods from a legitimate location to an illegitimate one (in (139) the contrast between rightful and actual location is expressed vertically). We are still left, however, with inadequate motivation for the particular description of this action as involving *knocking* rather than some other act. On the present interpretation, the reason *knock* can function as the description of this action is that a real act of knocking can produce movement in its object, so that 'x make y move by knocking' will frequently be a metonymy of the verb. Once this pathway between knocking and caused motion has been established, the verb is extended into cases like (138) and (139) where there is no real act of P/I. If metaphorical factors have not already provided partial motivation for this extension, they can be introduced into the interpretation of the scene by hearers in order to reinforce the reading 'x make y move': in many speech situations, it is an advantage to the hearer if an expression of the speaker's can be given as non-arbitrary an interpretation as possible.

In (140) an amount of money is seen as a physical object that has to be drawn *out* from a place (in the most general sense) of inaccessibility to one of accessibility by some forceful action (cf. Lindner's 1983: 80 'OUT-1 as Change from Hiddenness to Accessibility', and the non-metaphorical instance of the same extension, (96) in 5.2.1.1 above):

(140) 1920: *At that I was knocking out about eighteen hundred dollars per annum selling cigars out of South Bend.*
(*knock* 14h. vt. [1871] 1873 earn)

In the next pair of examples *out* can be understood as instantiating a metaphor of transition from the realm of fitness/viability to that of the opposite. In (141) the type of fitness/viability concerned is the status of not being eliminated in a competition; in (142) it is a state of physical fitness:

(141) 1894: *Two years ago Aston Villa [football club] knocked out Sunderland.*
(*knock* 14d. vt. 1874 drive out of the contest, vanquish, exhaust [*knock out*])

(142) 1900: *You have to have your horses fit, otherwise you knock them out.*
(*knock* 14d. vt. 1874 drive out of the contest, vanquish, exhaust [*knock out*])

This metaphor accounts for the function of *out*. We must now decide what the role of *knock* is. People and animals may, as in the OED's gloss, be literally "driven out [of a contest], vanquished or exhausted" by an act of physical knocking: this is clearest perhaps in the case of boxing, where one competitor is regularly *knocked out* (i.e. knocked unconscious or eliminated from the competition) by his opponent. These contexts are the basis of the postmetonymic aspects of the present extension, establishing a connection between *knocking* and *forcing out of the contest*. *Knocking* then postmetonymically becomes the verb used to describe the process of forcing someone out of a state of fitness/viability, on the basis of these actual cases, when real physical knocking is no longer present in the context.

5.2.2 Change of state caused in surface by P/I

Motion is not the only change that can be brought about in the object of a P/I event. This section is devoted to a discussion of P/I verbs whose meanings are extended to denote a variety of changes of state in the object caused by the action of the verb. The extended meaning of the verb in these examples incorporates information about the specific state in question, the details of which vary from verb to verb. This means that this extension is not amenable to the general type of paraphrase by which the caused motion extensions in the previous sections could be described. Instead, and unless a specific paraphrase is given, the dictionary's definition, as reproduced in brackets below the citations, is accepted as an adequate representation of the verb's extended meaning, and this meaning is further commented on and clarified in the discussion surrounding the example.

We begin by considering situations in which P/I verbs can be used to denote the change in *status* that occurs when one opponent in a contest,

fight, battle, etc., is defeated (compare the metaphorical/ postmetonymic treatment of the same meaning in the previous section, which differs from the present extension in predicating motion of its object surface):

(143) 1711: *He had beat the Romans in a pitched battle.*
(*beat* 10a. vt. 1611 overcome, conquer in battle or in any other contest *at* doing anything, show oneself superior to)

(144) 1827: *We have thumped the Turks very well.*
(*thump* 2 vt. obs. 1594 beat [in a fight])

Beat and *thump* express more than the simple fact of one side having taken a particular sort of physical P/I action against the other, but mean that as a result of this action one side has undergone a transition to the status 'defeated'.

Beat in particular has a range of metaphorical applications based on the basic extension in (143) above. In (145), for example, the speaker conceptualizes a purely numerical difference as the result of competition:

(145) 1812: *How many children have you? You beat me, I expect, in that count.*
(*beat* 10a. vt. 1611 overcome, conquer in battle or in any other contest *at* doing anything, show oneself superior to)

The next two examples are not possible within my own dialect of English, so their interpretation is more speculative. According to my reading, the relationship between cheat/defrauder and victim is metaphorically treated as one of competition or battle:

(146) 1888: *Two boys .. were each fined twenty-five dollars… They have been beating boarding houses all over the West Side.*
(*beat* 10e. vt. 1873 get better of by trickery, cheat, defraud)

This metaphorical use of *beat* – 'to cheat someone is to defeat them' – suggests that the relation between the thieves and the boarding houses is like that between the participants in battle or in a competition: each side is aware of the other and is taking active steps not to fall victim to the other's tactics.

In a development from this metaphor the amount or thing stolen by fraud may be expressed by a phrase introduced by *out*:

(147) 1944: *One never attempted to 'beat' the conductor out of his fare.*
(*beat* 39i. vt. 1851 defraud [a person or institution] *of* money, etc., by deception, blackmail or other dishonest means [*beat out*])

The addition of an *out*-phrase to *beat* in this structure is due to its use with other verbs of cheating (*cheat*/*trick*/*do* someone *out of* something). In this case, however, the introduction of *out* into the structure is incompatible with the original metaphor, which it thereby obscures. This is because English verbs of defeating, unlike those of cheating, do not admit an *out of* phrase[22], as shown by (148):

(148) **?!***Tyson beat Ali out of the trophy*.

This does not convey the fact that Tyson defeated Ali in a fight, thereby winning the trophy, but is only interpretable, if at all, as meaning 'Tyson *cheated* Ali out of the trophy'. Meanings like (147), therefore, must be counted as postmetaphors of *beat*: cases such as (146) above establish the original equivalence between *beat* and *cheat*, then allowing *beat* to appear postmetaphorically in *cheat* structures which are incompatible with the original metaphor.

An *out*-phrase also appears in the following example:

(149) 1903: *Since I have driven him I've become satisfied that he can beat out any horse in the State.*
(*beat* 39j. vt. 1893 get ahead, prevail over another [*beat out*])

This may be a phrasal extension of the 'defeat' meaning of *beat*; in my idiolect, the same sentence without the particle seems to have an identical meaning, as far as one can tell from the OED's definition of (149):

(150) *Since I have driven him I've become satisfied that he can beat any horse in the State.*

The semantics of this extension are therefore somewhat obscure, but could be understood as the original 'defeat' extension being combined with an 'x make y move by P/I' extension: specifically, *out* could be interpreted meta-

phorically as *out of the contest*, so that the entire structure receives the interpretation '*x make y move out* [of the contest] *by defeating*'.

Finally, consider the following use of *beat*:

(151) 1850: *The clock beats out the little lives of men.*
(*beat* 39h. vt. 1850 measure out [by beats] [*beat out*])

I interpret this as 'x cause change of state in y by beating' with the particular state-change in question being the transition from 'unmeasured' to 'measured'. The role of *out* in this structure is difficult to characterize and does not seem to give rise to any predication of motion on the part of the object, *the little lives of men*. It is probably to be linked with the *out* of *count out* and *measure out*, as well as that found with verbs of distributing, such as *give out* and *hand out* (cf. Lindner 1983: 97). It may also be relevant to refer to the sound produced by the clock's ticking and striking, which can be thought of as coming *out* from the mechanism of the clock into the surrounding air. The precise means, however, by which this association comes to be incorporated into the semantics of the sentence is unclear.

5.2.3 Change of mental/experiential state caused in surface by P/I

A highly salient effect that a P/I event can have on an animate object is a change of mental or experiential state, and P/I verbs frequently express this. These extensions therefore count as a particular subtype of the extensions in the previous section. The P/I verbs in the following citations convey a variety of such effects, ranging from mere mental/physical harm to the *termination* of mental experience in its object, i.e. killing:

(152) 1580: *For lamb, pig and calfe .. tithe so as thy cattle the Lord doo not strike.*
(*strike* 45a. vt. 1375 to bring suffering or death upon [a person, etc.] as with a blow)

(153) 1500: *Howe .. shuld I Vertu ouerthrow When he dredyth nat all your hoole rowte .. For stryke hym may I nat.*
(MED *stri:ken* 1b (c) vt. 1390 kill)

(154) 1382: *Lo heer the swerd of Goliath philistee whom thou smyte.*
(MED *smi:ten* 1 (a) d. vt. 1200 kill; cf. OED *smite* 5 vt. 1205 strike with weapon so as to cause serious injury or death)

(155) 1843: *The Lord shall smite the proud, and lay His hand upon the strong.*
(*smite* 4 vt. obs. 1150 visit with death, destruction, or overthrow; to afflict or punish in some signal manner)

(156) 1813: *Great Homer lives no more, Smote, like the rest, by Time's relentless power.*
(*smite* 5 vt. 1205 strike with weapon so as to cause serious injury or death)

In (152)–(155) the action that leads to the object's death is at least compatible with an act of P/I, whereas in (156) we have a metaphor in which the inevitability of death is conceptualized as the force wielded by time as part of an act of P/I.

We now turn to cases where the P/I verb expresses a change to the mental/experiential state of the object, but where the exact classification of the extension as metonymy or metaphor is unclear, and a variety of postmetonymic/metaphorical factors are at work.

Consider first of all this very early (Old English) citation of *beat*:

(157) *Ne se bryne beot mæcgum.*
nor the burning hurt youth.DAT.PL
'Nor did the burning hurt the youths' (Bosworth and Toller (1973) under *beatan*)

(In the following discussion I am assuming that *hurt* is the best paraphrase of *beot*, following both Bosworth and Toller and the source of the citation, Thorpe 1832.) The verb expresses the creation of a strong experiential effect in the object, i.e. pain, something which is frequently the result of a P/I act. There are two options for the understanding of the extension. The first is to see it as a metaphor, in which the action of the fire is treated as an act of P/I. This is not a straightforward mapping, however, because fire does not share many of the features of the impactor or the agent of a P/I event: specifically, fire lacks an unchanging surface, is diffuse, unstable, and without mass, whereas a typical impactor is a naturally delimited, dense

physical entity often smaller than the surface with which it comes into contact. If these factors are judged strong enough to rule out metaphor as a motivation for the extension, it may be analyzed as a postmetonymy: *beating* will typically cause pain on a human object, so the meaning *give pain, hurt* can arise even where the act that brings this about does not clearly fall under the description of P/I.

(158) is a postmetonymy based on the fact that people can meet as a result of (literally) *bumping into* each other:[23]

(158) 1958: *What a* mad *coincidence bumping into John.*
(*bump* 2e. vt. 1953 meet a person by chance [*bump into*]
[italics original])

Bump into, paraphrased 'meet', postmetonymically refers to a situation in which all that happens is that two people meet, without any physical contact taking place between them; the extension also has a (weak) metaphorical aspect in that *bump* expresses an unintended physical event, just as the extended use conveys an unexpected occurrence.

The following extension is ambiguous between postmetonymic and metaphorical characterization:

(159) 1856: *He is completely knocked up from overwork.*
(*knock* 18g. vt. 1737 overcome or make ill with fatigue; exhaust, tire out [*knock up*])

Actually knocking someone can make them sick: here the verb expresses the same effect without the original cause, giving a postmetonymy or a metaphor, depending on how readily one can see *overwork* as an impactor. For the use of *up* to express maximum extent, cf. *bashed up, fed up, used up*, where the particle conveys that the activity has been completed to its utmost possible effect (an analogical model for this is *filled up* applied to containers, where the quantity rises in the container *up* towards the top; cf. Lindner's 'Completive UP', 1983: 150, §3.4). Note that the same expression applies to non-physical things:

(160) 1776: *The arrival of the fleet, since which almost all business in town is knocked up.*
(*knock* 18i. vt. 1764 break up, destroy, put an end to
[*knock up*])

This I take to be a secondary application metaphorically dependent on (159) above.

5.2.4 Change of physical structure caused in surface by P/I

As an event of some force, an act of P/I may alter the physical state of its object. It is the fact of this alteration that the various P/I verbs discussed in this section polysemously convey. In (161) below the complement *even with the ground* specifies exactly what the alteration to the surface is, whereas in (162) it is the verb alone that expresses the crushing effect. *Beat* in (161) is accordingly analyzed as 'x cause y to become _____ by P/I', representing the most minimal extension of the verb's meaning, whereas in (162) the appropriate paraphrase is 'x cause y to become crushed by P/I':

(161) 1603: *Part of the wals we have beaten even with the ground.*
(*beat* 17. vt. 1570 break, crush, smash or overthrow by hard knocks)

(162) 1815: *We say, to beat drugs, to beat pepper, to beat spices; that is to say, to pulverize them.*
(*beat* 22 vt. 1420 pound, pulverize)

An early Middle English citation of *knock* (*cnuc*) shows the same extension as (162):

(163) 1150: *Cnuc thisse wyrte wurtruma mid ele.*
'Crush this plant's root with oil'.
(MED *knokken* 1 (b) vt. 1150 crush, pulverize)

In the following citation, *beat* expresses the idea that the streets were *covered* or *paved* with gold: beating or hammering the gold bricks into the streets is the way in which this is brought about, and the verb is therefore analyzed as 'x cause y to become covered by P/I':

(164) 1390: *The weyes ben alle there I-bete With Riche gold.*
(MED *be:ten* 6 (a) vt. 1390 to cover [sth. with metal, esp. with gold], pave a street with gold)

The 'pave/cover' interpretation of *beat* in (164) above gives rise to the postmetonymy in (165): in the 'pave' example, gold was inlaid into the street by being hammered onto it; here the decoration is embroidered onto the silk, an action that does not involve P/I, but which creates an analogous result: consequently, *beat* is used postmetonymically as the term for this process:

(165) 1330: *The broider is of tuli selk, Beten abouten with rede golde.*
(MED *be:ten* 6 (b) vt. 1330 embroider [a banner, garment, etc.]; adorn, decorate)

The following citations of *stamp* can be described as 'x impose y on z by stamping' for (166), or as 'x impose mark on y by stamping' for (167)–(170):

(166) 1826: *Despair was stamped on his distracted features.*
(*stamp* 8g. vt. 1641 impose permanently [an immaterial mark or sign]; impress signs or traces of [some quality, event, etc.] on a person or thing)

(167) 1863 *And this stamps them really as Greek islands.*
(*stamp* 8b. vt. 1599 declare or show to be of a certain quality or nature)

(168) 1838: *The book that Evelyn could admire was sure to be stamped with the impress of the noble, the lovely, or the true!*
(*stamp* 8d. vt. 1780 impress with some permanent and conspicuous characteristic)

(169) 1780: *Falsehood stamps a character with a deep and degrading stain.*
(*stamp* 8d. vt. 1780 impress with some permanent and conspicuous characteristic)

(170) 1837: *With that frankness of speech which stamps the independent man*.
(*stamp* 8e. vt. 1833 to be a distinctive mark of, to characterize)

In (166)–(168) the mark could be understood as a real physical characteristic, whereas (169) and (170) depend on a metaphor describable as 'a characteristic is a physical mark'.

5.2.5 Surface brought into being by P/I

The last independent category of effect metonymies to be considered is that in which the object of the P/I is brought into being as a result of the action described by the verb. We will begin by discussing a variety of examples of this. These extensions can all be paraphrased as 'x make/create y by P/I'. The prominence of P/I as a process involved in, for example, producing fire, explains its use to express this effect:

(171) 1440: *Whan the nyght com, the maide .. smot fire at a stone.*
(*smite* 16a. vt. 1290 make fire)

(172) 1755: *I must observe, that no man can strike fire with a feather.*
(*strike* 30a. vt. 1450 produce [fire, a spark] by percussion)

Although syntactically it is object of the verb, *fire* is not the thing actually struck in the P/I, but rather emerges out of and separately from the object surface, the stone. By contrast, in the next examples, the surface which undergoes the P/I is transformed into the thing named as the object of the verb, coins in (173) and (174), and a wound in (175):

(173) 1400: *Edward did smyte rounde peny, halfpeny, ferthyng.*
(MED *smi:ten* 5 (a) vt. 1387 strike a coin)

(174) 1710: *Money of Brass was stamp'd, with a Ship on the one side .. and the Figure of Janus with a double Face on the other.*
(*stamp* 4a. vt. 1560 to impress by the means of a die and the impact of a hammer or machinery; to make [a coin, medal] by this process)

(175) 1485: *They hadde eyther smyten other seven grete woundes.*
(MED *smi:ten* 5 (c) vt. 1225 to strike so as to cause [a wound, slaughter, pain])

(176) represents a metaphor in which the mental or spoken production of words is treated as a physical process (cf. the purely metaphorical uses of the unextended P/I meaning in 5.1.1):

(176) 1614: *My pulsiue braine no Art affoords, To mint, or stampe, or forge new coined words.*
(*stamp* 4a. vt. 1560 to make a coin, medal; *pulsiue*: 'impulsive')

Similarly, *stamp* in (177) metaphorically treats the process of making an inference based on some data as the physical process of *stamping*:

(177) 1581: *Out of these two … propositions, he stampeth a conclusion…*
(*stamp* 8a. vt. obs. 1581 fabricate [an inference] *out of* something)

A conclusion is created or brought into being as the result of the action of the verb; *stamp* must therefore receive the interpretation 'x make y by P/I', with the conclusion being metaphorically treated as a physical object.

In (178) the effect of words on the consciousness of the reader is represented as physical imprinting:

(178) 1615: *I wish my Verse should such Impression strike, That what men Read off, they should thinke the like.*
(*strike* 28e. vt. obs. 1615 imprint on the mind)

In (179) a path is created as a result of the percussive action of the feet; in (180) I interpret *it* as standing for a word for path;[24] in both instances *beat* is therefore paraphrased as 'x make y by beating':

(179) 1590: *Master Gascoigne..who first beate the path to that perfection.*
(*beat* 3a. vt. 1000 walk up and down; tread hard or bare by frequent passage; hence, open up or prepare a way)

(180) 1917: *You get your boss to let you off for that long, beat it over to Harrisville tomorrow night.*
(*beat* 3c. vt. 1906 go away [*beat it*])

In (181) below *struck a canter* receives the analysis 'made a canter by striking', *strike* again referring to the action of the horse's feet:

(181) 1816: *No sooner had the horses struck a canter…*
(*strike* 49b. vt 1816 of a horse: alter his pace into [a faster movement])

A goal is made or achieved in (182) by kicking, giving rise to an exactly analogous paraphrase:

(182) 1891: *From this try Shorland easily kicked a goal.*
(*kick* 6. vt. 1857 accomplish, make or do by kicking [Football: *kick a goal*])

In (183), *time* means 'a particular measurement/division of time', which is created ('made by striking') by the subject through some P/I activity, perhaps stamping their feet or striking a stick against some surface:

(183) 1663: *This harmony would not last long, did not the Chief Musician strike time and measure.*
(*strike* 29b. vt. obs. 1663 beat time)

Touch also exhibits this extension:

(184) 1709: *The lines, tho' touch'd but faintly, are drawn right.*
(*touch* 10a. vt. 1675 in drawing or painting, mark, draw, delineate [a detail of the work] by touching the surface with the pencil, brush, etc.)

In (184) the lines are brought into being by the surface of the paper being *touched*. *Touch* is therefore paraphrased analogously to all the other P/I verbs in this section, as 'x make/ create y by touching'.

The meanings above give rise to several postcategorial extensions in which the P/I verb expresses the creation of its object. The explanation for the use of P/I to express these meanings does not lie primarily in a metaphorical or a metonymic relation between the P/I scenario and the extended scenario, in which elements of one can be either mapped onto or related metonymically to elements of the other. Instead, the 'x make y' meaning found in the examples below represents the conventionalized establishment

of the 'x make y' component of the 'x make y by P/I' extensions in (171)–(184) above: this part of the meaning has now achieved a sufficient degree of autonomy to be independent of the original P/I context.

Smite in the following contexts refers to the production of an agreement between two parties:

(185) 1596: *Iehovah appeareth and smiteth a Covenant with him.*
(*smite* 19a. vt. 1325 make or contract [an agreement, etc.] = MED *smi:ten* 5 (e) vt. 1382)

S*mite*, accordingly, receives the reading 'x make y': this paraphrase, at least, describes the principle of interpretation that a hearer will have to adopt in order to understand the sentence properly. Many of the MED citations of this meaning occur in Bible passages in which the Latin expression involves a P/I verb (*ferire*, *percutere* 'strike', 'strike through'). There is thus an element of calquing to the origin of this extension, but this cannot be the whole story: the calqued idiom has to be readily interpretable by someone with no knowledge of the source language and thus at least compatible with the semantics of English, so an interpretation of the extension must be sought within English.

There is no obvious way to relate the process of forming an agreement or covenant to a P/I scenario metaphorically, and the rest of the clause in (185) reveals nothing about any possible metaphorical conceptualization of any of the arguments.[25] In the absence of any obvious metaphorical motivation, therefore, I suggest that this meaning of *smite* can be thought of as a postmetonymy based on the establishment of an 'x make y' meaning in the cases above, (171), (173) and (175), where *smite* was used to express the production of fire, coins and wounds, things which do involve real P/I in their creation. It is these contexts that lead to the 'by P/I' component of the 'x make y by P/I' metonym being dropped, opening the way for *smite* to be used where no actual P/I exists in the context.

The basis of the following uses of *strike* is the practice of 'striking hands', the expression used to denote two parties shaking hands in confirmation of an agreement:

(186) 1745: *Three things every tradesman ought to consider before he 'strikes hands with a stranger', that is, before he is bound for another.*

(*strike* 69 vt. 1440: to take one another by the hand in confirmation of a bargain [*strike hands*])

As defined in (186), the phrase *strike hands* can be considered as standing metonymically for the process of becoming contractually bound to another party, which the act of striking hands brings about or confirms. In the following expressions, we have an extrapolation from this structure in which a noun denoting the particular contract created by the hand-striking is substituted for the noun *hands*, so that the meaning of the P/I verb has to be paraphrased as 'x make y'; in modern English this sense has primarily survived in the phrase *to strike a bargain*/*deal*; the following citations illustrate both this and another now obsolete collocation:

(187) 1766: *As soon as the bargain is struck, the property of the goods is transferred to the vendee.*
(*strike* 70a. vt. 1544 settle, arrange the terms of, make and ratify [an agreement, etc.])

(188) 1544: *Yet he denyed not to stryke truce wyth hym.*
(*strike* 70a. vt. 1544 settle, arrange the terms of, make and ratify [an agreement, etc.])[26]

The verb can also be used to express the initial establishment of acquaintance between two people, which also involves a handshake:

(189) 1595: *If they can by any means strike acquaintance with him.*
(*strike* 70b. vt. obs. 1595 form [acquaintance] *with*)

Strike receives the reading 'x make y by P/I' since it is understood that the bargain, truce or acquaintance was brought into being as a result of the action named by the verb. Observe that the object of the P/I verb in these cases is not in fact the entity that undergoes P/I, since it is not the bargain, truce or acquaintance but the hands of the two parties which are struck together. There are thus two possible degrees of extension involved in arriving at the meanings in (187)–(189). In the first place, the noun describing the relationship activated by hand-striking is substituted for the word expressing the objects actually struck. The characterization of the verb's meaning here is 'x make y by P/I', but the grammatical object of the verb is not the same as the surface which undergoes P/I: the bargain, truce or ac-

quaintance is made by an act of P/I, as per the paraphrase, but by an act of P/I whose object surface is the hands of the participants. Secondly, the expression is used postmetonymically even where the act that brings this about is no longer conceived of as 'striking the hands', but as 'shaking' hands, an act that does not count linguistically as P/I (even if P/I can be imagined as sometimes involved in the initial contact between the two hands).

But there is more to be said on *strike truce/bargain/acquaintance*, etc., because different and additional postmetonymic motivations also play a part. The 'x make y' meaning of *strike* in (187)–(189) can be seen as a postmetonymy based on the 'x make y by P/I' metonymy of *strike* seen in (172), (178), (181) and (183) above. This original metonymy is then extended from cases where P/I is the means by which the object is brought into being to cases in which it is not. *Truce, bargain* and *acquaintance*, the objects of *strike* in the postmetonymic context, are all relatively abstract notions, naming not a concrete person, place or object, but a particular type of socially sanctioned relation holding between two people; as such, they are likely to receive a linguistic representation that treats them as though they were concrete things. This tendency explains why it is desirable for the nouns to receive non-abstract treatment; the particular kind of non-abstract treatment they are actually accorded (P/I vocabulary) can then be referenced to a postmetonymy from the above uses of *strike*. This postmetonymic relationship between the extension and the expressions in (187)–(189) is not the only factor we can adduce as motivation for the new meaning – there are already two other partial sources for the extension. But since the 'x make y' meaning under discussion here is already established in certain metonymies of *strike*, postmetonymic influence from these contexts would seem to be an important, though previously unacknowledged, factor. (The question of whether the existence of a given extension in other P/I verbs, like *smite*, makes it easier for different P/I verbs to assume or maintain an analogous meaning is not a topic I have investigated. Studies like Lehrer (1978), however, would suggest that this sort of lexical field effect certainly exists, and the issue is taken up again in section 5.3.1.)

5.2.6 Surface brought into being and made to move by P/I

In a large number of extensions, the object of the P/I is both brought into being and made to move as a result of the action of the verb, and these

combined cases of 'Surface brought into being by P/I' (5.2.5) and 'Motion induced in surface by P/I' (5.2.1) are numerous enough to warrant consideration as a separate category. In the following examples, neither the *stage* nor the *heat* existed before the P/I created them, and their creation involved their undergoing motion:

(190) 1596: *Who strooke this heate vp after I was gone?*
(*strike* 87h. vt. obs. 1596 cause [heat, light] to spring up [*strike up*])

(191) 1893: *A temporary stage has been roughly knocked together.*
(*knock* 16c. vt. 1874 put together, construct hastily [*knock together*])

In (190) the flame moves *up* from the surface on which it is kindled, and in (191) the building of the stage is conceptualized as the coming together of its constituent parts as the result of a knocking action. (190) therefore receives the paraphrase 'x make y and make y move *up* by striking' and (191) is glossed as 'x make y and make y move *together* by knocking'.

In (192) a path is seen as being created by the P/I event and moving *out* from the agent as a result, giving the paraphrase 'x make y and make y move *out* by P/I':

(192) 1892: *I tried to strike out a course in the world for myself.*
(*strike* 83f. vt. 1712 open up, make for oneself [path, course, line] [*strike out*])

(193) illustrates the difference that the addition of a motion component makes to the 'x make y by P/I' metonymy of the verb:

(193) 1672: *Sometimes beating out new untravell'd ways, sometimes repairing those that had been beaten already.*
(*beat* 39a. vt. 1672 trace out a path by treading it first, lead the way [*beat out*])

In the first occurrence of *beat*, a path is being made for the first time, and the particle *out* expresses that it progressively increases in extent *out* from the agent in the direction of movement: this occurrence is therefore analyzed as 'x make y and make y move *out* by *beating*'. Contrastingly, the second occurrence of the verb, which lacks *out*, expresses the fact that the

path has already been built, and there is no focus on the process of its gradual completion – this is simply 'x make y by beating'. The first *beat* contrasts with (179) in 5.2.5 above (1590: *Master Gascoigne .. who first beate the path to that perfection*), in that that example only refers to the creation of a path, without any component of induced motion present in the verb: its analysis was therefore simply 'x make y by *beating*'.

(194) is a metaphor in which a plan, means or device is treated as a *way*:

(194) 1735: *But might not a third way be struck out founded upon your Idea of Security for the Succession of Tuscany?*
(*strike* 83d. vt. 1735 produce by a stroke of invention [plan, scheme, fashion] [*strike out*])

A plan is a means of achieving a particular result; a way is a means of reaching a particular destination: in both cases there is a choice between different options, some of which will be more 'direct' than others. Paths are thus highly suitable as the metaphorical vehicle for these concepts, and are frequently used as basic schemas in metaphors (Lakoff and Johnson 1980). In (194), therefore, a *way* is seen as being 'made by striking'; the presence of *out*, however, with its strong directional force, necessitates the simultaneous analysis of *struck out* as 'made to move *out* by *striking*', so that the extension combines these two different sorts of effect on the object surface.

Knock combines with *out* in the following metaphorical applications of the 'x make y and make y move by P/I' extension; in (196) it is only the second occurrence of *knock* which is relevant: the first, *knock down*, simply receives the paraphrase 'x make y move *down* by knocking' and there is no sense in which the object is created by P/I:

(195) 1856: *We may knock out a series of descriptions .. without much trouble.*
(*knock* 14e. vt. 1856 make roughly or hastily [*knock out*])

(196) 1929: *She and Humphrey rented a cottage in Westport ... where authors who knocked down $3,000 for knocking out a short story of 5,000 words, built such magnificent houses.*
(*knock* 10l. vt. 1929 earn, get paid [*knock down*])

The series of descriptions and the short story are both produced by the P/I act of *knocking*: it is as though they are both three-dimensional objects

which can be manipulated by forceful physical means (if (196) refers to a typewriter then the story really is produced by 'knocking' in the impact of fingers on keyboard, and no metaphor is involved). The objects of the P/I are also made to move *out*: *knock out* envisions a situation where the object to be created is located *inside* something from which it must be forcefully extracted by being *knocked* in the direction of the agent. The metaphor at work here is that previously the objects were *in* a position of inaccessibility or concealment *out* of which they are drawn as a result of the P/I.

In a number of extensions a possible metaphorical connection between P/I and the target meaning is either extremely weak or missing entirely, in that it is hard to specify exactly what elements of the P/I scenario are being mapped onto the new meaning. *Strike* in (8) seems to mean 'x make y and make y move *up* by striking', but any metaphorical considerations that might motivate the use of P/I vocabulary to describe starting singing are very hard to come by (this example was discussed as part of the introduction of the concept of postmetonymy in the previous chapter):

(197) 1890: *The enthusiastic Greeks strike up a chant.*
(*strike* 87c. vt. 1562 begin to play or sing [*strike up*])

There is no actual P/I involved in chanting, nor is it easy to see what aspects of starting to chant might be being likened to P/I: the two scenes are structurally rather incompatible, in that nothing in starting to chant words or music would seem to be easily brought into correspondence with the action of an impactor striking a surface. Likewise, the action of playing a stringed instrument, as in (198), does not involve P/I, or only involves it very marginally, again leaving the use of *strike* somewhat unmotivated:

(198) 1599: *I spent three spur roials on the fidlers for striking up a fresh hornepipe.*
(*strike* 87c. vt. 1562 begin to play or sing [*strike up*])

Playing the violin involves mainly a rubbing action in which the bow is drawn across the strings in a continuous action (the bow is occasionally brought into more forceful contact with the strings in a way which could be described as P/I, but, like the plucking actions which are also occasionally involved, this is the minority case). We may be dealing here, in addition, with a remnant of the earlier sense of *strike* 'go over lightly with an instrument, the hand' (OED 3a. vt.).[27]

Similarly, the use of *strike up* in (199), paraphrased 'x make y and make y move *up'* is also hard to conceive of metaphorically:

(199) 1711: *We have struck up a mighty friendship.*
(*strike* 87e. vt. 1711 start, set afoot [a friendship, acquaintance, conversation, trade, etc. *with* someone] [*strike up*])

All these instances can be analyzed as postmetonymies based on cases where the object actually is brought into being by a striking action. Accordingly, the metonymic basis of extensions like (197) and (198) could be provided by contexts like the following, where the sound created really is the product of a P/I event:

(200) 1562-75: *With a pot of good nale they stroake vp theyr plauditie.*
(*strike* 87c. vt. 1562 begin to play or sing [*strike up*]; *plauditie*: round of applause)

(201) 1567: *That when the Epilogue is done we may with frank intent…stryke vp our plausible assente.*)
(*strike* 87c. vt. 1562 begin to play or sing [*strike up*])

Usages like this establish the possibility of *strike up* being used to convey the bringing into being of sound, in these cases the applause at the end of a performance (which is 'made to move up by striking'); in the postmetonymic occurrences the verb is extended to cover situations where there was no initial P/I event.

Another metaphorical or postmetonymic appearance of *strike* is found in (202):

(202) 1859: *He'd strike out a new scheme, and say carelessly, 'Call the capital one million'.*
(*strike* 83d. vt. 1735 produce by a stroke of invention [plan, scheme, fashion] [*strike out*])

This is open to a variety of interpretations. It could be taken as a simple metaphor in which a scheme is seen as an object that needs to be 'brought into being and made to move by *striking*' out from a position of inaccessibility into one of accessibility. But such an analysis leaves a question unanswered: why choose *strike* as the verb to express this? If this question is

taken to need an answer, the appearance of *strike* could be explained as a postmetaphor based on the use of *strike* in (194) above, reproduced as (203):

(203) 1735: *But might not a third way be struck out founded upon your Idea of Security for the Succession of Tuscany?*
(*strike* 83d. vt. 1735 produce by a stroke of invention [plan, scheme, fashion] [*strike out*])

As discussed above, *way* is a metaphor for 'plan, device, means', and (194)/(203) was analyzed as 'x make y and make y move *out* by *striking*'. The present use of *strike* with *scheme*, therefore, consists in a word denoting the metaphorical target (*scheme*) being substituted for the metaphorical vehicle (*way*), which means that the coherence of the metaphor is destroyed because there is no longer sufficient motivation for the choice of *strike* as the appropriate verb, and interpretation of *strike out* has to be dependent on the meaning 'x make y and make y move by P/I', which has been established already in genuinely metaphorical environments.

5.3 Context metonymies: metonymic extensions to the context in which the action of the verb occurs

In the extensions discussed in this section, the extended meaning of the P/I verb derives from the broader event 'frame' in which the P/I figures. To reach an adequate appreciation of the P/I verb's meaning, the hearer has to import into their understanding of the verb knowledge of the context in which the P/I occurs. This knowledge allows them to interpret the verb as referring to more than simply P/I, but to P/I understood as part of a more particular event frame. Metonymic extension to the context of P/I may thus be thought of as the verbal equivalent of *meronymy*, the lexical relation of part to whole (cf. Cruse 1986: chapter 7): just as *finger* is a meronym of *hand*, so is *strike* a meronym of *fight*. Acts of striking are just one of the components that make up the act of fighting (among the many other elements are those of tactics, evasive manoeuvres, animosity, etc), but their centrality to the idea of a fight motivates an extension (citation (225) in 5.3.4 below) by which they come to signify the entire process.

It may be thought that 'metonymic extension to the context in which the action of the verb occurs' is too general and unconstrained a category to

have any genuine explanatory value for the phenomena. In fact, however, this is not an 'elsewhere category' into which a large number of unrelated extensions are relegated, as testified by the small number of extensions discussed in this section as opposed to the others. Only four contexts can be discerned into which P/I vocabulary is extended through this means:

5.3.1 Motion as context for P/I
5.3.2 Sexual Intercourse as context for P/I
5.3.3 Music as context for P/I
5.3.4 Attacking/fighting/hostile encounter as context for P/I

As in 5.2, the extensions here can sometimes be thought of as naming the intent of an agent of P/I; unlike in 5.2, however, the new meaning cannot simply be understood as the effect of the P/I, and more information than this has to be assumed in order to reach the extended meaning.

5.3.1 Motion as context for P/I

Given that motion may involve forceful contact between the body in motion and the surface over which the motion takes place, P/I verbs may express the meaning paraphrased as 'x move (around in/on y)'. Typically, P/I is envisaged as occurring between the feet and the ground, as in (204); in (205) and (206) the P/I is not specifically localized and the entire moving body is conceived of as impactor:

(204) 1718: *Their trampling feet Beat the loose sands.*
(*beat* 3a. vt. 1000 said of the action of the feet [beat the streets, beat a path], hence open up, prepare a way.)

(205) 1587: *And as enamored wights are wont, He gan the streetes to beate.*
(*beat* 3a. vt. 1000 said of the action of the feet [beat the streets, beat a path], hence open up, prepare a way.)

(206) OE:

Se	*mearh*	*burhstede*	*beateth.*
the	steed	castle place	tramps

'The steed tramps the castle place'.
(Bosworth and Toller [1973: *beatan*])

The hearer of these sentences understands more than that the object of the verb is affected by P/I: the meaning 'x move around in/on y' derives from the fact that we can contextualize the P/I as part of a movement event. Movement is not the effect of the core meaning of the P/I, as in the extensions of 5.2.1: *beat the streets* could just signify someone hitting the streets with some impactor instrument, with no movement in question. Instead, in order to understand that the subject is moving around the streets, it has to be realized that the particular kind of beating involved is the sort that occurs between feet and ground *in the context of moving or walking*.

Similarly, *stamp* in (207) has to be understood as the sort of stamping that occurs when one is walking or marching, especially on swampy ground: in its core use, the verb does not necessarily convey movement in the subject, since stamping is typically thought of as something that happens on a single spot:

(207) 1523: *Yonder men of armes .. haue all this laste day traueyled, and all this nyght stamped in the myre.*
(*stamp* 2e. vi. 1489 walk with a heavy tread, walk noisily or laboriously, tramp.)

Stamped in the myre in this citation simply receives the paraphrase 'moved in the mire'.

In (208), the particular type of P/I is named as *slapping*, an activity usually associated with hands rather than feet and therefore not typically part of the context of motion.

(208) 1827: *Always slap along at a desperate rate through the streets.*
(*slap* 7. vi. 1827 move or walk quickly)

Because slapping has no obvious connection to movement, this extension of the verb, paraphrased simply as 'move', should be seen as a postmetonymy, but one where the extended meaning has been conventionalized not on the basis of its occurrence in a genuine metonymy of the same verb, but

on the basis of other P/I verbs which establish a connection between P/I and motion grounded in the actual nature of the events (cf. the discussion of a similar possible interaction between *strike* and *smite* in 5.2.5). *Slap* then represents the choice of a different P/I verb which cannot be related to a motion context in the same way as other P/I verbs can. (Another factor behind this extension of *slap* might be the noise associated with an act of slapping, which could be treated as similar to the noise made while walking.)

The P/I present in movement is not always that between the feet and the ground. Movement on water is often described as *beating*, with P/I taking place between the ship and the waves or the wind. In (209) the part of the ship that is impactor, the hull, is specified, and motion is independently signalled by *came*. In (210) and (211), by contrast, the details of which part of the ship undergoes P/I are left tacit, and *beat* is the only motion verb:

(209) 1837: *The hull of a small schooner came beating down towards us.*
(*beat* 19a. vi. 1677 nautical: strive against contrary winds or currents at sea, make headway against wind)

(210) 1841: *The transports .. should beat in as near as possible to the shore.*
(*beat* 19a. vi. 1677 nautical: strive against contrary winds or currents at sea, make headway against wind)

(211) 1840: *We .. hove up our anchor, and began beating down the bay.*
(*beat* 19a. vi. 1677 nautical: strive against contrary winds or currents at sea, make headway against wind)

The definition's specification of this meaning as involving movement against an opposing force shows how the P/I thereby created is a salient part of the situation of motion.

Slam lacks (or only marginally possesses) a basic P/I meaning in which agent and impactor are differentiated (*/?*He slammed me with his fist*). It does, however, show meanings where they are identical (*He slammed into the wall*), so that movement is typically conveyed by this verb:

(212) 1976: *The lifeboat was now slamming through the choppy two and three foot high waves at over twenty knots.*
(*slam* 6 vi. 1973 move violently, crash)

In the following citation of *slam*, P/I takes place as a result of the impactor moving violently around a room:

(213) 1973: *Rosa .. savagely slamming around the kitchen*.
(*slam* 6 vi. 1973 move violently, crash)

We understand that Rosa is *slamming* into things in the kitchen, but that she is doing so in the context of moving: *slam* therefore denotes both P/I and the fact of motion – that the latter is the highlighted element of the verb's meaning in (213) is suggested by the lack of any mention of an object surface against which P/I is taking place.

The connection between *beat* in (214) and motion is found in the P/I between the animal's body and stream water:

(214) 1727-51: *The buck will beat a brook, but seldom a great river, as the hart.*
(*beat* 20 vt./vi. 1470 venery: run hither and thither in attempting to escape)

This may have an intransitive variant, as in the following example (which, as a definition, is rather less authentic than one might wish):

(215) 1815: Beating*, with hunters, a term used of a stag, which runs first one way and then another. It is then said to beat up and down.*
(*beat* 20 vi. 1470 venery: run hither and thither in attempting to escape)

In both cases the paraphrase of *beat* contains the meaning 'move'.

