

TWO KINDS OF RECONSTRUCTION

Winfried Lechner

Abstract. This essay addresses various issues concerning noun phrase interpretation in German. It is argued that the concept of Semantic Reconstruction (Cresti 1995, Rullmann 1995) can be fruitfully employed in the derivation of quantifier scope ambiguities in German. Semantic Reconstruction will be demonstrated to be an independently needed strategy of grammar, that is not parasitic on syntactic reconstruction as expressed by Copy Theory (Chomsky 1992). The basic difference between Semantic Reconstruction and syntactic reconstruction will be traced back to their asymmetric availability in scrambling chains: scrambling can be undone only by Semantic Reconstruction.

1. Introduction¹

In this paper, I would like to pursue and combine three ideas about scope, that have been circulated in isolation in the recent literature in one form or the other. It will be proposed that an adequate theory of scope capturing languages like German should incorporate aspects of all three ideas. A system that is built on such an ensemble will turn out to possess the virtues of both shedding light on phenomena that have proved recalcitrant for traditional accounts and disentangling the rather bewildering complexities of some previous analyses.

The first hypothesis the discussion will be based on is that quantifier scope and ambiguities in German are derived by lowering, and not by quantifier raising (Hornstein 1995).

Second, I will argue that scopal interactions are not the effect of syntactic reconstruction ('SynR'; *vd.* Barss 1986, Chomsky 1992) of a quantificational term at LF, but rather come about by a lowering process in the semantic component. This lowering process will be equated with Semantic Reconstruction ('SemR') as defined in Cresti (1995) and Rullmann (1995). It will be shown that the theory of SemR, which was originally proposed as a scope fixing mechanism for *wh*-expressions, can and should be extended to also cover non-interrogative quantificational contexts.

The third cornerstone the analysis is centred around is the claim that SemR and SynR display properties which allow us to distinguish them from an empirical point of view ('The Independence Hypothesis'). In other words, the difference between SemR and SynR is not merely a notational or conceptional one, but is also reflected in their asymmetric availability in certain syntactic contexts. Empirical support for this claim

¹ I would like to thank Irene Heim, Roger Higgins, Angelika Kratzer and especially Kyle Johnson for numerous suggestions and helpful comments. All errors are my own.

can be drawn from the interaction of quantifier scope with Principle A of the Binding Theory and pronominal variable binding in (a subclass of) scrambling and topicalization constructions. In German, the relative scope of a scrambled (or topicalized) NP can be computed in a lower link of an overt movement chain. This will be interpreted as an instance of SemR into the base of a scrambling chain. The very same overt movement operations can however not be undone for the evaluation of anaphoric and variable binding, indicating the lack of SynR in these constructions. SemR is therefore in a sense more 'permissive' than SynR and should thus be seen as distinct from and not dependent upon SynR. This insight represents one of the main theoretical results of the present study.

Once one recognizes the division of labor alluded to above, which characterizes the interplay of SynR and SemR, an interesting and new group of data can be immediately accounted for. To wit, there are cases where the scope of an NP seems to be disassociated from its licensing domain for anaphora and pronominal variable binding. Such a state of affairs has to remain mysterious for any theory which acknowledges only a single mechanism of reconstruction, it is claimed.

The system will also allow us to understand why scrambled QP's invariably receive a strong (presuppositional) construal, even if they are interpreted with narrow scope w.r.t. other quantifiers they have crossed over. Following Diesing (1990, 1992) it will be assumed that weak NP's are bound by an existential operator at the level of LF. It will be shown that SemR cannot undo Mapping effects, simply because its results are visible only at a point in the derivation – viz. in semantics – too late for existential closure to apply. Therefore, scrambled NP's always receive a strong interpretation. More generally, we will see that while SemR displays a larger degree of freedom w.r.t. the structural environments it may apply to, SynR is able to feed a larger variety of interpretational processes (pronominal variable binding, Binding Theory, weak readings), since it precedes SemR in the derivation.

The content of the paper is organized as follows: section 2 will provide an outline of the theoretical background. An alternative analysis of a first group of data in terms of Semantic Reconstruction will be proposed that will be applied to additional constructions in section 3. Due to limitations of space, I will restrict the empirical range of the presentation mainly to QP-QP interaction, ATB-topicalization and expletive constructions. Section 4 compares then Semantic Reconstruction to syntactic reconstruction as expressed by the Copy Theory of movement (Chomsky 1992), and highlights relevant differences between SemR and SynR. Finally, in section 5, Diesing's (1990) theory of weak indefinites will be reinterpreted in terms of SynR.

2. Quantifier Scope by Lowering

2.1. Hornstein (1995)

Hornstein's (1995) account of the ambiguity of a quantified sentence like (1) represents a major departure from traditional GB-theories of scope (May 1977, 1985) in two respects:

- (1) Somebody saw everybody.

First, he argues that the correlation that is generally thought to hold between non-surface scope of a constituent and A'-movement is spurious. Instead, he claims that all instances of (non-interrogative) ambiguous structures can be analysed in terms of A-movement. Second, Hornstein maintains that the principal trigger for quantifier scope ambiguity is not to be found in raising (e.g. QR), but in reconstruction at the syntactic level of LF. Taken together, these two assumptions collaborate in the LF-output for the inverted scope reading of (1).

Adopting the Copy Theory of movement (Chomsky 1992), Hornstein suggests that the narrow scope reading of the subject in (1) is arrived at by first raising the object covertly to SpecAgrOP, resulting in the intermediate LF-representation (2)a. In (2)a, the subject-chain and the object-chain contain two copies each, one of which will have to undergo deletion in order to render the structures convergent and interpretable. Thus, in the next step of the derivation, the lower object copy and the higher subject copy are erased (cf. (2)b). Deletion of the higher subject copy effectively amounts to syntactic reconstruction of the subject from SpecAgrSP back into its VP-internal base position.

- (2) a. [_{AgrSP}Somebody [_{AgrOP}everybody [_{VP}somebody [saw everybody]]]]
 b. [_{AgrSP}~~somebody~~ [_{AgrOP}everybody [_{VP}somebody [saw ~~everybody~~]]]]

(2)b represents the inverted scope order, in which the universal object asymmetrically c-commands the existential subject.

It is now a well-known fact that English differs from languages like Chinese and German in that the Chinese and German counterparts to (1) lack the narrow scope reading for the subject (Aoun & Li 1989, 1992, Frey 1989, Haider 1989, 1993). This can be taken as an indication that subjects do not lower under objects in these languages, given that scope inversion is directly linked to subject lowering. I will therefore disregard A-movement to SpecAgrP's for the larger part of this paper, and focus instead on ambiguous structures in German, which will be taken to be amendable to an analysis similar in spirit to the one suggested by Hornstein for (1) above.

2.2. Scope in German

For reasons of concreteness, I will adopt the model for German clause structure suggested by Munaro (1991) and Brugger & Poletto (1993): Verbal arguments are base-generated within VP and invariably move to their respective SpecAgrP positions in overt syntax. The main motivation for this specific view comes from the relative position of prototypically indefinite objects like the wh-indefinite *was*/'whichever', which precedes (VP-adjoined) manner adverbials and negation, as shown by (3).²

- (3) a. daß wer [_{AgrOP} was_i[_{NegP} nicht [_{VP} t_i gekauft hat]]]
 that somebody something not bought has
 'that somebody did not buy something'
 b. *daß were [_{NegP} nicht [_{VP} was gekauft hat]]
 that somebody not something bought has

Scrambling is analyzed as adjunction to a maximal Agr-projection or TP. The two subject positions identified by Diesing (1990, 1992) and Kratzer (1989) are equated with SpecAgrSP and SpecTP, respectively. Finally, sentential particles (like *ja* 'wholl'indeed' and *gottseidank!* 'thanks god') and quantificational adverbs (*oft!* 'often', *selten!* 'rarely!') are taken to separate the higher from the lower subject position, they are TP adjoined and demarcate the left boundary of TP. Hence, a simple ditransitive clause is assigned the structure below:

- (4) [_{AgrSP} {Subject}_i[_{TP} *ja wohlloft!* [_{TP} {Subject}_i [_{AgrIOP} IO_j [_{AgrOP} DO_k [_{NegP} [_{VP} t_i [t_j [t_k verb]]]]]]]]]]]

Nothing in the analysis to be developed hinges directly on this specific implementation of phrasal architecture, though.

As was already mentioned briefly in 2.1, quantifier scope in intonationally unmarked³ German clauses that obey basic word order is determined by the surface serialization of the quantificational terms (Frey 1989, Haider 1993). In (5), main sentence accent is assigned to

² Note on the side that there is a potential problem with the assumption that all arguments obligatorily leave VP. Remnant topicalization can pied-pipe a direct object embedded within the fronted VP while leaving behind sentential negation:

- (i) [_{CP} [_{VP} the Buch gegeben]_i hat [_{AgrSP} er [_{AgrIOP} der Maria [_{NegP} nicht t_i]]]]
 the book given has he the M. not
 'He has not given the book to M.'

³ The data will be judged under 'unmarked sentence intonation' in the sense of Cinque (1993). Under unmarked intonation, the main sentence accent falls on the most deeply embedded XP on the recursive side of VP, and no other category is assigned prosodic prominence. (But see Selkirk 1995 for a competing proposal). The examples will be chosen in such a way that the quantificational terms under observation fall outside the main sentence accent. This has the effect of excluding the interference of focus in the interpretation of scope sensitive terms.

the adjunct PP *mit Freude* and the subject QP unambiguously takes scope over the object.⁴

- (5) Einer hat jedes Buch mit Freude gelesen : $\exists > \forall$
 ‘Someone reads every book with joy’

If the scope bearing categories are inverted in overt syntax, either by topicalization (cf. (6)a) or scrambling (cf. (6)b), ambiguity emerges (Frey, op. cit. Haider op. cit.):

- (6) a. [Irgendein Buch]_i hat fast jeder t_i mit Freude gelesen :amb(iguous)
 some book has almost everybody with pleasure read
 ‘Some book, almost everybody has read with pleasure’
 b. weil [irgendein Buch]_i fast jeder t_i mit Freude gelesen hat :amb
 since some book has almost everybody with pleasure read has

I would like to propose now that the narrow scope reading for the fronted objects in (6) is indeed the result of reconstruction, but that reconstruction applies in the semantic component and not at LF, as suggested by Hornstein. A system that is able to formalize this process has been developed in the form of the theory of ‘Semantic Reconstruction’ (SemR) by Cresti (1995) and Rullmann (1995). Section 2.3 provides a short introduction into the relevant concepts. It should also be pointed out in this context that the justification for the choice of SemR over syntactic reconstruction (‘SynR’) will have to await section 4, which is devoted to a comparative investigation of the relevant characteristics of the two types of reconstruction.

