NESTED *WH*-QUESTIONS AND THE LOCALITY OF SCOPE-TAKING

Patrick D. Elliott

September 7, 2015

University College London

Questions at the Syntax-Semantics Interface

OVERVIEW

ROADMAP

- Intro to multiple questions.
    - Syntax, semantics, and the syntax-semantics interface.
- The scope of *wh-in-situ*.
- *Pair-List* vs. *Single-Pair* readings.
- Implications of nested *wh*-questions.
- Analysis.
- Evidence from Hindi.

MULTIPLE QUESTIONS

- I take *multiple questions* to be interrogatives involving $n \geq 2$ *wh*-expressions.
- In this talk, I'll be concentrating on cases where $n = 2$.

(1) a. Which girl asked out which boy?
b. Who bought what?
c. Which linguist admires which philosopher?

- The syntax of multiple questions differs radically cross-linguistically.

- In English, exactly one *wh*-expression must move overtly to the left-periphery of the interrogative; other *wh*-expressions remain *in-situ*.
- In other languages all *wh*-expressions remain *in-situ* (modulo other operations such as scrambling).

(2) John-wa da're-ni na'ni-o maka'seta -no? *Japanese*
John-TOP who-DAT what-ACC entrusted -COMP$_{WH}$
"Who did John entrust with what?"
(Kitagawa, Roehrs, and Tomioka 2003, p. 3)

- In yet other languages, such as Russian and Bulgarian, all questioned *wh-phrases* are fronted.

(3) Koj kogo e pokanil na večerjata? *Bulgarian*
Who whom AUX invited to dinner
"Who invited whom to the dinner?" (Grebenyova 2012, p. 9)

- Throughout, I assume a Hamblin/Karttunen approach to question semantics: interrogatives denote a set of propositions (i.e., the set of possible/true answers).
- In the literature on question semantics, everyone agrees that in an interrogative, every *questioned wh*-expression must take scope over the *question nucleus* (von Stechow 1996).

(4) which boy$_i$ did Mary ask out t_i?

$$[\![(4)]\!] = \lambda p_{\langle st \rangle}.\ \underbrace{\exists x[\text{boy}(x)}_{\text{wh-expression}} \wedge \overbrace{p = \lambda w.\ \text{Mary asked out}_w\ x]}^{\text{question nucleus}}$$

$$[\![(4)]\!] \neq \lambda p_{\langle st \rangle}.\ \overbrace{p = \lambda w.\ \underbrace{\exists x[\text{boy}(x)}_{\text{wh-expression}} \wedge \text{Mary asked out}_w\ x]}^{\text{question nucleus}}$$

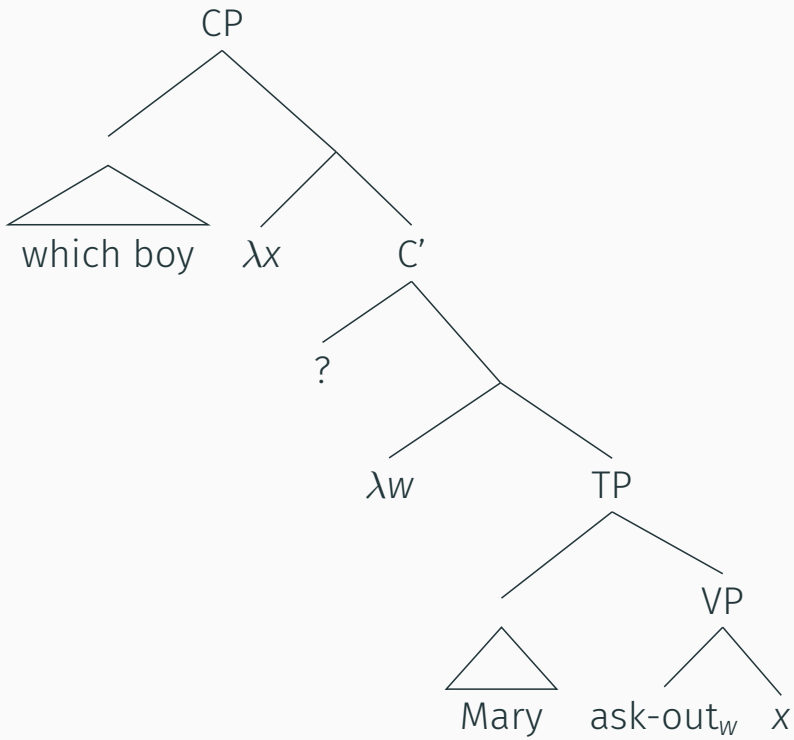
- The correct meaning is equivalent to the set of propositions of the form *Mary asked out x (where x is a boy)*, i.e., it picks out the set of possible answers to *which boy did Mary ask out?*.

  (5) $=$ {that Mary asked out John,
  that Mary asked out Paul, etc.}

- The incorrect meaning is equivalent to a singleton set containing the proposition *Mary asked out a boy*.

  (6) $\neq$ {that Mary asked out a boy}

- Achieving the desired denotation compositionally for simple *wh*-questions is straightforward; since the *wh*-expression moves overtly, it's surface position matches it's scope position (details suppressed).



- In a multiple question, every *wh*-questions which is *questioned* must take scope over the question nucleus.

(7) Which girl$_i$ t_i asked out which boy?

$$[\![(7)]\!] = \lambda p_{\langle st \rangle}.\ \underbrace{\exists x, y[\text{girl}(x) \wedge \text{boy}(y)}_{wh_i \text{ and } wh_j} \wedge \overbrace{p = \lambda w.x \text{ asked out}_w\ y}^{\text{question nucleus}}]$$

$$[\![(7)]\!] \neq \lambda p_{\langle st \rangle}.\ \underbrace{\exists x[\text{girl}(x)}_{\text{wh}_i} \wedge \overbrace{p = \lambda w.\ \underbrace{\exists y[\text{boy}(y)}_{\text{wh}_j} \wedge x \text{ asked out}_w\ y}^{\text{question nucleus}}]$$

- The correct meaning is equivalent to the set of propositions of the form *x asked out y (where x is a girl and y is a boy)*, i.e., the set of possible answers to the question *which girl asked out which boy*.

