Syntax (2)

General Linguistics

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(Some slides: Petra Hendriks)

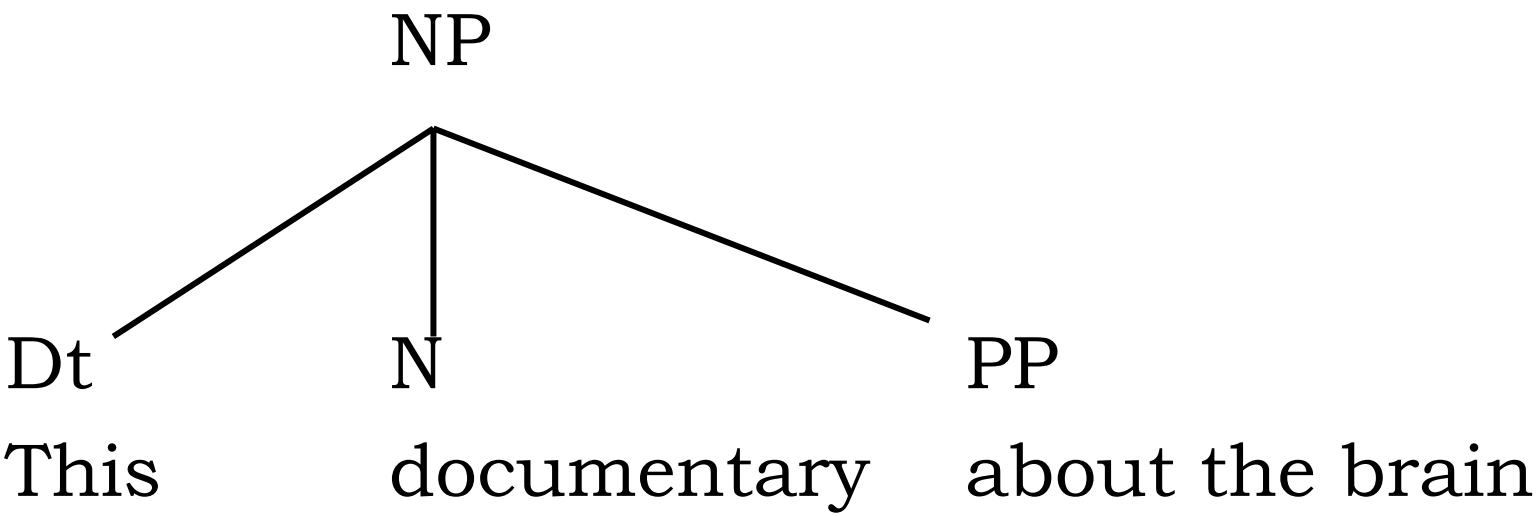
Levels of language

• Text/Dialogue	⇨	Pragmatics	(lecture 11)
• Sentences	⇨	Syntax	(lectures 5 en 6)
		Sentence semantics	(lecture 10)
• Words	⇨	Morphology	(lecture 4)
		Lexical semantics	(lecture 9)
• Syllables	⇨	Phonology	(lecture 3)
• Sounds	⇨	Phonetics	(lecture 2)

Structure of the lecture

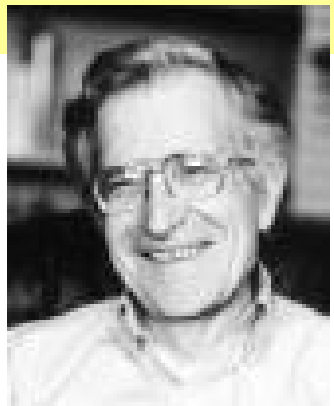
1. Review of X-bar theory
2. Subcategorization
3. Movement
    1. Why movement?
    2. inversion
    3. Wh-movement
4. Dutch vs. English

Original XP structure: in the form of an NP

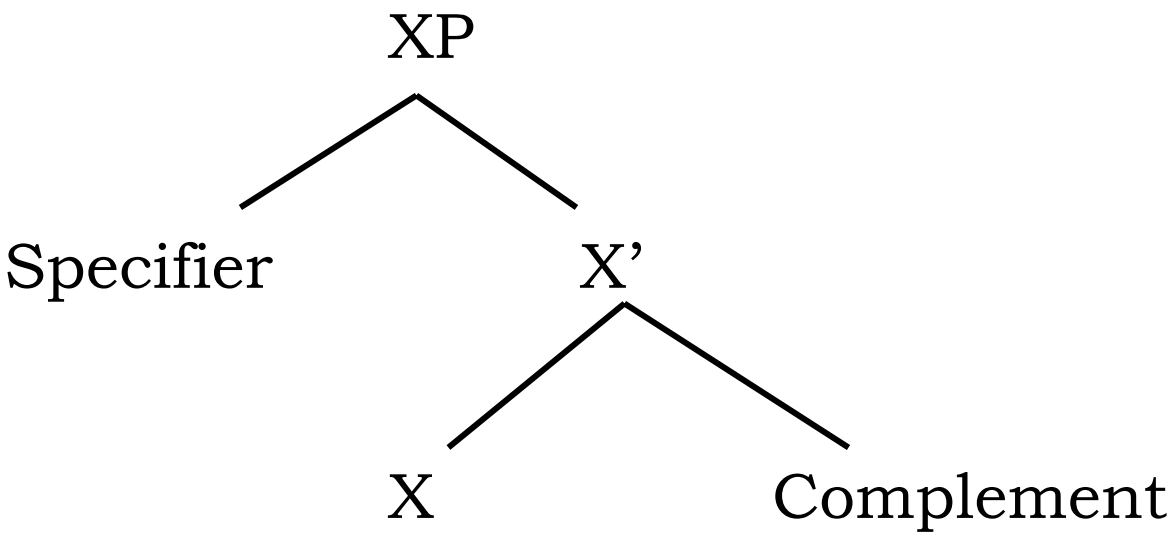


➔But we said this isn't the structure linguists believe in!

Linguists believe in **X-bar-structure!**



Noam Chomsky



➔ We have seen that this type of structure exists for nouns, verbs, adjectives and adverbs

➔ But what about sentences?

X-bar-rules

- XP ➔ (Specificeer), X'
- X' ➔ Adjunct, X'
- X' ➔ X, (Complement)

X = N, V, A of P

De X-bar-rules don't say anything about the order that the words should appear in.

Why should you believe in X-bar theory?

- XP theory is simpler
- For many years linguists thought XP theory was right
- But there are reasons to believe in X-bars!

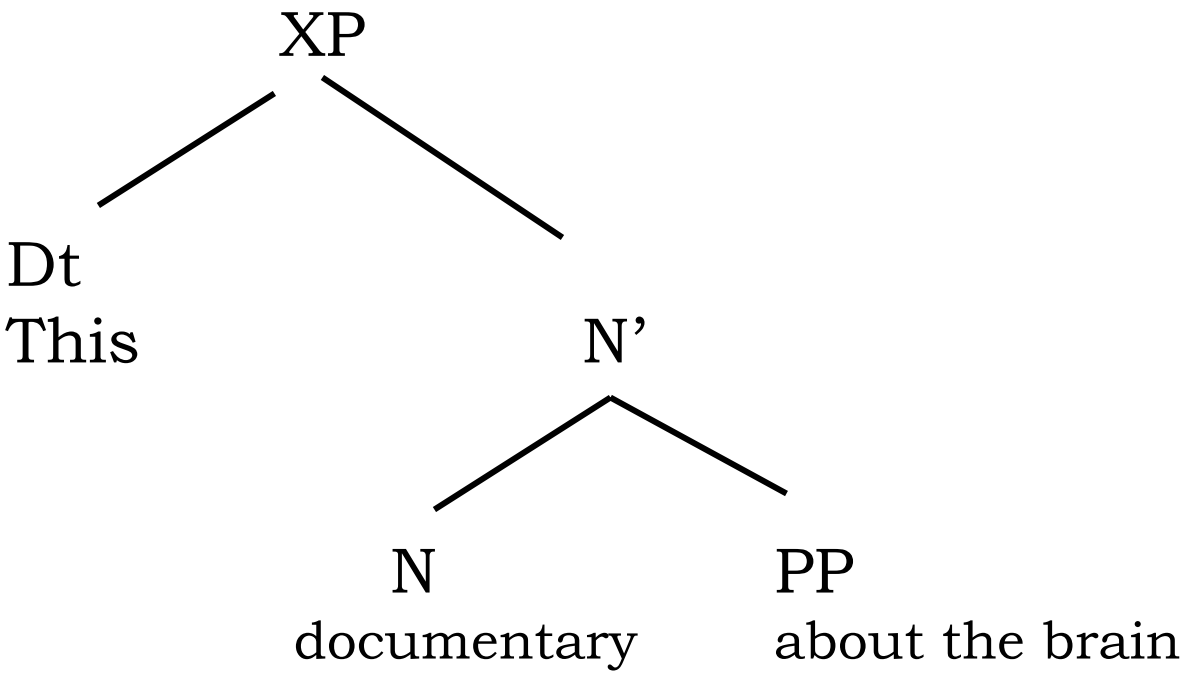
X-bar theory predicts that there should be constituents that are smaller than XPs but larger than X

X-bar theory

(1) This [documentary about the brain] will interest the students.

