

Pesetsky (1987)

7th Session

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Goals: read a prototype of well-written research paper and consolidate notions such as *scope*, *binding*, *LF*, which we have learned after reading Fox (2003).

1 Paper

1.1 Reference

Pesetsky, David (1987) Wh-in-Situ: Movement and Unselective Binding. E. Reuland and A. ter Meulen (eds.) *The representation of (in)definiteness*, Cambridge, MA: MIT Press.

1.2 Guidelines

- Why is this paper an argument in favor of LF?
- What is the difference between D-linked and Non-D-linked *wh*-phrases?
- What are *wh*-in-situ languages?
- What strategies are presented to account for multiple *wh*-interrogatives?
- In what way are indefinites and *wh*-words similar?

- What problem/puzzle does Pesetsky try to solve?
- What is the relevant set of data?
- What are Pesetsky's claims and arguments?
- What remains as an open issue?

2 Introduction

2.1 Goals

Use *wh*-interrogatives as evidence in favor of LF, propose the plausible interpretive mechanisms for *wh*-in situ, and explain cross-linguistic variation.

2.2 Claims

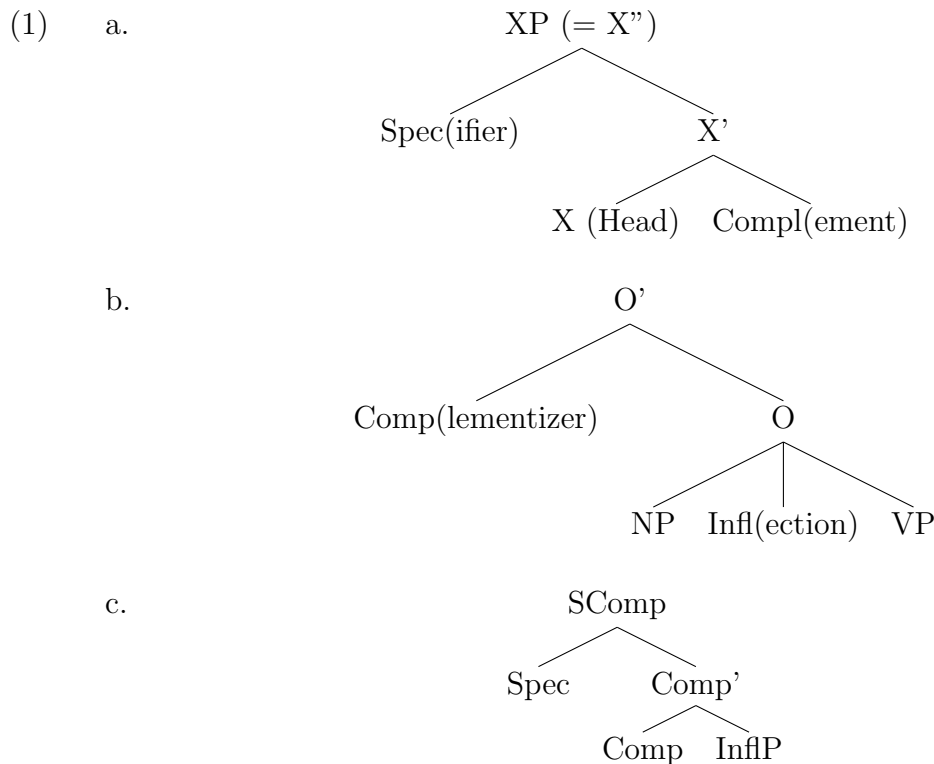
- We need both covert movement and unselective binding to interpret *wh*-in-situ.
- D-linked *wh*-words are interpreted by means of unselective binding, whereas non-D-linked ones undergo covert movement.
- LF is a level of representation and LF representations are characterized by a clustering of properties.
- We can establish a parallelism between the two types of *wh*-in-situ on the one hand, and indefinites vs. quantifiers on the other one.

