

On double access, cessation and parentheticality

A. Introduction: Arguably the biggest challenge in analyzing English tense is to account for the so-called double access interpretation, viz. (1) below, which arises when a present tensed verb is embedded under a past attitude. Present-under-past does not always result in felicitous sentences, however, viz. (2). While the oddity such as (2) has been noted, the contrast between (1) and (2) has never been explained. In fact, English grammars and manuals generally prohibit constructions like both (1) and (2). Work on double access, on the other hand, has either disregarded the oddity of (2) (e.g. Abusch 1997:39) or treated it as a reflex of a particular dialect (e.g. Kratzer 1998:14).

(1) *John said that Mary is pregnant.* (2) *#John believed that Mary is pregnant.*

B. Corpus data: Using the Parsed UK Web as Corpus (PukWaC)¹, we compared the frequency of present versus past tensed complements/matrix clauses for the 100 most frequent verbs that embed finite sentential complements. Out of 40,000+ sentences, past-under-past was the most frequent (11,000+); present-under-past and past-under-present had a similar number of occurrences (4,000+). Our corpus data suggest that double access is not a fringe phenomenon, which in turn raises the following two questions: (i) what is the source of the contrast between (1) and (2)? and (ii) why is past-under-past most frequent? We think that these two questions are related because they are intricately tied to two independently attested phenomena to which we now turn.

C. Cessation: Suppose I run into Sylva, and she shows me a picture, saying (3). I hence learn of Sylva's mom's ethnicity. I further infer that the mom is no longer Armenian (and hence dead; Musan 1997). This further inference, i.e. that no state of the kind described currently holds, is what Altshuler and Schwarzshild (2013) called *cessation*. It occurs with statives in some contexts, but not others, cf. (4), such as when the past tense is merely anaphoric to a previously introduced past time.

(3) *Here's my mom, she was Armenian.* (4) *I noticed a woman at the party. She was Armenian.*

D. Parenthetical attitudes: Imagine the scenario below, in (5). If I answer Peter's question with (1), then the 'main point' of my utterance is carried by the complement clause, and the matrix clause has *parenthetical* status (Urmson 1952, Hooper 1975), with Peter's claim playing an evidential role (Simons 2007). *Parentheticality* arises when the complement, rather than the matrix clause, is *at issue*. Although attitude reports are often used in this way, they need not be. When (1) is used as a response to "What did John do?", the matrix clause is what is at issue.

(5) *I ask John how Mary is doing. He replies: "Mary is pregnant." Later, Peter asks me the same question.*

E. Pragmatic clash: We propose that a conflict between *cessation* and *parentheticality* triggers infelicity in examples like (2). To see this, assume that (2) is an answer to Peter's question in (5). Then, analogous to the case just considered, the matrix would be *parenthetical*, serving as evidence for the content of the complement clause. Moreover, John would be understood to no longer hold the described belief at the time that (2) was uttered (*cessation*, as in (3)). Putting these observations together results in a pragmatic clash. On the one hand, the speaker of (2) uses John's past belief as evidence for the suggestion that Mary is pregnant. On the other hand, John's belief cannot be taken to be evidence since the speaker implies that it currently doesn't hold.

F. Parenthetical, eventive attitudes: A key prediction of our analysis is that a present tensed verb can always felicitously embed under a past attitude that is eventive since an eventive verb cannot give rise to cessation and without this, there could not be a pragmatic clash of the kind described. This explains why (1) is good even if it is used to reply to Peter's question in (5). This prediction is supported by our corpus data, where the majority of present under past cases occur with eventive attitudes. Looking at *say vs. believe/think* more specifically, only 0.5% of sentences with *thought* or *believed* take a present tense complement, compared to 36% of present tense complements under *said*.

¹ We chose to use PukWaC due to its size (~2 billion words) and its wide coverage.

