

DOING THE RIGHT THING¹
 DANIEL BÜRING & KATHARINA HARTMANN
 1995

1. Three Views of Extraposition

In this paper we examine a phenomenon which has proved difficult to account for using standard assumptions of current syntactic theory, namely extraposition. Starting with Rosenbaum (1967), all analyses we are aware of (with the exception of Emonds (1976)) treat extraposition as adjunction of a phrase to some right peripheral projection of a matrix sentence. This adjunction may either be analyzed as base generated (Koster (1978), Culicover & Rochemont (1990), Webelhuth (1989)) or derived by A'-movement (Reinhart (1980), (1983), Baltin, (1982), (1983), (1984), Müller (1994)). Several proposals have been made wrt. the attachment site of extraposed clauses² and the trigger of extraposition (cf. Stowell (1981), von Stechow & Sternefeld (1988), Kiss (1993), Truckenbrodt (1994)). Extraposition as movement seems to contradict many of the well-established principles of generative grammar: While A'-movement to the left is unbound, extraposition is far more local. Only leftward movement must respect NP-islands - extraposition may violate them. The base generation approaches can do away with these

¹ Versions of this paper have appeared in various places, among them in *The Linguistic Review* 14 (1997), 1-42. This WWW version is practically identical to that latter paper.

We wish to thank Kathrin Cooper, Hans-Martin Gärtner, Helen de Hoop, Ray Jackendoff, Robert Kemp, Uli Lutz, Gereon Müller, Jürgen Pafel, Hubert Truckenbrodt, Chris Wilder and an anonymous TLR reviewer (who also provided example (29.b)) for their valuable suggestions and comments. Versions of this paper were presented at various occasions during 1994: the DGfS meeting in Münster, GGS in Tübingen, SCIL in Rochester, the Tilburg Rightward Movement Conference, and the University of Stuttgart. We are grateful to all the audiences for helpful discussions.

² Reinhart (1980) and (1983) argues that sentential subjects are adjoined to VP, while all other extraposed clauses are attached to IP. Culicover & Rochemont (1990) claim that extraposed phrases related to an object are adjoined to VP while those related to a subject may additionally adjoin to IP. Guéron (1980) makes the adjunction site of extraposed PPs dependent on interpretative principles and Guéron & May (1984) advocate adjoining relative clauses to IP and result clauses to CP. Müller (1995) assumes that extraposed CPs in German uniformly attach to CP.

problems, which are specific to movement, but they have to accept modifications of phrase structure and complementation instead as the arguments appear either in complement or in adjunct position.

With the emergence of Kayne's universal SVO account of phrase structure and the corresponding ban on right adjunction (Kayne (1994) and Zwart (1992)), the discussion about a proper analysis of extraposition has gained new interesting perspectives: if right adjunction is generally prohibited, extraposition can neither be base-generation in a right adjoined position nor can it be rightward adjunction by movement. Coming from a different tradition (as documented in Haider (1986), (1992), (1993a)) Haider (1993b) comes to similar conclusions wrt. extraposition: Extraposition is not adjunction to the right.

The claim we want to defend in this paper is that neither of these more recent analyses of extraposition can account for the relevant facts in a thorough and revealing fashion. In discussing a number of different phenomena we show that a rightward movement account of extraposition can be given that is superior to the proposals alluded to in the last paragraph. But before doing so, let us have a closer look at the different approaches mentioned above. Two strategic remarks: First, the data we use are mainly from German, an SOV language. We believe that to a considerable extent the problems mentioned with SOV languages carry over to SVO languages. Second, we continue to talk about extraposition throughout the paper if we refer to clauses which appear to the right of infinitives, participles, and finite verbs in non-V2 clauses - no matter how they are supposed to have come to that position.

1.1 SOV - The 'Movement Analysis'

The Movement Analysis assumes that the base position of sentential and nominal complements (as well as adjuncts) is to the left of the verb in SOV languages. Extraposition is movement of a preverbal constituent (e.g. CP, PP) to a position right adjoined to some sentential projection. In embedded sentences, extraposed clauses appear after the finite verb. If INFL is sentence final (cf. Vikner & Schwartz (1991) and Vikner (1991)), the landing site of extraposition has to be adjoined to I' or higher. Upward boundedness of extraposition should follow from general - though possibly refined - constraints on movement (see e.g. Müller 1994 for a recent account). The structures in (1) illustrate this analysis. In (1.a), an object clause is extraposed. In (1.b), it is the relative clause of the direct

object.

- (1) a. ...weil der Kellner [_I, t_{CP} glaubt] [_{CP} daß der
 ...because the waiter believes that the
 Gast betrunken ist]
 customer drunk is
 'because the waiter believes that the customer is
 drunk'
- b. ...weil wir [_I, [_{VP} [_{NP} Leute t_{CP}] nicht verstehen]]
 ...because we people not understand
 [_{CP} die keinen Wein trinken]
 who no wine drink
 'because we don't understand people who don't drink
 wine'

1.2 SVO - The 'LCA Analysis'

In the theory developed by Kayne (1994) the linear ordering among constituents is fully determined by their hierarchical relations. The condition which yields an unambiguous mapping between hierarchical and linear order is asymmetric c-command. Kayne's *Linear Correspondence Axiom* (LCA) states that - informally spoken - all nodes have to be part of asymmetric c-command relations. In other words, if α c-commands β then β may not c-command α in the phrase marker. Mutual c-command of α and β would be symmetric and is excluded by the theory. This restrictive definition of phrase structure has various consequences. First, specifiers must be adjoined elements. They would otherwise violate the asymmetry condition for the specifier and the head of a phrase would mutually c-command each other (cf. Kayne (1994:17)). This condition also prohibits multiple adjunction. That is, only one specifier/adjunct per head is allowed (but see Sternefeld (1994) and Zwart (1993:34) for a modification of this claim). Second, the universal order within a phrase is specifier-head-complement. This means that the specifier/adjunct appears to the left of the head, the complement to its right. Therefore, all languages have (at least underlyingly) an SVO word order (see also Zwart (1992)). From the uniqueness condition for adjuncts and the obligatory SVO order it follows as a necessary consequence that right adjunction is generally prohibited. This is true for base generated as well as derived right adjunction, that is, rightward movement.