2.3 Structure

- Accounts for scope: movement vs. unselective binding
- Diagnostics for movement: superiority effects
- Cross-linguistic perspective
- D-linking

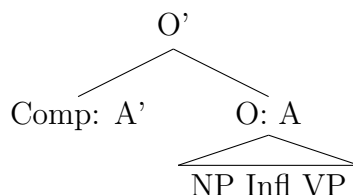
3 Warm-up

- X-Bar theory: phrase structure



- o A vs. A' movement/positions

(2)

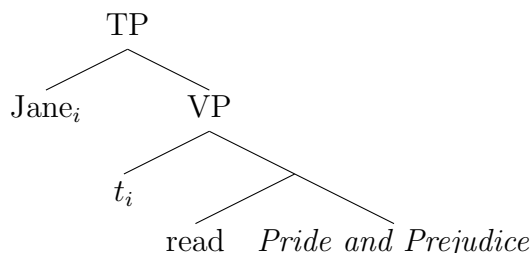
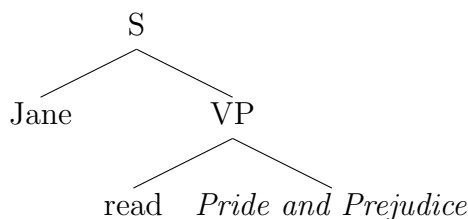


4 The phenomenon: *wh*-in-situ

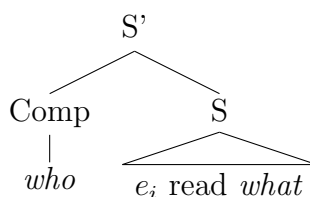
“A *wh*-in-situ is a phrase that has not undergone *wh*-movement by S-Structure – that is, it has not visibly moved to Comp.”

Cross-linguistic distribution: some languages systematically leave their *wh*-words in situ (e.g., Japanese), some other languages have more restrictive possibilities of *wh*-in-situ (e.g., French, limited to matrix clauses, English, limited to multiple *wh*-interrogatives), some other languages need to move their *wh*-words (e.g., Italian?).

- (3) a. Jane read *Pride and Prejudice*.



- (4) a. Who read what?
 b.



5 Scope and movement

5.1 Multiple Questions in English

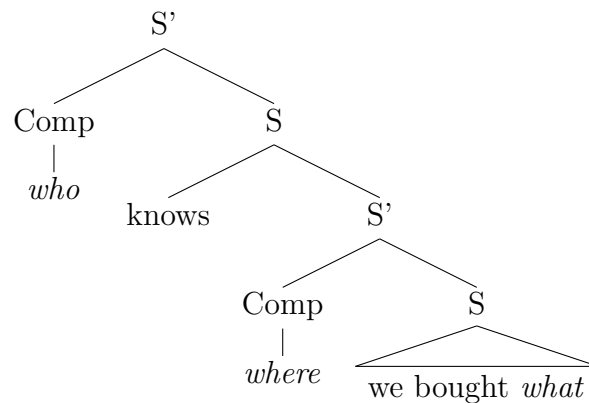
A felicitous answer to (4-a) involves a set as in (5). That is, there is a pairing of *whos* and *whats*.

- (5) Bill read the dictionary, Harry read the encyclopedia, etc.

As Baker (1970) shows, pairings of this sort may exhibit **scope ambiguities**. Consider (6-a):

- (6) a. *Who* knows *where* we bought *what*?

b.



Possible interpretations:

- (7) a. *what* is paired with the *wh* in the lower Comp \Rightarrow we have a single *wh*-matrix question with a multiple interrogative embedded clause: (8-a).
 b. *what* is paired with the *wh* in the higher Comp \Rightarrow we have a multiple *wh*-matrix question with a single interrogative embedded clause: (8-b).
- (8) a. *John* knows where we bought *what* (for instance, he knows that we bought the book in Amsterdam, the record in Groningen, etc.)
 b. *John* knows where we bought the *book* (for instance, in Amsterdam); *Mary* knows where we bought the *record* (for instance, in Groningen); etc.

Basic assumption: the pairings in the answers reflect pairings of *wh*-phrases in the interpretation of questions.

First account of these ambiguities: unselective binding (Baker 1970)

- o Both moved and *wh*-in-situ include a Q morpheme in Comp coindexed with the *wh*-phrase.
- o Q can be coindexed with more than one *wh*-phrase.
- o Baker-style representation:

$$(9) \quad [[_{Comp} Q_{i,j} \text{ who}_i] e_i \text{ read } \text{what}_j]$$

- o Ambiguity is accounted for by resorting to the following two coindexing possibilities of *what*:

$$(10) \quad \begin{array}{l} \text{a. } ((8\text{-a})): [[_{Comp} Q_j \text{ who}_j] e_j \text{ knows } [[_{Comp} Q_{i,k} \text{ where}_k] \text{ we bought} \\ \text{what}_i e_k]] \\ \text{b. } ((8\text{-b})): [[_{Comp} Q_{i,j} \text{ who}_j] e_j \text{ knows } [[_{Comp} Q_k \text{ where}_k] \text{ we bought} \\ \text{what}_i e_k]] \end{array}$$

