

Syntax

Functional Categories above vP: CP

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Phonology – Morphology – Syntax

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Complementizers

Point of departure:

- Embedded clauses often exhibit what is sometimes called a subordinating particle: a *complementizer*.
- The complementizer takes different forms, depending on the semantic properties of the clause (interrogative, declarative, concessive, etc.): *that, whether, although*, etc. in English (1-a-d).
- Note: the embedded clauses in (1-a,b) are arguments of the verb. Those in (1-c,d) are not. (Rather, they are adjoined to vP or some other functional projection.)

- (1)
- a. Dr. Brumm thinks *that* farmer Hackenpiep stole the christmas tree.
 - b. Dr. Brumm wonders *whether* farmer Hackenpiep stole the christmas tree.
 - c. Dr. Brumm is angry *because* farmer Hackenpiep stole the christmas tree.
 - d. Dr. Brumm remains calm *although* farmer Hackenpiep stole the christmas tree.

Complementizers

Optionality/Obligatoriness:

- Depending on the embedding predicate, the declarative complementizer *that* in English is optional (2) or obligatory (3), (4).

- (2) a. I claimed that she was pregnant.
b. I claimed she was pregnant.
- (3) a. Jason whispered that the phoenix had escaped.
b. *Jason whispered the phoenix had escaped.
- (4) a. The claim that he is smart was refuted by Nicola.
b. *The claim he is smart was refuted by Nicola.

Complementizers in other languages

Other languages:

In some languages, declarative complementizers are always obligatory, see Scottish Gaelic (5-a), French (5-b) (Adger 2003), or Icelandic (5-c) (Vikner 1995).

- (5) a. Thuairt mi *(gu) bheil i tinn.
say.PAST I that was she sick
'I said that she is sick.'
- b. J'ai dit *(qu)'elle était malade.
I=have said that=she was sick
- c. Ég tel *(að) leikarinn sjái áreiðanlega myndina.
I think that actor.the watches actually movie.the
'I think that the actor actually watches the movie.'

The category C

Further properties:

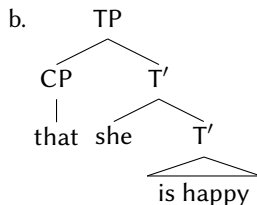
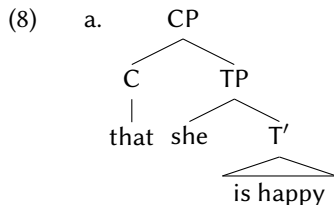
- Constituent tests suggest that complementizers are part of the embedded clause, and not part of the higher (“matrix”) clause (6).
- Moreover, the complementizer determines semantic properties of the clause that must match requirements of the embedding predicate. For instance, *wonder* requires an interrogative complement, *think* a declarative one (7-a,b) vs. (1).

- (6)
- Everyone claimed that the poison was neutralized.
 - ?*That the poison was neutralized* was claimed by everyone.
 - **The poison was neutralized* was claimed *that* by everyone.
- (7)
- *Dr. Brumm *wonders that* farmer Hackenpiep stole the christmas tree.
 - *Dr. Brumm *thinks whether* farmer Hackenpiep stole the christmas tree.

The category C

Analysis:

- The complementizer is the head of the embedded clause. C selects T, i.e., it bears [uT]. Being the head, C projects its features (e.g., [decl], [interr], etc.) and thus can satisfy selectional requirements imposed by the matrix predicate. In other words: (8-a) is correct, (8-b) is not.
- Complementizers form a type of functional category of their own: C. Hence: (embedded) clauses are CPs.



Covert (non-audible) Cs

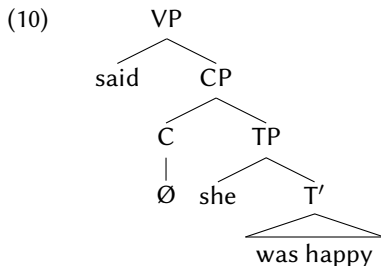
Question:

What is the analysis of structures lacking an audible C in the acoustic signal (9-b)? Is the embedded clause a CP (with empty C) or is it a TP?

