EMBEDDED TENSE AND UNIVERSAL GRAMMAR

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Languages that allow a ''vacuous'' past tense morpheme in complement clauses of attitude verbs are referred to as SOT (sequence-of-tense) languages, and languages that do not are referred to as non-SOT languages. This squib observes that quite generally, if in a given language the present tense morpheme obligatorily refers to the utterance time in present-under-past sentences, that language allows a ''vacuous'' past. I show that in order to account for this correlation, any theory of SOT has to be supplemented with a principle of Universal Grammar that requires every well-formed matrix sentence to be ''embeddable'' under a propositional attitude verb. I call this principle the *Embeddability Principle.*

1 The Problem: What Language Types Are There?

SOT languages, of which English is a good example, are characterized by two facts: (a) past-under-past sentences (i.e., sentences where a past tense morpheme appears embedded under a propositional attitude verb, itself attached to a past tense morpheme) may receive an interpretation according to which the embedded past is semantically nonpast (sometimes in addition to an interpretation according to which the embedded past is a ''real'' past, and conveys a meaning of anteriority); (b) present-under-past sentences (i.e., sentences where a present tense morpheme appears embedded under a propositional attitude verb attached to a past tense morpheme) may receive only a ''double access'' interpretation. (1) (inspired by an example from Abusch 1997) and (2) (an example cited by Enç (1987) and others) illustrate the first phenomenon; (3) illustrates the second.

(1) A week ago, John decided that in ten days, at breakfast, he would tell his mother that he missed her.
Nonpast reading
John: ''Mother, I miss you.''
(The time of the alleged telling occurs after John's ''now'' and overlaps the time of the alleged missing.)
Anteriority reading
John: ''Mother, I missed you.''
(The time of the alleged telling occurs after John's ''now'' and after the time of the alleged missing.)

(2) John believed that Mary was pregnant.
Nonpast reading
John's belief: ''Mary is pregnant.''
(The time of the alleged pregnancy overlaps John's ''now.'')

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Anteriority reading
John's belief: ''Mary was pregnant.''
(The time of the alleged pregnancy precedes John's ''now.'')

(3) John believed that Mary is pregnant.
Double access reading
The time of the alleged pregnancy contains the time of John's believing state and the utterance time.

A nonpast reading is unavailable for (3). The difference between the nonpast reading and the double access reading is further illustrated by the following contrast:

(4) a. Two years ago, Sally found out that Mary was pregnant.
b. #Two years ago, Sally found out that Mary is pregnant.

The acceptability of (4a) comes from the fact that it has a nonpast reading (according to which the pregnancy time overlaps the finding-out time). The oddity of (4b) comes from the fact that it requires the pregnancy time to contain both the finding-out time and the utterance time. This conflicts with what we know about the duration of pregnancies. In short, a past tense morpheme in embedded sentences may play a role different from the one it plays in matrix sentences, where it always conveys anteriority. In embedded sentences, a past tense can function as a zero tense—referring to the time where the holder of the attitude locates herself (or her ''now,'' as Abusch calls it informally).

Non-SOT languages, of which Hebrew is a good example, are characterized by the following two properties: (a) present-under-past sentences receive the same nonpast reading that the corresponding past-under-past sentences, in an SOT language, receive; and (b) past-under-past sentences can only have an anteriority reading. (5), which has a nonpast reading, and (6), which only has an anteriority reading, show this.

(5) Lifney šavua, Dan hexlit še be'od asara yamim,
before week Dan decide-PAST that in ten days
bizman aruxat ha-boker, hu yomar le-imo še
at-time the-breakfast he will-tell to-his-mother that
hu mitga'agea ele-ha.
he miss-PRES to-her

(6) Lifney šavua, Dan hexlit še be'od asara yamim,
before week Dan decide-PAST that in ten days
bizman aruxat ha-boker, hu yomar le-imo še
at-time the-breakfast he will-tell to-his-mother that
hu hitga'agea ele-ha.
he miss-PAST to-her