Second account of these ambiguities: LF movement (inspired by Chomsky 1976 and developed by Kayne 1979, Jaeggli 1982, Aoun et al. 1981, Huang 1981)

- o *wh*-in-situ undergo *wh*-movement at LF. That is, all *wh*-words are in Comp at LF.
- o Scope is determined by which Comp the phrase finds itself in.

- o Chomsky-style representations:

(11) ((4-a)): $[[_{Comp} \textit{what}_j \textit{who}_i] e_i \textit{read } e_j]$

(12) a. ((8-a)): $[[_{Comp} \textit{who}_j] e_j \textit{knows } [[_{Comp} \textit{what}_i \textit{where}_k] \textit{we bought } e_i e_k]]$
b. ((8-b)): $[[_{Comp} \textit{what}_i \textit{who}_j] e_j \textit{knows } [[_{Comp} \textit{where}_k] \textit{we bought } e_i e_k]]$

- o This proposal follows from two principles of the general theory of grammar:

(13) a. Every quantifier (operator) occupies an A'-position (nonargument position) at LF.
b. *Wh*-phrases are quantifiers (operators).

Recap: we have two basic accounts of the difference in scope possibilities of *wh*-in-situ. Which one should we choose? Pesetsky claims that we will need both.

5.2 Indefinites

Pesetsky's analysis is inspired by Heim (1982): (i) although indefinite NPs show scope ambiguities, indefinites are not quantifiers; (ii) quantificational character of an indefinite depends on neighboring adverbs or quantifiers; (iii) indefinites are like variables that can be bound by any quantifier that is there to bind them. The examples in (14) have the corresponding interpretations in (15).

- (14) a. If a man owns a donkey, he always beats it.
b. In most cases, if a table has lasted for fifty years, it will last for another fifty.
c. Sometimes, if a cat falls from the fifth floor, it survives.
d. If a person falls from the fifth floor, he or she will very rarely survive.
- (15) a. For every man and every donkey such that the former owns the latter, he beats it.
b. Most tables that have lasted for fifty years last for another fifty.
c. Some cats that fall from the fifth floor survive.
d. Very few people that fall from the fifth floor survive.

Unselective binders: quantifiers like *always* are unselective binders, as in Lewis (1975); that is, they may bind more than one variable. Hence, an intermediate representation of (14-a) is (16):

(16) $[\textit{always}_{i,j} [\textit{if a man}_i \textit{owns a donkey}_j, \textit{he}_i \textit{beats it}_j]]$

Contrast with tradition inspired by Russell, as in May (1977): indefinites, like other quantifiers, move to an A' position (typically adjoining to S) at LF and treat its trace *t* as their variable (cf. Fox 2003!!). Here is (14-a)'s representation, which "readily translates into standard logical notation.":

(17) $[\textit{a man}_i [\textit{a donkey}_j [\textit{if } e_i \textit{owns } e_j, \textit{he}_i \textit{always beats it}_j]]]$

Arguments in favor of one or the other:

- The facts in (14) and (15), where it seems that the quantificational interpretation of indefinites comes from adverbs.
- Indefinites behave differently from other quantifiers wrt **island constraints**. Consider the examples below, where the indefinite may take scope over the *if*-clause, but the extraction from within this clause is not possible in the overt syntax, as the examples from a question formation and topicalization show:

(18) If John comes upon a donkey, Mary always tries to hide it.

- (19) a. [a donkey_i [if John comes upon e_i , Mary tries to hide it_i]]
 b. *What donkey_i, if John comes upon e_i , does Mary try to hide it_i?
 c. *This donkey_i, if John comes upon e_i , Mary tries to hide it_i.

Parallel between indefinites and *wh*-in-situ: distinction between a theory of movement (Chomsky, May) vs. a theory of unselective binding (Baker, Heim).

Argument in favor of QR *avant la lettre*: scope phenomena that do obey island constraints (cf. (19-a)).

