

Modeling constituent (“Wh-”) questions in the LinGO Grammar Matrix

Discussion at the DELPH-IN summit

Olga Zamaraeva

Department of Linguistics, University of Washington

June 19 2018

Plan

Library
development

Data

ERG

Discussion

References

Plan

Modeling
constituent (“Wh-”
questions
in the LinGO
Grammar Matrix
Discussion at the
DELPH-IN summit

- ▶ Library development process
- ▶ Typology of constituent questions
- ▶ in the ERG (other grammars)?
- ▶ Discussion
 - ▶ Other data (phenomena)?
 - ▶ People’s expectations from the library
 - ▶ Anticipated issues

Plan

Library
development

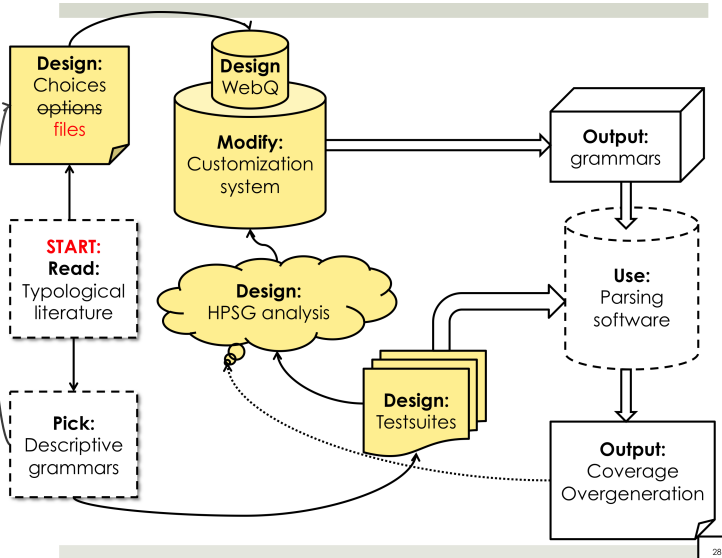
Data

ERG

Discussion

References

Library development



Modeling constituent ("Wh-") questions in the LinGO Grammar Matrix
Discussion at the DELPH-IN summit

Plan

Library development

Data

ERG

Discussion

References

28

Data summary

- ▶ Phenomena overlap with polar questions (except tags and disjunction)
 - ▶ Intonation (N/A?)
 - ▶ Particles
 - ▶ Changes in constituent order
 - ▶ Verbal inflection
- ▶ Interrogative words (*who*, *what* etc.)
- ▶ Also: Interrogative **verbs** (*do.what*, *go.where*)

Modeling
constituent ("Wh-")
questions
in the LinGO
Grammar Matrix
Discussion at the
DELPH-IN summit

Plan

Library
development

Data

ERG

Discussion

References

Interrogative particles

(1) Dare-ga kimasu (ka)?

who-NOM come INT

'Who is coming?' [jpn] (König and Siemund 2007, p. 300)

(2) Kuka(*ko) tulee huomenna?

who(*INT) come.3sg tomorrow

'Who is coming tomorrow?' [fin] (König and Siemund 2007, p. 300)

(3) a. neri-va-0?

eat-INT-3SG

'Did you eat?' [kal] (König and Siemund 2007, p. 299)

b. su-mik neri-va-0?

what-INSTR eat-INT-3SG

'What did he eat?' [kal] (König and Siemund 2007, p. 300)

Interrogative words

- (4) a. A-li-fika lini?
3SG-PAST-arrive when
'When did s/he arrive?'
- b. kwa nini chakula ki-me-chelewa?
why food 3SG-PERF-late
'Why is the food late?' [swa] (König and Siemund
2007, p. 301)
- (5) a. Hufei mǎi-le yī-běn-shū
Hufei buy-ASP one-CL-book
'Hufei bought a book.'
- b. Hufei mǎi-le shénme?
Hufei buy-ASP what
'What did Hufei buy?' [cmn] (König and Siemund
2007, p. 302)

Interrogative words, contd.

- (6) a. John gave the book to Mary
b. Who gave what to whom? [eng] (König and
Siemund 2007, p. 302)

- (7) a. Ivan dal Mashe knigu
Ivan.NOM gave Masha.DAT book.ACC
'Ivan gave Masha the book' [rus]
b. Kto komu chto dal?
Who.NOM whom.DAT what.ACC gave
'Who gave what to whom?' [rus]

Plan

Library
development

Data

ERG

Discussion

References

Interrogative verbs

Modeling
constituent ("Wh-")
questions
in the LinGO
Grammar Matrix
Discussion at the
DELPH-IN summit

Plan

Library
development

Data

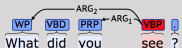
ERG

Discussion

References

- (8) req-ərəkən-əm igitkej gə-nin ekək?
do.what-PROG-EMPH right.now 2SG-POS son.ABS
'What is your son doing right now?' [ckt] (Mackenzie
2009, p. 1147)

ERG (Flickinger 2000)