No theory of SOT that I am aware of predicts the right typology of languages, unless some additional assumptions are made. I demonstrate this below by briefly sketching the essentials of one theory: the

Deletion Theory, due to Ogihara (1996) and von Stechow (1995, 2002) (in this brief summary, I am obviously not being entirely faithful to either of these authors, but I think I am being faithful to the spirit of their proposals). My decision to focus on this theory is driven by my feeling that it is easy to demonstrate, within this framework, what the typological problem is. With the exception of the Null Tense Theory (due to Kratzer (1998) and Schlenker (1999), which I mention briefly in section 3), I do not discuss other theories of tense at all. This is because, as far as I can tell, these theories all face a similar typological problem.

The Deletion Theory treats language variation regarding SOT as a parametric variation. Accordingly, an SOT language is a language that has an SOT rule, which says the following: when a tense morpheme is c-commanded by an agreeing tense morpheme (attached to an intensional predicate), it may be deleted at LF. A deleted tense morpheme is interpreted as a bound variable, bound by a λ-operator. In a past-under-past sentence, the resulting interpretation is one where the embedded past is semantically nonpast. For example, the LF expression (hereafter, LF) underlying the nonpast reading of (1) looks like this. The C of the complement of *decide* contains a λ-operator that binds the ''deleted'' past attached to the modal *will.* A deleted past is represented as 0—a distinguished pronominal variable that, when free, denotes the utterance time, and when bound, denotes a relative ''now'' (see Heim 1994). *Will* itself takes as its argument a λ-abstract, where the λ-operator binds a (base-generated) zero tense variable attached to *tell* (the base-generated zero tense is licensed by the modal *will* (see Heim 1994); zero tenses cannot be base-generated freely in English, without a proper licenser). The C of the complement of *tell* contains a λ-operator that binds the ''deleted'' past attached to *miss.*

(7) [*John* Past *decide* λ0[*he* 0-*will* λ0[0-*tell his mother* λ0[*he* 0-*miss her*]]]]

The first zero tense (the one attached to *will*) is interpreted as the present relative to John (John's ''now''). The second zero tense (the one attached to *tell*) is interpreted as some time in the future relative to John's ''now,'' and the third zero tense (the one attached to *miss*) is interpreted as the same time. Every expression of the form λ0[. . . 0 . . .] in (7) denotes a proposition (i.e., a function from times, or time intervals, to truth values[1]). Together with the assumption that *decide*/*tell* and *will* have the lexical entries in (8) and (9), respectively, we get the interpretation in (10) ($[\![\alpha]\!]$ is the denotation of α).

[1] In a more traditional sense, a proposition is a function from world-time pairs to truth values. I ignore possible worlds here just to keep the semantics as simple as possible.

(8) For any proposition p, individual x, and time t, ⟦*decide/tell*⟧(p)(x)(t) = True iff for all times t′ compatible with what x decides/tells at t, p(t′) = True.

(9) For any proposition p and time t, ⟦*will*⟧(p)(t) = True iff there is a time t′ after t such that p(t′) = True.

(10) For all times t′ compatible with what John decides at some time before the utterance time, there is a time t″ after t′, such that John tells his mother at t″ that he misses her at t″.

Now, since Tense Deletion occurs only under agreement, no deletion can take place in (3). Without Tense Deletion, the sentence cannot receive an interpretation comparable to a nonpast interpretation, because the English present tense morpheme cannot receive a bound variable interpretation (unless it is c-commanded by a higher agreeing tense morpheme—that is to say, Pres—and deleted under agreement by the SOT rule).

A non-SOT language is a language that lacks the SOT rule. But in the non-SOT language Hebrew, for example, the present tense morpheme *can* receive a bound variable interpretation in present-under-past sentences. The result is that (5) can have the LF in (7) (and receive the interpretation in (10)), but (6) cannot. In (6), the embedded past tense is interpreted as a ''real'' past (and as such, refers to a time prior to the time of the alleged telling). In sum, in complement clauses, the Hebrew present tense morpheme plays the same role that a deleted past plays in English.

