

Bound Pronouns and the Theory of Phases

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- (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)  $[_S [_{COMP} \text{What}] [_S [\text{each senator}]_{\alpha} [_S \text{did } \alpha \text{ say } t ] ] ] ]$
- (5)  $[_S [_{COMP} t ]_t [_S [\text{each senator}]_{\alpha} [\text{what } [_S \text{did } \alpha \text{ say } t ] ] ] ] ]$
- (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, henceforth FoQ.]
- (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 straightforwardly applies 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) There is no relevant difference between (17) and (23).
- (25) In addition to this under-prediction of ambiguity, May's (1985) account also **over-**predicts ambiguity.
- (26) May (1977) had observed the absence of FoQ in (27):
- (27) Who did everyone say that Bill saw?
- (28) “... notice that in [(27)], 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)
- (29) 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 (30), very similar to (27), does not have FoQ.
- (30) Who does everyone think you saw?
- (31) Agüero-Bautista (2007) presents a somewhat similar structural account of the possibility of family of questions readings to that of May (1985):
- (32) “... 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 ...”
- (33) This allows FoQ in (at least) all the circumstances that May’s account does.
- (34) Agüero-Bautista acknowledges that the possibility of FoQ for (35), which I will argue is the crucial kind of case, was questioned by a reviewer.
- (35) Which book did every professor say that Pete read?
- (36) He indicates, however, that his claim that examples like (35) have FoQ “is widely corroborated in the literature”, citing May (1985), Williams (1986), Williams (1988), Chierchia (1993), and Aoun and Li (1993).

- (37) But with the one exception of May (1985), **none** of these works give an example like (35), or make any claim about such an example.
- (38) And while May (1985) did indeed call such an example ambiguous, this flatly contradicts May (1977), who called such an example **unambiguous**. [See (27) above.]
- (39) 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.
- (40) As noted, May's analyses are based on structural interaction between the Q and the surface position of the WH.
- (41) 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:
- (42) Sloan (1991)
- (43) Lasnik and Saito (1992)
- (44) Chierchia (1993)
- (45) 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)).
- (46) Lasnik and Saito propose that (part of) the initial trace of wh-movement is actually an existential quantifier, a fairly venerable idea, found, for example, in Chomsky (1964a).
- (47) Family of questions readings, then, are the result of a  $\forall$  scoping over this  $\exists$ .
- (48) 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 (27) will be excluded (correctly, I believe, and just as contended by May (1977) and Sloan (1991)).
- (49) But there is a complication.
- (50) Sloan (1991) reports that in response to her claim that examples like her (51) lack the family of questions reading, Robert May gave her structurally similar examples like (52), which do have this reading.
- (51) a. Who does everyone think Mary saw t?  
b. Who does everyone expect Mary to see t?
- (52) a. Who does everyone<sub>i</sub> think he<sub>i</sub> saw t?  
b. Who does everyone<sub>i</sub> expect PRO<sub>i</sub> to see t?
- (53) (52)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 ...
- (54) though it is not clear that 'expect' is actually of the restructuring class that he explored.
- (55) 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':
- (56) Who does everyone<sub>i</sub> claim PRO<sub>i</sub> to have seen t?
- (57) Regardless, (52)a, is quite surprising, since noone has ever proposed restructuring for finite complements, yet, unlike (51)a, the former does allow a family of questions reading.
- (58) If clause-mateness is, indeed, relevant in licensing family of questions readings, sentences like (52)a are striking exceptions, and ones not evidently rescuable by restructuring under any circumstances.
- (59) The salient difference between (51)a, disallowing family of questions, and (52)a, allowing it, is that the latter, like a control construction, has a bound subject.
- a. The 'bound' aspect is crucial. If 'he' is understood as independently referential in (52)a, the family of questions reading becomes just as inaccessible as it is in (51)a.
- (60) Significantly, a survey of the literature reveals that a number of other clause-mate type phenomena fall into the same pattern: the possibly unsurprising exemption for control constructions, but the quite surprising exemption for finite complements with bound pronoun subjects.