5.3.2 Sexual intercourse as context for P/I

P/I vocabulary is sometimes used to express sexual intercourse, which can be seen as involving forceful contact between two bodies. This extension may also involve a metaphorical element, based on the deleterious effect of P/I on its object (heterosexual intercourse is treated as something damaging to the woman, and thus as analogous to an act of P/I):

(216) 1967: *I've knocked some girls in my time …*
(*knock* 2d. vt. 1598 to copulate with, make pregnant)

Knock occurs in this meaning in two phrasal elaborations, *knock off* and *knock up*, which I will not comment on further:

(217) 1965: *Do you think that young twit Wilkinson is knocking her off?*
(*knock* 12l. vt. 1952 copulate with, seduce [*knock off*])

(218) 1925: *Hell, no girls get married around here till they're knocked up.*
(*knock* 18j. vt. 1813 make pregnant, hence have intercourse with [*knock up*])

Touch also shows the same extension, as in the following example:

(219) 13--: *the womman that neuer touchid man, How sal scho conceyue?*
(*touch* 2a. vt. 13-- have sexual contact with)

At stake here is not just any kind of touching, but only that type that occurs in the context of sexual intercourse.

5.3.3 Music as context for P/I

The use of P/I verbs to express the playing of instruments is based on cases like (220) in which the object of the verb is that part of the instrument which undergoes P/I or an action very like it in the ordinary course of playing:

(220) 1384: *Eke whan men harpe strynges smyte…*
(*smite* 3c. vt. 1384 strike/touch to make musical sounds)

This is not an extended use of the verb, since the strings of the harp really are the objects of a P/I event.

Often, however, as in (221) and the first occurrence of the verb in (222), we find the P/I verb taking as its object the instrument as a whole (these

examples are to be distinguished from the extensions of 5.2.6, like *strike up* (a song, piece of music):

(221) 1847: *A maid ... smote her harp, and sang.*
(*smite* 3c. vt. 1384 strike/touch to make musical sounds)

(222) 1594: *He that striketh an instrument with skill, may cause notwithstanding a verie vnpleasant sound, if the string whereon he striketh chaunce to be vncapable of harmonie.*
(*strike* 29d. vt. 1565 touch a string to make a note)

These cases are, at the least, closely related to the core P/I sense of the verb. As discussed in chapter three, whether or not they are to be considered as identical to this core sense is a question which is only meaningfully answered by attending to the definitions or paraphrases of the senses involved. From one point of view the P/I verbs in (221) and (222) can be paraphrased 'play' and constitute an extension of the verbs' meaning, because in order to interpret them correctly the hearer has to understand that the instrument as a whole is not simply the undergoer of a generalized P/I event, but that a particular part of the instrument is being subjected to P/I in a particular way. It is the placement of the verbs within the context of the production of music that allows this interpretation to be achieved, with the information that produces the correct understanding of the verb being supplied from the context in which the verb occurs. The same is true for *touch* in (223): the hearer understands that the instruments are not just being touched in an indiscriminate way, but in the way that will make them sound:

(223) 1484: *A fyssher .. somtyme touched his bagpype nyhe the Ryuer for to make the fysshe to daunce.*
(*touch* 9a. vt. 1470 strike strings, keys, etc. of a musical instrument so as to make it sound; play a few notes on, sound)

(224) 1633: *I'll touch my horn (Severino blows his horn): they know my call.*
(*touch* 9a. vt. 1470 strike strings, keys, etc. of a musical instrument so as to make it sound; play a few notes on, sound)

From another point of view, however, (221) and (222) are simply examples of the basic sense of *strike* and *smite* in a specific context, and do not need to receive any different paraphrase from that given to core occurrences of each verb. The information that the contact between player and instrument is not an indiscriminate type of P/I, but the particular sort of P/I found in the playing of music is certainly supplied by the context but does not alter the characterization of the verbal action as P/I or the paraphrase of the verbs' meaning.

5.3.4 Attacking/fighting/hostile encounter as context for P/I

Sentence (225) below represents the most straightforward example of this extension: *strike* conveys not only P/I events as such but also all the other activities that go on in a battle. Acts of P/I are of course central to this frame, and it is their prototypical character in this situation that allows them to stand for the fighting context as a whole. Thus, *strike* in (225) is paraphrased as 'fight':

(225) 1601: *His present gift Shall furnish me to those Italian fields Where noble fellowes strike*.
(*strike* 35a. vi. 1579 to use one's weapons: to fight)

Smite also appears with a similar meaning, except that it is always found in the citations with the word for 'battle' as its (cognate) object (cf. *fight a battle*):

(226) 1600: *[He] smit a brave and fortunate battaile with the Vaccei*.
(*smite* 17b. vt. obs. 1297 to engage in or fight [a battle])

This extension is equally open to analysis as 'x make y by P/I': the battle is brought into being as a result of the action of *smiting*.

Touch is found in a similar extension. In the following example it can be paraphrased as 'arrest'. Physical contact between two people constitutes a central part of the process of arresting a person: in this extension, therefore, the verb that expresses this central part is extended so that it denotes the wider context in which the 'touching' occurs:

(227) 1791: *Knock [at his door], and when he comes out touch him.*
(*touch* 16c. vt. obs. 1791 arrest)

5.4 Constituent metonymies: metonymic extension by selection of a constituent of the verbal event

The nature of a typical P/I event has been described with reference to an idealized scenario, outlined in section three of the previous chapter. The purpose of this section is to present, analyze and discuss the final category of polysemous meanings, which arise through the selection of a particular subpart of this scenario (the motion inherent in any act of P/I) as the verb's extended meaning. This means of extension thus differs in a significant way from the two previous types of metonymy discussed, effect and context metonymies. These operate by incorporating extra information into the meaning of the verb; in constituent metonymies, by contrast, the basic P/I meaning is restricted so that only certain parts of it apply. To this extent, therefore, 'extension' is a misnomer. (Dik 1977 is a discussion of a distinct but similar type of change, mainly for nominals; Geeraerts 1994 and 1997: 68-79 show how such 'inductive generalization' characterizes not only metonymy, but metaphor, specialization and generalization as well.)

One possible way to interpret this category of polysemous meaning would be as an instance of metonymic narrowing, in that verbs which denote the P/I scenario in its entirety are specialized to a restricted reference to only part of it. A description of this semantic change as simple narrowing would be misleading, however, because the extended meaning does not just apply to percussion/impact events: since the constituents of a P/I event have to be described in terms of much more general events necessary to the description of many event types, like *motion* and *contact*, the extensions to these domains can then refer to a wide variety of other events which also incorporate these highly general components. (In this respect the label 'extension' is appropriate.) For example, a P/I term whose meaning is narrowed to convey only the motion inherent in an impact event will be applicable to any event that can be expressed as motion, not just P/I ones. There is thus an inherent similarity between this type of extension and the metaphorical applications of P/I vocabulary discussed in 5.1, since in both types P/I or a part of the P/I scenario is predicated of events which have no necessary P/I involved in them.

5.4.1 The basic extension

This section discusses two types of motion. The first type, seen only in (228), is the movement of a bodypart by an agent. This meaning does not entail any motion on the part of the agent as a whole. The second type is that in which the agent as a whole does undergo motion, as in (231), (232) and the subsequent examples. In both cases the P/I verb can be paraphrased as 'x move': in many instances a paraphrase 'x move quickly' is appropriate, reflecting the prominence of speed in the P/I scenario. (In this section I will usually let the dictionary definition stand as an adequate representation of the meaning of the verb; in all cases, however, the essential component of a paraphrase would be 'x move'.)

The following citation of *thrash* makes explicit the process of extension by metonymic selection of the motion constituent of the P/I event:

(228) 1875: *He [a preacher] thrashed with his arms, as though he were about to strike.*
(*thrash* 8 vi. 1846 make wild movements like those of a flail or a whip; to lash out)

This extended meaning of the verb differs from the core P/I sense of *thrash* (as in *he thrashed them with the cane*) by not entailing any contact with an object surface (this semantic characteristic is reflected in the verb's intransitivity): the object surface that usually needs to be assumed in a description of the meaning of *thrash* is simply not present, since in the situation described in (228) nothing is being struck. Instead, the verb factors out the object surface from the scenario to which it refers, focusing only on the similarity of arm movement between the present act and the act of P/I: this movement is the constituent of the P/I event selected as the new meaning. The citation brings out very clearly that the motion of the arm is being conceived of from the perspective of an P/I event, by making this overt in the clause *as though he were about to strike*, which contextualizes the scene by comparison to a P/I event.

The status of (228) as a constituent metonymy selecting the motion component of the P/I event was made obvious by the overt contextual mention of the P/I event in the *as though* clause. The other examples in this section do not usually give such overt prominence to the original P/I scene. But since the selection of the motion constituent entails the backgrounding of the object surface of the original P/I scenario, this will often turn up

elsewhere in the clause, typically as a prepositional phrase after the now intransitive verb. This is found in (229) (the reader is referred back to section 2 for a discussion of some relevant aspects of the documentation of *hit*):

(229) 1400: *The fayre hede fro the halce hit to the erthe.*
(MED *hitten* 4 (b) vi. 1400 fall or come down; *halce*: 'neck')

We understand that the head does in fact *hit the earth* (cf. OED *hit* 3 1375): this is the basic meaning of *hit* from which (229) is an extension (this and the other examples in this section also differ from (228) in having the 'impactor' as subject of the verb). But the verb's intransitivity and the presence of the preposition *to* signal that its meaning has changed in a way which a comparison with the structure in (230) makes clear:

(230) *The head [from the neck] hit the earth*.

By making *hit* intransitive, *to* selects the motion inherent in the P/I scenario as the new meaning of the verb and removes the object surface from the scenario it directly expresses (note that the object surface is still present in (229) by virtue of the prepositional phrase *to the erthe*, but not as the grammatical object of the verb). The intransitivity and the coding of the object surface as a prepositional phrase are the typical syntactic manifestations of this semantic extension.

In the following citations, the object surface is expressed in the *(in)to* phrase. The meaning of this preposition establishes that contact occurs between impactor and object surface, and choice of the verbs *hit* and *smite* specifies that the contact is to be thought of as P/I:

(231) 1300: *To-gadere huy smiten to grounde And foughten.*
(MED *smi:ten* 9 (b) vi. 1225 go quickly, rush)

(232) 1400-50: *He sall hit with his hede in-to the heghe est.*
(*hit* 19a. vi. 13-- direct one's course, be directed, pass, turn, 'strike out in' a particular direction)

(233) 1225: *Ase swifte .. ase is the sunne gleam, thet smit from east into the west.*
(*smite* 24. vi. obs. 1220 shoot or move rapidly, dart, rush)

The intransitive frame in which the verb appears means that the object surface is removed from the P/I scenario, necessitating a description of *hit* and *smite* as verbs of motion, with the motion arising as the constituent of the P/I scenario that remains when the object surface is lost.

(234) can be seen as a metaphorical application of exactly the same means of extension:

(234) 1639: *Hee doubted no more of that truth which strooke into his eyes.*
(*strike* 51a. vi 1639 move quickly, dart, shoot)

Truth is seen as an object in motion which undergoes P/I with the object surface (perhaps sunlight is specifically being imagined as the metaphorical model for this situation), but the verb highlights the motion involved rather than the fact of impact.

In (235), 'mirth' is treated as though it were a place which one can enter and leave:

(235) 13--: *With smothe smylyng & smolt thay smeten in-to merthe.*
(*smite* 26 vt. 1305 change pass fall *into* something (*smite in(to)*); *smothe* 'gentle'; *smolt* 'mild'))

The object surface in the following citation is rather less prominent:

(236) 1290: *Whane the wynd and that fuyr smiteth thorugh the watur-cloude.*
(*smite* 25a. vi. 1290 strike, pass, or penetrate *in(to), through* something)

A metaphorical example of the same situation appears as (237):

(237) 1386: *The deeth he feeleth thurgh his herte smyte*.
(*smite* 25a. vi. 1290 strike, pass, or penetrate *in(to), through* something)

In (236), the wind and fire strike the rain cloud, but since *through* expresses the motion of a trajector into and out of a landmark, without specifying what the final destination of the motion is, the scenario lacks an object surface as such. The same lack of an object surface occurs in (237), where

death is treated as an impactor. These examples of *smite* are thus at some remove from the motivating P/I scenario since the object surface is not present anywhere in the clause: to this extent, therefore, they can be considered postmetonymies (in (237) in a metaphorical application) whose explanation rests on other metonymic contexts more closely related to the source P/I scenario.

The examples with *through* both specified an object surface which was affected by P/I, even if this could not in fact be considered as the original object surface of the P/I event. In the following cases, the postmetonymic character of the extension is even more pronounced, because there is no participant conceived of as the object surface in a P/I event:

(238) 1855: *Upward the growing twilight strikes …*
(*strike* 51a. vi. 1639 move quickly, dart, shoot)

(239) 1857: *Just then a squall struck up.*
(*strike* 87i. vi.1711 rise up quickly, dart or spring up)

(240) 1719: *A sudden pain .. struck across my heart.*
(*strike* 51a. vi. 1639 move quickly, dart, shoot)

In (238) and (239) there is simply a directional expression signifying the orientation of the movement, which has no explicit goal. In (240), which is a metaphorical application of the same extension in which pain is conceptualized as an individuated trajector, the landmark with which it is oriented, *my heart*, specifies only a domain in relation to which the action takes place, without including any information about the eventual object surface: the pain goes *across my heart*, but we are not told what it eventually strikes (note that *the pain struck across my heart* does not entail *the pain struck my heart*: in the former, *my heart* is not direct object of *strike* and is therefore not understood as so directly affected by the action of the verb (Hopper and Thompson 1980), whereas in the latter it is). The use of *strike* in this context is plainly postmetonymic.

5.4.2 Animate actors: the Instrument Subject Alternation

The interrelation between motion and P/I can be seen in (241)–(242) below, which are instances of the core P/I meaning of the verbs in which the agent

and the impactor are the same entity (B. Levin's 1993: 149 'Instrument Subject Alternation'). Examples in the previous section have also showed this conflation, but the ones about to be discussed differ in exclusively involving animate participants, usually people. *Hit* is the verb that most typically occurs in this meaning. The prototypical instances are the following:

(241) 1700: *With an Elligar .. that sticks in the Fish it hits*.
(*hit* 3 vt. 1375 of a missile or moving body: come upon with forcible impact; to strike)

(242) 1530: *I went darkeling and dyd hytte agaynst a doore*.
(*hit* 4 vi. 1400 come with forcible impact [*against*, *upon*, etc.])

Structures like these in which the impactor is the entire trajector have metaphorical applications in which directed motion is treated as P/I (some of these cases were discussed as examples of the metaphor 'arrival at a location is P/I' in 5.1.6):

(243) 1948: *Go down this corridor, up the stairway at the end, straight on until you hit the second court.*
(*hit* 11 vt. 1075 come upon, light upon, meet with, get at, reach, find)

(244) 1704: *The Entrance is so difficult to hit.*
(*hit* 11 vt. 1075 come upon, light upon, meet with, get at, reach, find)

(245) 1932: *We hit this town last night for the first time.*
(*hit* 11 vt. 1075 come upon, light upon, meet with, get at, reach, find)

In these structures no P/I takes place; instead, the use of P/I verbs allows the motion to be treated as similar to that of an impactor onto a target. In some contexts there may be actual P/I between the body in motion – or, in (246) a vessel which contains the body in motion – and the object surface:

(246) 1797: *From the darkness of the night I did not immediately hit the Mole, the spot appointed to land at.*
(*hit* 11 vt. 1075 come upon, light upon, meet with, get at, reach, find)

Strike also appears in this meaning:

(247) 1808: *In about five miles we struck a beautiful hill, which bears south on the prairie*.
(*strike* 68 vt. 1798 come upon, reach in travelling)

The above examples show that this use of P/I vocabulary is particularly found where the motion is towards an intended destination; arrival at this destination is treated metaphorically as a particular subtype of P/I, that undergone by an impactor against a surface at which it has been aimed. In contrast, a different image expresses undirected, random movement:

(248) 1929: *He had knocked about all over the Pacific …*
(*knock* 7b. vi. 1833 move about, wander, roam, in an irregular way; also to lead an irregular life [*knock about*][28])

Here the entity in motion can be imagined as an impactor randomly striking against the sides of a container.

The metaphorical and non-metaphorical contexts in (241)–(247) form the basis of an extension in which the P/I verb conveys only a subpart of this event, the motion undergone by the impactor, with the goal towards which the motion is directed being expressed by a prepositional phrase:

(249) 1916: *When I hit for the land of orange blossoms and singing birds and sunshine.*
(*hit* 19a. vi. 13-- direct one's course, be directed, pass, turn…in a particular direction)

Without the preposition, we have a use of *hit* identical to that in (241)–(248) above:

(250) *When I hit the land of orange blossoms and singing birds and sunshine.*

The presence in (249) of *for* means that the object surface is no longer directly governed solely by the verb but is also governed by the preposition. This syntactic fact reflects the semantic one that the object surface has been removed from the scene directly signified by the verb.

5.4.3 Extensions of strike *and* smite

The rest of this section will be devoted to the P/I verbs most frequently found in such motion extensions, *strike* and *smite*, as in the following citations:

(251) 1481: *Thyse thre smote in emong the .xxx. turkes.*
(*smite* 24 vi. obs. 1220 shoot or move rapidly, dart, rush)

(252) 1681: *We left the Road, and struck into the Woods.*
(*strike* 2a. vi. 1615 proceed in a new direction, make an excursion, turn in one's journey *across, down, over, into, to,* etc.)

Metaphorical applications of the extension of *strike* are frequently encountered, as in the following examples:

(253) 1892: *Its editor has therefore been able to strike in in great problems .. with an effect almost unexampled in journalism.*
(*strike* 81e. vi. 1715 interpose actively in an affair, a contention, quarrel, etc. [*strike in*])

(254) 1674: *Atheism .. has struck on a sudden into such reputation, that it scorns any longer to sculk.*
(*strike* 51b. vi. 1674: pass suddenly, burst *into* [a condition])

In (253) problems are treated as a place which a person may enter (*strike in in*); in (254) a reputation is likewise seen as a place (cf. *in good repute*).

The motion sense of *strike* is already well established in Old English, and is also found elsewhere in Germanic. The origins of the extension are thus lost within proto-Germanic prehistory and I will not attempt to investigate them further.[29] This section will conclude with a discussion of *smite*: both the P/I and motion senses developed first in Middle English, and the

abundance of citations in the lexicographical sources allows for close examination of the process of extension.

The inherent connection between motion and P/I is revealed in cases like (255)–(257) where the impactor is subject of *smite* (cf. (251) above):

(255) 1390: *His Arwes .. smat Riht on the Olde Mon ther he sat.*
(MED *smi:ten* 2 (f) vt. 1390 pierce, wound [*smi:ten on*])

(256) 1817: *The old man took the oars, and soon the bark Smote on the beach*.
(*smite* 23b. vi. 1275: come *together* with some degree of force; strike or dash *on* or *against* something.)

(257) 1535: *His knees smote one agaynst the other.*
(*smite* 23b. vi. 1275: come *together* with some degree of force; strike or dash *on* or *against* something.)

In examples like this it is clear that P/I occurs as the final stage of the motion undergone by the impactor. When the verb is paired with *at*, a conative meaning results, which has precisely the effect of factoring out contact with the object surface as part of the meaning of the verb, leaving only the motion component of the P/I event:

(258) 1398: *The been that assayleth spareth hem that fauoureth hem and smyteth nought at hem.*
(MED *smi:ten* 9 (d) vt. 1225 rush at, attack [*smi:ten at*])

At is not the only preposition which selects the motion component of the P/I event. Comparison of (259) with (260) and (261) shows how the addition of (*down*) *into/in to* has the same effect (note that *down* does not necessarily express motion independently, though *into* does: cf. 5.2.1.1):

(259) 1400: *Smoke & smolder smyteth his eyen Til he be blerenyed or blynde.*
(MED *smi:ten* 3 (b) vt. 1230 afflict; *blerenyed*: 'bleary-eyed')

(260) 1450: *That smoke may noght abyde in the hede but smytith downe into the herte & grevith the hert.*
(MED *smi:ten* 9 (a) vi. 1300 go, move)

(261) 1484: *A man schul .. than sytte on a sete vndyr qwyche ther is sette a vessel with rose watyr made warme, that the fumys may smyght in to the body be ascencion.*
(MED *smi:ten* 9 (a) vi. 1300 go, move; *be ascencion*: 'by vaporization')

The motion sense of *smite* is also found with the preposition *in*, when this has a directional rather than a simply stative force:

(262) 1400: *The smoke and the smolder that smyt in owre eyghen.*
(MED *smi:ten* 9 (a) vi. 1300 go, move)

The following instances of *smite* instantiate a metaphor in which emotions and similar mental events are treated as impactors on the surface of consciousness, just as in (29) and (30) of 5.1.2. The metaphor is made explicit in the *as(e)* clauses of (263)–(264):

(263) 1230: *The stiche of sari sorhe .. ase threo speren smat him to the heorte.*
'The pain of sorry sadness as three spears smote him to the heart'
(MED *smi:ten* 2 (e) vt. 1225 affect the senses, touch [the heart])

(264) 1400: *In his sely soule he was pyned thre folde; that smott hym to the hert as a spere.*
'In his wretched soul he was tortured three-fold; that smote him to the heart as a spear'
(MED *smi:ten* 2 (e) vt. 1225 affect the senses, touch [the heart])

(265) is an elliptical version of the same metaphor:

(265) 1382: *The herte of olofernes is smyten .. he was brennynge in the lust of hir.*
(MED *smi:ten* 2 (e) vt. 1225 affect the senses, touch [the heart]; *brennynge*: 'burning')

The hearer understands that the impactor understood as agent of the smiting is an emotion or the source/object of an emotion in Holofernes. In the present typology, the above examples (263)–(265) do not count as extensions of *smite*, but as examples of the standard P/I meaning in metaphorical ap-

plication. The next examples *are* extensions from this basic structure in which the motion is selected as the main meaning of the verb (in (267) the idea of motion is reinforced by the verb *cumth*). Note that the P/I meaning is still salient, since *smite* in these sentences also expressed the painful character of the event, pain often being associated with the basic P/I scenario:

(266) 1330: *Swich sorewe schal to him smite that neuer blighe schal he be.*
(MED *smi:ten* 2 (e) vt. 1225 affect the senses, touch [the heart]; *smi:ten to*: 'pierce, pierce to')

(267) 1225: *If hitt [desire] cumth ofte smitende to thin hierte, wite thu to sothe that hit is of dieule.*
'If it comes often smiting to your heart, know you for certain that it is of the devil'
(MED *smi:ten* 2 (e) vt. 1225 affect the senses, touch [the heart]; *smi:ten to*: 'pierce, pierce to')

(268) 1450: *Your swemynge smytyht to myn hert depe.*
'Your grief smites to my heart deep'.
(*smite* 25b. vi. obs. 1300 give pain *to* one's heart[30])

(269) 1475: *If thou falle bi freelte .. hit schal smite vpon thin herte scharpli ase a prikil.*
(MED *smi:ten* 2 (e) vt. 1225 affect the senses, touch [the heart]; *bi freelte*: 'through weakness')

5.4.4 Metonymic selection of a constituent of the P/I event and *metonymic extension to the effect of the 'P/I'.*

We now turn to meanings in which two extension processes apply simultaneously: constituent metonymies, as seen in the previous section, and effect metonymies. In these extensions the P/I verb conveys the effect of the verbal event, as in 5.2; like the extensions treated there, these are also typically transitive. Unlike in those earlier extensions, however, the event that brings about the effect named by the verb is not the core P/I scenario, but a metonymic selection of the motion inherent in it. These meanings can consequently be thought of as the result of a two-stage process. First, motion is

selected from the whole P/I event; this metonymically selected constituent then undergoes a second degree of metonymic extension in which it conveys the *result* of the action it names. The complexity of this analysis reflects the intuitively unobvious nature of the extended meanings of these verbs; the account put forward here sets out to explain how P/I verbs come to be used for actions whose connection to P/I seems at first sight so hard to motivate.

5.4.4.1 'x make y move by "P/I"'[31]

The most common type of motion forming the basis of this extension is that of the hand, as can be seen in (270) and (271):

(270) 1860: *A hasty drawing throughout, .. he has struck out the broken fence .. with a few impetuous dashes of the hand.*
(*strike* 83e. vt. 1678 represent in a working drawing or plan; also, to sketch rapidly [*strike out*])

(271) 1821: *A scene of unsophisticated .. nature .. is struck off with an unusually bold and broad pencil.*
(*strike* 82c. vt. 1821 produce [picture, literary composition, etc.] quickly or impromptu [*strike off*])

Out and *off* in (270) and (271) introduce additional considerations to these contexts: we will dispose of these first. *Strike* can be paraphrased as 'x make y go *out/off* by "striking"'. *Out* is taken to refer to the expansion of the drawing from its starting point as a single mark on a blank page into its final form (Lindner's 1983 'reflexive *out*', cf. Morgan 1997). *Off* can be seen as expressing a transition from a state of incompletion to one of completion, perhaps envisaging the drawing as coming *off* the pencil onto the page. This leaves the metonymic aspects of (270) and (271). The *fence* in (270) and the *scene of unsophisticated nature* in (271) are 'made to move *out*/*off* by "striking"'. The verb thus denotes the motion caused in its object, a cardinal metonymic extension to the effect of the action of the verb. But observe that in the paraphrase 'x make y move *out/off* by 'striking'' no P/I as such occurs: this is the reason that *'striking'* appears in inverted commas. Instead, *'striking'* actually only refers to a sub-part of the P/I event, and as (270) in particular shows, it is the vigorous hand movement – 'impetuous

dashes' – that is being related to that found in a P/I event of *striking*. The drawing is imagined as being achieved in fast sweeping dashes across the page, in which the hand is like an impactor about to strike some target.[32] The omission of any target from the scenario is what makes the extension a constituent metonymy, and means that the 'action of the verb' on which the subsequent effect metonymy operates is a metonymically selected constituent of the P/I act.

Metonymic extension by selection of a constituent of the verbal event thus applies to the basic P/I meaning of *strike*, stripping it of its object so that it refers to only a subpart of the initial P/I event, vigorous hand movement. This meaning then becomes the basis for a further degree of extension, metonymic extension to the effect of the action of the verb, so that it denotes the result of this action.

The choice of a P/I context as the one from which motion is selected is motivated by several factors:

(272) 1885: *For the working drawing we strike out a sectional view.*
(*strike* 83e. vt. 1678 represent in a working drawing or plan; also, to sketch rapidly [*strike out*])

(273) 1690: *Striking off such Scandalous Writers out of the rank of Historian.*
(*strike* 82a. vt. 1597 cancel by or as by a stroke of the pen [*strike off*])

In (272), the OED's definition shows that the verb highlights the speed of the movement: P/I is an appropriate source domain for this meaning since the motion it entails in its impactor is frequently accelerated. In (273) a different link exists between the P/I context and the extended meaning, namely the detrimental character of the action: like a prototypical act of *striking* the *striking off* in (273) is damaging to its object. *Strike out* and *strike off*, then, are interpreted as 'x make y go *out*/*off* by "striking"', where "striking" is not the prototypical P/I act, but refers to the hand movement involved, which is similar to that involved in P/I.

Knock in (274) below is interpreted as 'x make y move *back* by "knocking"':

(274) 1951: *I knocked back the last of my brandy, and went out.*
(*knock* 9b. vt. 1931 drink, eat heavily [*knock back*])

The scenario envisaged in this occurrence of the verb is one in which the small amount of brandy remaining is consumed with a tossing *back* motion of the head or of the hand holding the glass. No P/I occurs here (there is no impact between any impactor and object surface), so *knock* is taken to refer only to the motion inherent in the head or hand movement, which would result in P/I if there were a surface in the way. Use of *knock* is explained by the speed of the action: *knocking* something *back* is typically not seen as a leisurely and prolonged event but rather as an instantaneous one achieved in a single movement, which the salience of speed as an element of the P/I event is exploited to express.[33] The verb's paraphrase can therefore be explained as the result of a double extension. First, the motion inherent in the P/I event is selected as the verb's new meaning; this then becomes the basis of a further extension whereby the (already extended verb) metonymically expresses the effect of this action.

5.4.4.2 'x cause change to physical structure of y by "P/I"'

The two citations of *strike through* below refer to the marking of a written surface with lines:

(275) 1898: *The initialling of the memorandum is struck through…*
(*strike* 84 vt. 1898 cancel by drawing line through [*strike through*])

(276) 1656: *An exquisite Card whereby to sail .. struck through with lines on all parts.*
(strike 11a. vt. obs. 1539 mark with lines [*strike* (*through*)])

Like the extensions in the previous section the P/I verb has lost the component of contact with an object surface from its meaning: it is not P/I but the act of writing that occurs between the 'surfaces' and the 'impactors' in (275) and (276). Once again, it is the movement of the hand that has been selected as the relevant part of the P/I meaning of *strike*, motivating its use in this meaning.[34] The initialling in (275) and the card in (276) are physically changed by an act that is not *striking* but that contains an important component of that act, an analogous hand movement. In each case *strike* expresses the *effect* of this metonymically selected constituent of the verbal action, giving rise to an analysis of the extension as a constituent metonymy followed by an effect metonymy.

5.4.4.3 'x make y by "P/I"'

Before the action of *striking* in (277) below, no line existed; rather, one was brought into being as a result of the action of the verb. *Strike* can therefore receive the paraphrase 'x make y by "P/I"':

(277) 1687: *Since my dull pen trembles to strike a line.*
(*strike* 12. vt. 1611 to draw [a straight line] esp. by mechanical means … In wider sense, to make [a stroke, written mark])

Once again, it is not prototypical P/I that takes place in (277): the line is not the object surface of a P/I event. What does take place and brings the line into being is a movement either of the hand or, as seen in other contexts, of a geometrical instrument like a compass, that is contextualized as potentially part of a P/I event, motivating the use of the verb *strike* in a metonymic extension by selection of a constituent of the verbal action to which m/effect then applies.

6. Summary of means of extension: *strike*

For the reader's convenience, this section provides an overview and summary of the typology of semantic extension proposed in the previous pages, using an illustrative selection from the citations of *strike*.

6.1 Metaphorical applications

The following instances of *strike* were analyzed as metaphorical applications of the verb's core P/I meaning, in which an impactor comes into forceful contact with an object surface. Because metaphors function by attributing the properties of a vehicle scenario to a target, no difference exists between the semantic contribution of the verb in core uses and in metaphorical applications of the core meaning. Thus, *strike* in (278) and (279) (metaphorical appearances) has the same meaning as in (280) and (281) (non-metaphorical or core appearances):

(278) 1775: *Hold .. a thought has struck me!*
(*strike* 64 vt. 1606 [of a thought, idea] come into the mind of)

(279) 1607: *Now the Red Pestilence strike al Trades in Rome.*
(*strike* 45b. vt. 1530 of a disease, attack or inflict suddenly, make infirm, lay low)

(280) *A rock has struck me!*

(281) *The soldiers struck the prisoner.*

(278) was classed as an example of a common metaphor whereby consciousness is treated as the object surface of a P/I event, and mental events (words, sights, sounds, ideas etc.) are treated as impactors. (279) exemplified the metaphor 'detrimental interaction is P/I', according to which a variety of harmful events are treated linguistically as though they were P/I events.

Two other metaphors using *strike* appear as (282) and (283); the first exemplified the metaphor 'requests are acts of P/I', the second 'arrival at a location is P/I':

(282) 1899: *... let's hurry by or he'll strike us for the price of a drink.*
(*strike* 75d. vt. 1751 make a sudden and pressing demand upon [a person *for* a loan, etc.])

(283) 1890: *They struck the river within a day's ride of Rainbar*.
(*strike* 68a. vt. 1798 come upon, reach in travelling)

Recall that while *strike* can be paraphrased as 'make a sudden and pressing demand upon (a person *for* a loan, etc.)' in (282), and as 'come upon, reach in travelling' in (283), as is done in the OED's definitions, these paraphrases do not have any status within the current analysis. According to the theory of metaphor adopted here, *strike* in the above examples has the same meaning as it does in core appearances, and the paraphrase definitions represent alternative, non-metaphorical descriptions of the same state of affairs, not descriptions of the meaning of *strike*.

6.2 Effect metonymies

The metaphorical applications above were not semantic extensions of *strike* because there was no change to the meaning of the verb. By contrast, the rest of the citations to be discussed are cases in which a meaning has to be attributed to the P/I verb that differs from the core P/I sense. One of the commonest types of extension is that in which the P/I verb denotes not only the act of P/I itself, but the effect of this act. These examples were accordingly classified as metonymic extensions to the effect of the P/I.

The largest category of effect metonymies is 'Motion induced in surface by P/I', as exemplified by (284) and (285):

(284) 1612: *The Tennis-ball, when strucken to the ground, With Racket, .. doth back againe rebound.*
(*strike* 27a. vt. 1450 with complementary adverb or phrase: remove or drive [a thing] with a blow of an implement or hand.)

(285) 1831: *The soldier .. struck the head from the body.*
(*strike* 31c. vt. 1320 with complementary adverb or phrase: remove or separate with a cut.)

The meaning of s*trike* in these occurrences is analyzed as 'x make y move by striking', with the phrases *back againe* and *from the body* specifying the direction of the motion.

(286) is an example of another type of metonymic extension to the effect of the action, the category 'change of mental/experiential state caused in surface by P/I':

(286) 1580: *For lamb, pig and calfe .. tithe so as thy cattle the Lord doo not strike.*
(*strike* 45a. vt. 1375 kill)

The hearer of this sentence understands that more is at issue than the occurrence of a P/I action directed against certain animals, but that the effect of the action is part of the meaning of the verb. *Strike* in (286) could thus be paraphrased as 'strike and cause permanent damaging effect on', which shows how the verb has been extended to convey the result of the verbal action as well as the action itself. It was pointed out in the discussion of this and similar sentences that it is conceivable that the P/I verb may not in fact

have so specifically conveyed 'kill', as it has been defined in the OED. Instead, a vaguer, more general detrimental effect may have been intended, and received, as the verb's meaning. What is significant from our point of view, however, is not the precise characterization of the effect signalled by the verb, but the fact that, whatever effect it was that the speaker intended the verb to convey, its meaning has to be extended to include the effect of the P/I act. Indeterminacy as to what this effect actually was does not compromise the analysis.

Metonymic extensions of P/I meanings may themselves be used in metaphorical applications for the conceptualization of other scenarios. Thus, (287) is a metaphor in which the metonymic extension of *strike* to denote motion caused in its object is used to represent a change in colour:

(287) 1823: *I shall love to see the sense of approaching death strike the colour from that ruddy cheek.*
(*strike* 27b. vt. 1599 remove suddenly as with a blow, dash)

Strike is analyzed as meaning 'x make y move by striking', exactly the same meaning the extension has in non-metaphorical contexts.

Contexts like (284) above referred to the object of *strike* being caused to move downwards as a result of the action of the verb. Another example of this caused motion extension is (288):

(288) 1440: *He .. Strake down a standerde.*
(MED *stri:ken* 2 (a) vt. 1425 ~ *doun* knock [sb. or sth., an animal] down by smiting)

Examples like this are analyzed as effect metonymies in which motion is induced in the object surface. Some instances of *strike*, however, indicate that motion has been induced in the verb's object, but not by an act of P/I. Examples of this are (289) and (290):

(289) 1745: *Both Ships struck their Yards and Top masts.*
(*strike* 17 vt. 1300 lower, take down)

(290) 1829: *At the first dawn of day, all was in motion; ..some striking the tent, yoking the oxen, and saddling the horses.*
(*strike* 22 vt. 1707 let down [a tent] for removal; cf. 23 vt. 1793 unfix, put out of use [sails, tents, etc.].)

Extensions like this were classed as postmetonymic extensions to the effect of the P/I: striking something may often have the effect of making it move, and the verb may be metonymically extended to convey this effect giving a paraphrase of its meaning 'x make y move by P/I'; in the postmetonymic extension that depends on this initial metonymy, the P/I verb comes to be applied to cases where its object moves, but not as the result of P/I, giving the paraphrase 'x make y move'. This represents a conventionalized reinterpretation of the extended meaning of the verb in which 'by P/I' is dropped.

Strike in the following two citations was analyzed as meaning 'x make y by striking', exemplifying the category of extension 'surface brought into being by P/I', another of the types of metonymic extension to the effect of P/I:

(291) 1755: *I must observe, that no man can strike fire with a feather.*
(*strike* 30a. vt. 1450 produce [fire, a spark] by percussion)

(292) 1816: *No sooner had the horses struck a canter…*
(*strike* 49b. vt 1816 of a horse: alter his pace into [a faster movement])

This extension had various metaphorical applications like that in (293), in which a mental 'impression' is produced by an act of P/I:

(293) 1615: *I wish my Verse should such Impression strike, That what men Read off, they should thinke the like.*
(*strike* 28e. vt. obs. 1615 imprint on the mind)

Strike is paraphrased as 'x make y by P/I' in this metaphorical application.

The following citation can be seen as exemplifying a metonymic extension of the verb meaning so as to convey a combination of two effects: *strike* in (294) conveys both the creation of heat where none existed before, and the movement of the heat *up* from its point of origin:

(294) 1596: *Who strooke this heate vp after I was gone?*
(*strike* 87h. vt. obs. 1596 cause [heat, light] to spring up [*strike up*])

The verb is paraphrased as meaning 'x make y and make y move *up* by P/I', and exemplifies metonymic extension to convey both the creation of

and the inducement of motion in the object surface. The same two types of effect are also found in (295), which is an example of the metaphorical application of this extension:

(295) 1892: *I tried to strike out a course in the world for myself.*
(*strike* 83f. vt. 1712 open up, make for oneself [path, course, line] [*strike out*])

Here the course is seen as both being created by an act of P/I and, once created, being made to move *out* by P/I.

Some postmetonymic instances of the extension to 'x make y and make y move *up* by striking', appear as (296) and (297):

(296) 1890: *The enthusiastic Greeks strike up a chant.*
(*strike* 87c. vt. 1562 begin to play or sing [*strike up*])

(297) 1711: *We have struck up a mighty friendship.*
(*strike* 87e. vt. 1711 start, set afoot [a friendship, acquaintance, conversation, trade, etc. *with* someone] [*strike up*])

As discussed in 5.2.6 and in the previous chapter, starting to chant and beginning a friendship are scenes which it is hard to relate to P/I metaphorically. These verb meanings were analyzed as postmetonymies based on cases where the object actually is brought into being by a striking action. The metonymic basis of extensions like (296) and (297) could have been provided by contexts like the following, where the sound created really is the product of a P/I event:

(298) 1562-75: *With a pot of good nale they stroake vp theyr plauditie.*
(*strike* 87c. vt. 1562 begin to play or sing (*strike up*); *plauditie*: round of applause)

(299) 1567: *That when the Epilogue is done we may with franke intent ... stryke vp our plausible assente.*
(*strike* 87c. vt. 1562 begin to play or sing [*strike up*])

Usages like this establish the possibility of *strike up* being used to convey the bringing into being of sound, in these cases the applause at the end of a

performance; in the postmetonymic cases the verb is extended to cover situations where there was no initial P/I event.

6.3 Context metonymies

In this variety of extension the P/I verb derives its new meaning from the context in which the action occurs. In (300) below, for example, P/I occurs in the context of a battle, and *strike* takes on the meaning 'fight', denoting not only the act of P/I, but all the associated activities:

(300) 1601: *His present gift Shall furnish me to those Italian fields Where noble fellowes strike*.
(*strike* 35a. vi. 1579 to use one's weapons: to fight)

The meaning of the verb thus derives from the context of the P/I, in that *strike* stands metonymically not only for the P/I event itself but for all the actions in the event frame of 'fighting', of which P/I is a central member.

Similarly, the context of the following example is the playing of musical instruments, with *strike* being open to interpretation not simply as a verb of P/I, but as meaning something like 'strike so as to make a musical noise':

(301) 1594: *He that striketh an instrument with skill, may cause notwithstanding a verie vnpleasant sound …*
(*strike* 29d. vt. 1565 touch a string to make a note)

In order to interpret *strike* correctly the hearer has to understand that the instrument as a whole is not simply the undergoer of a generalized P/I event, but that a particular part of the instrument is being subjected to P/I in a particular way. It is the placement of the verb within the context of the production of music that allows this interpretation to be achieved, with the information that enables the correct understanding of the verb to be gained being supplied from the context in which the verb occurs.

6.4 Constituent metonymies

Strike only exhibits this extension metaphorically. The intransitive frame in which the verb appears in (302) removes the object surface from its former

position of salience in the P/I scenario, necessitating a description of *strike* as a verb of motion:

(302) 1639: *Hee doubted no more of that truth which strooke into his eyes.* (*strike* 51a. vi. 1639 move quickly, dart, shoot)

Motion is thus the constituent of the P/I scenario that remains when the object surface is lost. The contrast with the P/I meaning can be seen by a comparison with the following sentence:

(303) *He doubted no more of the truth which struck his eyes*.

Here *eyes* is the direct object of the P/I verb. In (302), however, *strooke* is intransitive, which demotes the object surface from its position of prominence as a central part of the P/I scenario. The fact that contact did in fact take place between the metaphorical trajector, truth, and the eyes, is now conveyed by the preposition *into*, with the intransitive verb specifying the type of contact involved. *Strooke* in (302) thus differs from its core P/I sense in having lost the element of contact with the object surface: the verb's meaning has been 'extended' ('narrowed' would actually be more apt) by selecting the constituent of motion inherent to the P/I event and factoring out the contact in which the motion usually results, leaving this to be specified by the prepositional phrase with *into*.