The Deletion Theory accounts nicely for the (un)availability of nonpast readings in past-under-past sentences across languages, but it does not account for the correlation between the availability of nonpast readings in past-under-past sentences and a property that I call, following Schlenker (1999), *matrix indexicality* of the present tense morpheme. In some languages, a present tense morpheme in present-under-past sentences must refer to the utterance time. English is such a language, as shown by (3)–(4). But then English is also an SOT language. Hebrew, which is a non-SOT language, has a present tense morpheme that is not a matrix indexical: that is to say, it may be interpreted as a bound variable without having to undergo Tense Deletion under agreement. It seems that there is a correlation between the presence/absence of a matrix indexical present tense morpheme in a language and the presence/absence of an SOT rule. This correlation is not accounted for by the Deletion Theory, which predicts the following typology of languages (or, more accurately, of languages that have tenses):[2]

[2] This is not entirely accurate. Schlenker (1999, 2003), citing Kusumoto 1998, considers the possibility that some languages have a ''logophoric'' tense morpheme, which appears only in a complement of an intensional predicate. This would make the typology more complicated. I ignore this complication here as it does not affect my central claim.

(11) *Type 1:* SOT rule; present-under-past must refer to the utterance time.

Type 2: No SOT rule; present-under-past need not refer to the utterance time.

Type 3: SOT rule; present-under-past need not refer to the utterance time.

Type 4: No SOT rule; present-under-past must refer to the utterance time.

As we saw, English is a type 1 language, and Hebrew a type 2 language. A good example of a type 3 language is probably Modern Greek. Apparently, in Modern Greek, both past-under-past sentences and present-under-past sentences can have nonpast readings (Schlenker 1999; Sabine Iatridou, personal communication).[3]

(12) a. To 1963 o Kostas mas ipe oti i Maria ine
the 1963 the Kostas us told that the Maria is
eggios.
pregnant

b. To 1963 o Kostas mas ipe oti i Maria itan
the 1963 the Kostas us told that the Maria was
eggios.
pregnant

Within the Deletion Theory, this may be explained by the assumption that Modern Greek has an SOT rule *and* a present tense morpheme that is not a matrix indexical.

What would a type 4 language look like? The lack of an SOT rule would prevent past-under-past sentences from receiving a nonpast reading. The obligatory interpretation of the present tense morpheme as referring to the utterance time in present-under-past sentences would prevent such sentences from receiving a nonpast reading. In short, there would be no way to express the proposition expressed by the English (1) in a type 4 language. The only way to convey the idea expressed by such a sentence, in such a language, would be via direct discourse (e.g., ''John made the following decision: 'I will say to my mother, ''I miss you''.' ''). To the best of my knowledge, there are no type 4 languages in the inventory of natural languages.

2 The Embeddability Principle

I argue that type 4 languages cannot exist, because they are excluded by the *Embeddability Principle* (EP).

[3] Even in the non-SOT languages Hebrew and Japanese, a past-under-past sentence may sometimes receive a nonpast reading when the embedding verb is factive. What makes Hebrew and Japanese genuinely different from Modern Greek is the fact that in the latter, as shown by (12b), the matrix verb does not have to be factive for the nonpast reading to arise.

(13) *Embeddability Principle*
If A is a well-formed LF of a matrix sentence, then there is an A′ such that A and A′ match in content, and [NP Tense V A′] is also a well-formed LF (where *V* is a suitable attitude verb and *Tense* is Past or Pres).

Taking ''Mary is pregnant'' as the sentence corresponding to A, the EP demands that it be embeddable under an attitude verb attached to any tense morpheme. This means that any language where the LF [*Mary* Pres *be pregnant*] is a well-formed LF of a matrix clause, must also provide the following LF:

(14) [*John* PAST *believe* λ0[*Mary* 0-be *pregnant*]]

Since a present morpheme under a past morpheme in English must refer to the utterance time, the way English supplies such an LF is via the SOT rule. Since Hebrew does not have an SOT rule, it supplies such an LF via its present tense morpheme (which can be a bound variable, even under past). Any language of type 4 would violate the EP.

