WH - Quantifier Interactions (ultimately more evidence that wh-trace is an indefinite)

(1)   What did each senator say
(2)   Where did everyone go   May (1977, p.141)
(3)   According to May (and I concur), these examples are ambiguous. May proposes that wh-phrases, optionally can undergo QR. This results in two possible LFs for (1). [I have corrected an obvious typo in [(4)]
(4)   [$_\bar{S}$ [$_{COMP}$ What] [$_S$ [each senator]$_\alpha$ [$_S$ did α say t]]]
(5)   [$_\bar{S}$ [$_{COMP}$ t]$_t$ [$_S$ [each senator]$_\alpha$ [what [$_S$ did α say t]]]]
(6)   "[(4)] represents the reading in which the wh-phrase has wider scope; an appropriate reply to [(4)] under this reading would be "That he would vote for the Canal treaty". [(5)], on the other hand, represents a reading in which the wh-phrase has narrower scope. An appropriate reply here would be "Proxmire said that he would vote for the treaty, Goldwater said he wouldn't...”” [This latter is standardly called a "family of questions" reading.]

(7)   The family of questions reading arises when $\forall$ c-commands WH (and the two are close to each other), subject to an additional constraint that I will not be concerned with here distinguishing (8) from (9). [See May (1985), Lasnik and Saito (1992), Chierchia (1993), among others.]
(8)   Who did everyone see   [Family of questions reading (henceforth FoQ) possible]
(9)   Who saw everyone   [FoQ not possible]

(10)   Who do you think [everyone saw t at the rally]
(11)   As May (1985) says, this one also allows FoQ; he captures this roughly as before, with a couple of technical differences:
(12)   WH does not undergo QR.
(13)   Rather, if $\forall$ and WH are close together, either can scope over the other. [In this model, unlike the 1977 model, LFs are not disambiguated.]
(14)   This new analysis also immediately carries over to the original simple examples (1) and (2).

(15)   There is an apparent problem with this account of (10):
(16)   As observed by Williams (1986), on May's account, *everyone* must scope out of the embedded finite clause, but this is normally not possible, as illustrated in (17), which only allows embedded scope for $\forall$.
(17)   Someone thinks everyone saw you at the rally
(18)   "The scope of *every* as a quantifier seems to be limited to the S that immediately dominates it."

(19) May (1988) responds to this argument sharply disagreeing with Williams, calling the claimed lack of broad scope for everyone in (17) a "spurious datum", and reporting as a "standard observation" that a universal quantifier in this position can be understood as having broad scope. He goes on to state that "there does not seem to be any grammatical principle that can limit extraction from the complement subject position..."

(20) I don't believe that this is a standard observation. Rather, Williams' claim reflects a pretty broad consensus, one that, interestingly enough, very quickly included May himself:

(21) Larson and May (1990): "whereas quantified subjects can be given scope out of infinitives, this is not generally possible with tensed complements."

(22) "...whereas [(23)a] permits a wide-scope reading for *everyone* vis-à-vis *someone* and *believe*, according to which for each person x there is someone who believes x is a genius, [(23)b] permits only a narrow-scope reading for *everyone*, according to which there is some person who believes genius to be a universal characteristic".

(23) a Someone believes everyone to be a genius
     b Someone believes (that) everyone is a genius

(24) In addition to this under-prediction of ambiguity, May's (1985) account also **over**-predicts ambiguity.

(25) May (1977) had observed the absence of FoQ in (26):

(26) Who did everyone say that Bill saw?

(27) "... notice that in [(26)], the wh-quantifier takes wider scope than 'every', (since this question is an inquiry into the identity of a specific person, of whom everyone said that Bill saw him)."   May (1977, p.141)

(28) Sloan and Uriagereka (1988) and Sloan (1991) also raise a challenge to the May (1985) analysis of WH-Q interactions based on the over prediction of ambiguity, observing, contra May's prediction, that (29), very similar to (26), does not have FoQ.

(29) Who does everyone think you saw?

(30) Agüero-Bautista (2007) presents a somewhat similar structural account of the possibility of family of questions readings to that of May (1985):

(31) "... the pair-list interpretation of a question with a universal quantifier requires syntactic reconstruction of the wh-phrase below the quantifier... such readings arise when the quantifier binds a null variable in one of the copies left behind by wh-movement ..."

(32) This allows FoQ in (at least) all the circumstances that May's account does.