- (9) a. I said that she was happy.
b. I said she was happy.

Assumption:

Both analyses have been proposed. Without further argument, we go for the first option here (10).



Subject-auxiliary inversion

Observation:

Yes-No questions in English main clauses involve inversion of subject and auxiliary/modal (subject auxiliary inversion, SAI).

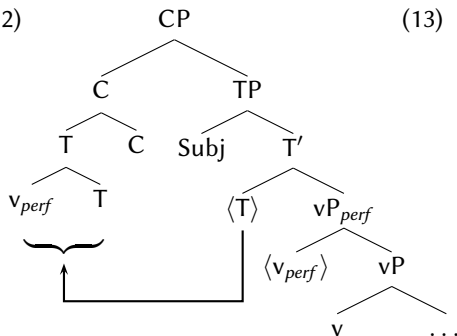
- (11) a. Had the potion boiled over?
 b. Did the magic work?

Analysis:

- This fits with the idea that there are empty C-heads: : SAI can be analyzed as head-movement of T (plus auxiliary/modal) to C. (Recall that a moved head adjoins to its target.)
- This presupposes that there is an empty C-head that serves as the target for head movement, see (12).

Subject-auxiliary inversion

(12)



(13)

Had the potion boiled over?

Verb second

Observation:

- In finite main clauses of German, the first position can basically be filled by any constituent occupying any position: a subject (14-a), an object (14-b), an adjunct (14-c), etc.
- Crucially, however, the position after the first constituent must be filled with the finite verb. This is called the *verb second* property (V2-property).

- (14)
- a. [Ich] *las* schon letztes Jahr diesen Roman.
I read already last year this novel
'I already read this novel last year.'
 - b. [Diesen Roman] *las* ich schon letztes Jahr.
 - c. [Schon letztes Jahr] *las* ich diesen Roman.

Verb second

V2 in Germanic:

Other Germanic languages (Scandinavian, Dutch, Afrikaans, Frisian, etc.) also show the V2-property (see, e.g., Vikner 1995). Exception: English.

(15) *Icelandic*

- a. María hefur lesið bókina í fyrra.
Maria has read book.the last-year
- b. Bókina hefur María lesið í fyrra.
- c. Í fyrra hefur María lesið bókina.

(16) *Dutch*

- a. Peter heeft misschien dit boek gelezen.
Peter has maybe this book read
- b. Dit boek heeft Peter misschien gelezen.
- c. Misschien heeft Peter dit boek gelezen.

(17) *English*

- a. I read this novel last year.
- b. *This novel read I last year.
- c. *Last year read I this novel.

Verb second

V2 beyond Germanic:

Cross-linguistically, the V2-property is not very wide-spread. There are a few cases where V2 shows up in non-Germanic languages. Examples are Breton (Celtic; Schafer 1995) or Kashmiri (Indo-Aryan; Bhatt 1999).

(18) *Breton*

- a. Ar vugale o deus gwalc'het ar wetur dec'h.
the children PRT have.3PL washed the car yesterday
- b. Ar wetur o deus ar vugale gwalc'het dec'h.
the car PRT have.3PL the children washed yesterday
- c. Dec'h o deus ar vugale gwalc'het ar wetur.
yesterday PRT have.3PL the children washed the car

(19) *Kashmiri*

- a. mye per yi kytāb az.
I read this book today
- b. yi kytāb per mye az.
this book read I today
- c. az per mye yi kytāb.
today read I this book

Verb second

V2 in Romance:

Romance languages typically don't have it (with the exception of Rhaeto-Romance, (21), Anderson 2006), see (20) for French.