- *documentary about the brain* can be replaced with "one"; thus it passes the substitution test as a constituent!
- *This* is clearly a specifier. What is then *documentary about the brain*?
- Even if we identify *documentary* as the head (N) and *about the brain* as the complement we don't have any unit that corresponds to *documentary about the brain*

This documentary



➔But what about sentences?

Sentences?

- All major part-of-speech categories form XP structures
- NP → (Det) N'
- N' → N (Comp)
- VP → (Spec) V'
- V → V (Comp)

But then:

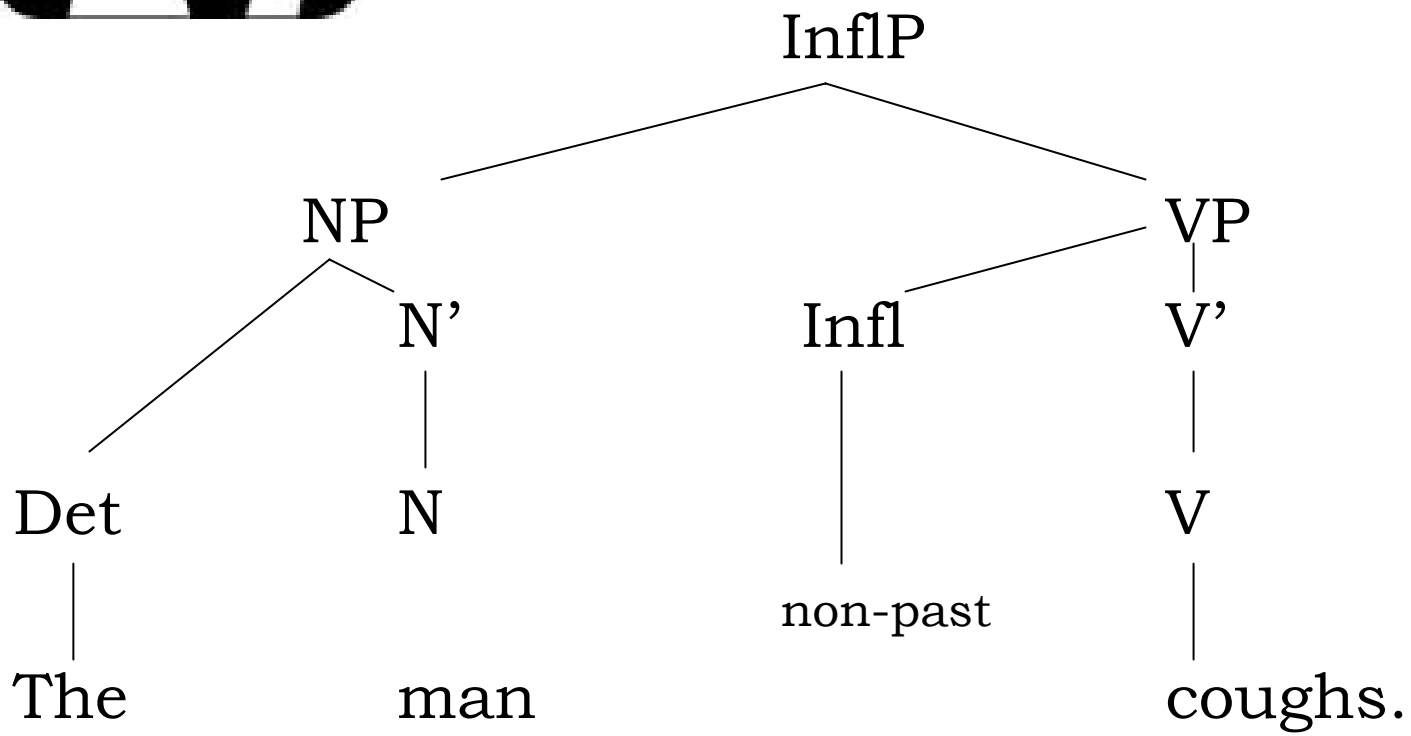
- S → NP VP

This spoils the symmetry! Let's look further!

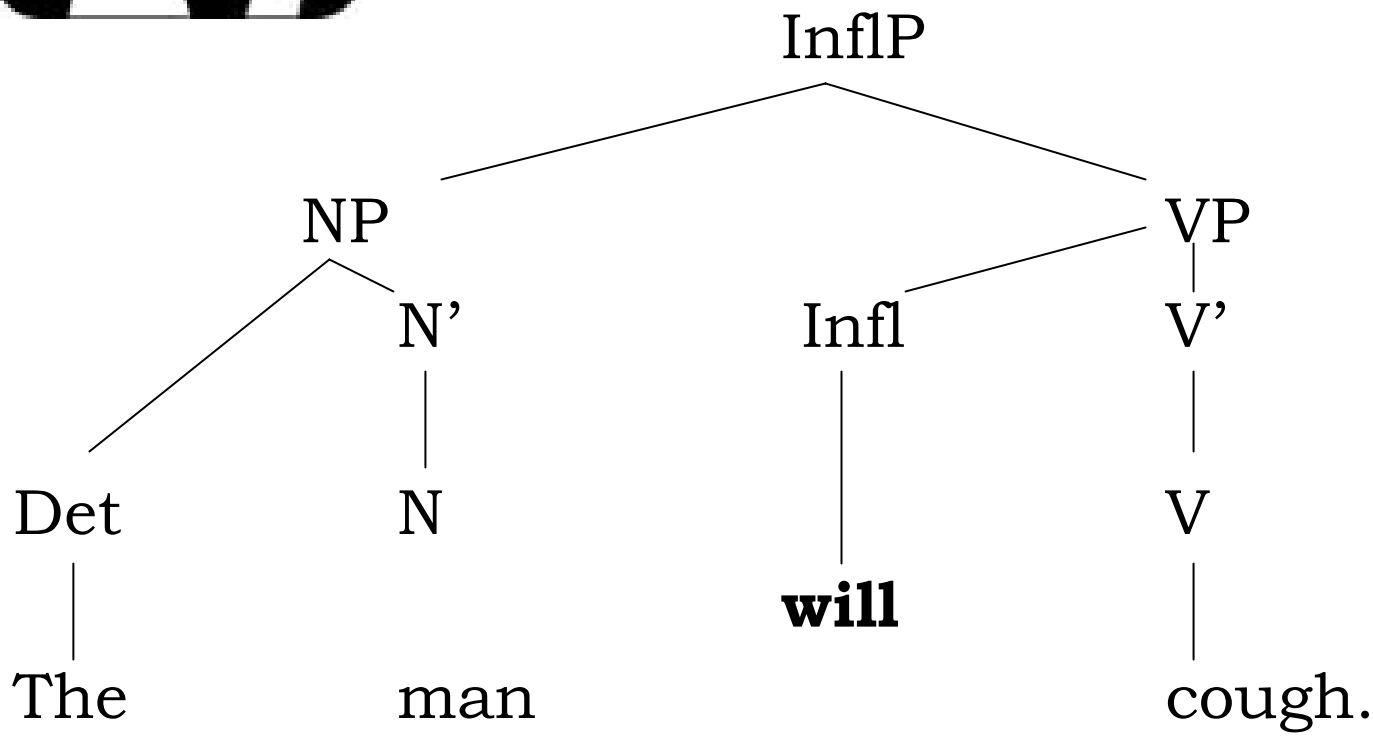
InflP

- Perhaps Sentences are part of an XP scheme!
- Many linguists believe the head is then an **Infl**
  - **Infl = inflectional category**
- This makes an **InflP**
- In default cases the Infl head is believed to be empty (which explains why we haven't seen it!)

S changed to InflP



S changed to InflP



Constraints on syntactic forms

- First major constraint:
  - major phrase structures in every language all have the X-bar structure
- This isn't the only constraint!
  - Not every word combines with every other word

Selection

How do you know of a group of words is a specifier or a complement?

- Jan slaapt.
- *Jan slaapt een droom.
- Jan koopt een boek.
- *Jan koopt.
- Jan geeft een boek aan Marie.
- *Jan geeft een boek.

➔ Verbs select their objects

➔ In general: Heads select their complements

X-bar restrictions

- Not every word can function as a complement to a given head

- There are “lexical restrictions” about what combinations are possible (or “occur” since the head implies the complement by virtue of the way the world is…)

Subcategorization

- **Subcategorization** = restrictions on the type of complements that a head can take
- Subcategorization properties are given in the mental lexicon
- Subcategorization properties have to be learned for each word

Subcategorization properties of verbs

- *Slapen*: -
- *Kopen*: NP
- *Vertellen*: NP/S, (PP/NP)
  - Jan vertelde een verhaal aan Marie.
  - Jan vertelde Marie dat zijn hoedje gestolen was.
  - Jan vertelde een verhaal.
- Verbs that don't take an NP complement are called **intransitive verbs**
- Verbs that take one NP complement are **transitive**
- Two NP-complements or an NP + PP = **ditransitive**

Prepositions subcategorize for =

Prepositions select their own prepositional objects:

(1) Jan fietst naar het station.
(2) *Jan fietst naar.

