



2-27-2019

Simultaneous Present-under-Past in Relative Clauses: Evidence from Fronted Verb Phrases

Petr Kusliy
University of Massachusetts

Simultaneous Present-under-Past in Relative Clauses: Evidence from Fronted Verb Phrases

Abstract

This paper presents new data from English showing that the Present tense morphology inside a relative clause under a matrix Past can have a simultaneous (non-indexical) interpretation, if it occurs in an indefinite object of a fronted VP. These data are theoretically unexpected because Present-under-Past in English has been known to have only an indexical interpretation. It is also shown that DP-fronting and definite objects of fronted VPs do not allow for a simultaneous interpretation of embedded Present. The author adopts the proposal of (Kusumoto 1999) for Japanese, and argues that the data can be successfully captured, if English relative clauses can optionally be tenseless. In this case the main predicate inside the clause gets the default Present tense morphology and the temporal interpretation of a tenseless relative clause can become dependent on the temporal argument of the matrix verb. This dependence is established when the relative clause is incorporated into the matrix verb. Incorporation is predicted to occur only when the relative clause is inside a DP that is itself interpreted predicatively. A predicative reading is available only for indefinite DPs and only when they are interpreted in situ. The fact that such a reading is available only under VP-fronting is accounted for in terms of the theory of Feature Transmission at PF (Kratzer 1998): whenever a tenseless relative clause is c-commanded by a matrix Past at PF, feature transmission applies and the main predicate of the relative clause surfaces with the Past tense morphology.

Simultaneous Present-under-Past in Relative Clauses: Evidence from Fronted Verb Phrases

Petr Kusliy*

1 Introduction

According to an assumption that is common in the literature on tense in English, if a Present tense occurs inside a (restrictive) relative clause embedded under a matrix Past tense, then the Present tense must indicate a time that overlaps the utterance time (Enç 1987, Abusch 1994, von Stechow 1995, Kusumoto 1999, Schlenker 2003). Consider the following illustration:

- (1) John met a boy who is hungry.

In order for (1) to be true, the time of the meeting must precede the utterance time. This is indicated by the Past tense used in the matrix clause. The embedded Present tense can indicate a time that overlaps the time of the meeting (if the state of being hungry stretches far enough into the past), but this is not required. What is required for the truth of (1) is that the time indicated by the embedded Present overlaps the time of the utterance (i.e., the boy that John met at some point in the past must be hungry now). The reading that the Present tense in (1) has is known as the *indexical* reading. Under the indexical reading, a Present tense morpheme must indicate a time that overlaps the utterance time.

Thus, the sentence in (1) cannot truly describe a situation like (2) in which the eventuality described in the embedded relative clause is contemporaneous with the time of the meeting but not with the utterance time:

- (2) *Situation*: John met a boy who was hungry at the time of the meeting. However, no boy is hungry now.

The sentence in (3), on the other hand, can truly describe such a situation.

- (3) John met a boy who was hungry.

In (3), the embedded tense is Past. According to one of the readings that (3) has, John met a hungry boy. This reading is known as the *simultaneous* reading.

Observations of contrasts like the one between (1) and (3) have led to a consensus in the literature, according to which simultaneity under Past in English can only be expressed via another Past and not via a Present. There are languages, like Japanese, in which the equivalent of (1) can truly describe the situation in (2) (Ogihara 1989, 1996, 2015). In such languages, Present-under-Past inside a relative clause can have a simultaneous reading. However, English Present-under-Past has been treated as inherently indexical.

In (4)-(6), I present novel data that suggest otherwise.

- (4) At this time last Friday, John was looking for a hungry person, and, finally...
a. Meet a boy who is hungry, John did.
b. John met a boy who was hungry.
- (5) On this day last year, our reporter John was at a competition trying to meet a male participant, and, finally...
a. Meet a guy who is a participant, John did.
b. John met a guy who was a participant.
- (6) a. Hire a guy who has fewer than three children, Mary did two years ago.
b. Mary hired a guy who had fewer than three children.

* I thank Seth Cable, Barbara Partee, Rajesh Bhatt, Daniel Altshuler, Vincent Homer, Katia Vostrikova, and Troy Messick for all their help. All errors are mine.

Native speakers of English report that (4a), (5a), and (6a) can be synonymous with (4b), (5b), and (6b). In other words, the embedded Present tense, in these sentences, does not require the eventuality described in the relative clause to necessarily overlap the utterance time.

I follow the common assumption in the syntactic literature that fronted VPs reconstruct at LF (Huang 1993, Takano 1995) and assume that the embedded tenses in (4)-(6) are c-commanded by a matrix Past. These sentences, thus, can be viewed as instances of a simultaneous Present-under-Past. As such, they present a challenge for any theory of tense that claims that Present-under-Past inside a relative clause is inherently indexical.