- (20) a. *If John comes upon every donkey at the zoo, Mary tries to hide it.
 b. [every donkey_i [if John comes upon e_i , Mary always tries to hide it_i]]

Proposal: *wh*-in-situ that do not show movement constraints should be analyzed as variables bound by an unselective binder Q, but if they show movement constraints, then we will accept that they undergo movement at LF. By showing that “certain aspects of semantic interpretation display the characteristic properties of movement rules”, Pesetsky argues in favor of the existence of LF (cf. the strategy Fox 2003 makes use of).

Properties of movement:

- (21) Movement is a relation between two positions α and β such that ...
 a. α c-commands β .
 b. α lacks an independent thematic role.
 c. The distance between α and β is governed by a cluster of island conditions.

Recap: (i) scope can be assigned in two ways, namely movement or unselective binding, (ii) LF is not justified by the fact that we need to account for scope ambiguities. Rather, its existence is justified by looking at the syntactic constraints on covert movement, (iii) LF is the place of a clustering of syntactic properties of movement apply. Hence, it is a syntactic level of representation.

6 Superiority effects (as a diagnostic for movement)

6.1 Nested dependencies

The Superiority Condition derives from the Nested Dependency Condition (i); the Nested Dependency Condition is a restriction that affects movement exclusively (and not binding, for instance) (ii); since *wh*-in-situ are constrained by the Superiority Condition, it follows that they move (covertly) (iii).

- (22) Superiority Condition (inspired by Chomsky 1973)
In a multiple interrogation, where a *wh*-phrase is in Comp and another is in situ, the S-Structure trace of the phrase in Comp must c-command the S-Structure position of the *wh*-in-situ.

In the *a.* examples, the trace *e* c-commands the *wh*-in-situ, whereas in the *b.* cases, this does not hold, superiority is violated and the examples are ill-formed.

- (23) a. *Who_i* did you persuade *e_i* to read *what*?
b. ??*What_j* did you persuade *who(m)* to read *e_j*?
- (24) a. Mary asked [*who_i* [*e_i* read *what*]].
b. *Mary asked [*what_j* [*who_i* read *e_j*]]

How can we make sense of a condition where a c-commanding relation between a trace of a *wh*-element in Comp and a *wh*-in-situ must take place? We can do it if we assume that there is LF-movement of *wh*-in-situ.

In sentences involving a violation of the *wh*-island condition, nested dependencies are more acceptable than crossing ones.

- (25) Nested Dependency Condition
If two *wh*-trace dependencies overlap, one must contain the other.

Cf. *a.* and *b.* sentences.

- (26) a. ?What book_{*j*} don't you know *who_i* to persuade *e_i* to read *e_j*?
b. *Who_{*i*} don't you know what book_{*j*} to persuade *e_i* to read *e_j*?
- (27) a. ?This is one book which_{*j*} I do know *who_i* to talk to *e_i* about *e_j*?
b. *John is one guy *who_i* I do know what book_{*j*} to talk to *e_i* about *e_j*?

Since this is a constraint on movement, it does not apply to other kind of binding relations. Consider the examples below:

- (28) a. What books_{*i*} have those men_{*j*} written *e_i* about each other_{*j*}?
b. I told them_{*i*} [what books_{*j*} [PRO_{*i*} to read *e_j*]]

Structures that we are assuming for (23) and (24):

- (29) a. [_{*S'*} what_{*j*} [_{*S'*} who_{*i*} [_{*S*} you persuade *e_i* to read *e_j*]]]
b. ??[_{*S'*} who_{*i*} [_{*S'*} what_{*j*} [_{*S*} you persuade *e_i* to read *e_j*]]]
- (30) a. ... [_{*S'*} what_{*j*} [_{*S'*} who_{*i*} [_{*S*} *e_i* read *e_j*]]]
b. *... [_{*S'*} who_{*i*} [_{*S'*} what_{*j*} [_{*S*} *e_i* read *e_j*]]]