➔Prepositional objects are complements of their prepositions
  ➔Thus they are REQUIRED

Selection via verbs

Verbs select their objects:

Objects are the complements of verbs

- Verbs sometimes select their prepositional phrases:
  - Marie wacht op de trein.
  - Jomanda gelooft in wonderen.

➔ Prepositional phrases are complements of verbs in certain verb-preposition combinations

➔ There are certain restrictions on their use as well

Selection by other heads

- Some nouns select prepositional phrases:
  - de verovering van Gallië
- Some adjectives select for prepositional phrases:
  - jaloers op zijn zus

Syntactic correctness vs. Interperatability

- A constituent can be replaced with a constituent from the same category without it leading to ongrammaticality

- Ungrammaticality ≠ anomaly
  - Mijn tandenborstel is dronken.
  - Jan is dronken.
  - *Met mijn tandenborstel is dronken.

Colorless green ideas sleep furiously

Two constraints on syntactic structure

- First constraint:
  - X-bar-scheme is a completely general rule-scheme
- Second constraint:
  - Subcategorization constraints put restrictions on the scheme
  - Subcategorization limits the types of complements allowed with given heads

Generating structure

- A message has to be formed into a string of words: how does this happens
- X-bar rules and subcategorization together combine to produce a structure

- With X-bar rules and subcategorization we can generate a large number of structures
  - But we can't generate everything
  - What about yes-no questions

Should I go?

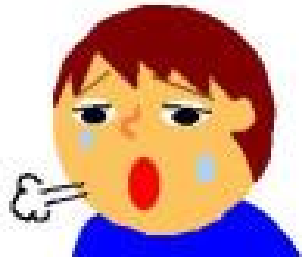
(1) Should I go?
(2) I should go.

- Clearly (1) is related to (2), though (1) is interrogative and (2) is declarative
- What is the nature of this relationship? Three possibilities
  1. (2) is derived from (1)
  2. (1) is derived from (2)
  3. Both orders are base-generated

I should go!

- General conclusion: the interrogative is derived from the declarative
  - evidence: intonational marking can also signal that the declarative form is an interrogative
- But then how does “I should go” become “Should I go”?
- ANSWER: Movement
  - Either the “I” moved to the right, or the “should” to the left
  - Reasons to believe that “should” moved

My sick friends move



- a. It seems that [all my friends] are sick.
- b. *Seems that [all my friends] are sick.
- c. [My friends] seem [all] to be sick
- d. [All my friends] seem to be sick.
  - Sentences must have subjects, hence *b.
  - “It” is meaningless, but fulfills the need for the overt subject
  - Seems you can use “my friends” there as well
  - “My friends” are still the ones who are sick (meaning doesn’t change)
  - “My friends” is in **two places at the same time!** via MOVEMENT

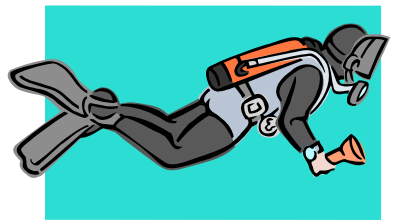
Should I go?

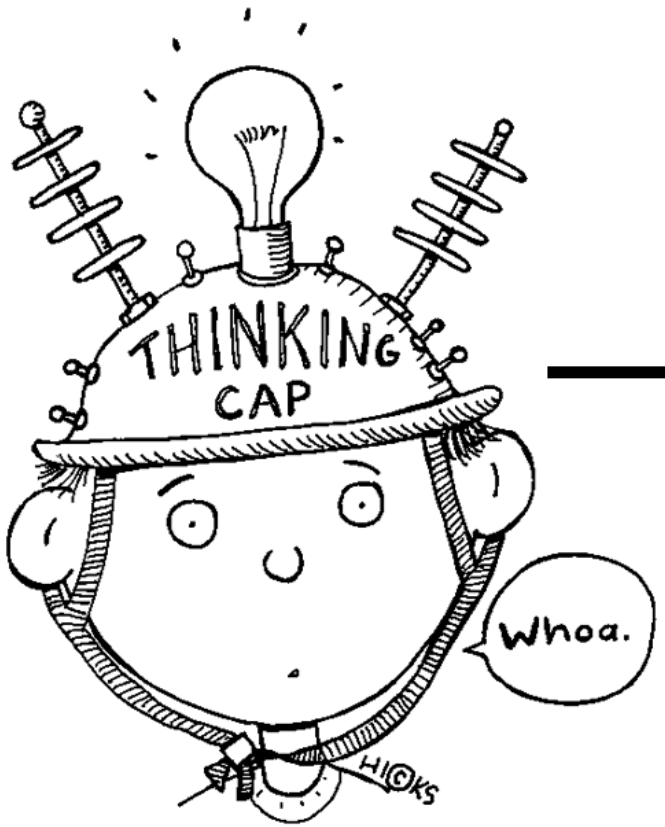
- Movement of the verb to the left of the subject is called **Inversion**

Movement -> two structures

- Movement implies there is the form *before* movement and then the form *after movement*

- **Deep structure** the form before movement
- **Surface structure** the form after movement





X-bar rules to fix phrase structures

Subcategorization to limit formed X-bar structures

↓

DEEP STRUCTURE

↘

Transformations (movement!)

↓

SURFACE STRUCTURE

Movement in NL

- Dutch also uses movement to make Yes-no questions, similar to English!
  - Though Dutch uses inversion for all yes-no questions
  - (English uses Do-support for all verbs except for auxiliary (helping) verbs)

Yes-No questions

(1) Repareerde de vrouw de auto?

Assume that this question is derived from the following declaritive sentence:

(2) De vrouw repareerde de auto.

Then moving the verb to a position to the left of the subject is necessary

Thus Dutch also uses **inversion**

(3) De vrouw repareerde de auto.

Advantages of movement analysis

- The meaning of the interrogative sentence corresponds with the meaning of the declarative sentence
  - they have the same deep structure
- But only one basic position is necessary for the verb
  - instead of base generating two types of sentences
  - Instead of believing there are two verbs “should” or “repareerde”

English *do* and inversion

(1) Did the woman repair the car?
(2) The woman repaired the car.
(3) What the woman did was repair the car.
(4) The woman didn't repair the car.

What category does the word *did* belong to and what is the position of that element in the tree?

Inflection

- *Did* carries tense and inflection
- *Did* can be moved
  - Only constituents can be moved
  - *Did* is therefore NOT part of a the VP
- Conclusion: *did* is the head of its own word group
- *Did*: Inlf (Infl also occurs without an over auxiliary)
- This means that **Infl** is sometimes overt!

Do-support & movement

- **Did** the woman repair the car?

In English the (filled) Infl category moves for yes-no questions

What about wh-questions?

Wh-questions

(1) Welke auto repareerde de vrouw?

Assume that this question is derived from the following declarative sentence:

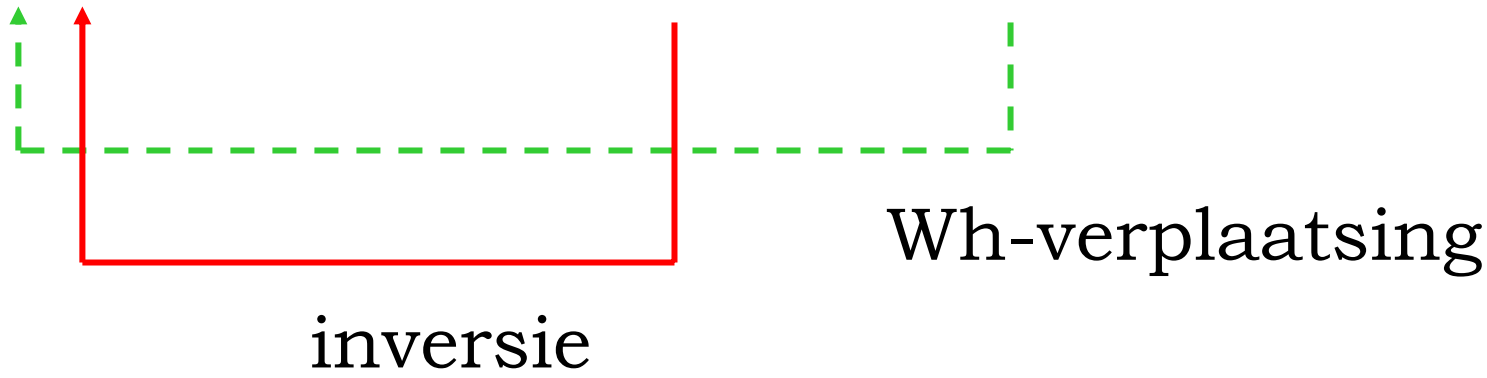
(2) De vrouw repareerde welke auto.

Then two movements are necessary:

1. Inversion of the subject and the verb
- Wh-movement of the question constituent "welke auto"

Wh-questions

- De vrouw repareerde welke auto.

