

Assembling Syntax: Modeling Constituent Questions in a Grammar Engineering Framework

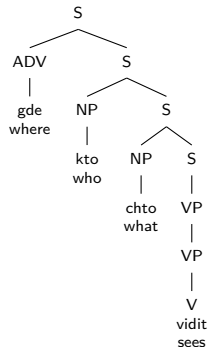
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The Grammar Matrix: Questionnaire – Analysis – Semantics

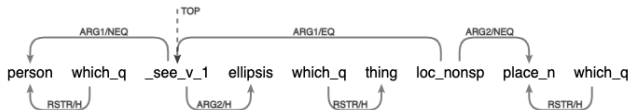
- (1) Gde kto chto vidit?
where who.NOM what.ACC see.3SG
'Who sees what?'[rus]



Choices regarding the position of question phrases

Question phrases can appear at the left edge of the sentence regardless of the position the questioned constituent would appear in (*Who did you see? I know who you saw* etc.):

- ☐ Only one question phrase can be fronted
- ☒ All question phrases can be fronted
- ☐ Question phrases cannot be fronted (stay *in situ*)



Constituent questions in the Matrix

- ▶ New library¹
- ▶ Typological scope:²
 - ▶ Position of question phrase
 - ▶ Fronting, *in situ*
 - ▶ Fronting optionality
 - ▶ Morphological marking
 - ▶ Question particles
 - ▶ Position
 - ▶ Optionality
 - ▶ Question words
 - ▶ Including interrogative verbs³

x Question Verb type 2:
Type name: do-what
Supertypes:
Features:
x Name: case Value: absolute Specified on: The subject
Add a Feature
There is no predefined case frame for question verbs. Please specify the case for the subject above.
The second predicate that this verb contributes is
☒ referential (*thing, person*)
☐ location in time/space (*when, where*)
☐ manner (*how*)
Stems:
x Spelling: req Event predicate (e.g. *do*): do
Specify (e.g. *thing, place, time*): thing

Chukchi interrogative verb specification

- (2) *req-arkən-am* *ekək*
do.what-PROG-EMPH son-ABS
'What is the son doing?' [ckt] ⁴

¹ Zamaraeva 2021
² König and Siemund 2007; Hagège 2008; Miyagawa 1987, *inter alia*
³ Mackenzie 2009

Specification	Types	Core?	New?	Custom features
single oblig. front.	<i>wh-ques-phrase</i>	no	yes	SLASH < >
	<i>subj-, obj-, adj-ex.</i>	no	no	none
multi oblig. front.	<i>wh-ques-phrase</i>	no	yes	HDR QUE < > MODIFIED <i>hasmod</i>
	<i>subj-, obj-, adj-ex.</i>	no	no	none
single opt. front.	<i>wh-ques-phrase</i>	no	yes	SLASH < >
	<i>in-sutu-phrase</i>	no	yes	none
	<i>subj-, obj-, adj-ex.</i>	no	no	none
multi opt. front.	<i>wh-ques-phrase</i>	no	yes	MODIFIED <i>hasmod</i>
	<i>in-sutu-phrase</i>	no	yes	HDR L-QUE –
	<i>subj-, obj-, adj-ex.</i>	no	no	HDR L-QUE –
<i>in situ</i> (no front.)	<i>in-sutu-phrase</i>	no	yes	none

The position of question phrases customization summary

Specification	Types	Core?	New?	Custom features
oblig. noun	<i>wh-pronoun-lex</i>	yes	yes	none
opt. noun	<i>ex-det-phrase</i>	no	yes	none
oblig. adp.	<i>ex-comp-phrase</i>	no	no	HDR HEAD <i>+nvjr c d m o</i>
opt. adp.	<i>ex-comp-phrase</i>	no	no	none

Pied piping customization summary

Specification	Types	Core?	New?	Custom features
clause-final or init.	<i>qpart-comp-lex</i>	no	no	none
	<i>head-comp-phrase</i>	yes	no	INIT
2nd pos.	<i>ques-clitic-lex</i>	no	yes	none
	<i>non-local</i>	yes	no	YNQ
	<i>basic-binary-phrase</i>	yes	no	L-PERIPH
	<i>int-cl-phrase</i>	no	yes	none
	<i>in-situ-phrase</i>	no	yes	none
obligatory	<i>in-situ-phrase</i>	no	yes	MC –
only in embed.	<i>qpart-comp-lex</i>	no	no	MC 1
				COMPS MC 1
only in polar	<i>qpart-comp-lex</i>	no	no	WH BOOL –
	<i>ques-clitic-lex</i>	no	yes	

