

Morphological Marking of Constituent Questions. A Case for Nonlocal Amalgamation

DELPH-IN 2021

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- **Data:** Constituent (*wh*-) questions cross-linguistically

Introduction

Data: Constituent
questions

Nonlocal amalgamation
(NA) aka lexical threading

Multiple question fronting

Data

Analysis without
nonlocal
amalgamation

Analysis with
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Conclusion

References

- ▶ **Data:** Constituent (*wh*-) questions cross-linguistically
- ▶ **Project:** The Grammar Matrix
 - ▶ Grammars share “core”, including definition of *list*

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- ▶ **Theory:** Nonlocal amalgamation¹(NA; aka lexical threading)
 - ▶ Heads “append” arguments’ nonlocal features

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- ▶ **Problem:** NA complicates the analysis of multiple question fronting

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- ▶ **Problem:** But without NA, the analysis of morphological marking of questions is... questionable!

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- ▶ **Problem:** But without NA, the analysis of morphological marking of questions is... questionable!
- ▶ **Question:** What can be changed/improved?

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- ▶ Questions about *who* did *what* to *whom* *where*, etc.
- ▶ Different marking strategies across 🌐 languages, including:
 - ▶ Question phrase fronting
 - ▶ Morphological marking

(1) Gde kto chto
where who.NOM what.ACC
vidit?
see.3SG
'Who sees what where?'
(Russian [rus]; IE)²

(2) ee va iche -ža -m?
what see -FUT.Q -1SG.Q
'What will I see?'
(Negidal [neg]; Tungusik)³

² Constructed by a native speaker of Russian.

³ Hölzl 2018

Data: Constituent questions

- ▶ Fronting can be long distance
- ▶ Morphological marking can be distinct in polar vs. wh-

(3) Gde kto chto my
where who.NOM what.ACC 1PL.NOM
vyjasnili vidit?
find.out.PL.PAST see.3SG
'Who did we find out sees what where?' [rus]⁴

(4) ačaq=qa dudu'k
who=CONTENT.3SG sing
'Who is singing?' (Makah [myh]; Wakashan)⁵

- ▶ **Goal:** Have a system of analyses for a range of phenomena such as above
 - ▶ All grammars share have list-valued features implemented the same way
 - ▶ ...SLASH, QUE

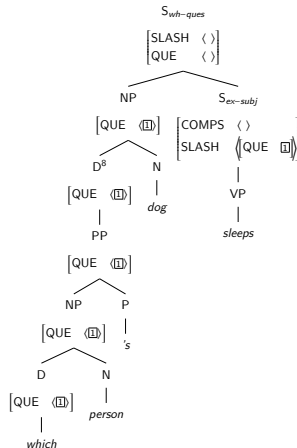
⁴ Constructed by a native speaker of Russian.

⁵ Davidson 2002

SLASH and QUE: Nonlocal dependencies

(5) Which person's (son's) dog (do you think) sleeps? [eng]

- ▶ SLASH creates LDD between the verb and its argument⁶
- ▶ QUE creates LDD within the (complex) argument NP
 - ▶ non-*wh* words have empty QUE
 - ▶ (Perhaps a better name: WH⁷)



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Pollard and Sag 1994
Ginzburg and Sag 2000
Nielsen 2018

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- ▶ Extraction rules may not be needed for English but they probably are needed cross-linguistically
 - ▶ E.g. valence-changing morphology
- ▶ Bouma et al.'s analysis relies on DEPS (arguments and adjuncts together)
 - ▶ Not adopted in DELPH-IN; e.g. counting adjuncts is hard
- ▶ **Bottom line:** DELPH-IN maintains extraction rules
 - ▶ ...but NA is used in e.g. the English Resource Grammar,¹⁰ for *easy*-adjectives

Summary of introduction

- ▶ Goal: Have a system of analyses (the Grammar Matrix) covering multiple question phrase fronting **as well** as other phenomena
 - ▶ ...cross-linguistically, way beyond just English or just IE languages

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 - ▶ If you extract explicitly, append NONLOCAL explicitly to avoid extra rules
- ▶ This talk: A counterpoint:
 - ▶ Morphological marking of interrogative constructions
 - ▶ ...Much simpler with NA!
 - ▶ ...for a certain typological profile at least

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Morphologically marked interrogatives

- (6) oža-va iche-žee-v
track-ACC see-FUT-1SG
'I will see the tracks.' [neg]¹²

- (7) ii-žə-m =i?
enter-FUT.Q-1SG.Q =Q
'Shall I come in?' [neg]

- (8) eeva iche-ža-m?
what see-FUT.Q-1SG.Q
'What will I see?' [neg]

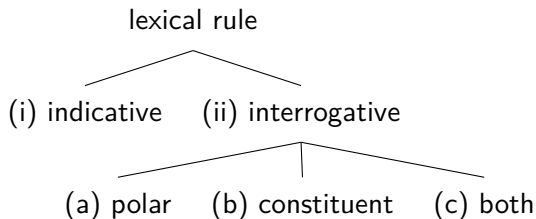
- (9) ʔačaq=qa:ʔ dudu'k
who=CONTENT.3SG sing
'Who is singing?' [myh]¹³

- (10) dudu'k='aʎ=qa:k=s
sing=TEMP=POLAR=1SG
'Am I singing?' [myh]

