

LIN7209 – Syntax

Diagnosing Movement

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Plan for today

- Overview of some movement dependencies.
- Diagnostics for phrasal movement, drawing on Pesetsky (2013).
- Restrictions on Movement

Movement dependencies

Wh-movement

- In English “genuine” questions, *wh*-phrases appear at the front of the sentence.
- (1) a. Jo thought that Sachou had caught **those bugs**.
b. **Which bugs** did Jo think that Sachou had caught?
 - (2) a. Jo said **an hour ago** that Al left.
b. **When** did Jo say that Al left?
- NB: not a generality. Some languages like Mandarin have their *wh* “*in situ*”.
 - To complicate things even more, some languages like French exhibit *optionality*, with slight interpretive differences between the fronted and *in situ* variants.
 - Today we’ll focus on English-like languages with fronted *wh* phrases.

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- A constituent gets emphasized by fronting.

(3) a. Jo has never read **these books**.

b. **These books**, Jo has never read.

(4) a. Taro-ga Jiro-o oikaketa.

Taro.NOM Jiro.ACC chase.

‘Taro chased Jiro.’

b. Jiro-wa Taro-ga oikaketa.

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‘It’s Jiro that Taro chased.’

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The causative/inchoative alternation

- Certain verbs can be both transitive (with a “*cause-to*” reading), and intransitive (with a change-of-state reading).

- (5) a. Sachou broke **the smartphone**.
b. **The smartphone** broke.

- Inchoative forms may look like unaccusative structures, but they’re not exactly the same.

- (6) a. Sachou **a** cassé le téléphone.
Sachou has broken the phone.

b. Le téléphone **a/s’est** cassé.
The phone has/SE-is broken.

- This kind of dependency is more local than *wh*-movement.

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Heavy NP shift

- A “heavy” NP gets “shifted” to the end of the sentence, against canonical word order.
- (7) a. I saw **that movie about the decline of the Roman empire** yesterday.
- b. I saw yesterday **that movie about the decline of the Roman empire**.
- (8) a. Jo gave to Al a very interesting book about the syntax and semantics of tense and aspect.
- b. Jo gave a very interesting book about the syntax and semantics of tense and aspect to Al.
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Subject movement; VP-internal subjects (Koopman & Sportiche, 1991)

- English sentences must have an overt subject; but sometimes it can be **expletive** (=contentless)...and the “real” subject is below T!

- (9) a. **Some people** are sleeping in the garden.
b. **There** are some people sleeping in the garden.

- Idiom chunks** (which should form constituents at some point of the derivation) can also appear to be “split” by T...

- (10) The shit [_T **must have**] hit the fan.
Subject of idiom VP of idiom

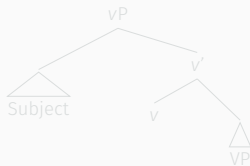
- Suggests the subject originates below T and subsequently moves to Spec-TP! **Where exactly is the subject then?** Spec-VP?

vP internal subjects (Kratzer, 1996)

- If a given constituent is a true argument of a head, then the head may be sensitive to its semantic characteristics.
- The interpretation of V is often sensitive to the semantic characteristic of its object, but **never to those of its subject!**

- (11) a. throw a baseball.
b. throw support behind a candidate.
c. throw a party.

- This implies subjects are not true arguments of the verb, and motivates a structure whereby subjects are not specifiers of V, but instead specifiers of a higher functional head v.

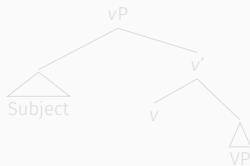


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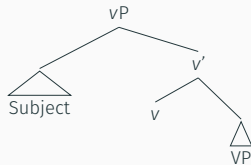


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- Arguments similar to subject movement: expletives (*it*), and idiom chunks.

(12) a. **The world** seems to be round.

b. **It** seems that the world is round.

