The Puzzle of Free Indirect Discourse
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1.   **Introduction**

The purpose of this paper is to shed some light on the familiar puzzle of free indirect discourse (FID). FID shares some properties with standard indirect discourse (SID; or embedding under an attitude verb) and with direct discourse (DD; or quotation), but there is currently no known theory that can accommodate such a hybrid.

Suppose I want to report today that a few days ago John had the following thought, as he looked at my picture in his room: "She doesn't like me today." I have at least three options at my disposal: (i) DD, illustrated in (1); (ii) SID, illustrated in (2); and (iii) FID, illustrated in (3).

(1)   As he looked at my picture, he thought: "**She does**n't like **me today**."

(2)   As he looked at my picture, he thought that **I did**n't like **him that day**.

(3)   **I did**n't like **him today**(, he thought as he looked at my picture.)

FID is a special technique, or style, used by narrators to convey what a character (in many cases, but certainly not always, a fictional character) thinks or says.[1] As (1) and (3) show, FID resembles DD in that the time adverbial *today* is used to refer to the day surrounding the time when the subject (the individual whose thought or utterance is being reported; in our case, John) is having his thought or uttering his utterance, or at least the time at which he thinks he is having his thought or uttering his utterance. In SID this is impossible; *today* refers to the day surrounding the time at which the speaker (in our case, the person who is writing this paper – myself) is uttering (or writing) her utterance. And indeed, in (2) *today* is replaced by the anaphoric expression *that day*. But FID also resembles SID, as shown by (2) and (3), in that the 3rd person pronoun is used to refer to the subject, and that the first person pronoun is used to refer to the speaker. In DD, as shown by (1), the first person pronoun refers to the subject and the 3rd

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[1] The parentheses surrounding 'he thought as he looked at my picture' in (3) indicate that this sequence is optional.
It is usually possible to infer from the preceding text who is having the thought, where, and when.

person pronoun refers to someone other than the subject (for further discussion of the properties of FID see, among others, Banfield 1982;[2] Doron 1991; Schlenker 1999, 2004; Sharvit 2004).

There are some facts that seem to suggest that FID is more like DD than SID. For example, setting aside pronouns (which clearly do not behave in FID as they do in DD, as shown by the fact that *she* in (1), which refers to the speaker, may be replaced with *I* in (3)), it seems that in FID the utterance or thought being reported cannot be paraphrased, whereas in SID it can be. Perhaps the most striking example of this is the case of exclamatives: these usually cannot be embedded under an attitude verb. When a degree exclamative is reported via SID, a degree modifier has to be used instead of the *wh*-word. But if a reported thought or utterance has the form of an exclamative, reporting it via DD as well as FID requires an exclamative as well. To see this, consider the discourse in (4), with two possible FID reports ((4a-i, ii)) and two possible SID reports ((4b-i, ii)), which are meant to report John's thought, namely, "How widely she is smiling at me!".

(4)   John looked at Mary. He thought: "How widely she is smiling at me!"

      a.   (i) How widely she was smiling at him(, he thought).

           (ii) #She was smiling at him very widely(, he thought).[3]

      b.   (i) *He thought that how widely she was smiling at him.

           (ii) He thought that she was smiling at him very widely.

Cases such as this strongly suggest that FID is more like DD than SID. And indeed, it is argued in Schlenker (2004) that FID is a form of quotation.

On the other hand, there are facts that seem to suggest that FID is more like SID than DD. Two such facts are: (i) the fact that (in languages such as English), the past tense, and not the

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[2] Notice that there is some disagreement between Banfield and the other researchers regarding the interpretation of pronouns, and especially the first person pronoun, in FID. This disagreement is not directly related to the main point of this paper, because all researchers agree that FID has properties of both SID and DD.

[3] Although (4aii) is a wellformed FID, most speakers view (4ai) as a more faithful report of what was thought in the situation described. (4aii) would be a faithful report of *He thought: "She is smiling at me very widely."*

present tense, is used in FID, as well as SID, to refer to the subject's "now" (i.e., to the time when the subject locates himself temporally; see (2)-(3)); and (ii) the fact that (in languages such as English and Hebrew) the third person pronoun, and not the first, is used in FID, as well as SID, to refer to the subject's "I" (i.e., to the individual the subject takes himself to be; see (2)-(3)). In DD this is impossible: the past tense always conveys anteriority (unless the quoted utterance itself contains instances of SID or FID, but in this case the SID/FID, and not the quotation, is what licenses this special use), and the third person pronoun refers to someone other than the subject. And indeed, it is argued in Sharvit (2004) that FID is an attitude report.

I claim that if FID is a form of DD, then it is a DD that allows "null" pronouns (i.e., an embedded Past which refers to the subject's "now", or an embedded 3rd person pronoun which refers to the subject's "I"); and if it is a form of SID, then it is a "quotational" SID. My goal, then, is a modest one, namely, restating the puzzle of FID in more precise terms. To this end, I briefly discuss some additional facts (most of which are well known) supporting the claim that we need to have a quotation component in FID, and I elaborate on the point made above regarding "null" pronouns in FID (which indicates that FID has an attitude component). The latter point is less well known, and my purpose here is to clarify it and make the strongest case possible for it. I do not solve the puzzle, and therefore do not make a specific formal proposal, but in my discussion of "null" pronouns in sections 3-5 I treat FID as an attitude report. This is done merely for convenience (that is to say, only as a way to talk about FID using formal tools familiar from the semantics literature).

2.   More facts supporting a quotation theory of FID

Most of the facts mentioned in this section are discussed in the literature on FID. My purpose here is not to give an exhaustive list of properties of FID (for more thorough discussion, see

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Banfield 1982, Doron 1991, Schlenker 2004, and Sharvit 2004, among others), but rather to show that there is good evidence supporting the hypothesis that it is some form of DD.

As is well known, a definite description in the complement clause of an attitude verb can be read either 'de dicto' or 'de re'.

(5)   John thought that **the dean** liked him that day.

   a.   'de dicto' reading

         Original thought: "The dean likes me today"

   b.   'de re' reading

         Original thought (while pointing at the "real" dean): "This guy likes me today"

But a definite description in a directly quoted clause is unambiguous. As discussed in the literature on FID (see references above), definite descriptions in FID are likewise unambiguous.

(6)   **The dean** liked him today(, thought John).

         Original thought: "The dean likes me today"

The fact that definite descriptions in FID are unambiguous supports the claim that FID is a form of DD: since the subject's exact thought must be reported, there is no room for a 'de re' reading.

Additional facts that show this are these (again, we set pronouns aside, because these clearly require a special treatment). Imagine a situation where John says: "Really, yes, I do love her", using the (somewhat mistakenly called) speaker-oriented adverbials *really* and *yes*. As (7)-(8) show, an acceptable FID has to include these adverbials, but an acceptable SID cannot include them.[4]

(7)   a. Really, yes, he did love her(, said John).

       b. #He did lover her(, said John).

         Original utterance: "Really, yes, I do love her."

(8)   John said that (*really, yes,) he did love her.

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[4] Again (and see Footnote 3), although (7b) is well-formed, most speakers view (7a) as a more faithful report of what was said, compared to (7b).

Original utterance: "Really, yes, I do love her."

Now consider (9)-(10), which make a slightly different point. They show that if the subject utters a "mixed" expression (i.e., an expression that consists of expressions from the language of the report and another language), the FID report should use those exact words. But these examples also show that in the SID report there is actually a choice: the speaker can use the "foreign" expression, but she doesn't have to. Consider these examples against a scenario in which John says: "I was stupid enough to listen to that hijo de puta!".

(9)   a. He was/had been stupid enough to listen to that hijo de puta(, said John).

        b. *He was/had been stupid enough to listen to that sonovabith(, said John).

(10)   John said that he was/had been stupid enough to listen to that sonovabitch/'hijo de puta'.

One might be tempted to take the optionality in (10) to mean that since the semantics of SID needs room for quotation anyway (as (10) is fine either with *hijo de puta* or *sonovabitch*; on this, see Potts, in press), there shouldn't be a problem to incorporate this into the semantics of FID. The problem is that while in SID quoting the subject verbatim is optional, in FID it is obligatory (or strongly preferred; see Footnotes 3,4). In addition, it seems that while the quotation in (10) is of the 'scare quote' variety (which comes accompanied with an air of mockery on behalf of the speaker), the obligatory quotation in (9) is not. This certainly supports the view that FID is some form of DD.