The ban on right adjunction has lethal consequences for any analysis of extraposition based on adjunction to the right. As nothing can appear in right adjoined positions, the LCA Analysis

proposes that sentential complements must be base generated as right sisters to V. Moreover, as there is no OV ordering in general, NP arguments are base-generated in postverbal position, too (cf. Zwart (1992), Lattewitz (1993)). S-structural SOV word order is derived as follows: Any NP-V sequence requires movement of the argument to a preverbal position. Following the Minimalist Program (Chomsky (1993)), this can be expressed by movement of NP complements into the specifier of AGROP. Movement is triggered by the obligation of feature checking.

- (2) ...weil er [_{AGROP} den Mann₁ [_{VP} schlägt t₁]]
 ...because he the man beats
 'because he beats the man'

Kayne's general schema for phrase structures implies that adjuncts and arguments appear in asymmetric positions, the adjunct to the left of the verb, the argument to its right.

- (3) He [_{VP} recently [_{VP} saw Mary]]

Rightward movement being generally excluded, any verb-adjunct ordering must be derived by verb-movement, as in the following French example:

- (4) Jean [lit₁ [_{VP} souvent [_{VP} t₁ des livres]]]
 Jean read often DET books
 'Jean often reads books'

Finally, extraposition is analyzed as non-movement of the argument clause. Sentential complements do not have to be in a checking relation - they remain in their base-generated position:

- (5) Er [_{VP} sagt [_{CP} daß ihn Hemingway geschlagen hat]]
 he says that him Hemingway beaten has
 'He says that Hemingway has beaten him.'

1.3 SOVO - The 'Base Analysis'

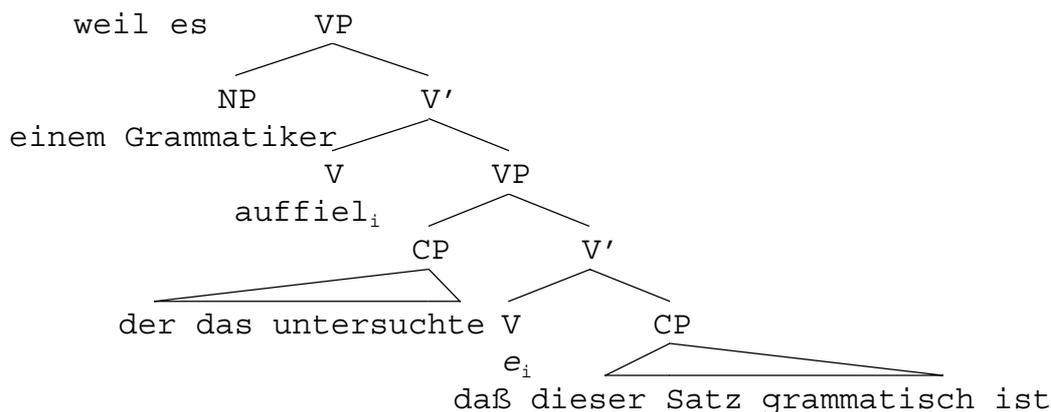
In this section we present a third analysis of extraposition which is developed in a recent paper by Hubert Haider ((1993b)). He claims that NP-complements and CP-complements originate in different positions. NPs precede the verb, CPs (argument clauses, adjunct clauses, relative clauses) follow it. This already holds at d-structure. Notice that there is neither an NP nor a CP trace in (6).

- (6) a. ...weil der Kellner [_{VP} glaubt [_{CP} daß der Gast betrunken ist]]
 b. ...weil wir [_{VP} [_{NP} Leute]_i [nicht verstehen [_{CP} die keinen Wein trinken]_i]]

In (6.a) a complement clause is in extraposed position, in (6.b) it is the relative clause of the direct object. The object and its relative clause stand in a non-local dependency which is expressed by a shared index (see subsection 4.1 for further discussion).³

The Base Analysis, too, claims that the linear ordering is determined by the hierarchical structure of the constituents. Hence, the further to the right an element occurs, the deeper it is embedded in the tree. For single CP-complements this means that they are right sisters to V. But consider multiple extraposition. Due to the fact that phrase structures are binary and strictly right branching (Haider (1992)), multiple extraposition requires an additional VP shell whose empty head is coindexed with the matrix verb. The rightmost extraposed clause is a sister of the empty verb, intermediate extraposed clauses are in the specifier of a VP-shell.