Question particles customization summary

Specification	Types	Core?	New?	Custom features
Same mkg for polar and <i>wh</i> -	<i>interrog-lex-rule</i>	no	yes	none
	<i>indicative-lex-rule</i>	no	yes	none
Separate paradigms	<i>indicative-lex-rule</i>	no	yes	none
	<i>polar-lex-rule</i>	no	yes	none
	<i>wh-subj-lex-rule</i>	no	yes	none
	<i>wh-obj-lex-rule</i>	no	yes	none

Morphological question marking customization summary

Specification	Types	Core?	New?	Custom features
<i>do/be.what,etc. verb</i>	<i>three-rel-itrg-verb</i>	no	yes	none
<i>go.where,etc. verb</i>	<i>four-rel-itrg-verb</i>	no	yes	none

Interrogative verbs customization summary

Evaluating the constituent questions library

Language	ISO-639-3	Family	Gram. items	Coverage%	Question typology
Apinajé	[apn]	Macro-Jê	17	82.3	single front.
Makah	[myh]	Wakashan	14	78.5	morphological,int. verbs
Pacoh	[pac]	Austroasiatic	26	84.6	single opt. front.
Paresi-Haliti	[pab]	Arawakan	64	56.0	single front., int. verbs
Jalkunan	[bxl]	Mande	33	78.8	<i>in situ</i> , particle, int. verbs

- ✓ Single fronting, particles, morphological marking, interrogative verbs
- ✗ Question words as predicates; variable positioning based on type of word
- Did not come up: Multiple fronting and LDDs

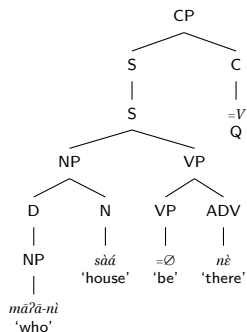
Evaluating the constituent questions library

Language	ISO-639-3	Family	Gram. items	Coverage%	Handled phenomena
Apinajé	[apn]	Macro-Jê	17	82.3	evidentials, arg. drop, clausal modifiers
Makah	[myh]	Wakashan	14	78.5	clausal complements, arg. drop
Pacoh	[pac]	Austroasiatic	26	84.6	arg. drop
Paresi-Haliti	[pab]	Arawakan	64	56.0	focus, adnom. poss, coordination
Jalkunan	[bxl]	Mande	33	78.8	adnom. poss.

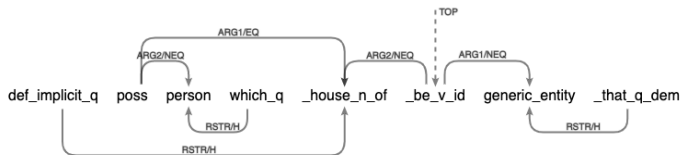
- ✓ Single fronting, particles, morphological marking, interrogative verbs
- ✗ Question words as predicates; variable positioning based on type of word
- Did not come up: Multiple fronting and LDDs
- 🐞 Bugs: in interaction with **information structure** and clausal complements libraries

A highlight: Two libraries working together

- ▶ The analysis of question pronouns⁵ + the analysis of adnominal possession⁶
 - ▶ The specification did not consider this particular analysis
 - ▶ Yet it is the correct prediction 🏆



- (3) māʔā-nì sàá =Ø nè =V
who-INDEP house =be there =Q
'Whose house is that?' [bɪl]



www.delph-in.github.io/delphin-viz/demo/

⁵ Zamaraeva 2021

⁶ Nielsen 2018

- ▶ Information structure adds and customizes extraction rules
- ▶ So does the Wh-q library
 - ▶ Maybe only one of them should be doing that
- ▶ Matrix is harder to use for languages with no traditional distinction between nouns and verbs
 - ▶ ...or transitive and intransitive verbs
- ▶ Analysis of clausal complements + questions is awkward
 - ▶ Need to model distinction: *think, wonder, know*
 - ▶ Cannot rely on SF or QUE
 - ▶ SF is *prop-or-ques* in subj-head, comp-head
 - ▶ QUE is only for wh, not for polar, plus it is discharged by filler-gap and in situ phrases
 - ▶ Also, our old problem:
 - ▶ *Do you know who Kim saw?*
 - ▶ *Who do you know for certain whether Kim saw them?*

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