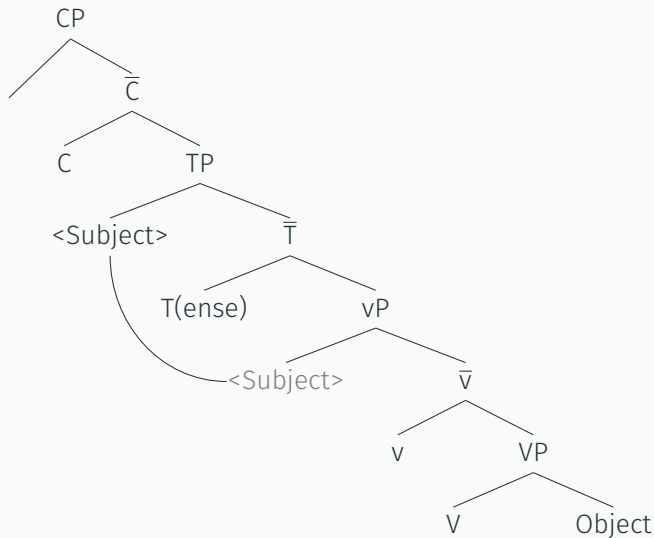
(13) The shit seems to have hit the fan.
Subject of idiom VP of idiom

- Suggests the subject of a raising construction originates in the embedded clause and subsequently moves to Spec-TP!

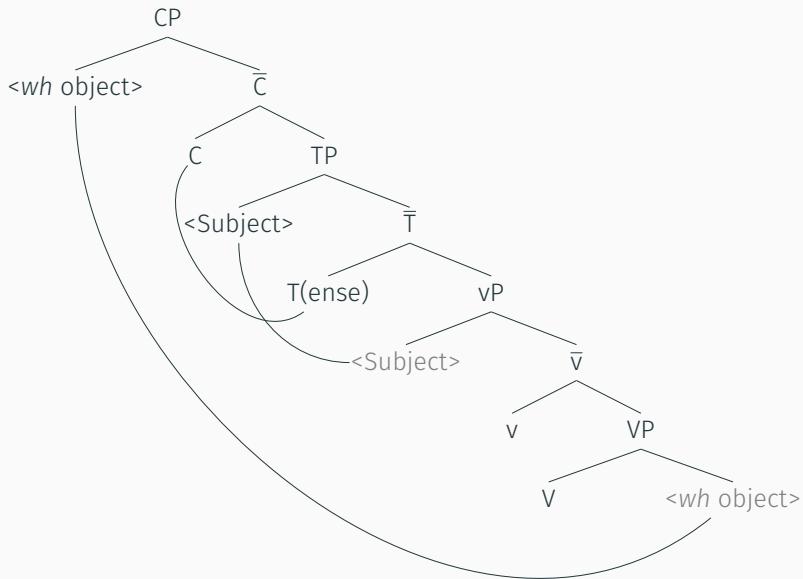
Minimalism reminder

- The WORKSPACE starts out as a set of atomic syntactic elements.
- Structure is then built around a single core operation, MERGE, which takes two syntactic elements x and y and creates a new element $\{x, y\}$: $\text{MERGE}(x, y) = \{x, y\}$
- MERGE can achieve **both pure structure building and movement dependencies**; the difference between the two hinges on where the inputs of MERGE come from, and how MERGE affects the WORKSPACE:
 - EXTERNAL MERGE: **consumes** two syntactic objects x and y from the WORKSPACE, adds output $\{x, y\}$ to the WORKSPACE.
 - INTERNAL MERGE: **modifies** a syntactic object of the WORKSPACE, by merging it with a copy of one of its constituents. **Only one copy of the targeted constituent gets pronounced.**

Typical “spine” with subject movement

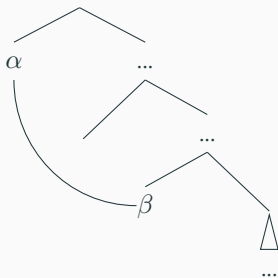


Object *wh*-movement



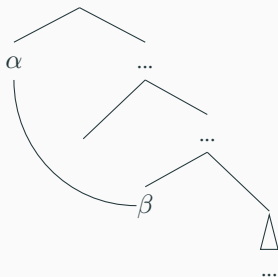
Movement as multidominance and C-Command

- Pesetsky (2013)'s formulation: a phrase X has undergone **movement** if X has...
 - the **multidominance** property: X occupies (at least) two syntactic positions α and β , and as such shows properties associated with each positions.
 - the **C-Command** property: α C-commands β , i.e. α 's sister is either β or dominates β .



