

Condition A and Scope Reconstruction

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It is well known that in certain environments the scope of a moved quantifier phrase can be determined at either its pre-movement position (“scope reconstruction”) or its post-movement position (“surface scope”). Thus the familiar ambiguity of (1) results from two choices for the scope of the moved QP. Under scope reconstruction, the scope of the moved existential QP is the sister of the pre-movement position (i.e. the sister of t , [to win the lottery]), while under surface scope it is the sister of the post-movement position (i.e. [is likely t to win the lottery]). The two scope possibilities yield different semantic interpretations, corresponding to the paraphrases in (2).

- (1) Someone from New York is likely t to win the lottery
- (2) a. It is likely that there will be someone from New York who wins the lottery
b. There is someone from New York who is likely to win the lottery

The ambiguity of (3) is commonly analyzed in similar terms, once it is realized that the moved *wh*-phrase involves pied-piping of an existential quantifier. This existential quantifier (*n-many books*, with n a degree variable bound by the *wh*-operator) has two possible scopes ([John is likely to hire t], [to hire t]), leading to two interpretations, corresponding to the two paraphrases in (4).

- (3) How many people is John likely to hire t ?
- (4) a. What is the number n such that John is likely to hire n many people?
b. What is the number n such that there are n many people that John is likely to hire?

While the existence of the phenomenon is hardly in doubt, the underlying mechanism is very much in contention. Two kinds of approaches have been pursued. Under one approach, which we can call *syntactic reconstruction*, these ambiguities result from the availability of two different syntactic representations (henceforth Logical Forms, *LFs*).

The choice of scope for the QP under this approach is determined directly by its position in the LF – specifically, the QP takes its sister as its scope. This entails that scope reconstruction requires LFs in which the QP does not appear in its surface position but rather occupies a pre-movement position:

- (5) Syntactic reconstruction:
- a. is likely [[someone from New York][to win the lottery]]
 - b. wh_1 [John is likely [[n_1 many people]₂ [to hire t_2]]]

The alternative approach, which we will call *semantic reconstruction*, assumes that QPs are always interpreted in their post-movement positions. The choice between scope reconstruction and surface scope under this approach is determined by the semantic types of various constituents (traces, in versions of the approach that assume their existence, or alternatively, various predicates¹).

An argument in favor of syntactic reconstruction has been presented based on a correlation between scope reconstruction and Condition C of the binding theory. This correlation was claimed to follow under syntactic but not semantic reconstruction. (See Lebeaux 1991, Heycock 1995, Sportiche 1996, 2001, Romero 1997, Fox 1999, 2000.) The argument, however, has been challenged by Sharvit 1999 and Sternefeld 2001, who attempt to derive the correlation under semantic reconstruction.² It is therefore important to find additional empirical considerations that might distinguish between the two approaches.

¹ See among others Sternefeld 2001 for an example of the first version, and Jacobson 1999, 2000 for the latter.

² Sharvit and Sternefeld appeal to Reinhart's (1983) theory of Condition C, under which semantic scope (specifically the option for variable binding) determines whether or not Condition C is violated. However, see Fox 2000: 150n for questions raised by this kind of proposal.

The goal of this squib is to argue, building partially on previous literature, that Condition A of the binding theory can serve as an additional testing ground for syntactic vs. semantic reconstruction. To set the stage, consider a configuration such as (6)a in which Condition A is violated because NP₁ is too distant from the anaphor to serve as its antecedent (e.g. (6)b).

- (6) a. * [... NP₁ ... [*Local binding domain* ... [NP₂ ... *anaphor*₁ ...] ...]]
 b. *I asked [John and Mary]₁ if Bill liked [NP₂ pictures of each other]₁

It is well known that movement of NP₂ can change this state of affairs:

- (7) a. [... NP₁ ... [NP₂ ... *anaphor*₁ ...] ... [*Local binding domain* ... t₂ ...]]
 b. I asked [John and Mary]₁ [NP₂ which pictures of each other]₁ Bill liked t₂

With this background in mind, we can spell out a clear prediction made by the syntactic approach to reconstruction: under the scope-reconstructed interpretation of a sentence with a surface representation like (7)a, Condition A should be violated, since the LF structure would actually fit the scheme shown in (6)a and not that in (7)a.³ Therefore, (8) should hold if the syntactic approach to reconstruction is correct.