Interestingly, a simultaneous Present-under-Past inside a fronted VP becomes unavailable if the relative clause is inside a definite DP, as illustrated in (7):

(7) Meet the boy who is hungry, John did.

Native speakers report that, in (7), the boy must be hungry at the utterance time.

Moreover, DP fronting does not seem to allow for a simultaneous embedded Present under matrix Past even if the fronted constituent is an indefinite DP:

(8) A boy who is hungry, John met.

In (8), again, the boy must be hungry at the utterance time and the embedded Present tense, so it therefore does not have a simultaneous interpretation.

The above data suggest a descriptive generalization, according to which a Present tense inside a relative clause under a matrix Past tense can have a simultaneous interpretation only if (i) it is inside a fronted indefinite, and (ii) the indefinite is inside a fronted VP. This raises two immediate questions. *Question 1*: Why do fronted VPs with indefinite objects allow for a simultaneous Present-under-Past? *Question 2*: Why is a simultaneous Present-under-Past unavailable if the object is definite or the fronted constituent is a DP? In what follows, I provide answers to these two questions.

In short, I account for simultaneous readings inside fronted VP constructions in a sentence like (4a) by assuming that restrictive relative clauses can be tenseless with Present tense morphology as a default option (following a similar proposal for Japanese made in Kusumoto 1999). Tenseless relative clauses undergo semantic incorporation into the main verb together with the indefinite that they are part of (in the spirit of McNally & van Geenhoven 1997). In those cases, the indefinite has a predicative interpretation (Heim 1982). As a result of this incorporation, the unsaturated temporal argument of a tenseless relative clause is identified with the temporal argument of the main verb, allowing for a simultaneous interpretation.

I account for the contrast between (4a), (1), and (2) by assuming a mechanism of feature transmission at PF in the spirit of Kratzer 1998. This mechanism requires that a tenseless predicate that triggers a simultaneous interpretation borrow its temporal morphology from the tense that c-commands it at PF or surface with the default morphology whenever there is no c-commanding tense at PF. From this perspective, the non-fronted version of (4a) is (2), not (1), because whenever a tenseless relative clause is c-commanded by a matrix Past tense at PF, feature transmission must apply and the verb inside the relative clause must appear with the Past tense morphology. A sentence like (1) can only be an instance of a tensed relative clause where the embedded Present tense morphology is interpreted and requires an overlap with the utterance time.

The contrast between (4a) and (7) is accounted for in terms of the contrast between definite and indefinite DPs. Unlike indefinites, definite DP arguments are not predicted to undergo semantic incorporation into the verb because they cannot have a predicative interpretation. For this reason, Present tense inside such relative clauses cannot have a simultaneous interpretation. Since traces of moved indefinites (or, alternatively, their lower copies) are referential (Poole 2018), and a definite description (Fox 2002), a simultaneous reading is not predicted for a sentence like (8) either.

2 Why are the New Data Challenging?

Theories of tense that claim that Present-under-Past in English is always indexical do not assume that embedded Present tense, in general, can never have a non-indexical interpretation. Present-

under-Future contexts are known to systematically allow for a simultaneous reading.

- (9) John will meet a guy who is hungry.

In (9), the embedded Present has a simultaneous reading for all speakers (and, for many speakers, it is even the only reading available). Present-under-Present can also be said to have a simultaneous interpretation; however, in such cases, the simultaneous and the indexical readings of embedded Present are indistinguishable.

Theories that require Present-under-Past to be inherently indexical account for a simultaneous reading of Present-under-Future by assuming the existence of a so-called zero-tense. A zero-tense is similar to a simultaneous Present because it must be locally bound, but it differs from a real simultaneous Present (that, presumably, exists in languages like Japanese) because a zero-tense lacks its own morphology and borrows it from a c-commanding tense at PF.

A simultaneous Present-under-Future in sentences like (9) is then analyzed as an instance of a zero-tense. It is believed to borrow its morphology from the future auxiliary *will* in the matrix clause, which is decomposed into a Present tense and a tenseless verb stem *woll* (Heim 1994), which, in turn, behaves as a modal and provides a local temporal anchor for the zero-tense.

Thus, Present-under-Future in (9) gets a simultaneous interpretation because it is underlyingly a zero-tense that is locally bound by the matrix future auxiliary and borrows its Present tense morphology from a matrix Present tense associated with the auxiliary.