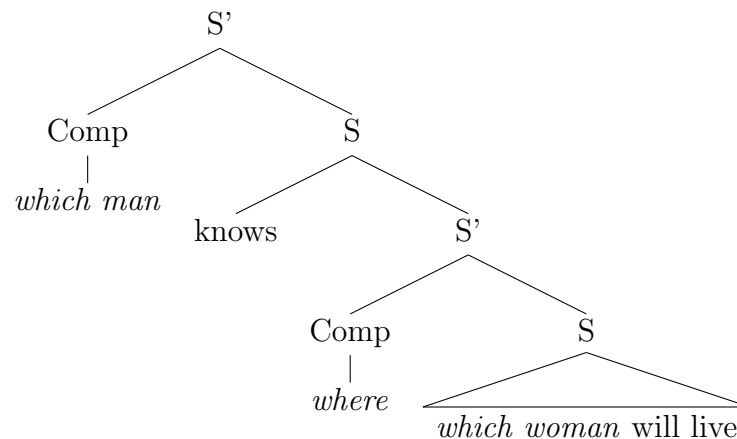
6.2 Absence of expected superiority effects

- *Which*-phrases do not show the same superiority constraints (cf. (31) and (32)).
- *Which*-phrases do exhibit scope ambiguities (cf. (33)).

- (31) a. *Which man_i* did you persuade *e_i* to read *which book*?
 b. *Which book_j* did you persuade *which man* to read *e_j*?

- (32) a. Mary asked *which man_i* *e_i* read *which book*.
 b. Mary asked *which book_j* *which man* read *e_j*.

- (33) a. *Which man* knows *where* *which woman* will live?
 b.



Possible interpretations:

- (34) a. *which woman* is paired with the *wh* in the lower Comp \Rightarrow we have a single *wh*-matrix question with a multiple interrogative embedded clause: (35-a).
 b. *which woman* is paired with the *wh* in the higher Comp \Rightarrow we have a multiple *wh*-matrix question with a single interrogative embedded clause: (35-b).
- (35) a. *This woman over here* knows where *which woman* lives (for instance, this woman over here knows that the woman over there lives in Amsterdam, the woman next to the car lives in Groningen, etc.)
 b. *This woman over here* knows where *the woman over there* lives (for instance, in Amsterdam); *The woman in blue* knows where *the woman next to the car* lives (for instance, in Groningen); etc.

Conclusion: We have scope ambiguities without LF-movement. Hence, we need another method of scope assignment, for instance Baker (1970)'s unselective binding by Q. "The scope of a *which*-phrase may be determined by the Comp that contains its index after Baker-style binding has taken place." The representation below corresponds to (32-b) (to compare with (30-b)).

- (36) ... [_{S'} [_{Comp} Q_{i,j} which man_i [_S e_i read which book]]]

Next step: how do we choose which *wh*-elements undergo movement and which ones are unselectively bound? There are two main possibilities which are considered here: (i) it depends on the syntactic configuration of the *wh*-phrase, or (ii) it depends on whether the *wh*-phrase is Discourse-linked (henceforth D-linked) or not. Pesetsky argues in favor of (ii).

Challenges of (i): Suppose it is relevant that *which* is a specifier inside NP, whereas *what* and *who* are heads of the NP (see ref. on page 107). The problem is that superiority effects remain with other *wh*-specifiers. Consider the examples below:

- (37) a. I need to know *how many people_i* *e_i* voted for *whom*.
b. *I need to know *whom_j* *how many people* voted for *e_j*.

A flavor of (ii) (see ref. on page 107): *which*-phrases are D-linked, whereas *who* and *what* are normally not. “When a speaker asks a question like *Which book did you read?*, the range of felicitous answers is limited by a set of books both speaker and hearer have in mind. If the hearer is ignorant of the context assumed by the speaker, a *which*-question sounds odd.”

Modification of (13):

- (38) a. Every quantifier (operator) occupies an A'-position (nonargument position) at LF.
b. Non-D-linked *wh*-phrases are quantifiers and adjoin to S'.
c. D-linked *wh*-phrases are not quantifiers.

Straightforward prediction of this account: when *who*, *what* and *how many books* are interpreted as D-linked, we should not find any superiority effect. Judgments are not clear-cut. Maybe the following examples work as evidence in favor of it:

- (39) a. I know what just everybody was asked to do, but *what* did *who* (actually) do?
b. I know that we need to install transistor A, transistor B, and transistor C, and I know that these three holes are for transistors, but I'll be damned if I can figure out from the instructions *where what* goes!

7 Languages without overt *wh*-movement

Claim: in languages without movement of the *wh*-phrase to Comp at S-Structure (e.g., Japanese), both LF movement and unselective binding apply.

Properties of Japanese *wh*-constructions

- No *wh*-movement occurs at S-Structure, not even in embedded contexts.
- An overt Q morpheme (*ka*, *no*) marks the scope of *wh*.

