

Wh-Copying, phases and successive cyclicity Felser (2004)

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1 Outlook

Phenomenon:

Wh-copying in the context of a phase-based approach to syntactic derivation.

Questions:

What triggers intermediate movement steps?

What permits the phonetic realization of intermediate wh-copies?

Why does the presence of uninterpretable features in intermediate positions not cause the derivation to crash?

Proposal:

discontinuous spelling-out of a wh-expression's 'operator' and 'core' parts

convergence-based view of phases

PF- and LF-Spellout apply at different points in the derivation.

2 Introduction

A common idea:

Long wh-movement proceeds in a series of local steps.

Evidence:

morphophonological reflexes of successive-cyclic wh-raising in many languages:

* children's use of 'medial wh' in long-distance questions

(1) **Who** do you think **who's** in the box?

* wh-copying in long wh-questions in adult language

- | | | |
|-----|--|-----------|
| (2) | Wen glaubst du, wen sie getroffen hat?
who think you who she met has
'Who do you think she has met?' | German |
| (3) | Waarvoor dink julle waarvoor werk ons?
wherefore think you wherefore work we
'What do you think we are working for?' | Afrikaans |
| (4) | Kas o Demiri mislenola kas i Arifa dikhla?
whom Demir think whom A. saw
'Who does Demir think Arifa saw?' | Romani |

☞ the lower wh-pronouns → spelled-out intermediate traces of successive cyclic wh-movement.

Wh-copying raises the following questions:

- How are intermediate movement steps formally triggered?
- What grammatical properties permit the spelling-out of intermediate wh-copies?
- If intermediate wh-copies are merely spelled-out traces of successive-cyclic movement, then why is wh-copying more restricted than long-distance wh-extraction?
- If the spelling-out of a [wh] feature is dependent on feature-checking, how can an *interrogative* wh-expression be spelled out in the specifier of a *non-interrogative* C head?
- How problematic is the phonetic realization of multiple copies of the same wh-operator for the principle of Full Interpretation¹, and for Kayne's (1994) Linear Correspondence Axiom (LCA)?

3 Theoretical preliminaries within the Minimalist framework (Chomsky 1998, 2000)

- Derivation proceeds 'by phase'.
- Phases - CPs and vPs - define local computational domains.
- Overt movement (which presupposes agreement) is induced only by heads with an EPP feature.
- Agreement is triggered by the need to eliminate uninterpretable features of the probe and the goal.
- Uninterpretable features = unvalued features that need to be assigned a PF-value through agreement and then they can be deleted.

¹Full Interpretation is a principle that requires that every element of PF and LF (more generally: of any interface) must receive an appropriate interpretation, that is, must be licensed in the relevant sense.

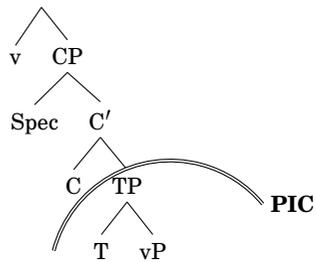
Spellout and PIC

- Spellout means transferring the information to the phonological and semantic interfaces for evaluation and interpretation.
- Spellout applies cyclically → each phase is spelled out at the point at which the next higher phase is completed.

(5) Phase Impenetrability Condition (PIC)

In a phase α with Head H, the domain of H is not accessible to operations outside α , only H and its edge are accessible to such operations. Chomsky (2000:108)

- According to PIC, once a phase has undergone Spellout, all elements contained within it, *except for the head and its Specs*, become inaccessible to further syntactic operations.



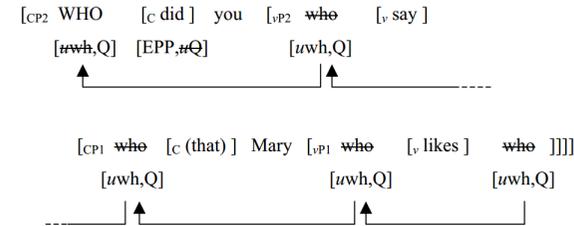
- If there are uninterpretable features left within a phase undergoing Spellout, the derivation crashes.