Finally, such theories disallow the existence of a local temporal anchor in the left periphery of a relative clause. This restriction, presumably, explains why a Present-under-Past in a relative clause cannot get a simultaneous interpretation, but a Present-under-Future can. To repeat, in case of Present-under-Future, a local anchor is provided by the future auxiliary, which has a modal nature. In case of Present-under-Past, there is no such local anchor, and the reasoning here is that if such an anchor were available in English, we would expect to have a simultaneous Present-under-Past in sentences like (1), contrary to fact.

As I said, the data provided in (4)-(6) are challenging for such theories because the embedded Present is not c-commanded by a matrix Present and a modal either at PF or at any other stage in the derivation. This means it cannot be a zero-tense. For obvious reasons, it cannot have an indexical interpretation, either. Since there are no other options left, a reconsideration of our views on the semantics of Present tense is called for.

3 Deriving the Simultaneous Reading

An assumption that relative clauses can provide such a local “now” for their embedded tenses would buy us an account of (4a), (5a), and (6a) (with a further assumption that Present tense could be locally anchored). And, in that case, a sentence like (4a), repeated in (10), could be associated with the schematic representation in (11):

- (10) Meet a boy who is hungry, John did.
 (11) Meet a boy λt_2 who Pres₂ is hungry, Past₁ John did₁

In (11), the embedded Present bears an index bound by the local binder λt_2 . Under a number of common assumptions, tenses contain a deictic component that can be bound at LF, leading to a dependent (non-indexical) interpretation of tense if the binding is local (Partee 1973).

Unfortunately, such an account would definitely overgenerate. First of all, we would have to somehow rule out the possibility of a simultaneous interpretation of the Present-under-Past in non-fronted sentences like (1), otherwise the tense system of English would become indistinguishable from the tense system of Japanese. Secondly, even if we could come up with a way to rule out a simultaneous interpretation of the Present tense in non-fronted constructions like (1), we would still face problems with (7) and (8). Allowing for a local anchor inside a relative clause would wrongly predict a simultaneous interpretation for the embedded Present in (7) and (8).

For these reasons, in what follows, I will adopt the common assumption that relative clauses in English do not provide a temporal anchor in their left periphery.

Giving up the idea of a local temporal anchor inside a relative clause leads us to a rejection of

any account of the novel data in terms of a zero-tense because a zero-tense, by definition, needs to be locally bound. Even if we could somehow relax this restriction, we would still have to account for the contrast between (10) and (7), which differ only in the determiner. No definition of a zero-tense seems to be able to account for such a contrast straightforwardly.

I propose to derive the simultaneous reading for (10) by making the following assumptions.

My first assumption is that relative clauses in English can optionally be tenseless (lack a TP). Restrictive relative clauses are commonly treated as predicates that combine with their head NP by Predicate Modification (Heim and Kratzer 1998). According to my proposal, they can optionally denote functions from individuals to sets of times (see Kusumoto 1999 for a similar proposal for Japanese). In that case, they are expressions of type $\langle e, it \rangle$.

The second assumption is that the main predicate in a tenseless relative clause, by default, appears with Present tense morphology.

Indefinites are known to be able to have a predicative interpretation (Heim 1982, Partee 1986, de Swart 1999). Building on this idea, I propose that, in sentences that allow for a simultaneous reading of Present-under-Past, indefinite arguments also have a predicative interpretation and are of type $\langle e, it \rangle$.

In a sentence like (10), I assume the following semantic definitions for the indefinite and the relative clause:

$$(12) \llbracket a \text{ boy} \rrbracket^{\mathcal{E}} = [\lambda x . \lambda t' . x \text{ is a boy at } t']$$

$$(13) \llbracket \text{who is hungry} \rrbracket^{\mathcal{E}} = [\lambda x . \lambda t' . x \text{ is hungry at } t']$$

In a derivation, these two constituents combine by the rule of Predicate Modification to yield a complex predicate *a boy who is hungry*:

$$(14) \llbracket a \text{ boy who is hungry} \rrbracket^{\mathcal{E}} = [\lambda x . \lambda t' . x \text{ is a boy at } t' \text{ and } x \text{ is hungry at } t']$$

Transitive verb *meet* takes the constituent defined in (14) as its argument. The semantic type of *meet* is $\langle e, \langle e, it \rangle \rangle$ and, as such, it cannot combine with that constituent by Function Application because the type of the constituent in (14) is $\langle e, it \rangle$. For this reason, a different rule is required.