- (7) ...weil es einem Grammatiker auffiel der das
 ...because it a grammarian noticed who this
 untersuchte daß dieser Satz grammatisch ist
 investigated that this sentence grammatical is
 'because a grammarian noticed who investigated this that
 this sentence is grammatical'

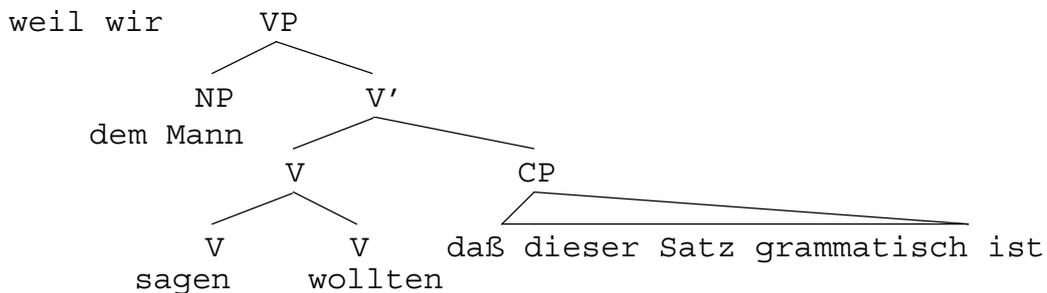


The strict correspondence between linear and hierarchical relations makes another assumption necessary for the Base Analysis. In sentences with auxiliary and modal verbs the main

³ We index dependencies derived by move- α with numbers and binding relations and the like with small letters.

verb is not adjacent to its complement clause ((8)). If the clause is to be governed by its selecting verb, the verb cluster must be base generated as a complex V° . In such a verb cluster, the highest V° node inherits the selectional properties of the most deeply embedded verb.

- (8) ...weil wir dem Mann sagen wollten daß dieser Satz
 ...because we the man tell wanted that this sentence
 grammatisch ist
 grammatical is
 'because we wanted to tell the man that this sentence is
 grammatical'



In what follows we show that the assumptions made by the LCA Analysis and the Base Analysis concerning extraposition cannot be maintained. Arguments from extraction, binding, topicalization and stranding reveal that even the data presented by the proponents of these theories can be better accounted for by the traditional Movement Theory. The paper is organized as follows: In sections 2 and 3 we show that the trace of an extraposed clause is important in order to account for several effects, namely island effects, which arise from extraction out of some extraposed clauses, and Principle C effects. Section 4 examines non-local dependencies. In section 5 we present a dynamic theory of extraposition: we adduce several arguments from VP-topicalization to show that extraposed clauses can adjoin to different positions. The attachment site must be outside of the government domain of I and V, thus, extraposition is triggered by the necessity to escape this domain. Section 6 shows that the LCA Analysis is incompatible with crucial assumptions made in the Minimalist Program (Chomsky (1993)), namely that movement is to particular selected positions and that it is always obligatory.

2. Trace of Base: Extraction Islands

An argument which at first glance seems to be a point in favor of the Base Analysis is the following: If extraposed sentences appear in adjoined positions, they should constitute islands for extraction. This prediction is easy to disprove. It is well-known that objects, for instance, can undergo long movement out of extraposed clauses. This seems to be a problem for the Movement Analysis. However, the argument backfires: If all extraposed clauses are base-generated in identical positions (sisters to the deepest verb) they should behave alike wrt. extraction, which is not the case. The examples in (9) show that extraction out of an object clause is fine ((9.a)), while extraction out of a subject clause yields ungrammatical results ((9.b)).

- (9) a. Wen₁ glaubst du, daß Hans t₁ gesehen hat?
who believe you that Hans seen has
 'Who do you believe that Hans has seen?'
- b. * Wen₁ überrascht (es) dich, daß Hans t₁ besuchen will?
who surprises it you that Hans visit will
 'Who does it surprise you that Hans will visit?'

This subject-object asymmetry is well-known from English and can be derived from the difference in the positions of the clauses (see below). But given that the argument clauses in (9) are in extraposed position, neither the Base Theory nor the Movement Theory offer fully satisfying results: For the Base Analysis, all clauses - being sisters to V - should be transparent, while for the Movement Analysis, all clauses - being in adjoined position - should be islands. But notice that within the Movement Theory, the adjoined position is derived. If we take the base-positions of the clauses into account, the distribution of the data follows without further stipulations. The object clause in (9.a) is L-marked and therefore not a barrier for movement out of it. From the subject clause in (9.b), on the other hand, nothing can be extracted: not being L-marked, it constitutes an island at d-structure already:

- (10) * Wen₁ [_{CP} daß Hans t₁ besuchen will] überrascht dich?

That is, the properties relevant for extraction are those connected to the base position of the clause. Therefore, extraction has to take place before extraposition (see also Müller 1995). We agree with the objection of the Base Analysis: nothing can be moved out of an adjoined clause. We claim that it is the base-position which is responsible for the island status

of the phrase.

This can be verified by having a look at several kinds of island. Consider (11). Not being Θ -marked, the adjunct clause is an island already in its base-position ((11.a)). Of course, nothing changes if it is extraposed ((11.b)). Within the Base Analysis, however, the extraposed adjunct clause should behave just like a complement clause - it is in the same position, namely a sister to the verb.

- (11) a. *Was₁ warst du nachdem du t₁ getrunken hast krank?
what were you after you drank have sick
 b. *Was₁ warst du krank nachdem du t₁ getrunken hast?
what were you sick after you drunk have
 'What were you sick after you drank?'

CPs base generated inside of complex NPs retain their island status even if extraposed, see (12). The same holds for CP complements of prepositions ((13)). Again, the Base Analysis is indifferent wrt. to the base-position of the clause.