Long wh-raising

Chomsky (2000)

- wh-phrases carry
 - (i) uninterpretable [wh]-feature which renders them active
 - (ii) interpretable operator feature [Q].
- interrogative C carries
 - (i) [uQ] feature that must be eliminated
 - (ii) EPP feature (triggers movement of the closest wh-phrase)

(6) Who did you say (that) Mary likes?



Problems:

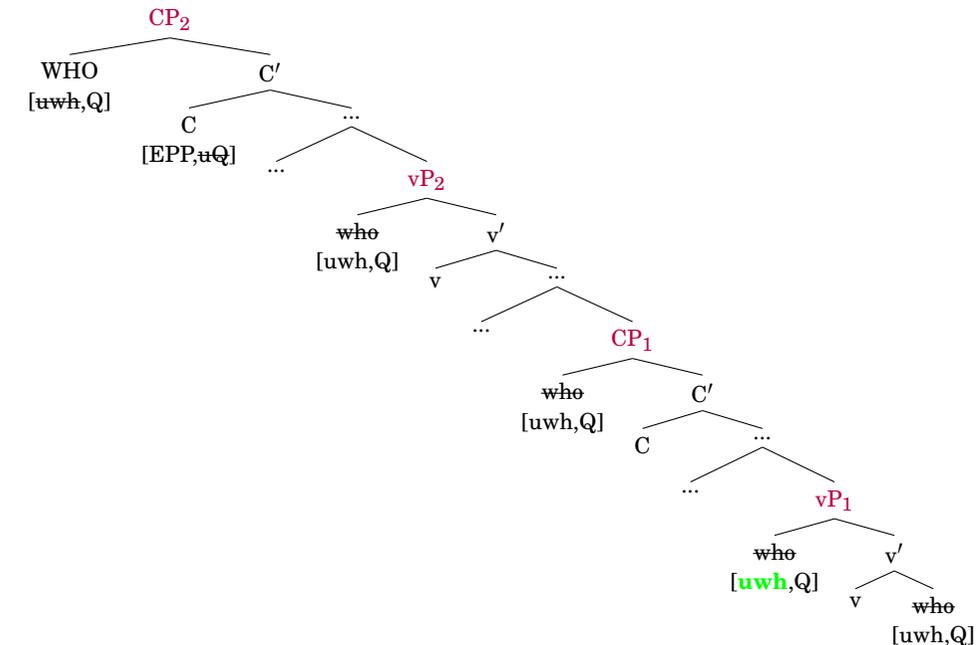
(7) The Triggering Problem

v and declarative C cannot check [uwh] of the moved wh-phrase
 → What triggers movement of a wh-expression to the specifier of intermediate *non-interrogative* heads?

(8) The Convergence Problem

Spellout applies automatically to phases at the next phase level up.
 The edge of vP₁ still has an uninterpretable feature at the point CP₁ is spelled-out.
 → If no lookahead is possible beyond CP₁, then why does the derivation not crash?

(9)



- Atkinson (2000) notes that the Convergence problem would disappear if phases were defined on the basis of convergence. However, the Triggering Problem does not disappear.

- (10) *Phases in terms of convergence:*
Only constituents that are convergent - constituents that no longer contain any uninterpretable features - can undergo Spellout.

4 Wh-copying in German

Wh-copying in German questions:

- (11) a. **Wie** glaubst du, **wie** sie das gelöst hat?
how believe you how she that solved has
'How do you believe that she has solved that?'
- b. **Warum** glaubst du, **warum** sie das getan hat?
why believe you why she that done has
'Why do you believe she has done this?'
- c. **Wovon** glaubst du, **wovon** sie träumt?
of.what believe you of.what she dreams
'What do you believe that she dreams of?'

Sentences involving wh-copying have a long-distance extraction counterpart:

- (12) a. **Wie** glaubst du, **dass** sie das gelöst hat?
how believe you that she that solved has
'How do you believe that she has solved that?'
- b. **Warum** glaubst du, **dass** sie das getan hat?
why believe you that she that done has
'Why do you believe that she has done this?'
- c. **Wovon** glaubst du, **dass** sie träumt?
of.what believe you that she dreams
'What do you believe that she dreams of?'

Wh-copying is impossible with verbs which select an interrogative complement clause.