I propose that *meet* combines with *a boy who is hungry* by a version of Predicate Restriction (Chung and Ladusaw 2003) to yield a complex predicate *meet a boy who is hungry* of type $\langle e, \langle e, \langle it \rangle \rangle \rangle$. I provide the definition of this rule in (15):

$$(15) \text{ If } \alpha \text{ is a branching node and } \beta \text{ and } \gamma \text{ are its daughters, such that } \llbracket \beta \rrbracket \in D_{\langle \delta, \langle \delta, \langle \gamma, t \rangle \rangle \rangle} \text{ and } \llbracket \gamma \rrbracket \in D_{\langle \delta, \langle \gamma, t \rangle \rangle}, \text{ then } \llbracket \alpha \rrbracket = [\lambda \phi_{\delta} . \lambda \psi_{\delta} . \lambda \varepsilon_{\gamma} . \llbracket \beta \rrbracket(\phi)(\psi)(\varepsilon) = 1 \text{ and } \llbracket \gamma \rrbracket(\phi)(\varepsilon) = 1]$$

Crucially, when the complex predicate restricts the verb *meet*, by the rule in (15), their temporal arguments are identified. The matrix tense thus provides the time of meeting as well as the time of being hungry. After the rule in (15) applies, the free object argument slot in the resulting complex predicate *meet a boy who is hungry* is closed by Existential Closure (Heim 1982).

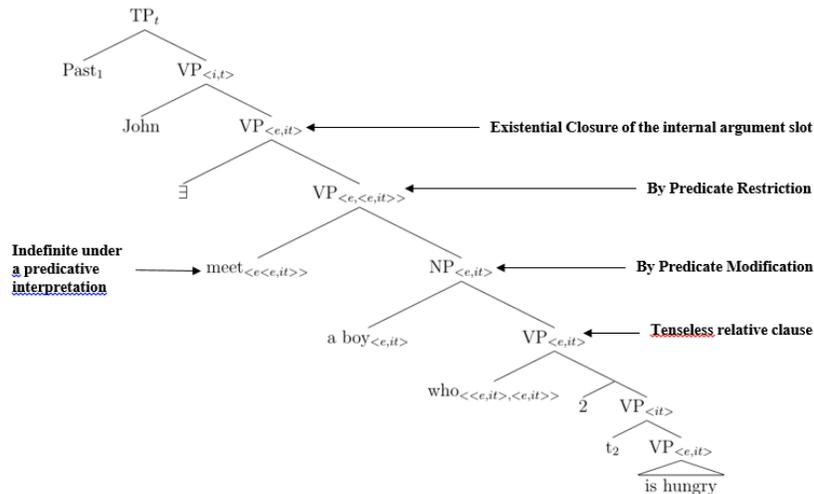
This step described above represents a version of the process of semantic incorporation of indefinites discussed in McNally & van Geenhoven 1997 for English and adapted here for the identification of the temporal arguments of the verb and the incorporated predicate.

Here, I also follow the tradition of treating tenses as pronouns over times (Partee 1973, Kratzer 1998). From this perspective, a tense is an expression of type i that can have either a free or a bound interpretation. (But see important discussions of the strengths and weaknesses of this approach in Von Stechow 1995, Ogihara and Sharvit 2012, and Sharvit 2013.)

In (17), I provide a tree diagram for the LF of (10), repeated below in (16). Recall that I follow Huang 1993 and Takano 1995 in assuming that, at LF, fronted VPs reconstruct.

(16) Meet a boy who is hungry, John did.

(17)



Because the temporal arguments of the predicate *is hungry* and the verb *meet* are identified, the eventualities described by each are understood to be contemporaneous.

4 The Contrast Between Fronted and Non-fronted Constructions

In the above discussion, I proposed an account of a simultaneous reading for fronted VP construction illustrated by (16). According to this proposal, the relative clause in (16) is tenseless at LF with default Present tense morphology on the predicate. However, it is not yet clear why the sentence in (16) has a simultaneous interpretation, whereas the sentence in (1), repeated below in (18), does not. Moreover, (16), unlike (1), seems to have a reading that makes it synonymous with (3), repeated below in (19).

In this section, I discuss the contrast between (16) and the two non-fronted sentences below:

(18) John met a boy who is hungry.

(19) John met a boy who was hungry.

I assume the adaptation of Kratzer's mechanism of Feature Transmission at PF (Kratzer 1998) proposed in Cable 2015. The rule that is relevant here is the rule of Tense Lowering:

(20) *Tense Lowering*: Tense features are lowered from T^0 onto the verb.

Under a simultaneous interpretation, the sentence in (16) has been assumed to have a tenseless relative clause that is incorporated into the matrix verb together with the indefinite *a boy*, thus forming a complex predicate *meet a boy who is hungry*. I assume that when tense features are lowered onto the predicate, they spread across every verbal predicate that requires them.