(33) Agüero-Bautista acknowledges that the possibility of FoQ for (34), which I will argue is the crucial kind of case, was questioned by a reviewer.

(34) Which book did every professor say that Pete read?

(35) He indicates, however, that his claim that examples like (34) have FoQ "is widely corroborated in the literature", citing May (1985), Williams (1986), Williams (1988), Chierchia (1993), and Aoun and Li (1993).

(36) But with the one exception of May (1985), **none** of these works give an example like (34), or make any claim about such an example.

(37)   And while May (1985) did indeed call such an example ambiguous, this flatly contradicts May (1977), who called such an example **un**ambiguous. [See (26) above.]

(38)   For Agüero-Bautista, the two situations are not distinguished. His theory treats them both the same, allowing FoQ in both. And they fall under the same description: Long distance wh-movement from a position below the Q to a position above it. May's 1985 analysis has the same consequence.

(39)   As noted, May's analyses are based on structural interaction between the Q and the surface position of the WH.

(40)   Not long after May (1985) appeared, three alternatives appeared, all based on structural interaction between the Q and the **trace** of WH (in particular, the initial trace), and all in somewhat different ways:

(41)   Sloan (1991)

(42)   Lasnik and Saito (1992)

(43)   Chierchia (1993)

(44)   For Sloan (1991) and Lasnik and Saito (1992), what is crucial is that the WH originate in the same clause as the Q (and lower than the Q, a fact discussed in great detail by May (1985) and Chierchia (1993)).

(45)   An extension of the Lasnik and Saito proposal might be that (part of) the initial trace of wh-movement is actually an existential quantifier, a fairly ancient idea, found, for example, in Chomsky (1964).

(46)   Family of questions readings, then, are the result of a $\forall$ scoping over this $\exists$.

(47)   This kind of scope interaction is usually clause bound.
         a.   This obviously handles the simple cases like (2)
         b.   and long distance wh-movement cases like (10), where $\forall$ and the $\exists$ wh-trace are in the same clause.
         c.   On the other hand, cases like (26) will be excluded (correctly, I believe, and just as contended by May (1977) and Sloan (1991)).

(48)   But there is a complication.

(49)   Sloan (1991) reports that in response to her claim that examples like her (50) lack the family of questions reading, Robert May gave her structurally similar examples like (51), which do have this reading.

(50)   a. Who does everyone think Mary saw t?
         b. Who does everyone expect Mary to see t?

(51)   a. Who does everyone$_i$ think he$_i$ saw t?
         b. Who does everyone$_i$ expect PRO$_i$ to see t?

(52)   (51)b is, on the face of it, not particularly surprising, since it has been known at least since Postal (1974)and Rizzi (1978) that subject control constructions behave in many respects as if they constitute a single clause ...

(53)   though it is not clear that 'expect' is actually of the restructuring class that he explored.

(54)   And 'claim' is not a restructuring verb by usual criteria, yet we still find the possibility of family of questions when 'claim' substitutes for 'expect':

(55)   Who does everyone$_i$ claim PRO$_i$ to have seen t?

(56)   Regardless, (51)a, is quite surprising, since noone has ever proposed restructuring for finite complements, yet, unlike (50)a, the former does allow a family of questions reading.

(57)   If clause-mateness is, indeed, relevant in licensing family of questions readings, sentences like (51)a are striking exceptions, and ones not evidently rescuable by restructuring under any circumstances.

(58)   The salient difference between (50)a, disallowing family of questions, and (51)a, allowing it, is that the latter, like a control construction, has a bound subject.
        The 'bound' aspect is crucial. If 'he' is understood as independently referential in (51)a, the family of questions reading becomes just as inaccessible as it is in (50)a.

(59)   Significantly, as shown by Grano and Lasnik (2018), many 'clause-mate' effects are relaxed when the embedded clause has a bound subject. Crucially for our present purposes, scope interaction is one such effect. Grano and Lasnik present a paradigm discussed by Kayne:

(60)   At least one student fooled each of the professors
(61)   At least one student has tried to fool each of the professors   Kayne (1998)
(62)   At least one student saw each of these new books
(63)   At least one student has asked to see each of these new books   Kayne (1998)
(64)   At least one man/some man thinks he's in love with each of these women
        each > at least one   possible   Kayne (1998)
(65)   At least one man/some man thinks Bill's in love with each of these women.
        each > at least one   not possible

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