- (13) a. Du **fragst/*glaubst**, wovon sie träumt.
you ask/*believe of.what she dreams
- b. Wovon **glaubst/*fragst** du, dass sie träumt?
of.what believe/*ask you that she dreams
- c. Wovon **glaubst/*fragst** du, wovon sie träumt?
of.what believe/*ask you of.what she dreams

In standard varieties of German, the wh-copying is restricted to pronominal wh-expressions.

- (14) a. ***Welchen Mann** glaubst du, **welchen Mann** sie liebt?
which man believe you which man she loves
'Which man do you believe that she loves?'
- b. % **An wen** glaubst du, **an wen** sie denkt?
of whom believe you of whom she thinks
'Who do you believe that she thinks of?'

In Afrikaans, wh-copying of prepositional phrases is fully acceptable, if the complement of the preposition is pronominal:

- (15) **Met wie** het jy nou weer gesê **met wie** het Sarie gedog **met wie** gaan Jan trou?
with who did you now again said with who did S. thought with who go J. marry
'Whom did you say (again) did Sarie think Jan is going to marry?' Afrikaans

Wh-copies are licensed only at derived positions but not in situ.

In the absence of an overt C, a copy must appear at the left periphery of the embedded clause.

- (16) a. ***Wovon** glaubst du dass sie **wovon** träumt?
of.what believe you that she of.what dreams
- b. **Wovon** glaubst du ***(wovon)** sie träumt?
of.what believe you *(of.what) she dreams

In cases of multiple embedding, each intervening clause must be introduced by a separate wh-copy.

- (17) **Wen** glaubst du, **wen/*dass** Peter meint, **wen** Susi heiratet?
who believe you who/*that P. thinks who S. marries
'Who do you believe Peter thinks that Susi is marrying?'

☞ If the lower wh-items in wh-copying sentences represent phonetically realized intermediate traces of a moved wh-expression, thus reflecting earlier stages in the derivation, then wh-copying would provide strong evidence for successive-cyclicity.

4.1 Wh-copying vs. partial movement

PARTIAL MOVEMENT CONSTRUCTION (SCOPE MARKING CONSTRUCTION)

- (18) **Was** glaubst du, **wovon** sie träumt?
what believe you of.what she dreams

Differences between the copy construction and the partial movement construction:

- (i) Conjunction of two or more emedded clauses

Partial movement construction ✓
Copy construction ✗

- (19) a. Es ist egal, **was** er meint, [CP **wann** sie kommt] und [CP **wen** sie mitbringt]
 it is no.difference what he thinks when she comes and who she brings
 'It does not matter what he thinks as to when she will come and who she will bring along.'
- b. *Es ist egal, **wann/wen** er meint, [CP **wann** sie kommt] und [CP **wen** sie mitbringt]
 it is no.difference when/who he thinks when she comes and who she with.brings

(ii) Partial movement is licensed only by matrix predicates that also admit DP complements. The verb *scheinen* 'to seem' selects clausal complements only. Therefore, partial movement construction is impossible.

- (20) a. ***Was** scheint es, **wen** Hans geschlagen hat?
 what seems it who H. hit has
 PARTIAL MOVEMENT
- b. **Wen** scheint es, **wen** Hans geschlagen hat?
 who seems it who H. hit has
 COPY CONSTRUCTION
- (21) a. ***Was** hat Peter das Gefühl, **wen** man fragen könnte?
 what has P. the feeling who one ask could
 PARTIAL MOVEMENT
- b. ?**Wen** hat Peter das Gefühl, **wen** man fragen könnte?
 who has P. the feeling who one ask could
 'Who does Peter feel that one could ask?'
 COPY CONSTRUCTION

(iii) full wh-phrases at intermediate positions:

partial movement construction ✓
 copy construction ✗

- (22) **Was** glaubst du, **welchen Mann** sie liebt?
 what believe you which man she loves
 'Which man do you believe that she loves?'

(iv) Intervening *dass* clauses

partial movement construction ✓ (but not for all speakers)
 copy construction ✗

- (23) %**Was** glaubst du, **dass** Peter sagt, **wen** Maria getroffen hat?
 what think you that P. says who M. met has
 'Who do you think that Peter says Mary has met?'