Sections 3-5 offer evidence in support of the opposite claim (namely, that FID is an attitude report), based on the fact that, unlike DD, it has "null" pronouns. The facts concerning "null" pronouns in SID are discussed at length in the literature on the semantics of attitude verbs, but those concerning "null" pronouns in FID are discussed only briefly in Sharvit (2004). Sections 3-5 are intended to provide a more thorough investigation of the properties of tense and 3rd person pronouns in FID, and explain why these properties suggest that FID is an attitude report.

3.　　**"Null" temporal pronouns in FID**

The idea that tenses are temporal pronouns was first suggested in Partee (1973). Partee's famous example, *I didn't turn off the stove*, is incompatible with a purely quantificational analysis of tenses (which treats the past tense as an existential quantifier over past times). Such an analysis implies either that there was never a time when I turned off the stove (probably false) or that there was once a time when I didn't turn off the stove (almost trivially true), neither of which is the intuitive meaning. The intuitive meaning (namely, that I didn't turn off the stove at a particular time which precedes the utterance time) is compatible with a "referential" analysis, according to which Past is a pronoun which denotes a time preceding the evaluation time.[5] In Partee's example, Past is a free pronoun whose denotation is fixed by the context. That it can, like other pronouns, also be a bound variable is shown by examples such as *Every student always thinks that I didn't turn off the stove* (where the time of not turning off the stove varies with, and precedes, the time each student locates herself temporally, on each relevant occasion).

There is a certain property of Past in complement clauses of attitude verbs (SID) and in FID, in Sequence of Tense (SOT) languages such as English, which provides additional evidence for the claim that tenses are sometimes bound variables. When embedded under another Past, a Past may lose its anteriority presupposition, and be interpreted as a relative present. To see this, let us start with Past in SID, exemplified in (11) (inspired by a famous example from Abusch 1997).

(11)　　A week ago, John decided that in ten days, during breakfast, he would tell his mother that he **loved** her.

　　　　a.　　　　Original decision ("simultaneous" reading):

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[5] Even if we sometimes treat tenses as quantifiers rather than pronouns, it is usually agreed (e.g., Kusumoto 1999, Sharvit 2003a) that these quantifiers (like other quantifiers; see von Fintel 1994, Marti 2003) have a pronominally expressed restriction. Such an analysis wouldn't be purely quantificational, though (but rather a combination of a referential analysis and a quantificational one). So for our purposes, I simply treat tenses uniformly as pronouns (but see Footnote 6).

"In ten days, during breakfast, I will tell my mother that I <u>love</u> her."

      b.   Original decision ("back-shifted" reading):

"In ten days during breakfast, I will tell my mother that I <u>loved</u> her."

(11) has a reading (the "simultaneous" reading) according to which we infer that what John is planning to say to his mother is "I love you". Under this reading, the most deeply embedded Past is interpreted as a relative present. (11) also has a reading (the "back shifted" reading; brought out more clearly if we add *until the day before*, as in *.... that he would tell his mother that he loved her until the day before*) according to which we infer that what John is planning to say to his mother is "I loved you (until yesterday)." John, like the rest of us, may not know what time it is, so he may not know what time it will be in the future. In the "simultaneous" reading, the loving time coincides with the telling time, which is ten days from whatever John's "now" was a week ago, and in the "back-shifted" reading, the loving time precedes the telling time. Importantly, the "simultaneous" reading is expressed with Past tense morphology. Notice that this is also true of FID, as shown by (12) (cf. Kamp and Rohrer 1983), which also has a "simultaneous" reading.

(12)   In ten days, during breakfast, he would tell his mother that he **loved** her(, said John a week ago).

      a.   Original decision ("simultaneous" reading):

"In ten days, during breakfast, I will tell my mother that I <u>love</u> her."

      b.   Original decision ("back-shifted" reading):

"In ten days, during breakfast, I will tell my mother that I <u>loved</u> her."

There are various proposals in the literature regarding the proper treatment of those occurrences of Past that are interpreted as a relative present (see, for example, Abusch 1997; Kratzer 1998; Schlenker 1999, 2003). For convenience, let us adopt some version of the Feature Deletion Theory (e.g., von Stechow 1995, 2003; Ogihara 1996 – this theory doesn't differ from

the others in any respect that is relevant to the current discussion). According to the Feature Deletion Theory, tense features (e.g, '<', which expresses an anteriority presupposition) may delete at LF, provided the relevant tense morpheme that carries them is c-commanded by a morphologically agreeing tense (e.g., Past in the matrix clause licenses '<'-deletion of Past in the embedded clause). When such a feature is deleted at LF, the presupposition it expresses is "deleted" (i.e., it is invisible to semantic interpretation). A temporal pronoun with a deleted '<'-feature is a variable that gets bound by the embedding verb (i.e., the verb whose tense morpheme acts as the deletion licensor).[6] The LF of the simultaneous reading of (11) is, thus, (13).

(13)   *John $t_3^{<t0}$ decide $\lambda1\lambda3[he\ t_1^{<} woll\ tell\ his\ mother\ \lambda2\lambda4[he\ t_2^{<} love\ her]]$*[7]

I use the following conventions (cf. (b)-(c), Appendix): (A) the variable $t_k^{<tj}$ denotes a time which precedes the time denoted by the variable t_j (i.e., it is Past with an anteriority presupposition); (B) $t_k^{<}$ is a "deleted" Past; (i.e., a Past without an anteriority presupposition); and (C) t_0 denotes the time of the context relative to which t_0 is interpreted (e.g., if that context is the utterance context, t_0 denotes the utterance time). The complement clause of *decide* and that of *tell* denote functions from time-individual pairs to truth values. The result is that (13) receives the following interpretation, under a contextually supplied variable assignment g (x,x' are variables over individuals, t,t',t" are variables over times, and w,w' are variables over worlds).[8]

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[6] So even if Past is a quantifier with a pronominal restriction when it talks about a time preceding the evaluation time (see Footnote 5), in its SOT occurrences it is simply a variable.

[7] I am following Abusch in assuming that *will* and *would* are composed of Present+*woll* and Past+*woll*, respectively, where *woll* is a future modal.

[8] The semantics assumed for *decide* is given in (i) below (a similar semantics is assumed for *think*, see (e), Appendix; and for other attitude verbs), and the rule that resolves the type-mismatch between *decide* and its clausal complement in (13) is given in (ii) (cf. (h)i, Appendix; see Heim and Kratzer's 1998 IFA – Intensional Function Application). (ii) applies to the complement clause (which denotes a function from time-individual pairs to truth values), and turns it into a suitable argument of *decide* (a function from world-time-individual triples to truth values). In addition, it is assumed that a root node is interpreted relative to an utterance context, its world, and the assignment it supplies (cf. (a), Appendix).

   (i)   For any function from world-time-individual triples p, time t, and individual x, $[[decide]]^{w,c,g}(p)(t)(x) =$ True iff for all contexts c' ($=<w',t',x'>$) compatible with what x decides in w at t, $p(w')(t')(x') =$ True.

   (ii)   If α is a branching node whose daughters are β,γ and $[\lambda w'.\ [[\gamma]]^{w',c,g}]$ is in the domain of $[[\beta]]^{w,c,g}$, then $[[\alpha]]^{w,c,g} = [[\beta]]^{w,c,g}([\lambda w'.\ [[\gamma]]^{w',c,g}])$.

(14)   In all contexts c (=<w,t,x>) compatible with what John decides in the context <actual world, $g(t_3{}^{<t0})$, speaker> (which differs from the utterance context only in that $g(t_3{}^{<t0})$ precedes the utterance time), there is a time t' after t, such that in all contexts c' (=<w',t'',x'>) compatible with what John tells his mother in w at t', John loves his mother at t'' in w'.

Let us call those LF occurrences of $t_k{}^{\leq}$ (i.e., bound temporal variables that are the result of '<'-deletion), "null" tenses.

Given that English FID has a "null" Past as well (as shown by (12)), a plausible analysis of FID (cf. Schlenker 1999, Sharvit 2004) involves a silent (i.e., unpronounced) FID operator which, like an attitude verb, takes an individual argument (the subject) and a time argument (the time where the subject's thought or utterance takes place). If the tense morpheme which acts as the time argument agrees morphologically with the embedded tense, '<'-deletion may occur, yielding for (12) an interpretation similar to the one in (14). Such an analysis views FID as a form of an attitude report.