  (8) $=$ {that Mary asked out John,
  that Susan asked out Paul, etc.}

- The incorrect meaning where the moved *wh*-expression takes scope over the question nucleus, and the *in-situ wh*-expression takes scope within the question nucleus, is equivalent to the set of propositions of the form *x asked out a boy*.

  (9) $\neq$ {that Mary asked out a boy,
  that Susan asked out a boy, etc.}

- But ⟦which girl asked out which boy?⟧ $\neq$ ⟦which girl asked out a boy?⟧.

THE SCOPE OF *WH-IN-SITU*

- In multiple questions, there is a mismatch between the surface position of *wh-in-situ* and its scope (this problem is amplified in *wh-in-situ* languages).
- This is a problem familiar from the literature on *quantifier scope ambiguities*, and many authors propose a similar solution – *covert movement* of *wh-in-situ* (see e.g., Dayal 1996 for *wh*-scope as QR).
- The idea, roughly, is that the covert syntax of English parallels the overt syntax of multiple *wh*-fronting languages.

(10) Which girl$_i$ Which boy$_j$ [t_i asked out t_j]?

THE SCOPE OF *WH-IN-SITU*

- Adopting a *covert movement* account of *wh-in-situ* leaves several open questions, e.g.,
  - What kind of movement is this?
  - Relatedly, do restrictions on the scope of *wh* track restrictions on quantifier scope?
  - Do we have independent evidence for movement?
- Contemporary semantic theory offers a rich array of mechanisms other than movement via which an *in-situ* expression may scope, and many of these accounts have been proposed for *wh-in-situ*.
  - Rooth/Hamblin alternative semantics (see Shimoyama 2001 for questions).
  - Existentially-bound choice functions (see Reinhart 1998 for questions).

THE SCOPE OF *WH-IN-SITU*

- How do we choose between such an embarrassment of riches?
- In the next section, I'm going to point out that the semantics I outlined for multiple questions is an over-simplification.
- I'll argue that multiple-questions are systematically ambiguous between a *Pair-List* (PL) and a *Single-Pair* (SP) reading, following Dayal 1996 and others.
- I'm ultimately going to argue that scope-taking is *heterogenous* for *wh*-expressions, following Dayal's (2002) suggestion (evidence and implementation will differ); the grammar has to make available (at least) two different mechanisms for scope-taking – movement for the PL reading, and something else for the SP reading!

PAIR-LIST VS. *SINGLE-PAIR* READINGS

Pair-list vs. single-pair

- Multiple questions can generally receive two kinds of answer:

(11) Which girl asked out which boy?

a. Mary asked out John. — Single-Pair

b. Mary asked out John,
Susan asked out Paul,
and Helen asked out Simon. — Pair-List

- I'm going to assume here that the different kinds of answer reflect an ambiguity in the question, following Dayal (1996), and many recent authors, such as Nicolae (2013) and Kotek (2014).

PAIR-LIST VS. SINGLE-PAIR

- The assumption that the availability of SP and PL answers reflects an ambiguity in the question is not at all obvious.
- An intuitive alternative approach would be to assume that this 'ambiguity' is really just down to pragmatics; the SP answer is just a special case of the PL answer, and *context* dictates which is appropriate. Really, both readings involve the same question denotation.
- Something like this seems to have been implicit in much early work on question semantics (e.g., Reinhart 1998), where the difference is simply glossed over.

EVIDENCE FROM NESTED *WH*-QUESTIONS

- Nested *wh*-questions provide a compelling argument against the pragmatic approach to PL vs. SP.
- This is the first time we've encountered theme, but we'll be coming back to them time and time again for the remainder of the talk.
- Nested *wh*-questions involve a *wh*-expression nested within a syntactically-complex *which*-phrase. I'll refer to the inner *wh*-expression as the *wh*-containee, and the outer *which*-phrase as the *wh*-container.

(12) $\underbrace{[_{QP}\ \text{Which}\ [_{NP}\ \text{book}\ [_{PP}\ \text{by}\ \overbrace{\text{which author}}^{wh\text{-containee}}\ ]]]_i}_{wh\text{-container}}$ did you read t_i?

EVIDENCE FROM NESTED *WH*-QUESTIONS

- **Claim:** Nested *wh*-questions systematically lack a PL reading.

(13) *Context: Elif is working her way through the entirety of the Russian canon.*
Which book by which author have you read?

a. *#The Idiot* by *Dostoevsky*,
Anna Karenina by *Tolstoy*,
and *the White Guard* by *Bulgakov*.

- Despite it being perfectly resonably in the context to ask Elif for a list of *book-author* pairings, (13-a) is completely infelicitous as an answer.
- I've corroborated this judgement with ~10 naïve informants.

EVIDENCE FROM NESTED *WH*-QUESTIONS

- On the other hand, the SP reading is readily available.

(14) *Context: Elif spent all of Tuesday in the library.*
Which book by which author did you read on Tuesday?

a. *The Idiot* by *Dostoevsky*.

- The question in (14) in fact *presupposes* that Elif read a single book by a single author on Tuesday.

EVIDENCE FROM NESTED *WH*-QUESTIONS

- Question-taking predicates such as *list* and *enumerate* can be used to force a PL reading of their complement.

  (15) *Context:* Andrew is claiming back expenses for annual business trips. The secretary instructs him:

  a. #List [$_{CP}$ [which flight to which country]$_i$ you took t_i]
  b. List [$_{CP}$ which flight$_i$ you took t_i to which country]

- An embedded nested *wh*-question is unacceptable; a minimally different multiple question is acceptable however.

EVIDENCE FROM NESTED *WH*-QUESTIONS

- The systematic unavailability of the PL reading in nested *wh*-questions shows that SP vs. PL is a genuine **ambiguity** condition by **grammatical factors**.
- Assuming an *interpretive semantics* (e.g., Heim and Kratzer 1998), the natural way to cash this out is by positing distinct LFs for the SP vs. the PL reading.
- Since the SP reading is the more permissive, the natural question is how to block the PL reading in nested *wh*-questions.
- I will argue that it is blocked because the PL reading requires *covert movement* of the *wh*-containee to a left-peripheral position, and the *wh*-container is an **island** for covert movement.