Notice that the EP does not require A and A′ to be identical (in fact, in the example just discussed, they are not). They are required to ''match in content.'' By this I mean that they stand in a certain syntactic and semantic relation to each other. This relation is spelled out more clearly in the slightly more formal version of the EP given in (15). $[\![\alpha]\!]^c$ is the denotation of α relative to context c. A context includes a speaker, a time, and possibly other parameters (such as an addressee, a world, and a location).

(15) For any matrix clause S, if S has a well-formed tensed LF, S_{LF}, and $[\![S_{LF}]\!]^c$ is a truth value for any context c, then there is an LF expression Y such that (a) S_{LF} and Y match in content, and (b) [NP Tense V Y] is always a well-formed matrix LF (where V is a suitable attitude verb, $[\![NP]\!]^c$ is an attitude holder, and Tense immediately dominates Past or Pres).

(S_{LF} and Y *match in content* iff Y is of the form [λ0[β]], where β is tensed, and its Tense node dominates a free occurrence of 0; and for any c there is a time t such that t is (possibly nonproperly) included in the time of c, and $[\![S_{LF}]\!]^c = [\![Y]\!]^c(t)$.)

Let us take ''Mary is pregnant'' as our S. Its LF is [*Mary* Pres *be pregnant*], and it denotes a truth value in every context c (True if Mary is pregnant at some time overlapping the time of c; False otherwise). The EP requires that there be an LF Y matching S in content. [λ0[*Mary* [$_{Tense}$ 0] *be pregnant*]] is such, because [*Mary* [$_{Tense}$ 0] *be pregnant*] is tensed, and its Tense node dominates a free occurrence of 0; and for any c there is a time t (possibly nonproperly) included in the time of c, such that $[\![$*Mary* Pres *be pregnant*$]\!]^c = [\![$λ0[*Mary*

[$_{\text{Tense}}$ 0] *be pregnant*]]^{c}(t). Furthermore, [NP [$_{\text{Tense}}$ Past/Pres] V [λ0[*Mary* [$_{\text{Tense}}$ 0] *be pregnant*]]] is a well-formed matrix LF, for any suitable V and NP.[4]

In an SOT language such as English, where Tense Deletion may occur under agreement, the embedded zero tense is a deleted tense. In a non-SOT language such as Hebrew, where the present tense morpheme is not matrix indexical, the embedded zero tense is a present tense morpheme. Modern Greek, which seems to have an SOT rule *and* a present tense morpheme that is not matrix indexical, presumably has both options. But in a language that does not allow an embedded tense to delete and at the same time requires its present tense to always refer to the utterance time, ''Mary is pregnant'' is unembeddable (i.e., [NP [$_{\text{Tense}}$ Past/Pres] V [λ0[*Mary* [$_{\text{Tense}}$ 0] *be pregnant*]]] is not well formed).

To account for the embeddability of ''Mary was pregnant'' (e.g., *John believes/believed that Mary was pregnant (when she was nineteen),* in its anteriority reading), I assume with von Stechow (1995) that an undeleted past tense morpheme takes *0* as one of its arguments. [*Mary* Past$_0$ *be pregnant*] is, then, the LF of ''Mary was pregnant'' (denoting True in context c iff there is a time t preceding the time of c such that Mary is pregnant at t), and [λ0[*Mary* [$_{\text{Tense}}$ Past$_0$] *be pregnant*]] (where the Tense node dominates a free occurrence of 0) is a Y matching it in content. [NP Past/Pres V [λ0[*Mary* [$_{\text{Tense}}$ Past$_0$] *be pregnant*]] is a well-formed matrix LF, as required.

The claim, or observation, that a complement clause matches its corresponding matrix clause in content is of course not new, and is made in many places in the literature (perhaps most explicitly in Ogihara 1996, Higginbotham 1993, 2002, Schlenker 2003, and von Stechow 2002). What is new about the EP is the requirement it imposes on every language to provide the syntactic means for embedding a well-formed matrix clause.