In non-SOT languages, '<'-deletion in FID is impossible. As the following Hebrew (15) (which corresponds to (3)) shows, the "simultaneous" reading requires present tense morphology (cf. Borer 1981; Sharvit 2003b, 2004).

(15)   ani lo ohevet oto yoter(, hu xaSav).

         I NEG love+Present him anymore he think+Past

         Original thought (pointing at me – the speaker): "This woman doesn't love me anymore."

This is true also of SID, as shown by (16) (which corresponds to the English *He thought that I didn't love him anymore*, with a "simultaneous" reading).

(16)   hu xaSav Se ani lo ohevet oto yoter

         he think+Past that I NEG love+Present him anymore.

This shows that in Hebrew, Present is (or, at least, can be) a bound variable without any presuppositions. To see that Past in Hebrew never loses its anteriority presupposition, let us look at the sentences corresponding to (11) and (12). To get the "simultaneous" reading, *mitga'ge'a* 'miss' has to appear with Present; if it appears with Past, the only possible interpretation is the "back shifted" one.

(17)   lifney Savua Dan hexlit Se tox asara yamim bizman aruxat haboker

before week Dan decide+Past that in ten days at-time-of breakfast

hu yomar le-imo Se hu hitga'age'a ele-ha

he say+Future to-mother-his that he miss+Past her

(SID; original decision: "… I will tell my mother that I missed her")

(18)   tox asara yamim bizman aruxat haboker hu yomar le-imo

in ten days at-time-of breakfast he say+Future to-his-mother

Se hu hitga'age'a ele-ha(, hexlit Dan lifney Savua).

that he miss+Past her decide+Past Dan before week

(FID; original decision: "… I will tell my mother that I missed her")

(19)   lifney Savua Dan hexlit Se tox asara yamim bizman aruxat haboker

before week Dan decide+Past that in ten days at-time-of breakfast

hu yomar le-imo Se hu mitga'age'a ele-ha

he say+Future to-mother-his that he miss+Present her

(SID; original decision: "… I will tell my mother that I miss her".)

(20)   tox asara yamim bizman aruxat haboker hu yomar le-imo

in ten days at-time-of breakfast he say+Future to-his-mother

Se hu mitga'age'a ele-ha(, hexlit Dan lifney Savua).

that he miss+Present her decide+Past Dan before week

(FID; original decision: "… I will tell my mother that I miss her".)

These facts not only show that FID resembles SID in interesting ways, they also allow us to understand the FID puzzle more clearly. Because FID has "null" tense and DD does not, it seems plausible to assume that FID comes with an attitude-verb-like operator, whose time argument (i.e., its tense) acts as a licensor for feature deletion at LF. The assumption that FID involves a silent FID operator which, like an attitude verb, together with its tense morpheme plays the role of feature deletion licensor, also affords a straightforward explanation for the fact that languages that allow "null" tense in SID allow it also in FID and languages that don't allow it in SID don't allow it in FID either.[9] On the other hand, quotation theories of FID would have a hard time accounting for "null" tenses (and for the correlation between "null" tenses in FID and in SID across languages), since DD doesn't have "null" tense at all, not even in SOT languages: a Past obligatorily carries an anteriority presupposition, as shown in (21).

(21)   A week ago John made the following decision: "In ten days, during breakfast, I will say
          to my mother: "I loved you"."

This is not to say that the Past in (21) is not "bound" in some sense.[10] The point is that it is not "null": (21) has only a "back shifted" reading. On the other hand, because of the ways in which FID resembles DD (see section 2), we cannot easily assume that FID comes with a hidden attitude-verb-like operator.

To complete the discussion of "null" tenses, we need to rule out the possibility that the interpretation of the FID example above (i.e., (12)) is read off an alternative LF, without a "null" Past. As widely acknowledged in the literature (see Abusch 1997, among others), we have to distinguish between a "null" Past (i.e., a Past whose anteriority presupposition is ignored by the semantics) and a quasi-"null" Past (i.e., a Past whose anteriority presupposition is not ignored by

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[9] In unpublished work, Nathan Klinedinst also talks about the necessity to have an FID operator. He is concerned with examples such as *What was he going to do now, John might have asked himself at that point*, where the expressions in the FID are bound by the modal.

[10] Just like *I* in *No student ever said: "I will do my homework happily"* (where the interpretation of *I* varies with the students) is bound in some sense.

the semantics, but which still receives an interpretation very similar to that of a "null" Past). This is because sometimes an interpretation of a sentence which is very close to an interpretation resulting from '<'-deletion is compatible with an LF where Past hasn't undergone '<'-deletion. In such cases, Past is interpreted 'de re', as a free variable with an anteriority presupposition, which is a semantic argument of the attitude verb (see Abusch 1997). For example, the "simultaneous" reading of (22) (which unlike (11) has only one level of embedding) can be accounted for without assuming '<'-deletion.

(22)   John thought that Mary was pregnant.

         Possible original thought: "Mary is pregnant."

(23)   Possible LF: *John $t_3^{<t0}$ think*$^{DE-RE}$ $\lambda 1 \lambda 4$[*Mary $t_5^{<t0}$ be pregnant*][11]

When interpreted under a variable assignment g supplied by the utterance context, this LF receives the following interpretation (where semantically, $t_5^{<t0}$ is an argument of *think*$^{DE-RE}$): "In the world of the utterance context, John attributed at g($t_3^{<t0}$) (which precedes the utterance time) to g($t_5^{<t0}$) (which precedes the utterance time) the temporal property [$\lambda t' \lambda w \lambda t$. Mary is pregnant in w at t'], under the acquaintance relation of identity [$\lambda w \lambda x \lambda t \lambda t'$. t=t'][12] (that is to say, for all contexts c compatible with what John thinks in the world of the utterance context at g($t_3^{<t0}$), Mary is pregnant in world(c) at the time which is identical to time(c))."[13] This interpretation is practically indistinguishable from the one we get from a "null" LF, where the embedded Past is a "null" Past, on a par with (11).

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[11] This analysis has its roots in Quine (1956) Lewis (1973) and Cresswell and von Stechow (1982). Abusch (following a suggestion in Heim 1994) assumes a different LF, one where the 'res' – in our case the embedded Past – has undergone 'res'-movement, become a direct argument of *think*, and left behind a trace bound by the λ-operator that binds the time variables in the complement clause. Since the precise details of a 'de re' LF are a controversial issue, I give the simper LF in (23), but the resulting interpretation is the same, because the semantics assumed for the embedding verb, in its 'de re' guise, is this (cf. (f), Appendix):
(i) [[*think*$^{DE-RE}$]]^{w,c,g}(t''')(P)(t)(x) = True iff there is an acquaintance relation R such that t''' is the unique t'' such that R(w)(t)(t'')(x) = True and for all contexts c' (=<w',t',x'>) compatible with what x believes in w at t, P(w')(the unique t'' such that R(w')(t')(t'')(x') = True)(t')(x')=True.
[12] This roughly means that the description that John uses to describe to himself the alleged pregnancy time is 'now'.
[13] If the acquaintance relation amounts to a description such as "the time John saw Mary with a big belly", we get the "back-shifted" reading.

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(24)   *John $t_3^{<t0}$ think* $\lambda 1$[*Mary $t_1^{\leftarrow}$ be pregnant*]

"For all contexts c compatible with what John thinks in the world of the utterance context at g($t_3^{<t0}$) (which precedes the utterance time), Mary is pregnant in world(c) at time(c)."