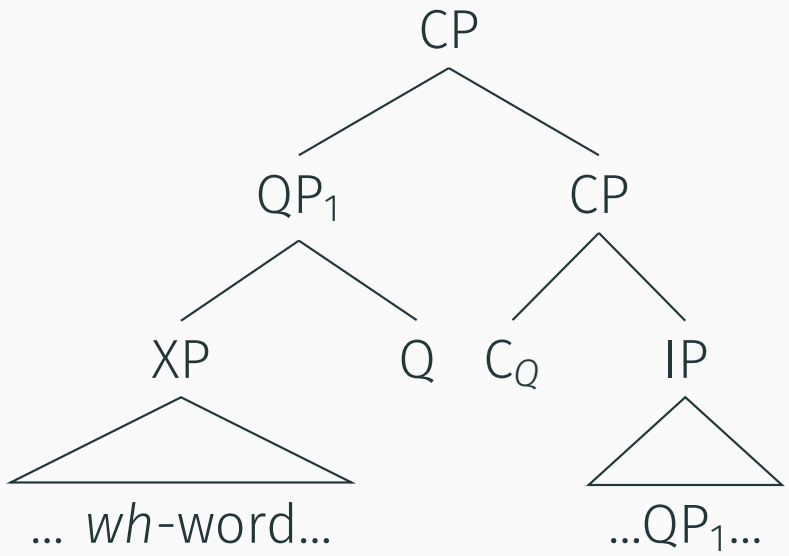
ANALYSIS

A COMPOSITIONAL SEMANTICS FOR QUESTIONS

- I will first put nested *wh*-questions to one side, and present an outline of the basic system for deriving question meanings compositionally, building on (among others) Charlow's (2015a, 2015b) take on Karttunen's question semantics.
- I will then show how it can be extended to derive the SP and PL readings of multiple questions.
- I will then show how this successfully blocks the derivation of the PL reading for nested *wh*-questions, on the assumption that the *wh*-containee is an island.
- In the final section, I'll present some independent evidence to back this assumption up.

- Following Cable (2010), I assume a Q-based system for *wh*-movement and pied-piping.
- The idea here is that, what moves in a *wh*-question is always a QP – a null morpheme, Q, merges with a constituent containing a *wh*-phrase, projecting a QP layer.
- The interrogative complementizer C_Q bears an uninterpretable Q feature that attracts the lower QP.
- 'Pied-piping' can be captured by assuming some variability in the size of constituent that Q may attach to. In fact, in this system, *wh*-movement *always* involves pied-piping.

(16) *Wh*-fronting as a secondary effect of QP-movement



(Cable 2010)

ADVANTAGES OF Q

- For the purposes of our current concerns, one advantage of the Q-based system is that it will allow us to give a straightforward one-to-one mapping between the syntactic representation of a *wh*-questions, and the logical forms that shall be proposed here. Note that I'm going to depart from the semantics that Cable proposes.
- In the semantics, Q and C_Q will be the syntactic realizations of two independently motivated type-shifters: Charlow's (2015a, 2015b) $\Uparrow$ and $\cdot$ respectively.
- Q is *overt* in many languages. Adopting a Q-based system universally reduces cross-linguistic variation to whether or not Q/C_Q has null phonology. (This is what Norman talked about as a 'hybrid' system).

COMPOSITIONAL ANALYSIS

- Having adopted a Q-based system for the syntax of *wh*-questions, we must show how the pieces of the structure ae interpreted, such that we can derive a question meaning compositionally.
- My analysis has the following components:
  - *Wh*-expressions denote sets of alternatives in the ordinary semantic dimension.
  - Q is a type-shifter that takes a set of alternatives, and coverts it into something that can *take scope*.
  - C_Q is a type-shifter that takes a proposition, and converts it into something that the QP can *scope into*.

ANALYSIS OF *WH*-EXPRESSIONS

- Following Charlow 2015a and Charlow 2015b, I take a *wh*-expression such as *which boy* to simply denote a set of individuals in the ordinary semantic dimension; *wh*-expressions are *alternative generators*.

  (17) $[\![\text{which boy}]\!] = \{x \in D_e | \text{boy}(x)\}$

- Note that *which boy* will be unable, semantically, to compose with a predicate/relation via vanilla Functional Application.

ANALYSIS OF *WH*-EXPRESSIONS

- May recent accounts of question semantics share the intuition that *wh*-expressions are alternative generators.
- However, the overwhelming majority of such approaches assume that alternative generators are integrated into the meaning of the sentence via a novel means of semantic composition: Pointwise Functional Application (Kratzer & Shimoyama 2002).
- However, there are some well known problems with Pointwise Functional Application (it doesn't play nicely with abstraction; see Shan 2004). I therefore follow Charlow in assuming just vanilla functional application as the sole means of semantic composition.