2.3. Semantic Reconstruction of Wh-phrases

Semantic Reconstruction was developed to account for scopal ambiguities that arise in wh-movement contexts. As originally pointed out by Kroch (1989), the amount wh-question in (7) is ambiguous between a wide scope/*de re* and a narrow scope/*de dicto* interpretation for the restrictor *n books*, that can be paraphrased as in (7)a and (7)b, respectively:

- (7) How many books does Chris want t to buy t
 a. What is the number n such that there are **n books** that Chris **wants** to buy
 b. What is the number n such that Chris **wants** it to be the case that there are **n books** he buys

⁴ If we replace this unmarked intonational pattern by a rising-falling contour tone over the two QP’s – the so-called ‘I-Topic intonation’ of Jacobs (1982) – the sentence becomes ambiguous, as witnessed by (i) below (Büring, in progress and Pafel 1991):

- (i) Elner hat Jedes Buch mit Freude gelesen :amb
 L+H* H*+L

In what follows, I-Topic intonation will be ignored.

In the *de re* interpretation, it is presupposed that there exists a given number of books that Chris wants to buy, and the exact number is the subject of inquiry. If the sentence is read *de dicto*, there could be a possibly different number of books in each world that is compatible with Chris' desires in the actual world, and the speaker wants to learn more about this number.

Standard analyses account for the *de re* construal by letting the wh-phrase bind an individual variable in both trace positions indicated above. Cresti (1995) and Rullmann (1995) suggest taking a new perspective on the narrow scope reading of (7). They propose that the latter is associated with a structure in which the overtly moved wh-phrase strands a **higher type trace** (typographic symbol 'T')⁵ of Generalized Quantifier type $\langle\langle e, t \rangle t \rangle$ as in (8):

(8) How many books does Chris want [_{CP} T $\langle\langle e, t \rangle t \rangle$ to buy t $\langle e \rangle$]

A higher type trace has the semantic effect of λ -converting the descriptive content of the wh-phrase back into the position of the higher type trace by Semantic Reconstruction.⁶ Since T is in the scope of the intensional operator, SemR results in the desired narrow scope *de dicto* interpretation of (7). Instead of providing the semantic computation for (8), I will spell out the necessary details in a moment on the basis of an example more relevant for present concerns. It suffices to notice at this point that the location of a higher type trace determines the scope domain of the category that this trace is coindexed with. Note also that SemR applies optionally: an operator may either bind an individual variable or a higher type trace.

2.4. Semantic Reconstruction of QP's

Let us return now to (6)a as our illustrative example for an ambiguous clause in German, and examine how SemR captures the narrow scope reading of the object there:

(6)a [Irgendein Buch]_i hat fast jeder mit Freude gelesen :amb
'Some book, almost everybody has read with pleasure'

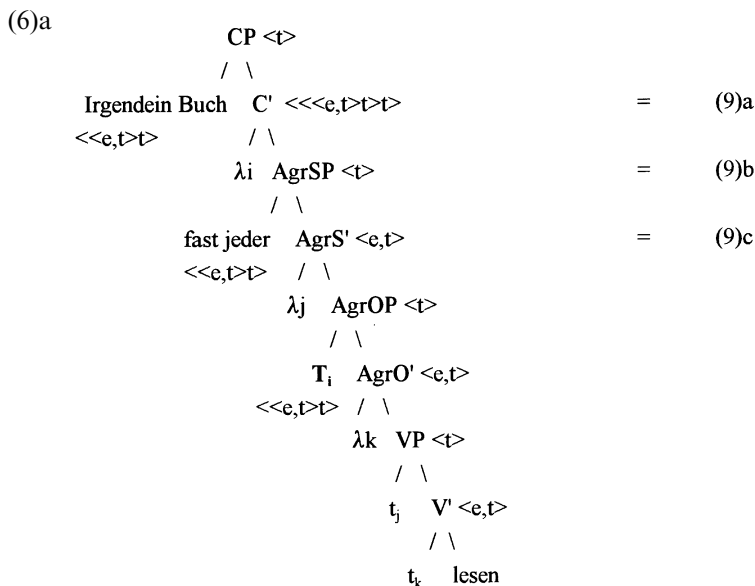
Assume that non-interrogative quantifiers may strand higher type traces, in a parallel fashion to wh-expressions, and that the trace left by topicalization in SpecAgrOP is of Generalized Quantifier type. Then, the LF-representation of the sentence in its narrow scope reading looks as follows:

⁵ Higher type traces were first introduced in von Stechow (1991).

⁶ See Cresti (1995:96ff) and Rullmann (1995:173ff) for details; see also Cinque (1990) and Longobardi (1985) on 'Scope Reconstruction' in syntax and Engdahl (1980) for an alternative semantic approach.

(6)a LF: $[_{CP} [_{Irgendein\ Buch}]_i [_{AgrSP} [fast\ jeder]_i [_{AgrOP} \mathbf{T}_i]_k [_{VP} t_j t_k\ gelesen]]]]$

To see now how a higher type trace triggers Semantic Reconstruction in the semantic component, consider the typed tree-diagram and the associated compositional computation of (6)a below:



- (9) $[[(6)a]]$ =
- $[_{CP} \text{some book } [\lambda i [_{AgrSP} \text{almost everybody } [\lambda j [_{AgrOP} \mathbf{T}_i] [_{VP} t_j \text{read } t_k]]]]]]$
 - $= \lambda i [\text{almost everybody } (\lambda j [\mathbf{T}_i (\lambda k [t_j \text{read } t_k]))]] (\text{some book}) =$
 - $= \text{almost everybody } (\lambda j [\text{some book } (\lambda k [t_j \text{read } t_k])]) =$
 - $= \text{almost every } x [\text{human}(x) \rightarrow \exists y[\text{book}(y) \ \& \ \text{read}(y)(x)]]$

(9)a forms the input to semantics: the object *some book* binds the higher type trace (via index 'i'), which in turn binds the VP-internal base of the chain (via index 'k'). λ -abstraction by the operator λi over the higher type trace \mathbf{T}_i in (9)b yields a predicate of (extensional) type $\langle\langle\langle e,t \rangle t \rangle t \rangle$, which then applies to the object *some book*. As witnessed by the step from (9)b to (9)c, *some book* is subsequently λ -converted back into \mathbf{T}_i . As a consequence, the topicalized object *some book* comes to lie in the scope of the subject *almost everybody*, and we accordingly arrive at the narrow scope interpretation in (9)d, as desired.

The ambiguity of examples involving scrambling as e.g. (6)b can be accounted for in a congruent way. Overt movement may optionally strand a higher type trace in SpecAgrOP, with subsequent application of SemR.

- (6b) weil [_{AgrSP} [irgendein Buch]_i [_{AgrSP} fast jeder [_{AgrOP} t_i/T_i mit
 since some book almost everybody with
 Freude gelesen hat]]] :amb
 pleasure read has

It should be noted that it does not matter for present purposes whether scrambling is considered to be A- or A'-movement. The fronted NP in (6b) is taken to bind a **semantic** individual or higher type variable. This does however not entail that the scrambling trace in SpecAgrOP has to be analyzed as a **syntactic** (i.e. Case marked, A-free and A'-bound) variable in the sense of GB-Theory. In principle, higher type traces are not confined to A'-bound A-positions.

In fact, the distribution of higher type traces should ideally be free and subject only to general conditions of type-driven interpretation. Even though a detailed investigation of the possible occurrences of higher type traces is beyond the scope of this paper, at least one restriction on T's has already been implicit in the discussion. Higher type traces have to be banned from VP-internal location. Otherwise, we would expect that SemR would be able to optionally restore subjects in German into the scope of objects, resulting in – unattested – ambiguity for non-inverted structures. From a descriptive point of view, we can observe that only SynR can (optionally) bring subjects back into the c-command domain of objects, and that SynR of subjects into the VP-internal base is a strategy found in English, but not in German.⁷

To recapitulate shortly: On the one hand, the current system preserves Hornstein's (1995) basic insight that quantifier scope interaction is parasitic on reconstruction into a lower link of a movement chain. On the other hand, both the syntactic mechanism and the context responsible for lowering have been modified. First, it was proposed that it is Semantic Reconstruction – and not SynR – which reverses the effects of movement (for evidence see section 4). Second, Semantic Reconstruction was taken

⁷ The observation that A-movement out of VP's cannot be undone by SemR is linked to a more general ban on higher type traces within VP's that are headed by extensional predicates. This restriction on VP-internal T's can be derived from type-driven interpretation. Assume that extensional verbs subcategorize for individual (<e>-type) objects only (vd. e.g. Heim & Kratzer, to appear). It follows that higher type traces can be successfully excluded from object positions, since an expression of type <<e,t>t>> cannot be combined with a transitive verb of type <e<e,t>>. So much for objects. Subjects can be prohibited from stranding a higher type trace VP-internally on the basis of the reasonable assumption that the external argument of verbal predicates is not the thematic subject, but the event argument (vd. Higginbotham 1985, Kratzer 1989, Parsons 1990). An intransitive verb would then be assigned a lexical entry of (extensional) type <e <s,t>>, where s stands for the event argument. Since expressions of type <e <s,t>> cannot be combined with higher type traces (<<e,t>t>>), it follows that VP-internal higher type subject traces do not form licit LF-objects. The argument carries over to transitive verbs in a natural way. Thus, the principles of type theory prevent both objects and subjects from undergoing SemR into VP-internal positions (of VP's headed by extensional predicates). On further interaction of type theory with T's, especially in intensional contexts, see Lechner (1995).

to apply to a chain whose head resides in a scrambled or topicalized position by stranding a higher type trace in SpecAgrOP, and not by SynR into the VP-internal base.⁸

3. Extensions

3.1. *Scope in German, revisited*

Having established that quantifier scope interaction can be analyzed as an instance of SemR, we can now proceed to an extension of the empirical domain of the investigation. Even though it is correct that scope ambiguity in German is dependent upon overt inversion, this characterization is still too weak. It seems that the specific lexical choice of the NP that undergoes overt movement also plays an important role in the determination of how many interpretations a sentence receives.⁹ Descriptively speaking, scope ambiguity arises only if both of the following two conditions are met:

- 1 The scope bearing categories are **inverted in overt syntax**, either by scrambling or topicalization (due to Frey 1989).
- 2 The quantifier that has undergone scrambling or topicalization is a **weak NP**¹⁰ in the sense of Milsark (1977) or a partitive headed by a weak determiner (henceforth '**weak partitive**').

The effects of restriction 2 can be detected in the contrast between the a- and the b-examples below. In (10)a, a semantically weak object has been topicalized over a strong subject, a situation that gives rise to ambiguity. The reverse situation, depicted under (10)b, leads to a structure in which the object unambiguously takes wide scope over the subject:

⁸ In fact, it turns out that the first modification – i.e. change from SynR to SemR – already entails the second one – i.e. lack of reconstruction into VP-internal base (see fn. 7). We can therefore tentatively relate the cross-linguistic differences between English on the one side and Chinese/German on the other side to the different reconstruction strategies – SynR vs. SemR – they license. Roughly, if a language allows for the option of SynR into the VP-internal base, ambiguity is expected to arise in non-inverted sentences. However, if a language employs SemR, ambiguity is predicted to be dependent upon overt inversion, since SemR into VP-internal positions is generally blocked. (The picture is complicated by the fact that German also employs SynR, but restricts its use to VP-external chains.)