- (24) **Wen** glaubst du, **wen/*dass** Peter meint, **wen** Susi heiratet?
 who believe you who/*that P. thinks who S. marries
 'Who do you believe Peter thinks that Susi is marrying?'

4.1.1 Summary

- PMC and CC are two different types of construction.
- PMC: there is evidence that the 'scope marker' *was* originates in matrix object position and does not enter into any kind of direct dependency relationship with the wh-expression in the lower clause.
- Only the copy construction necessarily involves wh-dependencies over two or more clauses, or the spelling-out of several copies of the same wh-item.
- The partial movement construction should not present any problems for a phase-based theory of derivation, beyond those presented by wh-movement in general.

5 Are intermediate copies real?

Some problems:

- Why does the spelling-out of locally uninterpretable wh-copies not cause the derivation to fail before it is completed?
- Are multiple PF occurrences of wh-expressions a problem for the LCA, which maps hierarchical structure into linear order?

A way to avoid the problems:

WH-COPYING AS A SPECIAL CASE OF COMPLEMENTIZER AGREEMENT?

↪ intermediate copies are wh-agreeing variants of the declarative complementizer ('*dass*' in German)

In Irish, the complementizer *go* is replaced by *aL* in clauses out of which operator movement has taken place:

- (25) a. Creidim **gu-r** inis sé bréag
 I-believe **go-PST** tell he lie
 'I believe that he told a lie.' IRISH
- b. an t-ainm **a** hinnseadh dúinn **a** bhí ar an áit
 the name **aL** was-told to-us **aL** was on the place
 'the name that we were told was on the place' IRISH

Wh-copying as comp-agreement in children's medial wh-sentences (Thornton and Crain (1995)):

- (26) [CP₂ Wovon_i [C' glaubst du [CP₁ (t_i) [C' [C **wovon**] sie t_i träumt]]]
 of.what believe you **COMP** she dreams

Arguments against the wh-agreement analysis of the copy construction

- (i) wh-agreement analysis predicts that the copy construction and long-distance questions should pattern alike syntactically → **wrong prediction**

☞ Only copy construction exhibits 'island effects'

(27) Negative Island

a. **Wen** glaubst du nicht, **dass** sie liebt?
whom believe you not that she loves
'Who don't you think that she loves?' LONG-DIST. QUESTION

b. ***Wen** glaubst du nicht, **wen** sie liebt?
whom believe you not whom she loves
'Who don't you think that she loves?' COPY CONSTRUCTION

(28) Factive Island

a. **Wen** bewies sie, **dass** Fritz liebt?
who proved she that F. loves
'Who did she prove that Fritz loves?'

b. ***Wen** bewies sie, **wen** Fritz liebt?
who proved she who F. loves
'Who did she prove that Fritz loves?'

(29) Multiple Wh-Phrases

a. **Wen** hat Peter **wann** gesagt, **dass** er besuchen wird?
who has P. when said that he visit will
'Who did Peter say when that he is going to visit?'

b. ***Wen** hat Peter **wann** gesagt, **wen** er besuchen wird?
who has P. when said who he visit will
'Who did Peter say when that he is going to visit?'

- (ii) Scopal data indicates that intermediate wh-copies are more than just PF reflexes of cyclic movement. (In (30-a), wh-word *wo* has narrow scope w.r.t the universal *Q_jeder*)

(30) a. *Wo* glaubt jeder, *wo* die besten Weine wachsen?
where believes everyone where the best wines grow
Narrow scope: jeder > wo ✓
Wide scope ?? COPY CONSTRUCTION

b. *Wo* glaubt jeder, *dass* die besten Weine wachsen?
where believes everyone that the best wines grow
'Where does everyone think that the best wines grow?'
Narrow and wide scope ✓ LONG-DISTANCE QUESTION

Pafel (2000: 348) proposes a constraint on relative scope determination:
for a wh-expression to be able to outscope another quantifier, both the head of the wh-chain and the intermediate copy must be able to take scope over that quantifier.

- (iii) Reis (2000):

- long-distance *dass*-questions that contain an inconsistent proposition → inconsistent² and a consistent reading
- the wh-copying structure and simple wh-interrogatives → inconsistent reading only.