#### →Gapping

- (61) John read books and Mary read magazines
- (62) John wanted to read books and Mary ~~wanted to read~~ magazines
- (63) \*John wanted Bill to read books and Mary ~~wanted Bill to read~~ magazines
- (64) ?John thinks that he will see Susan and Harry ~~thinks that he will see~~ Mary  
[Nishigauchi (1998), attributed to an anonymous reviewer]
- (65) "... the clausemate restriction on Gapping is alleviated by an intervening pronoun."
- (66) \*John thinks that Bill will see Susan and Harry ~~thinks that Bill will see~~ Mary
- (67) John<sub>i</sub> thinks that he<sub>i</sub> will see Susan and Harry<sub>j</sub> ~~thinks that he<sub>j</sub> will see~~ Mary
- (68) In particular, the alleviation requires a **bound** pronoun.

#### →Reciprocal Binding

- (69) John and Mary visited each other
- (70) John and Mary want to visit each other  
'Each wants to visit the other' Higginbotham (1981)
- (71) \*John and Mary want Bill to visit each other
- (72) John and Mary think they like each other
- (73) a John and Mary think they (that is, John and Mary) like each other.  
b John thinks that he likes Mary and Mary thinks that she likes John
- (74) \*John and Mary think that I like each other (would = Each of John and Mary thinks that I like the other.)

#### →Multiple Sluicing

- (75) Someone talked about something  
?but I don't know who about what
- (76) Someone wanted to talk about something  
?but I don't know who about what
- (77) Someone wanted Mary to talk about something  
\*but I don't know who about what

- (78) A certain boy decided to talk to a certain girl  
I forget which boy to which girl      Barrie (2005)
- (79) ?Each professor<sub>i</sub> said he<sub>i</sub> was working on a different one of these topics, but I can't  
remember which on which one      [Lasnik (2013), from Jason Merchant,  
personal communication]
- (80) \*Each professor said Susan was working on a different one of these topics, but I can't  
remember which on which one
- (81) A certain boy<sub>i</sub> said he<sub>i</sub> would talk to a certain girl  
I forget which boy to which girl      Barrie (2005)

→ **Quantifier Scope Interaction** (particularly germane given the Lasnik and Saito account of FoQ)

- (82) At least one student fooled each of the professors
- (83) At least one student has tried to fool each of the professors      Kayne (1998)
- (84) At least one student saw each of these new books
- (85) At least one student has asked to see each of these new books      Kayne (1998)
- (86) At least one man/some man thinks he's in love with each of these women  
each > at least one      possible      Kayne (1998)
- (87) At least one man/some man thinks Bill's in love with each of these women.  
each > at least one      not possible

TOWARDS AN ACCOUNT      Based on Grano and Lasnik (2015)

- (88) a. Phase-based locality: Gapping (and other similar clause-mate processes) are phase-bound.  
b. Convergence-based phasehood: Phases are constituents with no unvalued features. (Cf. Felser (2004). A version of this is entertained also by Chomsky (2000, p.107) though ultimately not accepted there.)  
c. Valuation-based binding: Bound pronouns (can) enter the derivation with features that are not valued until the antecedent is merged in.
- (89) Then we modify (88)c roughly following Kratzer (2009): Some bound pronouns are born as  $\phi$ -defective "minimal pronouns" that obtain their features via transmission from C or v. Kratzer identifies relative pronouns and PRO as two kinds of minimal pronouns whose features are transmitted from C; here we extend the idea to bound pronominal subjects of finite complement clauses.
- (90) How this might help with the Gapping contrast:
- (91) a. Joe<sub>1</sub> claims that he<sub>1</sub> reads books and Tim<sub>2</sub> [~~claims~~ [<sub>NON-PHASE</sub> that he<sub>2</sub> reads > articles]
- b. \*Joe claims that Bill reads books and Tim [~~claims~~ [<sub>PHASE</sub> that Bill reads<sub>i</sub> > articles]
- (92) Now the Sloan/May family of questions contrast:
- (93) a. Who does everyone<sub>i</sub> think [<sub>NON-PHASE</sub> that he<sub>i</sub> should see  $\exists$ ]?  
b. Who does everyone think [<sub>PHASE</sub> that Mary should see  $\exists$ ]?
- Cf.
- (94) Everyone<sub>i</sub> thinks that he<sub>i</sub> should see someone  
a.  $\forall x$  x thinks  $\exists y$  | he should see y  
b.  $\forall x \exists y$  | x thinks he should see y