⁹ The relevance of this point has largely gone unnoticed in the literature or has remained unaccounted for, if discussed (Jacobs 1982, Höhle 1991, Pafel 1991). Judgements are subtle, but consistent among speakers. While Pafel (1991) and three informants share the intuitions given in the text below, it should be mentioned that for some speakers (Frey 1989, Haider 1993) ambiguity appears to be independent of the choice of NP.

¹⁰ I adopt Milsark's (1977) definition according to which weak determiners are all those which – if combined with a CN – may show up in the English existential construction. It is of importance that cardinals like *three* as well as *many* and *few* are classified as weak determiners, even though they also possess a strong, presuppositional (in case of *many* and *few*: proportional) interpretations (Diesing 1990, 1992, Partee 1988, Westerstal 1985), that does not pass the *there*-insertion test.

- (10) a. [Irgendein Buch]_i hat fast jeder t_i mit Freude gelesen :amb
 some book has almost everybody with pleasure read
 ‘Almost everybody has read some book with pleasure’
 b. [Fast jedes Buch]_i hat irgendwer t_i mit Freude gelesen :∀ > ∃
 almost every book has someone with pleasure read
 ‘Somebody has read almost every book with pleasure’

(11)a demonstrates that topicalized partitives headed by weak determiners freely permit a narrow scope construal, the sentence is ambiguous. The ‘strong partitives’ in b. on the other hand display a clear tendency towards surface scope:

- (11) a. [Irgendeines/zwei von den Büchern]_i hat fast jeder t_i
 any/two of the books has almost everybody
 mit Freude gelesen :amb
 with pleasure read
 ‘Almost everybody has read some/two of the books with pleasure’
 b. [Jedes/die meisten von den Büchern]_i hat irgendwer t_i
 each/most of the books has someone
 mit Freude gelesen :QP > ∃
 with pleasure read
 ‘Someone has read each/most of the books with pleasure’

Scrambled QP’s pattern along with topicalized ones w.r.t. restriction 2. While scrambling of weak NP’s and weak partitives leads to ambiguity, as shown by (12)a and (13)a, the strong NP’s in the b-examples can only be construed with wide scope.

- (12) a. daß [irgendein Buch]_i fast jeder t_i mit Freude gelesen hat :amb
 that some book almost everybody with pleasure read has
 ‘that almost everybody has read some book with pleasure’
 b. daß [fast jedes Buch]_i irgendwer t_i mit Freude gelesen hat :∀ > ∃
 that almost every book someone with pleasure read has
 ‘that somebody has read almost every book with pleasure’
 (13) a. daß [irgendeines/zwei von den Büchern]_i fast jeder t_i
 that any /two of the books almost everybody
 mit Freude gelesen hat :amb
 with pleasure read has
 b. daß [jedes/die meisten von den Büchern]_i someone t_i
 that each/most of the books someone
 mit Freude gelesen hat :∀ > ∃
 with pleasure read has

So far, the selection of data has been confined to transitive clauses. However, exactly the same observations that were shown to hold for object-over-subject movement can also be made for object-over-object movement. In double object constructions with base serialization IO-DO,

overt raising of a direct weak object over a quantified indirect object results in ambiguity, as witnessed by (14)a and (15)a. If the fronted NP is realized as strong NP however, or as a strong partitive, as in (14)b and (15)b, surface word order determines scope:

- (14) a. [Mindestens einen`Gast /der Gäste]_i hat sie fast jedem
 at least one guest /of the guests has she almost every
 Freund t_i mit Freude vorgestellt
 friend with joy introduced
 ‘She has introduced at least one (of the) guest(s) to almost every friend’
- b. [Fast jeden Gast/der Gäste]_i hat sie mindestens einem
 almost every guest/of the guests has she at least one
 Freund t_i mit Freude vorgestellt
 friend with joy introduced
 ‘She has introduced almost every guest/each of the guests to at least one friend’
- (15) a. daß sie [mindestens einen Gast/der Gäste]_i fast jedem Freund t_i
 mit Freude vorgestellt hat
 ‘that she has introduce at least one (of the) guest(s) to almost every friend with joy’
- b. daß sie [fast jeden Gast/der Gäste]_i mindestens einem Freund t_i
 mit Freude vorgestellt hat
 ‘that she has introduced almost every guest/each of the guests to at least one friend’

Similarly, fronting of a weak dative object over a quantified subject feeds scope interactions, as in (16)a and (17)a. Again, the strong NP and strong partitives in (16)b and (17)b resist the narrow construal:

- (16) a. [Mindestens einem Freund/der Freunde]_i
 at least one friend/of the friends
 hat fast jeder t_i den Gast vorgestellt :amb
 has almost everybody the guest introduced
 ‘Almost everybody has introduced the guest to at least one (of the) friend(s)’
- b. [Fast jedem Freund/der Freunde]_i hat mindestens
 almost every friend/of the friends has at least
 einer t_i den Gast vorgestellt $:\forall > \exists$
 one the guest introduced
 ‘At least one person has introduced the guest to almost every friend/each of the friends’
- (17) a. daß [mindestens einem Freund/der Freunde]_i fast jeder
 t_i den Gast vorgestellt hat :amb
 ‘that almost everybody has introduced the guest to at least one (of the) friend(s)’

- b. daß [fast jedem Freund/der Freunde]_i mindestens
 einer t_i den Gast vorgestellt hat $:\forall > \exists$
 'that at least one person has introduced the guest to almost every
 friend/each of the friends'

Schematically, the distribution of facts can be summarized as below:

- (18) a. The string [QP_i . . . [QP_j . . . [t_i . . . is ambiguous if QP_i is a headed
 by a weak determiner.¹¹
 b. The string [QP_i . . . [QP_j . . . [t_i . . . is unambiguous otherwise.

(18) serves as a descriptive generalization, one that we can treat as diagnostic of SemR, and we will see further empirical motivation for its specific formulation shortly.

Recall now that the present system accounts for narrow scope readings by SemR into higher type traces. The data presented above leads us to two immediate conclusions: first, not only direct objects but also indirect ones may strand a higher type trace in their Case position (i.e. Spec-AgrIOP). The scope inverted interpretation of examples (16)a and (17)a is reflected in the LF below:

- (19) LF: [CP/AgrSP [einem Freund]_i [AgrSP QP_j [AgrIOP T_i [AgrDOP NP [VP t_j
 t_i lesen]]]]

¹¹ Unfortunately, a simpler characterization of the NP's that give rise to ambiguity in terms of *semantic strength* is unavailable: Partitive NP's presuppose the existence of their generator set and therefore count as strong (vd. Milsark 1977, Brawise & Cooper 1981, Partee 1988), no matter which determiner they are headed by. Similarly, strong *few* and *many* are presuppositional. There is however a certain degree of uncertainty in the literature concerning the interpretation of weak partitives: Comorovski (1991) accepts them in existentials on the basis of (i):

- (i) Q: Did you correct yesterday's exams?
 A: No, there are several of yesterday's exams left to correct

Similar judgements are reported by Abbott (1995:344), who also treats weak partitives as weak NP's:

- (ii) Remember those bats that got loose last night? There was one of them in the fridge this morning!

It seems however, that both (i) and (ii) represent existentials in their presentational, and not in their existence-asserting use.

Interestingly, Keenan (1987:296) has to resort to a non-standard syntactic analysis of weak partitives in order to be able to group them with strong NP's. Without going into details, it should be noted that his account at least suggests a close semantic similarity between weak partitives and weak NP's. I will leave the question of how to best formulate the underlying principles responsible for this similarity open.

Note moreover that it is equally impossible to reformulate (20) in terms of more fundamental *set-theoretic properties* of the NP's involved (e.g. intersectivity or symmetry). Although weak partitives pattern along with other weak NP's in that they possess the property of intersectivity and symmetry (vd. Partee 1988), proportional *few* and *many* cause problems for a set-theoretic unification: in their strong, proportional reading, *few* and *many* (categorized as weak by Milsark (1977)) are neither intersective nor symmetric. Nevertheless, proportional *few* and *many* trigger scope ambiguities if in the right context. I leave a satisfying semantic characterization of the NP's of clause (20)a for further research.

Second, not all QP's are allowed to strand a higher type trace; descriptively speaking, only weak NP's and weak partitives should have access to that option. It will therefore be necessary to introduce a convention along the lines of (20), that serves as a restriction on the occurrence of higher type traces:

(20) **Trace Convention:**

- a. NP's headed by weak determiners may leave higher type traces
- b. All other NP's strand individual variables only

The distribution of data now falls out straightforwardly from the interaction of SemR and the Trace Convention. Scope ambiguity is derived by optional SemR into SpecAgrOP or SpecAgrIOP. SemR is in turn driven by higher type traces and only a specific subgroup of QP's may strand such traces.¹²

In the next two sections, I shall provide independent empirical support for the dichotomy of NP's suggested by the Trace Convention. First, it can be shown that scope reconstruction phenomena in so-called ATB-topicalization contexts not only represent clear instances of reconstruction, but also display exactly the kind of behaviour predicted by (20). Second, the English existential construction furnishes additional empirical support for the claim that only weak NP's may leave higher type traces.

3.2. ATB-topicalization and connectives

Höhle (1991) notes that an indefinite that has been topicalized in an Across-The-Board ('ATB') fashion – as in (21)a – may be interpreted with narrow scope w.r.t. a disjunction operator:

¹² An apparent problem w.r.t. the positional restriction on T's presents itself in the form of topicalized weak NPs that have the option of being understood in the scope of negation in sentences as (i) below (Jacobs 1982, Frey 1989).

- (i) Ein Elektriker ist nicht gekommen :amb
 a electrician is not come
 'An electrician didn't come/No electrician came'

Given the present assumption concerning German clausal architecture, one might suspect that the narrow scope reading of the subject in (i) derives from SemR into the VP-internal base, resulting in the LF below:

- (ii) [CP NP_i [AgrSP . . . [NegP nicht [VP T_i [VP t_i kommen]]]]]]

However, such an analysis would leave us with the open question, why subjects cannot undergo SemR back into the scope of other quantifiers in general. Non-inverted multiply-quantified clauses in German would be expected to be as ambiguous as their English counterparts ('*Someone saw every movie*') on a Hornsteinian account, and they are not.

There are however good reasons to believe that (i) constitutes an instance of Split-Topicalization (see Frey 1989 and Lechner 1995 for arguments to that end). Under such an analysis *nicht* is construed as constituent negation which moves together with the subject to SpecAgrSP first, where it is stranded after application of the NP-split. The correct factorization of (i) can accordingly be given as under (iii):

- (iii) [CP NP_i . . . [AgrSP [DP nicht [DP T_i]] [VP t_i gekommen]]]

Thus, the assumption that SemR does not target VP-internal positions can be upheld even in light of data like (i).