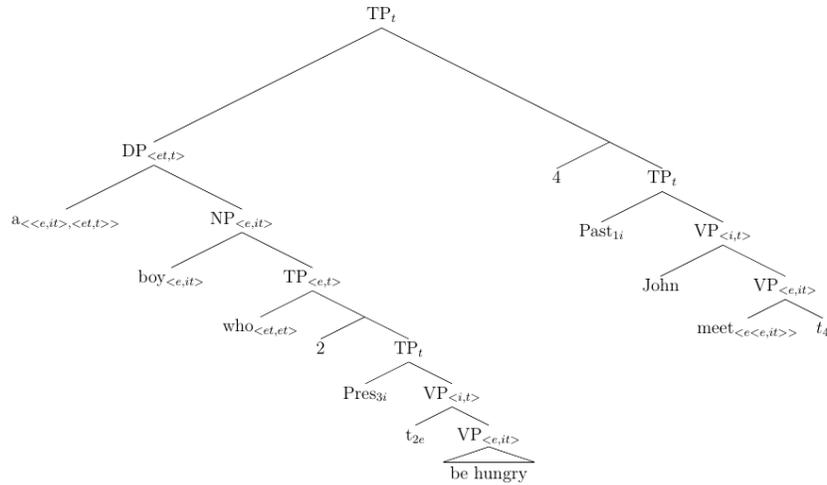
When a tenseless relative clause is c-commanded by a matrix Past at PF, tense features are transmitted from the matrix Past tense onto the whole complex predicate, resulting in a sentence like (19). In other words, under a simultaneous reading, the sentence in (19) also has the LF in (17). Its only difference from (16) is in the temporal morphology on the complex predicate. In (16), the verb *meet* has no temporal morphology and the predicate in the relative clause has the default Present tense morphology. In (19), Past tense features are lowered onto the complex predicate, and both the main verb and the predicate inside the relative clause surface with Past tense morphology.

The unavailability of a simultaneous reading in a sentence like (18) follows from the same assumptions. If the relative clause in (18) were tenseless, we would expect Feature Transmission to apply and the embedded predicate to surface with Past tense morphology. However, the main predicate inside the relative clause surfaces with Present tense morphology. This means that Feature

Transmission has not applied. This can happen only if the relative clause is not tenseless. If it is not tenseless, then it is tensed. In that case, the temporal morphology is interpreted (and not borrowed from the main clause). And the only interpretation that Present tense morphology can have in this position is indexical (since we are not assuming any local temporal binders in the left periphery of a relative clause). For this reason, the Present tense in a sentence like (18) can never have a simultaneous, non-indexical interpretation. Consequently, no incorporation with the matrix verb is predicted, and the indefinite has a quantificational interpretation.

The LF for (18) is predicted to have is provided in (21):

(21)



Observe that, unlike in (17), the indefinite in (21) is quantificational and undergoes QR to avoid type mismatch. The relative clause (which is now of type $\langle e,t \rangle$) restricts the NP *boy* (which is of type $\langle e,it \rangle$) to yield a complex NP *boy who is hungry* of type $\langle e,it \rangle$.

We thus account for the simultaneous reading in (16) and the contrasts observed between (16) on the one hand, and (18) and (19) on the other. This is also an answer to Question 1.

5 Tense Inside Definite Descriptions

In this section, I discuss the unavailability of a simultaneous reading for Present tense when it occurs inside a definite description (as in Section 1). Consider again sentence (7), repeated below in (22):

(22) Meet the boy who is hungry, John did.

In my discussion of (16) above, I proposed that the indefinite *a boy* can have a predicative interpretation, intersect with the relative clause, and then undergo semantic incorporation into the verb *meet*, which leads to an identification of the temporal arguments of the verb and the predicate in the relative clause. The same story cannot be told about (22) because definite DPs are not predicted to have a predicative interpretation (Heim 1982). In argument positions, they are referential expressions that cannot undergo semantic incorporation.

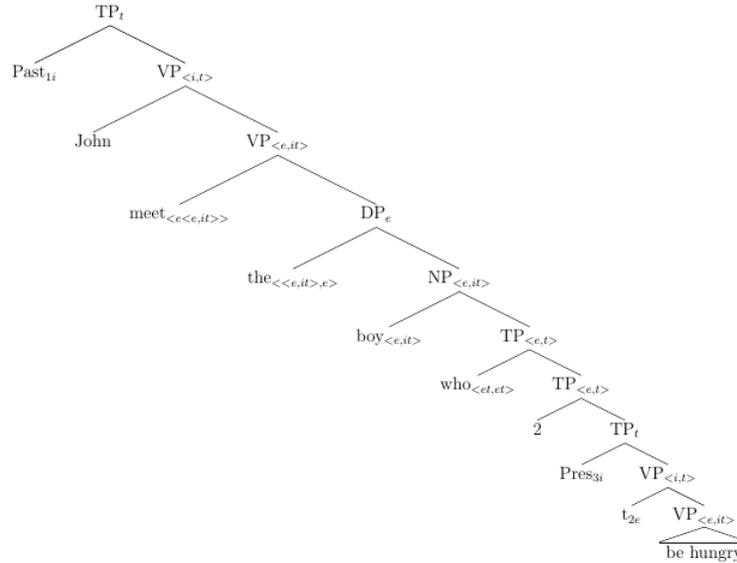
Under the present analysis, this is also the reason why the temporal interpretation of a head NP inside a definite description is always independent (as originally observed by Enç 1981). Even when the temporal interpretation of an NP inside a definite description is simultaneous with the verb that takes it as an argument, this simultaneity is due to a co-reference between the matrix tense and the temporal variable inside the NP. Even the presence of a tenseless relative clause inside a definite argument to a verb in the Past will never lead to a simultaneous interpretation of Present tense morphology inside a definite description.