In the following cases, the postmetonymic character of the extension is even more pronounced, because there is no participant conceived of as the object surface in a P/I event:

(304) 1855: *Upward the growing twilight strikes.*
(*strike* 51a. vi. 1639 move quickly, dart, shoot)

(305) 1857: *Just then a squall struck up.*
(*strike* 87i. vi 1711: rise up quickly, dart or spring up)

(306) 1719: *A sudden pain .. struck across my heart.*
(*strike* 51a. vi. 1639 move quickly, dart, shoot)

In (304) and (305) there is simply a directional expression signifying the orientation of the movement, which has no explicit goal. In (306), which is a metaphorical application of the same extension in which pain is concep-

tualized as an individuated trajector, the landmark with which it is oriented, *my heart*, specifies only a domain in relation to which the action takes place, without including any information about the object surface. The use of *strike* in this context is plainly postmetonymic.

Metonymic extension by selection of a constituent of the verbal event is often combined with other means of extension. Before the action of *striking* in (307) below, no line existed, but one was brought into being as a result of the action of the verb. *Strike* can therefore be paraphrased 'x make y by "P/I"', with "P/I" referring not to the core P/I act but to a metonymically selected constituent of this act:

(307) 1687: *Since my dull pen trembles to strike a line.*
(*strike* 12 vt. 1611 to draw [a straight line] esp. by mechanical means… In wider sense, to make [a stroke, written mark])

Prototypical P/I does not occur in (307), since the line is not the object surface of a P/I event. What does take place and brings the line into being is a movement of the hand contextualized as potentially part of a P/I event: the movement of the hand is viewed as the same sort of action as involved in *striking* something. The verb in (307) therefore demonstrates the metonymic selection of the motion constituent of the P/I event undergoing a subsequent extension in which it comes to denote the effect of this action.

Chapter 6
Applications II: Warlpiri

1. Introduction

Warlpiri, a Pama-Nyungan language spoken by several thousand people in semi-desert communities in the Northern Territory of Australia, has been intensively studied since the nineteen seventies, especially by linguists working in mainstream generative frameworks. Most of this research, however, has been devoted to grammatical and lexicographical topics, rather than strictly semantic ones. Thus, while Warlpiri's nonconfigurational structure has attracted many syntacticians (for a summary and references see Hale, Laughren and Simpson 1995), and while valuable and wide-ranging lexicographical work has already led to the publication of two dictionaries (Hale 1995; Swartz 1997) and is still in progress, a survey of the most complete bibliography of Warlpiri studies[1] reveals that out of the several hundred works published on Warlpiri linguistics since 1988 only a handful make obvious reference to semantics in their titles, and that none of these takes a cognitive linguistics perspective. The definitions in the large database for the forthcoming Warlpiri Dictionary (henceforth WlpD: Warlpiri lexicography group 1996) emerge from intensive study of Warlpiri over many years and are necessary prerequisites to a theoretical semantic understanding of the language, to which they represent a significant contribution. The fact, however, that this theoretical semantic understanding is currently only available in dictionary format is an indication of the early stage of development of the field. There is thus an urgent need for systematic work on the semantic interpretation and representation of Warlpiri, a need that I hope will be highlighted by the following pages. A cognitive linguistics perspective on semantics, with its descriptive, encyclopaedic orientation and its recognition of the multiplicity and experiential embeddedness of meaning, is surely an appropriate vehicle for this task of semantic description.

The aim of the present chapter is twofold. Its principal goal is to present an analysis of the polysemous meanings of Warlpiri P/I verbs using the

same categories as those applied to English in the previous chapter. The typology of polysemous meanings is thus revealed to be descriptively adequate for a second, unrelated language. The chapter's other aim is to highlight the many minute, interpretative decisions about the English glossing of Warlpiri words on which the theoretical superstructure rests. Since these translational questions bear directly on the subsequent analysis of the verb's polsyemous senses, they constitute a central part of the overall treatment. Attention to the descriptive base of the analysis reveals the large role in semantics played by subjective decisions of the investigator which are not disciplined by any explicit or formal decision procedures. The Warlpiri verbs whose polysemous meanings are discussed are open to translation into English in a great variety of different ways. Often, the choice of one translation over another can alter the nature of the subsequent analysis, yet there are often no clear grounds for the choice of one of the translations rather than another. The chapter therefore foregrounds the basis on which the choice of translations for each Warlpiri verb has been made. The point is not to erect some putative set of decision procedures which might ground these initial translations, but merely to make explicit a part of the analysis which is just as essential to the theory of polysemy as the categorizations of metaphors and metonymies are themselves.

The chapter begins with a brief introduction to the grammatical structure of Warlpiri (section 2). Different types of polysemous meaning will then be distinguished (section 3), and a general feature of Warlpiri verb semantics explored (section 4), before the presentation of each P/I verb and its polysemies begins in section 5.

2. A brief grammatical sketch

Warlpiri is a member of the Ngumpin-Yapa subgroup of Pama-Nyungan.[2] In common with other Pama-Nyungan languages, and in contrast to the non-Pama-Nyungan languages of the north, core grammatical information is conveyed through suffixes. There are six important syntactic categories: nominals, pronouns, verbs, preverbs, particles and the auxiliary. Both nominals and pronouns show singular, dual, and plural numbers, with a fourth number category, paucal or definite plural, for nominals. In addition to the core case functions (see below), nominals and pronouns inflect for dative (*-ku*), locative (*-ngka ~ -rla*), allative (*-kurra*), comitative (*-kurlu*), possessive (*-kurlangu*) and two types of elative case. The dative indicates

indirect object and purpose, the allative direction towards. The elatives indicate direction from (*-ngurlu*) and source, origin or cause (*-jangka*). The ergative is formally identical to the instrumental.

A number of case endings, including the ergative/instrumental and locative, are sensitive to the number of syllables in the base to which they attach. Thus the ergative/instrumental suffix is *-ngku* for disyllables, and *-rlu* for polysyllables (Warlpiri lacks monosyllabic nominals). The corresponding locative pair is *-ngka* ~ *-rla.*

Warlpiri shows vowel harmony between high vowels over morphological boundaries within the word. Thus, the ergative suffix *-ngku* (*wanta-ngku* 'sun-ERG') becomes *-ngki* after a front high vowel in the base (*wati-ngki* 'man-ERG'). Assimilation is blocked, however, by an /a/ intervening between the high vowels of the base and the suffix (w*irnpa-ngku* 'lightning-ERG'). In verbs, the assimilation goes in the opposite direction, with high vowels in the stem matching the quality of high vowel in the suffix: thus, the verb stem *panti* 'poke' becomes *pantu* before the past suffix *-rnu* (*pantu-rnu* 'poke-PST').

Marking of grammatical relations on nominals and pronouns follows an ergative system that is broadly characteristic of languages of the same group as Warlpiri. Ergative case is marked on nominals by the *-rlu/-ngku* suffix; absolutive case is unmarked:

(1) *karnta-ngku* *ka* *maliki* *paka-rni.*
woman-ERG AUX dog.ABS hit-NPST
'The woman is hitting the dog.'

(2) *Warna-ngku* *kurdu* *paju-rnu* *nyurnu-kurra* –
snake-ERG child.ABS bite-PST dead-ALL
karnuru.
poor thing.ABS
'The snake fatally bit the child, poor thing.'

For expository reasons, the unmarked nominals in (1) and (2) have been glossed ABS. This practice will not be continued, however: in the rest of this chapter, unmarked nominals are all to be understood as ABS, even though they will not be specifically glossed as such.

A complementary coding of grammatical relations is achieved through a set of pronominal clitics which coreference the clause's subject and object or dative-marked argument. These pronominal clitics attach after the first or

second phrase of the clause. Most clauses, however, contain an auxiliary, which provides a more precise indication of the tense and mood of the clause than is provided by the verbal inflections alone. The auxiliary typically occupies second position, so it is to this that the clitics attach. Thus, in (3) the auxiliary marks present tense, and in (4) it marks future tense:

(3) *Nya-nyika-ju wawirri-rli (ngaju).*
see-NP AUX-1O kangaroo-ERG me
'The kangaroo sees me.'

(4) *Nya-nyikapi-rna-ngku.*
see-NP AUX.FUT-1S-2O
'I will see you.'

As is also evident from (4), clitics may independently designate the clause's participants, without any nominal element (see Hale 1973 and Simpson 1991 for details). The full set of pronominal clitics is given in Table 1, with person and number indicated using the standard notation (12 = first person dual inclusive 'you and I'; 11 = first person dual exclusive 'we two, not including you', etc.).

In addition to these clitics, dative arguments have an enclitic *-rla*. The order of pronominal clitics is subject-object, except that first and second person singular objects precede third non-singular subjects. Thus **-lu-ju* (333S-1O), **-pala-ju* (33S-1O), **-lu-ngku* (333S-2O) and **-pala-ngku* (33S-2O) are replaced by *-ju-lu*, *-ju-pala*, *ngku-lu* and *-ngku-pala*, in which the object clitic precedes the subject.

In the past tense the auxiliary is missing and the clitics are suffixed directly onto the first constituent:

(5) *Tarnnga-kurra-**lu** paka-rnu nyurnu-kurra.*
once for all-ALL-333S hit-PST dead-ALL
'They hit him and killed him.'

Example (5) also shows that third person singular participants are not coded by any clitic.

Table 1. Pronominal Clitics

Person	Subject clitic	Object clitic
first singular (1)	*-rna*	*-ju*
second singular (2)	*-n(pa)*	*-ngku*
third singular (3)	*Ø*	*Ø*
first dual inclusive (12)	*-rli*	*-ngali(ngki)*
first dual exclusive (11)	*-rlijarra*	*-jarrangku*
second dual (22)	*-n(pa)-pala*	*-ngku-pala*
third dual (33)	*-pala*	*-palangu*
first plural inclusive (122)	*-rlipa*	*-ngalpa*
first plural exclusive (111)	*-rna-lu*	*-nganpa*
second plural (222)	*-nku-lu*	*-nyarra*
third plural (333)	*-lu*	*-jana*

In conjunction with the auxiliary, a system of verbal suffixes conveys information about tense and mood. The main inflections for the five conjugations of verb are given in Table 2.

Table 2. Principal verb inflections for the five conjugations

	Nonpast	Past	Imperative	Irrealis	Infinitive
1 *wapa-* 'walk'	*-mi, Ø*	*-ja*	*-ya*	*-yarla*	*-nja-*
2 *paka-* 'hit'	*-rni, -ni*	*-rnu*	*-ka*	*-karla*	*-rninja-*
3 *pi-/pu-* 'hit'	*-nyi*	*-ngu*	*-ngka*	*-ngkarla*	*-nja-*
4 *nga-* 'ingest'	*-rni, -ni*	*-rnu*	*-nja*	*-njarla*	*-rninja-*
5 *ma-*'take'	*-ni*	*-nu*	*-nta*	*-ntarla*	*-ninja-*

Since the third person object clitics are unmarked for all three numbers, the transitivity of verbs may not be apparent. An example of this situation is (6):

(6) *Pi-nja-rla* *yilya-ja*
beat-INF-SEQ dismiss-PST
'Having beaten him, the other sent him packing' (Napaljarri and Cataldi 1994:140)

The third person singular object is not expressed overtly, but is implied.

Word order is determined by pragmatic considerations (Swartz 1991), except that the pronominal clitics and the auxiliary to which they attach typically occupy second position in the clause.

3. Three types of 'polysemy'

It is convenient to draw a distinction between three different types of 'polysemy' encountered while investigating Warlpiri verb meanings, only two of which will be of relevance to the theory of polysemy advanced here. In the first place, a contrast needs to be made between the two types of polysemy with which the present chapter *will* be concerned: 'structural' and 'lexical' polysemy (Apresjan 1974: 16; cf. Laughren 1988 for a detailed treatment of some of these issues with specific focus on Warlpiri). For example, a number of P/I verbs in Warlpiri admit the interpretations 'make x by V-ing' and 'obtain x by V-ing':

(7) *Palya-lu-ngalpa* *marna-jangka* *paka-ka.*
gum-PL.SBJ-122O spinifex-EL hit-IMPER
'Make us some resin from the spinifex!' [i.e. obtain the gum by hitting the spinifex] (WlpD: *paka-rni*)

(8) *Warlu* *ka-lu* *kungarla-rlu* *panti-rni.*
fire AUX-333S fire drill-ERG pierce-NPST
'They make [lit. 'pierce'] fire with a fire drill [i.e. by piercing a piece of soft wood with fire drill].' (WlpD: *panti-rni*)

Meanings like this are treated in the present investigation as examples of polysemy, but it is worth noting the contrast between them and less regular polysemies (like 'paint', 'grind', etc.) to which it is not possible to give a

superordinate semantic description like 'make x by V-ing' into which the particular verb in question is simply substituted. Not all the P/I verbs discussed show the extension seen in (7) and (8), but it is nevertheless characteristic of a whole class of verbs (Laughren 1988: 218 lists *jarnti-rni* 'carve', *luwa-rni* 'hit with missile', *paji-rni* 'cut', *panti-rni* 'pierce', *pangi-rni* 'dig' and *yurrpa-rni* 'grind, file' as some of the other examples). Such pervasive polysemies could either be considered as a general structural resource of the Warlpiri lexicon, or as properties of individual lexemes (cf. Warlpiri Lexicography Group 1987: §3.3; Goldberg 1995). Given the earlier chapters of this book, however, any exclusive option for one treatment over the other is foreign to the spirit of the present analysis, and for our purposes it is only necessary to note the varying degrees of systematicity associated with the different polysemous senses.

We are now in a position to discard a type of 'polysemy' for which an explicit analysis will not be offered. Cruse (1986: 52-3) refers to a particular type of polysemy produced by the 'contextual modulation' of the sense of a word by its environment, and we will appropriate this term for the (slightly different) kind of polysemous meaning in question here. Sensitivity to 'contextual modulation' of this kind is the main way the number of independent meanings of a word is restrained. It is often the case that English uses separate verbs for the description of distinct situations which in Warlpiri are covered by the same term.[3] The translator is thus often faced with the circumstance that a given Warlpiri verb will have a variety of more or less mutually exclusive English translation terms. An example of this is provided by the two English verbs 'step on' and 'run down', alternative (and incompatible) translations of the single Warlpiri verb *katirni*, exemplified in (9) and (10).

(9) *kurdu-ngku* *ka* *kati-rni* *mangarri.*
child-ERG AUX step on-NPST bread
'The child is stepping on the bread.'

(10) *Wati-ngki-ji* *ka-lu* *jalangu-jalangu-rlu*
man-ERG-TOP AUX-333S these days-ERG
kuyu-ju *luwa-rni* *makiti-kirli-rli* *manu*
game-TOP shoot-NPST rifle-PROP-ERG and

ka-lu	*turaki-kirli-rli*	*waji-rli-pi-nja-rla*
AUX-333S	truck-PROP-ERG	chase after-INF-SER
kati-rni.		
run down-NPST		

'These days men shoot game with rifles and they run down animals with trucks.' (WlpD)

The WlpD defines *katirni* as "xERG cause pressure to come to be on y, by coming into contact with y, such that total weight of x is on y", a formulation which subsumes both of the English verbs.[4]

In cases like this, the differences in meaning between the translation terms can usually be seen as the result not of any difference in the linguistically significant properties of the event being described, but solely as the result of the different contexts in which the event occurs. 'Stepping on' and 'running down' can thus be thought of as naming the same event, described as 'running down' when predicated of a vehicle, and as 'stepping on' when predicated of an animal. Thus, the linguistic expression of this event in English, consisting in a contrast between two alternative and incompatible verbs (one denoting the action of feet raised above the ground, the other that of a wheel, which remains in contact with the ground), is overdetermined in that the contrast in the truth values between a proposition using 'step on' and one using 'run over' is signalled not only by the initial choice of separate verbs, but also by the expressions that directly establish the differing contexts, typically the arguments of the verb, an animal for one verb and a vehicle for the other. The verb choice is thus in some sense dependent on or predictable from the arguments, and the separate verb forms can be considered, adopting a phonological analogy, to be in complementary semantic distribution, in that they occur in separate contexts. Such 'contextually modulated' or 'selected' English variants of a single Warlpiri expression will not be strongly differentiated in the descriptions of Warlpiri P/I verbs. If a semantic invariant common to all the glosses of a Warlpiri can readily be extracted, this will be posited as the verb's semantic content.

It will be clear that there can be no hard and fast rules governing what sort of semantic invariants can be legitimately proposed as justification for treating two English translation terms as contextually modulated variants of the same Warlpiri meaning. Given a sufficient level of abstractness in the semantic description, and the admission of disjunctive descriptions, common semantic invariants can be posited for *any* grouping of translations. Conceptual homogeneity, analytical economy, and aesthetic preference

therefore become the criteria on which differing glosses are taken as exemplars of a single sense. Such decisions are influenced by the constraints of the chosen metalanguage, however, because one's judgement about what counts as a legitimately and plausibly proposed common semantic invariant depends (if it is not arbitrary or determined according to some other equally subjective classification) on what categorizations one is used to in one's own native language. The investigator thus inevitably falls back on the familiar categorizations of their own language as a guide in interpreting the semantics of a less familiar one.

4. Result Orientation in Warlpiri verbs

It often is the case that the apparent diversity of meaning in polysemous Warlpiri verbs is reduced, if not completely eradicated, if the verb is thought of as referring not to a manner of action, but to a result of action. *Pinyi*, for example, discussed in section 7 below, refers to the creation of an injurious physical effect on the object via a large number of possible means, which its various translation equivalents specify: 'hit', 'attack', 'sting', 'bite', and 'defeat.' Both *pantirni* (section 9) and, as I will show in section 11, *katirni* also exemplify this situation, *pantirni* referring to the production of a point-like depression in a surface, whether this is the result of a needle, a spear, or a blunt, non-piercing object, while *katirni* refers to the application of pressure onto a surface, regardless of the means used to bring this about. Verbs which do not belong in the P/I domain, like *ngarni*, are the same: *ngarni*, glossed both 'eat' and 'drink', refers to the ingestion of material regardless of the manner in which this is accomplished. This orientation of verbal reference toward the result of the action is considerably different from the situation in English, where a different manner of action necessitates description through a different verb choice regardless of the overall similarity of the outcome: whereas in Warlpiri a single verb, *pajirni* (section 10), describes both *ripping*, *cutting* and *breaking* a surface, in English it is not permissible to describe *ripping* as *cutting* or *breaking* no matter how similar the end result of the processes is.

The formally superordinate nature of Warlpiri verbs like *pajirni* and *pinyi* with respect to their English translation equivalents thus need not be taken as the sign of a greater degree of 'abstraction' in the linguistic representation of events, but rather as indicating an equally concrete but differently focused orientation: verbs pick out the results of action and the pre-

cise means used to achieve them can be left to be supplied by other information. The apparent wide polysemy that an English speaker encounters in Warlpiri can thus be seen partly as a result of the differing strategies adopted by the two languages in the means of representing action.

5. The domain of P/I in Warlpiri

The descriptions of Warlpiri verb meanings in this chapter broadly specify two types of relations entered into by each verb, couched in the form of statements of truth value or appropriateness. The first relation is that between the use of the verb and the external, observable situation. This aspect of the description of the verb addresses itself to what characteristically has to be happening in the physical world if the verb is to be taken as a true description of the event. The second relation is that between use of the verb and the internal psychological states of its actors. This element of the description captures what the verbs predicate of their participants in terms of intention, volition, etc. As well as considering the scope of the expressions' denotational function, the treatment addresses questions of lexical structure by investigating the semantic relationships between various P/I verbs, as well as discussing certain co-occurrence-related phenomena.

Warlpiri P/I verbs can be described by reference to the same typical impact/percussion scenario as that used for the discussion of English, outlined in chapter four. This identity of descriptive apparatus is merely an analytical convenience and should not be taken as indicative of any necessary identity in the treatment of the 'domain' in the two languages. A moving entity, the impactor, comes into contact with an object surface at a particular point of impact. The impactor is usually moving at an accelerated speed, which causes it to strike the surface with a certain amount of force: the element of forceful contact distinguishes a P/I event from the superordinate event script of physical contact, as expressed for example by the Warlpiri verb *marnpirni*, 'touch.' The basic monomorphemic Warlpiri words for 'cut', and 'poke/pierce' show close relations to those to which the label 'P/I verb' has been given, often containing P/I meanings among their translation equivalents, and showing similar syntactic behaviour to typical P/I verbs (specifically, their participation in the absolutive-dative alternation discussed in Laughren 1988). These verbs are thus also discussed.

The nature of the impactor in the typical P/I scenario is unspecified: it may be an inanimate thing, a part of a thing, a body or a body-part. Where

the impactor is an inanimate entity, it may be manipulated by an animate actor and thus have the status of a tool or instrument. Alternatively, it may be put into motion by an instrument (this is the situation where a ball is put into motion with a racket, or a bullet is fired from a gun.) As with the impactor, there are no restrictions on the nature of the impacted-upon surface. The P/I event may have certain typical consequences, including movement of the surface, a change in the location of the surface, an alteration to the physical structure of the surface (which may be pierced, misshapen, etc.) and the discharge of noise.

It needs to be reiterated that, as for the English data, the construct 'domain of P/I' in Warlpiri is not intended to make any strong predictions about the nature of the verbs which belong to it, but is simply a convenient way of referring to those verbs that have been chosen for investigation. The typology of verbal polysemy proposed in chapter four could have been tested with a random selection of verbs, so that nothing hangs on the coherence or homogeneity of these verbs as a group. The verbs chosen for analysis are not simply identifiable as the translation equivalents of the English verbs already discussed, since several 'extras' have been included, nor, as already mentioned, do they fully correspond to the Warlpiri-internal verb-class called 'impact verbs' (which is isolated according to syntactic criteria and, as already noted, includes *jarntirni* 'carve', *pangirni* 'dig' and *yurrparni* 'grind, file' in addition to the impact verbs discussed here: Laughren 1988). Instead, verbs were chosen which in addition to their basic P/I meaning displayed translation equivalents/polysemies in a range of other domains, thus providing sufficient material for the analysis. The verb choice is thus pragmatic first and foremost, and the Anglo-centric construct 'domain of P/I' will, as a matter of convenience, frequently be used. It needs to be remembered, however, that the membership of this domain has been established only by stipulation and that 'domain of P/I' features in the analysis only contingently and does no theoretical work.

In order to limit the task, only monomorphemic verbs have been discussed. These are, in any case, the ones with the fullest polysemy patterns, but the semantic interaction between the monomorphemic verbs and the very numerous compound verbs (made up of one of the monomorphemic forms coupled with a preverb) is a pressing area of research (See Nash 1982 and Riemer 2002b). Like English phrasal verbs, preverb-verb combinations in Warlpiri participate in a cline of transparency ranging from the compositional or semi-compositional (e.g. *tarnnga-pakarni* ('for good-hit') 'kill', *minjirn-nyina-mi* ('aggressive-be') 'act in a hostile manner towards')

to the non-compositional (*milya-pinyi* 'recognize'). The difficulty of identifying the semantic contribution of the verb vis-à-vis the preverb in any instance is the main reason that these verb forms are not dealt with. Occasionally, however, I do discuss some extremely compositional combinations (such as *kalparlangu-paji-rni* ('*kalparlangu*-call') 'call *kalparlangu*') where they do reveal an important polysemy of the P/I verb.

The approach of the present chapter differs from the analysis of English in chapter five in being primarily concerned with developing an appropriate semantic description of the Warlpiri verbs, and with identifying the meaning(s) that are best considered the prototypical center of each. In the English material there was a clear intuitive basis for the decision as to what to consider a core meaning and what an extension, so that the main business of the chapter was the explication of the polysemous relations between these meanings. Here, however, the task of arriving at the best semantic analysis is a necessary preliminary to the determination of the links between the core and extended meanings. In some cases, in fact, it emerges that in spite of a proliferation of translation equivalents, a verb only needs to be thought of as having a single meaning, in which case there are no polysemies analyze.

The data on which this study is based are drawn from three main sources. Citations from the Warlpiri Dictionary Project database (WlpD) form a large part of my data; as with the use of OED citations in the previous chapter, however, the semantic analysis presented here is independent of (although often consistent with) the dictionary's "highly tentative" (Warlpiri Lexicography Group 1987: lxii) interpretation of the meanings and the links between them. My own fieldwork in 1996, 1997 and 2003 with middle-aged, female speakers from both of the main Warlpiri centres, Yuendumu and Lajamanu, supplies other examples. The third source of examples is the 1994 volume, *Yimikirli Warlpiri Dreamings and Histories*, referred to as Napaljarri and Cataldi (1994), a roughly 200-page collection of oral texts in Warlpiri (with English translations) transcribed from Warlpiri story tellers.

The same notational conventions are adopted in this chapter as for the English examples. Thus, an asterisk (*) indicates ungrammaticality. By contrast, an exclamation mark (**!**) prefaced to a sentence means that in spite of its grammaticality it was judged as nonsensical by the native Warlpiri speaker on whom it was tested. Unattributed citations are from my field notes. Citations from WlpD are referenced simply as '(WlpD)', and can be found in the dictionary's entry for the P/I verb under discussion in that sec-

tion. Any citation marked '(WlpD)' in section 6, therefore, can be found in the dictionary under *pakarni*. Citations from the entries for other headwords are always marked as such.

6. *Pakarni*

Pakarni is the most highly polysemous of the Warlpiri P/I verbs.

6.1 *Pakarni* 'hit'

WlpD offers the following vernacular definition[5] of *pakarni*:

(11) *Paka-rni* *ngula-ji* *yangka* *kuja-ka*
hit-NPST that-TOP that AUX.REL-NPST
karnta-ngku *marda,* *wati-ngki* *marda,*
woman-ERG maybe man-ERG maybe
kurdu-ngku *marda,* *paka-rni* *nyiya-rlangu*
child-ERG maybe hit-NPST something-for example
watiya-kurlu-rlu, *jarntu* *marda,* *wardapi* *marda,*
stick-PROP-ERG dog maybe goanna maybe-
manu *yapa-kari* *marda,* *kulu-ngku.* *Manu* *yangka*
or person-other maybe fight-ERG or that
kuja-ka *paka-rni* *warlkurru-rlu* –
AUX.REL-NPST hit-NPST axe-ERG
wati-ngki marda, *karnta-ngku* *marda,* *watiya* –
man-ERG maybe woman-ERG maybe tree
warlu-ku.
firewood-DAT
'*Pakarni* is like when a woman, or a man or a child, hits something with a stick – a dog, or a goanna or another person in a fight. And it is also when a man or a woman chops a tree for firewood.' (WlpD)

At least for the speaker that profered this definition, then, the prototypical centres of *pakarni* are the situations in which an animate being hits another animate being with a stick, and where a human chops a tree with an axe (this last case raises interesting questions concerning the relation of *pakarni*

to verbs of cutting.) Interestingly, it was the context of tree-chopping that figured in a second definition, drawn not from the dictionary but from a Warlpiri speaker:

(12) *Paka-rni, ngula-ju yangka kuja-ka*
hit-NPST that-TOP that AUX.REL-NPST
yapa-ngku pakarni watiya wiri-jarlu
person-ERG hit-NPST tree big-very
warlkurru-kurlu-rlu.
axe-PROP-ERG
'Pakarni is like when a person hits a very big tree with an axe.'

The importance of this sense is confirmed by the text sample (Napaljarri and Cataldi 1994, containing roughly fifty occurrences of the verb), in which the meaning of *pakarni* translated variously as 'hit, strike, beat, bash, slap, smash, clap' was by far the most common (these senses, it is claimed, are all contextual modulations of a single sense). The next most frequent was 'kill, strike dead, destroy', followed by 'hunt/catch and kill', then 'chop.' Senses translated as 'stab' and 'initiate' were of marginal importance, occurring only once each throughout the entire sample.

Examples (13)–(25) illustrate some of the aspects of the prototypical meaning and its interaction with different grammatical structures. Consider first of all (13) and (14):

(13) *yapa-ngku ka puta-paka-rni maliki.*
person-ERG AUX try-hit-NPST dog
'Someone's trying to hit the dog.'

(14) *yapa-ngku ka paka-rni maliki.*
person-ERG AUX hit-NPST dog
'Someone's hitting the dog.'
'Someone's hitting at the dog.'

The normal reading of *pakarni* is that actual contact must take place between subject and object: unsuccessful attempts at hitting may not be described by the verb. Where the intention to hit is not realized, the 'unachieved goal' *-rlajinta* construction may be used, as well as the construction using the preverb *puta,* as in (13) above:

(15) *Maliki-ki-rla-jinta* *paka-rnu* *watiya-rlu*
dog-DAT-3DAT-DD hit-PST stick-ERG
wirriya-pardu-rlu.
boy-DIM-ERG
'The boy tried to hit the dog with a stick.' (WlpD)

The instruments associated with *pakarni* include bodyparts (hands, feet), sticks and artefacts (axes):

(16) *Rdaka-ngku* *wirriya* *paka-rnu* *kapirdi-nyanu-rlu.*
hand-ERG boy hit-PST sister-AN.POSS-ERG
'His big sister hit the boy with her hand.' (WlpD)

(17) *wati-ngki* *puuly-marda-rnu* *wardapi* *manu*
man-ERG catch-PST goanna and
watiya-kurlu-rlu *ka* *paka-rni.*
stick-PROP-ERG AUX hit-NPST
'The man caught the goanna and hits it with a stick.'

(18) *Purlja* *kala-lu* *paka-rnu* *wirliya-rlu.*
hairstring ball AUX.USIT-333S hit-PST foot-ERG
'They used to kick [lit. 'hit with the foot'] the hair-string ball.' (WlpD)

(In English, impact with the foot is not usually described by the same verb as impact with the hand: *kicking* is not thought of as *hitting with the foot*).

When the instrument is an axe, *pakarni* is usually translated as 'chop':

(19) *wati-ngki* *ka* *watiya* *paka-rni* *yungu*
man-ERG AUX wood chop-NPST PURPV
karli *ngurrju-ma-ni.*
boomerang make-NPST
'The man is chopping wood to make a boomerang.'

(20) *wati-ngki* *ka* *watiya* *paka-rni.*
man-ERG AUX wood chop-NPST
'The man is chopping down a tree.'

In English the same activity can be described as *cutting down a tree* or *chopping down a tree*, and *cut* covers the use of both knives and axes. This contrasts with *pakarni*, which seems only to be appropriate to the use of axes, and is not recorded as applying to situations which English would describe as *cut (with a knife)*.[6]

Warlpiri admits some flexibility in the distribution of arguments of *pakarni*. As in English, themes rather than actors may occupy subject position, so that it is the whole entity rather than a part of it that is said to be hitting something as the impactor:

(21) *Turaki-rli* *puluku* *wiri-jarlu* *paka-rnu*
car-ERG bullock big-very hit-PST
parnka-nja-karra-rlu.
run-INF-SS-ERG
'The moving car hit a big bullock.' (WlpD)

This corresponds to *hit* or *collide with* in English. When the subject is human, however, informants express reservations about the use of *pakarni* or *pinyi* in this sense. For example, neither of these verbs was felt to be appropriate to translate 'I fell off the horse and *hit* the ground', which was expressed using only a single verb form and an allative-marked nominal:

(22) *walya-kurra-rna* *wanti-ja* *timana-ngurlu.*
ground-ALL-1S fall-PST horse-EL
'I fell off the horse onto the ground.'

As seen earlier, when *pakarni* is the chosen verb in contexts involving human impact with a stationary object, the human is put in object position:

(23) *Watiya-rlu* *wirriya* *paka-rnu* *parnka-nja-kurra.*
tree-ERG boy hit-PST run-INF-DS
'[The] boy ran into the tree while he was running [lit. 'The tree struck the boy while (he was) running'].' (WlpD)

(24) *Jurru-ju* *paka-rnu* – *yi-rna*
head-TOP hit-PST AUX.COMP-1S
nganta *yuwarli-rla* *yuka-yarla-rra.*
as I thought house-LOC enter-IRR-away

'I bumped my head [lit. 'it struck my head'] as I was about to go into the house.' (WlpD)

Among the many contextual variants of glosses for *pakarni*, the following two, glossed as 'knock' and 'smash', are worth noting:

(25) *yapa-ngku* *ka* *paka-rni* *tuwa.*
person-ERG AUX hit-NPST door
'Someone's knocking on/hitting the door.'

(26) *karnta-ngku* *ka* *kuyu* *puta-puta-yarlki-rni* *yirnmi*
woman-ERG AUX meat try-try-bite-NPST cooked
ngula *karnta* *jinta-kari-rli* *ngarru-rnu* *yungu*
that woman one-other-ERG tell-PST PURPV
kuyu-ju *paka-rni* *pirli-kirli-rli*
meat-TOP hit-NPST stone-PROP-ERG
manya-ma-ninja-ku.
soft-make-INF-DAT
'The woman is trying to bite the cooked meat and the other lady told her to smash the meat with a stone to make it softer.'

6.2 *Pakarni* 'kill'

WlpD does not list 'kill' as one of the meanings of *pakarni*, 'hit fatally' only being expressed by *pakarni* when accompanied by one or more expressions in the allative case, like *tarnnga* in (27):

(27) *Tarnnga-kurra-lu* *paka-rnu* *nyurnu-kurra.*
for good-ALL-333S hit-PST death-ALL
'They beat him to death.' (WlpD)

As the following sentences show, 'die' does not seem to be a necessary component of the meaning of the verb, although the use in (28) and (30) of the contrastive conjunction *kala* 'but',[7] suggests that, in these contexts at least, it is an expected one:[8]

(28) *wati-ngki* *marlu* *paka-rnu* *kala* *kula* *marlu-ju*
man-ERG roo hit-PST but NEG roo-TOP
pali-ja.
die-PST
'The man hit the kangaroo, but the kangaroo didn't die.'

(29) *wati-ngki* *ka* *marlu* *paka-rni* *marlu-ju*
man-ERG AUX roo hit-NPST roo-TOP
wankaru *juku.*
alive still
'The man hits the kangaroo but the kangaroo is still alive.'

(30) *wati-ngki* *ka* *marlu* *paka-rni* *kala* *kula*
man-ERG AUX roo hit-NPST but NEG
marlu-ju *pali-ja.*
roo-TOP die-PST
'The man hits the kangaroo, but the kangaroo didn't die.'

That 'die' can be *at least* an expected component of the meaning of *pakarni*, however, is borne out by the fact that 'kill' is sometimes used as the translation of *pakarni*:

(31) *Ngarra-rna-rla* *ngaju-jala* *jija,* *ngarra-ju*
AUX-1S-3DAT I-really shoulder AUX-1O
wapirdi *paka-rni. …* *Ngaju-jala* *ngarra-ju*
on approach kill-NPST I-really AUX-1O
wangka-mi, *paka-rni.*
speak-NPST hit-NPST
'I [carry] this around on my shoulder in case it gets close enough to try to kill me… It may speak to me, or try to kill me.' (Napaljarri and Cataldi 1994: 12)[9]

(32) *Nyarrpa-ma-nu-pala* *nyampu-jarra-rlu-juku* *waja-pala*
what-do-PST-33S this-DU-ERG-still EMPH-33S
paka-rnunju-nu.
hit-INCPT-PST
'What have those two done with it? Have those two killed it?' (Napaljarri and Cataldi 1994: 30)

(33) *Yuu,* *wiyarrpa* *ka-rlipa-jana* *paka-rni*
Yes poor thing AUX-122S-333O hit-NPST
wirriya-wirriya-ju.
boy-boy-TOP
'Yes, we kill the boys, poor things.' (Napaljarri and Cataldi 1994: 150)[10]

(34) *wati-ngki* *pakarnu* *marlu*
man-ERG hit-PST kangaroo
The man hit and killed the kangaroo.

That (31) and (33) refer to the killing of people is especially revealing, in light of the absence of any of the allative expressions mentioned above: whereas the death of the object would be expressed by the verb very naturally in the context of striking animals (to eat, for example), it is presumably less expected when human beings are the objects. This makes it significant that *pakarni* can convey the notion of fatally striking people on its own, without the support of an allative.

6.3 *Pakarni* 'pierce'

A small number of sentences in WlpD illustrate a meaning for *pakarni* that seems very close to that of *pantirni*, 'pierce'. The dialectal distribution of this meaning is not commented on in WlpD, but it is found among northern speakers and it might possibly be influenced by Warumungu *paka-nta* 'pierce'. The more secure of the only two examples the dictionary cites is (35):

(35) *Ngapa-ku-lku* *paka-ka!* *Kutu* *kapu-rlupa*
water-DAT-now hit-IMPER close AUX.FUT-122S
palka-ma-ni.
find-NPST
'Dig it in now to see if there's water. We'll find it close (to the surface).' (WlpD)

('Dig it in' can be taken as equivalent to 'pierce', which is WlpD's gloss of the meaning.) Sentence (36) is the only other citation:

(36) *Kuja-ka-lu yangka rdaku-rlangu pangi-rni,*
AUX.REL-NPST-333S the hole-for example dig-NPST
yapa-ngku, ngula-ka-lu piki-ngki
person-ERG AUX.REL-NPST-333S pick-ERG
paka-rni.
hit-NPST
'When people dig holes for example, they pierce (the ground) with a pick.' (WlpD)

With such meagre attestation, 'pierce' is a minority sense of *pakarni* and should therefore be scrutinized. In (36) a translation as 'hit' seems just as realistic, analogous to the use of *pakarni* to describe chopping a tree with an axe: one 'strikes' the ground with a pick, and the ground is then 'pierced.' Depending on the exact situation referred to by (35), a similar possibility might exist, disqualifying 'pierce' altogether as a possible translation of the verb. This would be salutary in that it would eliminate an apparently exceptional meaning and lead to greater economy and homogeneity in the verb's postulated senses. Note that the real-world situation described in (35) and (36) is actually one where, in fact, the ground is 'pierced.' But this does not exclude 'hit' or 'strike' as the correct translation of *pakarni* if these are also appropriate (if less specific) descriptions of the action involved (as of course, as just noted, they are), and if such a translation has desirable consequences for the overall analysis of the meaning of the words. More investigation is needed into whether *pakarni* can mean 'pierce' in situations which do not involve forceful impact between two surfaces, as for instance the use of a pick does. It would be especially instructive to find out whether it is an appropriate description of sewing or other acts of piercing with a needle. The absence of any attestations of these meanings in WlpD suggests that such a sense would be quite rare, and there is also no attestation for *pakarni* of the meaning 'bite' or 'sting', a polysemy which accompanies the meaning 'pierce' in both *pantirni* and *pajirni*.

6.4 *Pakarni* 'obtain by *paka*'

Like many P/I verbs in Warlpiri, *pakarni* undergoes an extension in which its grammatical object is not directly affected by P/I (in other words, it is

not the *object surface*), but instead is obtained or brought into being as a result of a P/I act, as in (37) below:

(37) *Palya-lu-ngalpa* *marna-jangka* *paka-ka!*
gum-PL.SBJ-122O spinifex-EL hit-IMPER
'Make us some resin from the spinifex!' (WlpD)

Here the resin is not the object surface of a P/I event: it is the grass that is struck and the resin is obtained or produced as a result of this striking. Most instances of this meaning, however, are complicated by the fact that the object of the P/I verb is typically polysemous, conveying both the thing obtained and its source (for further discussion see 8.4 below). For example, *jurlarda* means both 'hive' and 'honey', as in (38) (a further meaning is 'bee', but this does not concern us here):

(38) *Jurlarda-rnalu* *paka-rnu.*
honey-111S chop-PST
hive-111S chop-PST
'We chopped out a native bee hive (to get the honey).' (WlpD)

The bracketed phrase in the English translation clumsily reflects the full force of the Warlpiri. The existence of such product/source polysemies means that the extension of a P/I verb to mean 'get by P/I' as in (37) above is only unambiguous when no such polysemy exists, which is the minority case in the WlpD citations.