- (95) Everyone thinks Mary saw someone  
 a.  $\forall x x \text{ thinks } \exists y \mid \text{Mary should see } y$   
 b.  $\neq \forall x \exists y \mid x \text{ thinks Mary should see } y$

So far so good. BUT

- (96) a. Joe<sub>i</sub> claims that he<sub>i</sub> reads books and Tim<sub>i</sub> [~~claims<sub>T</sub> [NON-PHASE that he<sub>j</sub> reads~~] articles]  
 → b. \*Joe<sub>i</sub> claims that Bill gave him<sub>i</sub> books and Tim<sub>j</sub> [~~claims<sub>T</sub> [NON-PHASE that Bill gave him<sub>j</sub>~~] articles]

- (97) a. What book does everyone claim that he read ✓FoQ  
 b. What book does everyone claim that Bill gave him \*FoQ

- (98) Only a bound **subject** seems to induce the transparency we have been finding.  
 (99) Why can't *him* in (96)b enter the derivation as a minimal pronoun, thereby (erroneously) allowing gapping?  
 (100) Why can't *him* in (97)b enter the derivation as a minimal pronoun, thereby (erroneously) allowing the family of questions reading?

(101) A related problem

(102) Subject-internal bound possessors do not induce transparency:

- (103) \*Joe<sub>i</sub> claims that his<sub>i</sub> son reads books and Tim<sub>j</sub> [~~claims that his<sub>j</sub> son reads~~] articles

(104) And roughly parallel for FoQ:

- (105) What books does every father claim that his son reads ?\* FoQ

Towards a solution (based on a suggestion by Hisa Kitahara):

- (106) Under the assumption that a bound pronoun starts with defective  $\Phi$ -features it naturally follows that those defective  $\Phi$ -features won't be able to value "fully" the unvalued  $\Phi$ -features on T.  
 (107) If so, when such a bound pronoun appears in Spec-T, the T too bears defective  $\Phi$ -features. Suppose, then, that it is the defective  $\Phi$  on T that is responsible for the postponement of the application of Transfer, thus keeping the phase open for further computation.  
 (108) In (103), the bound pronoun *his* is embedded inside the subject DP *his son*, and this subject DP can value the  $\Phi$ -features of the relevant T.  
 (109) As a result, there is no T bearing defective  $\Phi$ -features hence no postponement of Transfer - the desired result.  
 (110) The same line of reasoning extends to the fact that bound objects don't have the ameliorating effect of bound subjects. As in (103), there will be no postponement of Transfer.

One more abstractly similar paradigm:

- (111) Chomsky (1964b) observed that embedded questions disallow extraction from them, and formulated a constraint that had the effect of excluding such cases. A version of the constraint came to be called the WH-island constraint.

- (112) \*What did he wonder where John put [Chomsky's ex. I assume coreference is not intended between 'he' and 'John' as that would violate an independent constraint.]
- (113) Ross (1967) explicitly rejected this constraint of Chomsky's arguing that it is too strong, though he conceded that Chomsky's example is, indeed, unacceptable.
- (114) He told me about a book which I can't figure out whether to buy or not.  
how to read.  
where to obtain.  
what to do about.
- (115) This seems to be the familiar control clause exemption. In fact Ross pointed out that these involve infinitival embedded questions, but didn't venture a hypothesis about why that should make a difference.
- (116) Ross also provided another type of counter-example to Chomsky's constraint:
- (117) Which books did he tell you why  
?whether he wanted to read  
??when  
[The annotations are Ross's. To my ear all three of these are virtually perfect **with coreference**, and, as Ross notes, far better than Chomsky's example.]
- (118) About these, Ross said they "differ in no way I can discern from ... Chomsky's example."  
p.21
- (119) Maybe we can discern a way. These seem to instantiate the bound subject paradigms we have seen several times now. If islands follow from phases, this is essentially as things ought to be.
- (120) For WH-island amelioration, is it just bound **subjects** that are implicated? I think so, but the facts aren't crystal clear.
- (121) ?\*Which books did he tell you when his son wanted to read
- (122) ?\*Which books did he tell you when Mary would read to him
- (123) Summary:  
The transparency effects induced by bound pronominal subjects of finite complement clauses provide novel evidence for (a) the convergence-based view of phasehood and (b) the view that some but not all bound pronouns enter the derivation unvalued.

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