ANALYSIS OF Q AND C_Q

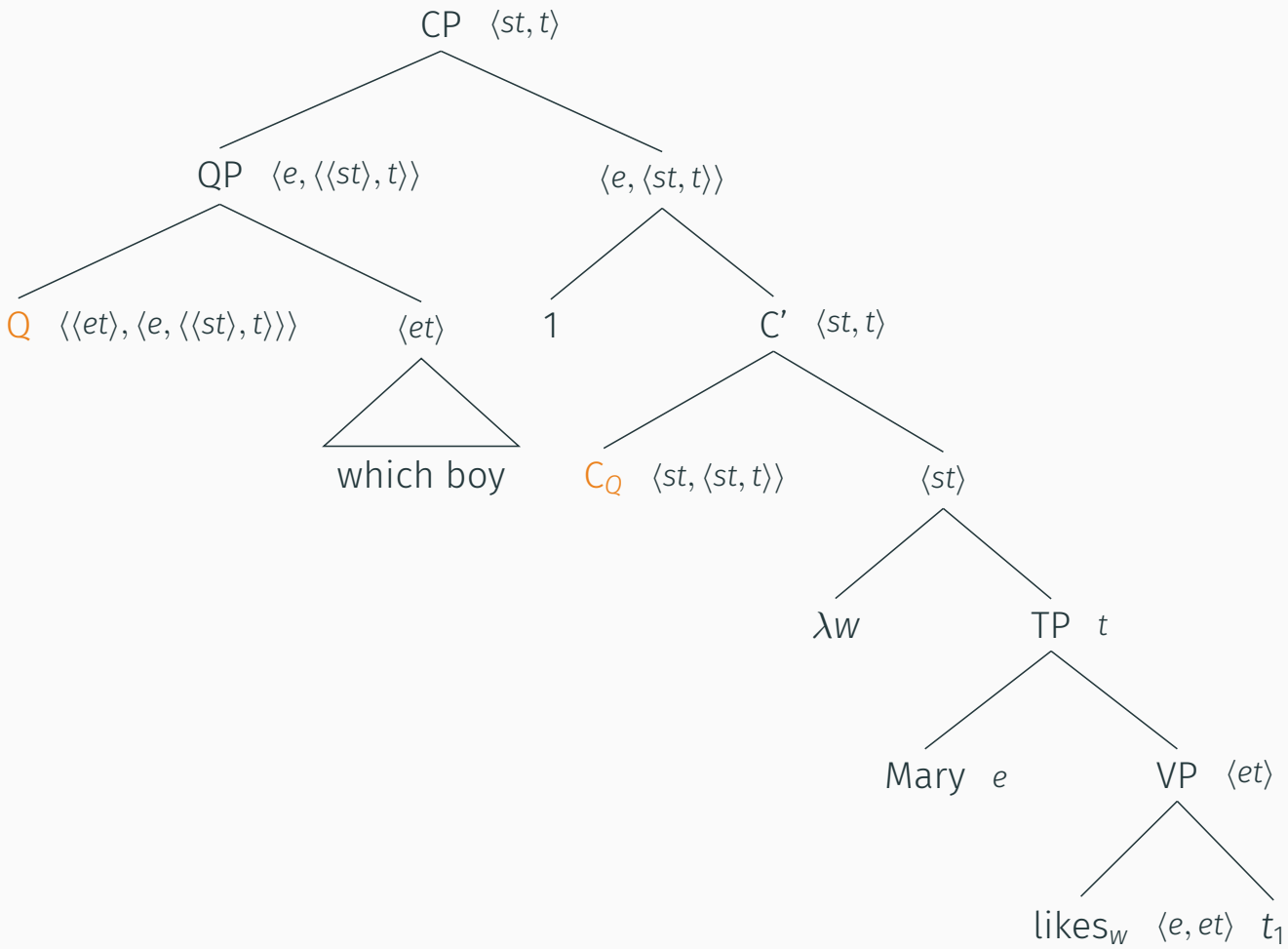
- This means that we need some different way by which alternative generators can be intergrated into the structure; this is where Q and C_Q come in. I assign Q the following meaning (identical to Charlow's $\Uparrow$ type-shifter).

(18) $$[\![\text{Q}]\!] = \underbrace{\lambda P \in D_{\langle et \rangle}.}_{\text{alternative generator}} \underbrace{\lambda K \in D_{\langle e,\langle\langle st\rangle,t\rangle\rangle}.}_{\text{scope}} \bigcup_{x \in P} K(x)$$

- The meaning of C_Q is simpler; it takes a proposition and gives back a set of propositions; The purpose of C_Q is to take the remnant of *wh*-movement and convert it into something that can feed into the *K* argument of Q.

(19) $$[\![C_Q]\!] = \lambda p \in D_{\langle st \rangle}.\{p\}$$

COMPOSITIONAL ANALYSIS



(20) $[\![\text{QP}]\!]^g = \lambda K \in D_{\langle e,\langle st,t\rangle\rangle}. \bigcup_{x \in [\![\text{which boy}]\!]} K(x)$

(21) $[\![\text{C'}]\!]^g = \{\lambda w.\text{Mary likes}_w\ g(1)\}$

(22) $[\![\text{1 C'}]\!]^g = \lambda x.\{\lambda w.\text{Mary likes}_w\ x\}$

(23) $[[\![\text{QP}]\!]]([\![\text{1 C'}]\!]^g) = \bigcup_{x \in [\![\text{which boy}]\!]} \{\lambda w.\text{Mary likes}_w\ x\}$

$\equiv$ {that Mary likes John, that Mary likes Paul, etc.}

SINGLE-PAIR VS. PAIR-LIST SEMANTICS

- To capture the idea that SP vs. PL is a genuine *ambiguity*, I follow numerous authors (see, e.g., Dayal 1996, Fox 2012, Nicolae 2013, and Kotek 2014) in taking SP multiple-questions vs. PL multiple-questions to have different semantic denotations.
- I take SP multiple questions to have simple Hamblin-Karttunen denotations, i.e., sets of propositions; objects of type $\langle st, t \rangle$.

(24) $[\![$which girl asked out which boy$]\!]$
$=$ {that Sally asked out Harry,
that Rachel asked out Ross, etc.}

SINGLE-PAIR VS. PAIR-LIST SEMANTICS

- PL Multiple questions, on the other hand, I take to denote a higher-order semantic object – a *set of questions*, objects of type $\langle\langle st, t\rangle, t\rangle$.

  (25) $[\![$which linguist admires which philosopher$]\!]$
  $=$ {which philosopher does Rajesh admire?,
  which philosopher does Vincent admire?, etc.}

- The idea is that to answer a PL question such as (25), is to provide an answer to every member of its denotation. See, e.g., Kotek (2014) for a formal implementation.
- I won't go into the specific motivations for this semantics here (ask me in the question period!), but see Fox (2012) for some such arguments.

- One major advantage of the system we've adopted here for interpreting Cable's Q-based syntax for questions, is that **the same semantic building blocks** which have been independently motivated for simple *wh*-questions, can be put to work to deriving PL question meanings; no extra type-shifters are needed.
- All we need to do is to redefine Q and C_Q type-neutrally.