(31) *Wo* glaubt sie, *dass* Fox populärer ist als er ist?
where believes she that F. more.popular is than he is?
'Where does she believe that Fox is more popular than he is?' LONG-DIST. Q.

(32) *inconsistent reading only*
a. *Wo* glaubt sie, *wo* Fox populärer ist als er ist?
where believes she where F. more.popular is than he is?
COPYING CONSTRUCTION

b. *Wo* ist Fox populärer als er ist?
where is F. more.popular than he is?
SIMPLE WH-INTERROG.

- (iv) intermediate copies and overt complementizers can co-occur in dialects of German in which the 'doubly-filled COMP filter' does not hold

(33) *Wer* glaubst du, **wer** **dass** du bist?
who think you who that you are
'Who do you think you are?'

- (v) complementizers are heads
the wh-agreement analysis cannot explain why copies of non-head categories appear at intermediate positions.

(34) % **An wen** glaubst du, **an wen** sie denkt?
of whom believe you of whom she thinks
'Who do you believe that she thinks of?'

INTERMEDIATE COPIES AS ADJUNCTS?

(35) [_{CP2} *Wovon*_i [_C glaubst du [_{CP1} [_C *wovon*_i [_C Ø]] sie *t*_i träumt]]]
of.what believe you of.what she dreams

²The consistent reading requires that the inconsistent object of attitude be attributable to two different sources capable of believing, and can be paraphrased roughly as follows: "For which place X, in her belief worlds is Fox more popular at X than Fox is popular at X in the real world" (compare Stechow, 2000: 468).

Advantages:

- accounts for the fact that wh-copying is normally restricted to single words
- allows for the possibility that a copy and an overt C co-occur (as in (33))

Disadvantages:

- Copying of prepositional phrases in some languages is difficult to account for.

5.1 Summary

- wh-copying does reflect intermediate steps of successive-cyclic wh-movement.
- intermediate wh-copies are located in the *specifiers* of non-interrogative C heads.
- The lower rather than the higher wh-copy matters for certain interpretive purposes.
- Intermediate wh-copies remain visible to semantic interpretation.

6 Proposal: Discontinuous (selective) Spellout

Wh-expressions semantically

wh- (operator) part + indefinite restriction ('core') part

(36) *wer, was, wo...* = [Q_{wh}] + 'somebody', 'something', 'somewhere'...

- Sometimes the two parts can be spelled out independently.

[CP₂ [Q_{WH} something] ... [CP₁ [if Q_{WH} SOMETHING]...]]

Empirical evidence for discontinuous Spellout

(i) *was-für* split in German

- (37) a. **Was für Bücher** hast du gekauft?
 what for books have you bought
- b. **Was** hast du **für Bücher** gekauft?
 what have you for books bought
 Both: 'What kind of books did you buy?'

(ii) In Afrikaans, a preposition can optionally be stranded at an intermediate (Spec,CP) position.

- (38) a. **Waarvoor** dink julle werk ons?
 wherefore think you work we
- b. **Waar** dink julle werk ons **voor**?
 where think you work we for

- c. **Waar** dink julle **voor** werk ons?
 where think you for work we

Afrikaans

- (39) a. **Waar/wat** werk ons nou eintlik **voor**?
 where/what work we now actually for
- b. ***Waar/wat** werk ons nou eintlik **vir**?
 where/what work we now actually for

(iii) *CP-coordination in German:*

- conjoined *dass*-clauses (40): **wen** refers to the same person
 - ☞ ATB extraction affects the entire wh-expression (the operator and the core part), which makes computing a disjoint reading difficult.
- conjoined clauses with wh-copies (41): preferred reading **wen_j** ≠ **wen_k**
 - ☞ Matrix Spec,CP hosts only the (identical) operator parts of the two lower wh-copies, while their (distinct) core parts are interpreted within the lower clauses.

(40) **Wen** glaubst du, [CP **dass** sie getroffen hat] und [CP **dass** sie liebt]?
 who think you that she met has and that she loves
 'Who do you think that she met and that she loves?'