³ This prediction is made under the assumption that binding theory constrains LFs. If the prediction is correct, this assumption will be supported (along with syntactic reconstruction). It has been argued that the assumption is untenable based on the ungrammaticality of sentences with surface structures such as (6)a. If LFs can be derived with covert as well as overt operations, covert movement should be allowed to form LFs like (7)a from surface structures like (6)a. One possible response would be to reject the existence of covert movement (see Williams 1986, Brody 1995). However, an alternative would be to argue that the pattern described is derived by independent constraints on covert movements. The optimal result would be to show that, where these independent constraints can be factored out, correlations that are otherwise unexpected between Condition A and the semantic effects of covert movement can be observed. For

- (8) **Prediction under syntactic reconstruction:** In the structural configuration (7)a, scope reconstruction should be impossible.

This prediction is made by the syntactic approach to reconstruction but, as far as we can see, not by the semantic approach. If it can be verified, we would therefore have an argument in favor of syntactic reconstruction.⁴

1. Preliminary evidence: Chomsky 1993

Consider the contrast in (9), based on Chomsky 1993.⁵

- (9) a. I asked John and Mary which pictures of each other Bill liked.
b. * I asked John and Mary which pictures of each other Bill took.

Chomsky accounts for this contrast under the assumption that *take a picture* is an idiom, and therefore the *wh*-phrase must be reconstructed (an option that for him is made available given that traces are copies). So we might take the contrast in (9) as preliminary evidence that the prediction in (8) is correct. However, Chomsky's account of the contrast has been challenged. Most recently, Runner (2002) argues that the interpretation of the idiom in (9)b does not require reconstruction, and that therefore Condition A is not a

arguments that this might be the case see Fox 2000: 196-199, Nissenbaum 2000: 143-148.

⁴ Sportiche, in a recent manuscript (2001), argues that the prediction does not hold (although for other reasons he assumes the syntactic approach to reconstruction). We respond to his arguments in section 3.

⁵ Chomsky used examples in which the antecedent for the reflexive was the matrix subject:

- (i) John and Mary asked which pictures of each other Bill took.

We found that some speakers felt the contrast in (9) to be sharper. This is possibly related to the discussion in section 3.

valid test of LF structure. (Among the arguments is the availability of ACD constructions: *John took every picture that Bill did*). We think that Runner's critique warrants close attention. But this is beyond the scope of this squib. Instead, we would like present evidence for (8) that is not subject to Runner's objections. To the extent that the evidence is real, it will argue that whether or not Runner is right about (9), Condition A is sensitive to LF structure and can be used to support the syntactic view of reconstruction.⁶

2. New evidence

Consider the prediction of syntactic reconstruction, (8), in the case of *How-many* questions such as (3). In particular consider the following example:

(10) I asked the boys₁ how many pictures of each other₁ Mary is likely to see.

Syntactic reconstruction predicts that this sentence should not be ambiguous in the way that (3) is. In particular, the scope-reconstructed interpretation should be impossible:

(11) a. I asked the boys₁
 wh_2 $[[n_2$ many pics of each other₁]₃ [*Local binding domain* Mary is likely [to see t_3]]]
I asked (each of) the boys what is the number n such that there are n pictures of the other boys and Mary is likely to see those pictures.

b. *I asked the boys₁
 wh_2 [*Local binding domain* Mary is likely $[[n_2$ many pics of each other₁]₃ [to see t_3]]]
I asked (each of) the boys what is the number n such that Mary is likely to see n pictures of the other boys?

In order to see whether the prediction is correct, one needs to know how to tease apart the two potential interpretations. The most straightforward way is to consider various scenarios for which the two sentences would have different truth values. We think that

⁶ Another challenge to Chomsky's account of the contrast in (9) was raised by Safir (1999) and Sportiche (2001). We discuss that challenge in the next section.

this strategy can be employed and would yield the predicted results. However, the strategy is fairly involved and we will try to bypass it here, building on a paradigm developed by Heycock (1995) in a different context. Consider (12):

(12) How many ideas is John likely to have?

Of the two potential interpretations, (12) has only the scope-reconstructed interpretation (13)a. Surface scope (paraphrased in (13)b) is incompatible with the semantics of the VP of creation [*have ideas*]: surface scope presupposes the (possible) existence at time *t* of ideas that *John* is going to have (i.e. bring into existence) at some time later than *t*.

- (13) a. *What is the number n such that John is likely to have n ideas?*
b. *#What is the number n such that there are n ideas and John is likely to have those ideas?*

In light of the fact that such sentences force scope reconstruction, they can provide the basis for a more robust test of the prediction stated in (8). Consider what happens when we add, to the reconstructing QP, an anaphor that can be bound only in the raised position to satisfy Condition A. The (a) examples in both (14) and (15) serve as relevant test cases.

