

The unavailability of temporal de re in English infinitives

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Background

Traditional grammars classify infinitives as tenseless in languages like English, due to the lack of tense morphology. However, the classification of semantic tense is controversial.

Type	Null Case	Pesetsky	Landau	Wurmbrand
Event (<i>begin</i>)	+tense	+tense	-tense	-tense
Forward expanded (<i>decide</i>)	+tense	+tense	+tense	-tense
Implicative (<i>manage</i>)	+tense	-tense	-tense	-tense
Factive (<i>hate</i>)	+tense	-tense	+tense	-tense
Propositional (<i>claim</i>)	+tense?	+tense	+tense	-tense

Infinitives as tenseless

English finite PRES is indexical and must include the utterance time, which excludes an interpretation before the speech time, (1), and triggers a *double access* reading, (2). The parallel infinitives in (1) and (2) show neither of these restrictions, which Wurmbrand (2014), following Ogihara (1995), takes as evidence for their lack of tense.

- (1) Leo decided a week ago [that he will go to the party (*yesterday) / to go to the party yesterday].
- (2) 5 years ago, she claimed [#that she is pregnant / ✓to be pregnant].

An alternative account

Pesetsky (2021) reconsiders the properties noted by Wurmbrand (2014) and suggests that infinitives can include either semantic PRES or PAST. In both cases in (3) and (4), the infinitive is generated with PAST, which is deleted under *sequence of tense* (SOT), deriving tenselessness.

- (3) Leo decided a week ago [that he will go to the party (*yesterday) / to go to the party yesterday].
- (4) 5 years ago, she claimed [#that she is pregnant / ✓to be pregnant].

An alternative account continued

In (5), an embedded PRES would be postulated in the infinitive, which blocks deletion of the PAST on *were*, disallowing the interpretation where the meal occurs simultaneously with Leo's telling:

- (5) Leo will promise me tonight to tell his mother tomorrow that they were having their last meal together (when...).

Pesetsky's account seems to make the following empirical generalizations:

- (6) a. Matrix PAST => embedded SOT PAST
b. Matrix PRES => embedded PRES

Background on *will*

Following Abusch (1984), among others, we treat future as a combination of tense and modality: PAST or PRES tense, and a modal *woll*. Morphologically, PRES + *woll* is spelled out as *will*, while PAST + *woll* is spelled out as *would*.

- (7) a. In a year, Caitlin will promise to become pregnant.
- b. In a year, Caitlin will promise that she will/*would become pregnant. (unless counterfactual)

For Pesetsky, (7a) must be an instance of embedded PRES. For Wurmbrand, it is tenseless.

Question and direction

Are infinitives generated as tensed or as tenseless clauses?

A new argument: Based on the lack of temporal *de re* in (8), we revive the proposal that infinitives are truly tenseless.

(8) In a year, Caitlin will promise to become pregnant.

Temporal shifting

Ogihara and Sharvit (2012) [O&S] note that some, but not all, speakers accept the interpretation of (9), which we refer to as *temporal shifting*.

- (9) Two months from now Mary will tell her mother that she is going to the Catskills tomorrow.
%*Temporal shifting*: Mary said to her mother: “I went to the Catskills about two months ago.”

O&S note that this interpretation requires temporal *de re* (like double access readings more generally).

De se interpretations in infinitives

As is well-known since Castañeda (1966), Chierchia (1990), infinitival subjects must be interpreted *de se*, as in (10).

- (10) John is very drunk and on fire. He says the man in the mirror is on fire, not realizing it is him.
- a. John claimed that he was on fire.
 - b. # John claimed to be on fire.

Abusch (1997) and Schlenker (2004) extend the same *de se* restriction to tense in infinitives.

Prediction

The infinitival version of (9) should allow a *de re* interpretation, whereas the tenseless view predicts that only a *de se* interpretation should be available in cases like (11).

- (11) Brian is preparing to buy a car tomorrow for his wife as a present, but he's keeping it a secret for her birthday next week. In a week, he will tell his wife "I bought you a car last week!"
- a. Next week, Brian will claim that he is buying a car for his wife. *finite*
 - b. Next week, Brian will claim to be buying a car for his wife. *infinitive*

Predictions

For Wurmbrand, the tense is abstracted over in a manner similar to the subject (Chierchia, 1990). For Pesetsky, it is not. Therefore:

- (12) Pesetsky: Temporal shifting can be available with infinitive-under-*will*
- (13) Wurmbrand: Temporal shifting is not available with infinitive-under-*will*

Experimental Design

Not many people accept temporal shifting below.

- (14) Two months from now Mary will tell her mother that she is going to the Catskills tomorrow.
%*Temporal shifting*: Mary said to her mother: “I went to the Catskills about two months ago.”

For this reason, we conducted an experiment with a very large sample size (600). We isolated the groups which accepted temporal shifting, and those which did not, by asking them if they had the desired temporal shifting reading of sentences like the one above (Group A n=76, Group B n=524).

Double access

We included four baseline context-sentence pairs of two kinds. The first is double access:

- (15) Back in 2016, Julia informed all her family and friends of her pregnancy. She gave birth the next year. It is currently 2021.
- a. Five years ago, Julia claimed that she is pregnant.
 - b. Five years ago, Julia claimed to be pregnant.

Obligatory *de se* interpretation of PRO

The second is the obligatory *de se* interpretation of PRO:

- (16) Mary is an elderly woman with dementia. She watches a video of a high school student solving a very difficult math problem in front of all of her classmates, and the teacher congratulates that student. Mary says "that girl is very clever!" But that student is actually Mary herself, though Mary doesn't know it.
- a. Mary claimed that she was clever.
 - b. Mary claimed to be clever.

PRES-under-will

The other 4 pairs were devoted to pairs involving PRES-under-*will* constructions:

- (17) Brian is preparing to buy a car tomorrow for his wife as a present, but he's keeping it a secret for her birthday next week. In a week, he will tell his wife "I bought you a car last week!"
- a. Next week, Brian will claim that he is buying a car for his wife. *finite*
 - b. Next week, Brian will claim to be buying a car for his wife. *infinitive*

Two with futurate, two with simple present.

Results

Group A with temporal shifting:

Type	Finite	Infinitive	#	p<0.001?
DA	31.58%	68.42%	76	Yes
<i>de re</i>	69.74%	30.26%	76	Yes
PUW	63.16%	36.84%	152	Yes

Group B, no temporal shifting:

Type	Finite	Infinitive	#	p<0.001?
DA	21.05%	78.95%	524	Yes
<i>de re</i>	73.68%	26.32%	524	Yes
PUW	48.03%	51.97%	1048	No

We suggest that the finite form is preferred, because only finite clauses contain PRES, required to license a *de re* interpretation.

Taken together with the other tense properties, this shows that infinitival “tense” is clearly different from finite tense, and behaves in all respects as a zero tense, e.g., as a deleted tense variable which is bound by a higher λ -operator, following Heim (1994).

Conclusion

Experimental evidence indicates that tense, like the subject of an infinitive, has an obligatory *de se* interpretation. It would be interesting to see if non-finite clauses in other languages similarly lack a *de re* interpretation/double access interpretation of tense.

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