- (12) *Wen₁ hast du [_{NP} die Behauptung t₂] gehört [_{CP} daß
whom have you the claim heard that
 Hemingway t₁ geschlagen hat]₂
Hemingway beaten has
 'Whom have you heard the claim that Hemingway has beaten?'

- (13) a. * Wen₁ hast du [_{PP} daran [daß du t₁ besuchen solltest]]
whom have you to-it that you visit should
gedacht
thought
 b. * Wen₁ hast du [_{PP} daran t₂] gedacht [daß du t₁ besuchen
 solltest]₂
 'Who have you thought that you should visit?'

The ungrammaticality of these constructions follows from the properties of the base position.

To sum up, the Base Analysis cannot refer to structural differences in order to account for the asymmetries which characterize the behavior of extraction from extraposed clauses. The transparency of only certain extraposed clauses follows naturally if extraction proceeds from the base-positions of the clauses, that means, before extraposition. It is the characteristics of the base-position which is responsible for the behaviour of extraction out of a clause.

3. Binding, Coreference, and Reconstruction Effects

In this section we will explore the consequences that an analysis of extraposition which assumes strict rightward branching should have with respect to coreference restrictions and operator-variable-binding. The main bulk of arguments will be devoted to the Base Analysis. The reason for this is simply that the different predictions of our Movement Analysis and the Base Analysis, respectively, are easy to pinpoint, for binding and coreference are almost exclusively governed by phrase structural hierarchy, more precisely c-command. Therefore, the Base Analysis has it that any right peripheral clausal complement is c-commanded by any preceding constituent dominated by the clausal projection line. Given our Movement Account, a right peripheral clause may well c-command a preceding phrase at s-structure as well as at d-structure.

On the other hand, hierarchical conditions seem to us to be pretty identical with both the LCA Analysis and the Movement Analysis, at least as far as d-structure is concerned. Therefore, potential differences apply only where derived positions come into play. This, however, is a difficult matter, for the binding behavior of phrases in derived position is highly controversial, in particular as far as rightward movement is concerned. Additionally, as far as our knowledge goes, there isn't any thorough study of coreference and binding within either the Minimalist Framework or Kayne's LCA Account that we could refer to. Therefore we will only cursorily mention the LCA Analysis in this section, namely in those cases where we believe standard assumptions could reasonably be claimed to hold.

The upshot of this section will be that the binding facts brought forward by proponents of the Base Analysis do not support it on closer inspection. On the contrary we will demonstrate that the crucial facts can only be accommodated within a theory that can make reference to d-structural positions. We will cast these effects in terms of reconstruction at the level of Logical Form. The very same effect could, however, be achieved using the purely interpretive notion of connectivity, i.e. binding theoretic statements that make reference to traces (e.g. Barss (1986), Frey (1993)).

Before going on, let us briefly add some remarks on reconstruction. It is generally assumed that A'-movement can be reconstructed. Reconstruction effects are found with all Binding Principles, operator-variable binding and government of movement traces (see e.g. Huang (1993)). It is controversial, though, whether reconstruction occurs with A-movement. We will assume throughout that A'-movement is reconstructed but A-movement is not. As to binding, we again refer the reader to the literature.

That A-movement of a phrase α cannot be undone in order to guarantee proper government of an A'-trace within α is shown in section 4.2.

Note, finally, that all the analyses proposed in the following section can well be reproduced using a copy theory as sketched in Chomsky (1993). Again, we are not aware of any elaborate and restrictive theory of copying and PF deletion so we will not consider this option here.

3.1 Principle C Effects with Extraposed Complement Clauses to N

It can be observed that the c-command domain of a SpecNP position is limited to those nodes dominated by NP. Constituents which are merely c-commanded by NP are not c-commanded by SpecNP. The relevant difference is illustrated in (14) wrt. Principle C.⁴

- (14) a. [His_i mother] supports John_i
 b. * Mary knows [his_i claim [that John_i is intelligent]]
 c. Mary knows [John's_i claim [that he_i is intelligent]]

(14.c) proves that we are in fact dealing with a simple Principle C violation: If the coreferring expressions are interchanged the name will no longer be illicitly c-commanded, hence the sentence is grammatical.

Strikingly, the Principle C violation found in (14.b) remains if CP is extraposed:

- (15) * Mary [_{VP} mentioned [his_i claim] yesterday] [that John_i is intelligent]

The same contrast holds for SOV languages. (16) repeats the pattern found in (14b/c) without and with extraposition in German:

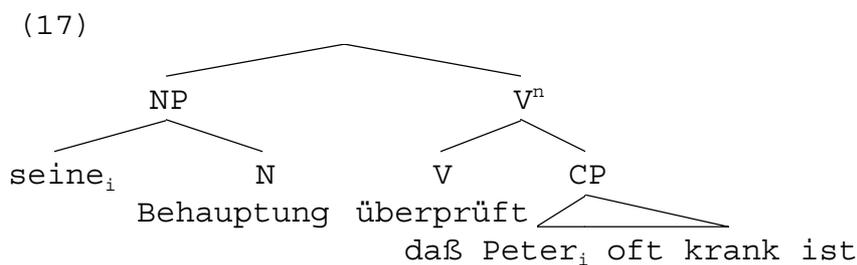
- (16) a. * Wir haben [seine_i Behauptung [daß Peter_i zu Hause
we have his claim that Peter at home
 gewesen sei] überprüft]
been is checked
 b. Wir haben [Peters_i Behauptung [daß er_i zu Hause gewesen
 sei] überprüft]
 c. * Wir haben [seine_i Behauptung] überprüft [daß Peter_i zu
 Hause gewesen sei]

⁴ Principle C: An R-expression may not be c-commanded by a coindexed phrase (cf. e.g. Chomsky (1981:183)).

