

Infinitival Complements and Tense

Problem: When an embedded past-tense relative clause is evaluated at a time between the matrix time and the speech time, Kusumoto (2005) calls this the “later-than-matrix” interpretation:

- (1) Hillary married a man who became the president of the U.S. (=Kusumoto’s 21)
- (2) [(1) can mean:] Hillary married a man. He later became the president of the U.S.

This reading poses a problem for a Priorian tense system, since the past tense on “became” should move the time for becoming president before the time for marrying. Consequently, proponents of the Priorian system (Ladusaw 1977, Ogihara 1996, Stowell 1993) have analyzed later-than-matrix interpretations as involving an LF in which the object DP QRs to a position above the matrix past tense where it is evaluated with respect to the speech time. Kusumoto calls this the “scope analysis.”

Some evidence for this approach comes from Abusch (1988), who points out that the temporal interpretation of some relative clauses in intensional contexts correlates with whether the object DP containing the relative clause is interpreted *de re* or *de dicto*:

- (3) The beachcomber looked for a necklace that sold for more than \$100.

If the DP headed by “a necklace” is interpreted *de dicto*, i.e., the beachcomber was looking for any necklace that sold for more than \$100, the selling must have taken place before the looking.

As Kusumoto (2005) points out, however, even some sentences where the DP is “trapped” below the matrix verb by a Negative Polarity Item in fact have a later-than-matrix reading. For instance, consider that I bet on the NCAA basketball “March Madness” tournament before it began. After the tournament, I can say:

- (4) I failed to pick any team that made the final four. (\approx 24b)
- (5) I managed not to pick any team that lost in the first round.

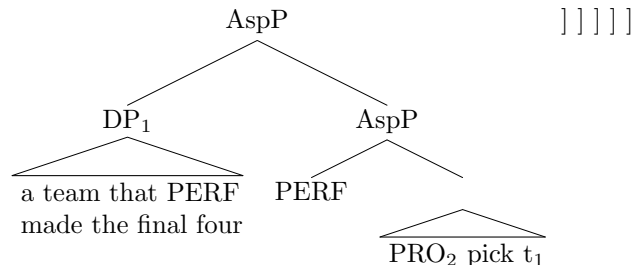
Based partly on this evidence, Kusumoto argues against the Priorian system and for one where explicit tense variables appear in the object language of semantic analysis. However, she admits that her system alone does not explain the generalization noticed by Abusch (1988). I argue for a version of the scope analysis that accounts for both the Abusch and the Kusumoto facts.

Proposal: I propose that sentences with infinitival clauses like those in (4) and (5) have an extra scope position as compared to sentences like (3) – the aspect on the infinitival verb – and this distinction accounts for the difference in their tense properties. I assume that infinitival complements do not contain tense, only aspect, which is perfective in these examples. The matrix sentence as a whole occurs during a time interval in the past, and the perfective aspect on the infinitive (“pick”) and on the verb of the relative clause (“lost” or “made”) selects a sub-interval of this matrix interval. As long as the object DP scopes above the infinitive’s aspect head, though, the time interval for the DP may differ from that of the infinitive, even if it remains below the matrix verb:

- (6) I managed to pick a team that made the final four.

(7) $[[\text{PERF } \phi]]^i = \exists i' \subset i . [[\phi]]^{i'}$

- (8) [PAST [I₂ [PERF [manage [



I assume that, under this reading, the past tense on “made” is purely due to sequence of tense (Abusch 1988, Ogihara 1996, Stowell 1993) and carries no actual meaning of anteriority. Given this analysis, the meaning for (6) comes out:

- (9) There’s a time interval i in the past in which I manage for there to be a team x such that there’s an interval $i' \subset i$ in which x makes the final four and there’s an interval $i'' \subset i$ in which I pick x .

Under this meaning, the relationship between the time of the picking and the time of the making the final four is unspecified, and therefore the later-than-matrix interpretation is possible. In a negative sentence, negation would appear right below the matrix verb, so the object DP could contain an NPI but still scope above the infinitive’s aspect head.

So, this proposal, like Kusumoto’s, derives the facts in (4) and (5). Unlike Kusumoto’s, however, my proposal allows us to maintain a scope analysis for (3), since in such sentences there is no intermediate position for the object DP to land. Furthermore, sentences very similar to (3), but differing in having infinitival complements, do allow the later-than-matrix interpretation, even with an NPI:

- (10) The beachcomber failed to find any necklace that sold for more than \$100.

This example is similar to the *de dicto* reading of (3), in that the object DP theoretically must be below the matrix verb “fail,” due to the NPI “any.” Here, however, the selling actually can be after the finding. I submit that this reading is made possible by the extra scope position provided by the infinitive in (10).

Further Predictions: My proposal suggests that the time interval for the matrix sentence is possibly different from the time interval for the infinitival complement, and certain data seem to back this up:

- (11) This year / #On March 1st, I had the good fortune not to pick any team that lost in the first round.

It seems in (11) that the interval picked out by matrix-level adverbials must contain both the time interval when the “picking” happens and the interval when the tournament results occur.

Last, notice that when an NPI is trapped inside a VP, the later-than-matrix reading is disallowed:

- (12) a. I sent some letters to someone who wrote me back the next day.
 b. I sent no letters to anyone who insulted me.
 c. # I sent no letters to anyone who replied the next day.

A later-than-matrix interpretation is acceptable in (12a) and an NPI without a l-t-m interpretation is acceptable in (12b), but an NPI may not have a l-t-m interpretation, ruling out (12c). I argue that this is due to the fact that the NPI may not raise out the VP to receive interpretation outside of the matrix tense. But embedding the sentence as an infinitival clause does not improve it this time:

- (13) # I managed to send no letters to anyone who replied the next day.

(13) still lacks the later-than-matrix interpretation. This is compatible with my proposal that an infinitival clause allows the later-than-matrix interpretation by providing an extra scope position above the infinitive. In (13), the object DP cannot even raise to this scope position and therefore the interpretation is prevented. This also is unaccounted for in a Kusumoto-style analysis.

References

- Abusch, D.: 1988, Sequence of Tense, Intensionality and Scope, *Proceedings of the Seventh WCCFL* pp. 1–14.
 Kusumoto, K.: 2005, On the Quantification over Times in Natural Language, *Nat. Lang. Sem.* **13**(4), 317–357.
 Ladusaw, W.: 1977, Some Problems with Tense in PTQ, *Texas Linguistic Forum* **6**, 89–102.
 Ogihara, T.: 1996, Tense, Scope and Attitude Ascription.
 Stowell, T.: 1993, Syntax of Tense, *Ms.*, UCLA .