6.5 *Pakarni* 'paint'

WlpD quotes a few sentences where *pakarni* seems to mean 'apply [paint] to':

(39) *Paka-rnu-lpa-lu-nyanu* *karrwarawara-rlu*
hit-PST-IMP-333S-REFL paint-ERG
karlji-ngki.
pipeclay-ERG
'They painted each other with [stripes of] white pipe-clay.' (WlpD)

At first sight, this meaning does not appear to be easily reconciled with the rubric meaning 'hit', either as a contextual variant or as a meaning necessarily contained in the real-world context, as 'hit' was with the occurrences of 'pierce' in 6.3. The act described by English 'paint' shares only the element of contact between surfaces with the act described by 'hit': painting is not thought of in English as 'the kind of hitting you do when you apply paint to someone', which would rule out an interpretation by which 'paint' is a contextual modulation of 'hit' which does not have to be separately acknowledged. Thus, (39) above conveys more than that 'they *hit* each other with white pipe clay': the action described is not one which conventionally falls under the description of *hitting* in English, which does not convey the idea of the deliberate and closely monitored application of 'decorative' marks, as the verb 'paint' does. For the purposes of Warlpiri-English description, then, the arrangement of the English lexicon compels us to recognize 'paint' and 'hit' as different – though close – points in the meaning region of *pakarni*. It is not possible in English to articulate a common core of meaning shared by both 'paint' and 'hit' which would allow us to avoid the positing of polysemy and hazard a more general meaning instead, because any such common core would be so general as to include all situations which involved contact between surfaces. It is plainly *not* the case, however, that *pakarni* can be used as a superordinate whose meaning subsumes virtually any contact verb: if it did have such a role, the following sentence would be a contradiction and therefore disallowed, but in fact it is perfectly acceptable:

(40) *karnta-ngku* *ka* *maliki* *panti-rni*
woman-ERG AUX dog stab-NPST
paka-rninja-wangu-rlu.
hit-INF-PRIV-ERG
'The woman is stabbing the dog without hitting it.'

Similarly, a real difference exists between *pakarni* and the more general contact verb *marnpirni*, so that it makes sense to say 'I am touching the dog without hitting it' (for a discussion of the 'privative' construction using *-wangu* see 6.11):

(41) *marnpi-rni* *ka-rna* *jarntu* *paka-rninja-wangu-rlu.*
touch-NPST AUX-1S dog hit-INF-PRIV-ERG
'I am touching the dog without hitting it.'

6.6 *Pakarni* ‘perform (dance, ceremony)’

In regard to this and the next sense, it should be pointed out that *pakarni* is not a general superordinate for the performance of ceremonies, but is limited to some only; for other ritual performances *katirni* is the appropriate word (see below). In the meaning ‘perform (dance, ceremony)’ the corroboree is the object of the verb:

(42) *Wati-patu-rlu* *ka-lu* *purlapa* *paka-rni*
man-PL-ERG AUX-333S corroboree hit-NPST
jalyirrpa-kurlu-rlu *manu* *kuruwarri-kirli-rli.*
leaf-PROP-ERG and design-PROP-ERG
‘The men are dancing the corroboree decorated with leafy branches and with painted designs.’ (WlpD)

This verb is typically associated with men’s dancing.

6.7 *Pakarni* ‘initiate’

This meaning shows a significantly different case-frame from the previous one: instead of being object of the verb, the word for initiation ceremony (*kurdiji*) is assigned locative or instrumental case:

(43) *Nyarrpara-rla-ngku-lu* *paka-rnu* *kurdiji-rla?*
where-LOC-2O-333S hit-PST initiation ceremony-LOC
‘Where did they initiate you?’ (WlpD)

(44) *Kurdiji-rli-rlipa-jana* *Jampijinpa-jarra*
initiation ceremony-ERG-122S-333O Jampijinpa-DU
paka-rnu.
hit-PST
‘We initiated two Jampijinpas.’ (WlpD)

6.8 *Pakarni* ‘(disease) affect’

Pakarni can be used with various diseases like head colds and influenza as subject:

(45) *Kuntulpa-rlu* *kurdu* *wita* *paka-rnu.*
cold-ERG child small hit-PST
'The baby has a cold.' (WlpD)

(46) *Miirnta-rlu-ju* *paka-rnu.*
cold-ERG-1O hit-PST
'I have a cold.' (WlpD)

A metaphorical analysis of these cases will be presented below.

6.9 *Pakarni* 'have one's fill of'

The English expressions 'stuff oneself with' or 'have one's fill of' are sometimes appropriate as translations of *pakarni*:

(47) *Wati-ngki-nyanu* *kuyu-ngku* *paka-rnu.*
man-ERG-REFL meat-ERG hit-PST
'The man had his fill of meat.' (WlpD)

(48) *Pama-ngku* *kapu-rna-ju* *jalangu-rlu* *paka-rni.*
grog-ERG AUX.FUT-1S-1O today-ERG hit-NPST.
'I'm going to have my fill of grog today.' (WlpD)

6.10 *Pakarni* 'be in same location as'

This meaning seems closely related to occurrences of the verb which take the semantic role of [theme] as subject. The only citation, quoted as (49), occurs in a compound with *ya-ni* 'go' in a conative, double-dative context. The complex gloss 'try to catch up with' does not reflect the semantic contribution of *pakarni*, which needs to be separated from that of the rest of the sentence. In the use of the verb found in (49) we can distinguish three components: motion, attempt and position in the same location as the object. Of these, only the last is conveyed by *pakarni*: motion is expressed by the verb 'to go' which is suffixed to the infinitival form of *pakarni*, and the idea of attempt is expressed by the RLA-JINTA construction, translated 'try to (and fail)'. *Pakarni* can therefore be taken as contributing the notion of location in the 'same' place. This identity of location is expressed as P/I

between two bodies, not in terms of physical collision, but through one body coming into a field of possible influence on the other. By contrast, as we have seen, the prototypical meaning of the verb does require actual contact: *pakarni* cannot be used to convey 'hit at', 'try to hit but actually miss.'

(49) *Purda-ngirli-kari-rna-rla-jinta* *paka-rninja-ya-nu*
from behind-other-1S-3DAT-DD hit-INF-go-PST
mutukayi-kirli-ki.
car-PROP-DAT
'I tried to catch up with the motorist, (but he was too fast for me).'
(WlpD)

6.11 *Pakarni*/*marnpirni*; the *-wangu* construction

Pakarni participates in a complex lexical relationship with the verb *marnpirni*, 'touch.' In the first place, there is felt to be an inherent contrast between sentences (50) and (51):

(50) *karnta-ngku* *ka* *maliki* *paka-rni.*
woman-ERG AUX dog hit-NPST
'The woman is hitting the dog.'

(51) *karnta-ngku* *ka* *maliki* *marnpi-rni.*
woman-ERG AUX dog touch-NPST
'The woman is touching the dog.'

These are not descriptions of the same event: *marnpirni* and *pakarni* are two distinct activities.

At the same time, however, there is some evidence that the activities denoted by the two verbs are thought of as interdependent. The precise nature of this interdependence is unclear, but it seems *prima facie* comparable to the way in which, in many languages including English, *hitting* may be counted as *a kind of touching* and, additionally, *touching* can be thought of as *a component of* the act of *hitting*. I will comment further on the nature of the interdependence below. First, though, I will discuss the feature of Warlpiri grammar which demonstrates it, which is a construction in which an infinitive verb takes the privative marker *-wangu* 'without', agreeing with the subject of the clause's finite verb. This '*-wangu* construction' will

frequently be used in the present chapter to reveal aspects of P/I verbs' semantics.

The typical context in which the construction will appear is [Noun-ERG auxiliary Noun.ABS $verb_1$-TENSE $verb_2$-INF-PRIV-ERG], as illustrated by (52):

(52) *karnta-ngku* *ka* *maliki* *paka-rni*
woman-ERG AUX dog hit-NPST
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
'The woman is hitting the dog without touching it.'

Pakarni is asserted of a particular situation – a woman hitting a dog – while *marnpirni* is denied. The denial is accomplished through use of the privative *-wangu* morpheme, which attaches to the infinitive of *marnpirni* and takes ergative case marking in agreement with the subject of the sentence (*karnta-ngku*). The acceptability of (52) shows that in this case the semantics of *pakarni* and *marnpirni* are sufficiently independent – in a way to be clarified below – for this statement not to be nonsensical: denial of *marnpirni* does not prevent *pakarni* still being true. We will refer to this semantic relationship as '*-wangu* independence':

> -wangu *independence:*
> a verb *x* is *-wangu* independent of a second verb *y* in a given sentence if the sentence is judged acceptable when *x* is asserted at the same time as *y* appears in the *-wangu* construction agreeing with the subject of *x*.

On the evidence of (52), therefore, we will say that *pakarni* is *-wangu* independent of *marnpirni*.

What makes the *-wangu* construction a revealing semantic indicator, however, is the fact that not all combinations of verbs are acceptable in it. *Pinyi*, for example, yielded the opposite acceptability judgement when substituted for *pakarni* in exactly the same context as (52):

(53) **!***karnta-ngku* *ka* *maliki* *pi-nyi*
woman-ERG AUX dog hit-NPST

marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
‘The woman is hitting the dog without touching it.’

Pinyi, therefore, will be called ‘-*wangu* dependent’ on *marnpirni*. We will define -*wangu* dependence as follows:

-wangu *dependence:*
a verb *x* is -*wangu* dependent on a second verb *y* in a given sentence if the sentence is judged unacceptable when *x* is asserted at the same time as *y* appears in the -*wangu* construction agreeing with the subject of *x*.

The -*wangu* construction is thus a convenient window onto aspects of verbal semantics; the issue of exactly what aspects these are will be discussed in a moment. The -*wangu* dependence or independence of a verb, however, can only be tested with respect to particular contexts and is as a result partially influenced by the choice of participants associated with the verb. As far as possible the test sentences devised for this construction took prototypical instances of the verbs in question in order to introduce the smallest number of special considerations and so as to obtain the most representative results.[11]

We now turn to the precise nature of the verbal relationship to which -*wangu* is sensitive, in order to isolate what semantic features a verb’s -*wangu* dependence or independence in a particular sentence reveals. There would seem to be two possible ways to interpret the -*wangu* dependence of a verb *x* with respect to a second verb *y*. Firstly, -*wangu* dependence could be taken as the sign of a hyponymic relationship between the two verbs, according to which *y* is a superordinate of *x*. The unacceptability of (53), for example, could be taken as a sign that *marnpirni* is a superordinate of *pinyi*, i.e. that *pinyi* is *a kind of marnpirni* (compare how in English the unacceptability of the sentence **!**‘The woman strolled to the shop without walking to it’ is explained by the fact that *walk* is a superordinate of *stroll*). Alternatively, -*wangu* dependence could be taken as a sign that the meaning of the -*wangu* marked verb is a *component* of the meaning of the main verb: (53) thus might show that the meaning of *marnpirni* is *contained* in the meaning of *pinyi*, just as in English the unacceptability of **!‘***I read the page without seeing it*’ is explained by the fact that *seeing* is a component

of *reading*; we would not necessarily want to say, however, that *see* is a superordinate of *read*.

I will not attempt to distinguish between these alternatives in either this or the following sections, and will simply present the evidence of verbs' *-wangu* relations and leave the question open of what the semantic characteristics are that are revealed by this behaviour in each case. Privative *-wangu* seems to be general in revealing both hyponymy and 'component' relations, and additional tests will be needed to discriminate between these options in individual cases – assuming, of course, that hyponymy and 'componentiality' are the appropriate lexical relations. Resolution of this question, and a choice of whether *-wangu* dependence is a sign of a hyponymic relationship or of the meaning of one verb being a component of the meaning of the other, or of some third unknown semantic feature, must thus await a far more detailed examination of this specific phenomenon.

Sentences like (52) suggested that *pakarni* is *-wangu* independent of *marnpirni*. In fact, however, (52) expresses a particular understanding which suggests that under other circumstances *pakarni* may be *-wangu* dependent on *marnpirni*: it suggests that the woman is using a stick to hit the dog, not hitting it with her hands. This suggests that under one of its readings – the one in which no instrument is involved – *paka* may be thought of as a kind of *marnpi*, or that *marnpi* is thought of as a component of *paka*. Confirmation of this comes from the following sentences, referring to both present and past time, in which the type of instrument associated with the verb of hitting is specified:

(54) **!***karnta-ngku* *maliki* *paka-rnu* *rdaka-jarra-kurlu-rlu*
woman-ERG dog hit-PST hand-DU-PROP-ERG
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
'The woman hit the dog with her hands without touching it.'

(55) *karnta-ngku* *ka* *maliki* *paka-rni* *watiya-kurlu-rlu*
woman-ERG AUX dog hit-NPST stick-PROP-ERG
rdaka-ngku *marnpi-rninja-wangu-rlu.*
hand-ERG touch-INF-PRIV-ERG
'The woman is hitting the dog with a stick, without her hand touching it.'

(56) **!***wati-ngki* *ka* *maliki* *rdaka-jarra-kurlu-rlu* *paka-rni*
man-ERG AUX dog hand-DU-PROP-ERG hit-NPST
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
'The man is hitting the dog with his hands without touching it.'

(57) **!***wati-ngki* *maliki* *rdaka-jarra-kurlu-rlu* *paka-rnu*
man-ERG dog hand-DU-PROP-ERG hit-PST
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
'The man hit the dog with his hands without touching it.'

6.12 Analysis

Having described the range of meanings expressed by *pakarni* and explored some of its interactions with other grammatical structures, we may now show how they are categorized within the typology of polysemous relations established in chapter four. The meanings are repeated below, arranged according to the typology (the translations of these meanings should not be taken as equivalent to the paraphrases used to reveal the nature of the extension: these will be determined below). As noted above, 'pierce' is attested as a marginal sense of *pakarni*. It is listed below (tentatively, as an effect metonymy), but not discussed further.

Core meaning

(58) 'Hit':
karnta-ngku *ka* *maliki* *paka-rni* *watiya-kurlu-rlu.*
woman-ERG AUX dog hit-NPST stick-PROP-ERG
'The woman is hitting the dog with a stick.'

Metaphorical applications

(59) '(disease) Affect':
Kuntulpa-rlu *kurdu* *wita* *paka-rnu.*
cold-ERG child small hit-PST
'The baby has a cold.' (WlpD)

(60) 'Fill oneself with food/drink':
Wati-ngki-nyanu *kuyu-ngku* *paka-rnu.*
man-ERG-REFL meat-ERG hit-PST
'The man had his fill of meat.' (WlpD)

(61) 'Be in same location as':
Purda-ngirli-kari-rna-rla-jinta *paka-rninja-ya-nu*
from behind-other-1S-RLA-JINTA hit-INF-go-PST
mutukayi-kirli-ki.
car-PROP-DAT
'I tried to catch up with the motorist, (but he was too fast for me).' (WlpD)

Effect metonymies

(62) 'Kill':
Yuu, *wiyarrpa* *ka-rlipa-jana* *paka-rni*
Yes poor thing AUX-122S-333O kill-NPST
wirriya-wirriya-ju.
boy-boy-TOP
'Yes, we killed the boys, poor things.' (Napaljarri and Cataldi 1994: 150)

(63) 'Pierce':
Kujaka-lu *yangka* *rdaku-rlangu*
AUX.REL-333S that hole-for example
pangi-rni, *yapa-ngku,* *ngula-ka-lu*
dig-NPST person-ERG AUX.REL-NPST-333S
piki-ngki *paka-rni.*
pick-ERG hit-NPST
'When people dig holes for example, they pierce (the ground) with a pick.' (WlpD)

(64) 'Obtain by *paka*':
Palya-lu-ngalpa *marna-jangka* *paka-ka!*
gum-PL.SBJ-122O spinifex-EL hit-IMP
'Make us some resin from the spinifex.' (WlpD: *palya*)

(65) 'Initiate':
Kurdiji-rli-rlipa-jana *Jampijinpa-jarra*
initiation ceremony-ERG-122S-333O Jampijinpa-DU
paka-rnu.
hit-PST
'We initiated two Jampijinpas.' (WlpD)

(66) 'Perform (dance, ceremony)':
Wati-patu-rlu *ka-lu* *purlapa* *paka-rni*
man-PL-ERG AUX-333S corroboree hit-NPST
jalyirrpa-kurlu-rlu *manu* *kuruwarri-kirli-rli.*
leaf-PROP-ERG and design-PROP-ERG
'The men are dancing the corroboree decorated with leafy branches and with painted designs.' (WlpD)

Context metonymy

(67) 'Paint':
Paka-rnu-lpa-lu-nyanu *karrwarawara-rlu*
hit-PST-IMP-333S-REFL paint-ERG
karlji-ngki.
pipeclay-ERG
'They painted each other with stripes of white pipe-clay.' (WlpD)

Metaphorical applications of the core meaning

Meaning (59), glossed '(disease) affect' is classed as a metaphorical application of the P/I meaning by which detrimental actions are treated as acts of impact: illness is seen as the result of an evil force which assails the victim. The experiential basis of this metaphor is the fact that an impact event will cause pain to a human object: other events which do not involve impact but which also bring pain are metaphorically incorporated into the category of *pakarni*.

Sentence (60), 'fill (oneself) with (food/drink)', is not a well attested use of *pakarni* in the Warlpiri dictionary database, so any analysis must remain tentative. As a working hypothesis, I suggest that it can also be taken as a metaphor: as this and the other glosses ('stuff oneself with', 'gorge oneself on') recorded in the database suggest, what *pakarni* seems to express in this

meaning is that the object has had as much as he or she can take, so that satiation is represented as the physical incapacity resulting from a blow. Meaning (61), 'be in the same location as', which is only found when the infinitival form of *pakarni* is prefixed to the verb 'go', can also be analyzed as a metaphor: the meeting of two bodies in the same place is represented as their collision or impact.[12]

Effect metonymies

Within the above typology, the 'actual-potential' polysemy that gives rise to the extension seen in (62), translated 'kill', is analyzed as an example of metonymic extension to the effect of the P/I event. This same means of extension can account for meaning (64), 'obtain by *paka*', where *pakarni* conveys not only the occurrence of a P/I event, but the effect that this event has: the object of the verb being obtained by the P/I action (in the case of (64), the action of hitting or flailing the spinifex to obtain the resin).

Meaning (66), 'perform (dance, ceremony)' may also be analyzed as an effect metonymy: in this example a *purlapa* 'corroboree' is brought into being or constituted by acts of P/I between clapsticks or between feet and spears and the ground. Given that a ceremonial dance would not exist as such without these acts of P/I, we may interpret the meaning of *pakarni* in this extension as 'make/cause to occur by *paka*', a paraphrase which reveals very clearly the character of the meaning as a metonymic extension to the effect of the P/I – the dance is made, constituted or brought into being as such by the particular types of P/I of which it consists.

In (65) above, the meaning 'initiate' may also be treated as an effect metonymy: the process of initiation (circumcision/subincision) involves acts of P/I (characteristically with sharp objects); their centrality within the initiation procedure allows an extension of the verb to be made from its core meaning to the effect that this action has: within the wider frame of initiation, to *paka* an eligible male is to 'initiate' him. This extension shows up the close relation between effect and context metonymies. 'Initiate' is as open to analysis as a metonymy to the context in which the P/I occurs as it is to analysis as metonymy to the effect of the P/I, depending on whether one wants to see the initiation as the result of the P/I or as the context within which P/I takes place. This does not so much reflect an indeterminacy in the analysis as a lack of the cultural data relevant to the question. If it was discovered that *paka* is thought of as a means to achieve initiation

then analysis as an effect metonymy would be appropriate; if on the other hand the act of *paka* was seen as just one part of the entire initiation process, all of which was necessary to change the status of an initiand, then a context metonymy would be called for as the right analysis.

Context metonymies

Pakarni 'paint', as seen in (67), refers to the application of paint in lines or other definite designs by broad sweeps of the hand like those found in P/I. This similarity of hand movement in the actions 'hitting' and 'painting' serves as a useful pretheoretical starting point for our explanation of the polysemy. 'Paint' is, in fact, amenable to alternative classifications within the typology, with the choice between them depending on the extent to which the action involved in this type of painting can be seen as the same as that involved in prototypical cases of *pakarni* like sentence (58). The availability of alternative classifications does not reflect an indeterminacy in the analysis, but answers to the fact that there is a variety of ways in which the relations between the two meanings may be construed: each of these construals, however, corresponds to only a single category of the analysis. If the sweeping hand movement of this type of painting is conceived of as identical to the movement involved in a prototypical case of *pakarni* like the act involved in meaning (58), 'paint' can be taken to represent a context metonymy of the verb's prototypical meaning: the verb no longer names the core P/I act pure and simple, but names the event that forms the context in which the act occurs, and which leads the hearer to reconceive of the nature of the verbal action itself as no longer 'hitting' but 'painting', a rather different (though related) activity in terms of both its physical and psychological characteristics (compare English *slap on the paint*). On the other hand, if the physical routine in 'painting' is not itself considered as identical to the physical P/I routine of prototypical *pakarni*, the insight that it is the similarity of hand movement between 'hitting' and 'painting' that motivates the extension dictates a classification of 'paint' as a constituent metonymy: under this interpretation, the meaning of *pakarni* changes so as to convey not the entire P/I scenario of (typically hand) movement and forceful contact with an object, but only the hand movement involved.

7. *Pinyi*

Pinyi does not show quite the range of elaborated polysemous meanings found for *pakarni*, but within this slightly more restricted scope its translations are very similar. One striking difference between the two verbs is in their co-occurrence with preverbs: *pinyi* is by far the more extravagant in this respect. WlpD mentions roughly two hundred and thirty preverbs with which *pinyi* may appear, as opposed to only about ninety for *pakarni*. The fact that *pinyi* has the general meaning 'affect' (7.2), which can be readily modified by the addition of a preverb, is clearly important in this regard. Another obvious difference is that unlike *pakarni*, *pinyi* is not found in the otherwise widespread 'obtain by P/I' extension. These facts raise the question of whether *pinyi* is losing its identity as a P/I verb and undergoing a transition to become a general transitivizer, as its reflexes are in other languages of the Ngumpin subgroup of Pama-Nyungan, to which Warlpiri belongs. Note that *pinyi* forms its past tense in *pu-*, as is regular for monosyllabic verb roots with a high vowel.

7.1 *Pinyi* 'hit, kill, attack'

The meaning of *pinyi* as described by a native speaker is reproduced as (68):

(68) *Pi-nyi* *ngula-ji* *yangka kuja-ka*
"Hit"-NPST that-TOP that AUX.REL-NPST
wati-ngki *paka-rni* *kali-nyanu* *kulu-ngku,*
man-ERG hit-NPST spouse-AN.POSS anger-ERG
yangka kuja-ka *paka-rni* *watiya-kurlu-rlu*
that AUX.REL-NPST hit-NPST stick-PROP-ERG
manu *karli-kirli-rli* *manu* *kuturu-kurlu-rlu.*
or boomerang-PROP-ERG or club-PROP-ERG
'*Pinyi* is like when a man hits his wife in anger, like when he hits her with a stick, or a boomerang or a club.' (WlpD)

What is immediately noticeable is the use of *pakarni* to define *pinyi*, in light of which it is striking that the vernacular definition of *pakarni* (6.1 above) did *not* appeal to *pinyi*, but used *pakarni* to define itself. Given that *pinyi* has been defined in terms of *pakarni*, it is not surprising to find that

sentences which affirm the one while simultaneously denying the other are unacceptable:

(69) !*karnta-ngku* *ka* *maliki* *pi-nyi*
woman-ERG AUX dog hit-NPST
paka-rninja-wangu-rlu.
hit-INF-PRIV-ERG
'The woman is hitting the dog without hitting it.'

(70) !*karnta-ngku* *ka* *maliki* *paka-rni*
woman-ERG AUX dog hit-NPST
pi-nja-wangu-rlu.
hit-INF-PRIV-ERG
'The woman is hitting the dog without hitting it.'

At least as far as the reading 'hit' is concerned, then, the two verbs seem to be synonymous.[13]

Like *pakarni*, *pinyi* often refers to the killing of humans or animals. In fact, ambiguity can easily exist over whether the verb's object dies as a result of the action of the verb, so that a sentence like (71) can mean either 'I'll hit that person' or 'I'll kill that person':

(71) *yapa* *kapu-rna* *pinyi.*
person AUX.FUT-1S hit/kill

Disambiguation strategies exist: for instance, an allative expression like *tarnnga-kurra* 'for good-ALL' can be added to enforce the 'kill' reading. In the absence of such explicit cues, it would seem that prototypically domestic animals are associated with the 'hit' reading of *pi-nyi*, whereas prototypically wild, edible ones are associated with 'kill.' The following Warlpiri phrases were presented to my informant without any context: a typical domestic, non-food animal, 'dog', triggered an interpretation of *pinyi* as 'hit', whereas 'kangaroo', a typical food animal, prompted 'kill':

(72) *maliki* *pi-nyi*
dog hit-NPST
'hitting the dog'

(73) *marlu* *pi-nyi*
roo hit-NPST
'killing the kangaroo'

Interestingly, when presented with 'cat', which is neither a traditional domestic nor wild animal for Warlpiri people, my informant volunteered both 'hit' and 'kill' as interpretations of *pinyi*:

(74) *cat* *pi-nyi*
cat hit-NPST
'hit a cat'/'kill a cat'

When *pinyi* is collocated with meat animals, the status of 'die' as an element of its meaning is much less negotiable than it is for *pakarni*, which, as we have seen, need not necessarily connote fatality:

(75) **!***wati-ngki* *marlu* *pu-ngu* *kala* *kula* *marlu-ju*
man-ERG roo hit-PST but NEG roo-TOP
pali-ja.
die-PST
'The man killed the kangaroo but the kangaroo did not die.'

(76) **!***wati-ngki* *ka* *marlu* *pi-nyi* *marlu-ju*
man-ERG AUX roo hit-NPST roo-TOP
wankaru *juku.*
alive still
'The man kills the kangaroo but the kangaroo is still alive.'

The meaning 'kill' is not restricted to human subjects:

(77) *Kujaka-nyanu* *kuyu* *nyanungu-nyangu-lku*
AUX.REL-REFL meat he-POSS-and then
pi-nyi *wardapi-rli.*
kill-NPST goanna-ERG
'The goanna kills himself meat – his meat.' (WlpD)

The subject of the next sentence is two dogs, and it illustrates how 'hunt' is frequently the appropriate translation:

(78) *Tapu-ngka* *wulyu-wulyu-pala* *pu-ngu,*
Tapu-LOC mice-33S hunt-PST
nga-rnu-pala.
eat-PST-33S
'… [at Tapu] they hunted little mice. They ate them.' (Napaljarri and Cataldi 1994: 120)

When people's actions are described as *pinyi*, the reference is usually towards forceful contact "stereotypically made by the hand … or by some entity manipulated … using the hand" (WlpD). But the verb may also be used to describe the characteristic type of aggressive physical contact made by animals. WlpD describes this contact as made with the part of the animal that "most characteristically produces an injurious effect". Sentence (78) could be interpreted as an example of this usage; usually however 'attack' is used to convey this meaning of the verb. Here is another example with a dog as subject:

(79) *Yali-rli!* *palka-ngku-ju* *pu-nganya-rra.*
that-ERG really-ERG-TOP attack-PRSNT-away
Palka *ka-rna* *nya-nyi* *maliki.* *Kuyu* *ka*
body AUX-1S see-NPST dog meat AUX
marlu *pi-nyi* *palka-ngku.*
roo attack-NPST really-ERG
'There it is actually attacking it. I can actually see the dog. It is really attacking the kangaroo.' (WlpD)

We also find *pinyi* used in reference to insects:

(80) *Purrju-ju,* *yumangi-piya* *yangka* *wiri-pirdinypa-ju*,
Marchfly-TOP fly-like that big-DEF.SPEC-TOP
yukiri-rla-mipa *kuja-ka-lu*
new growth-LOC-only AUX.REL-NPST-333S
palka-jarri *ka-ngalpa,* *wajirrki-rla-rlu*
appear.NPST AUX-122O green grass season-LOC-ERG
pi-nyi – *purrju-ngku-ju.*
bite-NPST march fly-ERG-TOP
'Marchflies are like big flies which only appear after the rains, when the fresh growth has sprung up and they bite us in the green grass season – the Marchflies do.' (WlpD: *purrju*)

(68)–(80) demonstrate that *pinyi* can be translated as 'hit', 'kill', 'attack' 'hunt' and 'sting': these senses are clearly related in some obvious way, in that they all refer to detrimental physical contact between subject and object. The distinction between '(human) hit', '(dog) attack' and '(insect) sting' can be dissolved under the more general reading 'cause physical contact with bodypart which most characteristically produces an injurious effect' (WlpD). We can therefore think of these as contextual variants of a single meaning. (However, other arrangements are equally possible: we could imagine, for instance, that the use of *pinyi* for dogs is derived from 'kill', whereas the one for insects is to be related to 'hit'.). In the analysis of polysemous relations below we shall treat *pinyi* as polysemous between 'hit' and 'kill', while realizing that these meanings are not sealed off from each other, but connected by a variety of cases in which the death of the object of the verb moves from being an excluded component, to a possible one, to an obligatory one.

7.2 *Pinyi* 'affect'

Pinyi can be used with reference to non-physical subjects in a meaning that can be very generally translated as 'affect.' A common instantiation of this meaning, as in many Australian languages, is to express statements about the weather or the atmosphere (Walsh 1987 shows that meanings like this are also likely to be expressed in Australian languages by impersonal verbs):

(81) *Pardayi-rla* *kaji-ka-ngalpa* *pi-nyi.*
muggy weather-LOC AUX.POT-NPST-122O hit-NPST
'When it's sultry, it makes us feel sticky.' (WlpD)

(82) *pirriya-rlu* *ka-ju* *pi-nyi.*
cold-ERG AUX-1O hit-NPST
'The cold's getting into me.'

Pinyi may not be used like this when the effect of the weather is pleasant, for example if one is enjoying pleasant, cool weather after a period of excessive heat. Note that *pakarni* is never acceptable in these contexts: corresponding to (82), (83) is impossible:

(83) **!***pirriya-rlu* *ka-ju* *paka-rni.*
cold-ERG AUX-1O hit-NPST
‘The cold’s getting into me.’

It is also interesting that *pinyi* is more readily accommodated than *pakarni* into novel environments. For example, to express the idea that one is finding the sun too hot, it is possible to say (84):

(84) *wanta-ngku* *ka-ju* *janka.*
sun-ERG AUX-1O burn.NPST
‘The sun is burning me.’

The substitution of ‘sun’ as subject on the model of (82) above yields a questionable acceptability judgement, but note that the same sentence with *pakarni* rather than *pinyi* is completely ruled out:

(85) *wanta-ngku* *ka-ju* **?***pi-nyi*/**!***paka-rni.*
sun-ERG AUX-1O ‘hit’-NPST/’hit’-NPST
‘The sun’s getting to me.’

As with *pakarni,* bodily afflictions and diseases can also appear as *pinyi*’s subject:

(86) *Kari-nganta* *yurrkalypa-rlu* *pu-ngu –* *miirnta-rlu.*
evidently cold-ERG strike-PST cold-ERG
‘[It’s evident that] he has a cold – a head cold.’ (WlpD)

(87) *Jinirrpa-rlu* *kurdu* *pu-ngu.*
diarrhoea-ERG child hit-PST
‘The child has diarrhoea.’ (WlpD)

(88) *Yapa-rlangu* *ka* *parda-ngku* *pi-nyi*
person-for example AUX streaks-ERG strike-NPST
pangki *yinngirri,* *wanarri,* *mirriji.*
skin face upper leg lower leg
‘People’s skin also goes streaky on their faces, upper and lower legs.’ (WlpD)

Interestingly, this usage is not limited to human afflictions:

(89) *Parda-ngku* *ka* *pi-nyi* *yinirnti* *watiya*
streaks-ERG AUX strike-NPST Yinirnti tree
yulyurrpa-kungarnti.
winter-PREPAR.
'The *yinirnti* tree gets streaks on it before the cold weather.' (WlpD)

Nor are only harmful, irregular effects included:

(90) *Jarda-ngku* *ka-ju* *pi-nyi.*
sleep-ERG AUX-1O strike-NPST
'I feel sleepy.' (WlpD)

These 'affect' meanings should be compared with a more concrete example:

(91) *Puyurrpa-rlu* *pu-ngu-lpa-palangu.*
smoke-ERG hit-PST-IMP-33O
'They could not breathe because of the smoke [lit. 'The smoke hit them.']." (Napaljarri and Cataldi 1994: 32)

7.3 *Pinyi* 'spin, weave, plait'

According to WlpD, the object of *pinyi* in this sense is the raw material that is manipulated to make the product. Sometimes, however, as in (92), the product itself seems to be the object (compare *yujuku-pinyi* 'make nest, build humpy; *yujuku* 'shelter'):

(92) *Karnta-ngku* *kala-lu* *pu-ngu* –
woman-ERG AUX.USIT-333S spin-PST
mawulyarri. *Kala-lu* *pu-ngu.*
hair belt AUX.USIT-333S spin-PST
'The women used to spin hairstring belts. They would spin them.' (WlpD)

In the following sentence, *milpingi* means 'grass' and 'grass hut':

(93) *Milpingi* *ka-rlipapi-nyi.*
grass AUX-122S weave-NPST
['We weave the grass (huts).'] (WlpD)

7.4 *Pinyi* 'pull'

On one occasion in the corpus, *pinyi* is translated by a word for a different sort of activity, again involved in the manufacture of shelter:

(94) *Milpingi* *ngula-ju* *kala-lu* *pu-ngu*
spinifex that-TOP AUX.USIT-333S pull-PST
marna *yujuku-ku* *nganti-rninja-ku.*
grass shelter-DAT build-INF-DAT
'They used to pull up the [young] spinifex to make huts.' (WlpD: *milpingi*)

7.5 *Pinyi* 'make by *pi*'

In one instance only in the corpus *pinyi* is translated as 'cut':

(95) *Aaa,* *puju-lku-rna* *kuja* *pi-nyi ...*
INTERJ. foothold-now-1S thus cut-NPST
'[Wait on while] I cut some footholds.' (Napaljarri and Cataldi 1994: 66)

This sentence exemplifies the extension 'make x by V-ing', but it is the base meaning of the verb that also concerns us. The context is that of digging a hole in the ground, so earth is the material in which the footholds are being made. The question arises of what instrument is being used to achieve this. Certainly earth is not a typical body in English to be 'cut' into, unless perhaps it is very hard and rock-like (and of course for the present situation to make sense the earth has to be firm enough to support a person's weight). Conceivably this sentence might be better translated as 'knocking' some footholds 'out of' the earth, which would count as basic P/I and thus not be a departure from the core sense of *pinyi*.

7.6 *Pinyi* ‘perform, play’

Just like *pakarni*, *pinyi* may also take as object a noun denoting a ceremony:

(96) *wati-patu-rlu* *ka-lu* *purlapa* *pi-nyi.*
man-PL-ERG AUX-333S corroboree ‘do’-NPST
‘Some men are dancing/performing a corroboree.’

This expression is only appropriate for men’s ceremonies, and its use is not restricted to those involving dancing: any part of a ceremony or ritual can be the object, regardless of whether dancing takes place. In an analogous use, the object may be a game:

(97) *Yali-nya* *kala-lu* *purlja-lku* *pu-ngu.*
that-FOC AUX.USIT-333S game-then play-PST
‘They used to play that *purlja* game.’ (WlpD)

The noun *purlja* also refers the ball itself, so that (97) may simply mean ‘They used to hit that ball’, which would not be a departure from the core sense of *pinyi*.

7.7 *Pinyi* ‘beat’

In addition to the sense ‘hit’, *pinyi* means ‘beat, defeat’. The first example refers to two snakes fighting:

(98) *Pi-nja-rla* *yilya-ja.*
beat-INF-SER dismiss-PST
‘Having beaten him, the other sent him packing.’ (Napaljarri and Cataldi 1994: 140)

As the translation indicates, more is involved here than the simple idea that one snake physically attacks the other: the verb conveys that the opponent was not only attacked, but decisively *beaten*, that is forced out of the contest. Note that this meaning is limited to contexts that involve physical assault in the first place:

(99) *Yuendumu-rlu-jana* *pu-ngu* *Willowra-wardingki-patu*
Yuendumu-ERG-333O hit-PST Willowra-resident of-PL
japujapu-rla.
ball-LOC
!'The Yuendumu team beat the Willowra team in the football.'
'Yuendumu team fought/hit the Willowra in the football.'

7.8 *Pinyi* 'meet'

In a single instance in Napaljarri and Cataldi (1994) an independent *pinyi* is translated as 'meet' in the phrase *warrurningalpa pungu*, but this seems better analyzed as a compound:[14]

(100) *Warru-rni-ngalpa* *pu-ngu.*
around-hither-122O *pi*-PST
'He is coming to meet us.' (Napaljarri and Cataldi 1994: 64)

Compare the meaning of *pakarni* glossed 'be at same location as.'

7.9 *Pinyi*/*marnpirni*

The following sentence demonstrates that, at least in one reading, *pinyi* is *-wangu* dependent on *marnpirni*:

(101) **!***karnta-ngku* *ka* *maliki* *pi-nyi*
woman-ERG AUX dog hit-NPST
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
The woman is hitting the dog without touching it.'

7.10 Analysis

The main meaning-complexes of *pinyi* are exemplified in (102)–(110) (the last two meanings are highly marginal):

Core meaning

(102) 'Cause non-fatal injurious physical contact with bodypart' (i.e. 'hit, attack, sting, bite'):
Karnta-ngku *ka* *maliki* *pi-nyi.*
woman-ERG AUX dog hit-NPST
'The woman is hitting the dog.'

Metaphorical application

(103) 'Affect':
Pirriya-rlu *ka-ju* *pi-nyi.*
cold-ERG AUX-1O hit-NPST
'The cold's getting into me.'

Effect metonymies

(104) 'Kill':
Wati-ngki *marlu* *pu-ngu.*
man-ERG roo hit-PST
'The man killed the kangaroo.'

(105) 'Perform (ceremony)', 'play (game)':
Wati-patu-rlu *ka-lu* *purlapa* *pi-nyi.*
man-PL-ERG AUX-333S corroboree 'do'-NPST
'Some men are dancing/performing a corroboree.'

(106) 'Beat, defeat':
Pi-nja-rla *yilya-ja*
beat-INF-SEQ dismiss-PST
'Having beaten him, the other sent him packing' (Napaljarri and Cataldi 1994:140)

(107) 'Make by *pi*:'
Aaa, *puju-lku-rna* *kuja* *pi-nyi ...*
INTERJ. foothold-now-1S thus cut-NPST
'Wait on while I cut some footholds.' (Napaljarri and Cataldi 1994:66)

Constituent metonymy

(108) 'Spin/weave/plait':
Karnta-ngku *kala-lu* *pu-ngu* –
woman-ERG AUX.USIT-333S spin-PST
mawulyarri. *Kala-lu* *pu-ngu.*
hair belt AUX.USIT-333S spin-PST
'The women used to spin hairstring belts. They would spin them.' (WlpD)

In addition, the following two senses are attested, but are highly marginal and, as a result, hard to classify:

(109) 'Meet':
Warru-rni-ngalpa *pu-ngu.*
around-hither-122O *pi*-PST
'He is coming to meet us' (Napaljarri and Cataldi 1994:64)

(110) 'Pull':
Milpingi *ngula-ju* *kala-lu* *pu-ngu*
Spinifex that-TOP AUX.USIT-333S pull-PST
marna *yujuku-ku* *nganti-rninja-ku.*
grass shelter-DAT build-INF-PURP
'They used to pull up the [young] spinifex to make huts.' (WlpD: *milpingi*)

Metaphorical application of the core meaning

'Affect', extension (103), which is predicated of weather, diseases, sleep and smoke, can be interpreted as a metaphor by which detrimental effects are treated as the outcome of an impact event: the only effects which are referred to by *pinyi* in this meaning are those which are unwanted and thus detrimental, or which, in the case of 'sleep', bring the object into a state of vulnerability and reduced physical readiness. Some of the instances of this extension have a less metaphorical basis where the basic meaning of the verb may still be quite salient. Smoke, for example, seen in (91) in 7.2 above, which is not an immaterial, invisible agency like sleep or disease, might be taken as a typical impactor, and perhaps the same is true of sun-

light, which *pinyi* may be used to describe with questionable acceptability, as in (85) in 7.2, and even of cold, as in example (82) in 7.2.

Effect metonymies

Several extensions from the basic sense (102) are easily understandable by analogy with *pakarni*. Thus, (104) 'kill', (106) 'beat, defeat' and (107) 'make by *pi'* are classed as effect metonymies, as found in extensions of *pakarni*. The extent to which 'beat, defeat' is applicable outside the original sanctioning domain of physical contact determines how far it would assume a postmetonymic character. If it is only found in contexts where P/I does in fact occur then it is a plain effect metonymy (someone can be beaten or defeated as a result of being 'hit'). If, however, the meaning 'beat/defeat' can be conveyed even in the absence of any P/I event, the use in these cases would be considered an effect postmetonymy, since the core P/I meaning of *pinyi*, which sanctions the extension to 'beat/defeat' is no longer operative.

As for the possible 'cut' meaning involved in (107), it was mentioned in 6.3 that a possible marginal meaning of *pakarni* is 'pierce', so it may be the case that canonical impact verbs may sometimes convey rupture of the object surface as well as simply impact on it.[15]

Meaning (105), 'perform (ceremony), play (game)' is directly parallel to analogous uses of *pakarni* in being an effect metonymy. The role of percussion/impact in ceremonies was discussed above for *pakarni*, and exactly the same considerations apply here. The game referred to – *purlja* or *purljanypa* – originally involved kicking and throwing a hair-ball, so that impact of various sorts between the ball and the body is central. *Purlja pinyi* can thus be construed as simply 'hit (i.e. kick) a ball', which is not a semantic extension: the effect metonymy only comes into play if *purlja* is interpreted as referring to the game rather than to the ball; compare English *play (with a) ball*. Similarly, the corroboree (*purlapa*) inherently involves P/I, meaning that in both cases the object of *pinyi* can be thought of as being constituted or brought into being by the P/I action of the verb, which thus can be understood as having undergone an extension to convey the effect of the verbal action.