- Old meanings:

(26) a. $[\![\text{Q}]\!] = \overbrace{\lambda P \in D_{\langle et \rangle}.}^{\text{alternative generator}} \overbrace{\lambda K \in D_{\langle e,\langle\langle st\rangle,t\rangle\rangle}.}^{\text{scope}} \bigcup_{x \in P} K(x)$

b. $[\![\text{C}_Q]\!] = \lambda p \in D_{\langle st \rangle}.\{p\}$

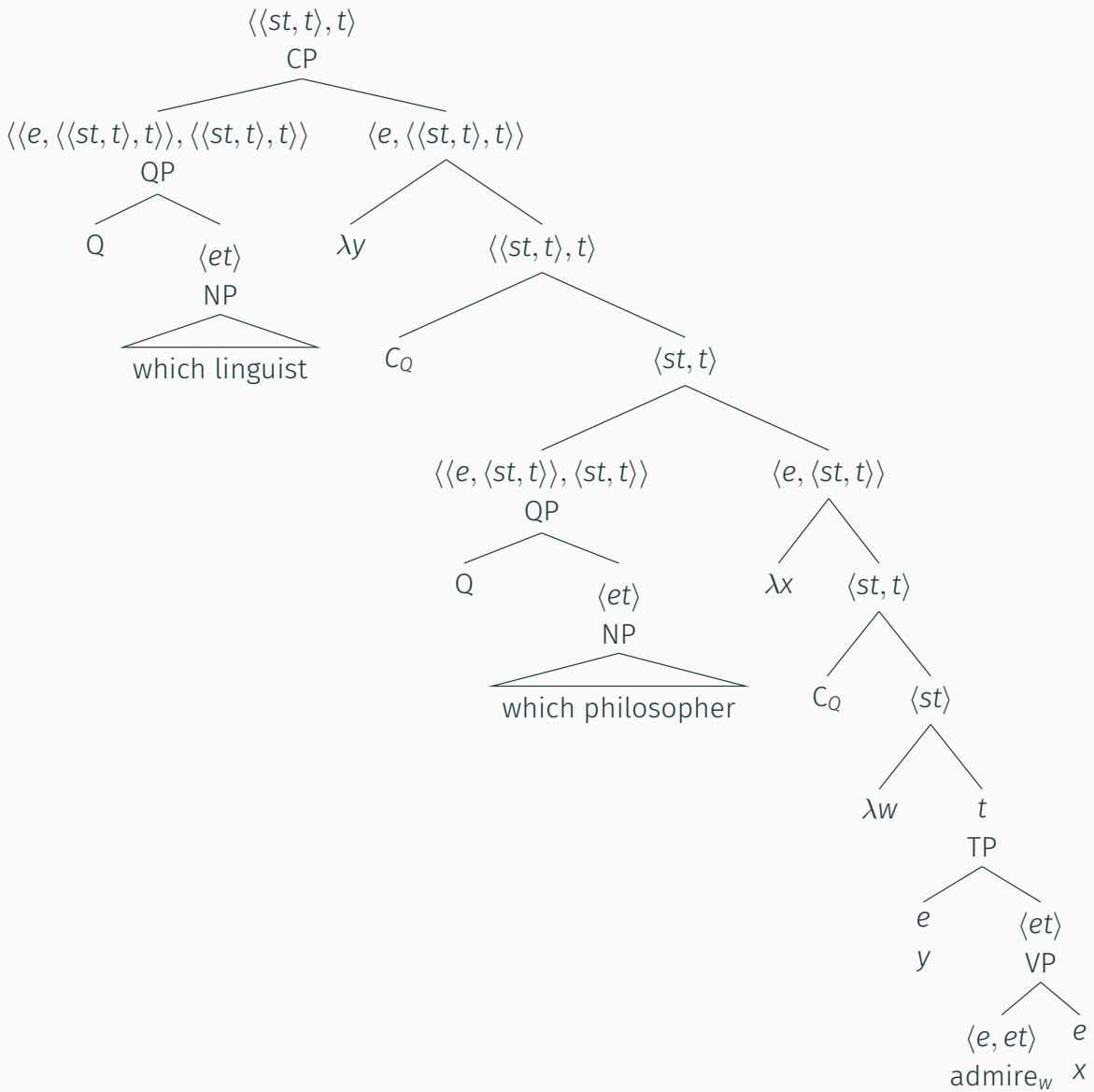
- New meanings:

(27) a. $[\![\text{Q}]\!] = \overbrace{\lambda m.}^{\text{alt gen}} \overbrace{\lambda K.}^{\text{scope}} \bigcup_{a \in m} K(a)$

b. $[\![\text{C}_Q]\!] = \lambda \alpha.\{\alpha\}$

- Where α is of *any* type, m is a set, and K is a function from members of m.
- The old meanings are just a special case of the new meanings, where $m \in D_{\langle et \rangle}$, $K \in D_{\langle e,\langle st,t\rangle\rangle}$, and $\alpha \in D_{\langle st \rangle}$.

LF FOR PL QUESTION



(28) $[\![\text{which philosopher}_2\ t_1\ \text{admires}\ t_2]\!]$
$= \bigcup_{x \in [\![\text{which philosopher}]\!]} \{\lambda w.y\ \text{admires}_w\ x\}$
$\equiv \{p \in D_{\langle st \rangle} | \exists x \in [\![\text{which philosopher}]\!] \wedge$
$p = \lambda w.y\ \text{admires}_w\ x\}$

(29) $[\![C_Q]\!]([\![(28)]\!]) = \{\{p \in D_{\langle st \rangle} | \exists x \in [\![\text{which philosopher}]\!] \wedge$
$p = \lambda w.y\ \text{admires}_w\ x\}\}$

(30) $[\ \lambda y\ [\![(29)]\!]] = \lambda y.\{\{p \in D_{\langle st \rangle} | \exists x \in [\![\text{which philosopher}]\!] \wedge$
$p = \lambda w.y\ \text{admires}_w\ x\}\}$

(31) $[\![\text{Q which linguist}]\!] = \lambda K \in D_{\langle e\langle\langle st,t\rangle,t\rangle\rangle} \bigcup_{y \in [\![\text{which linguist}]\!]} K(y)$

(32) $[\![(31)]\!]([\![(30)]\!])$
$= \bigcup_{y \in [\![\text{which linguist}]\!]} \{\{p \in D_{\langle st \rangle} | \exists x \in [\![\text{which philosopher}]\!]$
$\wedge p = \lambda w.y \text{ admires}_w \ x\}\}$