There are various ways in which the EP can be further explored (most of which I cannot discuss for reasons of space). For example, although the EP correctly predicts ''Mary was pregnant'' to be embeddable, it does not automatically explain why English speakers often prefer *John believed that Mary had been pregnant* (with the pluperfect) to *John believed that Mary was pregnant* (in its anteriority reading). The explanation for this fact may end up outside the scope of the EP, but in any event I think that it ultimately depends on the exact analysis of the pluperfect—an issue I don't take up here (for discussion, see Schlenker 1999 and von Stechow 2002). It is also quite possible, as suggested to me by an anonymous *LI* reviewer, that a reformulation

[4] A more accurate formulation of the EP would involve (a) letting sentences have structured meanings, to avoid familiar problems of the kind discussed by, for example, Cresswell and von Stechow (1982) (e.g., to prevent [*Mary* Pres *be Mary*] and [λ0[*Bill* 0-*be Bill*]] from qualifying as matching in content); and (b) allowing S to be a question.

of the EP as a purely semantic principle will account more straightforwardly for this fact.

In the next section, I claim that the EP covers the person domain as well. This claim entails some amendments in the formalization of the EP. I do not spell out these amendments, because they are fairly technical, and the point should be clear without them.

3 Personal Pronoun Deletion

Consider the well-known example in (16).

(16) Kaplan believes that his pants are on fire.

(16) has a *de re* reading (according to which Kaplan believes of Kaplan that his pants are on fire, without necessarily realizing that he is that individual) and a *de se* reading (according to which Kaplan attributes to himself the property of having one's pants on fire). In the second reading, *he* refers to the believer's ''self.''

(17) a. *De re*
Kaplan's belief: ''This guy's pants are on fire.''
b. *De se*
Kaplan's belief: ''My pants are on fire.''

According to some theories (along the lines proposed in Chierchia 1989, among others), in the *de se* reading of the Kaplan sentence, *he* is interpreted as a bound variable, bound by a λ-operator in the C of the embedded clause. This reading is reminiscent of the nonpast reading of *John believed that Mary was pregnant.* The similarity between embedded tenses and embedded personal pronouns has been discussed extensively in the literature (e.g., Lewis 1979, Abusch 1997, von Stechow 1995, Ogihara 1996, Kratzer 1998, Schlenker 2003). In fact, the theory advocated above, according to which a ''vacuous'' past tense is a bound zero tense, treats a ''vacuous'' past tense as a *de se* pronoun.

Schlenker (1999, 2003) notes that in some languages (e.g., Amharic), *de se* personal pronouns have the morphological shape of the 1st person pronoun (and not the 3rd person pronoun, as English does). If we were to extend the Deletion Theory to personal pronouns, we would say the following: English has Personal Pronoun Deletion under agreement (*John* agrees with *he* since both are 3rd person masculine), but its 1st person pronoun is matrix indexical (it refers to the speaker, even in complement clauses). Amharic does not have Personal Pronoun Deletion, but instead its 1st person pronoun is not matrix indexical.

If we were to reformulate the EP accordingly, we would state it in such a way that it would require every language to provide a zero pronoun. For example, taking ''My pants are on fire'' as our S, the EP, properly stated, would require the existence of the following (embedded) LF:

(18) [$\lambda 0_{person} \lambda 0_{tense} [0_{person}$'s *pants* 0_{tense}-*be on fire*]]

This expression may indeed be the LF complement of an attitude verb, as in the LF underlying (19), where both the embedded Past and *his* may be interpreted *de se* (i.e., as referring to the believer's ''now'' and the believer's ''self,'' respectively).

(19) Kaplan believed that his pants were on fire.