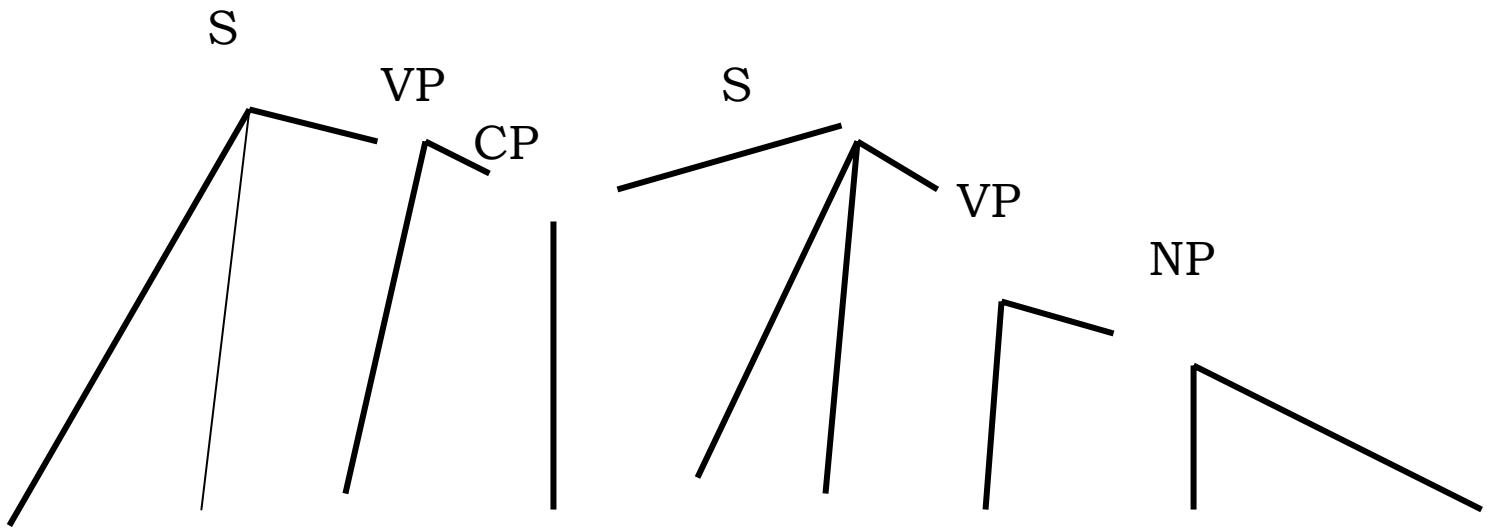


Annoying problem: what category do sentences belong to?

- We argued earlier that (main) sentences should be analyzed as InflPs
- But in subordinate clauses, CP's take InflPs as complements

- It would be better if we could analyze subordinate clauses and main clauses in the same way!
  - Uniform analysis is always better if possible!

CP-structure

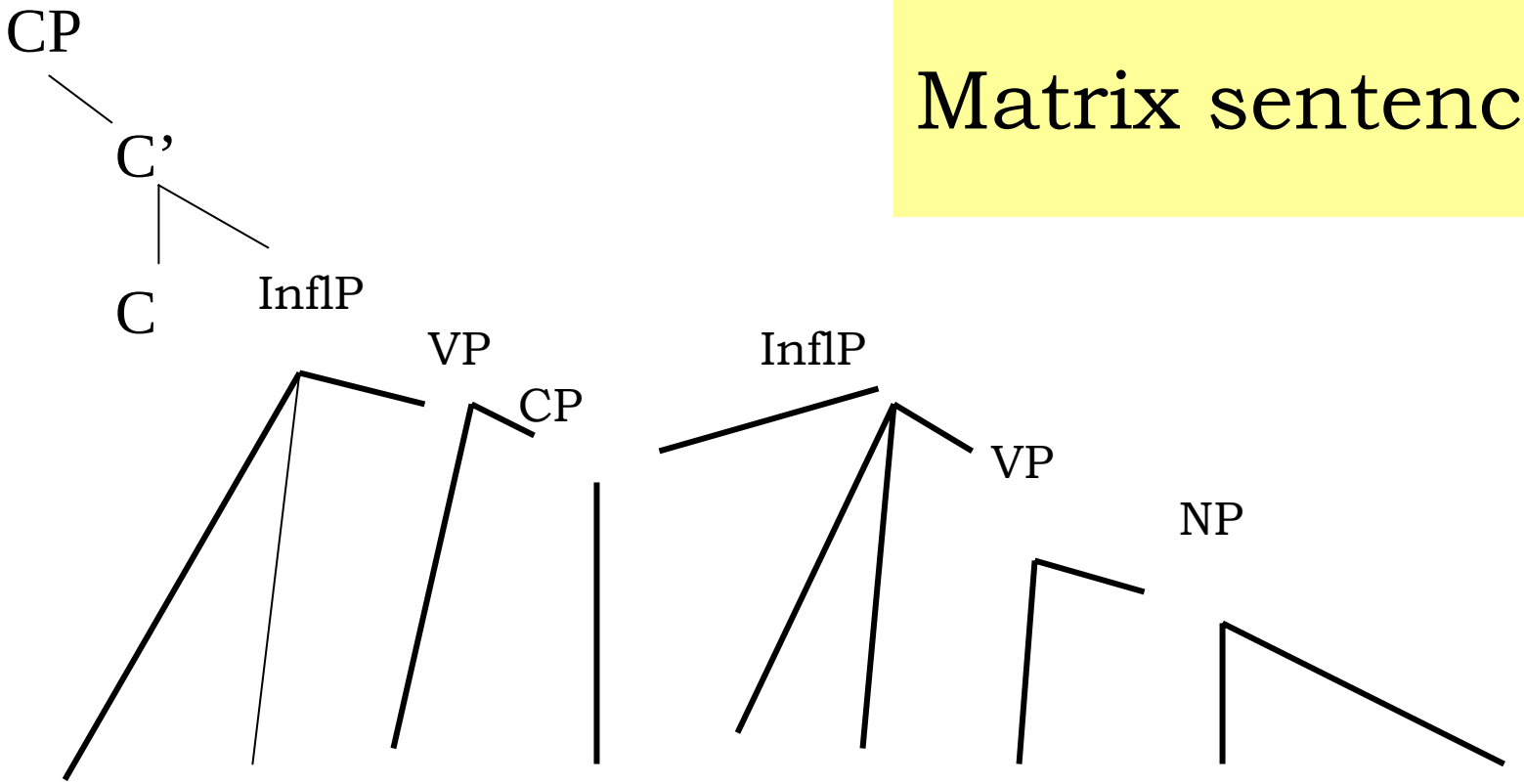


NP Infl V C NP Infl V Det N

I -pst think that Jan has eaten the hat

Because we have the **C** we can't really get rid of the CP!