- (21) [Einen Hund]_i has Hans T/t_i gestreichelt oder hat
 a dog has H. patted or has
 Maria T/t_i gefüttert :amb
 M. fed
 a. 'There is a dog such that Hans patted or Mary
 fed that dog' : $\exists > or$
 b. 'Hans patted a dog or Mary fed a dog' : $or > \exists$

The narrow scope (or Semantically Reconstructed) reading is paraphrased by (21)b. It could describe a scenario in which two different dogs are the theme of the patting and feeding event, respectively. Under current assumptions, the ATB-reconstructed interpretation (21)b is accounted for by postulating two higher type traces in the SpecAgrOP position of both disjunctively connected CP's.

Höhle furthermore observes that an ATB-topicalized strong NP can only be interpreted with surface scope w.r.t. to a coordinating operator (vd. also Moltmann 1992). He claims that example (22) is synonymous with (22)a, but lacks the scope reconstructed paraphrase given under (22)b:

- (22) [Jeden Hund]_i hat Hans t_i gestreichelt oder hat Maria t_i
 every dog has H. patted or has M.
 gefüttert : $\forall > or$
 fed
 a. 'Every dog is such that Hans patted that dog or Mary fed that
 dog' : $\forall > or$
 b. 'Hans patted every dog or Mary fed every dog' : $or > \forall$

Even though Höhle's claim will essentially turn out correct, it should be pointed out that example (22) does not show what it is purported to demonstrate. Since the reconstructed scope order ' $or > \forall$ ' logically implies the non-reconstructed scope order ' $\forall > or$ ', there is no model in which (22)b could be true and (22)a could be false. It is therefore impossible to construe a context that would be compatible only with the scope reconstructed reading (22)b. But then it becomes equally impossible to test whether (22) indeed possesses such a scope reconstructed interpretation that is logically independent from the surface scope order or not.

Let us for that reason substitute (22) with the corresponding negative statement below:

- (23) Unwahr ist: [jeden Hund]_i hat Hans t_i gestreichelt oder
 untrue is: every dog has H. patted or
 hat Maria t_i gefüttert
 has M. fed
 'It is not the case that every dog is such that Hans patted it or Mary
 fed it' : $\forall > or$

The scope reconstructed reading of (23) is now truth conditionally independent from the surface scope interpretation. To see this more transparently, imagine a scenario with three dogs, where Hans patted one dog and Mary fed two of them. Such a situation is not felicitously described by the surface scope order of (23): it holds true that each dog was either fed or patted, hence the negated formula ‘ $\neg[\forall x[\text{dog}(x) \rightarrow \text{pat}(x)(\text{Hans}) \vee \text{feed}(x)(\text{Maria})]]$ ’ comes out as false. The scenario would however be compatible with the scope reconstructed reading of (23) which is paraphrased below:

- (24) Unwahr ist daß Hans jeden Hund gestreichelt oder daß Maria
 untrue is that H. every dog patted or that M.
 jeden Hund gefüttert hat
 every dog fed has
 ‘It is not the case that Hans patted every dog or that Mary fed every
 dog’ :or > \forall

Since it neither holds, that Hans patted all of the three dogs nor that Mary fed all of them, the negated disjunctive statement ‘ $\neg[\forall x[\text{dog}(x) \rightarrow \text{pat}(x)(\text{Hans})] \vee \forall x[\text{dog}(x) \rightarrow \text{feed}(x)(\text{Maria})]]$ ’ comes out as true in our model. The upshot of the discussion above is that (23) depicts the present scenario only in the scope reconstructed construal. But it is now exactly this reading of (23) which is intuitively unavailable. We can therefore conclude that ATB-topicalized universals indeed do not undergo reconstruction.

Finally, consider the behavior of partitives. We can observe that weak partitives pattern along with indefinites and not with inherently strong NP’s. The ATB-reconstructed narrow scope reading of *two of the dogs* in the example below is somewhat marginal, but still intuitively available:

- (25) [Zwei von den Hunden]_i haben viele t_i gestreichelt
 two of the dogs have many patted
 und haben einige t_i gefüttert :amb
 and have some fed
 ‘Many have patted and some have fed two of the dogs’

Hence, the behavior of NP’s in ATB-reconstruction contexts constitutes support in favor of the Trace Convention, and the idiosyncratic properties of reconstruction w.r.t. the lexical choice of the reconstructee.

3.3. *English existentials*

In this section, it will be argued that some well-known idiosyncratic properties of the English existential construction provide a strong argument both for a lowering mechanism in the semantic component and for the Trace Convention.

There are two lines of reasoning in the tradition of the analysis of existentials that – if combined – complement each other in a rather interesting way. The first group of approaches consists of various variations on the concept of Expletive Replacement (Chomsky 1986, 1991, Lasnik 1992, Groat 1993). An alternative perspective was brought to attention by Heim (1987), who proposed a semantic filter on the postverbal subject position. After having outlined the essentials of both theories, I will attempt to demonstrate that a longstanding problem for the Expletive Replacement account can be solved if one embeds it under a theory that combines Semantic Reconstruction and the Trace Convention with relevant aspects of Heim (1987).

I will adopt here for reasons of concreteness Groat's (1993) version of Expletive Replacement. According to Groat, the expletive *there* resides in SpecAgrSP at Spell-Out, checking off Case (but not Phi-) features of the complex head AgrS^o+T^o (cf. (26)a). At LF, the full NP subject raises and adjoins to the expletive in SpecAgrSP (cf. (26)b):

(26) There are some books

- a. Spell-Out: [_{AgrSP} there [_{AgrS^o} T^o+AgrS^o [_{VP} some books]]]
 b. LF: [_{AgrSP} [**some books**_i [_{there}]] [_{AgrS^o} T^o+AgrS^o [_{VP} t_i]]]

Movement of the associate to SpecAgrSP is driven by the need to eliminate Phi-features of the AgrS^o+T^o complex. Notice that the postverbal subject will have to leave its overt location at LF, and we therefore expect it to gain scope over constituents dominated by AgrSP. This prediction is not borne out, however, as was pointed out most recently by denDikken (1995). The associate NP in *there*-insertion contexts is always interpreted with narrowest possible scope, an observation that has been made by Partee (1975) for raising constructions, Williams (1984) for modal contexts and Moro (1991) for negative environments:

- (27) a. There seems to be a unicorn approaching :*de dicto*
 b. There must be someone in this house :*de dicto*
 c. There weren't many books in the studio : $\neg >$ *many*

Thus, the distribution of the data in (27) has to remain a puzzle for any theory that employs Expletive Replacement and simultaneously forces scope relations to be established *only* at LF.¹³

¹³ See Abe (1993), den Dikken (1995) and Mahajan (1990) for analysis. Chomsky (1995) proposed to restrict LF-movement to raising of formal features. This conception would also account for the lack of wide scope readings in existentials, but faces problems in light of raising-to-object constructions. In a nutshell, Postal (1974) shows that ECM subjects have the same scope domain like objects of the superordinate clause. Lasnik (1993) reinterprets Postal's data in terms of covert raising of the ECM-subject to SpecAgrOP of the higher clause. If LF-movement indeed failed to extend the surface scope of an expression, as suggested by the feature movement account, this specific property of ECM-constructions would remain unaccounted for. Note that the present theory resolves the tension between subjects of existentials and subjects of ECM-infinitivals as far as their respective scope

Let us set aside the problem outlined above for a moment and turn to another peculiar property of the Existential Construction. Heim (1987) notices that both overt and phonetically empty bound variables in existentials give rise to deviant results, as witnessed by (28):

- (28) a. *[No perfect relationship]_i is such that there is $t_{i, <e>}$
 b. *[Which one of the two men]_i were there $t_{i, <e>}$ drunk

What bound pronouns and traces left by wh-movement have in common is their semantic type, they both denote individuals of type $<e>$. Heim formulates the following filter on the semantic type of the postverbal associate:

- (29) **TRACE FILTER** (Heim 1987)

**There be x*, where x is an individual variable.

(28)a and (28)b can now be successfully excluded, since individual variables are illicit in postverbal position.

Interestingly, it turns out that the current assumptions concerning SemR and the distribution of higher type traces (i.e. the Trace Convention) make it possible to subsume the analysis of standard *there*-insertion contexts under Heim's Trace Filter. To see this more clearly, consider first how (29) may be used to block illicit strong postverbal subjects. According to the Trace Convention, strong NP's may only strand individual variables. Thus, if the associate NP is realized as a strong NP, the NP may only bind an individual variable after the application of Expletive Replacement.

- (30) *There are all books
 a. Spell-Out: [_{AgrSP} [there] [_{VP} are [all books]]]
 b. LF: [_{AgrSP} [[all books]_i, $<et, t>$ there $<e>$] [_{VP} are * $t_{i, <e>}$]]

But the $<e>$ -type trace of the strong NP in (30)b violates the Trace Filter, and we therefore correctly predict the output to be ill-formed.

In contrast to strong NP's, weak NP's may optionally leave higher type traces.¹⁴ The associate in the well-formed structure (31) may accordingly escape the prohibition on $<e>$ -type traces by stranding a higher type trace at LF.¹⁵

behavior is concerned: Heim's filter simply 'forces' postverbal subject back into their surface position in the semantic component (see below), while no such restriction holds for ECM subjects, hence they may obtain scope higher than their own clause.

¹⁴ Even though weak partitives may strand T's, they are (for most speakers) excluded from *there*-insertion contexts, presumably due to their presuppositionality (see fn. 11). Similarly problematic are non-specific definites as in (i) (cited in Enc (1991) and attributed to D. Pesetsky) which will have to be exempted from the Trace Convention:

(i) There is the following counter example to Streck's theory

¹⁵ Rullmann (1995:194f) was the first to suggest that the postverbal subject position can be filled with a T, but he considers only overt wh-movement (as opposed to covert A-

(31) There are some books

LF: $[\text{AgrSP} [[\text{some books}]_i \text{ there}] [\text{VP are } T_i, \langle e, t \rangle]]$

The Trace Convention therefore successfully captures the distribution of weak and strong NP's in expletive constructions.

The details of the computation of (31) still require some clarifying remarks. To begin with, note that the associate in (31) has moved at LF to adjoin to the expletive from where it binds a VP-internal higher type trace. Let us adopt here Montague's (1973) translation of *be* as an expression of (extensional) type $\langle \langle e, t \rangle, t \rangle \langle e, t \rangle$. Assume furthermore that the expletive denotes an entity of type $\langle e \rangle$. Then, the copula can apply to the higher type trace as an internal argument, resulting in a VP denotation of type $\langle e, t \rangle$. Next, the VP combines with the expletive, resulting in a proposition. Finally, the fronted associate in NP is λ -converted back into its trace position by Semantic Reconstruction (cf. (32)).