- d. Wir haben [Peters_i Behauptung] überprüft [daß er_i zu Hause gewesen sei]
 'We checked Peter's claim that he had been home.'

To derive the ungrammaticality of sentences like (15) and (16.c), we must assume that Principle C applies 'as if' CP were still c-commanded by the possessive pronoun, i.e. in its base position.⁵

In any case, we can see no way in which the Base Analysis can capture these facts. For one thing, the pronoun does not c-command the name at s-structure.



For another, there is no trace c-commanded by the pronoun to begin with. Given the Base Analysis the structure in (17) is base generated. Consequently, a Principle C account is in principle impossible. Finally, note that any reformulation of Principle C which claims that *seine* in (17) illicitly binds *Peter* would rule out all cases of preverbal possessives coindexed with R-expressions contained in extraposed clauses. This, however, is clearly wrong. Sentences like (18.a) - structurally identical to (16.c) under the Base Analysis - are perfectly grammatical, just as (14.a) is. On the other hand, the Principle C effect remains, even if the 'antecedent' NP is

⁵ The fact that Principle C holds for the base position of the R-expression is commonly recognized. For example, topicalization (for those speakers who accept it) does not prevent a name from illicit c-command:

- (i) * [about Peter_i]₁ he_i often talks t₁
 (ii) * [in Peters_i Wagen]₁ hat sie ihn_i t₁ gestoßen
 into P.'s car has she him pushed
 'Into Peter's car, she pushed him.'

((ii) from Frey (1993), ch.8, ex.(4a))

However, matters are more complicated since topicalization may prevent a Principle C violation if the topicalized constituent is at least as big as IP:

- (iii) [after Mary_i had read the message]₁ she_i left the room t₁
 (iv) [which movie that John_i had directed]₁ do you think he_i hates t₁
 ((iv) from Riemsdijk & Williams (1986:281))

Although the picture is not quite clear, one might expect examples like (15) to pattern with (iii)/(iv) rather than with (i)/(ii). The additional difference between (15) and the grammatical (iii)/(iv) then must be explained in terms of either the moved constituent (adjunct vs. V-complement vs. N-complement, see e.g. Huang (1993) for an overview) or the type of movement (rightward vs. leftward, adjunction vs. substitution).

contained in a PP, as in (18.b).

- (18) a. Wir haben [_{PP} gegenüber [_{NP} seinem_i Vater]] erwähnt
we have to his father mentioned
 [_{CP} daß John_i krank ist]
that John sick is
 'We mentioned to his father that John is sick.'
- b. * Ich habe [_{VP} [_{PP} an seine_i Behauptung] gedacht]
I have of his claim thought
 [daß Peter_i oft krank ist]
that Peter often sick is
 'I thought of his claim that Peter is often sick.'

Given our Movement Analysis, the contrast between (18.a) and the ungrammatical (16.c) and (18.b) is straightforward: There simply is no c-command relation between the possessive *seinem* and the name *John* at any level in (18.a).

3.2 Principle C Effects with Extraposed Relative Clauses

Haider (1993b:3) points out what he calls a 'Binding Paradox' with examples like (19).

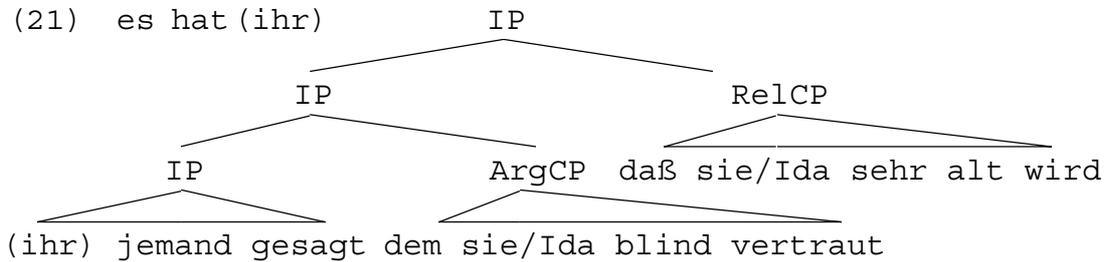
- (19) a. Es hat ihr_i jemand gesagt [_{RelCP} dem Ida_i
EXPL. has her somebody said whom Ida
 blind vertraut] [_{ArgCP} daß sie_i sehr alt wird]
blindly trusts that she very old becomes
- b. * Es hat ihr_i jemand gesagt [_{RelCP} dem sie_i blind vertraut]
 [_{ArgCP} daß Ida_i sehr alt wird]
- c. Es hat ihr_i jemand gesagt [_{RelCP} dem sie_i blind vertraut]
 [_{ArgCP} daß sie_i sehr alt wird]
 'Somebody whom Ida blindly trusts has told her that she is going to become very old.'

In (19), both a subject relative clause (RelCP) and an object clause (ArgCP) have been extraposed. However, only the relative clause may contain an R-expression coindexed with the dative pronoun in the matrix clause in (19.a). A coreferring R-expression within the argument clause is ungrammatical (see (19.b)). The situation is schematized in (20).