Matrix sentences



NP Infl V C NP Infl V Det N

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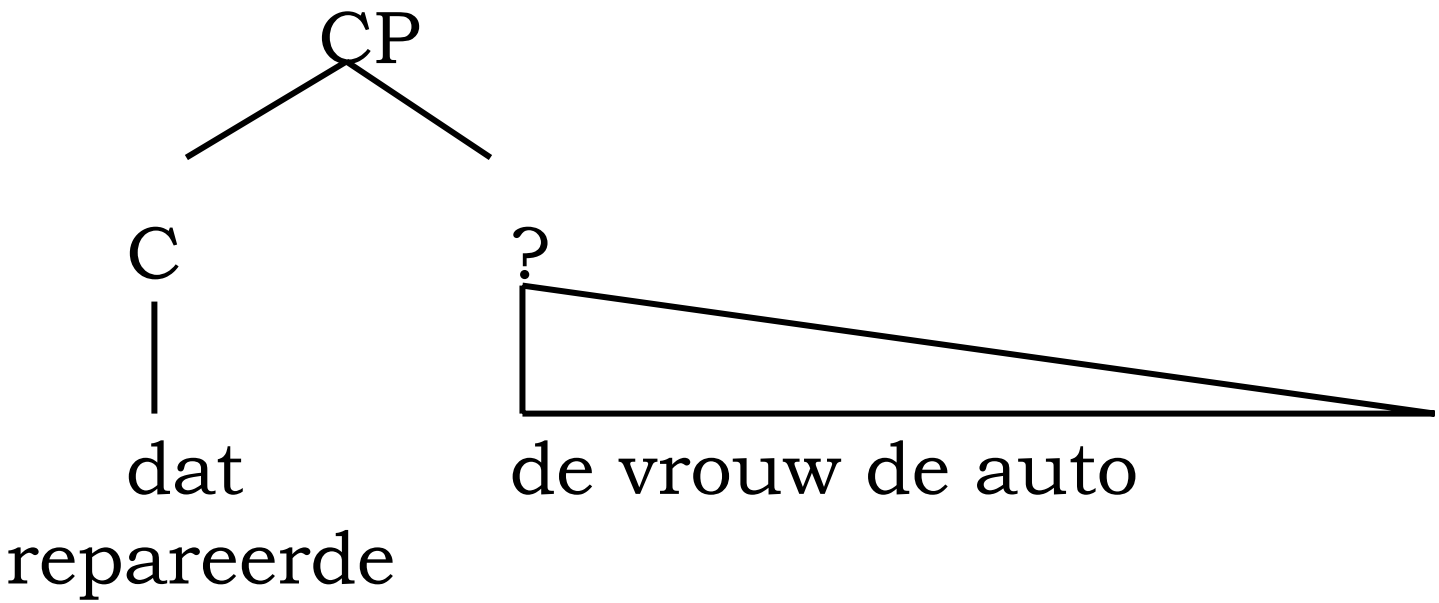
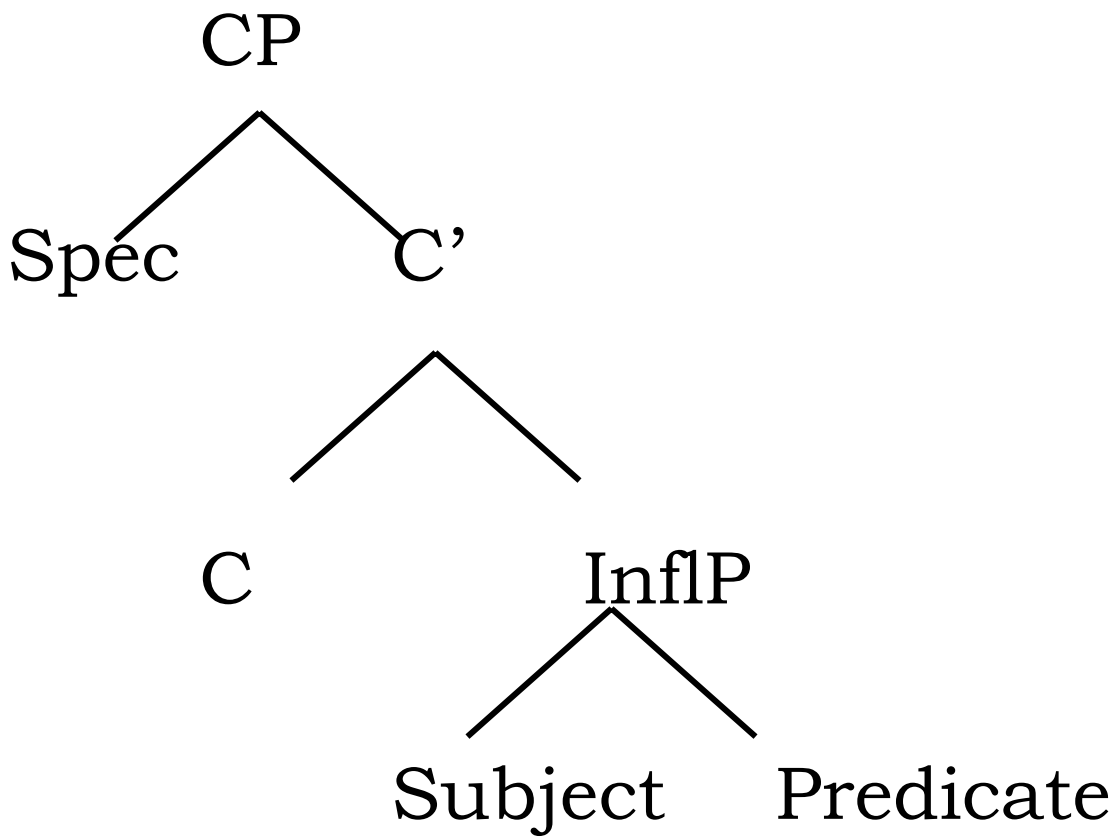
Because we have the **C** we can’t really get rid of the CP!

Complements

Because we have the C, we have to have a CPs (complementizer phrases):



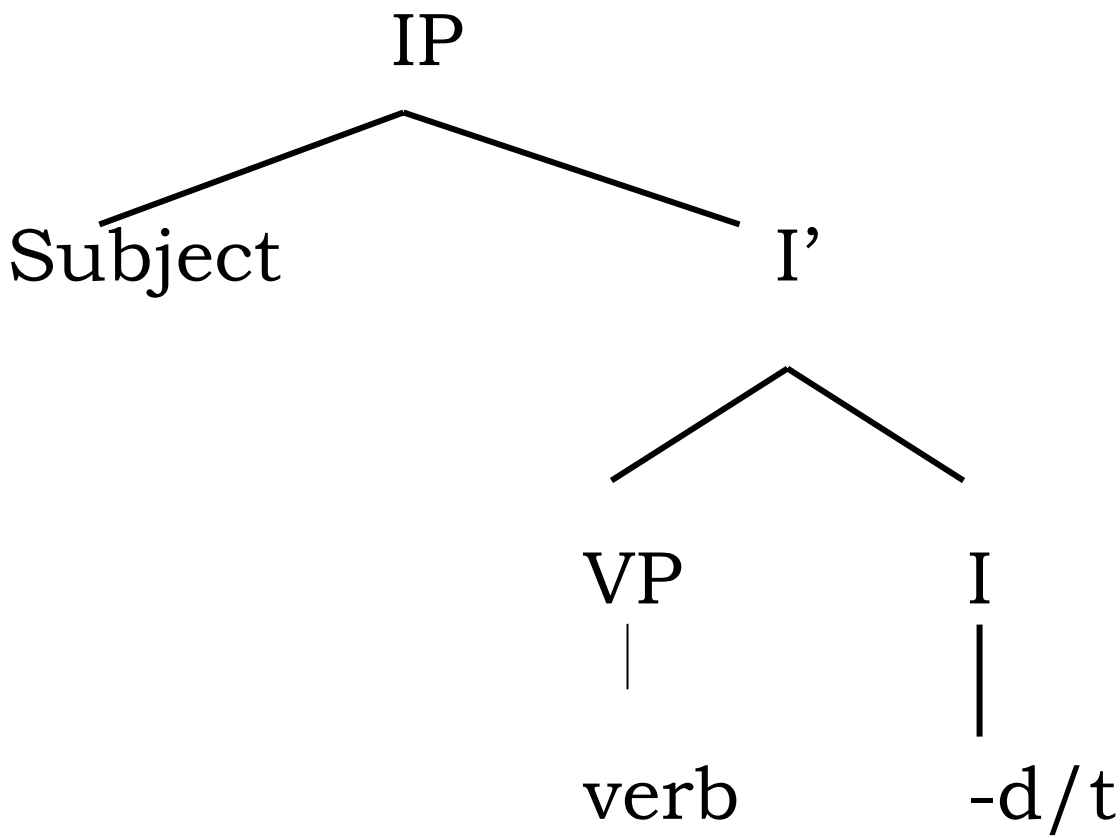
The structure of Dutch main clauses



Difference Dutch-English

- Dutch doesn't have an element like *do*.
- Tense-information is always affixed to the verb
- For this reason: every language has IP's (universal) but the order between IPs and VPs differs
- We believe the order in Dutch is:
  - VP-InflP

Dutch IP

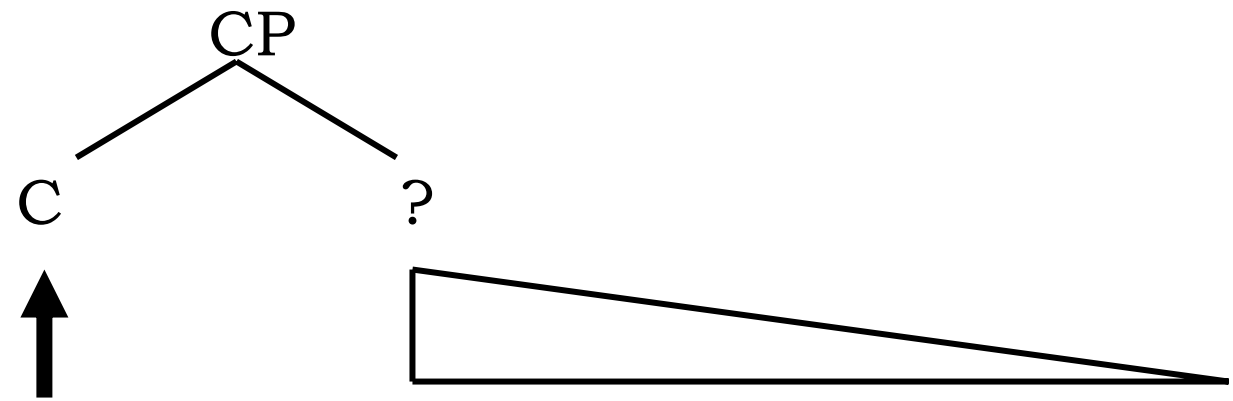


Where do these moved structures go?