In English, this interpretation is obtained via ''deletion'' of the embedded past and the embedded *he.*

But does the ambiguity of (16) (and (19)) really show that the EP should be extended in the way just described? The answer is not obvious, because the *de re* reading of, say, (16) does not require Kaplan to be unaware of the fact that he is the guy whose pants are supposedly on fire. In other words, the *de re* reading could be used to report Kaplan's *de re* belief about himself under the acquaintance relation of identity (see Lewis 1979; see also Reinhart 1990). Notice, however, that a similar claim cannot be made regarding (1). As Abusch (1997) shows, a *de re* interpretation of the most deeply embedded past tense morpheme in (1) would not yield the right reading, as this morpheme, when unembedded, refers to a time prior to the time of the context. This is incompatible with the time at which John's conversation with his mother is understood to take place. So if we want to say that the EP should cover personal pronouns, we must provide an independent empirical argument.[5]

Free indirect discourse (FID) may provide such an argument. The term *FID* refers to a particular literary technique in which the point of view of a character in a story is conveyed neither by direct discourse (i.e., quotation) nor by indirect discourse (i.e., embedding under a verb of saying). (20), based on an example from Schlenker 1999, illustrates the phenomenon (see Banfield 1982 for discussion; see Doron 1991 for a formal analysis of FID). The second, third, and fourth sentences in (20) are an instance of FID.[6]

(20) ''Do you love me?'' asked Mary. Yes, he did. And he would definitely marry her. If not today, then a year from today. His voice trembled as he spoke, but it was true, John did love Mary.

[5] Percus and Sauerland (2002) argue that *de* se attitude reports (with personal pronouns) cannot always be reduced to *de re* reports. The pertinent judgments are not crystal clear, but if Percus and Sauerland are right, we may not need an additional argument for extending the EP to cover personal pronouns.

[6] We can tell that this is FID mainly because in FID contexts (unlike indirect discourse contexts), time adverbials are not interpreted relative to the utterance time. For example, *today,* in an FID environment, refers to the day surrounding the time of the story, not the day surrounding the time of telling the story. In the complement clause of an attitude verb, *today* refers to the day surrounding the utterance time.

If the writer had chosen to convey the character's response via direct discourse, it would instead read as follows (assuming that the male character is John):

(21) . . . John said, ''Yes, I do. And I will definitely marry you. If not today, then a year from today.'' His voice trembled as he spoke.

And if the writer had chosen to convey this via indirect discourse, it would read as in (22).

(22) . . . John said that he did and that he would definitely marry her, if not that day, then a year from that day. His voice trembled as he spoke.

The tense marking on *do* and on the modal *will* in the FID version in (20) matches the marking in the indirect discourse version in (22), rather than the marking in the direct discourse version in (21). But this is not true crosslinguistically. In Hebrew, the tense markings on *ohev* and *yitxaten* in the FID version match the marking in both the direct and indirect discourse versions (see Borer 1981 for an extensive discussion of Hebrew FID).

(23) Hu ohev ota, ve hu behexlet yitxaten ita. Im
he love-PRES her and he definitely will-marry her if
lo axšav, az be-od šana.
not now then in year

It seems that FID has much in common with attitude reports. English, an SOT language, has ''vacuous'' past tense in FID environments. Hebrew, a non-SOT language, does not have ''vacuous'' past tense in FID environments; instead, it uses the present tense. Both languages use the 3rd person pronoun in FID to ''stand for'' the character whose point of view is being reported. A *de re* interpretation of the personal pronoun—or any other expression—is unavailable in FID (if it were, the FID in (20) could imply that John implied that someone else loved Mary; but it can't). It therefore makes sense to say that both languages have a rule of Personal Pronoun Deletion. But my claim is stronger: I claim that every language has the syntactic means needed for the literary style FID, and that this is due to the EP, which covers the person domain in addition to the tense domain.

To account for the observed correlation between FID and attitude reports, I follow Schlenker (1999) and suggest that an FID sequence is prefixed by an FID operator. I treat it as a text-level operator. I argue that for the purpose of Tense and Personal Pronoun Deletion, the FID operator functions like an attitude verb. Accordingly, the LF of the English FID *he loved her* and the Hebrew FID *hu ohev ota* 'he loves her' is (24).