Constituent metonymy

The process that leads to 'spin/weave/plait' (meaning (108)) is more obscure. In the first place, note that the usual way to express 'spin' is through another impact verb, *luwarni* (see section eight below). But there is an inherent compatibility between 'spin/weave/plait' and *pinyi*. Spencer and Gillen (1927: 518) give the following description of the spinning of hair string among the Arrernte, but it can be taken as valid for Warlpiri spinning as well:

> When working, the native squats in the usual way with his legs bent under him; with one hand, usually the left, he holds the spindle against his thigh, causing it to rotate rapidly as he rubs his hand up and down the thigh; in the other hand he holds the raw material which with his fingers he continually serves out, as the string becomes spun into a strand that becomes wound round the spindle.

Spinning thus involves a vigorous physical movement of the hand, which is also a characteristic of *pinyi*'s root meaning, 'hit.' There is thus a metonymic ground for the extension, namely in the selection of a constituent of the impact event – vigorous hand movement – as the basis for the verb's reference in its extended meaning.

Meanings (109) and (110) above seem to be highly marginal, and I do not feel confident about analyzing them. Meaning (110) may conceivably not even be a correct translation (could it be a mistranslation of the 'spin/weave/plait' meaning?) Meaning (109), 'meet', may be parallel to the extension of *pakarni* translated 'catch up with'/'attain same location as', in which the meeting of two people at the same location is envisaged as impact between them.

8. *Luwarni*

Like many of the world's languages (see below), Warlpiri lexicalizes a distinction between two sorts of impact: projectile and non-projectile. *Pakarni* and *pinyi* refer to non-projectile impact; *luwarni* is used for projectile impact.

8.1 *Luwarni* 'pelt, strike with projectile'

The following definition conveys the most typical context of *luwarni*:

(111) *Luwarni* *ngula-ju* *yangka* *kuja-ka*
'luwarni' that-TOP that AUX.REL-NPST
wati-ngki *marda* *luwa-rni* *marlu*
man-ERG maybe shoot-NPST roo
karli-kirli-rli *manu* *ka* *luwa-rni*
boomerang-PROP-ERG or AUX shoot-NPST
wardapi *watiya-kurlu-rlu.*
goanna stick-PROP-ERG
'*Luwarni* is like when a man maybe hits a kangaroo with a boomerang or hits a goanna with a stick.'

The verb covers impact made by a projectile no longer in contact with the agent:

(112) *kurdu-ngku* *wita-ngku* *ka* *luwarni* *jurlpu*
child-ERG small-ERG AUX pelt-NPST bird
pamarrpa-kurlu-rlu.
stone-PROP-ERG.
'The little kid is pelting the bird with stones.'

(113) *kurdu-ngku* *ka* *luwa-rni* *jarntu* *watiya-kurlu-rlu.*
child-ERG AUX pelt-NPST dog stick-PROP-ERG
'The child is throwing a stick at the dog.'

The range of instruments with which one may *luwa-* an object surface is quite broad: WlpD records boomerangs, sticks and bullets appearing as instruments, as well as spittle and flying wood chips:

(114) *Nyunypa-ngku* *ka* *luwa-rni* *kiwinyi-ji*
spittle-ERG AUX pelt-NPST mosquito-TOP
kuyu *nyanungu-ku.*
meat it-DAT
'It spits on mosquitoes which it catches thus to eat [lit. 'as food for itself'].' (WlpD)

(115) *Jiwinypa-rlu* *ka-ngalpa* *luwa-luwa-rni* *yinirnti*
wood chip-ERG AUX-122O hit-hit-NPST bean tree
wiri-jarlu *paka-rninja-karra-rlu.*
big-very chop-INF-SS-ERG
'He's hitting us with (flying) chips as he chops down the big bean tree.' (WlpD)

As the last sentence shows, the action described need not be deliberate. This is also evident in sentences where, as found with *pakarni*, the entire impactor is subject of *luwarni*:

(116) *Kunarda-rlu-ju jurru* *luwa-rnu.*
hailstone-ERG-1O head hit-PST
'I got hit on the head with a hailstone.' (WlpD)

Perhaps analogous to this are the cases where the subject of *luwarni* is lightning or air:

(117) *Wirnpa-ngku* *watiya* *luwa-rnu.*
lightning-ERG tree strike-PST
'The lightning struck the tree.' (WlpD)

(118) *Warlpa-kurra* *yinga* *payi-ngki* *luwa-rni.*
wind-ALL PURPV air-ERG blow-NPST
'[He puts it] in the wind so that [the] air can blow on it.' (WlpD)

WlpD records 'kill' as a meaning of *luwarni*, but only with reference to humans hunting food animals. The dictionary places these citations under the rubric OBTAIN, thus connecting it with the other meanings under this heading (such as 'make fire'), as well as the many other verbs which take this semantic extension. 'Kill by pelting' is thus not taken as the correct description of this meaning, the full gloss of which WlpD gives as "xERG (=being) come to obtain (MA-NI) y, by striking (LUWA-RNI 1) y or location of y." Since only dead animals are any good for eating, 'kill' is the most natural way to render this meaning in English. There is evidence, however, (all from Napaljarri and Cataldi 1994) of *luwarni* meaning 'kill' in contexts other than that of hunting game, suggesting that 'kill by pelting' may in fact be the better analysis:

(119) *Ngardilpi-rli-nyanu* *luwa-rnu,* *Ngaliya-rlu-nyanu* [sic]
Ngardilpi-ERG-REFL pelt-PST Ngarliya-ERG-REFL
luwa-rnu, *Ngardilpi-rli,* *Ngarliya-rlu.*
pelt-PST Ngardilpi-ERG Ngarliya-ERG
'The Ngardilpi killed each other, the Ngarliya killed each other, Ngardilpi, Ngarliya.' (Napaljarri and Cataldi 1994: 106)

(120) *Kala* *nyampu,* *ngula-pala-nyanu*
thus here AUX.REL-33S-REFL
luwa-rnu.
pelt-PST
'Here those two had killed each other.' (Napaljarri and Cataldi 1994: 110)

(121) *Kulu-ngku-pala-nyanu* *luwa-rnu.*
anger-ERG-33S-REFL pelt-PST
'In anger they killed each other.' (Napaljarri and Cataldi 1994: 110)

It would thus seem that *luwarni* participates in the same actual/potential contrast that affects other verbs of impact, whereby the verb of hitting may denote fatality. As the translations show, the important proposition to be conveyed by these sentences is not simply that the Ngardilpi *attacked* or *pelted* the Ngarliya, but that in doing so they actually *killed* them.

There is evidence that 'dead' is at least an expected semantic trait of *luwarni* (in the sense of Cruse 1986: 16-18). Compare (122) and (123), which show two possible ways of expressing the idea that a shot kangaroo runs away still alive:

(122) **?**/**!***wati-ngki* *marlu* *luwa-rnu.* *Marlu* *parnka-ja.*
man-ERG roo shot-PST roo run off-PST
'The man shot the roo and it ran away.'

(123) *wati-ngki* *marlu* *luwa-rnu.* *Marlu* *wankaru*
man-ERG roo shoot-PST roo alive
juku *parnka-ja.*
still run off-PST
'The man shot the roo but it ran away still alive.'

The differing acceptability judgements seem to be correlated with the way in which the new information that 'the roo ran away' is presented. When this is introduced without any other material, as in (122), the statement is questionable (though note the marking **?/!**: (122) was not judged completely nonsensical, in contrast to similar statements with *pinyi* (7.1). But when the proposition 'the roo ran away' is supported by *wankaru juku* 'still alive', the typical understanding that the object of *luwarni* is dead is explicitly cancelled, lessening the degree of clash between the shooting of the animal and its subsequent escape. Where this is not made explicit, however, *luwarni*'s typical implication of fatality is too strong to be entirely cancelled by the understanding expressed by *parnkaja* that its subject is alive, resulting in a degree of uncertainty over the appropriateness of the sentence.

The expression of fatality can be cancelled by specifically negating the verb 'to die', *palimi*:

(124) *wati-ngki marlu luwa-rnu kala kula marlu-ju pali-ja*
man-ERG roo shoot-PST but NEG roo-TOP die-PST
'The man shot the roo but it did not die.'

In this sentence the expectedness of fatality as a component of *luwarni* is registered by the use of *kala*, a conjunction that, like *but* in English, signals that the proposition introduced by it is to some degree inconsistent with what has preceded. This is brought out by the following contrast, in which both (125) and (126) are deemed acceptable, but (125) less good:

(125) *wati-ngki marlu luwa-rnu manu kula pali-ja*
man-ERG roo shoot-PST and NEG die-PST
wankaru juku parnka-ja.
alive still run off-PST
'The man shot the roo *and* it didn't die and ran away still alive.'

(126) *wati-ngki marlu luwa-rnu kala kula pali-ja*
man-ERG roo shoot-PST but NEG die-PST
wankaru juku parnka-ja.
alive still run off-PST
'The man shot the roo *but* it didn't die and ran away still alive.'

The contrasting values of the two conjunctions expose the characteristic patterns of information carried by the verb. As with other verbs, 'fatality' can be promoted from the status of an expected trait to that of a necessary one by the addition of the preverb *tarnnga*:

(127) *!wati-ngki* *marlu* *tarnnga-luwa-rnu* *kala* *kula*
man-ERG roo for good-shoot-PST but NEG
marlu-ju *pali-ja.*
roo-TOP die-PST
The man shot the roo dead but it did not die.'

Tarnnga enforces fatality as a component of the verb's meaning, rendering (127) contradictory.

8.2 *Luwarni* 'rub (sticks in order to make fire)'

One of the traditional methods of kindling fire was for two people to rapidly pass (or 'rub') a spear thrower back and forth in the groove of a soft-wooded object like a shield. *Luwarni* is the verb used to describe the production of fire by this process, by virtue of the common extension 'make or obtain by V-ing'; factoring out this aspect of the meaning, the basic sense of *luwarni* to which the 'make by' extension applies must be interpreted as 'rub':

(128) *Warlu-kungarnti-ji,* *ngula* *ka-rnalu* *warlu*
fire-PREPAR-TOP AUX.REL AUX-111S fire
luwa-rni *kurru,*[16] *warlu* *ka-rnalu*
make-NPST fire saw fire AUX-111S
luwa-rni.
make-NPST
'To make fire, we wield a fire saw, we make fire.' (WlpD)

8.3 *Luwarni* 'spin string'

Luwarni also describes the spinning of string from human hair or animal fur (objects made out of hair-string were put to many uses in traditional Warlpiri society: see Meggitt 1962: 118, 120 for details on a few of these):

(129) *Luwa-rni* *ka* *wirinykirri-rli* *wirriji* *Jangala-rlu.*
spin-NPST AUX spindle-ERG string Jangala-ERG
'Jangala spins hair string with a spindle.' (WlpD)

(130) *Mardukuja-rlu* *ka* *luwa-rni* *wirriji.*
woman-ERG AUX spin-NPST hairstring.
'The woman is spinning the hairstring.'

8.4 *Luwarni* 'winnow, prepare seeds'

This gloss covers two quite different activities. Firstly, *luwarni* can refer to the winnowing of seeds. This is done by agitating the seeds in a coolamon with a vertical throwing motion.

(131) *Ngurlu* *wakati* *ka* *karnta-ngku* *luwa-rni*
seeds pigweed AUX woman-ERG winnow-NPST
parraja-rlu *kirlka-karda.*
dish-ERG clean-TRNSL
'The woman is winnowing the pigweed seeds in the dish to clean them.' (WlpD)

It also describes the making of seed cakes, an activity to which winnowing is a necessary preliminary:

(132) *Kala-lu* *yantarliluwa-rnu*
AUX.USIT-333S in camp prepare-PST
ngurlu-patu-ju.
seed(food)-PL-TOP
'They made the seed cakes in the camp.' (WlpD)

Exactly the same sentence as (132) can also mean 'they winnowed the seeds in the camp' (WlpD). The issue of the difference of the glosses 'winnow' and 'make seed cake' is complicated by the fact that, as the following sentences show, *ngurlu* means both 'seed' and 'food prepared from seed.' (The fuzzy border between these denotations is revealed when we consider seeds in a transitional stage between their natural and prepared states, for example as a paste being ground in a vessel.) (133) and (134) show examples of *ngurlu* meaning 'seed' being contrasted with *pirdijirri*, 'seed cake':

(133) *Ngurlu ka-rnalu ngarri-rni warripinyi.*
seed AUX-111S call-NPST grass seed sp.
Ngula ka-rnalu pirli-kirra yurrpa-rni.
That AUX-111S stone-ALL grind-NPST
Pirdijirri-lki ka-rnalu purra-mi –
seed cake-then AUX-111S cook-NPST
murntu-karda-ji – warlu-ngku-ju. Tarri-lki ka-rnalu
cooked-TRNSL-TOP fire-ERG-TOP raw-then AUX-1plS
nga-rni pirdijirri-ji.
eat-NPST seed cake-TOP
'*Warripinyi* is what we call a type of seed. We grind it on a stone and then we cook a cake made of it in the fire. When it is raw[17] we eat the seed cake.' (WlpD: *pirdijirri*)

(134) *Ngurlu kala-lu yurrpa-rnu pirdijirri,*
seed AUX.USIT-333S grind-PST seed cake
yukarrija.
seed sp.
'They used to grind the *Panicum australiense* seeds and make them into seedcakes.' (WlpD: *yukarrija*)

In the next sentence, on the other hand, *ngurlu* refers both to the food product and to its natural source:

(135) *Ngula kala-lu nyina-ja yulyurrpu-lku.*
when AUX.USIT-333S be-PST winter-then
Ngurlu-pardu-lku kala-lu nga-rnu –
seedcake-DIM-then AUX.USIT-333S eat-PST
ngurlu-kurra kala jintakurra-jarri-ja.
seed-ALL thus assemble-PST
'Then when it was winter they used to eat seed-cakes. They would gather to go gathering seeds.' (WlpD: *ngurlu*)

This means that for any sentence with *luwarni* and *ngurlu* we have a four-way choice of interpretations, depending on whether 'winnow'/'make' or 'seed'/'seed cake' is the chosen translation.[18] Obviously, there are constraints on the combinatorial possibilities: one may not *winnow seed cakes* or *make seeds* (although one may *prepare* them). If *ngurlu* refers to both food source and food product, in the same way as English *fruit* is general

between 'uncooked fruit' and 'cooked fruit', it might be best to treat *luwarni* as simply having the general meaning 'prepare' food, with the choice of interpretation between 'winnow' and 'make seed cake' determined by context. Note that in (136) it is used intransitively, but that the object had already been established in the previous sentence:

(136) *Kala-lu* *yantarliluwa-rnu*
AUX.USIT-333S in campmake-PST
ngurlu-patu-ju. *Ngawu-ngawu-lku-lpa-pala-rla*
seed cake-PL-TOP bad-bad-then-IMP-33S-DAT
purlka-ku *luwa-rnu…*
old man-DAT prepare-PST
'They made the seed cakes in camp. They [two] made bad ones for their old husband.' (WlpD: *luwarni*)

An alternative analysis, and the one in fact adopted in 8.8 would be to think of the meaning *winnow* as the verb's primary meaning in this semantic domain. The meaning 'prepare seed cake' can then arise metonymically, given that winnowing is a necessary and highly salient part of the whole process. Note how in English the expression *bake a cake* can be used to denote everything involved in preparing a cake: obtaining and measuring the ingredients, preparing the mixture and cooking it. It is only the last part of this process, however, that is chosen to represent the whole. In Warlpiri, apparently, it is instead the first part of the sequence of events necessary to making seedcakes that can come to stand for the entire process.

8.5 *Luwarni*/*pakarni*

The following sentence demonstrates that, as would be expected from the analysis presented, *luwarni* is *-wangu* independent of *pakarni*:

(137) *wati-ngki* *luwa-rnu* *wati-kari*
man-ERG shoot-PST man-other
paka-rninja-wangu-rlu.
hit-INF-PRIV-ERG
'The man shot another man without hitting/punching him.'

8.6 *Luwarni*/*pinyi*

The relationship between *luwarni* and *pinyi* is more complicated, and seems to depend on which reading of *pinyi* is operative. When *pinyi* is taken as referring explicitly to impact with the hand, sentences like (138) are unexceptional:

(138) *wati-ngki* *luwa-rnu* *wati-kari*
man-ERG shoot-PST man-other
pi-nja-wangu-rlu.
hit-INF-PRIV-ERG
'The man shot another man without hitting/punching him.'

But when the interpretation of *pinyi* is 'cause injurious physical contact' *luwarni* cannot be asserted if *pinyi* is being denied:

(139) **!***wati-ngki* *kuyu* *luwa-rnu* *pi-nja-wangu-rlu.*
man-ERG game shoot-PST 'hit'-INF-PRIV-ERG
The man shot the meat without harming it.'

In this case *pinyi* is *-wangu* dependent on *luwarni*. The implications of this sort of differing relationship between two verbs will be taken up in section 10.8.

8.7 *Luwarni*/*marnpirni*

Denial of *marnpirni* would seem to be compatible with assertion of *luwarni*:

(140) *wati-ngki* *luwa-rnu* *wati-kari*
man-ERG shoot-PST man-other
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
'The man shot the other man without feeling him.'

8.8 Analysis

Luwarni denotes (fatal or non-fatal) impact made by an object, usually a projectile, that travels through the air before striking its target. The other most prominent points in the verb's meaning region are *rub (to make fire*), *spin string*, and *winnow/prepare seeds*. Examples of these meanings appear below:

Core meaning

(141) 'Strike with object that has passed through the air':
Kurdu-kurdu-rlu *ka-lu-jana* *maliki-patu*
child-child-ERG AUX-333S-333O dog-PL
luwa-rni *pirli-ngki.*
pelt-NPST stone-ERG
'The children are pelting the dogs with stones.' (WlpD)

Effect metonymy

(142) 'Kill by striking with object that has passed through the air':
Kala *nyampu,* *ngula-pala-nyanu* *luwa-rnu.*
well here AUX-33S-REFL pelt-PST
'Here those two had killed each other.' (Napaljarri and Cataldi 1994: 110)

Constituent metonymies

(143) 'Rub (to make fire)':
Warlu-kungarnti-ji, *ngula* *ka-rnalu* *warlu*
fire-PREPAR-TOP AUX.REL AUX-111S fire
luwa-rni *kurru ,* *warlu* *ka-rnalu*
make-NPST fire saw fire AUX-111S
luwa-rni.
make-NPST
'To make fire, we wield a fire saw, we make fire.' (WlpD)

(144) 'Spin (string)':
Luwa-rni *ka* *wirinykirri-rli* *wirriji* *Jangala-rlu.*
spin-NPST AUX spindle-ERG string Jangala-ERG
'Jangala spins hair string with a spindle.' (WlpD)

(145) 'Winnow'/'prepare [seeds]':
Ngurlu *wakati* *ka* *karnta-ngku* *luwa-rni*
seeds pigweed AUX woman-ERG winnow-NPST
parraja-rlu *kirlka-karda.*
dish-ERG clean-TRNSL
'The woman is winnowing the pigweed seeds in the dish to clean them.'
(WlpD)

All the semantic extensions of *luwarni* can be attributed to metonymy.

Effect metonymy

The fatal impact conveyed in the meaning 'kill' (142) is the same actual-potential metonymy to the effect of the P/I standardly found in P/I verbs.

Constituent metonymies

The other meanings (143)–(145) can all be interpreted as the result of a metonymic extension of the verb's meaning by selection of a constituent of the P/I event. The constituent selected is that of the movement undertaken by the actor of the P/I event. The extended meanings of *luwarni* share with the core sense the salient characteristic of vigorous horizontal movement of the arms: such motion is engaged in by the actor of the core 'pelt' meaning (141) in its characteristic contexts of hitting with a boomerang or a stone. Similar vigorous horizontal arm movement is a salient component in the actions of rubbing fire, spinning string and winnowing conveyed by (143)–(145) and is therefore a plausible candidate for the metonymic basis for the extensions from the meaning 'pelt.'

Spinning string, as in sentence (144), is an activity that requires the spinner to extend their hand in a vigorous to-and-fro motion as the string is progressively spun. As in the use of *pinyi*, *luwarni* comes to denote the

spinning activity through selection of the shared constituent of this physical routine. As a necessary part of both the act of pelting and of spinning, the choice of this constituent as the basis of the verb's extended denotation preserves an essential aspect of the core signification. (This preservation would not have occurred, for example, if the constituent of *luwarni* 'pelt' chosen as the extended meaning had been the action of *choosing* a projectile to throw: this seems to leave out much more of the 'pelting' routine than does the present extension.)

The extension 'rub (to make fire)' in (143) exemplifies the ordered operation of two processes of extension. Working backwards, note first of all that this meaning of *luwarni* has to be thought of as denoting the effect of an event, since the fire is brought into being by the action of *luwa*. Metonymic extension to the effect of the action of the verb will therefore feature in our analysis of the extensional procedure leading to the meaning 'rub.' But the action involved in rubbing fire is not the same as the core P/I action of 'pelting' or 'shooting', so that the meaning of *luwarni* to which the m/effect extension applies has to be thought of as itself the result of an extension from the core P/I sense. The particular nature of this initial extension is, it is claimed, metonymic extension through selection of a constituent of the P/I event. Once again, the constituent selected is the horizontal hand movement shared between the activities of pelting and fire-rubbing, as will be made clear by the following description. Both spear throwers and boomerangs could be used as firesaws. The use of a spear-thrower to kindle a flame is described by Spencer and Gillen (1927: 527): the spear-thrower is rubbed back and forth along a groove in a soft-wooded object like a shield that has been laid upon the ground; the wood becomes charred and starts to glow, and can then be blown into a flame. Such arm movement can be likened to that involved in throwing a missile. In the case of a boomerang used as a firesaw, the similarity between the action of creating a flame and of pelting will be reinforced by the technology of the boomerang itself, which is perhaps the prototypical missile referred to by *luwarni*.

The meaning 'winnow' (145) shares two possible constituents with the core 'pelt' sense of *luwarni*: (a) the arm movement undertaken by the winnower and the pelter, as in (143) and (144), and (b) the impact of a projectile. Proceeding in order, we can note that the action of throwing seeds from one coolamon to another, which is a common way of removing husks (there are other ways of doing this, for example simply blowing or pouring the seeds), can be seen as involving a similar physical routine to the action of throwing a missile. The second possible constituent shared between 'pelt-

ing' and 'winnowing' is the projectile impact inherent in 'pelting': the core sense of *luwarni* denotes impact between a missile and a surface; the extended sense 'winnow' involves a similar impact on a smaller scale, that of the thrown seed against the surface of the shaking dish. There is thus an additional motivation for the extended meaning of the verb. Note that by a subsequent extension the meaning 'winnow' can become the name for the entire process in which it figures, the making of seed cakes. This second extension exemplifies context metonymy: as a central part of the chain of events involved in making seed cakes, 'winnow' can be used to stand for the entire process through the sequential operation of constituent and context metonymies.

9. *Pantirni*

Pantirni obliges us to focus on a variable that has only been implicit in the descriptions so far. As we will see, compared to other verbs of impact and percussion, it envisages a different orientation of the instrument of impact, the impactor, with respect to the object surface.

9.1 *Pantirni* 'pierce'

(146) illustrates prototypical instances of *pantirni* given as 'definitions' of the verb:

(146)
Panti-rni	*ngula-ji*	*yangka*	*kuja-ka*	
Pantirni	that-TOP	that	AUX.REL-NPST	
yapa-ngku	*wati-ngki*	*marlu*	*kuyu*	*kurlarda-rlu,*
person-ERG	man-ERG	roo	meat	spear-ERG
manu	*kuja-ka*	*yangka*	*wati-ngki*	
or	AUX.REL-NPST	that	man-ERG	
panti-rni	*wati-kari*	*karnta-ngurlu*	*kulu*[19]	
spear-NPST	man-other	woman-EL	anger	
kurlarda-rlu,	*manu*	*wurrumpuru-rlu* –	*wanarri.*	
spear-ERG	or	lance-ERG	thigh	
Manu	*yangka*	*kuja-ka-jana*	*yapa*	*panti-rni*
or	the	AUX.REL-NPST-333O	person	jab-NPST

jija-ngku *nyirli-kirli-rli* *jaka –* *nyurnu*
sister-ERG needle-PROP-ERG backside sick
yapa *wijipitirli-rla.*
person hospital-LOC
'*Pantirni* is like when an Aboriginal man spears a kangaroo or when a man pierces another man in the thigh with a spear or a lance over a woman. Or it is when a nursing sister jabs people in their backsides with a needle – sick people in hospital.' (WlpD)

Whereas *luwarni* is uncommitted as to the part of the impactor that has contact with the object, and *pakarni* and *pinyi* seem to describe impact made by the impactor's main body surface, *pantirni* is relevant to cases where it is the *end* or *tip* of the surface of the impactor that causes the impact. This covers a range of notions in English, of which the most general are 'poke/stick into' and 'pierce', and the most frequently encountered 'spear' (the reduplication in the first of the` examples is aspectual):

(147) *Jiri-ngki* *ka-ngalpa* *wurliya* *panti-panti-rni.*
prickle-ERG AUX-122O foot poke-poke-NPST
'Prickles keep on sticking into our feet.' (WlpD)

(148) *wati-ngki* *ka* *marlu* *panti-rni*
man-ERG AUX roo spear-NPST
kurlarda-kurlu-rlu.
spear-PROP-ERG
'The man is spearing a kangaroo with a spear.'

The frequency of 'spear' as a translation gives rise to two misleading expectations about the meaning of *pantirni*. Firstly, *pantirni* need not necessarily imply that the impactor was thrown: the following sentence is consequently ambiguous, as the man could be throwing the spear and hitting the kangaroo, or he could be standing over the kangaroo and stabbing it without the spear leaving his hand.

(149) *wati-ngki* *ka* *marlu* *panti-rni.*
man-ERG AUX roo pierce-NPST
'The man is spearing/stabbing the kangaroo.'

No instrument has to be mentioned, as this sentence shows. When the subject is an animal, we understand that the piercing has been done by the appropriate body-part:

(150) *Kuyu ka-nyanu panti-rni.*
meat AUX-REFL stab-NPST
'It [*warlawurru*, the wedge-tailed eagle] stabs itself meated animals.' (WlpD)

Here, clearly, the eagle's claws are responsible for the stabbing. This use of the verb can often be translated 'bite' or 'sting':

(151) *Karlangu-jarra-parnta-rlu kaji-ka-ngalpa wirliya*
digging stick-DU-PROP-ERG AUX.POT.-122O foot
panti-rni.
bite-NPST
'Scorpions [i.e. '[things] having two digging sticks'] can sting us in the foot.' (WlpD)

The second expectation to be cancelled involves the integrity of the object surface, for there is no actual requirement that this be punctured in order for *pantirni* to figure in a true description of the event. Compare the following sentences:

(152) *Purlta-pi-nyi, ka-rnalu ngarri-rni – kaji-lpa*
Purlta-pi-nyi AUX-111S call-NPST AUX.POT-IMP
nantuwu-rlu panti-karla wirliya-rlu.
horse-ERG kick-IRR foot-ERG
'We call it "to kick" like if a horse were to kick someone – with its hoof.' (WlpD)

(153) *Miyalu-ju nantuwu-rlu pantu-rnu.*
stomach-1O horse-ERG kick-PST
'The horse kicked me in the stomach.' (WlpD)

(154) *Walya ka panti-panti-rni marlu-ngku*
ground AUX stab-stab-NPST roo-ERG
makiti-jangka-rlangu-rlu, maliki-jangka-rlu.
gun-EL-for example-ERG dog-EL-ERG

'A kangaroo that has been brought down by a rifle say, or by a dog, stabs at the ground [i.e. with its feet].' (WlpD)

In these examples the impactor is a bodily extremity and the object surface is a reasonably yielding medium: in the first two cases, another body, in (154), the ground. Someone's stomach readily registers contact with a narrow impactor like a horse's foot by contracting at and around the contact-point, while the ground can have marks impressed in it. It is in this aspect of indentation caused by an end point that both cases resemble the typical instances of *pantirni* that appear in the vernacular 'definition' in (146). We can also think in terms of a potential/actual contrast, the poles of which would be 'indent' and 'indent and puncture'. This is similar to the 'hit'/'kill' pair in that the difference between the actual and potential meanings resides in the option of whether a metonymic extension of one of the meanings to include its result is realized.

As with *luwarni* (8.1), the action described by *pantirni* need not be deliberate:

(155) *Junma-ju* *jurnta-wanti-ja* *rdaka-ngurlu,*
knife-1O out-fall-PST hand-EL
wirliya-lku-ju *pantu-rnu.*
foot-then-1O pierce-PST
'The knife fell out of my hand and then pierced my foot.' (WlpD)

In the appropriate circumstances *pantirni* may convey the idea 'split open':

(156) *Nga-rnu-lpa-rna* *panti-rninja-rla*
eat-PST-IMP-1S split open-INF-SER
'After I had split them open, I ate them.' (Napaljarri and Cataldi 1994: 182)

This can be seen as a succession of individual 'piercing' actions.

In the meaning 'spear', fatality is not an entailment of the verb:

(157) *Marlu* *panti-rninja-warnu –* *ngula* *wankaru*
roo spear-INF-ASSOC AUX.REL alive

wuruly-parnka-ja.
escape-PST
'The kangaroo having been speared got up (still) alive and ran off.' (WlpD: *wankaru*)

In contrast to verbs like *luwarni*, which can independently convey the death of the object (see the discussion in 8.1), occurrences of fatal stabbing/spearing in Napaljarri and Cataldi (1994) are usually signalled by additional elements:

(158) *…jurnta-pala-rla* *pantu-rnu* *kaji-lpa*
to his disadvantage-33S-3DAT spear-PST AUX-IMP
nyina-ja *nyanungu-nyangu* *yali-ji*
be-PST he-POSS that-TOP
maralypi-nyayirni. *Jurnta-pala-rla* *pantu-rnu.*
sacred-very *jurnta*-33S-3DAT spear-PST
'…the two of them speared and killed it, the one that was particularly sacred to him. They speared and killed it.' (Napaljarri and Cataldi 1994: 30)

(159) *…tarnnga* *that one* *pantu-rnu.* *Walku-jarri-ja.*
for good that one spear-PST absent-die-PST
Ngulajuku. *Walku.*
That's all. absent
'The blow killed him. He died. That was the end.' (Napaljarri and Cataldi 1994: 70)

In the passage from which the following sentences are drawn, the initial occurrences o*f pantirni* in examples (160) and (161) are neutral, so that no information on the death of the object is included. When the time comes to specify that the stabbing has been fatal, other material is added, as exemplified by (162) and (163):

(160) *Well,* *junga-juku-lu* *yangka-ju* *pantu-rnu* *kuja-rlu.*
Well true-still-333S that-TOP stab-PST thus-ERG
'Well, in fact, they stabbed him with those [digging sticks].' (Napaljarri and Cataldi 1994: 146)

(161) *Ngayi-rlipa* *panti-rni,* *waja!*
just-122S stab-NPST EMPH
'We are stabbing something.' (Napaljarri and Cataldi 1994: 146)

(162) *Well-li* *pantu-rnu* *purturlu.* *Finish.*
well-333S stab-PST back Finish
Tarnnga-lku-lu *pantu-rnu.*
for good-then-333S stab-PST
'They had stabbed him in the back. He was dead. They had stabbed him to death.'(Napaljarri and Cataldi 1994: 146)

(163) *Yuwa,* *yuwaw,* *tarnnga-ngku-lu* *pantu-rnu.*
yes yes for good-ERG-333S stab-PST
'They stabbed him to death.' (Napaljarri and Cataldi 1994: 146)

Fatality is often a feature of the situation in the real world expressed by the clause in which *pantirni* figures: spearing or stabbing something will usually result in its death. Unlike in *luwarni* however, fatality is not specifically highlighted as part of the verb's meaning: this is the responsibility of other parts of the context.

9.2 *Pantirni* 'shine on'

Pantirni refers also to contact between a surface and the light of the sun:

(164) *Wanta-ngku* *ka-ngalingki* *panti-rni.*
sun-ERG AUX-12O shine on-NPST
'The sun is shining on us both.' (WlpD)

(165) *Pirli* *yali* *ka-npa* *nya-nyi* *kuja-ka*
hill that AUX-2S see-NPST AUX.REL-NPST
wanta-ngku *kankarla-rra-ngurlu* *panti-rni…?*
sun-ERG above-EL shine on-NPST
'Can you see that hill that the sun is shining on from above?'
(WlpD)

(166) *Wanta-ngku* *ka* *ngurlu* *panti-rni –* *linji-lki*
sun-ERG AUX seed shine on-NPST dry-then
ka-lu *ma-ni* *yapa-ngku.*
AUX-333S gather-NPST people-ERG
'The sun shines on the seeds and when they are dry, people gather them up.' (WlpD)

Sometimes the translation extends to the drying or warming effect of this contact, as an expected effect of the action of the sun; the question of this translation's precise status as an aspect of the meaning of *pantirni* is broached below:

(167) *Wanta-ngku* *ka* *jurnarrpa* *panti-rni –*
sun-ERG AUX clothes dry-NPST
yarlu-kurra.
sun-ALL
'The sun is drying the clothes which are out in the open.' (WlpD)

(168) raises an interesting question concerning the separability of 'shine on' and 'dry' as distinct glosses of *pantirni*:

(168) *Yirra-ka* *wawarda* *nyampu* *wirri-wirri*
put-IMPER blanket this wet
ngapa-jangka *wanta-kurra,* *yinga* *panti-rni*
water-EL sun-ALL AUX.COMP shine on-NPST
wanta-ngku *parduna-karda.*
sun-ERG dry-TRNSL
'Put this wet blanket out in the sun so that the sun can shine on it and dry it.' (WlpD)

We seem to have a contrast between the shining of the sun, signalled by *pantirni*, and its drying effect, separately conveyed by *parduna-karda.* We might therefore wish to posit two different translations of *pantirni*, 'shine on' and 'dry', with only the first being operative here.[20] This is confirmed by the following sentence, which seems to suggest that the verb participates in a contrast between the meanings 'shine on' and 'dry':

(169) *wanta-ngku* *ka* *jurnarrpa* *panti-rni*
sun-ERG AUX clothes shine on-NPST

minyminypa-juku *nguna-mi* *ka.*
wet-still be-NPST AUX
'The sun is shining on the clothes and they are still wet.'[21]

Speakers' judgements that this is not contradictory point to *pantirni* simply signifying 'shine on', with the verb optionally being extended to convey the drying effect of the action, as in (167) above.

9.3 *Pantirni* 'cause pain'

As in the previous set of examples, no act of piercing is in question, but, unlike for them, a similar effect is involved:

(170) *Kurra-ju* *ka-rnalu* *ngarri-rni* *yangka*
pus-TOP AUX-111S call-NPST that
yi-ka *kurra-ngku* *panti-rni…*
AUX.COMP-NPST pus-ERG pierce-NPST
'We call pus that which causes a piercing [pain]…' (WlpD)

(171) *Kurra-ngku* *ka-ju* *panti-panti-rni* *wijini*
pus-ERG AUX-1O pierce-NPST wound
kurlarda-jangka *murrumurru-lku*
spear-EL sick-then
'I've got a throbbing pain from a spear wound.'
(WlpD: *kurra-ngku panti-rni*)

WlpD lists *kurrangku pantirni* as an idiom: in (171), the fact that the wound was caused by a spear, whose action would be described by *pantirni*, may reinforce the idiom's suitability.

9.4 *Pantirni* 'write on, paint'

Like *pakarni*, *pantirni* can refer to the application of paint or other marks. The object surfaces to which the marks are applied are treated syntactically as objects of *pantirni*:

(172) *Karlji-ngki-lki* *ka-rlipa* *kurdiji* *panti-panti-rni.*
clay-ERG-now AUX-122S shield dot-dot-NPST
'We are now dotting the shield with dabs of pipe clay.' (WlpD)

(173) *Kaji-lpa* *pipa* *panti-rninja-rla*
AUX.POT-IMP paper sign-INF-SER
nyina-yarla *maniyi-wangu,* *kaji-ka-lu*
be-IRR money-PRIV AUX.POT-NPST-333S
yirrpi-rni *rdaku-kurra.*
put-NPST gaol-ALL
'If having signed the paper, someone is penniless then they can put him in gaol.' (WlpD)

(174) *Tarnnga-juku* *ka-rna* *panti-rni.*
long time-still AUX-1S paint-NPST
'I've been painting it for a long time now.'

9.5 *Pantirni* 'make by *panti*'

The examples of the previous section, in which *pantirni* takes as object the surface being marked, contrast with its use in a different case frame where the grammatical object position is filled by the designs produced by the act of painting. *Kuruwarri* in (175) refers to a "visible pattern, mark or design associated with creative Dreamtime spiritual forces" (WlpD):

(175) *Kurdu-kurdu-rlu* *ka-lu* *kuruwarri*
child-ERG AUX-333S design
panti-rni *karri-nja-karra-rlu.*
pierce-NPST stand-INF-SS-ERG
'The children are painting designs standing up.' (WlpD)

Meanings like this come under the rubric 'make by V-ing', as do many of the most frequently met translations of *pantirni*. Other translations cover such ideas as 'drill/bore', 'sew', and 'make fire':

(176) *Bore* *ka-lu* *panti-rni* *walya-ngka,*
bore AUX-333S drill-NPST earth-LOC
ngapa-ku-purda-rlu.
water-DAT-DESID-ERG
'They are drilling a bore [in the ground] in search of water.' (WlpD)

(177) *Ngajulu-rlu-rna* *jati* *nyampu-ju* *pantu-rnu*
I-ERG-1S shirt this-TOP sewed-PST
jalangu-rlu.
today-ERG
'I sewed this shirt today.' (WlpD)

(178) *Warlu* *ka-lu* *kungarla-rlu* *panti-rni.*
fire AUX-333S fire drill-ERG pierce
'They make fire with a fire drill.' (WlpD)

(Fire is ignited by driving the fire drill downwards with a piercing motion into a medium like grass.)

In all cases it is an act described as *panti* which brings the object of the verb into being. As the English verbs in the glosses demonstrate ('drill', 'sew'), this is a common meaning extension in English, so it is interesting to discover it in Warlpiri as well.

9.6 *Pantirni*/*pakarni*/*pinyi*

The acceptability of the following sentences demonstrates that *pantirni* is *-wangu* independent of *pakarni*:

(179) *karnta-ngku* *ka* *maliki* *panti-rni*
woman-ERG AUX dog stab-NPST
paka-rninja-wangu-rlu.
hit-INF-PRIV-ERG
'The woman is stabbing the dog without hitting it.'

(180) *wati-ngki* *ka* *maliki* *panti-rni* *junma-kurlu-rlu*
man-ERG AUX dog stab-NPST knife-PROP-ERG

paka-rninja-wangu-rlu.
hit-INF-PRIV-ERG
'The man is stabbing the dog with the knife without hitting it.'

The situation with *pinyi* is more complicated, and different interpretations of the lexical relations between the two words seem possible. Sometimes *pantirni* is *-wangu* independent of *pinyi*:

(181) *karnta-ngku* *ka* *maliki* *panti-rni*
woman-ERG AUX dog stab-NPST
pi-nja-wangu-rlu.
hit-INF-PRIV-ERG
'The woman is stabbing the dog without hitting it.'

This is somewhat surprising, since the meaning of *pinyi* as formulated above (7.1) would seem to encompass that of *pantirni*, and we do in fact find that the two verbs behave sometimes as though there were a shared component between their meanings, as the unacceptability of (182) demonstrates:

(182) **!***wati-ngki* *maliki* *pantu-rnu* *pi-nja-wangu-rlu.*
man-ERG dog stab-PST hit-INF-PRIV-ERG
'The man stabbed the dog without hitting it.'

One possible conclusion is that the behaviour of *pinyi* in these contexts depends on whether it is interpreted as a general verb of injurious physical contact, in which case *pantirni* is *-wangu* dependent on it, or as more specifically restricted to a single manner of contact, hitting, in which case *pantirni* is not (see 10.8). This might constitute evidence that *pinyi* should not be thought of simply as a general verb of detrimental physical contact, but that more specific readings are sometimes profiled.[22]

9.7 Analysis

The non-core meanings of *pantirni* can be described as clustering around four main centres:

Core meaning

(183) 'Poke, pierce, spear, kick, stab, split open, bite, sting':
wati-ngki *ka* *marlu* *panti-rni.*
man-ERG AUX roo pierce-NPST
'The man is spearing/stabbing the kangaroo.'

