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Binding in complements of perception verbs

Outline

1. Long-distance reflexives are exceptionally allowed in complements of perception verbs
    → perception verbs have special properties in their complements

2. The complements of perception verbs are also exceptional in the domain of tense dependency
    [→ perception verbs have special properties in their complements]??

To avoid stating twice that perception verbs select special complements, we would want one to follow from the other

3. By employing recent approaches within minimalist syntax to reflexive binding and tense dependency, I will show that the property outlined in 1. can indeed follow from the property described in 2.

1. Long-distance binding

Binding Principle A: Reflexives are bound in their local domain
If a reflexive is bound from outside its local domain, we have *long-distance binding*.

Icelandic:
(1) Jón$_i$ segir að María elski sig$_i$
John says that Mary loves (subj.) self
'John$_i$ says that Mary loves him$_i$' (Sigurðsson 1990:310)

2. Norwegian reflexives

'Norwegian' here refers to my own local dialect (Askim, Østfold). My prime informants have been my two brothers (followed by my parents and other locals). Judgments have been given in pairwise comparisons.

Norwegian reflexives are all 3. person, and not specified for number or gender. Reflexives are *simple* (monomorphemic) or *complex*:

	Reflexive
Simple	*seg*
Complex	*seg sjøl*

2.1 Simple reflexive *seg*

1. *seg* is used in PPs where the preposition denotes locational semantics (and in idioms) (Lødrup 2007):

(2) Han$_i$ så en sky over seg$_i$
He saw a cloud over self
'He saw a cloud above himself'

2. *seg* can under strict conditions be bound long-distance (more on that later)

2.2 Complex reflexive *seg sjøl*

1. *seg sjøl* is used in PPs where the preposition denotes non-locational semantics:

(3) Han$_i$ lytta til seg$_i$ sjøl
He listened to self self
'He listened to himself'

2. *seg sjøl* cannot be bound outside its local domain. When *seg* is bound long-distance, it is equivalent to both local *seg* and local *seg sjøl*

3. Norwegian long-distance binding of *seg*

3.1 Binding in complements of perception verbs

Clause-selecting verbs do not allow their external argument to bind into their internal argument, unless the verb is a perception verb or 'dream':

(4a) *Reven$_i$ sa at noen jakta på seg$_i$
The-fox said that someone chased on self
'The fox said that someone was chasing/hunting him'

(4b) *Reven$_i$ frykta at noen jakta på seg$_i$
The-fox feared that someone chased on self
'The fox feared that someone was chasing/hunting him'

(4c) *Reven$_i$ trudde at noen jakta på seg$_i$
The-fox believed that someone chased on self
'The fox believed that someone was chasing/hunting him'

(4d) *Reven$_i$ var klar over at noen jakta på seg$_i$
The-fox was clear over that someone chased on self
'The fox was aware that someone was chasing/hunting him'

(4e) ?Reven$_i$ lukta at noen jakta på seg$_i$
The-fox smelled that someone chased on self
'The fox smelled that someone was chasing/hunting him'

(4f) ?Reven$_i$ hørte at noen jakta på seg$_i$
The-fox heard that someone chased on self
'The fox heard that someone was chasing/hunting him'

(4g) ?Reven$_i$ så at noen jakta på seg$_i$
The-fox saw that someone chased on self
'The fox saw that someone was chasing/hunting him'

(4h) ?Reven$_i$ drømte at noen jakta på seg$_i$
The-fox dreamed that someone chased on self
'The fox dreamed that someone was chasing/hunting him'

Conclusion: Perception verbs allow their complements to contain anaphoric pronouns.