- (20) Someone told her_i [_{RelCP} who she_i/Ida_i...] [_{ArgCP} that she_i/*Ida_i...]

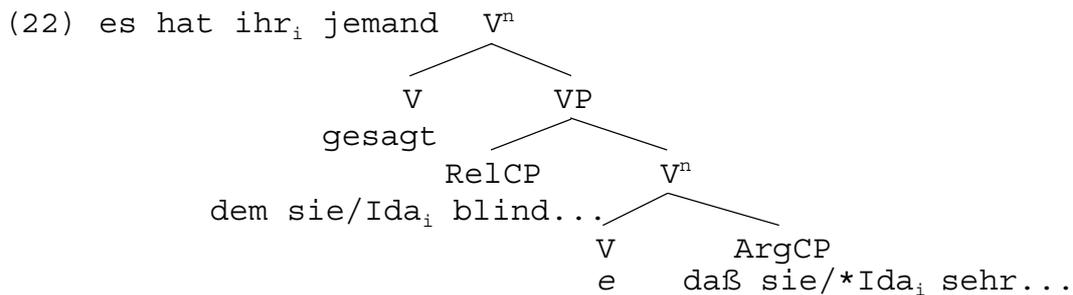
Haider points out that the asymmetry between RelCP and ArgCP cannot be derived from the s-structural position of the

extraposed clauses under a movement analysis, since ArgCP is obviously adjoined higher than RelCP:



Therefore no element can possibly c-command the elements within ArgCP - inducing the Principle C violation - without also c-commanding the elements within RelCP. Accordingly, a Principle C violation should occur there, too, which is not the case, as (19.a) shows.

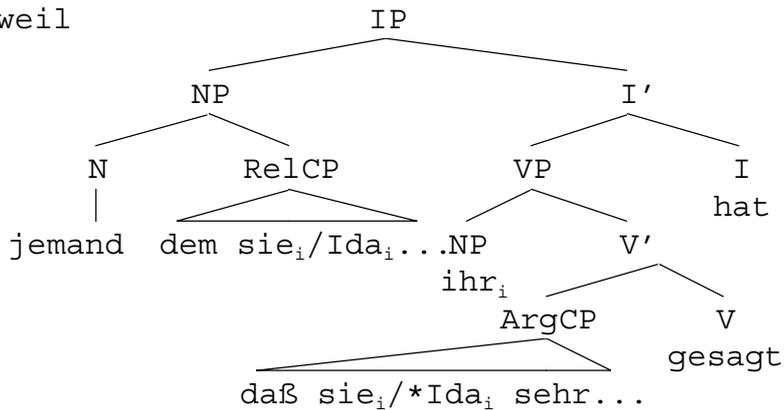
The structure that the Base Analysis assigns to examples like (19) appears advantageous in that it has RelCP asymmetrically c-command ArgCP, as (22) illustrates.



However, we fail to see in which sense the dative pronoun *ihr* should occupy a position higher than ArgCP but lower than RelCP in (22), which is necessary in order to derive the binding facts. Haider himself remains silent on that point.

We claim - on the contrary - that the difference between (19.a) and (19.b) derives from the fact that the d-structural position of ArgCP - but not the d-structural position of RelCP - is c-commanded by the dative pronoun. The d-structure for these sentences is given in (23).

(23) weil



If we assume - as before - that Principle C must be met after reconstruction, the ungrammaticality of (19.b), indicated by the starred occurrence of *Ida* in (23) follows straightforwardly.

If this explanation is correct, we expect that a relative clause, too, may not contain an R-expression if the trace of that relative clause is c-commanded by a pronoun which is coindexed with the R-expression. (24) shows an example with an extraposed object relative clause. In (24.b), the relative clause contains the name *Ida*. Here, *Ida*, can hardly be understood as coreferent with the dative pronoun. This is just what the Movement Analysis predicts, because the relative clause is c-commanded by the indirect object after reconstruction.⁶

- (24) a. Es hat ihr_i jemand [eine Geschichte t₁] erzählt
it has her someone a story told
 [_{CP} die sie_i ängstigte]₁
that her frightened
- b.?? Es hat ihr_i jemand [eine Geschichte t₁] erzählt [_{CP} die
 Ida_i ängstigte]₁
 'Somebody told her a story which frightened her/*Ida.'

(25) indicates that English behaves just like German in this respect. An object clause 'counts' as c-commanded by the indirect object pronoun, regardless of extraposition ((25.a)). The same holds for object relative clauses ((25.b)). But a name contained within a subject relative may well cooccur with a coreferring object pronoun ((25.c), taken from Reinhart (1983:49)). Given strict rightward branching, *her* should illicitly c-command *Rosa* in (25.c), contrary to fact.

- (25) a. * Somebody told her_i (yesterday) that Ida_i is going to

⁶ Judgements are somewhat unclear. While we find (24.b) only slightly deviant, Grewendorf (1988:317) stars examples like these. Similar variation can be found in English, compare (25.b) and (40.a) below.

- become very old.
- b. * Somebody told her_i the story yesterday that Ida_i wanted to hear.
- c. Nobody would ever call her_i before noon who knows anything about Rosa_i's weird sleeping habits.

To sum up, the 'Binding Paradox' brought up by Haider to provide counterevidence to a Movement Analysis of extraposition receives a straightforward explanation given an articulated theory of binding. It remains unclear, on the other hand, how the Base Analysis could deal with those very cases.