- (14) a. I asked John how many ideas about himself Mary is likely to { hear about }
b. I asked John how many ideas about him Mary is likely to have { *have }

- (15) a. I asked the boys how many jokes about each other Mary is likely to { re-tell }
b. I asked the boys how many jokes about them Mary is likely to invent { *invent }

In both of the (a) examples, an ordinary (non-creation) predicate in the embedded clause is shown alongside a creation predicate for comparison. We believe that the predicted contrasts hold rather sharply. The (b) examples serve as controls, showing that when

Condition A is not a factor (since the reflexives are replaced with pronouns) the scope-reconstructed interpretation forced by creation predicates is available.⁷

This seems to be a reasonable argument in favor of syntactic reconstruction. Syntactic reconstruction predicts that reconstruction should be impossible in the (7)a configuration. The status of the unacceptable versions of (14)a and (15)a follows under the assumption of Heycock (1995) that creation verbs force reconstruction. However, an alternative explanation is proposed for the relevant facts by Safir (1999), which we will present with a slightly different implementation. Specifically, building on the suggestion that NPs have internal PRO subjects, and that subjects of creation verbs obligatorily bind this PRO.⁸ If this suggestion is correct, the status of the sentences in (14) and (15) would be explained independently of whether there is reconstruction (along the lines of Huang's 1993 explanation for obligatory reconstruction effects in predicate fronting). This is shown by the following potential LF structures in which there is no syntactic reconstruction; Condition A is violated just in case the PRO subject internal to the moved NP is obligatorily controlled by the subject of the embedded verb (i.e. just in case the embedded verb is a creation verb).

(16) a. *I asked John [how many PRO_i ideas about himself] Mary_i is likely to have

⁷ We would also like to see whether the prediction in (8) holds in cases of A-movement. The judgments, though subtle, seem to us to go in the right direction.

(i) Kunstler warned his clients that many unpleasant rumors about them are expected by the judge to be concocted in the coming months.

(ii) Kunstler warned his clients that many unpleasant rumors about each other are expected by the judge to be {made public/??concocted} in the coming months.

⁸ See Chomsky 1986, Williams 1985, 1987, Higginbotham 1983. Safir (1999) actually assumes a version of this proposal in which the NP-internal subject is a trace rather than PRO.

- b. I asked John [how many (PRO)_j] ideas about himself] Mary_i is likely to hear about.

We would therefore like to have tests for syntactic reconstruction that are not subject to this confound. One such test is based on *there* constructions, which are subject to the Definiteness Effect (DE). DE requires that a weak NP be present in the LF representation within the c-command domain of the expletive. As Heim (1987) and Frampton (1991) have argued, this yields obligatory reconstruction in *how-many* questions of the sort in (17)b (compare with (17)a).

- (17) a. How many books does Mary think are in the library
b. How many books does Mary think there are in the library

Under the syntactic approach to reconstruction, (17)a is ambiguous because it corresponds to two legitimate LFs, shown in (18). (17)b, on the other hand, has only one legitimate LF (as shown in (19)); the surface scope LF is blocked because it violates DE.

- (18) Two LFs for (17)a:

LF 1: [*Wh*]_i M. thinks [[*n*_i many books] are in the library]

What is the number n such that M thinks there are n many books in the library

LF 2: [*Wh* many books]_i M. thinks [*t*_i are in the library]

What is the number n such that there are n many books and M thinks those books are in the library

- (19) Only one LF for (17)b (*LF2* violates *DE*):

LF 1: [*Wh*]_i M. thinks [there are [*t*_i many books] in the library]

What is the number n such that M thinks there are n many books in the library

* *LF 2:* [*Wh* many books]_i M. thinks [there are *t*_i in the library]

Condition A would be violated in the variant that contains an anaphor. In other words, the fact that only the variant with the pronoun is acceptable is predicted.

- (21) His aides should have explained to President Clinton_i ...
- a. ...[what kinds of pictures of $\left\{ \begin{array}{l} \text{him}_i \\ \text{*himself}_j \end{array} \right\}$ and her_j baby] no mother_j wants to see.
 - b. ...[what kinds of pictures of himself_i and her_j baby] Mrs. Jones_j wants to see.

Consider next (21b). Here the R-expression *Mrs. Jones* replaces the quantifier in the embedded clause, obviating the need for variable binding. Consequently, scope reconstruction is not required and Condition A can be satisfied.

3. A potential confound: Logophoric uses of reflexives

In the previous sections we have seen various arguments that scope reconstruction can have consequences for Condition A, which we took as evidence for the syntactic approach to reconstruction. In this section we would like to discuss conflicting evidence presented by Sportiche (2001). Consider (22) below (Sportiche's (92)):

- (22) a. How many songs about each other did John and Mary say Bill should compose?
- b. John and Mary wonder how many songs about each other Bill should compose.