- We introduced two types of movement:
  - Inversion
  - Wh-movement
- We keep moving things, but where to?
- It would be great if they could move to unused part of the X-bar structure

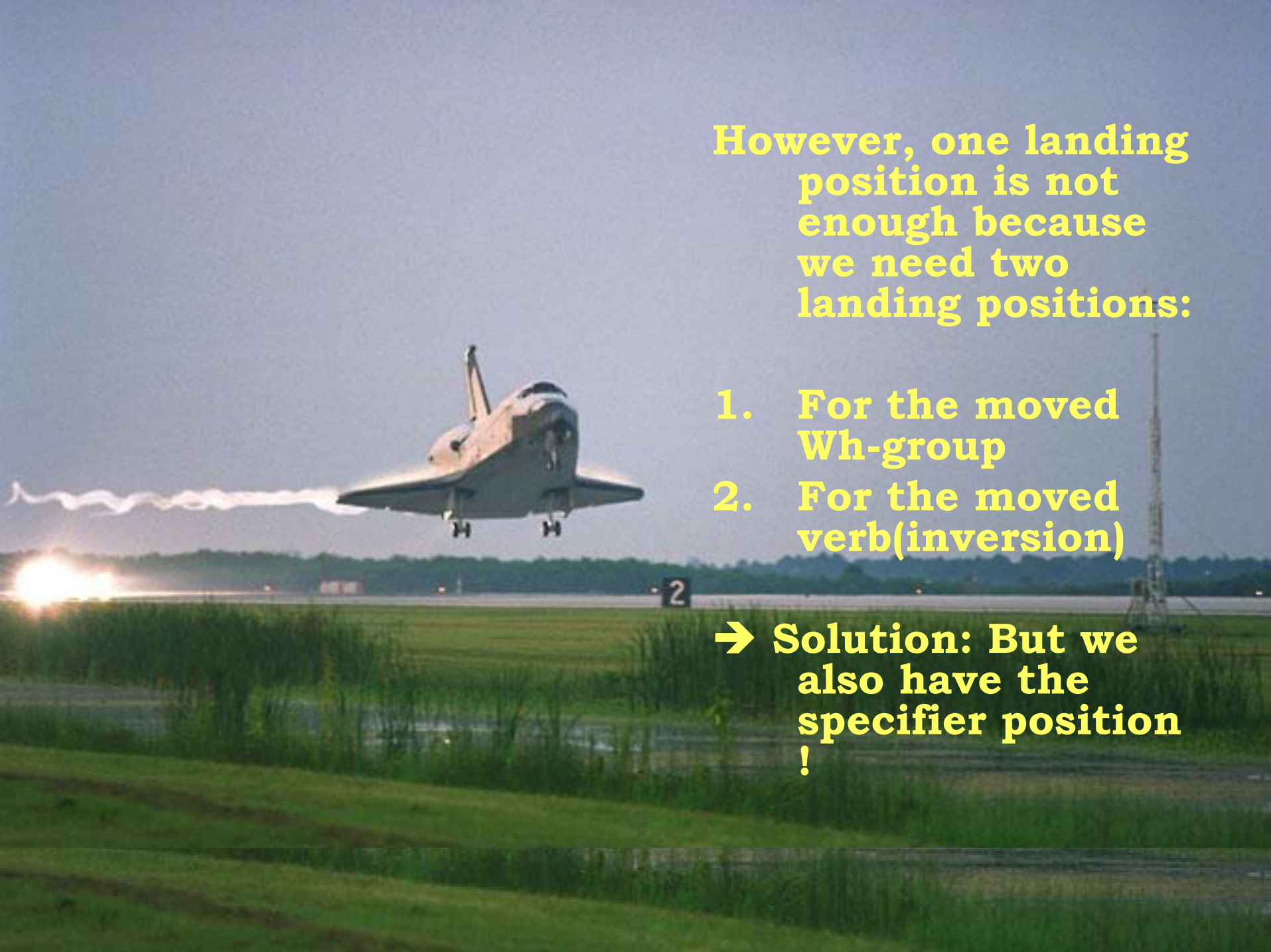
Matrix clauses

Remember we reanalyzed main clauses as having the same structure as subordinate clauses:



de vrouw de auto repareerde

➔ Now we have a landing position for the moved words!

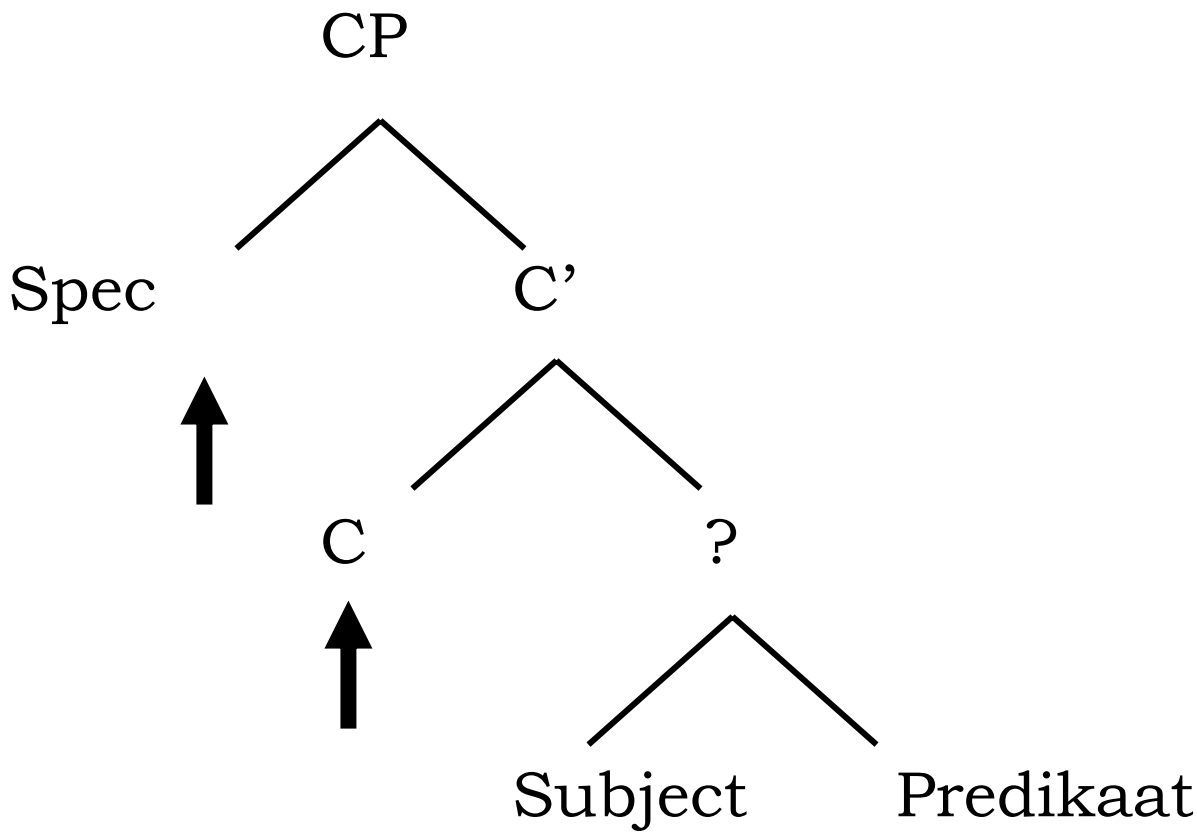


However, one landing position is not enough because we need two landing positions:

1. For the moved Wh-group
2. For the moved verb(inversion)

➔ Solution: But we also have the specifier position !

Two landing positions for movement



Summary: Movement

The CP has two possible landing positions for moved words and word groups:

1. [Spec,CP] for Wh-groups
   ➔ leftmost position, only for XPs.
2. The empty C-position for the verb V
   ➔ second position, only for heads.

Position of subjects

- Subjects are found in [Spec,IP].
- Subjects are therefore specifiers, and NOT complements, of the verb
- Reason: Verbs don't have to have subcategorization information about the presence of subjects
- Universal of all languages: sentences always have subjects
- SO: we know for Dutch and English subjects come first

Major word orders

- Typologists have found that languages fall into three general word order classes, depending on the main sentence order
- SVO languages: English, French (Chinese)
- VSO languages: Classical arabic, Insular Celtic languages and Hawai'ian
- VOS: Fijian and Malagasy
- OSV: Xavante? (Brazil)
- OVS: Hixkarvana? (500 people, Amazon river valley, Brazil)

- English is SVO: it has both SVO word order in main and subordinate clauses
- But what is the main word order of Dutch?

What is the structure of Dutch sentences?

(1) Ik denk dat Jan het hoedje opgegeten heeft

- The matrix sentence (main sentence) and subordinate sentence have different orders
- Three possibilities
  1. SVO is basic and something happened in the subordinate clause
  2. SOV is basic and the matrix clause is wrong
  3. Both are generated
- Let's look at simple movement in:
  - Yes/no questions
  - Wh-questions

SOV or SVO?

- The order of a subordinate clause in Dutch is SOV
- If main clauses have the same structure as subordinate clauses then they must also have the order SOV
- However, the surface order of main clauses is SOV.
- Most likely Dutch has only one basic word order, and the other word orders are derived (there can only be one grammar for Dutch).
- What is the the original word order of Dutch? : SOV or SVO?

Koster (1976)

Jan Koster (1976): Nederlands is SOV-taal.

Argument: based on the word order in sentences with particle verb combinations, such as *opbellen*:

- Jan belt Marie op.

Two possibilities:

1. The particle has been moved.
2. The verb has been moved.

Particle movement

Jan - belt Marie op. (main clause)

Particle movement:

- *Op* would be moved to the end of the main clause
- Basic word order = SVO

Particle movement

Problems with the particle movement hypothesis:

Why is there movement of particle + verb in subordinate clauses?:

- dat Jan Marie opbelt. (subordinate clause)

Why is particle movement required in main clauses?:

- *Jan opbelt Marie. (main clause)

Particle movement

Additionally the particle movement rule is very difficult to formulate:

- Jan gaf zijn vader [het geld]$_{NP}$ terug.
- *Jan gaf zijn vader terug [het geld]$_{NP}$.
- Jan liep [van de tafel]$_{PP}$ weg.
- Jan liep weg [van de tafel]$_{PP}$.

