Dances with the Quantifiers!

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Abstract

Motivated by theory-internal requirements such as those due to the Binding Theory, May (1991) assumed that the operations Wh-Movement and Quantifier Raising derived LF from S-structure. Although QR generalised binding principles, it also risked their applicability for some other sentences that were ungrammatical in terms of binding prior to the movement of the quantifier to the left-most position of the sentence at LF but fulfilled the binding requirements after QR. To prevent such overgenerations, Chomsky (1981) proposed that Principle C was satisfied at S-structure; a solution that is not available in Minimalist Syntax with S-structure dispensed with. Chomsky (1993), however, argues that only the specifier *every* in the DP *every director* is raised at LF. In this squib, I try to show that even this proposal fails to explain certain empirical data on binding phenomena. An m-command condition on binding is proposed at the end of the squib to take care of such data.

May (1985, 1991) considered Logical Form to be the representation of the form of the logical terms, or the expressions with invariant meanings, of a language. It is then at LF that semantic rules for the interpretation of logical terms are applied. May (1991) assumed that the operations Wh-Movement and Quantifier Raising derived LF from S-structure. Such a designated level of syntactic representation was motivated by some theory-internal considerations such as the principles of the Binding Theory of the time. "Indeed, if the Binding Theory could be shown to require the particular articulation of structure found just at LF for its full application, this would constitute a sort of 'existence proof' for LF, and the devices employed in deriving it" (May, 1991: 339). The empirical support for "invisible" LF operations were sentences with quantifiers like (22) in May (1991) [2], reproduced here as (1a), with a structure satisfying Principle A ONLY AFTER the application of QR at LF (1b) so that "both *the women* and *the men* locally c-command an occurrence of each other":

(1)
    a. The men introduced each other to everyone that the women did.
    b. [everyone that the women [VP introduced each other to e_i]]$_i$
       [the men introduced each other to e_i]

Although QR generalises binding principles to sentences like (1a), it can also risk their applicability for some other sentences that are ungrammatical in terms of binding prior to the movement of the quantifier to the left-most position of the sentence at LF but fulfill the binding requirements after QR:

(2)

    ??a. She$_i$ met every director that Mary$_i$ knew.
      b. [every director that Mary [VP knew e$_j$]] $_i$ [she met e$_j$]

In (2b), *Mary* is outside the c-command domain of *she*. Then Mary can antecede *she* with no violation of binding requirements. The prediction proves to be empirically false. Based on similar cases, Chomsky (1981) concluded that Principle C was satisfied at S-structure; a solution that is not available in Minimalist Syntax with
S-structure dispensed with.

Chomsky (1993), however, argues that only the specifier *every* in the DP *every director* is raised at LF. It follows that (3b) will be the LF representation of (3a) after QR.

(3)

    ??a. His$_i$ friends like every student$_i$.
      b. every$_i$ [his$_i$ friends like [t$_i$ student] $_i$]

(3) shows weak crossover (WCO) effects. The quantifier *every* has raised to an LF position high enough to c-command and, as a result, fulfill the requirements of scope theory. Despite that, the DP *every student* does not take scope over the pronoun *his*. This can explain why the pronoun cannot be bound to the DP even after QR. It can also explain the ungrammaticality of (2a).

It follows that (4) below is ambiguous in scope NOT because *everyone* c-commands *someone* (4b), or vice versa (4c) (see May's (1977) Scope Principle) but due to LF representations with either of quantificational specifiers *every* or *some* taking scope over the other (4d-e).

(4)

    a. Everyone loves someone.
    b. everyone$_i$ [someone$_j$ [t$_i$ loves t$_j$]]
    c. someone$_j$ [everyone$_i$ [t$_i$ loves t$_j$]]
    d. every$_i$ [some$_j$ [[t$_i$ one] loves [t$_j$ one]]]
    e. some$_j$ [every$_i$ [[t$_i$ one] loves [t$_j$ one]]]

Then the empirical challenge to the viability of this version of QR must come from grammatical cases, if any, in which *one* (the nominal element of the DP) cannot c-command a co-indexed pronoun unless the whole DP, say *someone*, is raised at LF.
But do such cases exist?