(20) *French*

- a. Je lus ce roman l'année dernière.
I read this novel the=year last
- b. *Ce roman lus-je l'année dernière.
this novel read=I the=year last
- c. *L'année dernière lus-je ce roman.
the=year last read=I this novel

(21) *Rhaeto-Romance*

- a. Ursus discorra rumantsch stupent.
Ursus speaks Rumantsch stupendously
- b. Rumantsch discorra Ursus stupent.
Rumantsch speaks Ursus stupendously
- c. Stupent discorra Ursus rumantsch
stupendously speaks Ursus Rumantsch

The role of finiteness:

In V2-languages, the second position must be filled by the finite verb. In case finiteness is located on an auxiliary (and the other verbal elements are non-finite, e.g., infinitives or participles), then it is the auxiliary that shows up in second position.

- (22) a. Ich *habe* diesen Roman lesen wollen/gewollt.
I have this novel read.INF want.INF/want.PTCPL
'I wanted to read this novel.'
- b. *Ich *wollen* diesen Roman lesen habe.
- c. *Ich *gewollt* diesen Roman lesen habe.
- d. *Ich *lesen* diesen Roman gewollt habe.

Analysis: The first position in V2-clauses

Reasoning:

- The fact that any constituent can show up in the first position of a V2-clause suggests that this position can be filled by movement.
- By the Θ -criterion, arguments that show up in the initial position of a V2-clause must realize some Θ -role. This happens by merging them with a head that assigns such a role (v or V).
- But the second position, which sometimes is filled by a Θ -role assigning verb, can also be filled by an auxiliary (22-a), which does not assign a Θ -role. Thus, the argument in first position must have been merged somewhere within vP first.
- From there, it undergoes phrasal movement to the clause-initial position.

Analysis: The second position in V2-clauses

Observation:

- In embedded clauses of German, the finite verb appears (as a rule, see below) in final position (23).

- (23)
- a. weil er den Roman gelesen *hat*
since he the novel read has
'since he read the novel'
 - b. weil er den Roman *liest*
since he the novel reads
'since he reads the novel'
 - c. weil sie den Kuchen essen *will*
since she the cake eat wants
'since she wants to eat the cake'
 - d. weil sie den Kuchen *isst*
since she the cake eats
'since she eats the cake'

Analysis: The second position in V2-clauses

Observation (continued):

- Often, the finite verb imposes selectional restrictions on other elements that appear sentence finally. For instance, the auxiliary *haben* 'have' selects a perfect participle (24).
- Crucially, the same selectional restriction is imposed on elements in clause-final position if the finite verb shows up in second position (25).

- (24) a. weil ich den Roman *gelesen* habe
since I the novel read.PTCPL have
'since I read the novel'
- b. *weil ich den Roman *lesen* habe
- c. *weil ich den Roman *lesend* habe

- (25) a. Ich habe den Roman *gelesen*.
- b. *Ich habe den Roman *lesen*.
- c. *Ich habe den Roman *lesend*.

Analysis: The second position in V2-clauses

Interpretation:

- According to our assumptions, selection presupposes (structural) sisterhood.
- The fact that the finite verb in second position imposes selectional restrictions on clause-final elements suggests that it is merged clause-finally (as in embedded clauses), as a sister of (projections of) these elements, where its selectional features can be checked.
- Only later in the derivation, the finite verb undergoes head-movement to the left. The head it targets requires finiteness.

Consequence:

The underlying word order in German is SOV (in embedded but also in main clauses).

Analysis: The structure of V2-clauses

Question:

What position exactly do the finite verb and the clause-initial category move to in V2-clauses?

Note:

- V2-clauses can be embedded under certain predicates, cf. (26-a,b).
- A finite verb in second position of an embedded V2-clause is not compatible with the presence of an overt complementizer (26-c,d).

- (26)
- (Ich glaube,) dass die Nudeln besser gewesen wären.
I think that the pasta better been were
'I think the pasta would have been better.'
 - (Ich glaube,) die Nudeln wären besser gewesen.
 - * (Ich glaube,) die Nudeln dass wären besser gewesen.
 - * (Ich glaube,) die Nudeln wären dass besser gewesen.