(33) $\equiv \{Q \in D_{\langle st,t \rangle} | \exists y \in [\![\text{which linguist}]\!]$
$\wedge Q = \{p \in D_{\langle st \rangle} | \exists x \in [\![\text{which philosopher}]\!]$
$\wedge p = \lambda w.y \text{ admires}_w \ x\}\}$

(34) $\equiv$ {which philosopher does Rajesh like?,
which philosopher does Vincent like?, etc.}

(for each linguist in the domain of *which linguist*)

ON THE ABSENCE OF *PAIR-LIST* NESTED *WH*-QUESTIONS

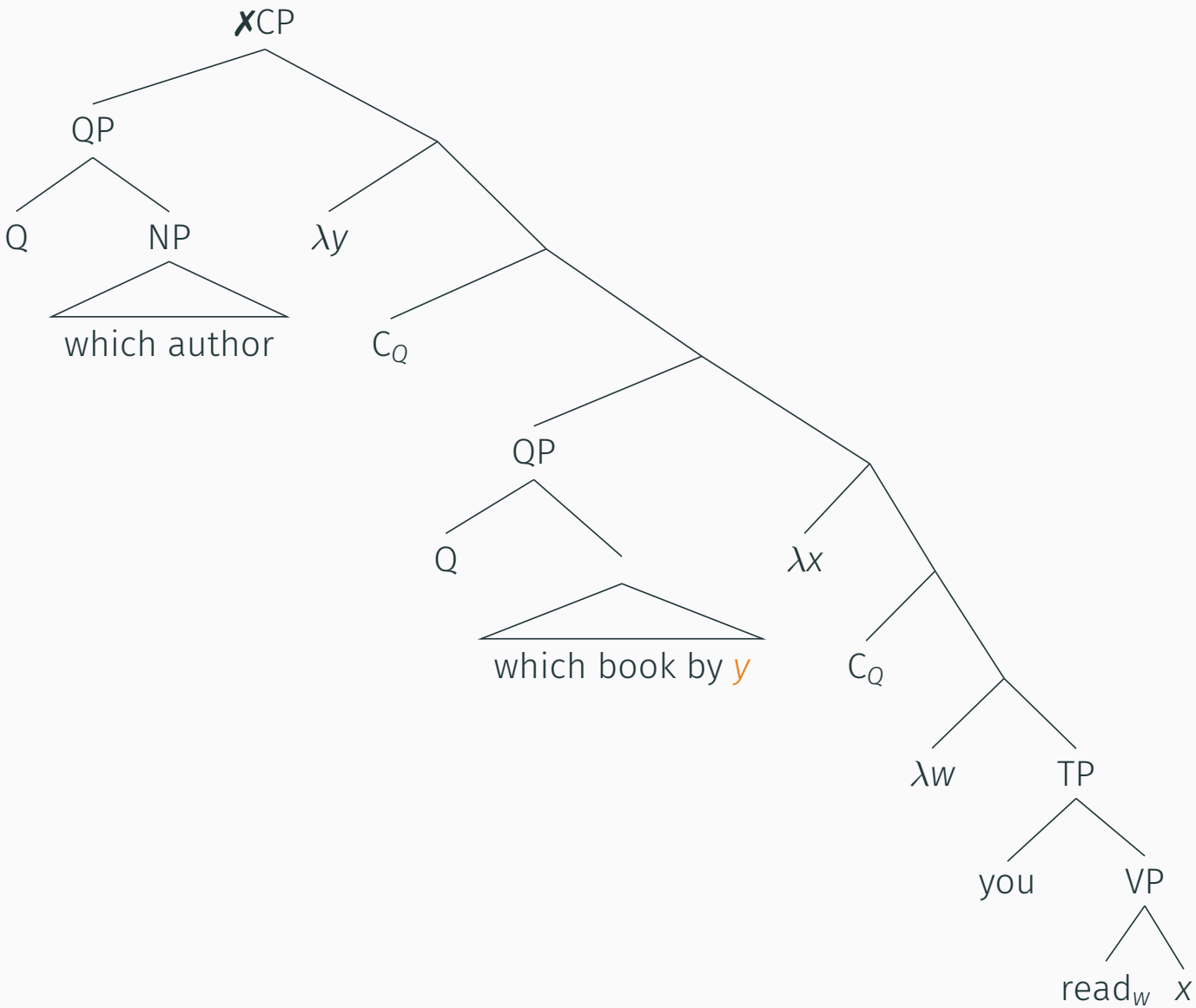
NESTED *WH*-QUESTIONS AT THE INTERFACE

- On the compositional analysis outlined in the previous section, we were able to derive a pair-list interpretation based on our existing, independently motivated semantic building blocks. This relied on:
  - A type-neutral meaning for C_Q, in order to build sets of questions from question meanings.
  - A type-neutral meaning for Q, in order to allow *wh*-phrases to *scope into* sets of questions.
  - Crucially, both QPs – QP_1 *which linguist* and QP_2 *which philosopher* must *take scope* by moving to a left-peripheral position in order to derive a PL reading, on this analysis.