¹² Hölzl 2018
¹³ Davidson 2002

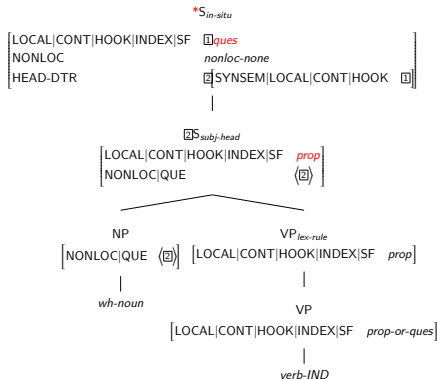
Morphologically marked interrogatives: Typology

- ▶ Special paradigm(s) for interrogatives:
 - ▶ Polar and constituent questions may have **distinct** paradigms
 - ▶ In DELPH-IN JRF:
 - ▶ Modeling the (i) vs (ii),(c) distinction is easy with or without NA
 - ▶ Modeling (a)–(b) distinction without NA is **not trivial** without NA



Indicative vs. interrogative, NA does not matter

- ▶ Distinction between (i) indicative and (ii) interrog. lex. rules is easy
 - ▶ (c) by extension (same as (ii))
- ▶ The sentential force $_{SF}$ semantic feature will block any interrogative phrase structure rule



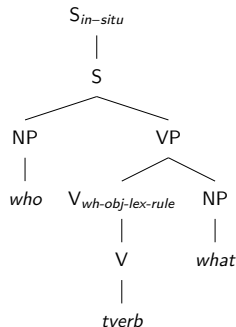
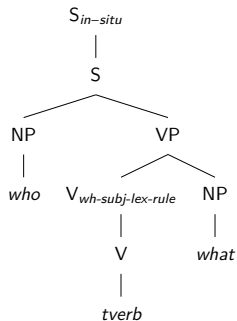
Analysis without nonlocal amalgamation: (a) vs (b)

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- ▶ Lex. rules for *wh*- (and not polar) questions need to explicitly posit which argument of the head is or isn't *wh*
 - ▶ No way to just say: **Some** argument is *wh* (in DELPH-IN JRF)

Analysis without nonlocal amalgamation: (a) vs (b)

- ▶ But, the *wh-obj-lex-rule* will apply spuriously!
 - ▶ ...in languages where there is only one morpheme to mark any *wh*-question
 - ▶ The second argument ends up underspecified (*wh*- or not)
 - ▶ Cannot constrain its SUBJ to be empty (saturated)
 - ▶ ...would violate the assumption that lexical rules apply before phrasal



Analysis without nonlocal amalgamation: (a) vs (b)

$$\left[\begin{array}{l} \text{non-wh-cons} \\ \text{FIRST} \quad \left[\begin{array}{l} \text{synsem} \\ \text{NON-LOCAL.QUE.LIST} \quad \langle \rangle \end{array} \right] \\ \text{REST} \quad \text{non-wh-list} \end{array} \right]$$

$$\left[\begin{array}{l} \text{polar-lex-rule} \\ \text{SYNSEM|LOCAL|CAT|VAL} \quad \left[\begin{array}{l} \text{SUBJ} \quad \langle \langle \text{NON-LOCAL|QUE|LIST} \quad \langle \rangle \rangle \rangle \\ \text{COMPS} \quad \text{non-wh-list} \end{array} \right] \end{array} \right]$$

$$\left[\begin{array}{l} \text{wh-subj-lex-rule} \\ \text{SYNSEM|LOCAL|CAT|VAL|SUBJ} \quad \langle \langle \text{NON-LOCAL|QUE|LIST} \quad \text{cons} \rangle \rangle \end{array} \right]$$

$$\left[\begin{array}{l} \text{wh-obj-lex-rule} \\ \text{SYNSEM|LOCAL|CAT|VAL} \quad \left[\begin{array}{l} \text{SUBJ} \quad \text{non-wh-list} \\ \text{COMPS} \quad \langle \langle \text{NON-LOCAL|QUE|LIST} \quad \text{cons} \rangle \rangle \end{array} \right] \end{array} \right]$$

Analysis with nonlocal amalgamation

- ▶ With NA, **can** say: **some** arg is *wh*!
- ▶ It is the same as to say QUE *cons*!
- ▶ For (c), just leave QUE underspecified
- ▶ No need to think about number or order of args!
- ▶ No need to posit any additional types beyond the following two:

<i>polar-lex-rule</i>	
SYNSEM SF	<i>ques</i>
DTR SYNSEM NON-LOCAL QUE LIST	< >

<i>wh-lex-rule</i>	
SYNSEM SF	<i>ques</i>
DTR SYNSEM NON-LOCAL QUE LIST	<i>cons</i>

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- ▶ In DELPH-IN JRF, treatment of morphological marking and fronting of questions¹⁴ seem to be in competition?
- ▶ Nonlocal amalgamation¹⁵ seems important for morphological marking
 - ▶ Analysis is easy both conceptually and in terms of implementation
- ▶ we **probably** do want to have one core for all grammars
- ▶ It complicates multiple fronting with flexible word order but perhaps this means more work on word order is required?
- ▶ Or maybe languages like Makah are very rare?..

¹⁴ Bender, Flickinger, et al. 2002; Bender, Drellishak, et al. 2010

¹⁵ Zamaraeva 2021

¹⁶ Zamaraeva and Emerson 2020

¹⁷ Bouma et al. 2001

A question from a reviewer

- How would a lexical verb be sensitive to QUE?

“The lexical verb can see SLASH elements, but QUE is percolated in a different area of the structures. Since QUE is a nonlocal feature and only local features are shared between filler and gap, the QUE value is not available at the extraction site, i.e. at the verb. Maybe no extraction is involved in the respective languages but if there is, the analysis seems to not work”

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