➔ Particle must move over the NP, but may not be moved over a PP

Verb movement

- Jan belt Marie op - . (main sentence)

Verb movement (V2):

- *Belt* is moved to the front of a main clause.
- Basic word order is SOV.

Verb movement

Advantages of verb movement:

In half of the cases, e.g. Dutch subordinate clauses nothing needs to be moved:

- Jan belt$_i$ Marie op t_i . (hoofdzin)
- dat Jan Marie opbelt. (bijzin)

➔ Fewer assumptions needed for this analysis than for the particle movement analysis (cf. Occam's razor).

Verb movement

Other advantages of the verb movement analysis:

Explains why V2, which is required in main sentences, is impossible in subordinate clauses:

- V2 is generally required
- V2 is movement from V to C.
- However, in subordinate clauses the position is filled with the subordinating conjunction
- V2 is therefore not possible in subordinate clauses

Verb movement

Predictions of the Verb movement analysis:

The particle is always in the position where the verb is in the subordinate clause:

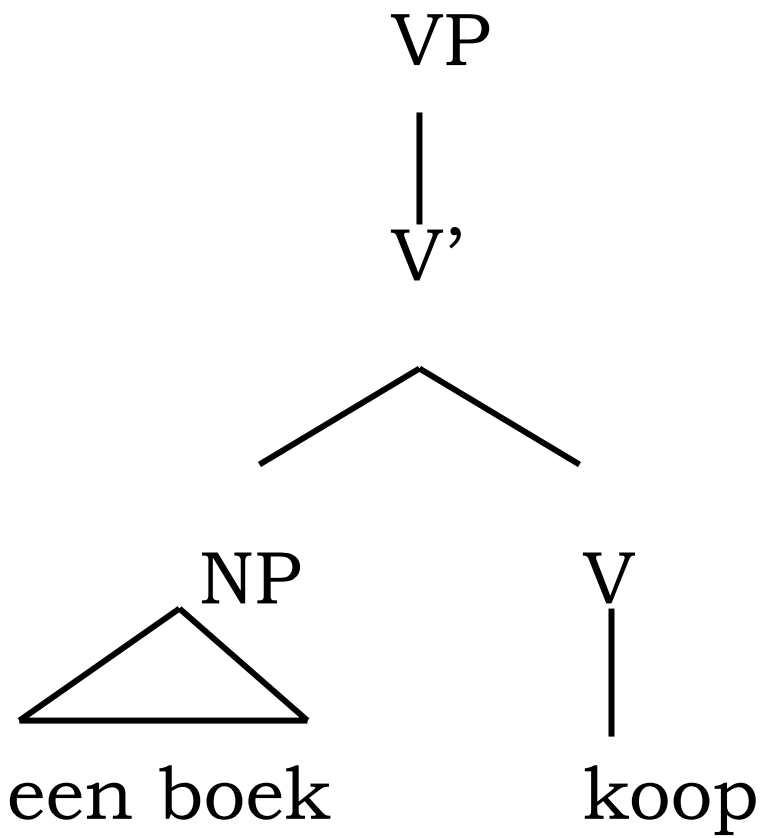
- dat Jan zijn vader [het geld]$_{NP}$ teruggaf.
- *dat Jan zijn vader teruggaf [het geld]$_{NP}$.
- dat Jan [van de tafel]$_{PP}$ wegliep.
- dat Jan wegliep [van de tafel]$_{PP}$.

➔ Predictions seems to be fulfilled

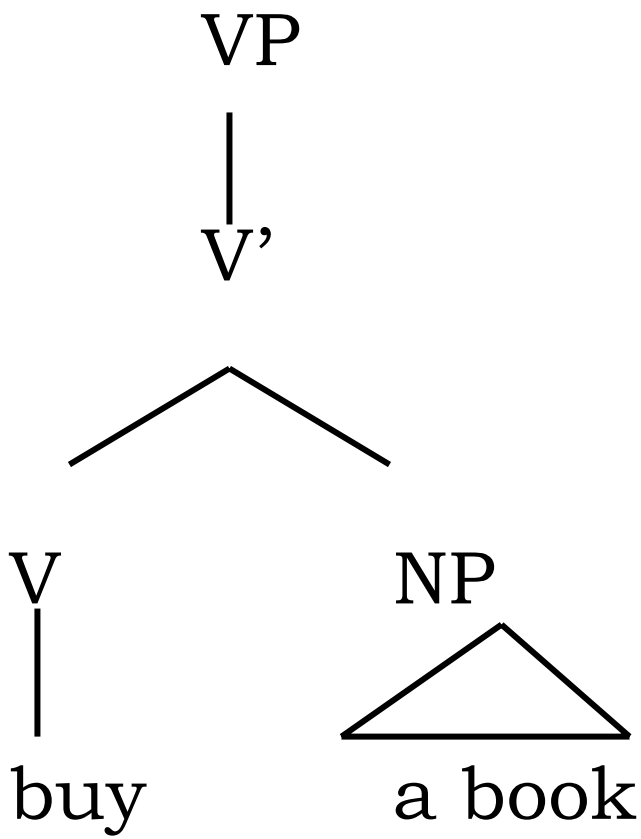
Dutch is an SOV-language

- Conclusion: Dutch is an SOV language
- Pronouns are generated at the back of the sentence
- In main sentence the pronouns is moved to the front: V2 (Verb Second).
- Finally, the position of the pronoun is under C