In order to see this, assume the proposal of Musan 1995, according to which the temporal interpretation of the NP inside a definite comes from the definite determiner. For simultaneity under a matrix Past, the determiner would have to provide a time that is identical with the time indicated

by the matrix Past tense. In that case, the past interpretation of the head NP inside a definite will disallow the predicate inside the relative clause from appearing with default Present tense morphology. Feature transmission would have to apply, and the tenseless relative clause would have to surface with Past tense morphology (that would be coming from a DP-internal past time and not from the matrix tense). So, if we see Present tense morphology inside a definite, as illustrated in (22), it has to be interpreted and, therefore, be indexical.

This is why, according to the only analysis available for (22), the relative clause is tensed. The embedded Present tense is interpreted, and the only interpretation available for it is indexical. The LF that is predicted for (22), assuming VP reconstruction, is provided in (23):

(23)



6 DP-Fronting and the Interpretation of Embedded Tense

Now, I turn to fronted DP constructions. Consider (8) and (10), repeated below in (24) and (25).

- (24) A boy who is hungry, John met. *Simultaneous reading unavailable*
- (25) Meet a boy who is hungry, John did. *Simultaneous reading available*

What these data suggest is that not only the definite/indefinite distinction, but also the kind of fronting that a construction exhibits affects the availability of a simultaneous interpretation of an embedded Present tense. A fronted indefinite cannot contain a simultaneous Present-under-Past.

My proposal is partly based on the account of tense inside definite descriptions presented above. I also build on work by Poole (2018), who argues that DP-fronting does not leave traces of predicative type. Poole discusses so-called predicative positions (explored earlier in Postal 1994); that is, positions that only allow for a DP of predicative type. He observes that (26) and (27) are ungrammatical, even though their non-fronted versions are fine. Poole uses these observations to argue that the trace position of a moved DP is always of type *e*.

- (26) *A potato, there is ___ in the pantry.
- (27) *Magenta, Megan painted her house ___.

Here, I assume that a fronted predicate cannot leave a trace of type *e* and, therefore, predict that fronted DPs themselves are always of non-predicative type. This suggests that in fronted constructions like (24), the indefinite cannot be interpreted predicatively and, therefore, a simultaneous interpretation of an embedded Present is unavailable under a matrix Past.

Alternatively, the data in (24) can be accounted for in terms of Danny Fox’s theory of Trace

Conversion of a lower copy of a moved expression, if we assume a version of the copy theory of movement (Chomsky 1993). According to Fox 2002, the lower copy of a moved quantifier becomes a definite description; otherwise, the sentence will not get its interpretation.

We saw that definite descriptions disallow a simultaneous interpretation of embedded Present tense morphology. If so, then a lower copy that has undergone Trace Conversion is not expected to have a predicative interpretation, undergo predicate incorporation, and, consequently, yield a simultaneous interpretation of the main predicate in the relative clause. This answers Question 2.

7 Some Complications and Issues for Further Research

In this section, I would like to mention two issues with the interpretation of Present tense morphology in restrictive relative clauses that require further research.

7.1 Present-under-Past in Progressive Constructions

There are speakers, for whom it is not easy to get a simultaneous interpretation in a sentence like (25). One possible reason for this is that a full pronunciation of the Present tense morphology inside the relative clause biases them towards a tensed construal, under which the eventuality described in the relative clause must overlap the utterance time. It is much easier for such speakers to get a simultaneous interpretation if the auxiliary in a sentence like (25) is contracted:

(28) Meet a man who's hungry, John did.

This might serve as indirect evidence for the proposed analysis of simultaneous readings as resulting from a tenseless construal of the relevant relative clauses. However, what is even more difficult (for a subset of my consultants) is to get a simultaneous interpretation in a sentence like (29):

(29) Meet a guy who's smoking a cigar, John did.