The problems mentioned here wrt. the Base Analysis more or less carry over to the LCA Analysis as proposed by Zwart (1992). As pointed out at the beginning of this section, hierarchical relations at d-structure are identical with the Movement Analysis and the LCA Analysis. However, in cases like (25.c) and the German (19.a) the object (*her* and *ihr* respectively) precedes a clause that is base generated higher than the object's base position. Following Zwart's general line of analysis this order must be derived by movement of the object to the left. The object moves across the clause into an agreement position (say SpecAGROP; see sections 1 and 6 for discussion of these movements). If this movement parallels movement to SpecAGRSP (the former SpecIP) it targets an A-position, i.e. a position that is relevant for Binding Theory. Usually, A-movement enhances the set of positions for which the moved element counts as a potential binder. For example in (26.a) the subject *he* may not be coreferent with *Bill*, although the subject's base position neither c-commands the PP internal NP nor the other way around (cf. (26.b)).

- (26) a. * He_i seems [_{PP} to friends of Bill_i] [_{IP} t_i to be the right candidate]
- b. It seems to friends of his_i that Bill_i is the right candidate.

The reason is that *he* moves to an A-position, SpecAGRSP, in (26.a). There seems to be no way of 'reconstructing' *he* into its base position in order to derive a representation where *Bill* is A-free. Parallel movements to SpecAGR have to take place in (25.c) and (19.a) with *her* and *ihr*. But here the pronouns do not count as potential binders for the R-expressions contained within the extraposed clauses. Since we have just seen that reconstruction is impossible, (25.c) and (19.a) are predicted to be ungrammatical by the LCA Analysis just as they are by the Base Analysis. The fact that they are not ungrammatical

indicates that these constructions can neither be base generated nor derived by leftward A-movement of the object pronouns.

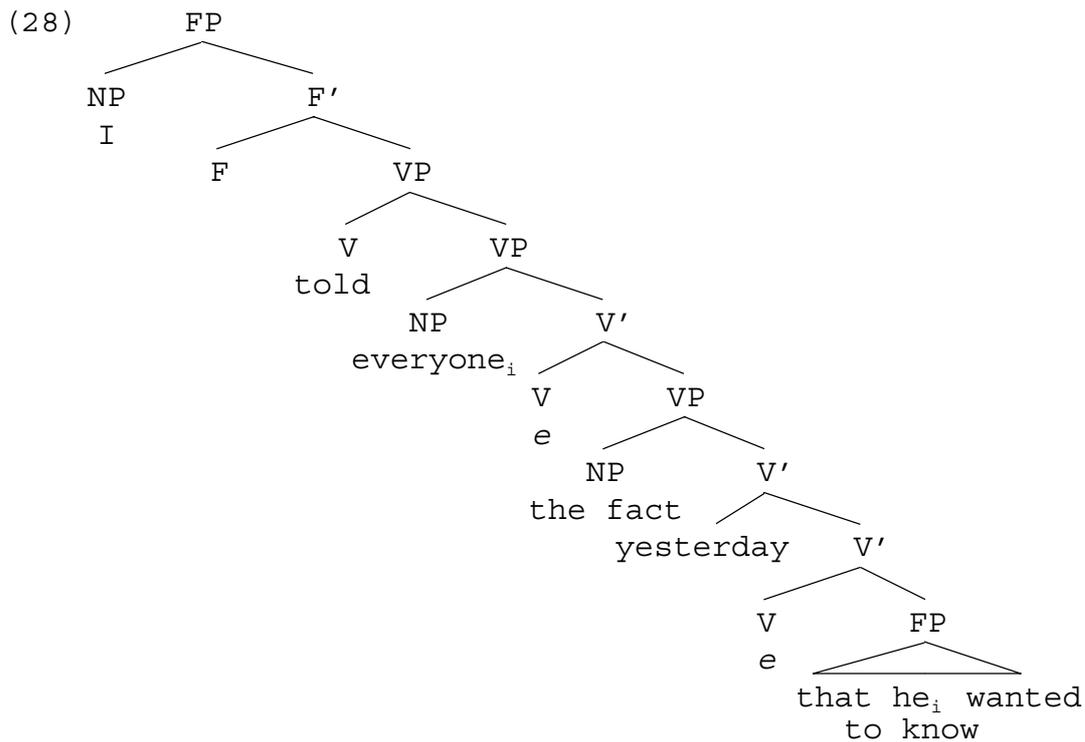
3.3 Variable Binding Into Extraposed Clauses

We have seen above that Binding Principle C must apply as if the expressions involved were in their base positions. In this subsection we will show that the same holds for operator-variable constructions, i.e. cases where a pronoun is bound by a c-commanding quantified noun phrase (QNP for short). It has been observed that binding into extraposed clauses is possible from object position:

(27) I told everyone_i the fact yesterday that he_i wanted to know.

According to most analyses, the relative clause *he wanted to know* in (27) is adjoined to VP (Baltin (1982, 1983, 1984), Culicover & Rochemont (1990) or even IP (Reinhart (1980))). Nevertheless the quantifier in indirect object position may bind a variable contained within the extraposed clause. Haider (1993b:4) takes this to indicate that the 'extraposed' relative clauses must instead be in a position c-commanded by the quantifier, namely within VP. The structure would thus be as in (28).⁷

⁷ According to Haider (1993a) German clauses have only one functional projection (FP). The finite verb is raised to the head of FP, the specifier is the landing site for topicalized elements.