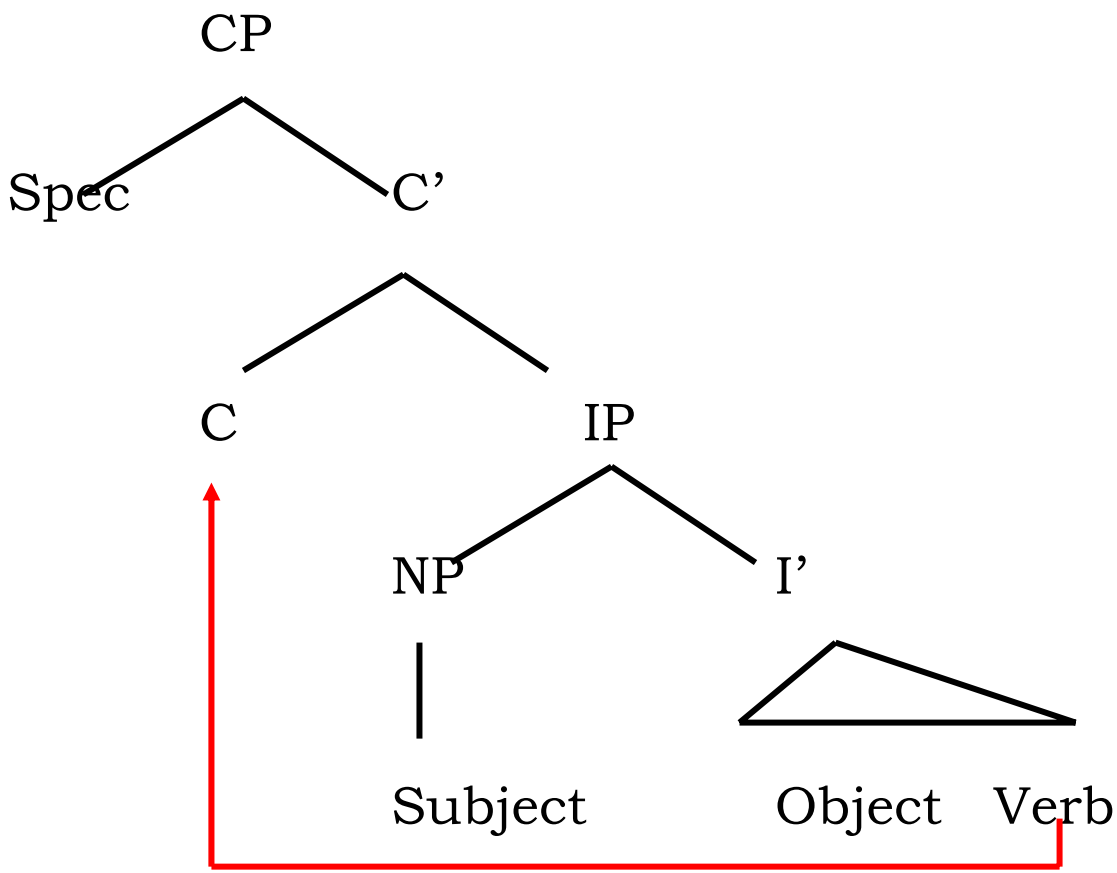
A Dutch VP



English VP



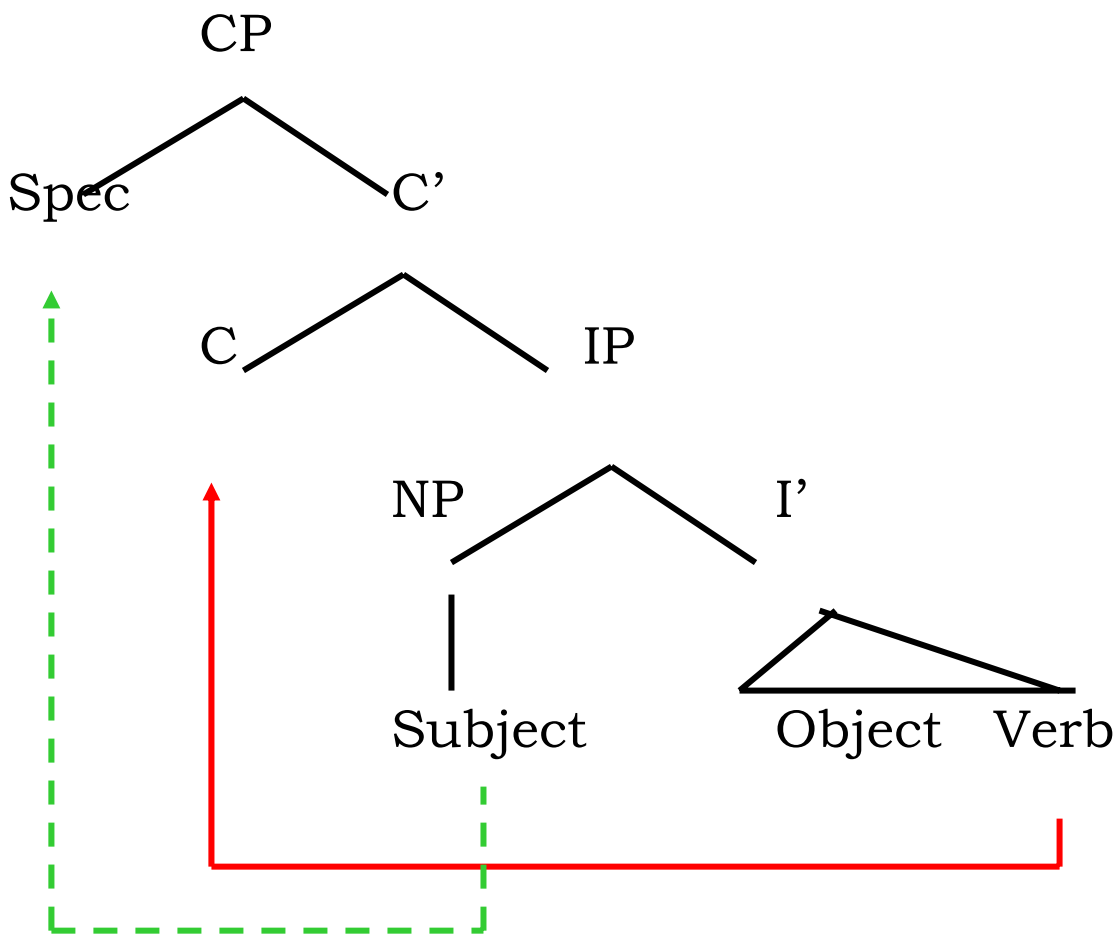
Verb Second



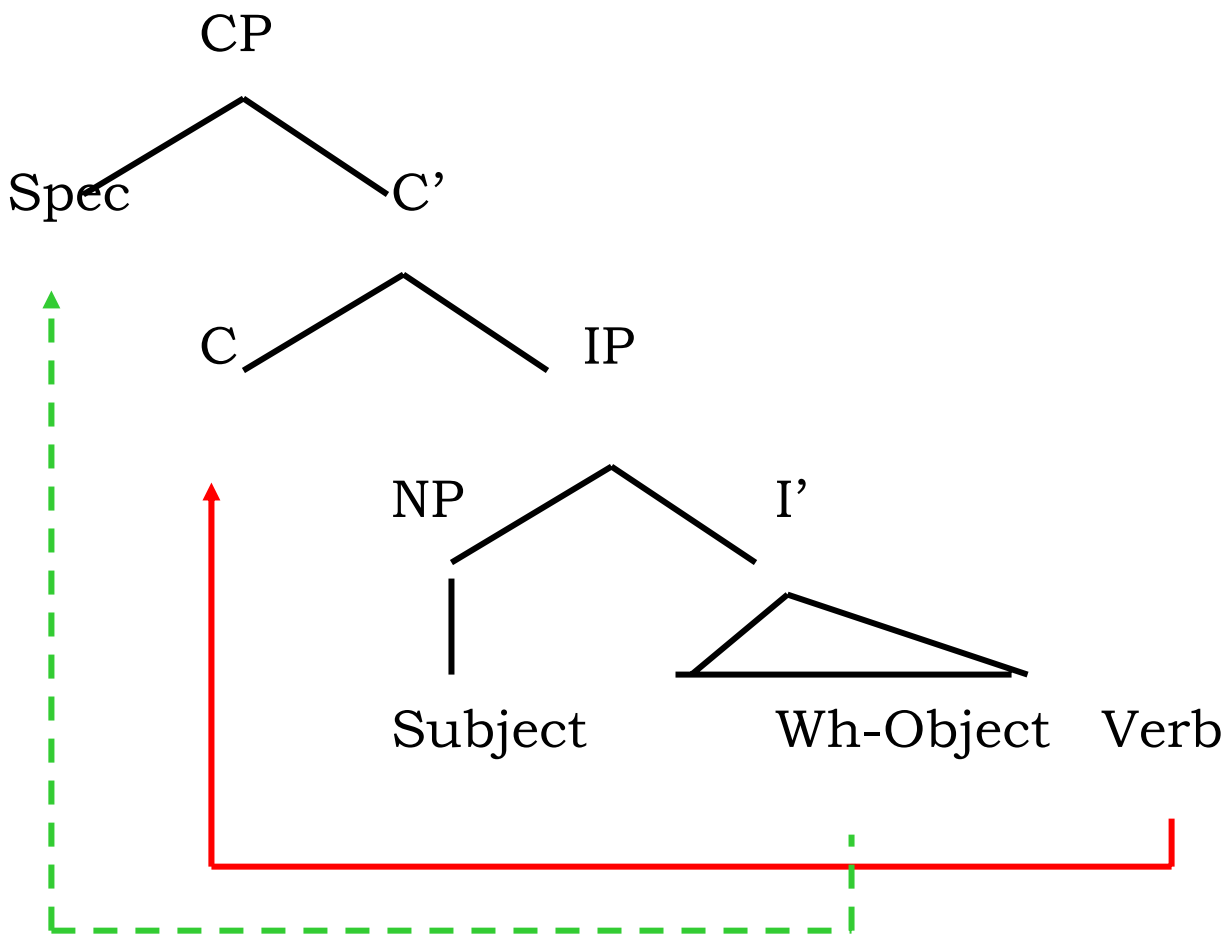
Final Word Order

- Verb Second explains the presence of inversion in yes-no questions
- The order between the subject and the finite verb is switched
- However, this isn't the final order of Wh-sentences and declarative sentences
- We also find a movement of the subject or the Wh-element

Movement of subject subject…



…or question words



How do you build a tree structure?

- Tag each word with its part of speech
- What do you believe was the deep structure?

- Words in a sentence have categories
- The lexical categories N, V, A, and P project according to the X-bar scheme (according to recent analyses Det, Deg and Con do so as well)
  - Try to make X-bar structures
  - Put the smaller X-bar structures together
  - Remember that the top of the tree should be maximal projections from the functional categories C and Infl

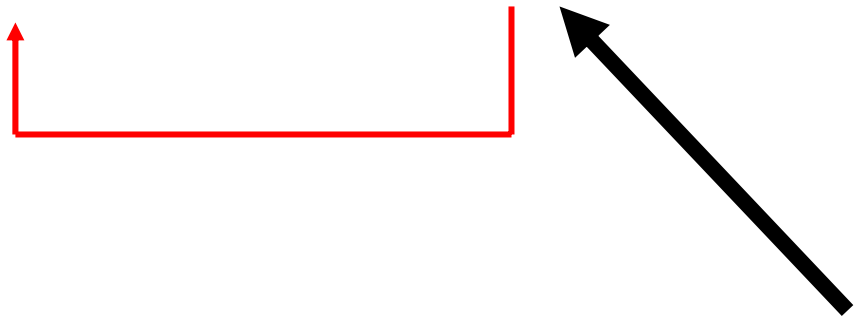
How do you build a tree structure for a Dutch sentence?

- Respect the specific order profile of Dutch
  - Remember Dutch is SOV and VP-Infl in Deep structure!
  - Follow the subcategorization characteristics of the heads.
- Move V to I (in order to get the inflection features) and then to C
- Move the Wh-element to [Spec,CP].
- If there are no Wh-element in the sentence, and the sentence is not a Yes-No question, then move the subject to [Spec, CP]


We kept moving things....
But what gets left behind after we move things?
Traces!

Do-support & movement

- **Did** the woman **t** repair the car?



Moved elements leave traces behind!

What evidence do we have that traces really exist?

- Teddy is the man who I want to succeed.
  1. Teddy is the man I want (Teddy) to succeed
  2. Teddy is the man I want to succeed (Teddy)
- BUT:
  - **Teddy is the man I wanna succeed**.
    - want to = wanna = assimilation (reduction)
  - This can't mean 1., only 2
  - Reduction applies after movement, but only to consecutive words, can't apply "over" a trace
  - "wanna" immediately disambiguates sentence as 2.

Next time…

- Werkcollege