In each of the sentences in (5) below, the quantificational DP binds the pronoun without c-commanding it. (6) indicates how the problem in (5a) can be solved if the whole DP is raised to the left-most position of the sentence at LF. For other sentences, similar structures are conceivable.
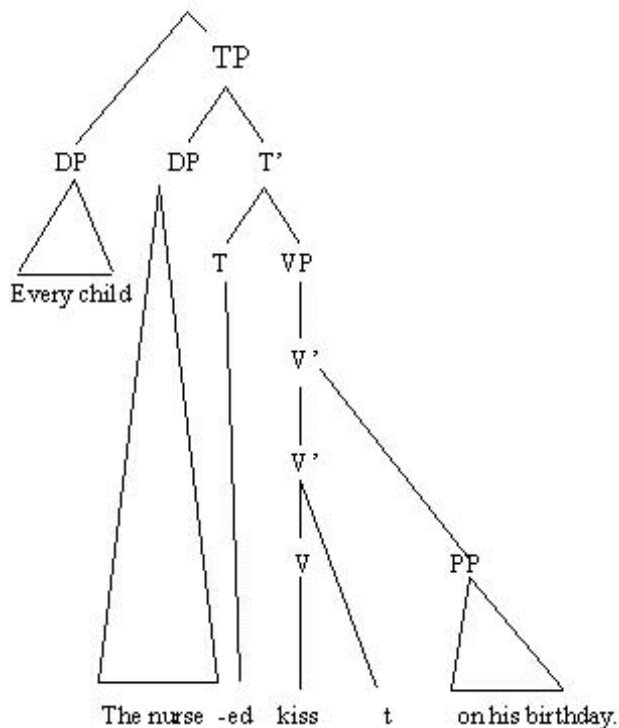
(5)

    a. The nurse kissed [every child]$_i$ on his$_i$ birthday.
    b. Al Capone gave [every gangster] $_i$ his$_i$ share .
    c. The hospital helps [every woman]$_i$ when she$_i$ needs medical care.

(6)

TP

DP — DP — T'

Every child

T — VP

V'

V'

V — PP

The nurse -ed kiss   t   on his birthday.

But do we really need to raise *child* together with its quantifier after all? Perhaps not, if one uses another command relation instead of c-command, namely m-command, as the scope condition on binding:

(7) A binds B if the lowest maximal projection properly dominating A also properly dominates B.

In case of (5a) above, *every* can still raise to the left-most position of the sentence to take scope (or have only its formal features move as specified in Chomsky, 1995: chapter 4) while *child* remains in situ to bind the pronoun *his*. This is more general-isable than the raising solution as it equally applies to sentences with no quantifica-tional phrases of any sort:

(8)
  a. The nurse kissed [the child]$_i$ on his$_i$ birthday.
  b. Al Capone gave [the gangster]$_i$ his$_i$ share .
  c. The hospital helps Jane$_i$ whenever she$_i$ needs medical care.
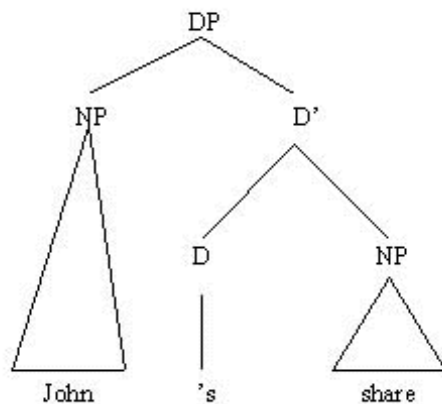
Does (7) predict sentences in (9) to be grammatical, too?

(9)
  *a. Al Capone gave him$_i$ John$_i$'s share.
  *b. Al Capone gave him$_i$ every gangster$_i$'s share.

Not at all. The lowest maximal projection dominating John/gangster is DP (rather than VP), which does not dominate him:

(10)

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                    DP
                   /  \
                 NP     D'
                /|\    /  \
               / | \  D    NP
              /  |  \ |    /\
             /   |   \|   /  \
            John    's  share
```

In this squib I briefly examined the status of quantifiers in the theory of syntax, and argued that adopting m-command as the scope condition (on binding in general and quantificational binding of pronouns in particular) would save some unnecessary theoretical labour at LF. The empirical question to address next is how much of LF truly remains indispensable to the theory of syntax. Meanwhile, the linguist keeps on dancing with the quantifiers!

About the Author

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