But a 'de re' analysis of the kind illustrated in (23) is unavailable for the "simultaneous" reading of (11). The Past of *loved*, if interpreted 'de re', refers to a time preceding the utterance time. Given that John's decision was made a week ago about a time that occurs after the utterance time, if Past were a direct argument of *decide*, the resulting interpretation would reflect only a reading according to which the loving time precedes the utterance time. Abusch's conclusion is that both strategies (the 'de re' strategy and the "null" strategy) are available in SID, but in some cases they might give rise to identical (or very similar) interpretations (as in the case of (22)), and in other cases they give rise to different interpretations (as in the case of (11)).[14]

Is this also true of FID? In Schlenker (2004), where it is argued that FID is a form of quotation, a "null" interpretation of Past is assigned a 'de re' analysis (incorporating a 'de re' mechanism into the quotation mechanism). But Schlenker only discusses examples corresponding to (22) (e.g., *Yes, she was pregnant, thought John*). It is obvious that FID examples such as (12), which correspond to the SID in (11) (with multiple embeddings), cannot be accounted for with a 'de re' LF, and require an LF with "null" pronouns. This point is crucial; since if all instances of Past that are understood as the subject's "now" could be accounted for via a 'de re' analysis (in the spirit of Schlenker 2004), one could argue that the FID puzzle is solved (in other words, that it is a form of quotation equipped with a 'de re' mechanism). But

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[14] One might raise the following problem. If a 'de re' LF is compatible with a "null" interpretation of Past, then the sentence *Every student thought that Mary was pregnant* should be acceptable in a situation where John thinks: "Mary is pregnant" and the others think: "Mary was pregnant", because each of the students may be acquainted with the specific time denoted by the embedded Past via a different acquaintance relation (see Footnote 13). But this doesn't seem to be so (either they all think "Mary is pregnant" or they all think "Mary was pregnant"). While I do not have a good explanation for this, it could be the result of the fact that the "back-shifted" reading usually requires the embedded tense to be the pluperfect (e.g., *John thought that Mary had been pregnant*; on this, see von Stechow 2003).

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since, as we have just seen, not all such instances lend themselves to a 'de re' analysis, the puzzle remains unsolved. This is so, because "null" tenses require a syntactic licensor in the form of an attitude-verb-like operator with a tense morpheme, but assuming the presence of an attitude-verb-like operator in the syntax of FID would be in conflict with the DD properties of FID.

This paper could, in principle, end here, as I have done what I set out to do, namely, restate the puzzle of FID. However, in order to argue for this more forcefully, I now show that: (a) not only does FID have "null" temporal pronouns, it, in fact, doesn't have "referential" temporal pronouns in the same sense SID does (that is to say, it <u>never</u> gives rise to "null" readings that are compatible with 'de re' LFs); and (b) that FID also has "null" personal pronouns (and no "referential" pronouns in the same sense SID does). Section 4 is concerned with (a) and sets the stage for (b), which is discussed in Section 5.

4.   No 'de re' temporal pronouns in FID

The purpose of this section is to show that not only is it the case that FID has "null" tense pronouns, but that it is also the case that FID doesn't have 'de re' tense pronouns at all. In other words, unlike SID, there are no cases of FID where a "simultaneous" reading of a Past tense is compatible with a 'de re' LF, not even in those cases that do not involve multiple embeddings. More concretely, we will see that the "simultaneous" reading of (25) is compatible with a LF that has a "null" tense pronoun, but not with a LF with a 'de re' pronoun, unlike its SID counterpart (*John thought that Mary was pregnant*) which, as we saw above, is compatible with both.

(25)   Yes, Mary was pregnant(, thought John).

a.   Original thought ("simultaneous" reading): "Yes, Mary is pregnant."

b.   Original thought ("back-shifted" reading): "Yes, Mary was pregnant."

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The reason for this has to do with the behavior of Present in SID vs. FID in English. In SID, a sentence with Present embedded under Past receives the so-called "double access" interpretation. In FID, it is simply unacceptable.

(26)   John discovered that Mary is pregnant.

> (pregnancy time obligatorily covers both discovering time and utterance time)

(27)   Mary is pregnant, John realized.

> (acceptable only if understood as DD, in which case pregnancy time need not cover utterance time.)

The present tense, in unembedded environments (e.g., *Mary is pregnant*), is interpreted as a time overlapping the utterance time. The fact that in (26) the pregnancy time coincides with the utterance time is explained by the assumption that the Present in English – unless c-commanded by Present – obligatorily denotes a time that overlaps the utterance time, and here it is interpreted 'de re', as a semantic argument of *discover* (for details, see Abusch 1997, Heim 1994, Ogihara 1996, von Stechow 1995, among others). The fact that in (27) a similar interpretation is not available shows that free pronouns in FID cannot be interpreted 'de re'.[15] Going back to (25), this means that its "simultaneous" reading cannot be obtained from a 'de re' LF (where the embedded Past is a free pronoun, which is a semantic argument of the embedding verb), but only from a "null" LF in which the embedded Past is a "null" pronoun (a bound pronoun whose anteriority presuppositions have been deleted). In other words, unlike what happens in SID, a "null" interpretation of a Past tense in FID is always incompatible with a 'de re' LF.

Additional evidence for the claim that free tense pronouns in FID cannot be interpreted 'de re' comes from non-SOT languages. For example, in Hebrew, while Past can sometimes

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[15] It is noted in Sharvit (2004) that Present is OK in FID with an overt embedding verb, which itself appears in the historical Present. But in that case Feature Deletion is licensed, and Present is a bound variable.

have a "null" interpretation in SID, it can never have such an interpretation in FID, as (28)-(29) show.[16]

(28)   Dan xaSav Se Mira lo hayta be-herayon.

Dan Past-think that Mira NEG Past-be pregnant.

a.   Original thought ("simultaneous" reading):   "Mary isn't pregnant."

b.   Original thought ("back-shifted" reading):   "Mary wasn't pregnant."

(29)   lo, lo, bevaday, Mira lo hayta be-herayon(, hu xaSav).

no no certainly Mira NEG Past-be pregnant he Past-think

Original thought ("back-shifted" reading): "No, no, certainly, Mary wasn't pregnant".
The contrast between (28) and (29) shows two things. First, it shows that, in principle, Hebrew has the 'de re' strategy at its disposal (otherwise, the "simultaneous" interpretation of (28) would be impossible, given that Hebrew doesn't have a "null" Past, as shown by (17)-(20)). Secondly, since (29) doesn't have a "simultaneous" reading, this means that Past cannot be interpreted 'de re' in FID.

But this raises a new question. If (29) doesn't have a 'de re' LF at all, how does its ("back-shifted") interpretation come about?[17] It is argued in Sharvit (2004) that free pronouns in FID are not interpreted according to the point of view of the speaker (i.e., 'de re'), but rather, according to the point of view of the subject. Technically, this means that the variable assignment supplied by the utterance context, which assigns values to free pronouns in the embedded clause of a SID (and which reflects what the speaker believes about the referents of those pronouns) is not used to interpret free pronouns in the embedded clause of a FID. Sharvit proposes that attitude verbs quantify over "narrow" contexts (i.e., <author, world, time> triples) but the FID operator quantifies over "broad" contexts (i.e., <author, world, time, assignment>

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[16] The observation that in non-SOT languages a Past can sometimes support a simultaneous reading in SID is mentioned in passing in various places (e.g., Ogihara 1996, Sharvit 2003b), and has recently been discussed more thoroughly in Altshuler (2004, 2006). In any event, such an interpretation is possible only in simple sentences (i.e., of the *John thought Mary was pregnant* variety), and crucially not in sentences corresponding to (11).

[17] Recall that a purely quantificational analysis (see Footnote 5) wouldn't help here; at least it wouldn't account for the reading according to which John thinks that Mary wasn't pregnant at a particular past time.

quadruples). Thus, tense variables may receive different denotations under the assignment supplied by the utterance context, and those supplied by the contexts the FID operator quantifies over. Accordingly, (28) and (29) receive the following LFs and interpretations.[18] Notice that t_0 in the complement of the FID operator is interpreted as Dan's "now" (as opposed to t_0 in the complement of *think*, which is interpreted as the utterance time), because $t_4^{<t0}$ reflects the subject's point of view in (29) (where it receives its value from the assignments of the contexts that the FID operator quantifies over, and denotes a time preceding Dan's "now"), but in (28) (where it receives its value from the assignment supplied by the utterance context, and denotes a time preceding the utterance time), it reflects the speaker's point of view.

(30)   LF of (28), "simultaneous" reading:

Dan $t_3^{<t0}$ think[DE-RE] *λ1λ5[NEG Mira $t_4^{<t0}$ be pregnant]*

Interpretation, relative to an utterance context c and its assignment:

Dan attributed in world(c) at assignment(c)($t_3^{<t0}$) (which precedes time(c)) to assignment(c)($t_4^{<t0}$) (which precedes time(c)) the temporal property [λwλtλt'. Mary is not pregnant in w at t], under the acquaintance relation [λwλxλtλt'. t=t'] (that is to say, for all narrow contexts c' compatible with what John believed in world(c) at assignment(c)($t_3^{<t0}$), Mary is not pregnant at the unique time which is identical to time(c')).