(32) $[\text{AgrSP} [[\text{some books}]_i, \langle e, t \rangle \text{ there } \langle e \rangle] [\text{VP}, \langle e, t \rangle \text{ are } \langle \langle e, t \rangle, \langle e, t \rangle \rangle T_i, \langle e, t \rangle]]$

Thus, we see that higher type traces are in principle also licit VP-internally, provided that the verb subcategorizes for a term of the appropriate type (i.e. if the verb takes an $\langle \langle e, t \rangle, t \rangle$ -type argument).

Finally, we are in a position to return to the Expletive Replacement puzzle. Recall that the LF-raising approach incorrectly predicted that the associate in examples like (27) should be assigned clausal scope. Under current assumptions, the problem is solved in a straightforward way: LF-movement of the associate (i.e. Expletive Replacement) has to leave a higher type trace in order to comply with the Trace Filter. It follows now that the associate will have to be assigned narrow scope, since higher type traces go hand in hand with Semantic Reconstruction. Thus, the account of *there*-insertion contexts developed above proves empirically more adequate.

More generally, the analysis – if correct – furnishes further empirical support for the two central claims of this section. First, it supports the assumption of a post-LF scope-fixing operation by lowering. Second, expletive constructions can be taken to contribute additional empirical evidence in favor of a dichotomy of NP's along the lines suggested by the Trace Convention.

movement). He notes that the obligatory narrow scope construal of amount quantifiers in existentials (cf. (i)) follows from the Trace Filter and the mechanics of SemR:

(i) [How many police officers] did they claim there were T/*t at the scene of the crime? (Rullmann 1995:195, ex. (34b))

4. Semantic Reconstruction vs. Syntactic Reconstruction

So far, higher type traces have been treated as atoms of the grammar, alongside individual variables. A question that arises in this context is whether the occurrence of SemR should be tied more closely to syntactic reconstruction ('SynR'). In other words, are there arguments against a treatment of standard examples of quantifier scope ambiguity like (13)a in terms of SynR (essentially along the lines of Hornstein 1995)?

- (13)a weil [irgendein Buch]_i fast jeder t_i gelesen hat :amb
 since some book almost everybody read has

In Hornstein's system, the two readings of (13)a result from two different applications of the 'Copy and Delete' mechanism of Chomsky (1992). The surface scope reading of (13)a is represented by (33), while the narrow scope reading for the indefinite can be derived by deletion of the higher copy (i.e. SynR), as illustrated by (34).¹⁶

- (33) a. [_{AgrSP} [irgendein Buch] [_{AgrSP} fast jeder [_{AgrOP} [irgendein Buch]]] :LF-input
 b. [_{AgrSP} [irgendein Buch] [_{AgrSP} fast jeder [_{AgrOP} ~~[irgendein Buch]~~]]
 c. [_{AgrSP} [irgendein Buch] [_{AgrSP} fast jeder [_{AgrOP} [t]]] : $\exists > \forall$
 (34) a. [_{AgrSP} [irgendein Buch] [_{AgrSP} fast jeder [_{AgrOP} [irgendein Buch]]] :LF-input
 b. [_{AgrSP} ~~[irgendein Buch]~~ [_{AgrSP} fast jeder [_{AgrOP} [irgendein Buch]]]
 c. [_{AgrSP} [_{AgrSP} fast jeder [_{AgrOP} [irgendein Buch]]] : $\forall > \exists$

Such a simple conception would clearly have to be preferred, since the syntactic component would not have to be enriched by empty categories of different semantic types (i.e. traces could always be translated as individual variables, and copies as entities of higher type). As it will turn out, however, there are strong arguments against identifying SemR with SynR, and I will therefore set out to defend what will be called the 'Independence Hypothesis':

(35) INDEPENDENCE HYPOTHESIS

- (i) Syntactic reconstruction is not dependent upon Semantic Reconstruction
- (ii) Semantic Reconstruction is not dependent upon syntactic reconstruction

In order to do so, it will be necessary to show that both (i) and (ii) below hold:

¹⁶ The implementation of the Copy and Delete mechanism in the text varies substantially from Chomsky (1992), where reconstruction is treated as deletion of the restriction of the higher copy and the determiner (the wh-expression) of the lower copy. This analysis can however not be directly applied to reconstruction of NP's that are not headed by a wh-determiner, since the resulting structures (resembling (i)) are not interpretable by the compositional principles given that determiners are treated as generalized quantifiers.

(i) [_{AgrSP} irgendein_i] [_{AgrSP} fast jeder [_{AgrOP} [t_i Buch]] [_{VP} lesen]]
 some almost everybody book read

- (36) (i) One can find environments of SynR, in which SemR is not attested.
 (ii) There are contexts in which SemR applies, but SynR does not.

Section 4.1 briefly reviews a piece of evidence for (i) above from the literature. The bulk of this section will however be devoted to a justification of the claim made in (ii): on the basis of a more thorough empirical survey of reconstruction phenomena in German, it will be demonstrated that higher type traces can be found in environments that do not license copies.

4.1. *The independence of SynR*

As initially discussed in Longobardi (1985), weak islands block Semantic Reconstruction. Example (37) lacks a narrow scope interpretation of *how many books*:

- (37) How many books do you wonder whether Chris wants to buy

Cinque (1990) points out that syntactic reconstruction is not restricted in such a rigid way: Principle A, B and C of Binding Theory can be checked in a chain position that is embedded within a wh-island, as shown below (examples from Cresti 1995):

- (38) a. It is [to herself]_i that I don't know whether Mary_i wrote t_j
 b. *It is [to her]_i that I don't know whether Mary_i wrote t_j
 c. *It is [to Mary]_i that I don't know whether she_i wrote t_j

In (38), the clefted constituent originates from within a wh-island, hence SemR into the trace position is not available. Still, the fronted PP behaves as if being within the c-command domain of the embedded subject.

Cresti also brings up the following example (1995:90):

- (39) [What image of himself]_i do you wonder whether John_i has

Even though the wh-phrase in (39) resists a narrow scope construal, the anaphor can be bound by the lower subject. Thus, (38) and (39) constitute *prima facie* instances of syntactic reconstruction without semantic reconstruction. It can be inferred that copies in lower chain positions do not always have to be spelled out as expressions of higher types in semantics.

The more interesting question – the one which will help us to decide whether Semantic Reconstruction is an independently needed strategy of grammar – is whether there are environments in which SemR applies, but SynR fails to do so. Sections 4.2–4.4 intend to demonstrate that scrambling in German displays exactly these properties.

4.2. *The independence of SemR (I): NP-Scrambling*

The present section focuses on reconstruction phenomena in scrambling chains in German. Before turning to the details, it should be emphasized that the discussion will remain neutral as to whether scrambling is A- or A'-movement or whether reconstruction is restricted to A'-movement contexts only (on the latter issue see e.g. Lasnik 1993). The argument to be presented does simply not rely on a specific view on these two issues.

4.2.1. *Scope, WCO and Principle A.* It has been widely observed in the literature (Webelhuth 1985, Frey 1989, Haider 1989) that scrambling in German allows for selective violations of Weak Cross Over ('WCO').¹⁷ A pronoun embedded within an object that has scrambled to the left of a quantificational subject can be bound by this subject, as shown by (40)b:

- (40) a. *weil [_{AgrSP} [seine_i Mutter]] [_{AgrOP} jeden_i liebt]]
 'since his mother loves everybody'
 b. weil [_{AgrSP} [seine_i Mutter]_j] [_{AgrSP} jeder_i [_{AgrOP} t_j liebt]]]
 since his mother_{DO} everybody_{SU} loves
 'since his mother, everyone loves'
 c. weil [_{AgrSP} jeden_i [_{AgrSP} [seine_i Mutter] [_{AgrOP} t_i liebt]]]
 since everybody_{DO} his mother_{SU} loves
 'since his mother loves everybody'

An account in terms of Copy Theory would assign to (40)b an LF structure as in (41):

- (41) weil [_{AgrSP} ~~seine Mutter~~] [_{AgrSP} jeder_i [_{AgrOP} [seine_i Mutter] liebt]]]

In (41), variable binding targets the lower scrambling copy, while the higher copy undergoes deletion at LF. Note furthermore that the deviance of (40)a indicates that reconstruction of subjects into their VP-internal base is blocked, in accordance with present assumptions; otherwise, (40)a would be expected to behave on a par with (40)b. (40)c finally demonstrates that reconstruction is optional, the binder itself may be interpreted in its surface position.

Here we encounter a first aspect that sets apart SynR from SemR. In section 3, SemR was shown to be subject to the Trace Convention. Only NP's headed by weak determiners may leave higher type traces and thereby undergo SemR. Since the reconstructed object *seine Mutter* in (40)b does not qualify as weak, the lower copy in (41) cannot be associated with a higher type trace. This furnishes additional support

¹⁷ Note that the same phenomena that will be discussed in the context of scrambling also hold for topicalization. For reasons of space, I will not provide structures involving topicalization. Moreover, Japanese medium and short scrambling display the same behavior under reconstruction as German scrambling chains (vd. e.g. Abe 1993, Saito 1989).

for Cinque's and Cresti's hypothesis that SynR is more permissive than SemR.

A second piece of evidence that the properties of SynR and SemR at most partially overlap can be derived from double constructions. Notice first that SynR is less readily available with ditransitive predicates (vd. Frey 1989, Haider 1989, 1993). Short and medium Scrambling of a direct object over an indirect one as in (42)b/c bleeds the reading in which the pronoun embedded in the scrambled phrase is bound by the indirect object.¹⁸

- (42) a. weil die Maria [_{Agr}IOP jedem_i [_{Agr}OP sein_i Geschenk
since the Mary everyone his present
überreicht habe]]
given has
'since Mary gave everyone his present'
- b. *weil die Maria [_{Agr}IOP [sein_i Geschenk]_j [_{Agr}IOP jedem_i [_{Agr}DOP t_j
since the Mary his present everyone
überreicht habe]]]
given has
- c. *weil [_{Agr}SP [sein_i Geschenk]_j [_{Agr}SP die Maria [_{Agr}IOP
since his present the Mary
jedem_i [_{Agr}DOP t_j überreicht habe]]]
everyone given has

Thus, while direct objects may in principle undergo SynR, they do not reconstruct back into their canonical Case position SpecAgrOP.

Essentially the same restrictions that hold for pronominal variable binding also govern connectivity effects with reflexives and reciprocals (see Frey 1989, Müller 1993 and references cited). In (43), the anaphor inside the scrambled NP to the left of the subject can be bound by the subject it has overtly crossed over:

- (43) weil [dieses Bild von sich_i] der Hans_i seinen
since this picture of himself the H. his
Freunden schenken wollte
friends give-as-a-present wanted
'since Hans wanted to give this picture of himself to his friends as a gift'

This establishes that scrambled NP's can in principle be reconstructed prior to the computation of Principle A.