Analysis: The structure of V2-clauses

Interpretation (already Bierwisch 1965, Thiersch 1978, den Besten 1989):

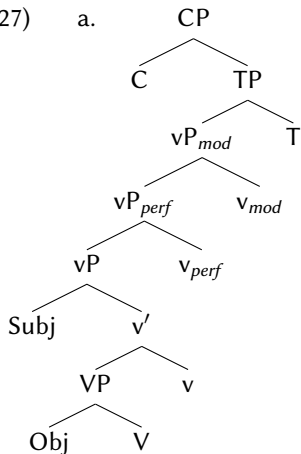
- The finite verb undergoes head-movement to C. In this way, one can straightforwardly explain why V2 is not compatible with an overt C: by assumption, only an inaudible C has the ability to host the finite verb.
- If the finite verb adjoins to C, then phrasal movement to the initial position is best analyzed as movement to SpecC.
- If only the finite verb moves (but no phrasal movement occurs), then SpecC remains empty (cf. SAI in English above): V1.

Clausal structure of German

Note:

To capture verb-finality (assuming V-to-v movement), we assume that v and other functional heads hosting auxiliaries (v_{mod} , v_{perf} , etc.), and perhaps also T, are linearized phrase-finally in German.

- (27) a. CP b. dass sie ihn gesehen haben wird
that she him see.PTCPL have.INF will



Analysis: Illustration

Preview:

Analyses of the following clause types in German are illustrated: a) verb-final embedded clauses (28-a), b) verb-first interrogative clauses (28-b), c) verb-second declarative clauses (28-c), and d) verb-second interrogative clauses (28-d).

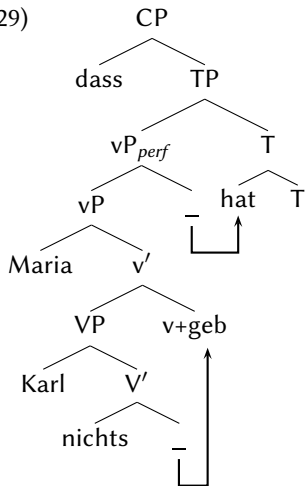
- (28)
- a. dass Maria Karl nichts gegeben hat
that Maria Karl nothing given has
 - b. Hat Maria Karl nichts gegeben?
has Maria Karl nothing given
 - c. Maria hat Karl nichts gegeben.
Maria has Karl nothing given
 - d. Was hat Maria Karl gegeben?
what has Maria Karl given

Note:

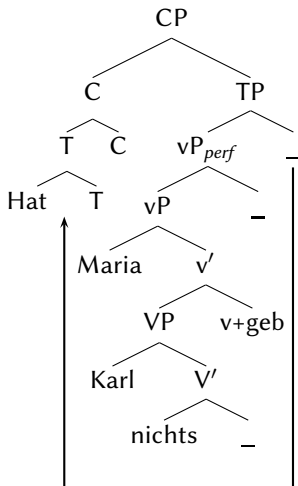
In (28-d), an interrogative pronoun *was* ‘what’ has been merged as the object of the verb and then been moved to SpecC. This type of phrasal movement is usually dubbed *wh-movement* (*wh* being mnemonic for the spelling of elements such as *what*, *where*, *who*, etc.).