In these examples, a creation verb in the embedded clause forces scope reconstruction, which apparently has no consequences for Condition A. This fact conflicts with the data

We thought (i) had a minor advantage over (21a), which for some reason seems to require a degree of phonological stress on the first conjunct(*him/himself*). However, Munn pointed out that he and other speakers find the corresponding version of (21b) ungrammatical:

- (ii) *His aides should have explained to President Clinton what kinds of pictures of him/*himself **kissing** her baby Mrs. Jones wants to see.*

we presented in previous sections, and in particular with examples (14) and (15). This conflict does not seem to be the result of interspeaker variations in judgment; our informants agree with the judgments Sportiche reports for (22) as well as with the judgments we indicated for (14) and (15). We would therefore like to understand the difference between the two cases.

An obvious structural difference between (14) and (15) on the one hand and (22) on the other is that in the latter, but not in the former, the antecedent for the anaphor is a subject. Evidence that this is a relevant difference is provided when we compare (22) with (23):

- (23) a. *How many songs about each other did you tell John and Mary Bill should compose?
- b. *I told John and Mary how many songs about each other Bill should compose.

We don't fully understand the source of this difference, but we would like to make a tentative proposal. Consider the hypothesis advanced in Reinhart and Reuland (1993) and Pollard and Sag (1992) that anaphors are not subject to binding theory when they are arguments of (subjectless) nominal predicates. Instead they are subject to various discourse conditions on logophoricity (we will call this hypothesis the *Logophoricity* hypothesis). Under this hypothesis, an anaphor that is exempt from binding theory (a logophor) is licensed only if it refers to a sufficiently salient individual (or is bound by an NP that quantifies over such individuals). We will call this condition the *logophor-licensing* condition. A precise definition of salience has not been provided in the literature, but notions like "subject of consciousness" and "point of view" have been argued to be relevant.

This hypothesis could account for Sportiche's facts, but not, it seems to us, for the correlations discussed in the previous sections. So we would like to consider a modified version of the logophoricity hypothesis. In particular, assume that anaphors in argument

positions of subjectless NPs are optionally (but not obligatorily) exempt from binding theory. An anaphor in the relevant position (inside a subjectless NP) can therefore be licensed in two ways: either by binding theory (Condition A) or by logophor-licensing.

This can account for all the data we have looked at, if we assume that subjects (but not objects) of predicates like *say*, *believe*, *ask* and *tell* refer to individuals that are salient enough for anaphors to co-refer to, thereby satisfying *logophor licensing* (cf. Yang 1991). This assumption fits with the general property of these predicates that their complement clauses express propositions that (in possible world semantics) are evaluated at worlds characterized with appeal to the perspective/point of view of the subject argument (and not the object). (For example, *John told Mary that S* expresses a proposition that is true if and only if *S* is true in every world compatible with what *John* said to Mary; no requirements exist as to Mary's attitudes, e.g. whether or not she understood.)

Consider the case discussed by Sportiche, in which scope reconstruction appeared to have no consequences for Condition A. This case can now be accounted for even under the syntactic approach to reconstruction. While it is true that reconstruction yields an LF in which the anaphor is too distant from its antecedent for Condition A to be satisfied, the anaphor is an argument of a subjectless NP, and can also be licensed by *logophor licensing*. *Logophor licensing* is met, since the anaphor is co-indexed with the matrix subject, which (by the assumption stated in the previous paragraph) is salient in the relevant respect.

The argument for syntactic reconstruction based on the cases in the previous section still holds. Those cases are similar in that syntactic reconstruction yields structures in which the antecedents are too distant for Condition A to be satisfied. However, in these cases, no loophole is provided by *logophor licensing*, since the

ostensible antecedent (the object rather than the subject) is not salient by the relevant criteria.¹⁰

If this reasoning is correct, we have identified a potential source of noise for our experiment, namely the fact that anaphors can be licensed by a condition other than Condition A. We have argued that this condition can be factored out, and that when it is, the predictions made by the syntactic approach to reconstruction are verified.

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¹⁰ It is of course predicted that if there are predicates whose semantics appeals to the attitude of the object argument rather than the subject, *logophor licensing* would be satisfied regardless of scope reconstruction. This seems to us to be the case:

(i) Bill's actions told John and Mary how many songs about each other he is likely to compose.

cf. *Bill told John and Mary how many songs about each other he is likely to compose.

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