Next, consider short and medium scrambling in double object construction. As in the case of pronominal variable binding, anaphoric

¹⁸ Note that judgements should be taken to be relative throughout. This is important, since WCO violations do – as suggested by the name – not lead to absolutely deviant structures in a given interpretation.

relations cannot be repaired by reconstruction. An anaphor contained in a direct object that has moved overtly over an indirect object remains outside the binding domain of the latter, as witnessed by the deviance of (44)b/c:

- (44) a. weil der Peter den Gästen_i [einige Freunde von
since the Peter the guests some friends of
einander;_i] vorgestellt habe
each other introduced has
'since Peter has introduced the guests to some friends of each
other'
- b. *weil der Peter [einige Freunde von einander]_i den Gästen t_i
since the Peter some friends of each other the guests
vorgestellt habe
introduced has
- c. *weil [einige Freunde von einander]_i der Peter den Gästen t_i
since some friends of each other the Peter the guests
vorgestellt habe
introduced has

Summing up so far, the data from pronominal variable binding and Principle A demonstrated that a scrambled direct object may undergo what we might call 'shallow' SynR to the immediate right of the subject – inbetween TP and AgrIOP – but may not reconstruct all the way back into SpecAgrOP. In contrast to that, SemR of objects into SpecAgrOP is attested. Recall that a scrambled direct object QP can be read with narrow scope w.r.t. constituents it has overtly crossed over. For instance, example (15)b, repeated below, is ambiguous:

- (15)b daß sie [mindestens einen Gast]_i fast jedem Freund t_i/T_i mit Freude
vorgestellt hat :amb
'that she has introduced at least one guest to almost every friend
with joy'

The availability of a scope-inverted reading for (15)b was taken as an indication that SpecAgrOP may hold a higher type trace.

Thus, SemR, but not SynR may target SpecAgrOP. We can therefore conclude that syntactic reconstruction and Semantic Reconstruction form two distinct mechanisms of grammar, that are subject to two different groups of constraints.

The present account makes now a clear empirical prediction concerning the interaction of SemR and SynR: Constructions in which a weak direct object has scrambled over a strong indirect object quantifier and in which the scrambled object contains a pronoun should allow for a scope inverted interpretation, but should fail to license a reading that construes the pronoun as being referentially dependent on the QP to its right. Such

a construction is exemplified in (45)b below (the a-example should be used as a 'reference point' for the bound reading):

- (45) a. weil sie [_{AGR-IOP} jedem Kandidaten_i [_{AGR-OP} [ein Bild von seinem_i
since she every candidate a picture of his
Auftritt] zeigte]]
appearance showed
'since she showed every candidate a picture of his appearance [in
the show]'
- b. weil sie [_{AGR-IOP} [ein Bild von seinem*_i Auftritt]_j] [_{AGR-IOP}
since she a picture of his appearance
jedem Kandidaten [_{AGR-OP} t_j/T_j zeigte]]]
every candidate showed
'since she showed every candidate a picture of his appearance [in
the show]'

Now, (45)b possesses both a surface scope reading and an interpretation resulting from SemR of the direct object *ein Bild von seinem Auftritt* into the higher type trace in SpecAgrOP. But even though *ein Bild von seinem Auftritt* may be read with narrow scope w.r.t. the indirect object *jedem Kandidaten*, the pronoun contained in the scrambled phrase cannot be understood as being bound by *jedem Kandidaten*. (45)b is strong evidence in favor of the independence of SemR and SynR, in that it suggests that reconstruction of the object can be postponed to a level that follows the point in the derivation at which bound pronouns are licensed.

In a similar vein, the systematic interplay of SemR and SynR provides us with an insight into phenomena which display a peculiar disassociation of quantifier scope and the binding domains of anaphors. Consider to that end the examples under (46). In the scopally unambiguous example (46)a, the dative object contains an anaphor that may be bound either by the subject or by the direct object (Grewendorf 1984):

- (46) a. weil sie_j [vielen Gästen]_j [einige Freunde von einander_{i/j}]
since they many guests some friends of each other
vorgestellt haben
introduced have
'since they have introduced many guests to some friends of each
other'
- b. *weil ich [einige Freunde von einander]_i vielen Gästen t_i
since I some friends of each other many guests
vorgestellt habe
introduced have
- c. weil sie_j [einige Freunde von einander]_j vielen Gästen t_i
since they some friends of each other many guests
vorgestellt haben
introduced have

Scrambling of an accusative to the left of a dative – as shown by (46)b – blocks the lower construal of the reciprocal contained in the accusative, demonstrating once again the by now familiar antagonism of scrambled objects towards SynR. If we provide however a suitable binder for the anaphor,¹⁹ as done in (46)c, the structures not only become grammatical, but also display scope ambiguity. The scrambled direct object can optionally undergo SemR into its Case position SpecAgrOP. The pertinent LF-representation of the narrow scope reading looks as follows:

- (47) $[_{AgrSP} \text{ Subject}_i \dots [_{AgrIOP} [_{NP} \dots \mathbf{einander}_i \dots \cdot]_j [_{AgrIOP} [_{\text{Indirect Object QP}}] [_{AgrOP} \mathbf{T}_j [_{VP} \dots \cdot]]]]]$

Thus, examples like (45)b and (46)c reveal the existence of movement processes which can be undone by SemR, but not by SynR, and therefore strongly support the Independence Hypothesis.

4.2.2 *Pronominal variable binding, reconstruction and subject raising.*

Let me at this point address an apparent problem for the analysis. The account of both (45)b and (46)c was built on the interaction of three assumptions, which are repeated below.

- 1 SpecAgrOP can hold a higher type trace, yielding the inverted scope order.
- 2 A scrambled direct object may not undergo SynR into SpecAgrOP.
- 3 Variable binding and anaphoric relations are licensed under SynR at LF.²⁰

¹⁹ It is assumed throughout that the Binding Theory also applies to A'-positions (vd. also discussion in Haider 1993, Mahajan 1990, Saito 1989, Takano 1995). *Prima facie* evidence that anaphors can be bound in A'-positions can be drawn from structures like (i) (due to G. Fanselow, Umass talk, 02/95):

- (i) weil er_i sich_i [anstatt PRO_i pg_i um die Studenten zu kümmern] t_i
 since he himself instead PRO about the students to care
 allein mit dem Buch beschäftigte
 only with the book] occupied
 'since he only spent time with the book instead of taking care of the students,

Here, the anaphor has scrambled over the adjunct clause, licensing a parasitic gap. If binding were computed in the lower copy, (i) would become indistinguishable at LF from its ill-formed variant in (ii), where the reflexive remains *in-situ*.

- (ii) *weil er_i [anstatt PRO_i pg_i um die Studenten zum kümmern] sich_i allein mit dem Buch beschäftigte

²⁰ In fact, there is evidence that bound pronouns have to be c-commanded by their binder at LF and have to follow that binder in semantics: otherwise, we would expect that a scrambled QP is able to A'-bind a pronoun to its right, even if the QP is later on Semantically Reconstructed to a position structurally lower than the phrase containing pronoun. A pertinent example is given under (i):

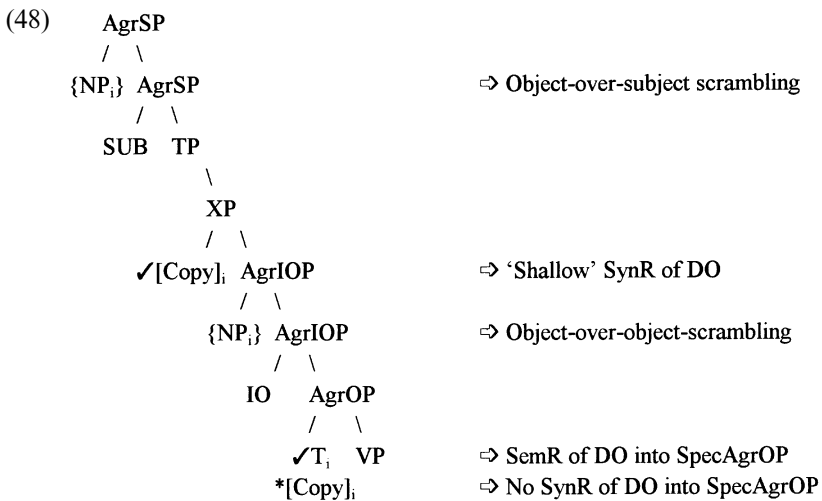
- (i) wil er [einen Schüler]_i jedem seiner_i Lehrer t_i vorgestellt hat
 since he a student each his teachers introduced has
 'since he introduced a student to each of his teachers'

(i) is unambiguous, if the pronoun is construed as a variable bound by the direct object. Now, if pronominal variable binding were sufficiently licensed at LF, the lack of a narrow scope reading in (i) would remain unaccounted for. While the binding conditions could be

In other words, copies and higher type traces are in complementary distribution, if we restrict our attention to object-overt-object scrambling. But recall also that an NP that has scrambled to the left of SpecAgrSP remains in the c-command domain of the subject, as shown by (40)b, repeated below:

- (40)b weil [_{AgrSP} [seine_i Mutter]_j] [_{AgrSP} jeder_i [_{AgrOP} t_j liebt]]
 ‘since his mother, everyone loves’

Hence, objects do not resist SynR in general, but seem to undergo ‘shallow’ SynR into a position to the immediate right of the lower subject position. The schematic tree diagram below sums up the various possibilities for reconstruction discussed so far:



One might now take the idiosyncratic behavior of objects as an argument against the application of reconstruction in such contexts in more general, challenging assumption 3 above.²¹ For suppose that the subject in (40)b resides in SpecTP at Spell-Out and raises from SpecTP to SpecAgrSP at LF. Assume moreover that scrambling adjoins categories to TP. Then, the subject could obtain c-command over constituents that precede it at LF, thereby extending its binding domain over the object. An analysis along these lines would not have to resort to any process of SynR for the object. The two distinct LF-outputs of (40)b predicted by the two competing accounts – SynR vs. subject raising – are sketched below:

satisfied at LF under such a state of affairs, scope could be fixed at a later stage. Thus, variable binding is subject to structural conditions both at LF and in semantics. Notice that the argumentation in the text is not affected by this revision.

²¹ I am indebted to Kyle Johnson for pointing out this alternative to me. See Frey (1989) for a proposal along these lines.

(49) a. *Derivation I* (SynR of object):

LF: weil [_{AgrSP} [_{SemR} ~~seine Mutter~~]_i] [_{AgrSP} jeder_i [_{AgrOP} [**seine; Mutter**] liebt]]
 since his mother everybody his mother likes

b. *Derivation II* (Subject raising from SpecTP to SpecAgrS):

LF: weil [_{AgrSP} **jeder**_i [_{SemR} ~~seine; Mutter~~]_j] [_{TP} t_i [_{AgrOP} liebt]]]

If *Derivation II* turned indeed out to be correct, the interaction of scrambling and pronominal variable binding discussed in the last section would not constitute an adequate testing ground for the Independence Hypothesis. It is conceivable that variable binding is simply never computed under reconstruction. Under such a scenario, it would be impossible to inspect the relation between SynR and SemR on the basis of data involving bound pronouns. In what follows, I will therefore present two arguments in favor of the original analysis of (40)b in terms of SynR (*Derivation I*).