NESTED *WH*-QUESTIONS AT THE INTERFACE

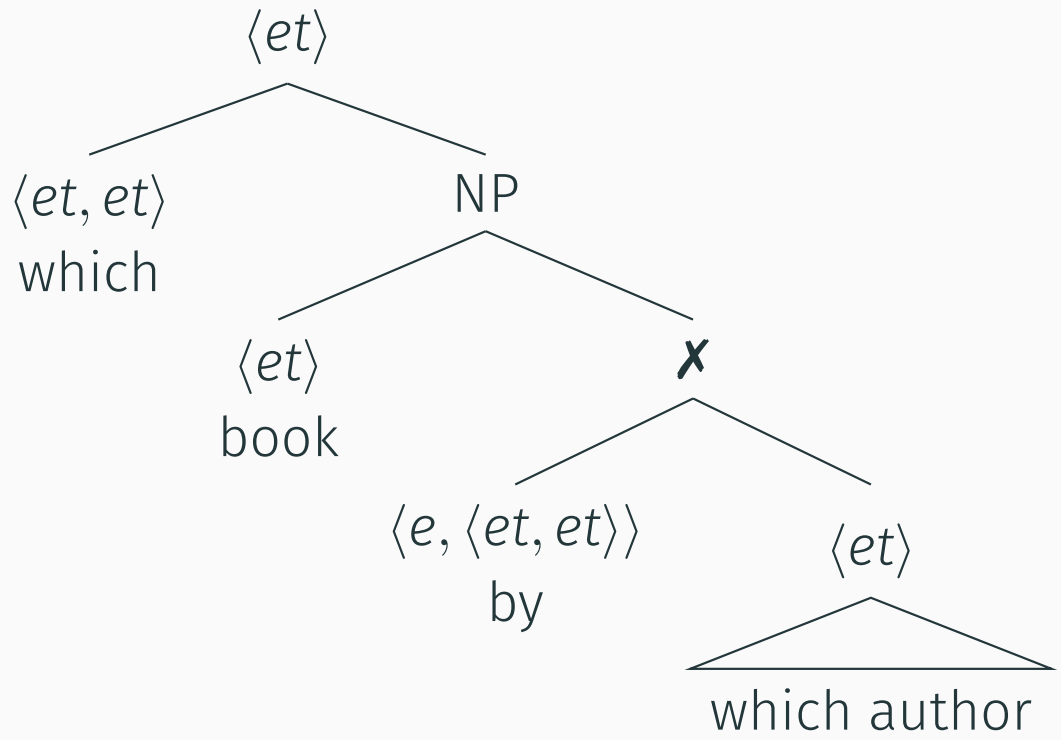
- In order to derive a PL reading for a nested *wh*-question, both the *wh*-container and the *wh*-containee would have to take scope independently.
- This would necessitate extracting the *wh*-containee from the *wh*-container. I argue that this is disallowed in English, explaining the absence of a PL reading for nested *wh*.
- This can be seen as supporting the position that the DP is a scope island in English (Charlow 2015a, contra).
- Ultimately, I think this falls out as a special case of *Larson's generalization* – NPs in a nested configuration must always scope together.

NESTED *WH*-QUESTIONS AT THE INTERFACE



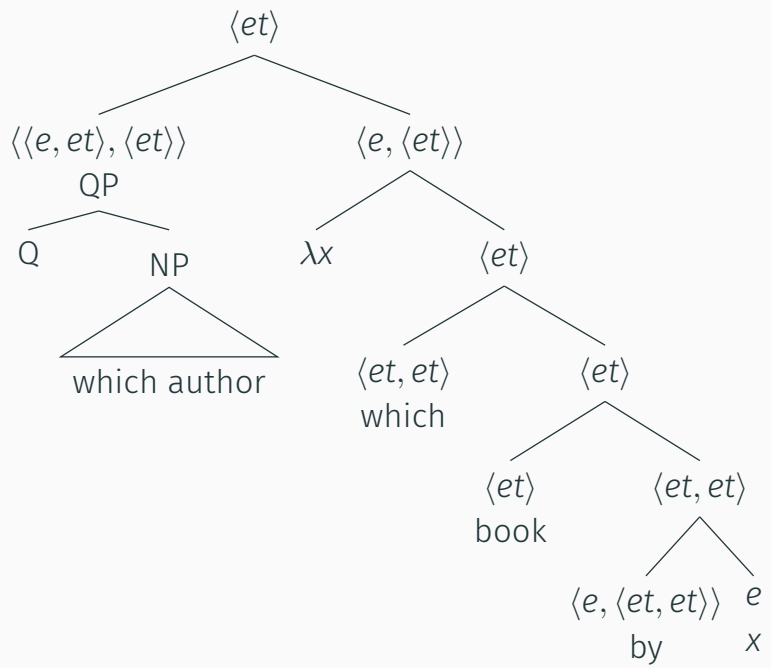
NESTED *WH*-QUESTIONS AT THE INTERFACE

- Nevertheless, the *wh*-containee cannot take scope *in-situ*, as it is still an alternative generator.



- Rather, the *wh*-containee takes scope within the *wh*-container – since the compositional apparatus that integrates the alternative generator into the structure is defined type-neutrally, this is possible.

(35) Which book by which author



NESTED *WH*-QUESTIONS AT THE INTERFACE

(36) $[\![\text{which book by } x]\!] = \{y \in D_e | y \text{ a book by } x\}$

(37) $[\lambda x\, [\![(36)]\!]] = \lambda x.\{y \in D_e | y \text{ a book by } x\}$

(38) $[\![\text{Q which author}]\!] = \lambda K \in D_{\langle e,\langle et\rangle\rangle}.\bigcup_{x \in [\![\text{which author}]\!]} K(x)$

(39) $[\![(38)]\!]([\![(37)]\!]) = \bigcup_{x \in [\![\text{which author}]\!]} \{y \in D_e | y \text{ a book by } x\}$

$\equiv \{y \in D_e | \exists x \in [\![\text{which author}]\!] \wedge y \text{ a book by } x\}$

- The result is an alternative generator that ranges over books written by authors.

NESTED *WH*-QUESTIONS AT THE INTERFACE

- BUT the proposed meaning predicts that *which book by which author did you read?* and *which book by an author did you read?* should be synonymous, and this is clearly not the case.
- *which book by an author did you read?* places weaker requirements on the answer – the author need not be mentioned.

(40) Which book by which author did you read?

a. #War and Peace.
b. War and Peace, by Tolstoy.

(41) Which book by an author did you read?

a. War and Peace.
b. War and Peace, by Tolstoy.

NESTED *WH*-QUESTIONS AT THE INTERFACE

- This is a well known problem in giving an adequate semantics for pied-piping (see **Stechow** for discussion).
- I won't dwell on this here, but I think there are two different roads we could go down in order to solve this problem.
    1. Adopt the *copy theory of movement*, such that *by which author* is also interpreted within the question nucleus. This should be straightforward to accomplish semantically using something like Fox's trace-conversion algorithm.
    2. Adopt a *heterogenous theory of scope taking* – under the SP reading, there is a different route via which *wh*-expressions may take scope, which is insensitive to locality; perhaps they get interpreted as choice functions, by analogy with the literature on exceptional scope indefinites.
- Right now, I'm not sure how to distinguish between these two options. Any suggestions would be welcome :-)

EVIDENCE FROM HINDI

- In this final section, I'll present some evidence from Hindi supporting the idea that the unavailability of the PL reading for nested *wh*-questions in English is due to the opacity of the DP.
- This is based on an argument made by Beshears and Elliott (2015) in the domain of multiply-headed correlatives.
- Note: all Hindi judgements here are due to Rajesh Bhatt (p.c.).