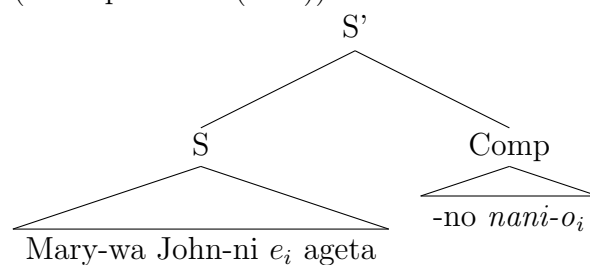
- (40) (36) in the original paper
- a. Mary-wa John-ni nani-o ageta-no?
Mary-Top John-Dat what-Acc gave-Q
'What did Mary give to John?'
- b. Mary-wa John-ga nani-o katta-ka sitteiru
Mary-Top John-Nom what-Acc bought-Q know
'I know what John bought.'

- c. Mary-wa John-ga nani-o yonda to itta-no
 Mary-Top John-Nom what-Acc read that said-Q
 ‘What did Mary that John read?’

Previous Chomsky-style proposal by Lasnik and Saito (1984)

- *Wh*-movement to Comp applies just like in English.
- Difference between English and Japanese: the latter does not exhibit overt movement. All movement takes place at LF.
- Movement targets a right-hand Comp, as in the example below:

(41) (corresponds to (40-a))



Problem: LF movement in Japanese may violate the subjacency condition (“Subjacency does not apply at LF”) – even though it is constrained by the Empty Category Principle (roughly, “a trace must be properly governed”).

- (42) English violations of subjacency \Rightarrow ungrammaticality
- a. *What_i did Mary meet [_{NP} the man [_{S'} who gave e_i to John]]? (Complex NP Constraint)
 - b. ?*What_i did Mary leave [before John read e_i]? (Extraction from an adjunct)
- (43) Japanese violations of subjacency \Rightarrow grammaticality
- a. Mary-wa John-ni nani-o ageta hito-ni atta-no?
 Mary-Top John-Dat what-Acc gave man-Dat met-Q
 - b. Mary-wa John-ga nani-o yomu maeni dekaketa-no
 Mary-Top John-Nom what-Acc read before left-Q

Why an alternative?: island effects are the main diagnostics for movement, to begin with.

New approach: we should investigate whether the apparent absence of subjacency effects in the Japanese examples above is connected to the discourse status of the *wh*-phrases.
Hypothesis: Subjacency “appears to be violated only when the *wh*-in-situ does not have to move at LF.”

Two experiments

- Force an occurrence of *wh*-in-situ to be aggressively non-D-linked. We expect: movement at LF must take place and, hence, subjacency violations should yield ungrammaticality.

- In apparent subjacency violations, show that the *wh*-in-situ must be D-linked. We expect: the *wh*-phrase can receive scope without movement.

Overview of the results: The first experiment turns out as predicted and the second does not. However, work by Choe (1984) and Nishigauchi (1984) propose an independent explanation for these facts, which reinforce the idea of the LF distinction between D-linked and Non-D-linked.

7.1 First experiment: forcing a Non-D-Linked reading

Strategy: include *the hell*, since the appropriate answer to a question with *the hell* is supposed to be surprising and, hence, not mentioned in previous discourse. See the contrast below, where *the hell* is incompatible with a *which*-phrase.

- (44) a. What the hell book did you read that in?
b. *Which the hell book did you read that in?

Extension no Japanese *ittai*

- (45) Mary-wa John-ni *ittai nani-o* ageta-no?
Mary-Top John-Dat the.hell what-Acc gave-Q
'What the hell did Mary give to John?'

Wh-phrases with *ittai* may take scope outside their clause (*i*), and *ittai* is not limited to root environments (*ii*), as we can see below:

- (46) Mary-wa John-ga *ittai nani-o* yonda to itta-no?
Mary-Top John-Nom the.hell what-Acc read that said-Q
'What the hell did Mary say that John read?'

Subjacency effects in Japanese *wh*-in-situ: they arise when we include *ittai*, as we can see in the following examples (to be compared to (43)):

- (47) a. *Mary-wa [_{NP} [_{S'} John-ni *ittai nani-o* ageta] hito-ni] itta-no?
b. *Mary-wa [John-ga *ittai nani-o* yomu maeni] dekaketa-no?