LF of (29):

FID-Dan-$t_3^{<t0}$ λ1λ5[NEG Mira $t_4^{<t0}$ be pregnant]

Interpretation, relative to an utterance context c and its assignment:

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[18] The semantics assumed for the FID operator is given in (i) below (cf. (g), Appendix), and the rule applied to the clausal complement of the FID operator in (30) (which denotes a function from time-individual pairs to truth values) to resolve the type-mismatch is given in (ii) (cf. (h)ii, Appendix).

   (i)   For any individual x, time t, and function f from triples of worlds, broad contexts and assignments to functions from time-individual pairs to truth values, $[\![FID]\!]^{w,c,g}$(x)(t)(f) = True iff for all world-context-assignment triples <w',c',g'> such that c' is a broad context compatible with what x believes/says in w at t, w'=world(c'), and g'=assignment(c'), f(w')(c')(g')(time(c'))(author(c'))=True.

   (ii)   If α is a branching node whose daughters are β,γ and [λw'λc'λg'. $[\![γ]\!]^{w',c',g'}$] is in the domain of $[\![β]\!]^{w,c,g}$, then $[\![α]\!]^{w,c,g} = [\![β]\!]^{w,c,g}([λw'λc'λg'. $[\![γ]\!]^{w',c',g'}$])$.

For all broad contexts c' compatible with what John believed in world(c) at assignment(c)($t_3^{<t0}$) (which precedes time(c)), Mary is not pregnant in world(c') at assignment(c')($t_4^{<t0}$) (which precedes time(c')).

In Sharvit (2004) those pronouns that are interpreted according to the assignments that the FID operator quantifies over, and which reflect the point of view of the subject, are called 'de dicto' pronouns. Since the term 'de dicto' is usually reserved for descriptions in attitude environments, I will follow a suggestion made by Jason Stanley (p.c.) and call these pronouns subject-oriented pronouns.[19] Additional evidence for the existence of subject-oriented pronouns in FID comes from reports where the subject makes an error regarding the time that the tense is supposed to refer to. To see this, consider the following scenario: It's April, but Dan thinks it's March (he has been in a coma, doesn't know that a whole month has gone by, and the hospital staff forgot to turn the page in the calendar in his room). As he is staring at the calendar, he thinks (in Hebrew): "Mira is supposed to give birth on March 31st". The contrast between the Hebrew (31) and (32) shows that a free embedded past in SID may be interpreted 'de re', but in FID it cannot be interpreted in this way.

(31)   dan xoSev Se mira hayta amura laledet ba-SloSim ve-axat be-merc

        Dan thinks that Mira was supposed to give birth on March 31st

(32)   *mira hayta amura laledet ba-SloSim ve-axat be-merc(, hu xoSev).

        Mira was supposed to give birth on March 31[st](, he thinks)

(31) is good, presumably because the embedded Past may be interpreted 'de re', as denoting the time depicted by the calendar Dan is looking at. (32) is bad because: (a) a 'de re' interpretation of Past is unavailable; and (b) as a result of (a), the embedded Past can only be subject-oriented, and as such, carries an anteriority presupposition (recall that Past cannot be "null", as Hebrew is non-SOT). The anteriority presupposition is supposed to be part of the Dan's belief system, but

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[19] The analysis in Sharvit (2004) is by no means the only possible analysis of subject-oriented pronouns. For an alternative, "dynamic", analysis within a quotation theory of FID, see Schlenker (2005). As far as I can tell, this alternative alternative analysis doesn't affect the argument made here regarding "null" pronouns.

in actual fact he believes that the time is still March (so he couldn't be using the Past tense to talk or think about March).[20] The sentence is unacceptable because, presumably, when Dan is having his belief he is looking at the calendar, which shows March (due to the hospital's staff's forgetfulness); and he erroneously thinks this time is "now". The relevant LFs are these.

(33)   LF of (31)

Dan t_0 think[DE-RE] *$\lambda 1 \lambda 5$[Mira $t_4^{<t0}$ be supposed to give birth on March 31st]*

Interpretation, relative to an utterance context c and its assignment:

Dan attributes in world(c) at assignment(c)(t_0) (=April, which overlaps time(c)) to assignment(c)($t_4^{<t0}$) (=March, which precedes time(c)) the temporal property [$\lambda w \lambda t$. Mary is supposed in w at t to give birth on March 31st], under the acquaintance relation [$\lambda w \lambda x \lambda t \lambda t'$. x sees a representation of t' in w at on the calendar][21] (that is to say, for all narrow contexts c' compatible with what Dan believed in world(c) at assignment(c)(t_0), Mira is supposed, during the time whose representation Dan sees on the calendar in world(c') at time(c'), to give birth in March).

(34)   LF of (32)

FID-Dan-t_0 $\lambda 1 \lambda 5$[Mira $t_4^{<t0}$ be supposed to give birth in March]

Interpretation, relative to an utterance context c and its assignment:

For all broad contexts c' compatible with what John believes in world(c) at assignment(c)(t_0) (=April, which overlaps time(c)), Mary is supposed in world(c') at assignment(c')($t_4^{<t0}$) (=March, which according to Dan precedes time(c')), to give birth in March).

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[20] The subject's beliefs are reflected in the ranges of the assignments that the FID operator quantifies over (see (g), Appendix).
[21] This roughly means that the description that Dan uses to describe to himself the time at which Mira is supposed to give birth is *the time/month shown by the calendar I see on the wall*.

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To sum up this section: we have seen that not only is it the case that "null" pronouns in FID are compatible with a "null" LF, but also that they (unlike "null" pronouns in some instances of SID) are incompatible with a 'de re' LF.

A few loose ends to tie before we move on to personal pronouns. We noted above that (27) doesn't have a "double access" reading, and we attributed this fact to the assumption that free pronouns in FID cannot be interpreted 'de re'. Given our discussion of the Hebrew facts, it is fair to ask why the English (27) doesn't have a reading according to which Present is a subject-oriented pronoun (and interpreted as the subject's "now"). I do not have a fully satisfactory answer to this question; I can only speculate. An idea that comes to mind is that of Grodzinsky and Reinhart (1983), which says that when two LFs, one with a free pronoun and one with a bound pronoun, give rise to the same interpretation, the LF with the bound pronoun is preferred. This theory is designed to explain Condition B and C effects. Condition B of the Binding Theory (BT) ensures that in *He likes him* the two pronouns must refer to different individuals, and Condition C ensures that in *He likes John* the pronoun cannot refer to John. According to Grodzinsky and Reinhart's theory, *He likes him* (where *he* and *him* are coreferential) is not possible because of the existence of *He likes himself* (where *himself* is a bound pronoun), which has the same meaning. A similar reasoning accounts for the condition C effect. In our case, the competing LFs would be that of (27) with a free (subject-oriented) Present, and that of *Mary was pregnant*(, *thought John*), where the embedded Past is "null" (i.e., a bound variable). But this is merely a speculation, and I am not at all sure about its overall plausibility.

5.   "Null" personal pronouns in FID

5.1. The problem

In the person domain, a "null" pronoun is a 3rd person pronoun in an attitude environment which is interpreted 'de se' (as the subject's "I"; that is to say, as whoever the subject takes himself or

herself to be) and not as someone other than the speaker (which is usually how 3rd person pronouns are interpreted in unembedded environments; e.g., *He likes me*). If genuine "null" 3rd person pronouns exist, then, like "null" tenses, they are bound pronouns with "deleted" presuppositions, which require a syntactic licensor. For example, assuming *she* carries the presupposition that its denotation is a female and the presupposition that its denotation is not the author of the "local" context (the context relative to which the expression is evaluated), these presuppositions would optionally be "deleted" (i.e., be semantically invisible) if there is a "higher" licensor (e.g., the subject of an attitude verb) whose denotation is also female and different from the author of the context relative to which it is interpreted (i.e., the speaker, who is the author of the utterance context).[22]

It is quite obvious that DD doesn't have "null" personal pronouns (the original utterance in, *John said: He is a fool* is not "I am a fool").[23] But it is not easy to make the case that FID has "null" personal pronouns, because it is not even clear that SID has overt "null" personal pronouns. In other words, it has been suggested (see, for example, Lewis 1979 and Reinhart 1991) that an interpretation of an overt 3rd person pronoun as the subject's "I" in SID is always compatible with a 'de re' LF. Let us elaborate on this point, beginning our discussion with a pronoun that is uncontroversially, a "null" personal pronoun.

That the covert PRO is a "null" pronoun is shown by (35) (see Chierchia 1989).