- (42) illustrates a nested *wh*-question in Hindi:

(42) kis lekhak-kii Ram-ne ko kitaab khariid-ii
WH writer-GEN.F RAM- ERG WH book.F buy-PFV.F
"which book by which writer did Ram buy?"

- The *wh*-containee is realized as a genitive possessor, rather than a PP.
- This has a PL reading, and can receive an answer as in (43).

(43) Ram bought War and Peace by Tolstoy, and the Idiot by Dostoevsky.

- This is *prima facie* unexpected! But, note that the *wh*-containee appeared discontinuous from the *wh*-container, in a sentence initial position.
- It is independently known that possessors can scramble out of their containing DPs in Hindi, and that scrambling in Hindi *feeds scope-taking* (see Dayal 1996 for discussion).
- Thus, we at least have an explanation for why nested *wh*-questions in Hindi can have a PL reading – scrambling allows the *wh*-containee to move out of the *wh*-container and take scope.

EVIDENCE FROM HINDI

- The prediction is that if we somehow prevent the *wh*-containee from scrambling out of the *wh*-container in Hindi, the PL reading should be unavailable; only the SP reading (if it is indeed insensitive to locality).
- We can accomplish this by introducing an *additional layer of nesting* – the *wh-containee* will be nested inside of an additional possessor, and complex possessors are islands for scrambling in Hindi.
- The kinds of examples we're interested in are as follows:

(44) [Which book [$_{PP}$ by [$_{DP}$[which linguist]'s brother]]] are you reading?

- The PL reading is, unsurprisingly, unavailable in English.

- In (45), the *wh*-containee *kis linguist-ke* remains within the *container*. The PL reading is unavailable.

(45) tum-ne paṛh-ii [kis linguist-ke bhaai-kii
you-ERG read WH linguist-GEN.OBL brother-GEN.F
ko kitaab]
WH book
"Which book by which linguist's brother did you read?"

(46) a. #I read "The Awakening" by John's brother, and "Miami Moonrise" by Mary's brother.
b. I read "The Awakening" by John's brother.

- (47) shows that the entire *wh*-container can be scrambled to a sentence-initial position. The PL reading remains unavailable, which is exactly what we predict.

(47) [kis linguist-ke bhaai-kii ko kitaab]
WH linguist-GEN.OBL brother-GEN.F WH book
tum-ne paṛh-ii
you-ERG read-?
"Which book by which linguist's brother did you read?"

- (48) shows that scrambling out of the *wh*-containee is indeed disallowed:

(48) *[kis linguist-ke]$_i$ tum-ne t_i bhaai-kii ko
WH linguist-GEN.OBL you-ERG t_i brother-GEN.F WH
kitaab paṛh-ii
book read-?

EXTRAPOSITION IN ENGLISH?

- It is of course possible to extrapose the PP in nested *wh*-questions in English.

  (49) [Which book t_i]$_j$ did you read t_j [$_{PP}$ by which author]$_i$?

- Several of my informants find a PL reading more readily available in examples such as (49), where the PP containing the *wh*-containee has been extraposed. Several however still find the PL reading to be unavailable.
- I plan to do a more rigorous study to determine whether or not the contrast between extraposition examples and non-extraposition examples is real, wrt the availability of a PL reading.

REFERENCES

- Beshears, Anne, and Patrick D. Elliott. 2015. *Questions and correlatives: a common semantic core*. Talk presented at the Eastern Generative Grammar summer school Open Podium, Brno, Czech Republic.
- Cable, Seth. 2010. *The grammar of Q: Q-particles, Wh-movement, and pied-piping*. Oxford studies in comparative syntax. New York: Oxford University Press.
- Charlow, Simon. 2015a. *The scope of alternatives*. Class notes, NYU seminar.
- – . 2015b. *The scope of alternatives*. Slides of a talk given at *Semantics and Linguistic Theory 25*, Stanford.

Dayal, Veneeta. 1996. *Locality in WH Quantification*. Red. by Gennaro Chierchia, Pauline Jacobson, and Francis J. Pelletier. Vol. 62. Studies in Linguistics and Philosophy. Dordrecht: Springer Netherlands. Visited on 08/31/2015.

– . 2002. “Single-Pair versus Multiple-Pair Answers: Wh-in-Situ and Scope”. Volume 33, Number 3, Summer 2002 , *Linguistic Inquiry* 33 (3): 512–520. Visited on 08/31/2015.

Fox, Danny. 2012. *The semantics of questions*. Class notes, MIT seminar.

Grebenyova, Lydia. 2012. *Syntax, semantics and acquisition of multiple interrogatives: who wants what?* Linguistik aktuell/linguistics today (LA) v. 195. Amsterdam ; Philadelphia: John Benjamins Pub. Co.

Heim, Irene, and Angelika Kratzer. 1998. *Semantics in generative grammar*. Blackwell textbooks in linguistics 13. Malden, MA: Blackwell.


Kitagawa, Yoshihisa, Dorian Roehrs, and Satoshi Tomioka. 2003. “Multiple wh-interpretations”. In *Generative Grammar in a Broader Perspective: Proceedings of the 4th GLOW in Asia*, 209–233. Visited on 08/31/2015.


Kotek, Hadas. 2014. “Composing questions”. PhD thesis, Massachusetts Institute of Technology.


Nicolae, Andreea Cristina. 2013. “Any questions? Polarity as a window into the structure of questions”. PhD thesis, Harvard University.


Reinhart, Tanya. 1998. “Wh-in-situ in the Framework of the Minimalist Program”. *Natural Language Semantics* 6, no. 1 (): 29–56. Visited on 08/31/2015.