Recap: the previous example shows that subjacency does constrain LF-movement in Japanese when the *wh*-in-situ is non-D-Linked, which we can prove by the inclusion of *ittai* ('the hell').

7.2 Second experiment: Subjacency violations and D-linked *wh*-phrases

Negative results: the sentences in (43) may be freely used even when the *wh*-in-situ is non-D-linked.

New strategy: Pesetsky assumes "important work by Choe (1984) and Nishigauchi (1984)", which shows that examples (43) may exhibit subjacency effects if looked at carefully. Moreover, he argues that these subjacency effects are sensitive to D-linking.

Subjacency in the answers: Choe and Nishigauchi realize that by looking at the answers of the *wh*-questions, we can see some subjacency effects.

- (48) Matrix sentence
- a. Mary-wa John-ni *nani-o* ageta-no?
'What did Mary give to John?'
 - b. Konpyuutaa desu.
computer Cop
'It's a computer.'
- (49) Embedded sentence
- a. Mary-wa John-ga nani-o yonda to omotteiru-no?
Mary-Top John-Nom what-Acc read that think-Q
'What does Mary think that John read?'
 - b. "Sensoo to Heiwa" desu.
'It's *War and Peace*.'

***wh*-in-situ in islands:** an answer that corresponds only to the *wh*-phrase is not felicitous; a felicitous answer must recapitulate the entire island. This suggests *pied-piping* (i.e., movement).

- (50) Complex NP island (cf. with (42-a))
- a. Mary-wa John-ni nani-o ageta hito-ni atta-no?
'What did Mary meet the man who gave to John?'
 - b. */?? Konpyuutaa desu.
'It's a computer.'
 - c. Konpyuutaa-o ageta hito desu.
computer-Acc gave man Cop
'It's the man who gave a computer (to him).'
- (51) Extraction from within an adjunct (cf. with (42-b))
- a. Mary-wa John-ga nani-o yomo maeni dekaketa-no?
'What did Mary leave before John read?'
 - b. *"Sensoo to Heiwa" desu.
'It's *War and Peace*.'
 - c. "Sensoo to Heiwa"-o yomu mae desu.
War and Peace-Acc read before Cop
'It's before (he) read *War and Peace*.'

Felicity Principle: A felicitous answer to a *wh*-question consists of a phrase structurally identical to the *wh*-phrase whose index is immediately dominated by the Comp of the question at LF.

Chomsky-style movement analysis for the previous sentences:

- (52) Mary-wa e_i atta- [_{Comp} no [_{NP} [_{S'} John-ni nani-o ageta] hito-ni]_{*i*}]
- (53) Mary-wa e_i dekaketa- [_{Comp} no [John-ga nani-o yomu maeni]]

Subjacency effects disappear with D-linking

- (54) a. (Context: IBM-to, Apple-to, Fuzituu-to, Matusita-no naka-de ...)
‘Among IBM, Apple, Fuhitsu, and Panasonic (national)’ ...
b. Mary-waJohn-ni dono konpyuutaa-o ageta hito-ni atta-no?
‘Which computer did Mary meet the man who gave to John?’
c. IBM-no konpyuutaa desu.
IBM-Gen computer Cop
‘It’s the IBM computer.’
d. IBM-no konpyuutaa-o ageta hito desu.
IBM-Gen computer-Acc gave man Cop
‘It’s the man who gave the IBM computer (to him).’

The **first answer** to (54-b) shows that there is one interpretation of the question that does not involve movement. Instead, a Baker-style analysis along the following lines is possible:

- (55) Mary-wa [_{NP}[_S John-ni dono konpyuutaa-o_i ageta] hito-ni] atta-no_i?

As for the **second answer**, two analyses are possible: (i) a Chomsky-style pied-piping analysis along the lines of the non-D-linked cases, or (ii) a Baker-style analysis involving unselective binding (cf. (56)). Pesetsky does not attempt to choose one.

- (56) Mary-wa [_{NP}[_S John-ni dono konpyuutaa-o ageta] hito-ni]_j atta-no_j?

(The second answer is derived by assuming that Comp contains the index of the whole NP.)

7.3 Results

- The interaction between D-linking and LF movement has been confirmed by evidence from Japanese.
- Japanese does show subjacency effects, so we do have evidence in favor of LF movement in *wh*-in-situ languages.
- Subjacency effects arise when the *wh*-phrase is non-D-linked (*ittai* and *the hell* in questions, and interpretation of answers).
- D-linked *wh*-phrases never exhibit subjacency effects.