(41) **Wen** glaubst du, [CP **wen_j** sie getroffen hat] und [CP **wen_k** sie liebt]?
 who think you who she met has and who she loves

(iv) the possibility of quantifiers (or other sentence operators) intervening between two wh-copies may be ruled out by the following condition:

(42) *Intervention Effect:*
 A semantic restriction on a quantifier (including wh) may not be separated from that quantifier by a scope-bearing element. Pesetsky (2000: 67)

- Examples (43) - (47-b) violate the *Intervention Effect Condition*. That is why they are ungrammatical.

(43) *Wen glaubst du **nicht**, wen sie liebt?
 whom believe you not whom she loves
 'Who don't you think that she loves?'

Negative Island

(44) ***Wen** hat Peter **wann** gesagt, **wen** er besuchen wird?
 who has P. when said who he visit will
 'Who did Peter say when that he is going to visit?'

Multiple wh-phrases

- (51) a. Wen_i glaubst du [_{CP} t_i [_C **dass**] [_{TP} sie t_i liebt]] ?
 b. Wen_i glaubst du [_{CP} **wen_i** [_C \emptyset] [_{TP} sie t_i liebt]] ?

Why should the copying of *full wh-phrases* be prohibited?

- (52) ***Welchen Mann** glaubst du, **welchen Mann** sie liebt?
 which man believe you which man she loves
 'Which man do you believe that she loves?'

- *referential* or *discourse-linked*³ wh-phrases are less sensitive to certain types of island effect than non-D-linked phrases, and they can cause superiority effects to disappear.

- (53) *D-linked wh-phrases are less sensitive to islands*
 a. ***Who** did Mary wonder whether John had failed?
 b. ?**Which student** did Mary wonder whether John had failed?

- (54) *D-linked wh-phrases escape superiority effects*
 a. ***What** did who buy?
 b. **Which book** did which person buy?

- Examples (53-b) and (54-b) show that D-linked wh-phrases may undergo non-local movement.

The claim:

D-linked wh-phrases do not appear in the copy construction because they do not undergo successive-cyclic movement.

- D-linking accounts for the fact that prepositional phrases may also be copied (provided that they are not D-linked).

- (55) **Met wie** het jy nou weer gesê **met wie** het Sarie gedog **met wie** gaan Jan
 with who did you now again said with who did S. thought with who go J.
 trou?
 marry
 'Whom did you say (again) did Sarie think Jan is going to marry?' Afrikaans

³Discourse-linked interrogative phrases imply the existence of a context set of familiar entities. For example, in the question *Which dish did you eat?*, there must exist a set of dishes from which the choice is to be made.

7.2 Summary

- The observation that the presence of wh-copies in embedded clauses does not cause the derivation to crash supports a convergence-based view of phases.
- Wh-copying might provide a way of selectively spelling out the indefinite (core part) of the wh-expression at a lower position, whereas the matrix copy indicates that the main clause is a wh-interrogative.
- Some otherwise mysterious restrictions on wh-copying follow from a constraint against separating a quantifier from its restriction.
- The observation that wh-copying is restricted to non-D-linked wh-expressions may follow from the special status of D-linked phrases that allows them to undergo non-local movement.

8 What triggers intermediate movement steps?

8.1 Optional P-features

pseudo-interrogative or other '*peripheral*' (force, focus, etc.) features in intervening phase heads can trigger intermediate movement steps.

8.1.1 Collins (1997)

Uninterpretable, non-interrogative [wh] features (or [Q] features, in Chomsky's, 2000, system) in intermediate C heads trigger intermediate movement steps.

Problems:

- Unclear how such features can be associated with non-interrogative heads.
- If a wh-expression enters into a Q-agreement relation with an intermediate C head, it becomes inactive, i.e., unavailable for further movement.
- As this is not the case, however, it appears that we are dealing with [Q] features that are 'strong' enough to act as probes for agreement, but at the same time, too 'weak' to check the uninterpretable [wh] feature of the goal.

8.1.2 Sabel (2000)

- a [*focus*] feature can trigger local wh-movement to Specs of non-interrogative heads.
- If this feature is 'strong' (as in German), then the spelling-out of wh-expressions in the specifier of intermediate non-interrogative C is possible.
- If it is 'weak' (as in English), then the spelling-out is unavailable.

Problems:

- ☞ There is no independent evidence that embedded Spec,CP is a focus position.