Metaphorical applications:

(184) 'Shine on/dry':
Wanta-ngku *ka-ngalingki* *panti-rni.*
sun-ERG AUX-12O shine on-NPST
'The sun is shining on us both' (WlpD: *pantirni*)

(185) 'Cause pain':
Kurra-ngku *ka-ju* *panti-panti-rni* *wijini*
pus-ERG AUX-1O pierce-NPST wound
kurlarda-jangka *murrumurru-lku.*
spear-EL sick-then
'I've got a throbbing pain from a spear wound.' (WlpD: *pantirni*)

Effect metonymy

(186) 'Make by *panti*':
Warlu *ka-lu* *kungarla-rlu* *panti-rni.*
fire AUX-333S fire drill-ERG pierce-NPST
'They make [lit. 'pierce'] fire with a fire drill' (WlpD: *pantirni*)

Context metonymy

(187) 'Write on/paint':
Kaji-lpa *pipa* *panti-rninja-rla*
AUX.POT-IMP paper sign-INF-SER
nyina-yarla *maniyi-wangu,* *kaji-ka-lu*
be-IRR money-PRIV AUX.POT-NPST-333S
yirrpi-rni *rdaku-kurra.*
put-NPST gaol-ALL

> 'If having signed the paper, someone is penniless then they can put him in gaol.' (WlpD: *pantirni*)

Metaphorical applications

'Shine on' (meaning (184)) is interpreted as a metaphorical application of the basic meaning in which the sun's action is categorized the same way as the action of piercing; corresponding to this 'potential' meaning (in the sense of Dixon 1980: 103), 'dry' is the 'actual' counterpart and is thus classified as a metonymic extension to the effect of this (metaphorically conceived) action. Since metaphorical applications of P/I meanings are analyzed as not differing from the core P/I sense but as constituting an application of it to a non-standard referent, it is possible that this meaning is in fact considered by Warlpiri speakers as close to the core senses of *pantirni*: once again, the label 'metaphor' refers to a category-incorporation process and does not claim anything about the nature of speakers' conscious conceptualization of referents.

The extension to 'cause pain' in sentence (185) can likewise be analyzed as a metaphor in which sources of pain like pus and infections are referred to as though they pierce the sufferer (compare the English expressions 'stabbing pain', 'jabbing pain'). An additional point of connection between the prototypical case of *pantirni* (183) and some types of pain is that in pain resulting from sores and boils the infection is concentrated around a single point, which can be connected to the core meaning of contact between surface and an end-point.

Effect metonymy

Like similar extensions in other Warlpiri P/I verbs, (186) 'make by *panti*' is a straightforward effect metonymy.

Context metonymy

Meaning (187), 'write on/paint' is also metonymic and represents an extension to the context of which the 'piercing' action is a part (recall that in Warlpiri the object surface does not have to be punctured for *pantirni* to function as a true description of the event). Since a central attribute of painting or writing involves the endpoint of some object being brought into

contact with a surface, *pantirni* as the name of this routine can be transferred to the activity as a whole without the loss of crucial information.

The act of 'writing/painting' differs in two important respects from the prototypical sense of *pantirni*: firstly, writing involves not just contact at a point between 'impactor' and surface, as found in prototypical senses of *pantirni* like 'spear', but, at least in writing, involves the stick or pen being moved continuously over the surface to be painted/written on after contact has been effected, at least for the duration of a single stroke. Secondly, painting/writing is not simply a matter of this physical contact, but crucially entails that marks be left behind as a record of the progress of the endpoint over the surface. Neither of these features is part of the information conveyed by core uses of *pantirni*, but each is paralleled in a separate occurrence of the verb. The former feature, continuing contact, is found in the non-prototypical sense of *pantirni* translated as the meaning 'split open', which refers to contact over an extended region rather than simply a point, as in the following sentence, referring to Bloodwood gall (*kanta*):

(188) *Nga-rnu-lpa-rna* *panti-rninja-rla.*
eat-PST-IMP-1S split open-INF-SER
'After I had split them open, I ate them.' (Napaljarri and Cataldi 1994: 182)

The second feature, the permanence of the marks, is found in the use of *pantirni* in meaning (186), discussed as the 'structural polysemy' 'make by *panti*' in which it is the painted designs/marks that are object of the verb, as in (189):

(189) *Kurdu-kurdu-rlu* *ka-lu* *kuruwarri*
child-child-ERG AUX-333S designs
panti-rni *karri-nja-karra-rlu.*
"pierce"-NPST stand-INF-SS-ERG
'The children are painting designs standing up.' (WlpD)

(I assume that this extension originally referred to the creation of the dot-like designs which are properly produced by an action described as *pantirni*: any other referents of this meaning will be further extensions from this basis.)

The meaning of *pantirni* in (189) is distinct from the sense in (187), 'write/paint', which takes as object the surface painted/written on. Never-

theless, the role of the 'make by *panti*' extension in (189) in 'staging' the new meaning, (187), should not be ignored. The meaning 'make by *panti*' found in (189) expresses the fact that the object brought into being by the piercing is permanent, or at least exists long enough to serve the purpose for which it was created. This therefore provides a precedent for the new meaning: the metonymy leading to (187), 'write on/paint', is reinforced by the existence of a grammatical structure with parallel semantics in which the verb's arguments are differently distributed (189). Thus, in (189), it was the mark or design brought into being on a surface by 'piercing' which is the verb's object, whereas in (190), another example of the 'write on, paint' extension introduced as meaning (187), it is the surface itself which is having marks made on it:

(190) *Karlji-ngki-lki ka-rlipa kurdiji panti-panti-rni.*
clay-ERG-now AUX-122S shield "pierce-pierce"-NPST
'We are now dotting the shield with dabs of pipe-clay.' (WlpD)

The two respects in which meaning (187) differs from the core sense of *pantirni* are thus found in other non-core meanings of the verb.

10. *Pajirni*

Pajirni describes the bringing about of a physical separation or breach in a surface by a variety of means; often it is a general verb of incision whose uses correspond to many of those of English *cut*.

10.1 *Pajirni* 'pierce, stab, bite, sting, cut, rip, break'

The action referred to by the verb ranges from one in which an object has a single incision or puncture made in it, through cases where a portion of an object is detached from the whole, to instances where an object is completely divided into smaller parts. Not all of these aspects of the verb's meaning are reflected in the vernacular definition in (191), but they will be seen in subsequent examples.

(191) *Paji-rni ngula-ji yangka kuja-ka*
Pajirni that-TOP that AUX.REL-NPST

yapa-ngku *junma-kurlu-rlu* *kuyu*
man-ERG knife-PROP-ERG meat
witakari-witakari-karda *paji-rni* *manu*
piece-piece-TRNSL cut-NPST or
paji-rni *pinpinpa-karda* *kuyu,* *manu*
cut-NPST thin-TRNSL meat or
yangka kuja-ka *yapa-ngku* *miyi* *paji-rni*
that AUX.REL-NPST man-ERG bread cut-NPST
wiri-jangka *witakari-witakari-karda* *junma-ngku.*
big-EL piece-piece-TRNSL knife-ERG
'*Pajirni* is when a person cuts up meat with a knife into smaller pieces or cuts meat into thin slices, or when someone cuts up a big piece of bread into smaller pieces with a knife.' (WlpD)

The following is a typical instance of the core sense of *pajirni*:

(192) *Panu-karda* *ka* *marlu-ju* *paji-rni:* *mirntilyi,*
many-TRNSL AUX roo-TOP cut-NPST back
ngurlju,jurru, *kantumi.*
midriff head hind quarter
'He cuts the kangaroo into many pieces: the back, the sides, the head, the rump.' (WlpD)

The verb is also appropriate for the use of scissors:

(193) *karnta-ngku* *ka* *paji-rni* *jinajina*
woman-ERG AUX cut-NPST dress
jijiji-kirli-rli.
scissors-PROP-ERG
'The woman is cutting the dress with scissors.'

The breach in the integrity of the surface does not have to be accomplished by a special cutting instrument, however. *Pajirni* is appropriate where only the hands are used:

(194) *karnta-ngku* *ka* *jinajina* *paji-rni* *kulu-ngku.*
woman-ERG AUX dress rip-NPST anger-ERG
'The woman is ripping the dress angrily.'

Without a modifier like *kulungku*, such sentences can denote accidental ripping:

(195) *Karnta-ngku* *jinajina* *larra-paju-rnu.*
woman-ERG dress rip-PST
'The woman ripped her dress [either accidentally or not].'

Especially in cases of accidental contact, the instrument that accomplishes the action of *pajirni* may occupy subject position:

(196) *Murlukurnpa-rlu-ju* *wirliya* *paju-rnu*
glass-ERG-1O foot cut-PST
kuja-lpa-rna *katu-rnu* *munga-ngka-rlu*
AUX.REL-IMP-1S step on-PST dark-LOC-ERG
nya-nja-wangu-rlu.
see-INF-PRIV-ERG
'The glass cut my foot when I stepped on it at night and couldn't see it.' (WlpD)

'Cut', the canonical translation, usually refers to the surface of an object being broken along a single line. The next sentence shows that 'stab', which denotes a breach just at a point (or, in the case of a set of claws, at a series of points) can serve to translate *pajirni*:

(197) *Kuna-lku-lpa-nyanu* *yarda-lpa* *paju-rnu*
guts-then-IMP-REFL again-IMP stab-PST
kuna-kari-lki.
guts-other-and then
'It stabbed itself in the guts again.' (Napaljarri and Cataldi 1994: 16)

Like *pantirni*, another verb meaning 'pierce/stab', *pajirni* can be used to denote the bites by humans, dogs, snakes, or insects:

(198) *Ngamardi-nyanu-palangu* *yarri-parnka-ja*
mother-AN.POSS-33O aggressively-run-PST
paji-rninja-ku.
bite-INF-DAT

'The mother (dog) ran [aggressively] towards the two (dogs) to bite them.' (WlpD)

(199) *Nyiya-rlu-jala* *ngayi-ji* *paju-rnu?*
what-ERG-indeed just-1O sting-PST
Yarlku-rnu-jala-ju? *Nama-ngku!*
bite-PST-rather-1O ant-ERG
'What has stung me? What has bitten me? Ants!' (Napaljarri and Cataldi 1994: 58)

(200) *Tarnnga* *ka-jana* *nyanungu-rlu* *paji-rni*
always AUX-333O it-ERG bite-NPST
kurdu-kurdu-rlangu, *yapa-rlangu* *ka-jana*
child-child-for instance adult-also AUX-333O
paji-rni, *tarnnga.*
bite-NPST always
'These [stinging ants] are the ones that always bite children, and older people also they bite.' (Napaljarri and Cataldi 1994: 14)

(201) *Warna-ngku* *kurdu* *paju-rnu* *nyurnu-kurra* –
snake-ERG child bite-PST dead-ALL
karnuru.
poor thing
'The snake fatally bit the child – poor thing.' (WlpD)

As the first two sentences make clear, *pajirni* does not inherently denote fatal biting, which has to be conveyed by the addition of an allative expression like *nyurnukurra*. This contrasts with verbs like *pakarni* and *pinyi,* which can carry the meaning of fatality on their own, without the aid of any extra material. This reflects the fact that biting is much less likely to be fatal than are the actions denoted by *pakarni* and *pinyi*, so that fatal biting is the less expected situation and has to be signalled by a separate element.

As in English, the act of cutting may only consist in separating part of an object from the whole, rather than cutting the whole into pieces:

(202) *Puluku* *wirriya* *ka-lu* *kurlurrpa* *paji-rni*
cattle male AUX-333S testicle cut-NPST

jakumanu-rlu – *junma-ngku.*
stockman-ERG knife-ERG
'The stockmen cut off the bulls' testicles using a knife' (WlpD)

(203) *Jurru* *kapi-rna-ju* *paji-rni.*
hair AUX.FUT-1S-1O cut-NPST
'I'm going to get my hair cut.' (WlpD)

Pajirni may also refer to the action of the wind destroying trees. The context of the following sentence is a discussion of a gale or whirlwind:

(204) *Payi-ji* *ka-rnalu* *ngarri-rni* *yangka* *wiri –*
gale-TOP AUX-111S call-NPST the big
kapi *winpirlirri.* *Ngula* *ka* *watiya-rlangu*
or whirlwind that AUX tree-for example
paji-rninja-ya-ni ... .
break-INF-go-NPST
'Gale or whirlwind is what we call that big one. That one goes along breaking up trees for example … .' (WlpD)

The appropriateness of *pajirni* to the various situations in (191) to (204) suggests that the verb describes a particular type of physical effect, namely breach to the integrity of a surface, regardless of the means used to bring this about. Thus, it may be used as in (194) and (195) for rips in material because these are similar things to cuts made by a blade, even though they are brought about in a slightly different way.

10.2 *Pajirni* 'make by *paji*'

In this extension the grammatical object of the verb denotes the result of the P/I rather than the object surface:

(205) *Murru* *kapi-rna-rla-jinta* *paji-rni.*
cicatrice AUX.FUT-1S-3DAT-DD cut-NPST
'I will cut cicatrices on him.' (WlpD)

10.3 *Pajirni* 'obtain by *paji*'

One of the most frequent uses of *pajirni* is in the meaning 'gather' or 'collect', which, like WlpD, I analyze as 'obtain by *paji*':

(206) *Ngula-pala-rla* *yali* *paju-rnu* *yatija-rra*
AUX-33S-3DAT there collect-PST north-towards
jatipiji-rla.
jatipiji-LOC[23]
'While they were in the north they had collected jatipiji [a kind of yam].' (Napaljarri and Cataldi 1994: 94)

All instances of this sense, however, involve detaching vegetable matter from its natural source, usually by picking it from a tree. An apparent exception to this is the following sentence:

(207) *Ngarlkirdi* *ka-rnalu* *paji-rni* *panu.*
witchetty grubs AUX-111S 'get'-NPST many
'We get a lot of witchetty grubs.' (WlpD)

This is not, however, evidence of a hypermetonymic extension to the pure meaning 'obtain' divorced from the basic action of the verb, because *pajirni* is an appropriate description of the method of *piercing* or *cutting* the roots of the witchetty bush to get the grubs, and 'cut' is sometimes used as a translation of the verb in this sense:

(208) *Wardingi-rlangu* *kala* *paji-rninja-ya-nu.*
witchetty grub-also AUX.USIT cut-INF-go-PST
'She used to go along cutting out witchetty grubs.' (Napaljarri and Cataldi 1994: 190)

Pajirni also refers to cases where the part is pulled or plucked from its location:

(209) *Wiri-wiri* *ka-rnalu* *pinkirrpa* *paji-rni*
big-big AUX-111S plume pull-NPST
kankarlumparra-warnu-pirdinypa.
over top-ASSOC-DEF.SPEC

'We pull out the big plumes from over the top.'
(WlpD: *kankarlu-mparra*)

(210) *Kankarlumparra-warnu,* *wiri-wiri* *ka-rnalu*
over top-ASSOC[24] big-big AUX-111S
pinkirrpa *paji-rni.* *Kanunju-warnu-ju* *ka-rnalu*
feather pluck-NPST under-ASSOC-TOP AUX-111S
mardukuru *paji-rni.*
down pluck-NPST
'On the upper side, it is those big feathers which we pluck. Underneath we pluck the down.' (WlpD)

These sentences illustrate the meaning 'obtain by *paji*', but what is also interesting here is the appropriateness of the verb as a description of a rupture being made in a surface not by puncturing or cutting it but by pulling a constituent part of that surface (i.e. a feather) out of its proper location: this creates a small break in the surface, analogous to the effect of puncturing or cutting. Note however that it is not the surface in which the rupture is made that is the verb's object, but rather the part of the surface which creates the rupture by being detached. That *paji* is appropriate for this kind of action is consistent with the interpretation of the core meaning given above, namely that the verb refers to the creation of a breach in the material integrity of a surface regardless of the means by which this was brought about.

10.4 *Pajirni* 'break in'

This meaning will only have arisen since European contact, before which horses were unknown in central Australia:

(211) *Kuluparnta-rlipa* *nantuwu* *paji-rni.*
wild-122S horse break in-NPST
'We're going to break in the wild horse.' (WlpD)

Compare (202) above, in 10.1.

10.5 *Pajirni* 'call, name'

Pajirni shows this extremely frequent meaning in the domain of speech acts. It covers a variety of acts of naming, ranging from the use of traditional kin vocabulary, as in (212), to the use of proper names (213) and ordinary designating nouns (214). The object of *pajirni*, which need not necessarily be animate, is usually found as a prefix to the verb.

(212) *Napaljarri-rli* *ka-palangu* *kalparlangu-paji-rni*
Napaljarri-ERG AUX-33O *kalparlangu*-call-NPST
Jakamarra *manu* *Jungarrayi.*
Jakamarra and Jungarrayi
'Napaljarri calls Jakamarra and Jungarrayi *kalparlangu*.' (WlpD)

(213) *Kala-lpa-ju* *ngayi* *"Dingo"-paju-rnu.*
AUX.USIT-IMP-1O just "Dingo"-call-PST
'He would just call me "Dingo".' (WlpD)

(214) *Kirlirlkirlkirlpa-rlu-juku* *ka* *nga-rni*
galah-ERG-just AUX eat-NPST
ngurlu[25]*-lku.* *Yapa-nga-rninja-wangu-jala* *kala* *ngari*
seed-now people-eat-INF-PRIV-rather but still
ka-rnalu *ngurlu-paji-rni…*
AUX-111S seed-call-NPST
'It is just galahs that eat those seeds. People don't eat them but all the same we call them seeds…' (WlpD)

10.6 *Pajirni*/*pakarni*

The following sentences' acceptability shows that *pajirni* is *-wangu* independent of *pakarni*:

(215) *karnta-ngku* *ka* *maliki* *paji-rni*
woman-ERG AUX dog bite-NPST
paka-rninja-wangu-rlu.
hit-INF-PRIV-ERG
'The woman is biting the dog without hitting it.'

(216) *wati-ngki* *ka* *kuyu* *tarla* *paji-rni*
man-ERG AUX meat tough cut-NPST
junma-kurlu-rlu *paka-rninja-wangu-rlu.*
knife-PROP-ERG hit-INF-PRIV-ERG
'The man is cutting the hard meat with a knife without hitting it [i.e. to soften it].'

The next sentence is also acceptable, but carries the interesting implication that the man is using a knife or his hands, but not an axe:

(217) *wati-ngki* *ka* *watiya* *paji-rni*
man-ERG AUX tree/branch cut/break-NPST
paka-rninja-wangu-rlu.
hit-INF-PRIV-ERG
'The man is cutting the tree without chopping it.'/
'The man is breaking the branch without chopping it.'

If an axe was involved *pajirni* would not be a suitable verb choice: instead, *pakarni* would have to be used.

10.7 *Pajirni*/*pinyi*

The following sentence demonstrates that *paji-rni* is -*wangu* dependent on *pinyi*:

(218) **!***karnta-ngku* *ka* *maliki* *paji-rni*
woman-ERG AUX dog bite-NPST
pi-nja-wangu-rlu.
hit-INF-PRIV-ERG
'The woman is biting the dog without hitting it.'

This would be consistent with the definition of *pinyi* as 'cause injurious physical effect upon'.

10.8 *Pajirni/marnpirni*

(219) is evidence that *paji-rni* in the 'bite' reading is -*wangu* dependent on *marnpirni*. If the woman is biting the dog, she must be touching it with part of her body, so (219) is disallowed:

(219) **!***karnta-ngku* *ka* *maliki* *paji-rni*
woman-ERG AUX dog bite-NPST
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
'The woman is biting the dog without touching it'

This is interesting, as revealing that *marnpirni* is not confined to the use of the hands, but it raises the question of the extent to which different readings affect the acceptability judgements: presumably the sentence would be acceptable under the reading 'cut'. This is the same issue as was raised in the discussion of the relationship between *luwarni* and *pinyi* in (8.6) and in that of the relationship between *pantirni* and *pinyi* in (9.6). Inasmuch as the acceptability varies according to the metalanguage gloss of the verb appropriate to the situation, the judgements show up the extent to which the semantic specificity of the verb is conditioned by the context, and how the interdependence relations between verbs are not unchangeable properties of lexical items, but rather particular functions of different readings.

10.9 Analysis

Pajirni describes the creation of a rupture in the surface of an object, ranging from punctures made at a single point or series of points in the surface (for which it is translated 'pierce', 'stab', 'bite', or 'sting'), to cases where the surface is breached in a continuous line ('cut', 'rip', 'break'), as well as situations where, as a consequence of a rupture in the surface of an object, an identifiable part of the surface is detached by being 'pulled' or 'plucked' from the rest. These meanings are best thought of as closely related, sharing the common quality of the rupture of the surface of the object. This core set of meanings undergoes extension to denote the result of this action in the extensions 'make by *paji*' and 'obtain by *paji*.' In addition we need to recognize two other glosses: 'break in' and 'call, name.'

Core meaning

(220) 'Pierce, stab, bite, sting, cut, rip, break':
karnta-ngku *ka* *paji-rni* *jinajina*
woman-ERG AUX cut-NPST dress
jijiji-kirli-rli.
scissors-PROP-ERG
'The woman is cutting the dress with scissors.'

Effect metonymies

(221) 'Make by *paji*':
Murru *kapi-rna-rla-jinta* *paji-rni.*
cicatrice AUX.FUT-1S-3DAT-DD cut-NPST
'I will cut cicatrices on him.' (WlpD)

(222) 'Obtain by *paji*":
Wiri-wiri *ka-rnalu* *pinkirrpa*
big-big AUX-111S plume
paji-rni *kankarlumparra-warnu-pirdinypa.*
pull-NPST over top-ASSOC-DEF.SPEC
'We pull out the big plumes from over the top.' (WlpD: *kankarlu-mparra*)

(223) 'Break in':
Kuluparnta-rlipa *nantuwu* *paji-rni.*
wild-122S horse break in-NPST
'We're going to break in the wild horse.' (WlpD)

Context metonymy

(224) 'Call, name':
Kala-lpa-ju *ngayi* *"Dingo"-paju-rnu.*
AUX.USIT-IMP-1O just "Dingo"-call-PST
'He would just call me "Dingo".' (WlpD)

Effect metonymies

As indicated by the paraphrases of their meanings, extensions (221) and (222), 'make by *paji*' and 'obtain by *paji*' are analyzed unproblematically as examples of metonymic extension to the effect of the action of the verb and do not warrant further comment.

Several sources for the extension to 'break in' seen in (223) seem possible. The verb for 'cut' might have been chosen to convey the concept 'break in' because of the cutting action of a whip on a horse's flanks: again, this would be a similar extension to the effect or intent of the action of the verb; otherwise, it might simply be a calque on English 'break'. WlpD gives 'castrate' as an alternative translation for this meaning, without exemplifying it: 'castrate' can follow directly as an extension to the effect/intent of the core P/I action, since both 'cutting' and 'biting' are known methods of castration in the Northern Territory.

Context metonymy

The extension to 'call, name', has caused much speculation, without, to my knowledge, any satisfactory explanation having been proposed: judging from my own inquiries, Warlpiri speakers are themselves ignorant of any motivation for this polysemy. The most obvious place to look for an explanation is in the practices of initiation, and, in fact, one finds a number of situations in which an act of naming accompanies an act of cutting. These ethnographic considerations, described in the next paragraphs, motivate an analysis of the meaning 'name' as a context metonymy: cutting is polysemously associated with naming because the former activity is a salient part of the context of the latter.

Descriptions of initiation ceremonies among the Arrernte, another Central Australian people whose Pama-Nyungan language is related to Warlpiri, show a number of situations in which acts of naming co-occur with acts of 'cutting', and which therefore are a possible basis for the polysemy in social practice. Although the main focus of the relevant ethnographic account is Arrernte ceremony, the Warlpiri ('Ilpirra') are also mentioned as sharing the practice in question. I have not been able to find accounts of similar practices in descriptions of Warlpiri religion in its own right, which suggests either that the Warlpiri polysemy had been imported (directly or indirectly) from a society in which such practices existed, or

that it was once, as suggested by Spencer and Gillen's report of it, a Warlpiri practice which died out. The other possibility, naturally, is that there is some quite different motivation in Warlpiri: identity of polysemy does not of itself guarantee identity of motivation.[26]

Cutting figures definitionally in the two most important Arrernte initiation ceremonies, circumcision and subincision. Like the other ceremonies that mark a boy's transition to adulthood, circumcision and subincision each earn the initiand the right to be called by a new status name specifying the phase of initiation he has passed (Spencer and Gillen 1968: 260). For example, among both Arrernte and Warlpiri, a youth who has been subincised is told that he has now earned the status name 'Ertwa-kurka.' (Spencer and Gillen 1968: 256). A link thus exists between the incision and the conferral of a new status name, and we can speculate that this could provide the metonymic basis for the transfer of the cutting verb to an aspect of the context of which the cutting is a part. Not only among the Arrernte are incisory acts associated with naming. Spencer and Gillen (1904: 582) report of the 'Urabunna' (Arabana) for example, that each man has two names, one given as a child, the other given by the father's father when the man is initiated. This sort of social practice may thus underlie not only the Arrernte extension, but possibly also the Warlpiri.

If these social practices do indeed constitute the basis for the polysemy, the extension from 'cut' to 'name' would therefore represent a metonymic extension to the context in which the cutting takes place.

11. *Katirni*

As a preliminary description, this verb can be characterized as applying to situations where one body places downwards pressure on another. This includes the P/I translation 'trample.' Unlike the verbs that have been described so far, *katirni* has both stative and nonstative meanings: it describes both the act of bringing pressure to apply to something, and the stative event of a body applying pressure.

11.1 *Katirni* ‘tread on’

The most frequent translation of *katirni* is ‘tread/stand on’ or ‘trample’. (225) exemplifies the stative version of this meaning, (226)–(228) the non-stative:

(225) *Kuntu-ma-ni* *ka-rna,* *kati-rni* *ka-rna,*
weigh down-NPST AUX-1S stand-NPST AUX-1S
kalaka *payi-ngki* *kiji-rni.*
AUX.ADM. wind-ERG blow away-NPST
‘I am weighing it down, standing on it because it might be blown away by the wind.’ (WlpD)

(226) *Walya* *ka-lu* *kati-rni* *puluku-rlu*
ground AUX-333S trample-NPST cattle-ERG
wirliya-rlu *wiri-ngki.*
hoof-ERG big-ERG
‘The cattle trample the ground with their big hoofs.’

(227) *Watiya-rlangu* *kaji-lpa-rlipa* *kati-karla,*
wood-for example AUX.POT-IMP-122S tread on-IRR
wirliya-rlu, *jiwirri-rlangu,* *ngula* *ka*
foot-ERG stick-for example that AUX
rdaaly-wangka.
snap.NPST
‘If we tread on a piece of wood [a stick, say] with our feet, then it snaps.’ (WlpD)

(228) *kurdu-ngku* *ka* *kati-rni* *mangarri.*
child-ERG AUX step on-NPST bread
‘The child is stepping on the bread.’

The point of contact in (225)–(228) was with the feet of the ‘impactor‘, but this is not always the case. Indeed, *katirni* does not always designate body parts as the pressing surface: in (229) it is a vehicle that is the source of the pressure:

(229) *Wati-ngki-ji* *ka-lu* *jalangu-jalangu-rlu*
man-ERG-TOP AUX-333S these days-ERG
kuyu-ju *luwa-rni* *makiti-kirli-rli* *manu*
game-TOP shoot-NPST rifle-PROP-ERG and
ka-lu *turaki-kirli-rli* *waji-rli-pi-nja-rla*
AUX-333S truck-PROP-ERG chase after-INF-SER
kati-rni.
run down-NPST
'These days men shoot game with rifles and they run down animals with trucks.' (WlpD)

Something like a truck has a physical structure broadly similar to the body of a human or other animal, in that the wheels are like feet in providing points under the main body which serve for support and locomotion (English 'wheel' is in fact often translated by the word for 'foot' in many Aboriginal languages; cf. Basso (1967) for a similar correlation in western Apache). But *katirni* can also be used to refer to objects where this analogy does not seem, at least to an English speaker, to be operative:

(230) *Watiya wiri,* *paka-rninja-rla* *yi-rna*
log big chop-INF-SER REL-1S
ka-ngu-rnu *jimanta-rlu –* *ngula-ju-ju*
carry-PST-hither shoulder-ERG it-TOP-10
karlingardungardu *katu-rnu –*
collar bone weigh down-PST
murrumurru-karda.
sore-TRNSL
'A big log, that after chopping down I carried back on my shoulder, well it put so much weight on my collarbone that it made it sore.' (WlpD)

Here the verb simply denotes the placing of pressure on a surface by an object which does not have any natural orientation and hence no obvious bottom part like the feet of an animal or the wheels of a vehicle. Note also that this sentence exemplifies the stative use of *katirni*.

The action described as *katirni* has certain conventionalized social uses. For example, foot stamping can be used as an expression of anger, as in the following example:

(231) *Julungujulungu-yirra-rni* *ka-rla* *yangka*
stomp-NPST AUX-3DAT that
kuja-ka-rla *karnta-ngku* *kati-rni*
AUX.REL-NPST-3DAT woman-ERG stomp-NPST
kulu-ngku *yapa-kari-ki* *jangkardu…*
anger-ERG person-other-DAT to do ill to/against
'One stamps one's feet as when a woman stamps her feet when she is angry with someone else…' (WlpD)

Another cultural practice involving the stomping movement is the presentation of oneself in the face of authority for judgement and punishment:

(232) *Kati-rni* *ka-rna-ju.*
step-NPST AUX-1S-1O
'I am submitting myself.' (WlpD)

As seen in contexts like (233), this use relies on the generalized adversative meaning of the suffix *-ju*/*-ji* 'to my disadvantage':

(233) *Maliki-ji-li* *jurnta-katu-rnu* *rarralykaji-rli.*
dog-1O-333S 'away'-run over-PST car-ERG
'They ran over my dog with a car.'

(232) can therefore be paraphrased as 'I am stomping to my own disadvantage.'

11.2 *Katirni* 'kill'

Like other verbs expressing physical impact, *katirni* can be used to denote fatality arising from the action of the verb. This is usually in the context of animals being hunted:

(234) *Ngula* *kala* *warru-katu-rnu* *yangka.*
that AUX.USIT around-stamp-PST that
'He killed them by stepping on them.' (Napaljarri and Cataldi 1994: 56)

(235) *Kirlilpi-lpa-rnalu* *katu-rnu.*
bandicoot sp.-IMP-111S stamp-PST
Pakuru-lpa-rnalu *katu-rnu* *mina-ngka,*
bandicoot sp.-IMP-111S stamp-PST nest-LOC
wirliya-rlu. *Wuraji-wuraji-rli-lki* *kala-rnalu*
foot-ERG late afternoon-ERG-then AUX.USIT-111S
pu-ngu, *katu-rnu –* *mina-kurra –* *pakuru.*
kill-PST stamp-PST nest-ALL bandicoot sp.
'We were killing Desert Bandicoots by stamping on them. We stomped on the Golden Bandicoots [in their nests] with our feet. In the late afternoon we would kill them, stomp to death the Golden Bandicoots in their grass nests.' (WlpD)

This is not, however, a necessary component of the verb:

(236) *wati-ngki* *marlu* *katu-rnu* *kala* *kula* *marlu*
man-ERG roo run over-PST but NEG roo
pali-ja *wankaru* *juku.*
die-PST alive still
'The man ran over the roo but it didn't die and was still alive.'

11.3 *Katirni* 'dance'

Katirni in (237) denotes more than just the stamping of feet, but refers to a whole range of socially established actions of which a particular type of 'stamping' is a central part:

(237) *Ya-ninja-rla-lu* *pirri-ma-nu,* *yarlu-ngka-ju*
come-INF-SER-333S sit down-PST open-LOC-TOP
kala-lu *katu-rnu.*
AUX.USIT-333S dance-PST
'Having come they sat down, they danced out in the open.' (WlpD)

The type of dancing described in (237) is characteristically associated with men rather than women and involves a high, stomping gait in which the knees are raised to waist level and brought into contact with the ground. The appropriateness of *katirni* thus derives from the high level of similarity

between this ritualized action and the ordinary activity that the verb describes.

11.4 *Katirni* special subject combinations

The meaning of *katirni* undergoes contextual modulation when used with certain subjects: these combinations warrant attention because of the unexpectedness of the uses from the point of view of English. Firstly, *katirni* can be used to describe the effects of certain non-physical agencies that affect people's physical and mental condition:

(238) *Ngurrju-lku* *ka-rna* *nyina* *Muku-ju-lu*
well-now AUX-1S be.NPST all over-1O-333S
katu-rnu *pirlirrpa-rlu.*
press-PST spirit-ERG
'I am well now. I'm feeling strong all over [lit. 'The spirits have pressed on me (= strengthened me) all over.].' (WlpD)

Similarly, *katirni* can (like *pinyi*) refer to the detrimental effect of cold weather:

(239) *Kati-rni* *ka-rla* *pirriya-kurlangu-rlu.*
press-NPST AUX-3DAT cold-POSS-ERG
'He is suffering from the cold [lit. 'The cold is pressing in on him.'].' (WlpD)[27]

The status of these translations vis-à-vis the core meaning will be discussed below.

11.5 *Katirni*/*yirntirni*

Yirntirni 'push' does not seem to be part of the meaning of *katirni*, since (240) does not imply (241):

(240) *kurdu-ngku* *ka* *mangarri* *kati-rni.*
child-ERG AUX bread step on-NPST
'The child is stepping on the bread.' [does not imply (241)]

(241) *kurdu-ngku* *ka* *mangarri* *yirnti-rni.*
child-ERG AUX bread push-NPST
'The child is pushing the bread.'

Whereas *katirni* refers to treading on something with the foot, *yirntirni* describes pushing something along horizontally. Hence (242) may not be paraphrased by (243):

(242) *karnta-ngku* *ka* *mangarri* *kati-rni.*
woman-ERG AUX bread tread-NPST
'The woman is treading on the bread.'

(243) *karnta-ngku* *ka* *mangarri* *yirnti-rni*
woman-ERG AUX bread push-NPST
wirliya-kurlu-rlu.
foot-PROP-ERG
'The woman is pushing the bread with her feet.'

The lack of semantic commonality between *katirni* and *yirntirni* is confirmed by the *-wangu* construction:

(244) *karnta-ngku* *ka* *maliki* *kati-rni*
woman-ERG AUX dog step on-NPST
yirnti-rninja-wangu-rlu.
push-INF-PRIV-ERG
'The woman is stepping on the dog without pushing it.'

This sentence's acceptability shows that *katirni* is *-wangu* independent of *yirntirni*.

11.6 *Katirni*/*pinyi*, *pakarni*

The same seems to be true of the two most generalized verbs of P/I: *katirni* is *-wangu* independent of both *pakarni* and *pinyi*:

(245) *karnta-ngku* *ka* *maliki* *kati-rni*
woman-ERG AUX dog step on-NPST

pi-nja-wangu-rlu.
hit-INF-PRIV- ERG
'The woman is stepping on the dog without hitting it.'

(246) *karnta-ngku* *ka* *maliki* *kati-rni*
woman-ERG AUX dog step-NPST
paka-rninja-wangu-rlu.
hit-INF-PRIV-ERG
'The woman is stepping on the dog without hitting it.'

11.7 *Katirni*/*marnpirni*

When *marnpirni* is localized to the hands, *katirni* is, of course, *-wangu* independent of it:

(247) *karnta-ngku* *ka* *maliki* *kati-rni* *rdaka-jarra*
woman-ERG AUX dog step on-NPST hand-DU
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
'The woman is stepping on the dog without feeling it with her hands.'

But when *marnpirni* is found in its unmarked reading, 'touch with any part of the body', *katirni* is *-wangu* dependent on it, as the unacceptability or questionability of the following sentences show:

(248) **?***karnta-ngku* *ka* *maliki* *kati-rni*
woman-ERG AUX dog step on-NPST
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
'The woman is stepping on the dog without touching it.'

(249) **!***wati-ngki* *ka* *pirli* *kati-rni*
man-ERG AUX stone stand-NPST
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
'The man is standing/stepping on the stone without touching it.'

11.8 Analysis

Katirni describes the placing of downwards pressure by one body on another. This covers the translations 'trample', 'tread on', 'run over', and 'weigh down'. The verb may additionally convey that this pressure was fatal, giving the polyseme 'kill by *kati*'. Closely associated with (or identical to) the core meaning are the occurrences translated 'submit for punishment by stamping' and 'stamp in anger': the additional information in these translations is best seen as conveyed by lexemes other than the verb itself, which appears in its basic or core sense. On the other hand, 'dance' seems to warrant recognition as a different point in the verb's meaning region because it does not require extra information in its context in order for this information to be conveyed. *Katirni* also denotes '(spirit) strengthen', and '(cold weather) affect'. Examples of these meanings are repeated below:

Core meaning

(250) 'Place pressure on':

kurdu-ngku	*ka*	*kati-rni*	*mangarri.*
child-ERG	AUX	step on-NPST	bread

'The child is stepping on the bread.'

Metaphorical application

(251) 'Strengthen':

Ngurrju-lku	*ka-rna*	*nyina*	*Muku-ju-lu*
well-now	AUX-1S	be.NPST	all over-1O-333S
katu-rnu	*pirlirrpa-rlu.*		
press-PST	spirit-ERG		

'I am well now. I'm feeling strong all over [lit. 'The spirits have pressed on me (= strengthened me) all over'].' (WlpD)

Effect metonymy

(252) 'Kill by *kati*':
Kirlilpi-lpa-rnalu *katu-rnu.*
bandicoot sp.-IMP-111S stamp-PST
'We were killing Desert Bandicoots by stamping on them.'
(WlpD)

Context metonymy

(253) 'Dance':
Ya-ninja-rla-lu *pirri-ma-nu,* *yarlu-ngka-ju*
come-INF-SER-333S sit down-PST open-LOC-TOP
kala-lu *katu-rnu.*
AUX.USIT-333S dance-PST
'Having come they sat down, they danced out in the open.'
(WlpD)

Metaphorical application

Translation (251) can be thought of as the same meaning as the core meaning in a metaphorical application. (The beneficial effect of the spirits' act is conveyed not by *katirni* but by the noun *pirlirrpa*, which is the name of the life force responsible for a person's well-being; see the entry *pirlirrpa* in WlpD.) There are actually two metaphors at work in sentences like (251). Firstly, the source of well-being is treated as a spirit. Secondly, the transmission of the well-being to someone's consciousness is conceived of as an act of *kati*. Thus, if one is prepared to enter into this conceptualization of the world, there is no need to attribute any non-core meaning to the verb in these occurrences: *katirni* means the same in (251) as it does in (250), and it is only the expectedness of the referents of which it is predicated that is different (to an English speaker). The extent to which contexts like (251) are felt as metaphorically related to (250) or as identical to it – in other words, the extent to which Warlpiri speakers do enter into such a conceptualization – is a matter for sociolinguistic investigation, and is probably open to considerable individual variation.

Effect metonymy

'Kill by *kati*' in sentence (252) is a regular metonymic extension to the effect of the P/I.

Context metonymy

'Dance', seen in (253), can be unproblematically analyzed as an extension to the context in which the action of the verb occurs. The act of *kati* is a central part of the activity of dancing, and in the extension the meaning of the verb spreads from the denotation of this central part to that of the context as a whole.

12. *Parntarni*

Warlpiri is distinguished from its neighbours in the Arandic and South-West Nyungic subgroups of Pama-Nyungan by devoting a monomorphemic verb to the meaning 'hit on head.'

12.1 *Parntarni* 'hit on head'

A vernacular definition of *parntarni* is reproduced in (254):

(254) *Parnta-rni, ngula-ji yangka kuja-ka*
parntarni that-TOP that AUX.REL-NPST
yapa-kari-rli jurru paka-rni watiya-kurlu-rlu
person-other-ERG head hit-NPST stick-PROP-ERG
kulu-ngku yangka nyiya-ngurlu-rlangu marda
anger-ERG like something-EL-for example maybe
karnta-jarra-rlu wati-ngirli manu wati-jarra-rlu
woman-DU-ERG man-EL or man-DU-ERG
karnta-ngurlu manu pama-jangka-rlu yapa-jarra-rlu
woman-EL or grog-EL-ERG person-DU-ERG
kulu-ngku.
fight-ERG
'*Parntarni* is when someone hits one on the head with a stick in

a fight like over something as two women do over a man or two men over a woman or two people who are drunk and fighting.' (WlpD)

The vernacular definition thus specifies the presence of an instrument (a stick), and locates the action as occurring between human participants (of the very small number of instances of this verb to be found in WlpD, none involves a non-human patient and all involve human agents.) The presence of an instrument is a central component of the verb's meaning; while an instrument is not an argument and need not be overtly expressed, it seems usually to be thought of as present, and sentences which confine the action of the verb merely to the hand are rejected as bizarre:

(255) **!/?***wati-ngki* *wati-kari* *parnta-rnu* *rdaka-ngku.*
man-ERG man-other head hit-PST hand-ERG
The man hit the other man on the head with his hand.'