Analysis: Illustration

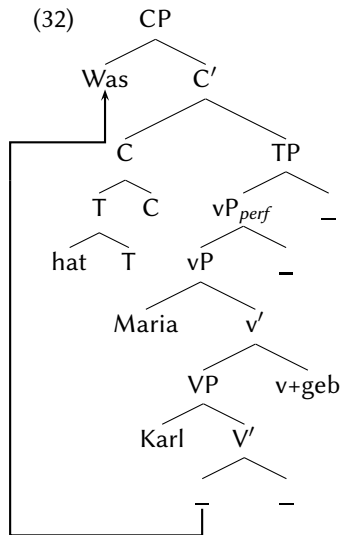
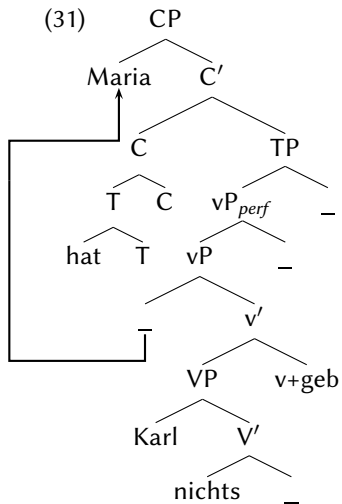
(29)



(30)



Analysis: Illustration



Infinitival complementation

Preview:

In what follows, different types of infinitival constructions will be introduced.

- Control infinitives
- ECM-infinitives (ECM = *exceptional case marking*)
- *for*-infinitives
- Raising infinitives

Control infinitives

Observation:

- The embedded verb in (33-a,b) (*eat*) takes two arguments, i.e., it assigns two Θ -roles (including the Θ -role assigned by *v*).
- This becomes obvious if one formulates paraphrases of such examples that involve finite complementation, which is possible in some cases (34).

(33) a. Dr. Brumm plans [to eat the honey].

b. Dr. Brumm tries [to eat the honey].

(34) Dr. Brumm plans [_{CP} that Pottwal eats the honey].

Problem:

- The agent role of the non-finite embedded predicate in (33-a,b) (a so-called *control infinitive*) does not seem to be realized by an argument in the syntax.
- In the case of finite complementation (34), this role is realized by the argument *Pottwal*.

Control infinitives

Assumption:

- Control infinitives involve Merge of a non-audible argument in Specv that realizes the agent-role of the embedded predicate (35-a). (Later, that empty argument moves to SpecT in English.)
- This argument is called PRO (mnemonic for “pronoun”). The reason for assuming a pronominal element is that the reference of PRO is determined (*controlled*) by some other argument (in most cases: the subject) of the matrix clause (35), here indicated by coindexation, cf. (35-a,b).
- For some reason, having an overt subject in the infinitive (coreferent with the matrix subject or not) is impossible (35-c,d).

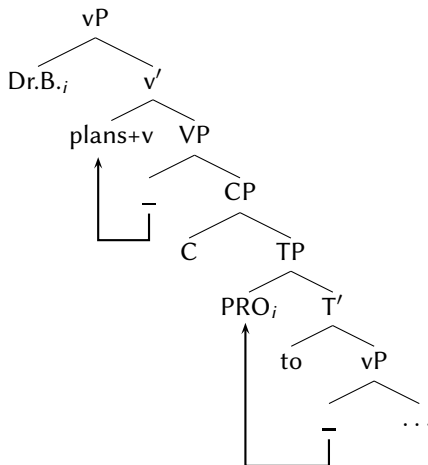
- (35)
- a. Dr. Brumm_i plans [PRO_i to eat the honey].
 - b. *Dr. Brumm_i plans [PRO_j to eat the honey].
 - c. *Dr. Brumm plans [Dr. Brumm to eat the honey].
 - d. *Dr. Brumm plans [Pottwal to eat the honey].

Control infinitives

Common assumption:

Embedded control infinitives are CPs, just as finite complements are.

(36)



ECM-infinitives

Observations:

In contrast to control infinitives, the infinitives in (37) allow for the overt (audible) realization of the subject: ECM-infinitives.

- (37) a. Dachs expected [Dr. Brumm to be incompetent].
 b. Dr. Brumm believes [farmer Hackenpiep to be a thief].

Note:

- The embedding predicates *expect* and *believe* take two arguments: a nominal one (here: *Dachs*, *Dr. Brumm*) and a propositional one (the infinitive).
- That *Dr. Brumm* in (37-a) and *farmer Hackenpiep* in (37-b) really are arguments of the embedded predicate (and not objects of the embedding predicate) becomes obvious if finite paraphrases are considered:

- (38) a. Dachs expects [_{CP} that Dr. Brumm is incompetent].
 b. Dr. Brumm believes [_{CP} that farmer Hackenpiep is a thief].