8 The East European *Sprachbund*

Sprachbund: languages from East Europe, such as Polish, which share the same property wrt multiple interrogatives, namely, they must move all their *wh*-phrases to Comp at S-Structure.

- (57) a. Zastanawiam sie kto co przyniesie.
I.wonder who what will.bring
‘I wonder who will bring what.’

- b. (*)Zastanawiam sie kto przyniesie co.
- (58) In Polish every *wh* must be in an A' position at S-Structure. (Lasnik and Saito 1984, p. 239)

Relevance of the data: it seems that these languages do overtly what languages like English are supposed to do covertly, according to a Chomsky-style analysis.

Question that arises: do D-linked *wh*-phrases move, too? It looks like they *may* stay in situ (cf. the description of the context on page 118).

- (59) W koncu, kto robi co?
finally who does what
- (60) a. Kto kogo zabil?
who whom killed
b. Kto zabil kogo?

Generalization about this Sprachbund:

- (61) a. More than one *wh* may undergo *wh*-movement in a single clause.
b. There is no LF *wh*-movement.

9 D-linking

Recap: Pesetsky has provided empirical evidence that non-D-linked *wh*-phrases are assigned scope by means of movement, but D-linked ones may be assigned scope by means of unselective binding.

Question that arises: why should absence of movement be associated with D-linking? D-linked *wh*-phrases have been given a treatment similar to indefinite NPs in Heim's account. Still, they do not seem to be comparable expressions...

Toward a possible solution: D-linked *wh*-phrases have the properties of indefinite NPs, even though the former are **familiar**, rather than novel.

- Heim's analysis of *a man* in *Suddenly, a man appeared*.
 - An existential quantifier is introduced by means of the operation *Existential closure*.
 - The quantifier unselectively binds the indefinite.
 - The indefinite is interpreted as **novel** in discourse.
 - In her *file-card semantics*, the introduction of an indefinite creates a new entry in the filing system.
- Pronouns have the same discourse properties as indefinites, except for the fact that they are **familiar** (i.e., not novel): they are bound by an already-existing file entry.

- (62) a. A man walked into the room. *He* was wearing a fur coat.

- b. Some men walked into the room. *They* were wearing fur coats.
- o *Which*-phrases unselectively bound by Q return old entries in the filing system of discourse. That is, they behave like pronouns:
 - (63) a. Some men entered the room. Mary talked to *them*. \Rightarrow it is natural to assume that *them* refers to *some men*.
 - b. Some men entered the room. Which (ones) did Mary talk to? \Rightarrow it is natural to assume that *which ones* refers to *some men*.
 - c. Some men entered the room. Who did Mary talk to? \Rightarrow it is less natural to assume that *who* refers to *some men*.
- o When the *which*-phrase does not have a clear antecedent, as in quiz-questions (cf. (64)), we can *accommodate* it. That is, to remedy this infelicity, the contestants and the quiz master “add to the file enough information”. Ex. *A German author wrote Faust*
 - (64) For 100 dollars, which German author wrote *Faust*?
- o Recap: there seems to be a connection between *which*-phrases and one instance of unselective binding (case of pronouns).

Open question: connection between discourse binding and interpretation of questions?

10 Why movement after all?

Why is the *b.* sentence impossible?

- (65) a. I wonder which book you read.
- b. *I wonder you read which book.

A morphologic constraint: there is nothing intrinsic in *wh*-phrases that forces them to move. Instead, there is a constraint such that Q must be supported by an appropriate adjacent phrase.

- (66) The Q morpheme must cliticize to a *wh*-phrase or Infl. (S-Structure) (From Lasnik 1981)

Cross-linguistic prediction: In English, Comp and Infl are not adjacent, so a *wh*-phrase must occupy Comp; in Japanese, on the other hand, Comp and Infl are adjacent in clause-final position, so Comp cliticizes to Infl, and no movement takes place.

11 Conclusions

- o Scope assignment of non-D-linked *wh*-phrases shows the properties of syntactic movement, which is evidence in favor of LF.
- o English, Japanese and Polish exhaust the possible variation wrt S-Structure *wh*-movement (LF properties are considered to be part of Universal Grammar).

- Discourse aspects seem to interact with other syntactic properties, such as movement vs. unselective binding in *wh*-phrases.

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