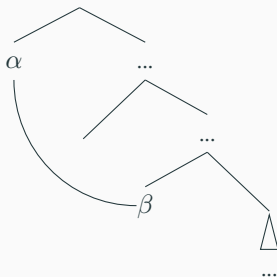
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Checking for multidominance

- If X occupies both α and β , then:
 - X should display some properties exclusively related to the α position;
 - X should display some properties exclusively related to the β position;
 - X may display “ $\alpha\beta$ ” properties resulting from the interaction between the α and β -positions, that would not arise if X had only occupied α , or only occupied β .

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Diagnosing movement:
 β -properties of the source
position

- Heads (e.g. verbs, prepositions) select for specific syntactic/semantic categories in a β -position, but those end up in the α -position (see Grimshaw, 1979 for discussion).

(14) a. Sue depended on *(cookies).
 β

b. What did Sue depend on ?
 α β

- Also, English sentences (including embedded clauses) need a subject (Extended Projection Principle). But this subject may be displaced in an α -position.

(15) a. Jo wonders *(which student) will do the homework.
 β

b. Which student does Jo wonder will do the homework?
 α β

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- Extra piece of evidence not in the Pesetsky Chapter: sometimes, moved phrases leave some stuff in their original β -position!

- (16) a. Jo a *(beaucoup) de livres.
Jo has many of books.
'Jo has many books.'
- b. Combien de livres Jo a-t-elle ?
How-many of books Jo has-she? β

'How many books does Jo have?'
- c. Combien Jo a-t-elle de livres?
How-many Jo has-she β
of books?

'How many books does Jo have?'

Distribution of anaphors and referring expressions

- The distributions of referring (R-) **expressions** (typically proper names) and **anaphors** (typically reflexives) are systematically constrained.

- (17) a. The girl likes herself.
 R-expression anaphor
- b. * Herself likes the girl .
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- Roughly, anaphors need to be C-Commanded, while R-expressions should not be.

- (18) a. * [The girl_i's father]_j likes herself_j.
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- But C-Command is not exactly enough: the element C-Commanding anaphors must **corefer** with them.
- And no element C-Commanding a R-expression should corefer with it (non-coreferring elements are fine).

Binding Principles A and C

- **Binding = C-Command+coreference.**
- Free = not bound = not C-Commanded by a coreferring expression (may be C-Commanded by a non-coreferring expression!).
- **Principle C:** R-expressions must be free.
- **Principle A:** anaphors must be bound in the smallest clause containing them and a potential binder.

- (19) a. The boy_i said that [the girl_j knew herself_{*i/j} best].
b. * The girl_j said that [the boy_i knew herself_{i/*j} best].

- Why all that fuss about Binding Theory? Sticking R-expressions or anaphors at strategic locations can help diagnose C-Command, and thus movement!

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Principle A diagnoses a β -position for *wh*-movement

- An anaphor can appear in a free α position, as soon as it can be understood to originate from a bound β position!

(20) a. Jo_i saw [three pictures of herself]_i.
 β

b. [Which pictures of herself]_i did Jo_i see ?
 α β

- Principle A applies “existentially”: finding one satisfying position is enough. Let’s check the bound β -position above is really what made the question good...

(21) a. * [Jo_i’s brother]_j saw [three pictures of herself]_i.
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- NB: This diagnostic **extends** to subjects containing anaphors and moving to spec-TP, as in *This aspect of herself seems to Jo to be problematic*.

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Principle C diagnoses a β -position for *wh*-movement

- A R-expression cannot appear in any bound position, even when this position is a β -position!

(22) (Barss, 1986)

- a. * $\frac{[\text{Which side of Jo}_i]}{\alpha}$ does she_i like $\frac{__}{\beta}$ best?
- b. $\frac{[\text{Which side of Jo}_i]}{\alpha}$ does [her_i brother]_j like $\frac{__}{\beta}$ best?

- Principle C applies “universally”: there should be no bound position for the R-expression.
- NB: This diagnostic **does not extend** to subjects containing R-expressions and moving to spec-TP; the relevant β -position does not trigger a Principle C violation.