(35)   John expects to win.

LF: John expects PRO to win

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[22] Philippe Schlenker has pointed out to me that the acceptability of *I am her* shows that *she* actually doesn't presuppose that its denotation is different from the local author (who is the speaker in this case). It is beyond the scope of this paper to address this claim, but I think that this use of *her* in an identity sentence is special, like that of an E-type pronoun, and at most the sentence shows that an E-type 3rd person pronoun doesn't have this presupposition.

[23] Which, again (see Footnote 10), doesn't mean that a 3rd person pronoun in DD cannot be bound in some sense.

Interpretation: John self ascribes the winning-in-the-future property (that is to say, in all contexts c compatible with what John expects in the actual context, there is a time t after time(c) such that author(c) wins in world(c) at t).

(35) is unacceptable in a situation where John says/thinks, pointing at his own image: "this guy will win", not knowing that the image is his. He has to say or think: "I will win." This certainly shows that PRO is unambiguously "null". But since FID doesn't have PRO (as the unacceptability of *to win(, he expected)* shows), we need evidence that overt 3rd person pronouns (which FID does allow) can be "null" (i.e., bound variables with "deleted" presuppositions). In other words, if we had evidence that some instances of "null" *he* in SID can only be accounted for with a "null" LF, we would be able to construct the corresponding example in FID, hopefully showing the same thing (as we did in the case of tense; see (11)-(12) in section 3). But it is not clear that the third person *he* can be a "null" pronoun in SID (even though it may have a "null" reading), because sometimes a 3rd person pronoun that is understood as the subject's "I" (just like a Past that is understood as the subject's "now") is compatible with a 'de re' LF. The following example shows this.

(36)   Every candidate, including John, expects that he will win.

(36) is acceptable in a situation where John thinks "this guy will win" and the other candidates think: "I will win." This means that a 'de re' LF is compatible with a "null" interpretation (Zimmermann 1991). The LF in (37) is such an LF, and it accounts for the relevant reading.[24,25]

(37)   [*every candidate* $\lambda 1[x_1^{M, \neq x0}$ *expects*$^{DE-RE}$ $\lambda 3 \lambda 2[x_1^{M, \neq x0}$ *to win*]]]

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[24] Conventions used: $x_j^{M, \neq xk}$ denotes a male individual different from the individual denoted by x_k, $x_k^{\cancel{M}, \cancel{\neq}}$ is a bound variable over individuals where both the "malehood" presupposition and the "distinctness from author" presupposition are ignored by the semantics, and x_0 (=I) denotes the author of the utterance context (cf. (b), (d), Appendix).

[25] In point of fact, $x_1^{M, \neq x0}$ in (37)-(38) should be replaced with a "null" pronoun, since the domain of quantification of *every* may include males, and it may include the speaker (see, for example, Sauerland 2003, Heim 2001). I am ignoring this issue for simplicity.

For every candidate x, x expects of x (under some acquaintance relation) to have the property of winning in the future.

(For each x, the relation via which x is acquainted with x can, but need not, be the identity relation $[\lambda w \lambda x \lambda t \lambda x'$. x=x'].)

But the LF in (37) is a 'de re' LF, not a "null" LF, which would be the LF in (38):

(38)   [*every candidate* $\lambda 1[x_1^{M, \neq x0}$ *expects* $\lambda 3 \lambda 2[x_2^{M}$ *to win*]]]

For every candidate x, x self ascribes the property of winning in the future.

So if, in languages such as English, it is not clear that *he/she* can be a genuine "null" pronoun in SID, how can we make the case that FID has genuine "null" pronouns?

Before we go on: I am ignoring the question of how expressions such as *I* are interpreted in FID (recall from section 1 that *I* refers to the speaker, not the subject). Since various researchers (including the author of this paper) seem to agree that the facts suggest that FID is interpreted relative to two contexts (an idea due to Doron 1991), one of them being the utterance context, relative to which expressions such as *I* are interpreted, I do not elaborate on this any further (though see Appendix), since the point I am making here is independent of the question of how we treat these expressions.

5.2.   First attempt: an argument in the style of Percus and Sauerland (2003)

Percus and Saulerand attempt to provide an argument for "null" 3rd person pronouns in SID using an example similar to (39), where the subject is an *only*-phrase.

(39)   Only Mary thinks she has a nice voice.

Let us first go over their argument, and then see if it is applicable to FID. Consider (39) against the scenario described in (40).

(40)   Scenario 1.

Mary, Sally, and Jen are at a recording studio. Mary listens to a recording of her own voice, recognizes it and likes it. Sally listens to a recording of her own voice, doesn't recognize it and likes it. Jen listens to a recording to Mary's voice and likes it.

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Here is what the women say to themselves:

Mary: "I have a nice voice today!"

Sally: "This woman has a nice voice today!"

Jen: "Mary has a nice voice today!"

Following are some possible LFs for (39).

(41) a.   "null" LF[26]

[*only Mary* $\lambda 1[x_1^{F,\neq x0}$ *thinks* $\lambda 4\lambda 2[x_2^{F,\neq}$ *has a nice voice*]]]

Interpretation:

Mary self-ascribes the property of having a nice voice, and the others don't.

b.   'De re' LF, where the 'res' is bound by the subject

[*only Mary* $\lambda 1[x_1^{F,\neq x0}$ *thinks*$^{DE\text{-}RE}$ $\lambda 4\lambda 2[x_1^{F,\neq x0}$ *has a nice voice*]]]

Interpretation:

Mary has the property [$\lambda x'$. x' ascribes to x' the property of having a nice voice, under some acquaintance relation], and the others don't.

c.   'De re' LF, where the 'res' is free

[*only Mary* $\lambda 1[x_1^{F,\neq x0}$ *thinks*$^{DE\text{-}RE}$ $\lambda 4\lambda 2[x_5^{F,\neq x0}$ *has a nice voice*]]]

Interpretation:

Mary has the property [$\lambda x'$. x' ascribes to Mary (=the referent of $x_5^{3F,\neq 0}$) the property of having a nice voice, under some acquaintance relation], and the others don't.

(41a) is true in Scenario 1 in (40) because Mary is the only one who says: "I have a nice voice."

(41b) is false because Mary attributes the property of having a nice voice to herself under the acquaintance relation of identity, but Sally also attributes to herself this property, though under another acquaintance relation (maybe, [$\lambda w\lambda x\lambda t\lambda x'$. x hears the voice of x' on tape in w at t]). Likewise, (41c) is false because Mary attributes to Mary the property of having a nice voice under the acquaintance relation of identity, but Jen also attributes this property to Mary, though under another acquaintance relation.

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[26] In point of fact (see Footnote 25), $x_1^{F,\neq x0}$ should be replaced with the "null" pronoun, since the group in Scenario 1 may include males, and may include the speaker.

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Since we judge (39) as true, the only possible explanation is that the grammar generates (41a), and this means that *she* can be a "null" pronoun in SID.

A possible objection (Irene Heim, p.c.; see also Percus and Sauerland) to this conclusion might be this. The theory of 'de re' reports that is assumed here has the acquaintance relation introduced by an existential quantifier "under" *only*. But what if we assumed that the acquaintance relation is introduced by a "high" existential (or, alternatively, that it is presupposed)? In that case, the interpretation of the LF in (41b) might come out true in Scenario 1. A "low" existential analysis is the one given above, and a "high" existential analysis would yield the following truth conditions: "there is an acquaintance relation R such that x attributes to x, under R, the property of having a nice voice and the others don't". Since Mary and Sally attribute to themselves the relevant property under different acquaintance relations, this comes out true. So for the argument to hold, we have to rule out the "high" existential analysis. Indeed, Percus and Sauerland attempt to do precisely that. In the spirit of their attempt, let us evaluate (39) against a different background.

(42)   Scenario 2.

Mary, Sally, and Jen are at a recording studio. Mary listens to a recording of her own voice, doesn't recognize it and likes it. Sally also listens to a recording of her own voice, likewise doesn't recognize it and likes it. Jen listens to a recording of Mary's voice and likes it.

Here is what the women say to themselves:

Mary: "This woman has a nice voice today!"

Sally: "This woman has a nice voice today!"

Jen: "Mary has a nice voice today!"

If (39) is intuitively false, we need to rule out the possibility that the acquaintance relation is introduced "above" *only*.

