

Wh-questions are complex yes/no questions

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This paper presents new arguments for a more complex semantic analysis of wh-questions, which are standardly analysed as a set of alternative propositions (cf. Hamblin 1973, among others):

- (1) Who likes chocolate? {Mary likes chocolate, Peter likes chocolate,...}

I will show that there is good evidence for an analysis of wh-questions as a set of positive *and* negative answers (Higginbotham 1993, Guerzoni 2003):

- (2) Who likes chocolate? {Mary likes chocolate, Mary doesn't,...}

One argument for the enriched alternative set in (2) comes from rhetorical questions which usually are negatively biased, i.e. the speaker asserts that *all* negative answers of the question set are true (cf. Han 2002):

- (3) Come on, who likes crowded trains? {Mary likes crowded trains, **Mary doesn't**, Peter likes crowded trains, **Peter doesn't**,...}

Second argument is related to the licensing of Positive Polarity Items (PPIs) in negative rhetorical questions in (4) (e.g. English *already*, Italian *già*) which usually are not licensed in the scope of negation as in (5):

- (4) Chi non è già battezzato (in Italia)?
who not is already baptised (in Italy)
'Who hasn't been baptised already (in Italy)?'
(bias interpretation: all are baptised already)

- (5) a. Non ho ancora/*già fatto le spese.
not have yet / already made the buyings.
'I didn't go shopping yet.'
b. Ho già/ *ancora fatto le spese.
have already/ *yet made the buyings.
'I already went shopping.'

PPIs are possible in (4), but not in (5) because negative answers cancel out the sentential negation producing the positive inference 'Everyone is baptized'. As a result, PPIs are licensed in a positive context as expected:

- (6) Question set in 4 = {¬ **Mary isn't baptized**, Mary isn't baptized, ¬ **Peter isn't baptized**, Peter isn't baptized,...} → PPI licensing 'Everyone is baptized **already**.'

In order to derive the set of positive and negative answers in wh-questions, I assume in line with Guerzoni (2003) an operator which gives us a set of positive and negative propositional answers {Φ, ¬Φ} comparable to yes-no question operators. In South Slavic the yes/no question particle *-li* is overt in wh-questions as is shown by the following data from Bulgarian (see Rudin 1993, among others):

- (7) Ivan li nameri parite? Yes-No question
Ivan Q found.3SG money.DEF
'Did [IVAN]_{Foc}¹ find the money?' (Rudin 1993:1)

¹ The particle *-li* usually follows focused constituents in questions.

- (8) Kakvo li nameri? Wh-question
 what whether find.PAST3SG
 ‘What on earth did he, she find?’ (Rudin 1993:7)

In Dutch, wh-questions can contain an if-complementizer which also introduces yes/no questions (Koster 2003):

- (9) Mari weet wat (of) hij gedaan heeft
 Mary knows what (if) he done has
 ‘Mary knows what he has done’

I adopt Guerzoni’s analysis according to which Bulgarian *-li* or Dutch *if* disjoins yes/no answers and is analyzed as a generalized quantifier over functions of type $\langle\langle s, t \rangle \langle s, t \rangle\rangle$, i.e. it modifies propositions:

- (10) $[[li/if]] = \lambda f \langle\langle t, t \rangle, t \rangle . \exists h \langle t, t \rangle . [h = \lambda t. t=1 \text{ or } h = \lambda t. t=0] \text{ and } f(h)=1$

In wh-questions it is the higher copy of *-li/if* that is spelled out at LF (see 11), whereas it is the lower copy that is spelled out at PF (cf. Chomsky 1995 for the copy theory). The higher copy is spelled out over the question morpheme Q leaving a trace/copy below the question operator which forms a set of propositions (cf. Hamblin 1973):

- (11) LF of (8) $[li_j [what_i [Q [H_j \langle_{t,t} \rangle [he \text{ found } what_i \langle_{e} \rangle]]]]]$
 $[[LF]] = \lambda p . \exists f \langle_{t,t} \rangle \exists x \langle_{e} \rangle [thing(x) \ \& \ p = \lambda w' : (f(\text{he found } x \text{ in } w'))]$
 Set denotation = $\{p : \exists x [thing(x) \ \& \ p = \text{that he found } x \vee p = \text{that } \neg \text{he found } x]\}$

PPIs like *già* can be derived in negative rhetorical questions in the following way. In rhetorical questions PPIs are placed over the yes/no operator trace $if_j \langle_{t,t} \rangle$ which has a negative value $\neg p$. This leads to a cancellation of the sentential negation. This is how PPI *già* is licensed in negative rhetorical questions:

- (12) LF of (4) $[if_j [who_i [Q \textit{già} [if_j \langle_{t,t} \rangle [who_i \langle_{e} \rangle \text{ is not baptized}]]]]]$
 $[[LF]] = \lambda p . \exists f \langle_{t,t} \rangle \exists x \langle_{e} \rangle [x \in \{\text{persons}\} \ \& \ \textit{già} \ p = \lambda w' : (f(x \text{ is not baptized in } w'))]$
 Set denotation = $\{p : \exists x [\text{person}(x) \ \& \ \textit{già} \ p = \text{that } x \text{ is not baptized} \vee \textit{già} \ p = \text{that } \neg x \text{ is not baptized}]\}$

To sum up: I have argued in line with Guerzoni (2003) that wh-questions denote a set of positive and negative propositions. In order to derive negative answers a yes/no question operator was assumed. The need to include negative answers in the question alternative set is partially motivated by PPI licensing in negative rhetorical questions.

References: Chomsky, N. (1995): *The Minimalist Program*. (Current Studies in Linguistics 28.) Cambridge, Mass: MIT Press. Guerzoni, E. (2003): *Why even ask? On the pragmatics of questions and the semantics of answers*. Doctoral Dissertation, MIT. Hamblin, C.L. Questions in Montague English, *Foundations of Language*, 10 (1973), 41-53. Han, Ch. (2002): Interpreting interrogatives as rhetorical questions. *Lingua* 112, 112–229. Higginbotham, J. (1993): Interrogatives. In K. Hale and S. J. Keyser, (eds.), *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, 195-227, Cambridge, Mass.: MIT. Koster, J. (2003). All languages are tense-second. In Germania et Alia: A Linguistic Webschrift for Hans den Besten, Jan Koster 8: Henk van Riemsdijk (eds). Rudin, C. (1993): On focus position and focus marking in Bulgarian questions. Presented at FLSM 4, Iowa City, Iowa.