Note:

- Since controlled PRO is already part of the theory, couldn't one analyze (37-a) and (37-b) as cases of control by object (39-a,b)? This would, apparently, satisfy the Θ -criterion: the agent-role of the embedded predicate is realized by PRO.
- This would require that predicates such as *expect* and *believe* take three arguments. Here things become a bit complicated. As for *believe*, at first sight it looks as this were the case (40).
- But note that (40) means that the embedded proposition is somehow uttered by farmer Hackenpiep, and that Dr. Brumm believes that Hackenpiep is telling the truth. This, however is not the meaning of (37-b), suggesting that (37-b) only involves one internal argument (the proposition).

- (39) a. Dachs expects Dr. Brumm_i [_{CP} PRO_i to be incompetent].
 b. Dr. Brumm believes Hackenpiep_i [_{CP} PRO_i to be a thief].
- (40) Dr. Brumm believes farmer Hackenpiep_i [_{CP} that the world is flat].

... (continued):

- In contrast, it looks at first sight as if *expect* would not allow for three arguments (41-a).
- However, there is a paraphrase of (37-a) that makes use of a PP for the non-propositional internal argument of *expect*, which is grammatical (41-b).
- Whatever the reason for the contrast between (41-a,b), one may conclude that *expect* can take two internal arguments after all. And since there is no difference in meaning between (37-a) and (41-b) it is commonly assumed that *expect* is syntactically ambiguous in allowing for both a control infinitive and an ECM infinitive.

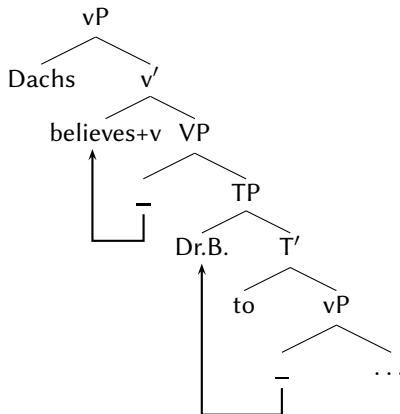
- (41) a. *Dachs expects Dr. Brumm_i [_{CP} that he_i is incompetent].
b. Dachs expects [_{PP} of Dr. Brumm_i] [_{CP} that he_i is incompetent].

ECM-infinitives

Common assumption:

ECM-infinitives are TPs. We are not in the position yet to give an argument for this. But we will come back later to it.

(42)

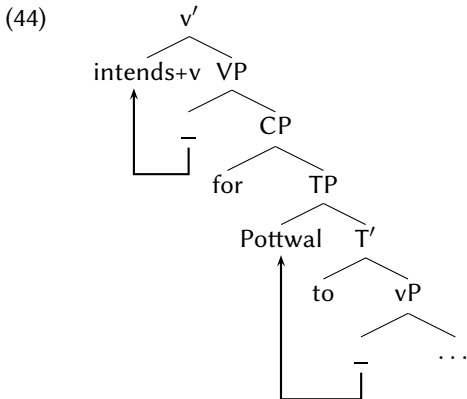


for-infinitives

Observation:

Infinitives in English may be introduced by the complementizer *for* (43), and are therefore to be analyzed as CPs (44). The subject is overt.