(24) $[\text{FID}_{\langle \textit{John, T, Mary} \rangle}\ [\lambda 0_{\text{speaker}} \lambda 0_{\text{tense}} \lambda 0_{\text{addressee}} [0_{\text{speaker}}\ 0_{\text{tense}}\ \textit{love}\ 0_{\text{addressee}}]]]$

The subscript of the FID operator denotes the context of the story, which is distinct from the context in which the story is told. $0_{speaker}$ is ''bound'' by *John,* which refers to the speaker of the context of the story; $0_{addressee}$ is ''bound'' by *Mary,* which refers to the addressee of the context of the story; and 0_{tense} is ''bound'' by *T,* which refers to the time of the context of the story. The time of the context of the story precedes the time of the context in which the story is told. So in English FID, *T* functions like a matrix past tense in English past-under-past sentences, in that it licenses Tense Deletion.[7] Similarly, *John* functions like the attitude holder in attitude reports, licensing deletion of *he,* and *Mary* licenses deletion of *her* (in English FID as well as Hebrew FID).

Tense Deletion in FID may seem very different from Tense Deletion in complements of attitude verbs, because in the cases discussed so far, the licenser was a tense morpheme, and not simply some expression denoting a past time (such as *T*). But as observed in Heim 1994 and Abusch 1997, an expression referring to a past time suffices to license deletion of an embedded past, even in attitude reports.

(25) Mary was a strange child. But her desire to marry a man who resembled her still surprises me.

It is the past time of the desire that licenses deletion of the past tense on *resemble,* and not a past tense morpheme (which is absent from the matrix clause). So deletion in an FID environment is, after all, not unlike deletion in attitude reports.

Finally, the semantics of the FID operator is given in (26a). Accordingly, the interpretation of (24) is the one in (26b).

(26) a. For any context c, any individuals x,y and any time t such that $\langle x,t,y\rangle \neq \langle$speaker-of-c, time-of-c, addressee-of-c$\rangle$, and any function f from individual-time-individual triples to truth values, $[\![\text{FID}]\!]^c$ $(\langle x,t,y\rangle)(f)$ = True iff for all times t′ compatible with what x says to y at t, $f(\langle x,t',y\rangle)$ = True.

b. For all times t′ compatible with what John says to Mary at the time denoted by *T,* John loves Mary at t′.

To sum up, FID potentially supplies an empirical argument for the claim that all languages have the syntactic means to express zero person (and an additional argument for the claim that they all have the syntactic means to express zero tense). If so, the EP should be reformulated so as to cover the person domain, and to ensure embeddability under the FID operator. The empirical claim itself is, of course,

[7] I do not discuss the interpretation of time adverbials in FID. Schlenker (2002) (following ideas in Banfield 1982 and Doron 1991) accounts for their interpretation by evaluating FID expressions relative to a context of thought and a context of speech. Presumably, time adverbials in FID are sensitive to one kind of context, and tense morphemes to another.

not easy to confirm or disconfirm. If in the literature of a certain community no instances of FID are found, it is hard to tell whether this is accidental or not. But if the EP is indeed part of Universal Grammar, the prediction is that any community that has some form of storytelling *can* have FID as a literary technique. Without the EP, we would predict there to be languages where FID is impossible in principle, for grammatical reasons.

Before concluding, I will briefly consider a different theory of SOT, which I call the *Null Tense Theory* (Kratzer 1998, Schlenker 1999). According to this theory, English ''vacuous'' past is not a deleted past, but a base-generated zero tense morpheme that is spelled out as Past when c-commanded by an agreeing tense morpheme (again, I am not being entirely faithful to either Kratzer or Schlenker here). This theory may account for embeddability by stipulating that every language must have a zero tense morpheme in its inventory. But the EP is still needed: without it, we would expect, for example, to find a language whose agreement system does not allow a zero tense to surface in any of the attested ways. In addition, we want to know *why* languages are required to have zero tenses at all. The EP provides an answer to this question: all languages are predicted to provide ''vacuous'' tenses (and ''vacuous'' personal pronouns), because they are all required to allow well-formed matrix sentences to be embeddable.

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