First, V2 clauses in which an object containing a bound pronoun resides in SpecCP are not compatible with the subject raising hypothesis:

(50) [_{CP} [_{SemR} ~~Seine; Mutter~~] liebt [_{AgrSP} jeder [. . .]]]
 his mother loves everybody
 ‘Everybody loves his mother’

In (50), there is simply no position structurally higher than the object that the subject could move into at LF, but the example is well-formed.

A second argument against subject raising is based on the A'-binding behavior of QP's that are already in the higher subject position by Spell-Out: as shown by (51)b, specific or strong subjects in SpecAgrSP retain their capacity to bind into scrambled objects to their left (note that *gottseidank* 'thanks god' is taken to demarcate the left periphery of TP).

(51) a. daß [_{AgrSP} jeder [_{TP} gottseidank [_{TP} t seine Bücher
 that everybody thanks god his books
 wiedergefunden habe]]
 re-found has
 ‘that everybody has found his books again’
 b. daß [_{AgrSP} [_{SemR} ~~seine; Bücher~~]_i] [_{AgrSP} jeder [_{TP} gottseidank [_{AgrOP} t_j
 that his books everybody thanks god
 wiedergefunden habe]]]]]
 re-found has

The availability of the bound reading in (51)b poses a problem for the subject raising hypothesis: the subject already shows up in its higher position in surface syntax, precluding further raising at LF. The reconstruction accounts makes on the other hand the correct predictions.

Hence, constructions in which a subject binds into an object to its left (putative WCO-violations) cannot be reconciled with an analysis in terms of subject raising, and should be seen as genuine instances of SynR. Thus,

scrambling chains can indeed be taken to serve as a diagnostic environment for the independence of SynR and SemR. Both processes are (to a more or less limited extent) available in these configurations, but they are evidently governed by two distinct sets of restrictions.

The following section will concentrate on the interaction between SemR, SynR and the Mapping hypothesis, and will consider a further property that distinguishes SemR from SynR.

4.3. *The independence of SemR (II): Mapping effects*

Diesing (1990, 1992) and Kratzer (1989) point out that scrambled NP's in German may only receive a strong, generic or presuppositional interpretation. A standard example illustrating the effects of the Mapping Hypothesis, taken from Kratzer (1989), is given below:

- (52) a. weil wir [_{AgrOP} immer [_{AgrOP} eine gutes Projekt [_{VP}
since we always a good project
fördern]]] :existential
sponsor
'since we always sponsor a good project'
b. weil wir [_{AgrOP} [ein gutes Projekt] [_{AgrOP} immer [_{AgrOP} t_i
fördern]]] :generic

(52)a may be given a weak, existential interpretation, in which the variable introduced by the indefinite is unselectively bound by an existential closure operator at LF.²² The object NP in (52)b can on the other hand only be construed as strong and generic, since the NP has overtly scrambled over the existential closure operator.

Consider in this light once again example (15)b (repeated from above) focusing on the narrow scope reading of the existential:

- (15)b daß sie [mindestens einen Gast]_i fast jedem Freund [_{AgrOP} T_i [mit
Freude vorgestellt hat]]
'that she has introduced at least one guest to almost every friend
with joy'

While (15)b clearly possesses a narrow scope reading for the indefinite, the indefinite apparently cannot receive a weak, non-presuppositional interpretation. The narrow scope reading of (15)b is only compatible with a scenario in which the individual guests that are to be introduced to the friends are picked out of a contextually salient set of guests.²³ This is in

²² Given present assumptions, the relevant existential closure operator would have to be adjoined to AgrOP. On a compositional account for weak readings and arguments against existential closure in general see Lechner (1997).

²³ See Diesing (1990:105ff) for a detailed discussion of the distinction between presuppositional and cardinal narrow scope readings of indefinites.

fact predicted by the Mapping Hypothesis, which forces scrambled indefinites to be construed as presuppositional and strong.

Example (15)b can be now taken as an additional piece of evidence in support of the Independence Hypothesis, since it points to a further disparity between scope and binding domains. To begin with, notice that under the inverse scope reading, SpecAgrOP in (15)b holds a higher type trace, resulting in SemR in semantics. Moreover, recall that the scrambled object cannot be construed as a weak indefinite. We can conclude that SemR does not undo the effects related to the Mapping Hypothesis by feeding (unattested) weak readings. This does not come as a surprise. Given that LF is the relevant level for unselective binding (Diesing 1990), the results of SemR are visible only **after** the point in the derivation at which existential closure applies. Thus, SemR cannot undo Mapping effects.

What about SynR? In principle, nothing should prevent syntactic reconstruction from ‘shifting’ the scrambled NP back into the c-command domain of existential closure. As we have seen in section 4.2, however, SynR may never restore a dislocated object into its canonical Case positions. Thus, the object in (15)b cannot have undergone SynR and we correctly predict that (15)b lacks a weak reading.

Recapitulating briefly, we saw that even though the object in (15)b may take semantic scope as low as SpecAgrOP (by SemR), it cannot be considered as residing in SpecAgrOP – i.e. within the binding domain of existential closure – as early as at LF. Such a disassociation of scope and binding can be properly accounted for only under the assumption that the grammar provides a scope fixing mechanism that postpones reconstruction to the level of semantics. Again, a theory which embraces both syntactic and Semantic Reconstruction proves empirically and conceptually more adequate than competing accounts that reduce reconstruction to a single level of application.

4.4. *The independence of SemR (III): CP-scrambling*

The third and final piece of empirical evidence for the Independence Hypothesis comes from scrambling of sentential complements in German: CP-scrambling patterns along with NP-scrambling in that it does not trigger SynR in certain environments. But while SemR with scrambled NP’s was merely optional, we will see that Semantic Reconstruction appears to apply obligatorily to fronted clauses.

Unlike NP-scrambling, CP-scrambling invariantly bleeds binding of pronominal variables²⁴ and leads to WCO effects. In (53)a and (54)a

²⁴ See Grewendorf & Sabel (1994) for further discussion. Three informants and I disagree however with the assessment of the data given in Grewendorf & Sabel (1994), who accept (53)b and (54)b as grammatical.

below, the indirect object and the subject bind a pronoun in the infinitival complement, respectively; moving the infinitival to the left of the subject leads to a clear WCO violation in both cases, as witnessed by examples (53)b and (54)b:

- (53) a. daß [die Professorin]_i; keinem_i versprechen wollte [PRO_j
 that the professor nobody promise wanted
 seinen_i Bruder zu beherbergen]
 his brother to put up
 ‘that the professor didn’t want to promise anybody to put up his
 brother’
- b. *daß [PRO_j seinen_i Bruder zu beherbergen] die Professorin_j;
 that his brother to put up the professor
 keinem_i versprechen wollte
 nobody promise wanted
- (54) a. daß ihr_j keiner_i raten würde [PRO_j seinen_i Bruder zu besuchen]
 that her nobody recommended would his brother to visit
 ‘that nobody would recommend her to visit his brother’
- b. *daß ihr_j [PRO_j seinen_i Bruder zu besuchen] keiner_i;
 that her his brother to visit nobody
 raten würde
 recommend would

Note that the b-examples are on a par with standard cases of WCO that we observed in double object constructions as far as relative acceptability goes:

- (55) *Sie hat [seine_i Sekretärin]_j; jedem_i t_j am Mittwoch vorgestellt
 she has his secretary everybody on Wednesday introduced
 ‘She has introduced his secretary to everybody on Wednesday’

Thus, the absence of a bound reading for (53)b and (54)b demonstrates that the interpretative principle responsible for variable binding does not have access to a lower, VP-internal copy of the CP at the level of LF.

Scrambled CP’s do however undergo Semantic Reconstruction, in fact, the standard rules of composition used here even force them to do so, as will become clear shortly.²⁵ The obligatoriness of SemR explains immediately the well-known fact that a quantifier contained in a fronted CP is either construed independently or within the scope of all other quantificational terms that the CP has crossed over, as witnessed by (56):

²⁵ Fronted CP’s behave in that respect like topicalized predicates (vd. Barss 1986, Huang 1993).

- (56) weil [mindestens einen Hund zu füttern] keiner
 since at least one dog to feed nobody
 versprochen hatte *:nobody > at least one*
 promised had
 'since nobody had promised to feed at least one dog'

(56) exclusively allows for the scope order 'matrix subject > embedded object'. SemR allows us to account for this observation in a natural way. Assume that movement of a CP can only strand a trace of (extensional) type $\langle t \rangle$. Dislocated clauses will then always be λ -converted back into their base position, their scopal properties being now similar to that of names. The relevant steps in the computation are provided below:

- (57) LF: $[_{TP} [_{CP} \text{mindestens einen Hund zu füttern}]_i [_{TP} \text{keiner}]_j [_{VP} t_j [t_i \text{versprochen hatte}]]]$
- $$\begin{aligned} \llbracket \text{CP} \rrbracket &= [\text{one dog feed}] [\lambda i [\text{nobody } [\lambda j [t_j \text{ promise } t_i]]]] = \\ &= [\lambda i [\text{nobody } [\lambda j [t_j \text{ promise } t_i]]]] ([\text{one dog feed}]) = \\ &= [\text{nobody } [\lambda j [t_j \text{ promise } [\text{one dog feed}]]]] \\ &= \neg \exists x [\text{promise } (\text{one dog feed})(x)] = \\ &= \neg \exists x [\text{promise } (\exists_{\geq 1} y [\text{dog}(y) \ \& \ \text{feed } (y)(x)]) (x)] \end{aligned}$$

Since (57) depicts the only way of associating the scrambled CP and its trace in semantics (given that CP's cannot be assigned alternative types) we derive the obligatoriness of the effect of scope reversal.²⁶

4.5. *Résumé*

Let us briefly review the main results of section 4: it was argued that higher type traces cannot be made parasitic upon the presence of a

²⁶ Note on the side that it is necessary to adopt an additional assumption in order to block the wide scope reading for the embedded object QP in (56), viz. that scrambling is possible only out of scrambled CP's in post-subject location. Without this restriction, an alternative derivation for (56) would become available, one that would result in the (non-attested) scope order 'at least one dog > nobody'. To see this more clearly, consider (i) below, in which the object QP *mindestens einen Hund* has (vacuously) scrambled out of the preverbal CP, which itself is in a scrambled position:

- (i) LF: weil $[_{TP} \text{mindestens einen Hund}]_i [_{TP} [_{CP} t_i \text{ zu füttern}]]_j [_{TP} \text{keiner}]_k [_{VP} t_j \text{versprochen hatte}]]]$
 since at least one dog to feed nobody
 promised had

Even though the CP *to feed* will be interpreted in the position marked by the trace t_j by SemR, the short movement step of the object *at least one dog* out of the CP made it possible for the object to gain scope over the subject *keiner*. Independent evidence for a restriction that turns scrambled CP's in pre-subject position into islands comes from the contrast below (ii) due to Grewendorf & Sabel 1994):

- (ii) *daß **den Hund**_i zweifellos $[t_i \text{ zu füttern}]_j$ keiner versuchte t_j
 that the dog without doubt to feed nobody tried
 (iii) eine Frau $[_{CP} \text{die}_i \text{ ihr}_k \text{ die Maria}]_j [_{CP} t_k t_i \text{ zu zeigen}]_l$ niemals $[_{VP} t_j \text{ versuchen würde}]_m$
 a woman who her the M. to show never try would

In (ii), the object of the sentential complement has scrambled out of a pre-subject CP, resulting in a strongly deviant structure. If scrambling moves an NP out of a post-subject CP, as in example (iii), the sentence is perfectly acceptable.

syntactic copy. We identified environments in which scrambled NP's and scrambled CP's displayed none of the properties generally associated with syntactic reconstruction, but were still able to undergo Semantic Reconstruction.