For some speakers, a context that biases them towards a simultaneous construal facilitates getting the needed interpretation:

(30) In our gentlemen's club, we smoke cigars on Fridays. So, everyone in our smoking room last Friday had a cigar in their mouth. This was when John, who wanted to meet someone smoking a cigar and take a picture of him, entered the room. And, yes...
Meet a guy who's smoking a cigar, John did.

Still, a progressive construction makes an indexical interpretation much more salient. However, as observed by Barbara Partee (p.c.), the more a progressive construction describes a property, rather than an ongoing action, the easier it is to interpret it non-indexically:

(31) Hire a guy who's living with his mother, Mary did two years ago.

Currently, I do not have a full account of this contrast. However, it does not seem impossible to provide indirect evidence that progressive constructions that describe an ongoing action can allow for a simultaneous interpretation. Alxatib and Sharvit (2017) observe that, under VP-ellipsis, the Present tense inside a relative clause can have a non-indexical interpretation under a matrix Past. Applying their strategy to progressive constructions gives us the sentence in (32):

(32) Right now, John is meeting with a guy who is smoking a cigar. And Sally was yesterday.

The sentence in (32) has a sloppy reading, according to which Sally was meeting with a guy who was smoking a cigar during his meeting with Sally. Assuming an identity condition between the ellipsis site and its antecedent (Sag 1976, Fiengo and May 1994), the availability of a sloppy reading shows that a progressive construction in the ellipsis antecedent can have a simultaneous interpretation.

Cases of ellipsis explored by Alxatib and Sharvit (2017) are similar to cases of VP-fronting explored in this paper. They show that embedded Present tense morphology inside a restrictive relative clause in English cannot be interpreted as simultaneous with a matrix Past only if the Present morphology is pronounced to the right of the matrix Past. VP-ellipsis and VP-fronting represent environments in which an embedded Present is not pronounced to the right of a matrix Past, but it can still be interpreted in a corresponding position. The availability of a simultaneous interpretation of a progressive construction under VP-ellipsis then suggests that whatever the reasons are that make it harder to get a simultaneous interpretation for Present tense in a progressive construction inside a fronted VP, these reasons do not seem to constitute fundamental evidence against the possibility of a simultaneous construal of Present Progressive under a matrix Past.

7.2 The impact of binding

According to the theory I suggested above, definite DPs cannot yield a simultaneous reading of an embedded Present under a matrix Past. The examples I proposed strongly supported that conclusion. However, if a relative clause inside a definite DP contains a pronoun bound by a quantifier in the subject position, the simultaneous reading becomes available:

(33) Meet the man who is in love with her₁ mother, every girl₁ did five years ago.

Native speakers report that (33) can have an interpretation according to which, for every girl, the man she met five years ago need not necessarily be in love with the girl's mother at the utterance time. In other words, (33) allows for a simultaneous Present-under-Past.

If the current analysis is on the right track, then this suggests that the presence of a bound pronoun allows a definite to get a predicative interpretation and undergo predicate incorporation.

I am leaving a further investigation of this contrast for future research.

8 Conclusion

In this paper, I provided novel evidence from fronted VP constructions that suggested that Present tense morphology inside a restrictive relative clause under a matrix Past tense can yield a simultaneous, non-indexical interpretation. I also observed that such an interpretation is available only if the relative clause is inside an indefinite DP. Definite direct objects inside a fronted VP, as well as any fronted DP, blocked the simultaneous reading.

I accounted for the data by proposing that restrictive relatives could optionally have a tenseless construal. Under such a construal, their temporal argument was identified with the temporal argument of the predicate that they restricted (or intersected with). Unlike definite descriptions, indefinites could have a predicative interpretation. Under such an interpretation, they could intersect with a tenseless relative clause and be incorporated into the matrix verb. This allowed a predicate inside a tenseless relative clause to be temporally dependent on the temporal interpretation of the matrix verb.

Because predicate incorporation was not predicted for definite descriptions, fronted VPs with definite objects were not expected to yield a non-indexical interpretation for an embedded Present tense. The assumption that the trace of a moved DP is an expression of type *e* and, thus, could not have a predicative interpretation also allowed me to account for the lack of a simultaneous interpretation of Present tense morphology inside fronted DPs.

Finally, I assumed a mechanism of Feature Transmission at PF. It allowed me to explain why simultaneous Present-under-Past was unavailable in non-fronted constructions. In such cases, Feature Transmission applied and a tenseless predicate had to surface with Past tense morphology.

References

- Abusch, Dorit. 1994. Sequence of tense revisited: Two semantic accounts of tense in intensional contexts. In *Ellipsis, Tense and Questions*, ed. H. Kamp, 87–139. Amsterdam: University of Amsterdam, Dyana-2 Esprit Basic Research Project 6852, Deliverable R2.2.B.