- (56) a. *Er glaubt, **Susi** (dass) das Geld gestohlen hat
 he believes S. (that) the money stolen has
 Intended: 'He thinks that Susi has stolen the money.'
- b. *Sie denkt, **den Wein** (dass) er getrunken hat
 she thinks the wine (that) he drunk has
 Intended: 'She thinks that he has drunk the wine.'

8.1.3 Chomsky (1998)

Movement-triggering features are *only optionally* added to C or v heads.

- (57) The head H of a phase PH may be assigned an EPP- and P-feature.
 (Chomsky, 1998: 23)

- EPP features together with uninterpretable P-features in C and v ensure that a wh-item that is active because it (still) contains unchecked features is drawn to the edge of each intermediate phase, and thus remains accessible to further computation.

Problems:

- Peripheral features do not make any obvious contribution to interpretation.
- makes the mapping from syntax to semantics unnecessarily complicated
- The hypothesis that EPP or P-features are present only when needed (that is, to trigger intermediate movement steps) *describes rather than derives* successive-cyclic movement.
- There is no independent motivation for the presence of uninterpretable peripheral or EPP features in intermediate phase heads in long-distance questions.

8.2 Non-feature-driven movement

Intermediate steps in movement are *indirectly* feature-driven.

8.2.1 Heck & Müller (2000): Phase Balance

Intermediate movement steps serve to satisfy *Phase Balance (PB)*.

- (58) *Phase Balance*
 Phases must be balanced: If P is a phase candidate, then for every feature F in the numeration there must be a distinct potentially available checker for F.
 (Heck & Müller, 2000: 104)

- PB forces material from the current phase P that is supposed to check a feature within a higher phase P₀ to move to the edge of P, in violation of Last Resort.⁴

⁴LAST RESORT (LR):

Movement must result in feature checking

- PB forces a wh-expression capable of checking uninterpretable features of some higher head to move to the edge of each current phase.
- A wh-phrase can see that a C-head in the numeration has a relevant feature which must be checked. This triggers movement of the wh-phrase.
- Since the PB constraint on phases is ranked higher than the Last Resort condition, derivations involving movement steps that are not feature-driven may still converge.

Advantages:

- it renders unnecessary the step of adding uninterpretable, movement-triggering features to phasal heads and wh-expressions on an ad hoc basis.

Problems:

- **'lookahead' problem:** at any stage during the derivation, the computation has access to the complete numeration.

8.2.2 Proposal: Phases in terms of convergence and two types of Spellout

- PF-Spellout and LF-Spellout apply at the different points during the derivation.
 - LF-Spellout is restricted to phases that are convergent.
 PF-Spellout may apply locally. PF-linearisation applies obligatorily at the end of each candidate phase.
 - Following Chomsky (1998, and later), a wh-expression with unvalued features can escape PF-Spellout by moving to the edge of each local phase before that phase is spelled out.
- ☞ Successive-cyclic wh-movement is motivated by PF-considerations, rather than being triggered by uninterpretable features of intermediate phase heads.

What about wh-copying?

In wh-copying languages like German, certain language-specific properties - including the requirement that embedded CP must be visible, and the possibility to split wh-expressions up into an operator and a core part - allow for intermediate copies to be phonetically realized.

What about the Linear Correspondence Axiom (LCA) and the Principle of Full Interpretation?

9 Conclusion

- Long wh-movement proceeds successive-cyclically in a series of local steps.
- Movement in a single step cannot account for wh-copying (as in German).
- There is evidence for selective/discontinuous Spellout of wh-expressions.
- Wh-copying is restricted to non-D-linked wh-expressions.

Problem: The assumption of cyclic Spellout is incompatible with the presence of intermediate wh-copies that are still active at the point at which Spellout applies.

Solution:

- Phases must be defined in terms of convergence.
- CP and vP are *potential candidates* for local Spellout only.
- Whereas LF-Spellout is potentially non-local (it applies only to phrase-markers that are convergent), PF-linearisation applies obligatorily at the end of each (next higher) candidate phase.
- Under this view, intermediate movement steps are not in fact feature-driven, but merely help ensure that in wh-raising languages, an active wh-expression does not undergo PF-Spellout until its uninterpretable [wh] feature has been assigned a PF-value.

References

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