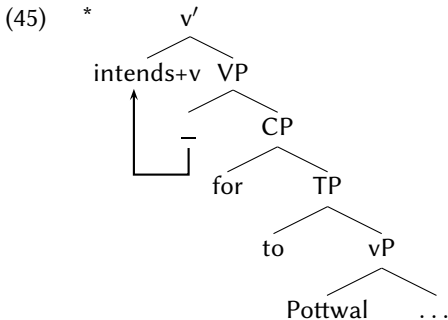
- (43) a. Dr. Brumm intends [_{CP} *for* Pottwal to go swimming].
b. [_{CP} *For* Pottwal to go swimming] would be a mistake.



for-infinitives

Note:

- *For*-infinitives (like ECM-infinitives) suggest that in English non-finite T, just as finite T, must bear the requirement of having a specifier that is filled by an argument.
- Without movement to SpecT, the wrong word order results: (45).
- *For* arguably does not form a constituent together with *Pottwal* in (43-a,b). If it did, PPs should make good subjects in English (should be able to occupy SpecT), which is generally not the case.



Raising infinitives

Observations:

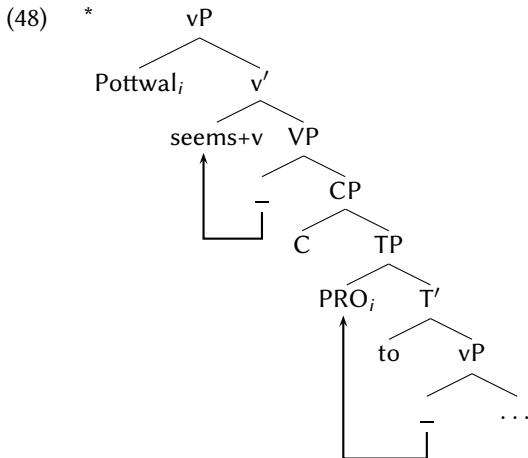
- There is a second infinitival construction (in English) that exhibits a non-audible subject: the raising infinitive (46-a,b).
- Crucially, the embedding predicate of a raising construction (such as *appear*, or *seem*) does not assign any Θ -role. (For instance, *Pottwal* in (46-a) is not the agent of some “appear”-event.)
- This becomes also obvious by finite paraphrases, where the subject position of the matrix clause must be filled by a semantically empty *expletive*, such as *it*, which does not serve as an argument (47-a,b).

- (46) a. Pottwal appears [to be sick].
 b. Dr. Brumm seems [to be riding his bicycle].
- (47) a. It appears [_{CP} that Pottwal is sick].
 b. It seems [_{CP} that Dr. Brumm is riding his bicycle].

Raising infinitives

Consequence:

A control-analysis is impossible because the argument of the matrix clause does not realize any Θ -role, in violation of the Θ -criterion.

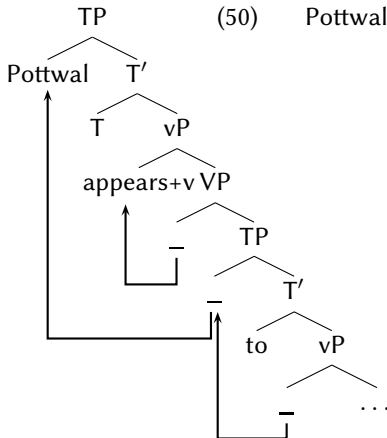


Raising infinitives

Common analysis:

- Raising predicates like *seem* (like ECM-predicates) embedd TP.
- (Again, the argument for this will come later.)
- Since the matrix T-head requires filling of a specifier, an argument from the embedded TP undergoes movement to the matrix SpecT (49).

(49) (50) Pottwal appears to be sick.



Raising infinitives

Note:

- Movement of the IA in the case of a transitive embedded infinitive would generate the ungrammatical (52).
- This may be assumed to be blocked by the *Minimal Link Condition* (MLC, some variant of Minimality, Chomsky 1995), which forces the highest argument (usually the EA) to undergo raising to SpecT (assuming that α in (51) = the matrix SpecT in (52)).

(51) *Minimal Link Condition (MLC):*

In a structure $\alpha \dots [\dots \beta \dots [\dots \gamma \dots$, where α c-commands β , and β asymmetrically c-commands γ , no grammatical relation can obtain between α and γ if it can also obtain between α and β .

(52) * $[_{NP}$ His bicycle] seems $[_{TP}$ Dr. Brumm to be riding _].



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