Substitution in (255) of *watiya-rlu*, 'stick-ERG', makes the sentence acceptable. The next two sentences illustrate the contrasting acceptability of *parntarni* and *pakarni*:

(256) *marlu-jarra-rlu* *paka-rni* *ka-pala-nyanu*
roo-DU-ERG hit-NPST AUX-33S-REFL
rdaka-ngku *kulu-ngku.*
paw-ERG anger-ERG
'Two roos hit each other with their paws in anger.'

(257) **!***marlu-jarra-rlu* *parnta-rni* *ka-pala-nyanu*
roo-DU-ERG head hit-NPST AUX-33S-REFL
rdaka-ngku *kulu-ngku.*
paw-ERG anger-ERG
'Two roos hit each other on the head with their paws in anger.'

Parntarni is only appropriate for blows to the head: any impact to other parts of the top of the body like the neck or shoulders is signalled by *pakarni* or *pinyi*. All the citations in WlpD contain *jurru* 'head' in the same clause as *parntarni*, either as one of its arguments or as an oblique in the absolutive case (cf. Hale 1981 on the syntax of part-whole relations in Warlpiri): there is thus redundancy in that the object of impact to which the

verb solely refers is nevertheless always specified. This redundancy may be a tendency in discourse, but it is not strictly necessary, for sentences without any occurrence of the word for 'head' are still accepted:

(258) *karnta-ngku* *ka* *parnta-rni* *kurdu.*
woman-ERG AUX hit-NPST child
'The woman is hitting the child on the head.'

In cases where there is overt mention of the noun denoting 'head', the following two sentences evidence the alternatives for its syntactic status. In (259) it is the only direct object of *parntarni*, whereas in (260) it shares this status, or is in a predicative relationship with, the pronoun object indexed as *-ngku* on the auxiliary (the dictionary's translation of (259) omits the instrument, which has been supplied in square brackets):

(259) *parnka-ya* *murrku* *kapanku* *parnta-rninja-kujaku*
run-IMPER boy quickly head hit-INF-ADM
jurru-kujaku *watiya-kujaku* *nyalali-kijaku* *yaruju*
head-ADM stick-ADM girl-ADM quickly
murrku.
boy
'Run off little boy, quick, before the little girl hits you on the head [with a stick].' (WlpD)

(260) *Kapu-rna-ngku* *parnta-rni* *jurru.*
AUX.FUT-1S-2O hit-NPST head
'I'm going to hit you on the head.' (WlpD)

Parntarni is not the compulsory choice of verb to express this meaning: *pinyi jurru* will do just as well as a translation of 'hit in the head':

(261) *Kapi-rna-ngku-pala* *pi-nyi* *jurru.*
AUX.FUT.1S-22O hit-NPST head
'I'm going to hit you two in the head.'

This sentence is parallel (except for the differing number of the object) to (260) above. Judging from the fact that it is not used, *parntarni* may possibly not be appropriate to express the type of impact described in (262):

(262) *Yaru-pinyi, yaru pinyi* *wangka* *kuja-ka-lu.*
Yaru-pinyi, *yaru pinyi* say.NPST AUX.REL-NPST-333S
kuja-ka-rnalu *nganimpa-rlangu-kula*
AUX.REL-NPST-111S 111S-for example-EMPH
panu, *kajipa-npa* *watiya* *paka-karla* *yangka,*
many AUX.POT-2S tree chop-IRR like
linji-parnta… *kaji-lpa-ngku*
dried out-PROP AUX.POT-IMP-2O
kankarlarra-jangka – *watiya* *yaarlpa* *wanti-yarla*
above-EL wood on top of fall-IRR
wita, *watiya-rlu* *kaji-lpa-ngku* *yangka*
small wood-ERG AUX.POT-IMP-2O that
jurru ***luwa-karla,*** *kaji-ka-ngku* *yaarlpa* *wanti,*
head hit-IRR AUX.POT-2O on top of fall.NPST
kaji-ka-ngku ***jurru-lku*** ***luwa-rni.***
AUX.POT-NPST-2O head-and then hit-NPST
'*Yaru-pinyi*' is what they say – or we all say – like if you were chopping down a tree, one that has dead wood on it…then some wood may fall down on you from above, a piece of wood may strike you on the head, might fall on top of you and might strike you on the head.' (WlpD: *yaru-pi-nyi*)

If *parntarni* is unsuitable to describe this situation, there are two possible reasons, firstly the fact that the action involves a projectile-like impactor and secondly the absence of any human agent. It seems that the basic contrast between projectile versus non-projectile impact may override *parntarni*'s specialization of contact surface as the factor motivating verb choice, favouring *luwarni*. Non-projectile impact on the head is thus not expressed by *parntarni*; (263) illustrates an alternative verb:

(263) *watiya-ju* *wanti-ja* *jurru-kurra.*
branch-1O fall-PST head-ALL
'The branch fell on my head.'

The principles governing verb choice here can be represented as an ordered series of options. The earliest alternative distinguishes projectile from non-projectile impact: if the impactor is detached from its source and traces a path through the air before striking its object, the correct verb is *luwarni*, regardless of what part of the object is struck. Otherwise *pakarni*, *pinyi* or

parntarni is appropriate, with the choice between these options being determined according to the semantic descriptions of these verbs offered above (with the choice of *parntarni* always being optional).

12.2 *Parntarni* 'extract, remove'

Another verb *parntarni* has been recorded at Yuendumu with the meaning 'extract, pull out, take out from, remove from.' In this sense it is a synonym of *wilypi-ma-ni*. The verb can refer to taking an entire object out of a place, or, as in the following example, to detaching part of an object from its source:

(264) *Wakurlu* *kala* *parnta-rnu,*
hair AUX.USIT remove-PST
nyarrpakunyarrpaku-rlu. *Kala* *paju-rnu…*
hastily-ERG AUX.USIT cut-PST
kuyu-pardu-ju.
animal-DIM-TOP
'They removed its hair, working quickly. They cut up the animal into pieces.' (WlpD)

In the absence of any bridging context that will mediate between 'hit on head' and 'remove', *parntarni* 'remove' will be treated as homophonous, rather than as identical with, *parntarni* 'hit on head'. Kukatja and Pintupi/Luritja both show possibly related words for 'remove' (KUK *parnta-la* 'remove from hole', PIN *pa<u>n</u>a<u>n</u>u* 'pull from hole, dig up, remove from ground'), neither of which means 'hit on head'.

12.3 *Parntarni*/*pinyi*

The fact that, as in (261), *pinyi* can be substituted for *parntarni*, suggests a close lexical relationship between them. The usual test demonstrates that *parntarni* is *-wangu* dependent on *pinyi*:

(265) **!***karnta-ngku* *ka* *maliki* *parnta-rni*
woman-ERG AUX dog head hit-NPST

pi-nja-wangu-rlu
hit-INF-PRIV-ERG
‘The woman is hitting the dog on the head without hitting it.’

12.4 *Parntarni*/*pakarni*

A similar relationship seems to hold between *pakarni* and *parntarni*. In the first place, (266) entails (267) (the converse, however, is not the case):

(266) *karnta-ngku* *ka* *parnta-rni* *kurdu.*
woman-ERG AUX head hit-NPST child
‘The woman is hitting the child on the head.’ [entails (267)]

(267) *karnta-ngku* *ka* *paka-rni* *kurdu.*
woman-ERG AUX hit-NPST child
‘The woman is hitting the child.’

Secondly, sentences which affirm *parntarni* while denying *pakarni* are rejected as contradictory:

(268) **!***karnta-ngku* *ka* *maliki* *parnta-rni*
woman-ERG AUX dog head hit-NPST
paka-rninja-wangu-rlu.
hit-INF-PRIV-ERG
‘The woman is hitting the dog on the head without hitting it.’

12.5 *Parntarni*/*marnpirni*

As (269) demonstrates, *parntarni* is also -*wangu* dependent on *marnpirni*:

(269) **!***karnta-ngku* *ka* *maliki* *parnta-rni*
woman-ERG AUX dog head hit-NPST
marnpi-rninja-wangu-rlu.
touch-INF-PRIV-ERG
‘The woman is hitting the dog on the head without touching it.’

12.6 Analysis

The P/I verb *parntarni* 'hit on head' has no other recorded meanings; *parn-tarni* 'remove' should be counted as a homophone. The P/I verb shows the predictable lexical relations with other verbs of impact and contact, being, as in many languages, *-wangu* dependent on the verbs translated as 'hit' and 'touch.' It is obscure why the language has lexicalized the meaning 'hit on head' into a monomorphemic form. The salience of the head, however, is so much greater than that of any other bodypart that it is not surprising that it rather than some other bodypart is chosen for such preferential treatment (cf. French *gifler*, German *ohrfeigen* 'slap in the face'). A fruitful avenue for future research would be to discover whether inanimates may be metaphorically treated as objects of *parntarni*, in order to expose what (metaphorically) counts as having a 'head'.

Chapter 7
Conclusion: description and explanation in semantics

The previous chapters have sketched the contours of a theory of polysemy, and have advanced a number of positive proposals about the best way to construe various linguistic facts. At the same time, however, it has been continually stressed that the present analysis of polysemous meanings is not meant to be exclusive. Since semantics is irreducibly interpretative and subjective, there is an unlimited number of alternative analyses which could be legitimately advanced as representations of the polysemous meanings of any of the P/I expressions, and of the semantic relations between them, that have been discussed in this book. Given this infinity of equally justifiable analyses, in what sense can the analyses that are in fact offered be explanatory? Given that all analyses are justified to the same degree by the 'facts', what is the point of advancing any?

The fact that semantic theories do not have the same relationship with their subject matter as the theories in the canonical physical sciences should need not lead semanticists to discredit their current analytical practices. Rather than aspire towards a scientificity which, for the reasons discussed in chapter one, seems fundamentally out of reach, semanticists can acknowledge that there may be better ways of contextualizing their research than by assimilating it to the paradigm of science. Nor need the choice of a model for a theory of meaning take the form of a simple dichotomy between 'science' and 'nonsense', as many linguists' own statements seem to presuppose. Science is not the only available option, as is often claimed, even if it is the one which linguists have admired the most during the past two hundred years (see Joseph 1995).

This is even more the case given that the knowledge delivered by the physical sciences and by semantics can be seen as differing not so much in kind as in degree. One commonality in particular between semantics and the types of explanation found in science motivates this conclusion: the fundamental character of analyses in both domains as redescriptions of the

phenomena they explain. A canonical instance of scientific explanation, the Newtonian theory of gravitation, redescribes phenomena by showing that apparently different and unrelated events – an apple falling from a tree, the trajectory of the planets, and the movement of the tides – are actually, in one crucial respect, the same: they are all instances of bodies behaving in accordance with the law of gravitation (Hamou 2002: 145). This theory does not explain everything about apples, planets and the tide: there are always different questions that can be asked about them having nothing to do with the fact that they all obey the gravitational law (for example, questions about the material they are composed of). Nor does it exhaust the chain of questions: one can also insist on being given some explanation of the law of gravitation itself; after any proposed explanation, the question 'why?' can be iterated indefinitely. But the statement of the law of gravitation and its application to falling bodies, planets and the tides has the effect of redescribing phenomena which previously seemed unrelated and showing their similarity with respect to a certain view of nature. Part of the explanation achieved by the gravitational law, in other words, is a new typology of phenomena. A description of the universe is achieved in which the borders between entities have been redrawn: planets and apples are no longer as distinct as they previously were (cf. Feyerabend 1993: 156; Churchland 1986: 280).[1]

In the natural sciences, the effect of such a redescription is often obvious. The yardsticks of increased predictive utility and greater mathematical or theoretical elegance are two frequent criteria by which the desirability of a particular redescription can be judged. Semantic redescriptions are not so easily assessable. True prediction, in which a particular value is unknown before specific testing has been accomplished, is generally not a characteristic of any non-instrumental linguistic methodology, and there are no clear-cut criteria of theoretical elegance or coherence which could police proposed redescriptions of meaning. Nevertheless, in neither semantics nor science is the explanatory value of a redescription limited to those of its effects which can be explicitly assessed using notions like predictive potential or broad theoretical coherence. In both domains, the very *provision* of a motivated redescription of some subject matter has explanatory value. This value derives from the status of such redescriptions as typologies, classifying data according to explicit criteria and introducing order to the description of the explananda.

In the case the present study, the aim of the theory of polysemy is to pursue a redescription of semantic phenomena which classifies them ac-

cording to a transparent and obvious – though not necessary or objective – set of criteria. The benefit of this typology, if it is accepted, is that it shows that the phenomenon of polysemy in P/I verbs is amenable to a parsimonious description at least under one axis of investigation. This parsimonious redescription allows some general properties of the explananda to be identified and generalizes over a range of particular cases in order to extract the most far-reaching classifications. Like scientific redescriptions, this analysis will not answer all the questions one could ask about the meanings of the P/I verbs in question. Nor will it issue in detailed, predictive explanations. But it will perform one of the functions which scientific explanations so strikingly fulfil – a redescription of the explananda in terms of a new ontology. This ontology motivates and orders the fundamental entities postulated in the phenomena described, thereby enabling a more concise, less particularistic description.

Explanations in the natural sciences would have this motivating and ordering effect even if stripped of their predictive utility. Before the Newtonian revolution falling apples and the moon did not necessarily demand to be explained together. In submitting them to the same explanatory regimen, however, the law of universal gravitation revealed that, in so far as they could be described by the same equations, they were the same type of object, and not, as might have previously been thought, of fundamentally different natures. Like other linguistic analyses, the theory of polysemy advanced here has a comparable logic. In analyzing polysemous expressions as instances of metaphor or of particular types of metonymy, the theory redescribes, and changes the ontology of, the semantic phenomena under investigation: instances which may previously have seemed to have nothing to do with each other are revealed as examples of an identical category, and instances which may previously have seemed identical are revealed as different. Crucially, however, the criteria of sameness and difference which govern the redescription are made explicit by the definitions of metaphor and metonymy which the theory enlists. Rather than being imposed, regulated and justified by its part in a predictive explanation, as is, ideally, the case with redescriptions in the natural sciences, the justification for the change to the ontology proposed here is simply the fact that the classification into metaphor and metonymy depends on the obvious and uncontroversial features of the verb meanings involved, as revealed in the paraphrases given. And since all the polysemies are shown to submit to analysis with just four categories of semantic extension, the number of brute, stand-alone facts is diminished by imposing an interpretative matrix

through which the phenomena can be appreciated as significantly less complex, and more unified, than might otherwise have been thought.

Explanations in linguistic semantics and the natural sciences, then, share a basic feature: they are both motivated redescriptions, or typologies, of the phenomena they analyze. Semantics, clearly, is far from being alone in the human sciences in this respect: any discipline which seeks to impose an ordered, theoretical interpretation on its subject matter shares an identical rationale. The fact that, in semantics, none of the redescriptions advanced of the subject matter can be given a determinate role within a causal explanation of language behaviour is, as we have seen, an inevitable feature of any analysis operating on a representational level of explanation depending on claimed equivalences between symbolic units. As repeatedly emphasized, these analyses must be seen as constituted at the deepest level by subjective judgements of semantic equivalence, and lacking either empirical, predictive potential or any necessary isomorphism with psychology or brain structure. As argued in chapter one, this is a result of the difference between the definitions of scientific and semantic terms. The fundamental contrast between semantics and science lies, as discussed there, in the varying degrees of precision of their correlations between theoretical description and evidence. The technical vocabulary of science is much more closely tied to independently established and objective parameters than is that of semantics. In many sciences, there is usually an accepted criterion for the application of a particular technical term. Thus, a given molecule has a unique chemical characterization in the vocabulary of the periodic table. As a result, whether or not a given particle is a molecule of gold or of silver is a question on which chemistry can on the whole unproblematically agree. In linguistics, by contrast, technical redescriptions of semantic phenomena are not regulated like those of mature sciences by accepted, pandisciplinary criteria: there are any number of characterizations of the meaning of a linguistic expression, even within a single metalanguage. Hence, they are not yet able to be integrated into a comprehensive theory of language.

As interpretations, however, these semantic redescriptions count as a type of knowledge, and should not be shunned in the name of an all-or-nothing scientism. The physical sciences furnish redescriptions of their subject matter which feed into the collective purposes of the discipline by providing predictive control over the phenomena under investigation. It is in the nature of these redescriptions and the purposes for which they are employed that their criteria of adequacy can be assessed in a largely objec-

tive way. The redescriptions provided in semantics, by contrast, cannot be assessed objectively. But if semantic analysis is not subject to the same controls as those of natural science, no more is it completely arbitrary and free-floating. Entities are not postulated, differentiated and grouped according to purely private, subjective criteria which cannot be shared intersubjectively, but rather according to common, easily described understandings of aspects of their (usually denotative) 'meaning', which are, as a result, open to the critical scrutiny and judgement of the scholarly community. This means that the collective purposes of linguistics can provide a check on the random proliferation of theoretical entities, and provide criteria of adequacy in a way that can be seen as similar to the way in which hypotheses and theories are regulated by the paradigms operative in the natural sciences. The collective purposes of linguistics are, of course, manifold, but any one of them still provides a background against which a given semantic redescription can be judged. Thus, different semantic redescriptions will be appropriate depending on whether the task is taken to be writing more useful dictionary entries for language learners, revealing the specific encyclopaedic knowledge evoked by an expression, teaching undergraduates linguistics, or seeking features of words' contextual effects assumed to be of psychological significance under a particular theory of the mind. As a result, the redescriptions proposed in linguistics are much more local and less generalizable than those of the physical sciences; this does not, however disqualify them as unrigorous or as otherwise intellectually irresponsible.[2]

The analysis presented here has proposed metalinguistic paraphrases, in non-technical English, which reflect certain obvious interpretations of the object languages' verb meanings. Using these paraphrases, metaphoric and metonymic regularities can be identified in the patterns of polysemy which the verbs exemplify. But because there are no a priori limits on what may be admitted as a semantic paraphrase, it is always open to another investigator to propose a different paraphrase, or a different set of relations, which do a better job, by establishing a more elegant or principled delimitation of the phenomena, enabling more interesting connections between the hypothesized meanings and other facts, or integrating more deeply into current interpretations of language structure. In such a case, while not denying that the present paraphrases are both possible and legitimate, we can simply realize that the proposed alternatives are more revealing or fruitful. Thus, the fact that no semantic analysis is untrue does not mean that all are equally worth pursuing. Whether and to what extent an analysis is useful, however, is not a matter that is determined by its correspondence with some

putative fact of the matter about what the meaning of an expression is or is not: we have argued that no such facts exist. Rather, a pragmatic, disciplinary criterion must be substituted: a semantic analysis is useful if it stimulates the discipline's evolving understanding of its field – if, in other words, other linguists find it useful, whether in clarifying the phenomena for them, providing input into their own theories, revealing unsuspected connections, or provoking critical reflection on language. Needless to say, there are many ways in which these goals can be fulfilled. But a conception of linguistics which sees semantic explanation not in essentialist terms, as reduction of linguistic phenomena to their unique and immediate internal causes, but as an essentially pluralistic part of an evolving dialectic responding to particular questions, is better suited to the heterogeneous explanatory demands placed on the notion of meaning in the discipline.

Notes

Notes to Introduction

1. One thinks, for example, of Fodor's attack on the problem of polysemy (1998), the debates about mental representation and mental imagery discussed in chapter one, and discussions, largely in philosophy of language, about metaphor – this last a subject of which many cognitive linguists are, in fact, aware.
2. This is not to require that CS theories be of such a form as to be susceptible of experimental testing *now*: any such demand would be considerably premature (but cf. Rice 2003, Boroditsky 2000). It is only to suggest that if the identification between meaning and conceptualization is to be able to benefit from the insights of psychologists and neuroscientists, then linguists will at some point have to put forward determinate analyses which do commit themselves to a particular construal of the divisions within the conceptual content attributed to a given word, which can then be tested by experimental disciplines.

Notes to chapter 1

1. Note that while Langacker accepts this methodological injunction, his interpretation of its implications is somewhat different from the one often adopted elsewhere in linguistics: see Langacker (1987: 48–55) for discussion.
2. Suggestions typical of semantics in the formal tradition, that the data of semantics are phenomena like synonymy, incompatibility, ambiguity and other lexical relations represent just one possible decision about what semantics should study. These phenomena are certainly important, but they cannot be privileged as *the* object of semantic research except at the cost of violence to all the other possible candidates, including definition, connotation, taxonomy, reference, etc.
3. Observe that the data to which this kind of semantic study is addressed are, in a certain sense, data about use. That is, the fact that a sentence is ambiguous, or contradictory, or synonymous with another sentence, refers to the way in which the sentence in question relates to other sentences with which it may occur.

4. The exclusionary fallacy is the belief that "one analysis, motivation, categorization, cause, function, or explanation for a linguistic phenomenon necessarily precludes another" (Langacker 1987: 28).
5. This lineage is by no means unique to CS: cognitive science in general is a descendant in the same line. See Geeraerts (1995) for a different perspective on the intellectual heritage of cognitive semantics, and Slezak (2002) for a discussion of the close similarity between the contours of seventeenth century and modern approaches to the understanding of mind.
6. This point is clearly articulated by Fodor (1998: 8): "To a first approximation, … the idea that there are mental representations is the idea that there are Ideas *minus* the idea that Ideas are images."
7. That, for Locke, ideas are conscious is suggested in Book II chapter 1: "Every Man being conscious to himself, That he thinks, and that which his Mind is employ'd about whilst thinking, being the *Ideas* that are there, 'tis past doubt, that Men have in their Minds several *Ideas* …". Note that Locke does not claim that *every* word is accompanied by an idea: "it *often* happens that *Men*, even when they would apply themselves to an attentive Consideration, do *set their Thoughts more on Words than Things*. Nay, because Words are many of them learn'd, before the *Ideas* are known for which they stand: Therefore some, not only Children, but Men, speak several Words, no otherwise than Parrots do, only because they have learn'd them, and have been accustomed to those Sounds" (Book II, Chapter 3). For discussion of the Lockean position, see Guyer (1994: 118–126). See Saussure (1983: 12) for another instance of this identification, and compare Taylor (1985), which contains a version of the history of the idea of *thought* as representation.
8. For useful discussion of this point, see Varela, Thompson and Rosch (1991: 48).
9. As pointed out by Steen (1994) and Rakova (2002) not all cognitively minded linguists would be committed to the doctrines of experientialism and embodied realism in the version developed by Lakoff and Johnson. But this version is nevertheless the most fully worked out philosophical justification for cognitive semantics practice that has yet been made available, and hence provides the specific context for the discussion in this chapter. Other varieties of self-styled 'cognitive' semantics, by contrast, such as that associated with Jackendoff (1983, 1990), or Wierzbicka (1999; cf. Goddard to appear) do pursue a reductive project.
10. Indeed, even as fundamental a question for the cognitive semantics project as whether the psychological and processing procedures for literal and non-literal language are different is itself highly controversial, regardless of the particular model adopted for the representation of the latter (see, e.g. Gibbs 2002; Glucksberg 2003; Tartter et al. 2002: 503–504 discuss some apparently contradictory results).

11. Note the apparent equivocation in the last sentence: the cognitive conscious is "constituted" by "patterns of *neural* connectivity" (italics added).
12. This problem is not just a problem for cognitive semantics, of course. Generative rules and representations are equally open to criticism on these grounds. Chomsky (1986: chapter 4) attempts a partial counterargument, largely compatible with the one sketched in 3.3.2.
13. Discussions of Wittgenstein, at least in analytic philosophy, are characteristically not framed in terms of representations, in spite of the appropriateness of this terminology in pinpointing aspects of the Wittgensteinian critique of meaning. (Summerfield 1996, however, is one prominent instance of representational vocabulary applied to the Wittgensteinian critique.) Talk of representations here has been adopted in order to accentuate the relevance of the Wittgensteinian critique to linguistics, and is not meant to deny that the arguments in *Philosophical Investigations* attack the notion of meaning quite generally, regardless of the details of the representational theory adopted.
14. Note that the Wittgensteinian argument against the possibility of representational correlation is not, as is occasionally suggested (e.g. by Barberousse, Kistler and Ludwig 2000: 49), simply the problem of induction under another name. The problem of induction, as it is relevant to semantics, can be stated as the problem of determining which of the many possible equivalent definitions which might be formulated to describe the meaning of a word is the correct one. This problem assumes precisely what the Wittgensteinian argument denies: that there can be such a thing as an accurate definition of a word's meaning. From the Wittgensteinian point of view, *every* definition applies to *every* word; the problem of induction, as a result, is dissolved into a much deeper scepticism.
15. For Lakoff, this claim is made more plausible by the additional, and 'anything but uncontroversial' (1987: 455) hypothesis that perception itself is structured by the same image-schemas that structure language:

    > On this hypothesis, we do not have pure unstructured perceptions and images. Perceptions and images are not merely pictorial. In perceiving and in forming images, we impose a great deal of image-schematic structure. It is this image-schematic structure that allows us to categorize what we perceive. And it is this image-schematic structure that allows us to fit language to our perceptions and rich images. (Lakoff 1987: 455)

    We will return to this issue in chapter three, where the hypothesis of a very general link between the cognitive operations in perception and conceptualization will be defended. Clearly, however, the objections made here against 'fitting' apply regardless of whether perception and language use congruent structuring devices

16. A comment on the meaning of 'representation' in cognitive science in general is called for. What distinguishes the use of this term in cognitive semantics from its broader use elsewhere in the discipline is that CS representations are essentially symbolic, involving coarse-grained, language like elements (metalinguistic glosses, standardized configurations of trajector-landmark structures, diagrams, etc.) which are connected to their denotata by virtue of a relation of fitting (whether this is interpreted as resemblance, as for diagrams, or appropriateness, as with ordinary words). As such, CS representations only constitute a selected, and increasingly disfavoured, subclass of the type of entity called 'representation' by many other cognitive scientists and philosophers (Elman 1991, Keijzer 1998, etc.). For Clark and Toribio's (1994) 'modest' representationalism, for example, a belief in representations only commits an investigator to the view that cognition operates by "recoding gross sensory inputs so as to draw out the more abstract features to which we selectively respond" (1994: 423) – clearly a process that can be accomplished in a variety of ways, by no means committed to symbolic representations. Thus, while the question of whether, and in what sense, these non-symbolic representations can be considered as psychologically real is still hotly debated, there is a widespread feeling, especially since the advent of connectionism and its 'subsymbolic' instantiations of content, that language-like symbolic representations may have a much diminished role to play in the understanding of human thought.
17. Note that for Dretske (1988) and others, the term 'representation' simply refers to the beliefs which constitute the *reasons* for action. According to such a usage, it is precisely the fact of causal integration (on an intentional level of explanation) that confers the status of representation, rather than symbolic indication of external conditions.
18. This passage raises a question. If, as Johnson and Lakoff say in the passage quoted, image schemas and the other structures of the cognitive unconscious simply *are* neural structures, where does this leave the explanatory indispensability once claimed to attach to them?
19. In classical cognitive science, of course, representations could only exist within a calculus of rules by which they were manipulated. In a connectionist architecture, by contrast, the distinction between rule and representation loses much of its force.
20. In light of this, it comes as no surprise that recent cognitive science has increasingly opted for precisely such an empirical focus. Thus, the neurobiology of real brains has begun to displace purely formal computational manipulation as the most urgent focus of investigation for many researchers (H. Damasio 2001; Farber et al. 2001), and the development of local, situated, and action-oriented procedures has been substituted for deductive, top-down, symbolic

modelling as a means for performing actual physical tasks in real environments (Clark 1997).

21. It might be objected that a Wittgensteinian attack on the objectivity of rule-following could equally be taken to affect the statements of natural law on which nomological explanations in natural science depend. According to this objection, it no more an objective matter whether a physical system obeys law x or law y than it is whether a certain language user is doing so: since there are any number of ways in which a system can obey a law, which particular law is in question is not open to empirical testing. As stressed by Baker (1981), this seems not to have been Wittgenstein's intention in *Philosophical Investigations*, which takes as its object a critique of a particular theory of meaning, not of scientific explanation. It is, in any case, misconceived: if a particular phrasing of a physical law has genuine explanatory consequences (usually predictive ones), there is good reason not to worry about the indeterminacy of the precise phrasing of the law (cf. Dreyfus 1992: 291 for discussion). Such empirical and predictive consequences are not currently delivered by the symbolic representations of cognitive semantics; by definition, however, they will be delivered by the laws of neuroscience. The indeterminacy of rule following is only problematic when rule following is seen as an unconscious activity of people's psychologies undertaken in order to use language (see Baker 1981 for discussion).
22. Note that Lakoff (1987: 408) is very clear at the end of his discussion of *anger* that he is not making detailed psychological proposals about the exact way in which the cognitive model of anger postulated in his study relates to actual cognition: "Thus, our methodology does not enable us to say much about the exact psychological status of the model we have uncovered. How much of it do people really use in comprehending anger? Do people base their actions on this model? Are people aware of this model?…"
23. The question of whether symbolic representations will be useful in representing these facts must wait until the neurobiology itself is better understood.

Notes to chapter 2

1. Although, in Wierzbicka's words (1996: 206), Leibniz "recommended comparative study of different languages of the world as a way to discover the 'inner essence of man' and, in particular, the universal basis of human cognition," it is worth remembering that many of the philosopher's pronouncements about the true viability of this project are rather equivocal, as this passage from 'An Introduction to a Secret Encyclopaedia' suggests:

   > An analysis of concepts by which we are enabled to arrive at primitive notions, i.e. at those which are conceived through themselves,

> does not seem to be in the power of man. But the analysis of truths is more in human power, for we can demonstrate many truths absolutely and reduce them to primitive indemonstrable truths; let us therefore pay particular attention to this. (Parkinson [ed.] 1973: 8)

The Leibnizian definitional project is, furthermore, just one part of a broader epistemological and metaphysical system, as witnessed by this excerpt from 'An Introduction to a Secret Encyclopaedia':

> A concept is primitive when it cannot be analysed into others; that is, when the thing has no marks, but is its own sign. But it can be doubted whether any concept of this kind appears distinctly to men, namely, in such a way that they know that they have it. And indeed, such a concept can only be of the thing which is conceived through itself, namely the supreme substance, that is, God. But we can have no derivative concepts except by the aid of a primitive concept, so that in reality nothing exists in things except through the influence of God, and nothing is thought in the mind except through the idea of God, even though we do not understand distinctly enough the way in which the natures of things flow from God, not the ideas of things from the idea of God. This would constitute ultimate analysis, i.e. the adequate knowledge of all things through their cause. (Parkinson [ed.] 1973: 7)

As observed by Parkinson (1973: x), "the terminal points of Leibniz's analysis, his primitive concepts, differ from those of modern philosophers." "Leibniz's analysis", he continues, "goes with a metaphysics" in that the primitive concepts are said to be of pure being (in *Of an Organum or Ars Magna of Thinking*), or, elsewhere, "of the attributes of God". At least in the case of Leibniz, therefore, it needs to be remembered that philosophy of the past did not justify the reasonableness of semantic primitives as a pure matter of common sense, but as part of a broader network of theoretical commitments (see also Rutherford 1995).

2. We should note in passing that Wierzbicka sometimes does not distinguish between vicious and non-vicious circularity. Many of the examples of definitional circularity in the discussion in Wierzbicka (1996:274-278), for example, involve non-vicious circularity, i.e. circularity in which the definition does not rely on the repeated terms. In her Figure 9.2 (1996: 277), for example, diagramming definitions in the *Oxford Paperback Dictionary*, Wierzbicka draws attention to the definitional circle in which *ask* is defined through reference to *answer*, *answer* through *question*, *question* through *request* and *request* through *ask*. But *ask* is also defined through reference to *call*, which is not defined with reference to any of the other definienda and thus constitutes a break in the circle. While one might question the adequacy of grounding the definitions of these words in *call*, formally the definitions are non-circular.

3. The claim that the components of the metalanguage are universal is often made in NSM writings (see Wierzbicka 1991: 7, which states that NSM is "a hypothetical system of universal semantic primitives"). Elsewhere, however, this claim is scaled-down so that NSM is merely as universal as possible. Wierzbicka (1991: 7), for instance, says that the NSM mini-language is "*to a large extent* language-independent" (italics added), commenting (1991: 10) that it deals in "partial [semantic] equivalents and partial universals".
4. Thus, while Wierzbicka's and Goddard's books are regularly reviewed by major journals, review articles are much less frequent, and there has been virtually no sustained critique of the method in the non-review literature. Two notable exceptions to this are Cattelain (1995), some of whose criticisms are extended here, and the articles in *Theoretical Linguistics* 29:3 (2003).
5. Not everyone, of course, is prepared to accept that circularity must be avoided: "Although lineal logic is, perforce, the metalanguage of science, where is the evidence that folk thinking is other than circular?" (MacLaury 1997: 630).
6. NSM scholars often acknowledge that further fine-tuning may be necessary in order to hone current definitions: this explains the use of "best currently available" in (2).
7. It is worth noting that this last claim is sometimes differently phrased: the metalanguage is referred to in Wierzbicka (1991: 338) as only "relatively culture-free".
8. This is already, however, to go too far, for it is not obvious that *any* of these metalinguistic practices within ordinary language should be granted special status for the theorization of meaning, since, as instances of language use, they could be considered as constituent *parts* of the phenomenon to be explained as much as privileged modes of possible explanation.
9. However, it cannot be taken for granted that speakers' concept of the single word will match that of a linguist. Thus, separate definitions might be offered for differing tenses of what for a linguist would be a single verb.
10. It is not, of course, an argument that it *does not* have such privilege: contemporary physical theories are distinctive products of largely Western European culture, but no less applicable universally for that. Scepticism in the case of definition is justified on the grounds that asserting that words have definitions elevates a pre-existing cultural form into a privileged model of semantic analysis, with the generic appropriateness of this form as a model of the phenomena under question being largely assumed. By contrast, the theory of physics, although highly culture-specific in the circumstances of its history, has been developed experimentally precisely in order to fit all (or most of) the facts to which it is relevant, and assumptions about the form it should take have always been subject to revision.

11. In fact, as Wierzbicka notes (1996: 255), this definition contains some non-primitive elements ('look', 'put', 'liquid') which need to be defined separately.
12. Wierzbicka comments that this definition 'is no more than an imperfect first approximation' (1996: 255), but since the final version cannot be expected to be any less complex structurally, the criticisms made here will hold.
13. This should not necessarily be a surprising conclusion. Careful study of numerous fields of conceptual activity has revealed often deep-seated divergences between the typical understanding of the field as manifested in the stated ideology of practitioners and others, and the actual nature of the field's practice as it emerges under detailed empirical scrutiny. There can be few more striking examples of this than the thorough reappraisal of the practice of natural science, and the rejection of the 'development by accumulation' model of its progress initiated largely by the work of Kuhn (e.g. 1970).
14. Cf. Goddard (2002: 6): "For many linguists and logicians working in other frameworks, nothing is more mysterious and intangible than meaning. But adopting reductive paraphrase as a way of grasping and stating meanings makes meanings concrete, tangible."
15. Pak's (1984: 371) comment, in a harsh review of Wierzbicka (1980), that 'it is axiomatic that a metalanguage explicating an object language be richer than the latter' therefore fails to hold in the present case.
16. As pointed out by Koenig (1995: 216-7) in his perceptive review of Goddard and Wierzbicka (1994), the converse is also the case: 'Even if this list of semantic notions [i.e. the NSM primitives] were universal, it does not follow that they are primitives in every or even any of the languages investigated'.
17. This is a recurrent assumption of many semantic theories, including cognitive ones: cf. Kövecses, Palmer and Dirven (2002: 145) "In cognitive linguistics, basic image schemas emerging from fundamental bodily experiences can be expected to be universals." A problem of which the importance has not been sufficiently appreciated is that of the metalanguage in which the meaning of the indefinables would be represented and in which the matching could be established. For how can it be demonstrated that two potentially primitive elements in different languages have the same meaning? If this is not to be simply asserted, some representation must presumably be given of the meaning of each term, a procedure that presupposes the existence of an accurate metalanguage – precisely the tool that NSM claims to be supplying! There is, therefore, an apparent logical contradiction in the procedure Goddard names as the 'ideal' reconstruction of NSM methodology, in that in order to get off the ground it assumes the availability of precisely the methodology it claims to be presently lacking, and which it sets out to supply (see Koenig 1995 and Cattelain 1995: 165 for a brief discussion; neither author develops this line of criti-

cism as far as it can go, however, perhaps because they appreciate its serious consequences).

18. The identification of simplicity and universality can take several different forms, which should be distinguished. Two in particular concern us here. The first is the claim that in any given language the set of simplest meanings is a subset of the set of universal meanings. The second claim is that the two sets are identical. The latter claim can be easily disproven. To take a simple example, let us assume that all, or practically all, of the world's languages now contain a word for 'telephone' (if only, perhaps, a borrowed version of the English word under various degrees of nativization). This word is, presumably, semantically complex, containing at least such elements as 'thing', 'say' and/or 'hear' (all members of the current set of primitives). Let us also assume that the meaning of this word is, to all intents and purposes, the same in all languages – or, at least, that any differences do not belong on a semantic level, but can be considered differences in use, 'resonance', or in any of the other possible dimensions of potential non-semantic variation which NSM might recognize. If these assumptions are allowed, we have a semantically complex word which is universal. The criteria of simplicity and universality, therefore, do not necessarily converge, since a word may be universal but not maximally simple. The determination that a meaning is universal should not therefore be enough to gain it admittance as an NSM prime. Its indefinability needs also to be established.
19. An NSM theorist might claim in rebuttal that a technical chemical classification is not a definition of the English word *water*, but a definition of the corresponding scientific concept. While this definition might identify the *referent* of the word, it does not specify the *sense*. But given that what one takes to be the sense of the word *water* is, as it were, a matter of definition, in that it is not open to any external and objective checking, but depends on the details of one's semantic theory, 'H2O' has as great a claim as anything else as the definition of *water*. In the present example, it would certainly allow us to use *c'q'al-i* properly. The aspects of meaning left out by the chemical definition, and claimed by NSM to be part of the sense of the word could be treated as part of the encyclopaedic knowledge we have about water, not as knowledge of the word's meaning as such – a distinction on which NSM often insists (e.g. Wierzbicka 1996: 262), even if it often considers a word's 'meaning as such' to be highly detailed and rich.
20. Notice that the canonical context for a prime is not necessarily the same thing as the most typical, salient or natural context of a prime-exponent in a particular language. (If it were, the theory would not be able to tolerate any imbalance in the typicality of the canonical sentences' exponents in different languages.) In fact, the opposite is often the case. Thus, I would imagine that many English speakers would concur with my judgement that *I am feeling*

your pulse is *at least* as typical, and perhaps more typical a context for English *feel* than the context in (6a) identified as canonical for NSM.

21. NSM theorists sometimes seem to suggest that the current list of primitives is complete or almost complete: "all complex meanings, in all conceptual domains, can be represented and explained as configurations of these sixty or so fundamental conceptual building blocks" (Wierzbicka 1999: 38). However, the continued testing of NSM's adequacy for the description of new languages suggests that the possibility of the set of primitives expanding, as it has been doing since the start of the theory, is still open.
22. From this point of view there is an irony in the fact that attempts like to analyze meanings as configurations of primitive components are often motivated by a comparison between language and precisely the sort of abstract, deductive system which constitutes a strong disanalogy with it. Leibniz (Parkinson [ed.] 1973: 3), for instance, likens his procedure of definition to the reduction of all lines of motion in geometry to either a circle or a straight line.
23. As well as the restriction to *de re* rather than *de dicto* contexts, this also has to be limited to all cases of *use* as opposed to *mention*. This is because the words *Sydney* and oldest city in *Australia*, for example, differ phonetically and orthographically, so that statements like Sydney *is two syllables* are not truth-preserving under substitution.
24. Note that on this criterion none of the non-linguistic cases of substitution considered earlier could ever be considered a case of identity: two five cent coins may be substitutable in (most) cases for a ten cent coin, but this substitution would have to be said to involve an addition or loss of 'meaning' (in some fairly unscrutinized sense of the word), given that it is only in the very narrow sense of functional equivalence that substitute and substitutee are equivalent.
25. It is informative here to look at the way in which NSM paraphrases are actually justified in presentations of the theory. One especially common mode of justification takes the form of a commentary on the NSM paraphrase, detailing the ways in which the paraphrase reflects aspects of the meaning of the definiendum. Entirely representative in this respect are Wierzbicka's commentaries on the paraphrase of Japanese *amae* (discussed below; Wierzbicka 1996: 239), on *punish* (Wierzbicka 1996: 284), and on English speech act verbs in her dictionary (1987a). The striking fact about these commentaries is that they involve more complex vocabulary than that used in the paraphrase, even though they are presented as glosses on it. For instance, Wierzbicka explains that the component "I want Y to feel something bad because of this" in the definition of *punish* reflects the punisher's "desire to inflict pain" on the culprit. We might well ask, however, how this gloss can possibly function as a justification or explanation of the paraphrase, since *desire*, *inflict* and *pain* are

semantically complex and ambiguous notions that, to be consistent, Wierzbicka should not be able to appeal to.