From our perspective, there are two problems with this argument. First, intuitions about (39) when judged against Scenario 2 are not as clear as they are when it is judged against Scenario 1. Secondly, and perhaps more importantly, it is very hard to apply this argument to FID because it is hard to use *only* in the same way, as the oddity of (43) shows.

(43)　　She had a nice voice today(, only Mary thought).

　　　　　　　　Original thought: "I have a nice voice today."

The best corresponding sentence I have been able to come up with is (44).

(44)　　She had a nice voice today. Only Mary had this thought.

I find that judgments regarding the interpretation of *this thought* are too vague to take the sentence as evidence for "null" personal pronouns.

5.3. Second attempt: eliminating the 'de re' option

I believe that the only evidence for "null" personal pronouns in FID is indirect. I show below that free 3rd person pronouns (just like free temporal pronouns, see section 4 above) in FID cannot be interpreted 'de re'. Consequently, we cannot appeal to the 'de re' strategy to account for an interpretation of a 3rd person pronoun as the subject's "I", and the only possible options are that such a pronoun is either subject-oriented (a free pronoun not interpreted by the assignment supplied by the utterance context), or bound and presupposition-less (i.e., a "null" pronoun). In those cases where we can rule out the subject-oriented pronoun option, the only available option is the "null" pronoun option. The relevant example is (45), which involves a gender error on the subject's part (cf. Doron 1991). Consider this example against a background in which Mary is convinced she is a man.

(45)　　She would make an excellent bishop(, thought Mary).

　　　　　　　　Original thought: "I will/would make an excellent bishop"

On the one hand, *she* cannot be interpreted 'de re' (since FID doesn't have 'de re' personal pronouns, as we will soon see). On the other hand, *she* cannot be a subject-oriented pronoun (because Mary thinks she is a man, and *she* carries the presupposition that the referent is a female). My conclusion is that in this particular example, *she* is a genuine "null" pronoun (i.e., a bound variable "stripped of" its presuppositions: (i) the presupposition that the denotation is a female; and (ii) the presupposition that it denote someone other than the "local" author).

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Let us, then, show that free pronouns in FID are not interpreted 'de re'. We show this using contrasts in the interpretation of pronouns in FID and SID with respect to gender errors, number errors, and Condition B/C effects. Starting with gender errors in SID, consider (46) and (47).

(46)   Bill wore a dress and make-up and John didn't realize that he was a man. He said that he/#she looked great and that he/#she was staring at him.

(47)   John looked at Bill and thought he saw a woman. He said that he/she looked great, and that he/she was staring at him.

(48)   Original utterance: "She looks great and she is staring at me."

While in the SID in (46) *he* can be used to refer to Bill, but *she* can't, in the SID in (47), both *he* and *she* may be used. The difference between (46) and (47) is that in the former the introductory sentence has the indefinite *a man*, and in the latter the introductory sentence has the indefinite *a woman*. Indefinites are known to be good antecedents of E-type pronouns. In the absence of a preceding indefinite, it is much harder (though admittedly not impossible) to license such a pronoun, as the following well-known contrast shows.

(49)   a.   John has a wife. We met her yesterday.

        b.   John is married. #We met her yesterday.

So, focusing on (46) (and ignoring the E-type option), we observe that *she* cannot be used to refer to Bill. This, I argue, is because the pronoun is interpreted 'de re' (as a semantic argument of the attitude verb); that is to say, from the point of view of the speaker, not the subject. The speaker (in this case, myself) knows that Bill is a man, and therefore cannot use *she* to refer to him.

Moving on to FID, consider (50) and (51).

(50)   John was convinced that Bill was a woman. Really, she/#he looked great(, he muttered), and she/#he was staring at him.

(51)   Bill wore a dress and make-up and John didn't realize that he was a man. Really, she/#he

         looked great(, he muttered), and she/#he was staring at him.

In contrast to the SID case, *he* cannot be used in FID, but *she* can. Just by looking at (50), we

might think that *she* is an E-type pronoun (because of the indefinite *a woman*) in the introductory

sentence. But (51), whose introductory sentence has the indefinite *a man*, which is still unable to

license *he* in the FID, shows that *she* in (50) is not an E-type pronoun. What happens here, just as

in the temporal pronoun case (see section 3) is that free pronouns in FID are not interpreted 'de

re'; rather they are subject-oriented. Since John thinks that Bill is a woman, it makes sense for

him to use *she*.

         On a par with the treatment of subject-oriented tenses, in Sharvit's system the contrast

between SID and FID is captured by the assumption that attitude verbs quantify over "narrow"

contexts, whereas the FID operator quantifies over "broad" contexts. 'De re' pronouns receive

their denotation from the assignment of the utterance context (which reflects the speaker's

beliefs about the members of the range of the assignment supplied by the utterance context).

Subject-oriented pronouns receive their denotation from the assignments of the "broad" contexts

which the FID operator quantifies over. Those assignments reflect the (possibly mistaken) beliefs

that the subject has regarding the individuals in their range.[27] Notice that $x_3^{M, \neq x0}$ is a speaker

oriented pronoun (and therefore it denotes some male that is not the speaker) in (52), but $x_3^{F, \neq x0}$ is

a subject-oriented pronoun (and it denotes some female that is not the subject) in (53).

(52)   LF of the second sentence in (46), with *he*.

         [*John says*$^{DE-RE}$ $\lambda 4 \lambda 1 [x_3^{M, \neq x0}$ *looks great*]]

         Interpretation, relative to an utterance context c and its assignment:

John attributes to assignment(c)($x_3^{M,\neq x0}$) (=Bill, who according to the speaker is a male) in world(c) at time(c) the individual property [$\lambda x\lambda t\lambda w$. x looks great in w], under some acquaintance relation, call it R (that is to say, for all narrow contexts c' (=<x',t',w'>) compatible with what John says in world(c) at time(c), the unique x" such that R(x")(t')(w')=True looks great in w' at t').

(53)   LF of the second sentence in (50), with *she*.

[*FID-John* $\lambda 4\lambda 1[x_3^{F,\neq x0}$ *looks great*]]

Interpretation, relative to an utterance context c and its assignment:

For all broad contexts c' compatible with what John believes in world(c) at time(c), assignment(c')($x_3^{F,\neq x0}$) (=Bill, who according to John is a female) looks great in world(c') at time(c').

Importantly, the observation that FID has no 'de re' pronouns helps us explain example (45) above, repeated below as (54a), against a background where Mary is convinced that she is a man (but we know she is a woman), and says to herself: "I would make an excellent bishop".

(54)   a.   She would make an excellent bishop(, thought Mary).

        b.   ##He would make an excellent bishop(, thought Mary).

Free pronouns in FID are subject-oriented. This is why *she* in (54a) has to be a "null" pronoun (whose presupposition that the "referent" is a female different from the author has been deleted). (54b) is odd, presumably because *he* is subject-oriented and Mary, like us, cannot use a 3rd person pronoun to think or talk about herself. The LF of (54a) is, then, this:

(55)   [*FID-Mary* $\lambda 4\lambda 1[x_1^{F}$ *would make a great bishop*]]

Interpretation, relative to an utterance context c and its assignment:

For all broad contexts c' compatible with what John believes in world(c) at time(c), author(c') would in world(c') at time(c') make a great bishop.

It is worth repeating that DD doesn't have "null" personal pronouns: all free occurrences of 3rd person pronouns are interpreted as referring to someone other than the subject (but see Footnote 22). The only way to report what Mary thought, using the DD technique, is to say something like: "Mary had this thought: 'I would make an excellent bishop'."

To complete the picture, let us look at some additional examples that show how FID and SID contrast with respect to free pronouns (see also Guerzoni 2005). (56)-(59) show how they contrast with respect to the use of *it* and *him* when the subject mistakenly believes that a doll is human.

(56)　Mary looked at the doll and didn't realize that it wasn't a human body. She told the woman next to her that she had seen it/#him before.

(57)　Mary looked at the doll and thought she was looking at a child. She told the woman next to her that she had seen it/him before.

(*him* is E-type, thanks to the licensing indefinite *a child*)

(58)　Mary looked at the doll and didn't realize that it was not a human body. She leaned towards the woman standing next to her. Really, she had seen him/#it before(, she said).

(59)　Mary looked at the blanket and thought she was looking at a child. She leaned towards the woman standing next to her. Really, she had seen him/#it before(, she said).

(60)　Original utterance: "I have seen him before."

Examples (61)-(62) illustrate number errors, which, like gender errors, are reflected differently in FID vs. SID.