4. Perception verbs and tense dependency

4.1 Sequence of tense (SOT)

In English, past tense complement clauses embedded under past exhibit SOT:

(5) John said that Mary was pregnant
(5a) John said: "Mary is pregnant" (Simultaneous reading)
(5b) John said: "Mary was pregnant" (Past-shifted reading)

Some languages do not exhibit SOT – Russian and Hebrew are the classic examples. 'Past under past' has a past-shifted reading:

Russian:
(6) John skazal chto Mary byla beremenna
John said that Mary was pregnant
(6a) *John said: "Mary is pregnant" (Simultaneous reading not available)
(6b) John said: "Mary was pregnant" (Past-shifted reading)

Hebrew:
(7) Dan amar she-Dina hayta be-herayon
Dan said that-Dina was in-pregnancy
(7a) *Dan said: "Dina is pregnant" (Simultaneous reading not available)
(7b) Dan said: "Dina was pregnant" (Past-shifted reading)

4.2 SOT in perception verb complements

In the complement of a perception verb, non-SOT languages like Russian and Hebrew nevertheless exhibit SOT (cf. Barentsen 1996, Sharvit 2003):

Russian:
(8) John uvidel chto Mary byla beremenna
John saw that Mary was pregnant
(8a) John saw: /Mary is pregnant/ (Simultaneous reading)
(8b) John saw: /Mary was pregnant/ (Past-shifted reading)

Hebrew:
(9) Dan ra'a she-Dina hayta be-herayon
Dan saw that-Dina was in-pregnancy
(9a) Dan saw: /Dina is pregnant/ (Simultaneous reading)
(9b) Dan saw: /Dina was pregnant/ (Past-shifted reading)

In Hebrew, the same SOT-effect arises in the complement of 'dream':

(10) Dan xalam she-Dina hayta be-herayon
Dan dreamed that-Dina was in-pregnancy
(10a) Dan dreamed: /Dina is pregnant/ (Simultaneous reading)
(10b) Dan dreamed: /Dina was pregnant/ (Past-shifted reading)

In Chinese, the perfective marker *le* in a complement clause rules out SOT:

(11) Zhangsan shuo Lisi chi le yi tiao she
Zhangsan say Lisi eat PERF. one CLASS. snake
(11a) *Zhangsan said: "Lisi eats a snake" (Simultaneous reading not available)
(11b) Zhangsan said: "Lisi ate a snake" (Past-shifted reading)

Embedded under a perception verb (Lin 2003) or 'dream', the available readings are reversed:

(12) Zhangsan kanjian Lisi chi le yi tiao she
Zhangsan see Lisi eat PERF. one CLASS. snake
(12a) Zhangsan saw: /Lisi eats a snake/ (Simultaneous reading)
(12b) *Zhangsan saw: /Lisi ate a snake/ (Past-shifted reading not available)

(13) Zhangsan mengdao Lisi chi le yi tiao she
Zhangsan dream Lisi eat PERF. one CLASS. snake
(13a) Zhangsan dreamed: /Lisi eats a snake/ (Simultaneous reading)
(13b) ?Zhangsan dreamed: /Lisi ate a snake/ (Past-shifted reading)

In English, SOT is normally only found in complements with a stative predicate, e.g. 'be pregnant', and not with eventive predicates:

(14) John believed that Mary won the race
(14a) *John believed: /Mary wins the race/ (Simultaneous reading not available)
(14b) John believed: /Mary won the race/ (Past-shifted reading)

When the clause is the complement of a perception verb or 'dream', SOT extends to eventives (Partee in Kusumoto 1999, Giorgi and Pianesi 2001):

(15) John saw that Mary won the race
(15a) John saw: /Mary wins the race/ (Simultaneous reading)
(15b) John saw: /Mary won the race/ (Past-shifted reading)

(16) John dreamed that Mary won the race
(16a) John dreamed: /Mary wins the race/ (Simultaneous reading)
(16b) John dreamed: /Mary won the race/ (Past-shifted reading)

In Norwegian, SOT is the preferred reading in all complements. When embedded under a perception verb or 'dream', SOT becomes the *only* available reading, regardless whether the predicate is eventive or stative:

(17) Per sa at Kari åt ei pølse
Peter said that Kate ate a sausage
(17a) Peter said: "Kate eats a sausage" (Simultaneous reading)
(17b) Peter said: "Kate ate a sausage" (Past-shifted reading)

(18) Per så at Kari åt ei pølse
Peter saw that Kate ate a sausage
(18a) Peter saw: /Kate eats a sausage/ (Simultaneous reading)
(18b) *Peter saw: /Kate ate a sausage/ (Past-shifted reading not available)

(19) Per så at Kari var med barn
Peter saw that Kate was with child
(19a) Peter saw: /Kate is pregnant/ (Simultaneous reading)
(19b) *Peter saw: /Kate was pregnant/ (Past-shifted reading not available)

(20) Per drømte at Kari åt ei pølse
Peter dreamed that Kate ate a sausage
(20a) Peter dreamed: /Kate eats a sausage/ (Simultaneous reading)
(20b) *Peter dreamed: /Kate ate a sausage/ (Past-shifted reading not available)

(21) Per drømte at Kari var med barn
Peter dreamed that Kate was with child
(21a) Peter dreamed: /Kate is pregnant/ (Simultaneous reading)
(21b) *Peter dreamed: /Kate was pregnant/ (Past-shifted reading not available)

Conclusion: Perception verbs create a greater tense dependency in their complements.

5. The generalization

In complements of perception verbs, both anaphoric pronouns and anaphoric tense can be licensed – both receiving their interpretation from the higher clause.

This supports the often noted similarity between tenses and pronouns.

An implementation:

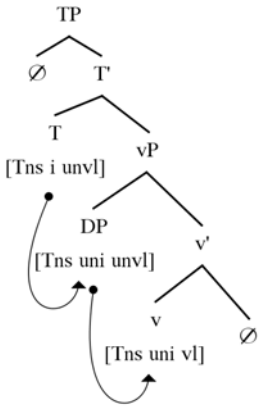
6. The syntax of binding (Reuland 2001, 2005)

Pesetsky/Torrego 2001, 2004, 2007:

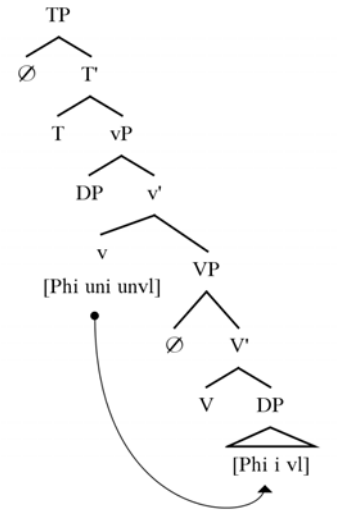
- valued/unvalued and interpretable/uninterpretable are independent
- two unvalued instances of a feature can agree
- agreement: a feature is shared by several *instances* of that feature

An Agree relation between features forms an agreement *chain*

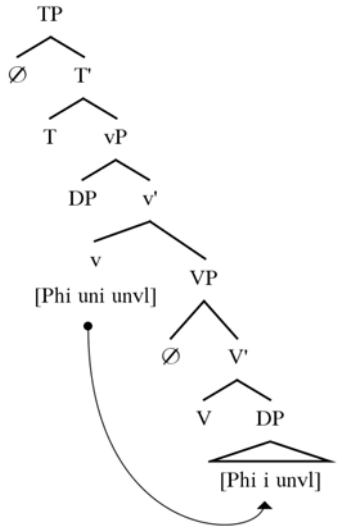
Agree chain for Tense:



Agree for φ-features:

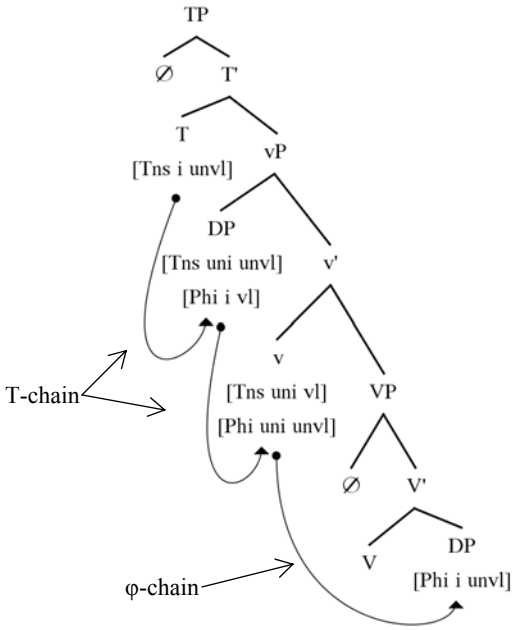


A reflexive like Norwegian *seg* enters the derivation with unvalued φ-features:



An Agree relation is nevertheless formed. Interpretable, but unvalued φ-features are at the phase edge v^0 with another *instance* in the object DP. The phase edge v^0 is accessible for further operations.

v^0 enters an Agree chain for Tense, as seen above. According to Reuland, the φ-feature chain can 'piggy-back' on the Tense-chain, since v^0 is a part of both chains. Since the subject DP carries valued φ-features, it agrees with the φ-features in v^0 and values the chain → binding of the object DP.



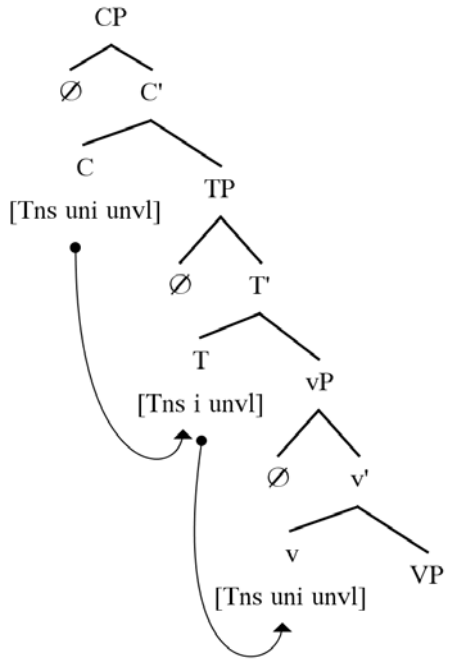
7. The syntax of sequence of tense (Enç 1987, Khomitsevich 2007)

Underlying assumption (Enç 1987, Pesetsky/Torrego 2001, 2004, 2007, Landau 2004, Khomitsevich 2007): C^0 carries an uninterpretable Tense feature.

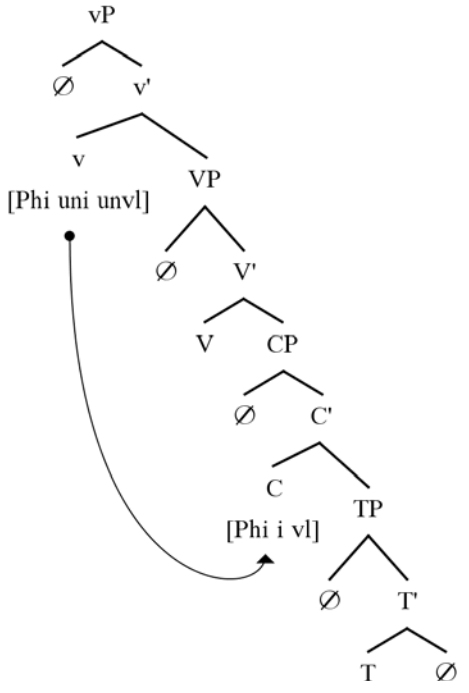
Starting with Enç 1987, a standard assumption has been that a complement tense that exhibits a simultaneous reading with the matrix tense is *syntactically bound* by the matrix tense.