26. For instance, one can imagine a disagreement about whether the clause "people often feel something because of this" is an appropriate component of the definition of *sun* (Wierzbicka 1996: 200).
27. In the context of a discussion of natural kind terms (1996: 347), Wierzbicka draws a contrast between the development of her type of paraphrase and that of an encyclopaedia entry:

    > Systematic, methodical exploration of folk concepts, using all available avenues of evidence, allows us to delineate their contours with a precision which, appearances to the contrary, is simply inaccessible to an encyclopaedia entry. The editor of an encyclopaedia has to decide, in an inevitably somewhat arbitrary manner, what to include from the mass of available information and what to ignore, how to arrange the information chosen, which aspects of it to highlight, and so on. In investigating folk concepts encoded in natural language, the position is quite different, because the linguist is not faced with the task of deciding what to include; here, the task consists in discovering the full concept as it really is, using all available evidence, and, at the same time, trying to use exclusively simpler (much simpler) concepts than the one which is being explicated. These two requirements – to articulate the concept fully, and to do it as far as possible in simple words – mean that far less room is left for individual choices than in an encyclopaedia entry.

    In the light of the facts discussed here, this contrast seems entirely misconceived.
28. Wierzbicka, at least, seems to be quite aware of this circumstance: "We must also rely on certain initial concepts; we cannot start our inquiry in a complete conceptual vacuum" (1991: 9). She seems not, however, to consider that this has serious consequences for the claimed superiority of her method.
29. These properties may be intuitively grasped either by the framer of the NSM definition, or by those responsible for the reports on which the NSM definition is based. In the second case, the intuitions only enter the process indirectly, since the definition is the product of second hand knowledge.
30. Wierzbicka (1996: 215) offers the following definition of *happy*. I leave it to the reader to judge whether or not this is a misrepresentation of the type being discussed:

    X feels happy.=
    X feels something
    sometimes a person thinks something like this
    something good happened to me
    I wanted this

I don't want anything more now
because of this, this person feels something good
X feels like this

31. The fact that the NSM definitions of *nice, kind, tasty, happy, pretty*, etc., may not, presumably, misrepresent their semantics as involving deliberation and calculation will only be the result of the continued application of the investigators' own intuitions: in no way is it ruled out by anything inherent to the definitional process, and an investigator less introspectively attuned to the meaning of the adjectives might well be misled by the description 'positive evaluation', especially if they had not thoroughly interiorized the meaning and use of the adjectives. (This is, of course, precisely the situation when an NSM analysis is proposed of a term in a language which the semanticist does not themselves speak.)
32. A third option is available to semantic theories other than NSM: to see the evaluative force of *normal* as implemented pragmatically, not semantically. Such an approach is explicitly discounted, however, by Wierzbicka (1991: 19): "Attitudinal meanings can be treated in the same descriptive framework as any other kinds of meaning. They can therefore be regarded as belonging to semantics and, ipso facto, to 'core' linguistics. There is no gulf between linguistic pragmatics and linguistic semantics; on the contrary, linguistic pragmatics can be fruitfully seen as part of linguistic semantics."
33. To the extent that other parts of linguistics, like syntax, depend on semantics, they too are affected by this methodological criticism.
34. For germane comments see Basnett-McGuire (1991: 29–30) and Roberts and Bavelas (1996).
35. For objections see Larson and Segal (1995: 551–553).
36. For an example, see Evans and Wilkins' (2000) explanations for why in Australian languages the meaning change 'hear' > 'know' is frequently exemplified, rather than the 'see' > 'know' pairing found in Indo-European.

Notes to chapter 3

1. Schütze uses this conclusion to motivate a performance-based, contextual analysis of polysemy which in questioning the adequacy of a symbolic, discrete-senses approach shows certain underlying similarities to the analysis to be adopted here. Nevertheless, the very facts which Schütze's model is designed to characterize – the different semantic values of *interest* attested in a corpus – presuppose the accuracy of the initial metasemantic description by which they are brought to light.
2. Note that the very notion of 'level of abstraction' depends on a prior determination of the different possible senses of a word. If the question of whether a

word is polysemous or not is relativized to the level of abstraction at which the word's meaning is accessed, the very perception of which level is in question will depend on the initial possibilities offered by the glosses proposed for the word in question. If the word is susceptible of a large variety of different semantic characterizations, its meaning will accordingly seem to be accessible at a variety of different 'levels of abstraction'. By contrast, a smaller number of proposed glosses will decrease the number of levels of abstraction available. In both cases, the ability to determine which level of abstraction is being accessed at any one time presupposes a characterization of all the possible senses arrayed on a scale of most to least abstract. For example, the number of possible levels of abstraction available for the noun *ring* will vary depending on whether the set of glosses 'closed circular configuration; piece of metal worn on finger; open round object; arena' or 'closed circular configuration; circular formation made by people linking arms; central part of a circus tent around which the audience sits; piece of metal worn around part of body' is chosen. A principled delimitation of the number of proposed glosses is therefore needed in order to ground the notion of 'level of abstraction' in a satisfactory way.

3. Such a conception of meaning seems to be held by, for instance, Cruse (2000: 30): "I shall take it that the meaning of a word is (some kind of summation of) the conceptual content made accessible by use of that word (as opposed to any other) in particular contexts."
4. It might be objected that the fact that connections and differences *can* always been discovered does not mean that people *will*, in fact, always discover them: to state that homonymy and monosemy will therefore always be disproven simply takes it for granted that linguistic informants will, as a matter of fact, always arrive at the particular judgements argued to be permanently available. The fact that I *can* always find a connection or a difference between two meanings does not show that I *will* actually always do so. As a result, Tuggy's description of homonymy and monosemy can stand.

   Such an objection misses the point. The problem is not that individuals will differ in their metasemantic judgements. It is that the terms being used in the judgements (*difference*, *connection*) are so informal and undefined that they will never be able to be justified adequately – precisely because someone who wants to challenge them will always be able to appeal to the fact that everything is connected (contra homonymy), and that no two meanings have *no* difference in the mind (contra monosemy), thus showing that polysemy is the only available analysis.
5. There is an initial question about what exactly it means for a word "to be able to be simultaneously true and false of the same referent". Does it mean 'sound natural to the speaker when simultaneously true and false of the same refer-

ent'? Or is it rather a question of logical possibility, under some paraphrase of the different senses of the word?

6. Note that it is enough to demonstrate the inadequacy of the logical test if just one of the examples in (3) is accepted.
7. It is perhaps worth noting that these intuitive judgements are consistent with the type of introspective experience undergone, at least by me, when considering the sentences. None of the sentences in (5) seems to give rise to the phenomenon of 'mental switching', in which the subjective difficulty of mentally conceiving of the two senses together forces the mind to flip back and forth between the two (as between the Wittgensteinian duck-rabbit, for instance). Mental flipping is associated by Geeraerts (1993: 233) with entertaining different polysemous senses of the same word. Instead, there is the impression of a generalized meaning of the italicized words, differing parts of which are made salient concomitantly with the assertion/denial of their applicability. We will shortly reject such intuitive judgements as merely routinized reflections of essentially prescriptive language attitudes; nevertheless, it is useful to show that even by Geeraert's own criterion these instances test as monosemous.
8. In fact, examples (3a)–(3d) could themselves be described in similar terms: the differing accounts given here are merely alternative descriptions of the same phenomenon.
9. In fact, it is impossible, especially without a context, to know exactly what implicit contrasts are being drawn here: what is important is that the denial of the proposition involves a contrast with more terms than the assertion.
10. Nunberg (1979: 153), followed by Dunbar (2001), has argued that the conditions governing successful anaphoric coreference and zeugma are not semantic:

    > …if we have an account of why it is that we can point at a newspaper to identify a publisher, we will also have an account of why identification of a newspaper copy with a relative clause is sufficient to identify a publisher, and so we will not have to worry about the contrast between examples like:
    >
    > (28) John used to work for the newspaper (*book) that you're reading.
    >
    > On the basis of these arguments, it seems clear that there are compelling reasons for supposing that we neither need nor want to postulate separate conventions governing all of the word-uses that speakers judge normal or acceptable.

    The constraints that apply to what may be referred to by the same linguistic expression are thus, according to Nunberg, essentially the same as those that govern ostension. "An account of polysemy", Nunberg says, "must in the end follow trivially from a general account of deferred reference, which will tell

us, 'Under what circumstances can we point at, name, or describe some thing a so as to succeed in referring to some other thing b?'" (1979: 154).

11. Hudson et al. (1996), argue against SEP by identifying pairs of syntactically different synonyms (*likely* vs *probable*; *should* vs. *ought*; *stop* vs. *cease*, and many others). If the synonymy of the pairs is accepted, the differing syntactic possibilities show that SEP cannot be maintained. As noted by these authors (1996: 440), however, SEP could be defended from their apparent counterexamples precisely by denying the synonymy of the pairs in question on the basis of some claimed semantic discriminator. While, in my opinion, Hudson et al's examples are unlikely to support such a claim of non-synonymy, I prefer to refute SEP by appeal to a test which is not even open to such a challenge.
12. Van der Eijk, Alejandro, and Florenza (1995: 5) observe that the degree of granularity recognized in the syntactic category system will directly determine the nature of criteria for polysemy like SEP: a finer-grained set of syntactic distinctions will lead to more narrowly defined syntactic frames or combinatorial possibilities.
13. The analysis in Dirven (1997), which would claim a consistent difference for some of these examples, rests on semantic intuitions of great delicacy which I do not share.
14. Geeraerts (1993:232–233) would draw a contrast between mediated and unmediated intuitions: the 'p and not p' test, for example "does not initially require a lot of conscious thinking about different meanings: if it is spontaneously clear that a feather can be light and not light, the polysemy of *light* is probably firmly established, psychologically speaking; it springs to mind so easily that the non-contradictory nature of the "p and not p" construction is automatically recognized. … In the case of *This book is sad*, however, there is a lot of conscious mediation and active introspection involved, mainly because one has to actively conceptualize the different potential readings of the item and evaluate their truth-conditional consequences." This contrast seems to me not to be justified, since many uncontroversially polysemous words require a high degree of 'active conceptualization' in order to assess their truth-conditional consequences: *this is a heavy* [warm] *coat, but it's not heavy* [weighty] is one example.
15. *Pakarni* is one of the entries considered by Wierzbicka in her criticism of the definitional style of the Warlpiri dictionary project (1983: 137). My position here is certainly in agreement with her claim that the definition is more complex than the gloss, in that the concept of 'concussion' used in the definition is understood in terms of 'hitting', used in the gloss, but I do not think that this is the serious obstacle she presents it as (Laughren's reason (1983) for the greater complexity of definition over gloss is that it allows important lexical relations like shared meaning components to emerge, and that this advantage is well worth any possible sacrifice of ease of comprehensibility). My com-

ments apply rather to an issue on which both Laughren and Wierzbicka are largely silent: the directionality of semantic analysis between gloss and definition.

16. Note that both uses of the verb participate in an unusual grammatical structure which reverses the cross-linguistically typical preferential mapping of animate entities onto subject position. When *pakarni* is used to describe a human actor crashing into a stationary object, it is the stationary thing that takes subject case (in this case ergative), with the human actor being assigned absolutive case (unmarked), as object:

    (a) *Watiya-rlu* *wirriya* *paka-rnu* *parnka-nja-kurra.*
    tree-ERG boy hit-PST run-INF-DS
    '[The] boy ran into the tree as he was running' (lit. 'The tree struck the boy while he was running') (WlpD)

    When the verb refers to someone having a chest infection, the human is once again object, and the inanimate source of the verb's action is subject:

    (b) *Kuntulpa-rlu* *kurdu* *wita* *paka-rnu.*
    cold-ERG child small hit-PST
    'The baby has a cold (lit. The cold has struck the small child)' (WlpD)

17. Note that the term is used in a significantly different sense here from the use in Sperber and Wilson (1995): there, 'manifest' applies to facts, and is distinguished from visual phenomena, which are simply "visible" (1995: 39). By contrast, the present use of 'manifest' comprehends anything that is available for processing, whether in the form of sensory stimuli of whatever sort, or of concepts. The reason that the relevance theory term has been adopted in spite of these differences is that we wish to stress commonalities between visual and conceptual categorizing processes. From this point of view, Sperber and Wilson's distinction between the visual environment and the cognitive environment is not useful: everything is part of the cognitive environment, broadly construed.

18. The Wittgensteinian objections to these ideas will be obvious. Like other hypotheses in cognitive science, this theory of object recognition is only one of a number available. Given the growing move towards anti-symbolic, non-representational approaches to the mind, its days may be numbered. In this case, the symbolic mechanism advanced here will also lose its explanatory bite, although it may retain some heuristic, descriptive usefulness. See Farber, Peterman and Churchland (2001) for a non-symbolic approach to spatial cognition, and Clark (1997, 1998) for discussion.

19. Not all instances of atypical categorization need involve a high degree of conscious awareness, however: certain mistakes would seem to be examples of atypical categorization which are unconscious, at least until they are discovered.

20. It would be mistaken to believe that the folk linguistic category of 'separate meaning' only reflects typicality judgements: it also reflects the possibility of unitary paraphrase (and is therefore congruent with the definitional criterion). In other words, pretheoretical judgements of meaning similarity and difference are also likely to be made on the basis of whether a set of word uses can plausibly be brought under the same paraphrase as those uses considered core: if they can, no meaning difference is likely to be recognized. The claim here is simply that the referent typicality criterion is the primary one.
21. This is allowing for an appropriate level of attention and the influence of context and expectation on the recognition of the object (Hunt and Ellis 1999; Churchland, Ramachandran and Sejnowski 1994).
22. See Barsalou (1999) for an argument that vision and cognition are supported by the same representational system. Pylyshyn (1999) surveys some of the recent positions in the debate.
23. There are any number of such considerations: generic, prosodic, connotational, affective, contextual, speech-situation based, etc.
24. An implication of this theory is that the speakers will presumably show significant variation in the routinization of different semantic prototypes as the typical categorizations of referents.
25. The details of the metaphorical and metonymic links proposed are not here relevant. A limiting case would be one in which every gloss was related to every other one by both metonymy and metaphor.
26. Not least of the problems here is narrowing down exactly what the properties are that a gloss attributes to a referent: to do this successfully would demand some sort of conceptual analysis of the gloss, which reintroduces exactly the problems of semantic description which have occupied us in this book so far. Nevertheless, I assume that the distinctions in the properties conveyed by different glosses are usually intuitively obvious.
27. Presumably, they are in fact more than this: Warlpiri speakers can clearly conceptualize a difference between these types of things since they interact with them differently: they do not, for example, expect peel to bleed when it is cut, or treat human skin as bark (e.g. by stripping it off in the expectation of discovering wood underneath).

Notes to chapter 4

1. Point of view considerations may override this: in *the bird hit the helicopter*, the impactor is smaller than the surface, but moving more slowly than it, and the situation is viewed from the perspective of the occupants of the helicopter or an observer.

2. As some indication of the fundamental nature of the relations on which these means of extension depend, we can note that they appear to be widely explicitly lexicalized: NSM, for example, recognizes 'part of' and 'because' as primitives (see e.g. Goddard 2002). The former could be taken as the key relation involved in metonymic extensions to the context and to a subpart of the event; the latter as the key relation in metonymic extensions to the effect of the event.
3. In my account, however, only 'dead metaphors' (called 'postmetaphors' in the present terminology) can be considered to have changed the meaning of a word, because they depend on the original metaphorical conceptualization that motivated the use of the P/I expression having disappeared, leaving the target of the metaphor as the word's new lexicalized meaning.
4. Nerlich and Clarke (1992: 137) offer an explanation of why metaphor and metonymy are the most basic procedures of semantic extension: in order to maintain comprehensibility, a speaker must not be arbitrary in assigning a new meaning to an established term. Metonymy and metaphor represent the most obvious ways to extend the meaning of words without making them incomprehensible: a word is used to signify either a neighbour of its old meaning (metonymy) or one which resembles it (metaphor).
5. For discussion of the contiguity account of metonymy, see Geeraerts (1997: 97), which considers the relationship between contiguity and semantic domain, as well as Dirven (1993), Warren (1992: 64), Seto (1999) and Feyaerts (2000: 62–64), to name only a few of the possible sources; cf. Kövecses and Radden (1998: 58).
6. In this discussion, the terms 'vehicle' and 'ground' are used in the sense of Richards (1936: 96, 117); 'target' is used instead of and in the same sense as Richards' 'tenor' (1936: 96). The target of a metaphor is the concept which is being metaphorically conceptualized – "the original idea" as Richards describes it (1936: 96) – the 'vehicle' is the concept onto which the target is mapped, and the ground of the metaphor is the homology between vehicle and target which makes the mapping possible.
7. Traces of the substitution theory of metaphor are found throughout its history: cf. A. Day (1967 [1586]: II, 77): "*Metaphora*, which is, when a word from the proper or right signification is transferred to another neere vnto the meaning." (OED: *metaphor*). The lack of specification of just how one meaning is "near to" another allows metaphor simply to be understood as substitution: metaphorical meanings that are not sufficiently close to the "literal" meaning will presumably not be recognized as metaphors in the first place, so that successful substitution can become the criterial feature defining metaphor, with the means that achieve this remaining unspecified.
8. In fact, a metonymic link can be proposed, which resides in the social practice of striking hands on a bargain

9. On the arguments of chapter one, of course, any two referents can be related by a mapping. The claim made here is only that the way in which this is to be done is not obvious.
10. There may be "metaphorical" considerations that underlie the original social practice of breast beating, but these do not make the linguistic expression a metaphor. The breast or chest is characteristically viewed as the seat of the psyche, so that the act of beating it is appropriate for an act of remorse over confessed information. But the expression *to beat one's breast* seems to run in precisely the opposite direction to other expressions associating the chest and disclosure of information. In *getting something off one's chest*, for example, there is the image of the disclosed information moving *away* from the chest, precisely the opposite of the present expression, where the focus is on the chest as the target rather than the source of the verbal action. I take it therefore that *to beat one's breast* does not participate in conventionalized linguistic metaphors of disclosure of information, and that its source is purely metonymic and found in the actual social practice.
11. This is the origin of OED 7d. 1866 "lie around, be in vicinity" and 7e 1915 "be a habitual companion of".

Notes to chapter 5

1. For a more complete list of P/I verbs than the one given in this section, and a subclassification of similar verbs, the reader is referred to B. Levin (1993: 148, 150).
2. Evidence will sometimes arise in the course of the text that 'domain of P/I' may in fact have some validity as a genuine and non-arbitrarily identified subpart of the lexicon. This may well be true, but nothing in the analysis depends on its being the case.
3. Fifty years is the same standard as typically used in corpus-based descriptions of semantic change, for example Geeraerts (1997: 57).
4. The OED sees 5 as a derived sense: "App. the order was bump *v.* to knock, and bump *sb*. a knock; hence as *sb.* a swelling protuberance caused by a blow, and as *vb*. to swell or rise in a protuberance; but the historical record is not very complete" (OED *bump* sb.1).
5. A few special comments are necessitated by the relative dating of certain senses of *hit*. The 1075 sense, 'come upon, light upon, meet with, get at, reach, find', is the only exemplification of the etymological motion/'come upon' sense of *hit* (as found in the Scandinavian languages cited above) recorded by the OED before 1527, by which time the P/I sense was well established. Because this motion/'come upon' sense becomes widespread in English later in the verb's history, apparently as a development from the P/I sense,

the lone 1075 attestation is problematic because it antedates the P/I sense from which all the other, later examples of the motion/'come upon' sense seem to be derived. Except for this single 1075 citation, therefore, a P/I meaning is the only attested meaning for *hit* for a long period of the word's history. The 1075 sense is thus taken as an anomaly which does not reflect the true development of the word's semantics: 'come upon, meet with, reach' is derived from P/I, not vice-versa. This is confirmed by the fact that the 1075 citation has been identified (A.I. Jones, personal communication) as a Norcism, coming as it does from a text (the D manuscript of the Saxon Chronicle: Plummer and Earle 1892) which contains an "undoubted Scandinavian element" in its language (Plummer and Earle 1899: lxxvi-lxxvii). On this single attested occasion, then, English adapted the semantics of ON *hitta*, but this had no long term influence on the meaning of *hit*, which underwent exactly the same semantic extension (from P/I to 'come upon', etc.) as in ON several centuries later. Note that within Middle English, the MED dates the basic P/I meaning as earlier (at 1225) than both the meaning 'meet, encounter' (MED 3: 1400) and 'make one's way, go' (MED 4: 1400); see however the comments on dating in section four below.

6. Note that while these verbs were originally identical, they have since diverged: *thresh* is the older form, *thrash* a dialectal variant which is now the typical P/I form.
7. One precedent for the present approach is Goossens (1995), which focuses on examples from Old English to contemporary English, which is a broader range than in the present study.
8. On one or two occasions it has been necessary to acknowledge that the rationale for an extension cannot be gleaned either from the meaning of the source verb as I understand it, or from any clues given in the OED. One such example is *strike* 82f. vi. 1884 set off, contrast (strike off), as in 1844: *She exaggerated the refinement of her utterance that it might all the more strike off against the local twang*. This can be connected with expressions like *be set off against*, and it seems to highlight the motion component of the P/I meaning in the same way as the expressions in 5.4.3, but I have not been able to determine the best paraphrase of the verb here and have consequently not attempted to characterize its connection with the source P/I meaning.
9. The data adduced in substantiation of this claim apply equally to the first and second editions of the dictionary. Schäfer's figures are based on the former, but the revisions for the second edition, outlined in the introduction (pp xii-xxiii) have not changed the picture considerably, if at all. Berg (1991: 24) in *A User's Guide to the Oxford English Dictionary* issues the following caveat: "Readers should also be aware that the first quotation for any sense is the earliest example of literary use *located*; it is not claimed that it is the *first use* of

the word and should not be interpreted as such, although in a number of cases evidence suggests this may be a reasonable conclusion" (italics original).

10. This is of course an unattainable goal, because uncertainties about date are rife. For many early texts the date of 'publication' is unknown and the work can only be assigned to the century in which it first appeared, and while for more recent material the publication date is unproblematic, the relation of this to the time of composition cannot be taken for granted.
11. The details of the format of quotations from the OED and MED is as follows. The bracketed information below the citation indicates first of all the headword and sense number under which the citation can be found, then the transitivity of the verb ('vt'. for transitives, 'vi'. for intransitives), the designation 'obs'. (for OED entries) if the sense is regarded as obsolete, and the date of the earliest citation of the meaning in the dictionary (omitting modifiers like *circa* and *ante*; note that MED dates refer to the date of the manuscript in which the citation is found), followed by a paraphrase of the dictionary's definition of the meaning and an indication of any verb-preposition/particle combinations in this meaning. Two points should especially be noted. Firstly, the dictionary's definition does not necessarily correspond to my own analysis of the semantics of the verb meaning in question. In the case of OED *kick* 5a., for example, the dictionary's definition 'impel, drive, or move, by or as by kicking' is very similar to my own analysis, 'x make y move by kicking'. But the OED's definition of *strike* 31c., 'remove or separate by a cut' directly contradicts my own claim that no 'cut' paraphrase needs to be attributed to this example. The meaning paraphrases reproduced from the dictionaries should therefore be differentiated from my own analysis of the verb meanings, which are presented in the course of the text: usually, the dictionary definitions are included only to exemplify an alternative analysis and to give the reader access to the lexicographers' interpretations. Sometimes, however, I accept the dictionary's definitions as adequate semantic paraphrases; in these cases they are adopted without further comment. Secondly, as already discussed, the dates are the dates of the earliest citation of a meaning in the dictionary, and should not be taken as the date of the earliest extant example of the meaning. Additionally, the dating depends on the dictionaries' own division of senses, so in many cases does not correspond to my own. Senses which are not attributed to a specific dictionary refer to the OED, the source of the majority of citations: MED entries are specifically identified as such.
12. *Hit* participates in a rather obscure phrasal elaboration of this structure, in which *off* is added to the verb:
    (a) 1871: *Sometimes he hits off an individual trait by an anecdote.*
    (*hit* 25c. vt. 1737 describe represent reproduce successfully or to a nicety [hit off])
    (b) 1698: *What prince soever can hit off this great secret, need*

know no more.

(*hit* 25b. vt. 1678 succeed in attaining or getting at or upon [hit off])

I am unclear about the origin of this extension: conceivably we have a conflation of the target image with the caused motion extension (see 5.2.1), so that the result to be attained, once hit by the agent, is made to move off from the realm of incompletion to that of completion (cf. *finish off*).

13. Metonymic factors may also be involved, in that P/I could be used in order to effect robberies, opening the way for an alternative analysis of these meanings as effect metonymies.
14. See note 5 above for comments on the dating of this sense of *hit*.
15. (90) can stand for a number of different OED citations which I take to exemplify an identical sense, 'x make y move by beating': *beat* 35 *beat back* a. force back by beating; 35b. drive back by force, repel, repulse; 35c. cause to rebound; 36 *beat down* a. force or drive downward by beating or hammering; 36b. batter or break down by heavy blows, demolish, knock down; 36g. reduce by beating.
16. An intransitive version exists of (112), namely *knock* 12c. vi. 1649 'desist, leave off, cease from one's work; die' as in 1890: *We were forced to knock off through sheer fatigue.*
17. Jane Simpson (personal communication) points out the possibility of an alternative metaphor, in which the surface is viewed as being flattened or hammered out of shape by the P/I: this would receive the same analysis as 'x make y move out by beating', except that it is the edges or borders of y that undergo movement from one position to another, rather than y in toto.
18. The OED's 1592 example of this meaning is a little ambiguous: *Hee bet the price of him, bargained, and bought him*. Examination of the original context (Robert Greene 1966 [1592]) shows that there is no prima-facie reason not to interpret *bet the price of him* as 'exceeded/defeated the price' (I interpret *of* in this example as possessive), i.e. offered more than the asking price. We are therefore thrown back on the expert knowledge of the OED's readers for the interpretation of the example and the earlier dating of the meaning.
19. An alternative explanation is available, namely that there is a metaphorical motivation for the use of P/I in these situations, but it has simply not been discovered or realized in any of the standard lexicographical accounts of these meanings or in the present analysis. There certainly are cases in which we simply have to acknowledge the limitations of our knowledge, but the phenomena classified as postmetonymies are too systematic, and too consistently resistant to treatment as metaphors, for such an option to be satisfying.
20. An early citation of the meaning is 1300: *Hi strike seil and maste and Ankere gunne caste.*

21. The rare *strike up*, meaning 'to pitch' a tent (strike 87j. 1755: *We immediately landed, and the tents were struck up*) may simply have developed postmetonymically as the opposite of strike down.
22. Hence the unacceptability of **Tyson defeated Ali out of the trophy.*
23. Note that *bump into* is classed in this category ('Change of mental/experiential state caused in surface by P/I') because it requires the mental recognition of the contact by at least one party: compare the semantic oddness of **!***I bumped into John, but I didn't recognize him.*
24. Note however that English motion verbs which are otherwise intransitive may sometimes occur with an *it* object, particularly in imperatival contexts, as in *hop it, hotfoot it*, etc. (but not **go it*, **run it*, **hurry it*, in spite of the acceptability of *go it alone*, *run a race*, etc.).
25. Michael Walsh (personal communication) suggests that one *strikes* or *smites a bargain/truce* in the same way as one *hits town*, i.e. that *strikes* should be analyzed as 'reaches' or 'arrives at' (cf. the metaphor *arrive at an agreement*). This is certainly not part of my own understanding of these words, however.
26. This sense is also referenced by the OED to Latin *ferire foedus*, literally 'to strike a truce'. As with the uses of *smite*, however, we have to account for the interpretative principles which will allow a hearer who does not know Latin to arrive at the new meaning.
27. I am grateful to an anonymous reviewer of the manuscript of this book for this observation.
28. This is the origin, through ordinary metaphorical processes, of 7d. 1866 'lie around, be in vicinity' and 7e. 1915 'be a habitual companion of'.
29. Other Germanic languages showing the same polysemy between P/I and motion are Middle High German (*stri:chen* 'stroke, strike, rub, rove, travel') and Old Norse (*strjúka* 'stroke, rub, wipe; smooth, brush; flog; dash off, run away'). As these glosses show, an additional difficulty lies in the presence of 'rub' meanings, which are another possible source of the motion sense.
30. The dictionary cites only two examples, both showing *smite to*, and having *heart* as the object.
31. Many of the P/I verbs cited in this section in fact exemplify 'x make y and make y move by "P/I"'. In order not to complicate the account with irrelevant detail, however, I have ignored the 'x make y' aspect. This does not change the analysis in any way, because 'x make y and make y move by 'P/I'' can be substituted for the existing paraphrase in all appropriate contexts without any other change.
32. As pointed out by an anonymous reviewer, there may also be an influence here of one of the etymological senses of *strike*, 'go over lightly with an instrument, the hand' (OED 3a. vt.).
33. *Knock back* may have undergone a subsequent development by which it refers simply to copious consumption regardless of the speed at which this occurs:

this further development is an example of metonymic extension to the context in which the verb occurs.

34. There may be another source for this meaning, in that MED *stri:ken* 10 associates the meaning 'to remove (someone's name from a document, book, etc.) with a line' with the meaning 'shave', 'scrape', 'skim'.

Notes to chapter 6

1. This bibliography, as well as other useful information on Warlpiri, is viewable online at http://anu.edu.au/linguistics/nash/aust/wlp/index.html.
2. Readers unfamiliar with Warlpiri and anxious to acquaint themselves with the basic facts are in a fortunate position. Nash (1986) is the standard grammar, while Hale (1973), (1982), Nash (1982) and Swartz (1982) are introductions to important aspects of Warlpiri syntax; Simpson (1991) is a study of Warlpiri morpho-syntax from a lexicalist perspective. Other relevant papers on Warlpiri will be cited in the course of the present chapter. A convenient summary of many of the main points of Warlpiri grammar may be found in Hale, Laughren and Simpson (1995). The standard textbook for language learners is Laughren et al. (1996). For ethnographic information, Meggitt (1962) is a classic account, while Scheffler (1978: 327–360; 504–531) contains information on the important subject of kinship. Bell (1993), Glowczewski (1989) and Jackson (1995) are more recent anthropological interpretations. Details of different semiotic systems accessed by Warlpiri speakers can be read in Munn (1973), a description of Warlpiri iconography, and in Kendon (1988), which contains discussion of Warlpiri sign language.
3. In fact, at least in the present semantic domain, this is the norm; it is worth noting, however, that English as a semantic metalanguage (i.e. as the language of English-English dictionary definitions) also uses separate terms for the description of situations covered by the same word in English as an object language (i.e. as the language of the head words or definienda of an English-English dictionary).
4. *Katirni* in this sense seems to include a component of horizontal motion, as well as the component of vertical motion present in the usual case. This component, however, is best treated not as part of the verb's meaning as such but as a result of our knowledge of the world, that vehicles are most likely to "cause pressure to come to be on y, by coming into contact with y, such that total weight of [the vehicle] is on y" when they are in motion, since this is the only time they will fulfill the change of state requirement imposed by the definition of the verb. Leaving aside the particularities of this analysis, the *katirni* example should at least make the principle clear.

5. Entries in WlpD often begin with metalinguistic comments by Warlpiri speakers about the word in question, but these should not be thought of as 'definitions' in any strict sense of the term. Traditional multilingualism in Central Australia meant that the demands of learning new languages may have resulted in some practice of giving definitions, but nothing is known of the form these took. These quotations are useful in revealing a native speaker's ideas about presumably prototypical instances of the verb (although there are so many variables governing what situations someone will produce to illustrate a meaning that even this should not be taken for granted), always couched as a set of examples of events for which the verb would be an appropriate description, rather than (for example) a set of necessary and sufficient conditions.
6. I take it that the typical difference between *cut* and *chop* in English is that in *chop* there is a greater movement of a part or all of the cutting surface through the air: i.e. the whole blade, or all of it except the tip, which may be anchored on the surface to be cut, starts off further away from the target than in *cut*, which is conceived of as a smoother process in which agent and patient are always in fairly close contact. Consistent with this is the fact that cutting something can involve repeated movements of the blade back and forth through the surface being breached, with the blade never emerging out of that surface, whereas chopping something has to be thought of as consisting of repeated withdrawals of (most of) the blade from the thing being chopped. If, for example, the axe is not pulled out of the indentation it has made in the wood, but is moved back and forth along the length of its incision it can no longer be said to be *chopping* the wood, but is rather *cutting* it. This necessary initial separation of chopper and chopped explains why chopping connotes a rougher, less accurate activity than cutting: since the blade does not start off in contact with the surface there is an element of aim involved in chopping that is not present in cutting. In this respect it makes sense that one can *cut* oneself on a sheet of paper, but not *chop* oneself on one. (In some expressions the difference seems to be neutralized, e.g. *chop* down a tree vs. *cut* down a tree.)
7. The 'pragmatic' value of *kala* is similar to that of English *but*, as illustrated by the citations in WlpD (under *kala*).
8. Note that (30) contains an unexpected tense change. Such variations of the temporal perspective in which events are viewed are of course perfectly common. The switch from non-past to past tense in *palija* may be motivated by the punctual character of the idea of dying, which is more readily conveyed by past tense forms (Comrie 1976: 72).
9. The *-rla* suffix attaching to *Ngarra-rna* can be understood as a sort of 'ethic' dative referring to the 'in case' clause. The translators have supplied a main verb, 'carry around', which is unexpressed in the original.

10. The translation found in Napaljarri and Cataldi (1994) is very free: "We find that having to kill these boy children is making us very upset."
11. This was achieved by considering sentences with typical agents and patients, and by not making any further context explicit, to allow the informant to assume the most natural denotation for the sentence. It was necessary, however, to make one specific stipulation in the testing of the *-wangu* construction: informants were asked to construe the events denoted by the two verbs as simultaneous. Thus, the 'hitting' and the 'touching' in (52) and (53) above were conceived of as happening at the same time. This was in order to exclude a (possible) interpretation whereby the action named by the *-wangu*-marked verb marked with *-wangu* was conceived of as prior to that of the main verb of the sentence.
12. The extent to which these metaphorical uses are perceived as such is an empirical question, for which the answers are likely to vary from speaker to speaker. The categorization as a metaphor, however, is unaffected by this variation, because, as discussed in chapter three, it characterizes the process of category-incorporation that produces the meaning and which can occur at various levels of conscious 'metaphoricity'.
13. My consultant's explanation of why sentences like (70) do not make sense was: "The woman's hitting the dog, that's what it says in the first place – *karntangku ka maliki pakarni* – and if you have this *pinjawangurlu*, that means the person's not hitting the dog".
14. The second morpheme shows the failure of vowel harmony that is characteristic of Lajamanu Warlpiri, and thus often found in the Napaljarri and Cataldi 1994 corpus (note however the observance of harmony between the penultimate and last morphemes)
15. It would be useful to know the sources of these meanings, to see if they came from dialects/idiolects of Warlpiri open to influence by other languages.
16. The role of *kurru* 'fire saw' in the above sentence is rather unclear, since one would expect it to be marked with instrumental (ERG) case. Omission of possible case marking is a phenomenon with parallels in Warlpiri – cf. (146) below and note (19). The following sentences show a contrast between the source marked with locative case in (a) (*nurrku-ngka-ji*), and with zero marking in (b) (*manja*):

    (a) *Jurlarda ka-rnalu paka-rni yali-rla-ji*
    honey AUX-111S chop-NPST that-LOC-TOP
    nurrku-ngka-ji – jurlarda-rlangu.
    snappy gum-LOC-TOP honey-for example
    'We chop honey (sugar-bag) out of that Snappy Gum – wild honey'.
    (WlpD: *pakarni*)

    (b) *Karli ka-lu paka-rni manja.*
    boomerang AUX-333S chop-NPST mulga

'They chop (wood for) boomerangs from mulga trees'. (WlpD: *pakarni*)

While (a) and (b) are understandable as alternative realizations within the grammar of part-whole relationships in Warlpiri (for details cf. Hale 1981), (128) is harder to assimilate to this pattern, and I have not found any discussion of the phenomenon in any of the standard accounts of Warlpiri phrase structure or case-marking. I therefore consign this sentence to the necessity of further investigation.

17. This appearance of *tarri* is actually glossed as 'cooked' in WlpD, but since no occurrence of this meaning is mentioned in the dictionary I have restored the typical meaning 'raw'. Perhaps a meaning like 'not entirely cooked' is what was intended.
18. Such actual-potential/source-product noun pairs are of course neither uncommon nor limited to Warlpiri (O'Grady 1960). Thus, both the Warlpiri and the Pitjantjatjara/Yankunytjatjara noun for 'fire' (*warlu* and *waru* respectively) also mean 'firewood'. Other similar pairs in Warlpiri include *ngalkirdi* 'witchetty bush *Acacia kempeana*, edible grub found in *A. kempeana*', *jangarnka* 'chin, beard', *yurrkalypa* 'nasal mucus, head cold' and *yinarrki* 'spider, cobweb'.
19. *Kulu* lacks the expected ERG case marking.
20. This depends on a reading of (168) in which the sentence contains no semantic redundancy, with *parduna-karda* and *pantirni* each contributing distinct and non-overlapping information.
21. The final position of the second auxiliary is unusual.
22. Alternatively, the contrast between (181) and (182) could be related to the tense difference between *pantirni* (non-past) and *panturnu* (past): the acceptability of (181) might suggest that non-past tenses can be interpreted as 'stabbing at', 'poking at', even without the *-rlajinta* marking that usually marks the conative construction, but that past tenses cannot; compare (13) and (14) in 6.1. This is a less likely option, however, both because no conative meaning appears in the translations, and because it conflicts with other known properties of Warlpiri verbs. Laughren (1988: 229) presents evidence for the domain of sense perception that past tenses must be accompanied by overt morphology for conative-style interpretations to be valid:

(a) **Janganpa-rna* *nya-ngu,* *kala* *kula-rna* *nya-ngu.*
possum-1S see-PST but NEG-1S see-PST
'I saw the possum, but didn't see it'.
'I looked at the possum, but didn't see it'.
'I saw the possum, but didn't look at it'.
'I looked at the possum, but didn't look at it'.

The presence of the same verb in both clauses problematizes this evidence, but the fact that the sentence is ungrammatical is nevertheless suggestive: if the putative conative interpretation were strong enough, the sentence should be acceptable. Compare (b), which also uses the same verb on both sides of the contrast, but with different AUX morphology:

(b) *Janganpa-ku-rna-rla nya-ngu, kala kula-rna nya-ngu.*
possum-DAT-1S-3DAT see-PST but NEG-1S see-PST
'I looked for the possum, but did not see it'. (Laughren 1988: 229)

23. The function of the LOC marker here is obscure, and I have been unable to discover references in the standard literature which might clarify it. Nevertheless, I am assuming, perhaps incorrectly, that it does not affect the reading of the verb, and the comments in the text are thus only true in so far as this assumption is justified.
24. In WlpD this word appears as *kankarlumparrarnu*, which I interpret (following a suggestion of Jane Simpson, personal communication) as an instance of the common contraction of [awa] to [a:].
25. I have regularized the form of this word, which appears as *ngurlkulku* in the version of WlpD from which the citation was drawn.
26. Ken Hale (personal communication) puts forward a different origin for this meaning: he sees it as a reanalysis of the sequence Noun-*pa-ji-ni*, the *n*-conjugation monosyllabic verb *ji-ni* 'scold, produce sound with mouth' suffixed to an old consonant-final noun with the *-pa* extension. The string *pa-ji-ni* was reanalyzed as a new disyllabic verb (and hence shifted to the *-rni* conjugation), giving us *paji-rni* 'name'.
27. The reason for the presence of *-kurlangu* here is unclear.

Notes to chapter 7

1. Such redescriptions are characteristic of science in general. The evolving understanding of matter, for example, in the period between Democritus' postulation of atoms and Mendeleyev's publication of the periodic table in 1869, consisted in a succession of different proposals about what the fundamental constituents of nature actually were. Often, the solution to particular problems lay in a redescription of these constituents. Ancient science treated light and fire as identical substances, and Democritus believed that atoms needed to be assumed in order to explain phenomena like perception and the human soul. The subsequent progress of science in explaining the nature of matter can be seen as deriving from changes to this ontology: light, fire, matter, perception and the soul came to be seen as fundamentally different types of things (Rosmorduc 1985: 70-71).

2. It is important not to allow comparison with linguistics to falsely idealize the nature of science. If Feyerabend (e.g. 1993) is right, natural science succeeds precisely because it is *not* in thrall to predictive success, observational adequacy, or any of the other aprioristic methodological criteria which might be advanced in order to regulate empirical research: science is, in short 'much more "sloppy" and "irrational" than its methodological image' (1993: 157-158). As a result, the role of disciplinary paradigms and accepted frames of reference in determining what is and is not a good scientific theory may well be much greater than the discussion here has implied; to the extent that this is the case, the contrast with linguistics is diminished.

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