The table in (58) sums up the relevant findings of section 4 (the grammatical principles involved in the tests are set in brackets):

(58) **RECONSTRUCTION PROPERTIES OF SCRAMBLING**

	Syntactic Reconstruction	Semantic Reconstruction
Object over object scrambling:	No (Bound pronouns, Principle A, Mapping effects)	SpecAgr(I)OP
Object over subject scrambling:	'Shallow' SynR (Bound pronouns, Principle A, Mapping effects)	SpecAgr(I)OP
CP-scrambling:	No (Bound pronouns)	VP-internal foot of chain

5. Conclusion

The present paper presented a novel way of encoding quantifier scope ambiguities in languages like German. The proposal crucially relied on a post-LF lowering process – Semantic Reconstruction – to which only a restricted class of quantifiers – NP's headed by weak determiners – had access. Semantic Reconstruction was argued to be a strategy that should be kept distinct from syntactic reconstruction, a process that lowers terms at the syntactic level of LF.

While various issues had to remain unaddressed and others require further thorough investigation, the present account also appears to have the virtue of enabling us to ask a number of new questions and to define some new research goals. To name just a few in the end:

- Are there purely syntactic licensing conditions on higher type traces, that do not hold for individual variables? If yes, what are they? (See Cresti 1995 for a suggestion.)²⁷
- Does e.g. the A- vs. A'-distinction bear any influence on the distributional properties of T's? Note that not only A'-movement, but also A-movement may undergo SynR in certain contexts (vd. e.g. Lasnik 1993). Thus, SynR is to a certain extent immune to the A- vs. A'-dichotomy. The question arises whether the same holds for SemR, i.e. whether there are for instance manifestations of SemR in unambiguous A-movement environments like raising.

²⁷ At first sight, it seems as if T's invariably behave like traces of adjuncts, as indicated by the fact that SemR is blocked into weak islands (vd. e.g. Cinque 1990); presumably, this property could be related to the VP-external location of T's.

- How does SemR behave in contexts involving intensional verbs, which allow for higher type traces in VP-internal position (see Lechner 1995)? These contexts should provide an interesting testing ground for the interaction of SynR and SemR in languages like English.
- Cross-linguistic considerations present another point of departure for further research. If the present deliberations are on the right track, one should ask why English employs SynR (of subjects) as a scope-feeding operation, while German relies on SemR, and obviously does not license subject lowering at LF.
- What are the conditions responsible for the idiosyncratic behavior of reconstruction in the limited attested instances of SynR in scrambling chains in German (and Japanese)?

References

- ABBOTT, B. 1995. Some remarks on specificity. *Linguistic Inquiry* 26, 341–347.
- ABE, J. 1993. *Binding Conditions and Scrambling without A/A'-Distinction*. Ph.D. diss., U. of Connecticut/Storrs.
- AOUN, J. & LI, A. 1989. Scope and constituency. *Linguistic Inquiry* 20, 141–172.
- AOUN, J. & LI, A. 1993. *Syntax of Scope*. Cambridge, Mass.: MIT Press.
- BARSS, A. 1986. *Chains and Anaphoric Dependence*. Ph.D. diss., MIT.
- BRUGGER, G. & POLETTI, C. 1993. On negation in German and Bavarian. *U. of Venice Working Papers in Linguistics* 3, n. 2.
- CHOMSKY, N. 1992. *A Minimalist Program for Linguistic Theory*. MIT Occasional Papers in Linguistics 1.
- CINQUE, G. 1990. *Types of A'-Dependencies*. Cambridge, Mass.: MIT Press.
- CINQUE, G. 1993. A null theory of phrase and compound stress. *Linguistic Inquiry* 24.2: 239–299.
- CRESTI, D. 1995. Extraction and reconstruction. *Natural Language Semantics* 3:79–122.
- DEN DIKKEN, M. 1995. Binding, expletives and levels. *Linguistic Inquiry* 26.2: 347–354.
- DIESING, M. 1990. *The Syntactic Roots of Semantic Partition*. Ph.D. diss., U. of Massachusetts/Amherst.convert.
- DIESING, M. 1992. *Indefinites*. Cambridge, Mass.: MIT Press.
- ENGDAHL, E. 1980. *The Syntax and Semantics of Questions in Swedish*. Ph.D. diss., U. of Massachusetts/Amherst.
- FREY, W. 1989. *Syntaktische Bedingungen für die Interpretation*. Ph.D. diss., U. of Stuttgart.
- GREWENDORF, G. 1984. Reflexivierungsregeln im Deutschen. *Deutsche Sprache* 1:1–40.
- GREWENDORF, G. & SABEL, J. 1994. Long scrambling and incorporation. *Linguistic Inquiry* 25.2: 263–309.
- GROAT, E. 1993. There expletives: a minimalist approach. *Harvard Working Papers in Linguistics* 3, 81–89.
- HAIDER, H. 1989. Tracking systems – evidence from German. *Configurationality: The Typology of Asymmetries*, ed., Maracz & Muysken, 185–206. Dordrecht: Foris.
- HAIDER, H. 1993. *Deutsche Syntax – Generativ*. Tübingen: Narr.
- HEIM, J. 1987. Where does the definiteness restriction apply? *The Representation of*

- (In)Definites, ed. E. Reuland & A. ter Meulen, 21–43. Cambridge, Mass.: MIT Press.
- HEIM, I. & KRATZER, A. To appear. *Semantics in Generative Grammar*. Cambridge, UK: Basil Blackwell.
- HORNSTEIN, N. 1995. *Logical Form: From GB to Minimalism*. Cambridge, UK: Basil Blackwell.
- HÖHLE, T. 1991. On reconstruction and coordination. *Representation and Derivation in the Theory of Grammar*, ed. Haider, Huber & Klaus Netter, 139–99. Dordrecht: Kluwer.
- HUANG, C.-T. J. 1993. Reconstruction and the structure of VP: some theoretical consequences. *Linguistic Inquiry* 24.1: 103–138.
- JACOBS, J. 1982. *Syntax und Semantik der Negation im Deutschen*. München: Wilhem Fink.
- KRATZER, A. 1989. *Stage-Level and Individual-Level Predicates*. Ms., U. of Massachusetts/Amherst.
- KROCH, A. 1989. *Amount Quantification, Referentiality and Long Wh-movement*. Ms., U. of Pennsylvania.
- LASNIK, H. 1993. Lectures on minimalist syntax. *UConn Working Papers in Linguistics. Occasional Papers* 1.
- LECHNER, W. 1995. *On Semantic and Syntactic Reconstruction*. Ms., Umass/Amherst.
- LECHNER, W. 1997. Reconstruction and Determiner Raising. To appear in: Proceedings of Workshop on Reconstruction, June 1997. University of Tübingen.
- LONGOBARDI, G. 1987. Extraction from NP and the Proper Notion of Head Government. *The Syntax of Noun Phrases: Configuration, Parameters and Empty Categories*, ed. Giorgi, Alessandra & Giuseppe Longobardi, 57–112. Cambridge, UK: Cambridge U. Press.
- MAHAJAN, A. 1990. *The A/A-Bar Distinction and Movement Theory*. Ph.D. diss., MIT.
- MILSARK, G. 1977. Toward an explanation of certain peculiarities of the existential construction in English. *Linguistic Analysis* 3: 1–29.
- MOLTMANN, F. 1992. *Coordination and Comparatives*. Ph.D. diss., MIT.
- MÜLLER, G. 1993. *On Deriving Movement Type Asymmetries*. Ph.D. diss., U. of Tübingen.
- MUNARO, N. 1991. *Zur Stellung nominaler Ergänzungen im Mittelfeld des deutschen Satzes*. MA Thesis, U. of Venice.
- PAFEL, J. 1991. Zum relativen Quantorenskopos im Deutschen. *Arbeitspapiere des Sonderforschungsbereiches* 340. Bericht Nr. 5. Stuttgart: U. of Stuttgart.
- PARTEE, B. 1988. Many Quantifiers. *Proceedings of ESCOL* 5.
- POSTAL, P. On Raising. Cambridge, Mass.: MIT Press.
- REINHART, T. 1976. *The Syntactic Domain of Anaphora*. Ph.D. diss., MIT.
- RULLMANN, H. 1995. *Maximality in the Semantics of Wh-Construction*. Ph.D. diss., U. of Massachusetts/Amherst.
- SAITO, M. 1989. Scrambling as semantically vacuous A'-movement. *Alternative Conceptions of Phrase Structure*, ed. Baltin, Mark & Anthony Kroch, 182–201. Chicago: U. of Chicago Press.
- SELKIRK, E. 1995. Sentence prosody: intonation, stress, and phrasing. *The Handbook of Phonological Theory*, ed. John Goldsmith, 550–569. Cambridge, UK: Basil Blackwell.
- VON STECHOW, A. 1991. Syntax and Semantik. *Semantik/Semantics. Ein internationales Handbuch der zeitgenössischen Forschung. An International Handbook of Contemporary Research*, ed. Stechow, Arnim von & Dieter Wunderlich, 90–148. Berlin: de Gruyter.

- TAKANO, Y. 1995. *Object Shift within VP*. Ms., U. of California/Irvine.
- WEBELHUTH, G. 1985. German is configurational. *The Linguistic Review* 4: 203–246.
- WESTERSTÅL, D. 1985. Logical constants in quantifier languages. *Linguistics and Philosophy* 8: 387–413.

Received May 13, 1997

Accepted December 1, 1997

*Winfried Lechner
Department of Linguistics, Umass/Amherst
South College
Amherst MA-01003
lechner@linguist.umass.edu*