- Alxatib, Sam, and Yael Sharvit. 2017. Bound tense in relative clauses: Evidence from VP-ellipsis. *Linguistic Inquiry* 48:697–711.
- Anand, Pranav, and Valentine Hacquard. 2007. When the present is all in the past. In *Recent Advances in the Syntax and Semantics of Tense, Mood and Aspect*, ed. L. de Saussure, J. Moeschler, and G. Puskás, 209–228. Berlin: Mouton de Gruyter.
- Cable, Seth. 2015. Approaches to the semantics of embedded tense. Lecture notes. Ms. URL <http://people.umass.edu/scable/LING720-FA15/Handouts/4.Embedded-Tense.pdf>.
- Chomsky, Noam. 1993. A minimalist program for linguistic theory. In *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, ed. K. Hale and S.J. Keyser, 1–57. Cambridge, MA.: MIT Press.
- Chung, Sandra, and William A. Ladusaw. 2003. *Restriction and Saturation*. MIT press.
- De Swart, Henriëtte. 1999. Indefinites between predication and reference. In *Proceedings of SALT IX*, ed. T. Matthews and D. Strolavitch, 273–297.
- Enç, Mürvet. 1981. Tense Without Scope: An Analysis of Nouns as Indexicals. Doctoral dissertation, University of Wisconsin, Madison.
- Enç, Mürvet. 1987. Anchoring conditions for tense. *Linguistic Inquiry* 18:633–657.
- Fiengo, Robert, and Robert May 1994. *Indices and Identity*. MIT Press.
- Fox, Danny. 2002. Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry* 33:63–96.
- Heim, Irene. 1982. The Semantics Of Definite And Indefinite Noun Phrases. Doctoral Dissertation, University of Massachusetts, Amherst.
- Heim, Irene, and Angelika Kratzer. 1998. *Semantics in Generative Grammar*. Oxford: Blackwell.
- Huang, C.-T. James. 1993. Reconstruction and the structure of VP: Some theoretical consequences. *Linguistic Inquiry* 24:103–138.
- Kratzer, Angelika. 1998. More structural analogies between pronouns and tenses. *Semantics and Linguistic Theory* 8:92–110.
- Kusumoto, Kiyomi. 1999. Tense in Embedded Contexts. Doctoral dissertation, University of Massachusetts, Amherst.
- Musan, Renate. 1995. On the Temporal Interpretation of Noun Phrases. Doctoral dissertation, Massachusetts Institute of Technology.
- Ogihara, Toshiyuki. 1989. Temporal reference in English and Japanese. Doctoral dissertation, University of Texas.
- Ogihara, Toshiyuki. 1996. *Tense, Attitudes, and Scope*. Kluwer, Dordrecht.
- Ogihara, Toshiyuki, and Yael Sharvit. 2012. Embedded tenses. In *The Oxford Handbook of Tense and Aspect*, ed. R. Binnick, 638–668. Oxford and New York: Oxford University Press.
- Ogihara, Toshiyuki. 2015. Relative tense in relative clauses. *Journal of Japanese Linguistics* 31:33–56.
- Partee, Barbara Hall. 1973. Some structural analogies between tenses and pronouns in English. *The Journal of Philosophy* 70:601–609.
- Partee, Barbara Hall. 1986. Noun-phrase interpretation and type-shifting principles. In *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers*, ed. J. Groenendijk, D. de Jongh, and M. Stokhof, 115–143. Dordrecht: Foris.
- Poole, Ethan. 2018. There are no property traces. In *Proceedings of WCCFL 35*, ed. W.G. Bennett, L. Hracs, and D.R. Storoshenko, 321–330.
- Postal, Paul. 1994. Contrasting extraction types. *Journal of Linguistics* 30:159–186.
- Sag, Ivan. 1976. Deletion and Logical Form. Doctoral dissertation, Massachusetts Institute of Technology.
- Sharvit, Yael. 2013. On the universal principles of tense embedding: The lesson from *before*. *Journal of Semantics* 31:263–313.
- Schlenker, Philippe. 2003. A plea for monsters. *Linguistics and Philosophy* 26:29–120.
- Takano, Yuji. 1995. Predicate fronting and internal subjects. *Linguistic Inquiry* 26:327–340.
- von Stechow, Arnim. 1995. On the proper treatment of tense. In *Proceedings from SALT 5*, ed. M. Simons and T. Galloway, 362–386.
- von Stechow, Arnim. 2003. Feature deletion under semantic binding: Tense, person, and mood under verbal quantifiers. In *NELS 33*, ed. M. Kadowaki and S. Kawahara, 397–403. Amherst: University of Massachusetts, Graduate Linguistic Student Association