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G. *At-issue attitudes with and without cessation:* Our analysis predicts that a present tensed complement could felicitously embed under a stative attitude that is not parenthetical and/or does not exemplify cessation. The 0.5% of the present-under-past sentences with *thought* or *believed* seem to be of this kind. For example, consider the discourse in (6), from PukWaC. The appositive suggests that the forerunner and his beliefs (i.e., the matrix clause) is what is at issue. Moreover, nothing is said about his *current* belief, i.e. there is no cessation. As a result, (6) is felicitous.

(6) *A forerunner of the intuitionist school, he believed that some mathematical induction is a priori and independent of logic, and emphasised the sub-conscious in the psychology of mathematical discovery and invention.*

In (7) (also from PukWaC), the adverb *previously* triggers cessation with *believed*. But it also shifts the focus on the matrix clause, which thereby carries the main point. The felicity of this example provides evidence for our analysis: cessation is not sufficient to trigger infelicity; only a parenthetical attitude with cessation results in a pragmatic clash.

(7) *Previously, scientists believed that one of the two X-chromosomes present in every cell of a female embryo is effectively 'shut down' early in development.*

We note that *used to* similarly triggers cessation and shifts the focus on the matrix clause: (2) becomes much better if we insert *used to*: *John used to believe that Mary is pregnant.*

H. *Parenthetical attitudes without cessation:* While our corpus data did not include parenthetical attitudes without cessation, our analysis predicts that they should be possible. The constructed dialogue in (8) is noticeably better than when (2) is used as a response to (5).

(8) A: *Where does Anna live nowadays?*

B: *I'm entirely not sure, but when I talked to him last month, my friend, John, believed that she lives in Norway.*

I. *The present tense:* We propose that, without contextual or grammatical cues to the contrary (e.g. *previously* or *used to*), the embedded present tense in examples like (2) biases the complement to carry the main point. It can also bias cessation in the matrix clause. We can make this idea more precise with the natural assumption that minimally, the semantics of the embedded present tense requires the topic time to hold throughout the speech time. Moreover, if we assume, following Altshuler 2008, that the matrix clause obtains at the topic time of the embedded clause without information to the contrary, we can explain why cessation is triggered with a past tensed, stative attitude verb: a matrix present could have been used, but it wasn't. Assuming that Present- ϕ asymmetrically entails Past- ϕ , cessation can be derived as a Gricean scalar implicature (Altshuler & Schwarzschild 2013).

This toy analysis also allows us to explain why past-under-past was most frequent in our corpus search. Compare (2) with (9) below. It seems quite unlikely that a topic time surrounding the speech time would be relevant for the past tenses in (9). Rather, a topic time that is entirely in the past is more likely to be relevant. As such, there would be no consideration of a present tensed alternative for *believed* and therefore no cessation. As such, there is no pragmatic clash in (9), which explains why it is judged much better than (2) and why it occurs more frequently than present under past.

(9) *John believed that Mary was pregnant.*

J. *Summary:* Aided by corpus data, we argued that double access is a well-attested phenomenon, and that its apparent marginality is due to the specific pragmatic conditions it requires. We proposed that what explains the oddity of sentences like (2) is a pragmatic clash between cessation and parentheticality.

References: Abusch, D. 1997. Sequence of Tense and Temporal de re. *Linguistics & Philosophy* 20 • Altshuler, D. 2008, Narrative effects in Russian indirect reports. *Proceedings of SALT 18* • Altshuler, D. & R. Schwarzschild. 2013. Correlating cessation and double access. *Proceedings of the 19th AC* • Hooper, J. 1975. On assertive predicates. *Syntax & Semantics* 4 • Musan, R. 1997. Tense, predicates, and lifetime effects. *Natural Language Semantics* 5:3 • Simons, M. 2007. Observations on embedding verbs, evidentiality, and presupposition. *Lingua* 117 • Urmson, J. 1952. Parenthetical verbs. *Mind* 61.