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Diagnosing movement:
 α -properties of the target
position

An “obvious” criterion

- An obvious α -property is **pronunciation**: a moved element will often be linearized in a position that is inconsistent with it staying in its “low” β -position, and consistent with it having moved to α .
- But one cannot fully rule out the possibility that linear order is an artefact of a complex phonological process, determined at PF and independent from syntax!
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Selection, upstairs

- Unlike *believe*, *wonder* selects a question, which can be introduced by the complementizer *whether*.

- (23) a. I {*wondered / believed} [_{CP} [_{C_{decl}} that] it's raining].
b. I {wondered / *believed} [_{CP} [_{C_{interr}} whether] it's raining].

- But questions can also be formed by extraction... In which case selection by *wonder* diagnoses the relevant α -position!

- (24) a. I {wondered / *believed} [_{CP} $\frac{\text{what}}{\alpha}$ you depended on $\frac{\quad}{\beta}$].

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- Recall that anaphors must be bound in a local domain; and it's enough to check this at one position (α **or** β).
- We can check that the α position is “real” by making sure our anaphor is *only* bound in its final α -position!

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Messing up with the C-head: (c)overt complementizers

- Another sign that the α -site for *wh*-movement is within the C domain (specifically spec-CP), is that it triggers various constraints/mechanisms affecting the C-head.
- **Doubly-Filled-Comp Filter:** a *wh*-phrase and an overt complementizer cannot coocur at the edge of the same clause—would be surprising if the *wh* had nothing to do with the C-domain!

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Messing up with the C-head: filling C!

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Diagnosing movement:
 $\alpha\beta$ -properties

- In addition to α and β -properties, there are also properties that emerge **only in the context of movement**, i.e. when both an α and a β position are involved.
- We'll see two general cases of "intervention": when something is "in the way" and ends up blocking movement.
 - When the intervener is an island boundary: intervention by **domination**.
 - When the intervener is a constituent like a *wh*-phrase or PP-experiencer: intervention by **C-Command**.

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- **Islands** are a negative $\alpha\beta$ -property of constructions with movement in them.
- Islands are constituents out of which movement cannot take place (Ross, 1967).
- In the current terminology: an island is a constituent γ that does not allow a β -position within it to be related to an α -position outside of it.

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Different types of island

- A unified theory of islands has been a longstanding challenge for syntactic theory.

- (31) * What _{α} did she challenge [_{γ =NP} the claim that he put _{β} under the bed?]
Complex NP Island
- (32) * What _{α} did she yell at us [_{γ =Adjunct} because he had put _{β} under the bed?]
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- (33) * What _{α} did [_{γ =Subject} that he had put _{β} under the bed] seem likely?
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C-Command Intervention

- There are also situations in which an element blocks movement if it **C-Commands** the β -position, but is C-Commanded by the α -position.
- See the Pesetsky Chapter for examples of PP intervention.
- **Superiority effects:** in a question with two *wh*-phrases, the highest one undergoes *wh*-movement.

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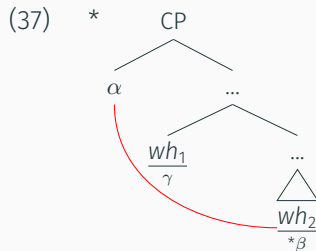
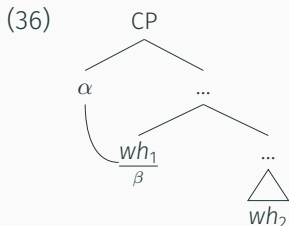
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Superiority as intervention

- The higher *wh*-phrase intervenes between the lower *wh*-phrase and its potential landing site!



Conditions on movement

Movement goes upward

- All instances of phrasal movement seem to be upward (related to the C-Command condition, according to which α must C-Command β).
- Movement cannot go downward...

(38) a. Jo asked **Al** [_{CP} if Ed read the book.]

b. *Jo asked $\underset{\beta}{_}$ [_{CP} $\underset{\alpha}{\text{who}}$ Ed read the book.]

- Or sideways (although this taken as a general claim is controversial)

(39) The book shocked $\underset{\beta}{_}$ $\underset{\alpha}{\text{who?}}$

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Upward movement as an Extension Condition

- To ensure that movement always proceeds to a higher, C-Commanding position, one can posit a constraint on structure building, stating that MERGE should always “extend” the tree at the root.
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