Khomitsevich 2007 adopts Reuland's binding model to explain Enç's *tense binding*. Analogous with reflexive pronouns entering the derivation with unvalued φ-features, anaphoric tense enters the derivation with unvalued Tense features on v^0:

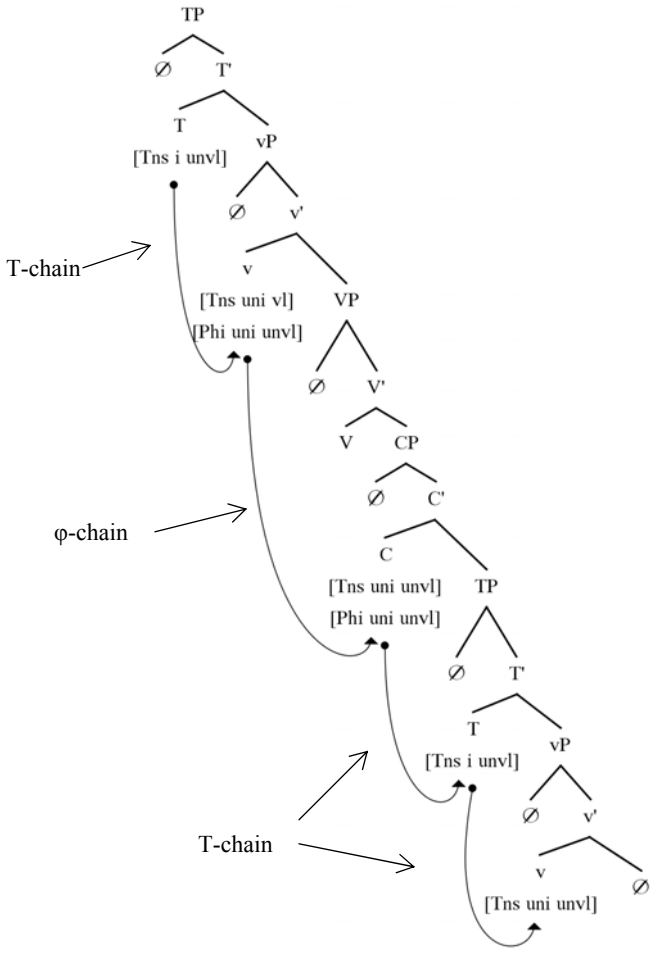
Agree chain for Tense:



This Agree chain has an interpretable, but unvalued feature in the phase edge C^0. When merged with the higher clause, the unvalued φ-features of the v^0 probe and enter an Agree relation with the φ-features in C^0:



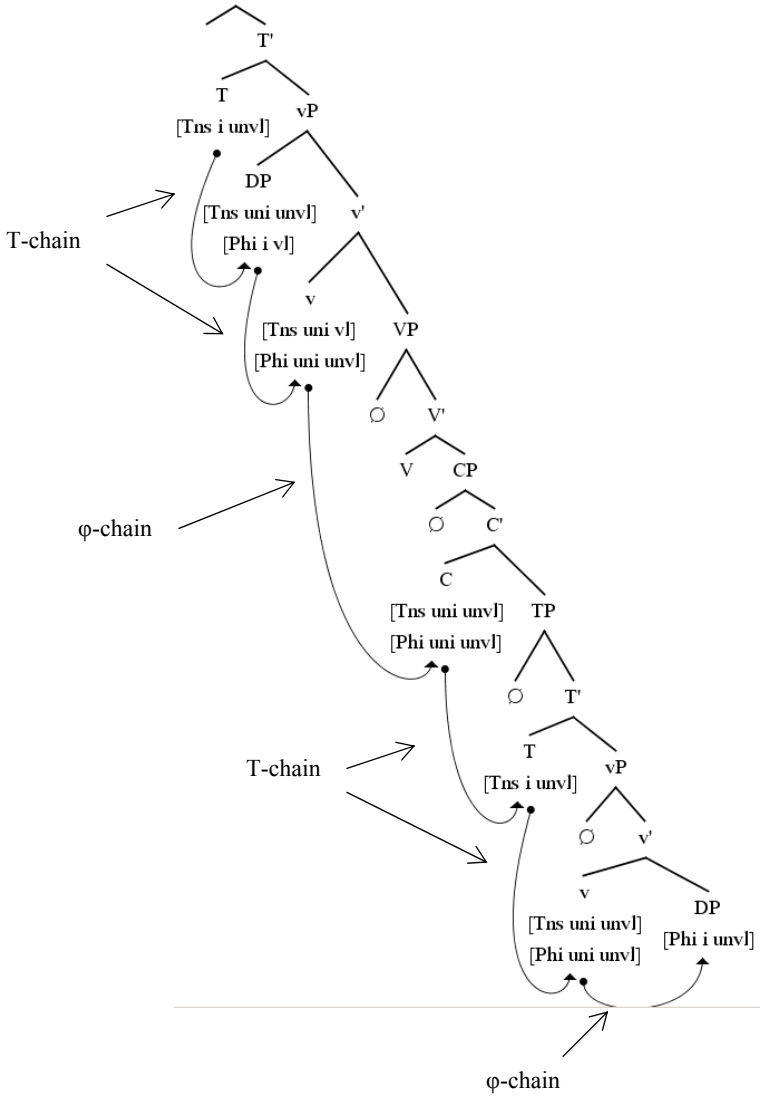
The unvalued Agree chain for Tense in C^0 can now piggy-back on the φ-feature chain between C^0 and v^0. Since v^0 forms a Tense chain in its own clause, the unvalued Tense chain in C^0 will be valued by the Tense chain in the higher clause → the tense in the higher clause binds the tense in the lower clause:



8. Binding + sequence of tense = long-distance binding

Reuland's model of binding involves the local φ-chain piggy-backing on the local Tense-chain. As seen above, if the local Tense-chain is unvalued, it will itself piggy-back to the higher clause, where it is valued, and 'bound', by the higher Tense chain.

It is therefore expected that a *seg*-reflexive with unvalued φ-features has the option of piggy-backing all the way to the higher clause, where the same process reiterates itself.



Binding by the local subject:

Why doesn't the local subject value and bind *seg* – preventing *seg* from piggy-backing to the higher clause?

In most cases, *seg* cannot be bound locally – this is the domain of the complex reflexive *seg sjøl*. If *seg* is selected from the numeration, it needs to be valued outside of its local domain. The interclausal Tense-chain allows it to be.

In the rare cases where *seg* could be bound in the local clause, local binding is ruled out for semantic reasons – it gives an infelicitous reading.

9. Further issues

9.1 SOT and binding in non-perception verbs

In Norwegian, SOT is the preferred reading in all clausal complements. So why can't *seg* be used to disambiguate between a simultaneous and a past-shifted reading in complements of non-perception verbs?

Perception verbs create a *greater* dependency in their complements than other verbs. It would miss something if all dependent verb forms were characterized as having unvalued Tense features. In Norwegian, the tense in the complement of a perception verb contributes nothing of its own – it always denotes the same time as the matrix clause.

Proposal: The Tense features come unvalued only on truly anaphoric verb forms (cf. Landau 2004, where only infinitival complements are considered to have unvalued T features), which in Norwegian would only apply to non-finite verb forms and complements of perception verbs.

SOT in other complements ('English style SOT') would then need to be explained differently – for which there is no lack of theories (cf. i.a. Abusch 1997, Kratzer 1998, Kusumoto 1999, Stowell 2007).

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I'm indebted to Andrew Nevins for having pointed me to references showing that perception verbs are special in Russian (section 4.2), which ultimately proved crucial in establishing the link between tense dependency and pronominal dependency.

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