The Role of Topic-hood in Multiple-Wh Question Semantics
Keywords: Semantics, English, multiple-Wh questions, information structure

In this paper I propose a semantics for English multiple-Wh questions that is rooted in the insights of Krifka (2001)'s account of question/quantifier interaction. A semantically significant property that multiple-Wh questions have in common with single-Wh questions containing certain quantifiers is that both can be felicitously answered by the same kinds of pair-list answers ([1]). My objective is to capture this shared property by appealing to a unified semantics for pair-list answers that applies to both single-Wh and multiple-Wh questions. At the heart of the approach I adopt is the claim that the assignment of discourse Topic status to quantificational DPs plays a key role in generating all pair-lists, and must be taken into account in any sufficient theory of multiple-Wh questions.

Many prominent early accounts of multiple-Wh questions, e.g. Karttunen (1977) and Groenendijk & Stokhof (1984), treat these questions as a special sub-case of the interaction of single-Wh questions with quantifier expressions. Working in essentially the same spirit, I propose that recent insights into quantified questions by Szabolcsi (1997) and Krifka (2001) should be taken into account for a revised theory of multiple-Wh questions. These authors convincingly demonstrate the need to refer to quantification over the level of speech acts for the computation of pair-list answers. Krifka moreover shows that information-structural factors determine a quantifier's ability to induce pair-lists in single-Wh questions: specifically, pair-lists can only be induced by sentential Topics. My own prediction then is that this same sensitivity to Topic status is detectable in the felicity conditions of multiple-Wh questions and the internal structure of multiple-Wh pair-lists. This result is empirically supported using data adapted from the work of Büring (2003) and Dayal (2005).

We must be careful, though, in reducing multiple-Wh questions to a breed of quantified single-Wh questions, since it becomes necessary to conflate Wh-word and quantifier semantics. This move raises the question: what do Wh-words and quantifiers have in common? Previous answers to this question have focused on Wh-words themselves being a variety of quantifier (e.g., Chomsky (1977), Higgenbotham & May (1981), Kiss (1993)). My answer is instead that both are potential bearers of discourse Topic status, and that when this is the case both are evaluated according to a distinct *Topic* semantics, rather than Wh-word or quantifier semantics.

The nature of this Topic semantics is at the core of my proposal. I submit that when a Wh-word (or quantified DP for that matter) is interpreted as a sentential Topic, its type is shifted to that of a Hamblin set of individual alternatives ([2]). In this way, the denotation of the Wh-Topic comes to resemble the Hamblinized "indeterminate pronouns" recently revisited in Kratzer & Shimoyama (2002). This alternative set expands as it composes with the remainder of the question up to the speech-act level, finally stopping once it encounters an operator that selects speech-act alternative sets as its arguments ([3]). It is this operator (Krifka's '**&**') which imbues the Hamblinized Wh-Topic with its wide scope and apparently quantificational force. The resulting question denotation ([4]) reproduces the appearance of quantification over speech acts, and gives rise to pair-list answers for both multiple-Wh and quantified single-Wh questions, as desired.

One observable syntactic consequence of this view is that a Wh-word assigned Topic status need not undergo Wh-movement in order to be interpretable. Instead, it may remain *in situ* and be bound by the higher speech-act operator, without having to move to its eventual scope position (cf. Kratzer 2005). Hence there are two possible behaviors for Wh-words: necessary Wh-movement for non-Topics, and operator-binding *in situ* for Topics. This movement duality has been observed in English multiple-Wh questions by Pesetsky (1987) and Barss (2000), who make notable use of it (without referring to Topic status) to explain exceptions to Chomsky's Superiority Condition. In fact, Pesetsky's D-linking requirement on Wh-*in-situ* ([5]) is shown to follow as a natural corollary from the analysis given here for Wh-Topics. That is, only Wh-Topics are interpretable *in situ*, and being a Topic entails being D-linked, therefore it follows that all Wh-*in-situ* must be D-linked. Since the D-linking requirement remains unexplained otherwise, I take this result to be a strong support for the present system.

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[1]   a.   Q: What did **every person** read?
                A: Jesse read Hop on Pop, Aaron read Ol' Yeller, and Dave read Green Eggs & Ham.

       b.   Q: **Which person** read what?
                A: Jesse read Hop on Pop, Aaron read Ol' Yeller, and Dave read Green Eggs & Ham.

[2] $[\![$ **which student**$^{\text{Top}}$ $]\!]^{w,g}$ = { x_e | student$(x)(w) \wedge$ Topic$(x)(w)$ } $\subseteq D_e$

[3]   *Speech act conjunction*
       For $[\![$ α $]\!]^{w,g} \subseteq D_{\langle a \rangle}$, $[\![$ **&**α $]\!]^{w,g} =$ **&**{ A | A $\in$ $[\![$ α $]\!]^{w,g}$ }; where '**&**' is defined as in Krifka
       (2001:13,23) to be the total consecutive performance of each speech act in a set of speech acts.
       *(For 'α' a set of speech acts, '**&**α' returns a single speech act.)*

[4]   "Who read which book?"
       LF: [$_{CP}$ who$_i$ C$_{[+wh]}$ [$_{IP}$ t$_i$ read [which book]$^{\text{Top}}$]]
       = **&**{ A$_{\langle a \rangle}$ | $\exists x_e$[book$(x)(w) \wedge$ Topic$(x)(w)$] $\wedge$ A = I_ASK_YOU(who read x?)}

[5]   a.   *What$_i$ did **who** read t$_i$?   *(non-D-linked Wh-in-situ violates Superiority Condition)*
       b.   ?What$_i$ did **which student** read t$_i$?   *(D-linked Wh-in-situ satisfies Superiority Condition)*

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