(61)　Mary looked at the blanket and didn't realize that the peeping feet and head belonged to two different boys.

　　a.　She wondered whether they were my kids / #he was my kid.

　　b.　Was he my kid(, she wondered).

　　c.　#Were they my kids(, she wondered).

Original question: "Is this this woman's kid?"

(62)   Mary looked at the blanket and thought that the peeping feet and head belonged to one single boy. She wondered whether he was my kid.

(*he* is E-type, thanks to the licensing indefinite *a single boy*)

Finally, let us look at some examples that illustrate BT effects in SID vs. FID. As is well-known, Condition B of BT ensures that *He likes him* usually cannot be used to mean 'John likes John'. Neither can *He likes John* (Condition C). Now consider (63)-(65) against a scenario in which Mary is holding John's blood sample in one hand and a picture of John in the other hand.[28]

(63)   She didn't realize that the blood sample was John's. #She asked whether (I thought) he had infected him/John.

(64)   She didn't realize that the blood sample was John's. Did I think he infected him/John(, she asked).

(65)   She thought that the blood sample was someone else's. She asked whether (I thought that) he had infected him.

(66)   Original question: "Do you think this guy infected that guy"?

The SID in (63) has a Condition B violation: both occurrences of *he* are interpreted 'de re' (i.e., as arguments of *ask*), and therefore cannot be coreferential (like the argument of *like* in *He likes him*), but according to the utterance context, they are. Similar reasoning explains why (63) has a condition C effect. But the FID in (64) doesn't violate either condition, because the pronouns are subject-oriented, and according to Mary the referent of the first occurrence of *he* is not the same as the referent of the second occurrence (and not the same as John). (65) shows that if the introductory sentence contains a suitable indefinite, the violations in the SID disappear, because one of the pronoun can be E-type, with the indefinite as its antecedent.

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[28] It is important to read these examples without any focus or phonetic emphasis on the pronouns; these tend to obviate Conditions B/C effects.

6.   Summary

The purpose of this paper has been to restate the puzzle of FID in more precise terms. While it has been known for a long time that FID has properties characteristic of quotation as well as properties characteristic of embedding, the problem hasn't been stated with enough precision to understand why it is so hard to solve. To the best of my understanding, the problem is this. Since there is direct evidence in the temporal domain, and indirect evidence in the person domain, that FID has "null" pronouns (bound pronouns with "deleted" presuppositions), and since "null" pronouns require a syntactic licensor, this calls for an analysis that assumes an underlying attitude-verb-like operator (such as the analysis in Sharvit 2004). Furthermore, further research would help better understand the puzzle if, for example, we had access to instances of FID in languages that have overt "logophoric" pronouns (pronouns that can function only 'de se'; that is to say, they play the role of "null" pronouns in embedded environment but cannot appear in matrix environments). If "logophoric" pronouns are allowed in FID but not in DD in these languages, this would show more clearly how different FID is from DD. On the other hand, the obligatory quotation properties of FID call for an analysis that would predict FID to look like quotation as much as possible (this is what is attempted in Schlenker 2004), and positing an attitude-verb-like operator (a syntactic licensor of feature deletion) in the syntax of FID conflicts with that, because DD doesn't have "null" pronouns. If all instances of pronouns that are understood as the subject's "now" and pronouns that are understood as the subject's "I" could be accounted for using some 'de re' mechanism, the problem would be easier to solve (in fact, Schlenker's suggestion to incorporate a 'de re' mechanism into a quotation mechanism would have dealt nicely with the problem). But given that (i) not all such instances lend themselves to a 'de re' analysis, even in SID; and (ii) FID doesn't have 'de re' pronouns at all, such a solution is not a viable option. Now that the puzzle is stated in clearer terms, it is my hope

that further research on the topic would bring us closer to a satisfactory theory of FID, one that accounts for its seemingly conflicting properties.

Appendix

Some interpretation rules and lexical entries assumed in sections 3-5.

(a)　　If α is a root node, then $[\![\alpha]\!]^{w,c,C,g}$ is defined only if C is the utterance context, c=C, w is the world of c, and g the variable assignment supplied by c.

(b)　　If α is a variable (pronoun or trace), j an index, and β a feature, then when defined, $[\![\alpha_j]\!]^{w,c,C,g} = g(\alpha_j)$ and $[\![\alpha_j{}^{\beta}]\!]^{w,c,C,g} = g(\alpha_j)$.

(c)　　i.　　$[\![t_k]\!]^{w,c,C,g}$ and $[\![t_k{}^{\leftarrow}]\!]^{w,c,C,g}$ are defined only if $g(t_k)$ is a time.

　　　　ii.　　$[\![t_k{}^{<tj}]\!]^{w,c,C,g}$ is defined only if $[\![t_k]\!]^{w,c,C,g}$ and $[\![t_j]\!]^{w,c,C,g}$ are, and $[\![t_k]\!]^{w,c,C,g}$ precedes $[\![t_j]\!]^{w,c,C,g}$.

　　　　iii.　　$[\![t_0]\!]^{w,c,C,g}$ is defined only if $g(t_0) = \text{time}(c)$.

(d)　　i.　　$[\![x_k]\!]^{w,c,C,g}$ and $[\![x_k{}^{M=}]\!]^{w,c,C,g}$ are defined only if $g(x_k)$ is an individual.

　　　　ii.　　$[\![x_k{}^{M,\neq xj}]\!]^{w,c,C,g}$ is defined only if $[\![x_k]\!]^{w,c,C,g}$ and $[\![x_j]\!]^{w,c,C,g}$ are, and $[\![x_k]\!]^{w,c,C,g}$ is male, and $[\![x_k]\!]^{w,c,C,g} \neq [\![x_j]\!]^{w,c,C,g}$.

　　　　iii.　　$[\![x_0]\!]^{w,c,C,g}$ is defined only if $g(t_0) = \text{author}(C)$ (=the speaker)

(e)　　$[\![think]\!]^{w,c,C,g}(t)(p)(x)$ = True iff for all narrow contexts c' (=<w',t',x'>) compatible with what x thinks in w at t, p(w')(t')(x')=True (where p is a function from world-time-individual triples to truth values, t is a time, and x is an individual).

(f)　　$[\![think^{DE\text{-}RE}]\!]^{w,c,C,g}(a)(t)(P)(x)$ = True iff there is an acquaintance relation R such that: (i) a is the unique a' such that R(w)(t)(a')(x) = True; and (ii) for all contexts c' (=<w',t'x'>) compatible with what x thinks in w at t, P(w')(the unique a' such that

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R(w')(t')(a')(x')=True)(t')(x')=True (where P is a function from pairs of worlds and objects of the type of a to functions from time-individual pairs to truth values).

(g) $[[FID]]^{w,c,C,g}$(t)(x)(f) is defined only if all broad contexts c' (=<w',t',x',g'>) compatible with what x believes/says in w at t are compatible with c relative to <w,t,x> (i.e., only if for every γ in Dom(assignment(c')) there is a suitable acquaintance relation Kγ, such that:

i. assignment(c)(γ) is the unique u such that Kγ(w)(t)(x)(u) = True; and

ii. assignment(c')(γ) is the unique u such that Kγ(world(c'))(time(c'))(author(c'))(u) = True.

Whenever defined, $[[FID]]^{w,c,C,g}$(t)(x)(f) = True iff for all world-context-assignment triples <w',c',g'> such that c' is a broad context compatible with what x believes/says in w at t, w'=world(c'), and g'=assignment(c'), f(w')(c')(g')(time(c'))(author(c'))=True (where f is a function from triples of worlds, broad contexts and assignments to functions from time-individual pairs to truth values).

(h) IFA

i. For complement clauses of attitude verbs:
    If α is a branching node whose daughters are β,γ and [λw'. $[[γ]]^{w',c,C,g}$] is in the domain of $[[β]]^{w,c,C,g}$, then $[[α]]^{w,c,C,g} = [[β]]^{w,c,C,g}$([λw'. $[[γ]]^{w',c,C,g}$]).

ii. For complement clauses of *FID*:
    If α is a branching node whose daughters are β,γ and [λw'λc'λg'. $[[γ]]^{w',c',C,g'}$] is in the domain of $[[β]]^{w,c,C,g}$, then $[[α]]^{w,c,C,g} = [[β]]^{w,c,C,g}$([λw'λc'λg'. $[[γ]]^{w',c',C,g'}$]).

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