#	0	<input type="checkbox"/>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">S</th> </tr> <tr> <td style="width: 30px;">NP</td> <td colspan="3">S/NP</td> </tr> <tr> <td>N</td> <td colspan="2">V/NP</td> <td>VP/NP</td> </tr> <tr> <td>N</td> <td>V/NP</td> <td>NP</td> <td>V/NP</td> </tr> <tr> <td>what</td> <td>V/NP</td> <td>NP</td> <td>V/NP</td> </tr> <tr> <td></td> <td>did</td> <td>you</td> <td>V/NP</td> </tr> <tr> <td></td> <td></td> <td></td> <td>see?</td> </tr> </table>	S				NP	S/NP			N	V/NP		VP/NP	N	V/NP	NP	V/NP	what	V/NP	NP	V/NP		did	you	V/NP				see?	<p>TOP h1</p> <p>INDEX e3</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30px;">RELS {</td> <td style="border-left: 1px solid black; padding-left: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">thing(0:4)</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h6</td> <td style="border-right: 1px solid black; padding-right: 5px;">pron(9:12)</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h11</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">_see_y_1(13:17)</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h2</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h4</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x5</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h9</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x10</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x3</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x10</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x5</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">RSTR</td> <td style="padding: 0 5px;">h7</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x10</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">RSTR</td> <td style="padding: 0 5px;">h12</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARG1</td> <td style="padding: 0 5px;">x10</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">BODY</td> <td style="padding: 0 5px;">h8</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">BODY</td> <td style="padding: 0 5px;">h8</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">BODY</td> <td style="padding: 0 5px;">h13</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARG2</td> <td style="padding: 0 5px;">x5</td> </tr> </table> </td> </tr> </table>	RELS {	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">thing(0:4)</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h6</td> <td style="border-right: 1px solid black; padding-right: 5px;">pron(9:12)</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h11</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">_see_y_1(13:17)</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h2</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h4</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x5</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h9</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x10</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x3</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x10</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x5</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">RSTR</td> <td style="padding: 0 5px;">h7</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x10</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">RSTR</td> <td style="padding: 0 5px;">h12</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARG1</td> <td style="padding: 0 5px;">x10</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">BODY</td> <td style="padding: 0 5px;">h8</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">BODY</td> <td style="padding: 0 5px;">h8</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">BODY</td> <td style="padding: 0 5px;">h13</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARG2</td> <td style="padding: 0 5px;">x5</td> </tr> </table>	thing(0:4)		L	LBL	h6	pron(9:12)		L	LBL	h11		_see_y_1(13:17)		L	LBL	h2	L	LBL	h4		ARGO	x5	L	LBL	h9		ARGO	x10	L	ARGO	x3		ARGO	x10	L	ARGO	x5		RSTR	h7	L	ARGO	x10		RSTR	h12	L	ARG1	x10		BODY	h8	L	BODY	h8		BODY	h13	L	ARG2	x5
S																																																																																																
NP	S/NP																																																																																															
N	V/NP		VP/NP																																																																																													
N	V/NP	NP	V/NP																																																																																													
what	V/NP	NP	V/NP																																																																																													
	did	you	V/NP																																																																																													
			see?																																																																																													
RELS {	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">thing(0:4)</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h6</td> <td style="border-right: 1px solid black; padding-right: 5px;">pron(9:12)</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h11</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">_see_y_1(13:17)</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h2</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h4</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x5</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">LBL</td> <td style="padding: 0 5px;">h9</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x10</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x3</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x10</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x5</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">RSTR</td> <td style="padding: 0 5px;">h7</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARGO</td> <td style="padding: 0 5px;">x10</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">RSTR</td> <td style="padding: 0 5px;">h12</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARG1</td> <td style="padding: 0 5px;">x10</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">BODY</td> <td style="padding: 0 5px;">h8</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">BODY</td> <td style="padding: 0 5px;">h8</td> <td style="padding: 0 5px;"> </td> <td style="padding: 0 5px;">BODY</td> <td style="padding: 0 5px;">h13</td> <td style="border-right: 1px solid black; padding-right: 5px;">L</td> <td style="padding: 0 5px;">ARG2</td> <td style="padding: 0 5px;">x5</td> </tr> </table>	thing(0:4)		L	LBL	h6	pron(9:12)		L	LBL	h11		_see_y_1(13:17)		L	LBL	h2	L	LBL	h4		ARGO	x5	L	LBL	h9		ARGO	x10	L	ARGO	x3		ARGO	x10	L	ARGO	x5		RSTR	h7	L	ARGO	x10		RSTR	h12	L	ARG1	x10		BODY	h8	L	BODY	h8		BODY	h13	L	ARG2	x5																																		
thing(0:4)		L	LBL	h6	pron(9:12)		L	LBL	h11		_see_y_1(13:17)		L	LBL	h2																																																																																	
L	LBL	h4		ARGO	x5	L	LBL	h9		ARGO	x10	L	ARGO	x3		ARGO	x10																																																																															
L	ARGO	x5		RSTR	h7	L	ARGO	x10		RSTR	h12	L	ARG1	x10		BODY	h8																																																																															
L	BODY	h8		BODY	h13	L	ARG2	x5																																																																																								
			<p>HCONS { h1 = q h2, h7 = q h4, h12 = q h9 }</p>																																																																																													

ERG

Discussion

- ▶ Other phenomena?
- ▶ Anticipated issues?
 - ▶ Syntactic
 - ▶ Semantic
- ▶ What would people like to come out of this library?..

Modeling
constituent ("Wh-")
questions
in the LinGO
Grammar Matrix
Discussion at the
DELPH-IN summit

Plan

Library
development

Data

ERG

Discussion

References

References

- Dan Flickinger. 2000. On building a more efficient grammar by exploiting types. *Natural Language Engineering*, 6(01):15–28.
- Ekkehard König and Peter Siemund. 2007. Speech act distinctions in grammar. *Language typology and syntactic description*, 1:276–324.
- J Lachlan Mackenzie. 2009. Content interrogatives in a sample of 50 languages. *Lingua*, 119(8):1131–1163.

Modeling
constituent (“Wh-”)
questions
in the LinGO
Grammar Matrix
Discussion at the
DELPH-IN summit

Plan

Library
development

Data

ERG

Discussion

References