However, variable binding into right peripheral clauses is by far not possible in all cases:

- (29) a. * A man entered every room_i yesterday who lived in it_i.
 b. * The porter let a man into every room_i yesterday who lived in it_i.
 c. * A man arrived at every station_i who had built it_i.

Crucially, the quantifier c-commands the base position of the relative clause in (27) but not in (29.a) through (29.c). Reconstruction can explain this contrast without further assumptions: The trace of the relative clause is within the c-command domain of the QNP in (27), but not in (29). The same contrast is found in German:

- (30) a. ...weil wir jedem_i [_{NP} die Daten t_i] gegeben haben
 ...because we everybody the data given have
 [_{CP} die er_i braucht]₁
 that he needs
 'because we gave everybody the data that he needs'
 b. * ...weil [ein Mann t_i] jedes Datum_i kennt [_{CP} der
 ...because a man every data knows who
 es_i braucht]₁
 it needs
 'because a man who needs it knows every piece of data'

Again, asymmetries like these cannot be explained if one assumes that each preverbal argument dominates any extraposed clause, as the Base Analysis does.

Let us add a note on Weak Crossover here. As Haider (1993b:6/7) points out, the grammatical sentence (27) - repeated here as (31) - cannot be derived by raising the quantifier *everyone* to a position that c-commands the extraposed relative clause, for that would yield a Weak Crossover constellation as depicted in (32).⁸

(31) I told everyone_{1/i} the fact yesterday he_i wanted to know.

(32) everyone_{1/i} [_{IP} I [_{VP} told t₁ [the fact t₂] yesterday] [he_i wanted to know]₂]

But as we have seen, quantifier raising is not needed in order to derive the indicated reading of (31). It would, however, be needed in order to derive the ungrammatical reading of (29.a), repeated here:

(33) a. * A man entered every room_i yesterday who lived in it_i.
 b. [every room]_{1/i} [_{IP}[a man t₂] [_{VP}[_{VP} entered t₁] [_{CP} who had lived in it_i]₂]

Here, the QNP *every room* needs to raise in order to c-command the pronoun contained within the relative clause, even if the latter were reconstructed into its base position (within the subject NP). But this application of quantifier raising is ruled out because it yields a Weak Crossover constellation. Hence, the impossible reading of (29.a) is correctly ruled out, even if quantifier raising is in principle available.

Finally note that the same reasoning as before applies here wrt. the LCA Analysis. A-movement does not create Weak Crossover configurations, witness (34).

(34) Every girl_{1/i} seems to her_i boyfriend t₁ to be pretty

Given the LCA Analysis, (33.a) could be derived by moving the object *every room* across the relative clause, which is stranded in subject position, into the specifier of AGROP (see again section 1 and 6 for further details). Since this position is an A-position, no Weak Crossover is expected. A sentence like

⁸ Following standard assumptions, we take it here that the clause is adjoined to VP, in violation of the principle to be introduced in subsection 5.2. If the standard assumptions are to be maintained, the pertinent principle must be subject to parametric variation.

(29.a) should - contrary to fact - be just as fine as (34). No asymmetries wrt. base positions are expected.

3.4 Appendix: Binding and Extraposition Targets

In the preceding subsections we have at various points claimed that it is the d-structure rather than the s-structure position of extraposed clauses which is decisive for its properties wrt. variable binding and coreference. This idea seems to be at odds with most claims found in the literature, where binding and coreference are taken to provide indications as to the s-structural position of the extraposed elements, i.e. the landing site. However, if we take a closer look at the data, we find that the relevant facts are not conclusive.

There seems to be general agreement that object relative clauses and clauses extraposed from AP are adjoined to VP (Baltin (1983:157), Guéron (1980:640ff), Culicover & Rochemont (1990:28)). They show Principle C effects with subject pronouns and can be bound by quantifiers both in subject and object position.⁹

- (35) a. * She_i told many people about the concert who Mary_i made nervous.^{G&M(21a)}
 b. I told everyone_i the facts yesterday that he_i wanted to know.
 c. Everybody_i read a book yesterday that he_i had bought at the supermarket.

Subject relative clauses on the other hand are insensitive to pronouns and quantifiers in object position, which has been taken to indicate that they are attached to S.

- (36) a. Nobody would ever call her_i before noon who knows anything about Rosa's_i weird sleeping habits.^{R(53b)}
 b. * Many people interviewed each of the candidates_i who knew nothing whatsoever about his_i background.^{R(48c)}

However, these data do not follow unless we make the unusual assumption that a phrase adjoined to α is c-commanded by a phrase included by α . On the other hand, the data are fully compatible with a reconstruction approach: Object relatives are

⁹ Throughout this appendix we will add superscripts to the examples where these are taken from the literature. We abbreviate as follows: R=Reinhart (1983, chapter 2), G&M = Guéron & May (1984), C&R = Culicover & Rochemont (1990).

c-commanded by the subject, but not vice versa.

The same asymmetries found with relative clauses and argument clauses show up with result clauses, as the following examples show:

- (37) a. So many people wrote to him_i that Brando_i couldn't answer them all.^{R(53c)}
 b. * So many people interviewed each of the candidates_i that he_i couldn't remember them all.^{R(48b)}
- (38) a. * She_i was approached by so many people in Rome that Rosa_i couldn't do any work.^{R(65)}
 b. A psychiatrist_i was called by so many patients that he_i couldn't handle them all.^{R(52b)}

The same reasoning as above applies here: Both binding and coreference pattern wrt. the base position of the extraposed result clause. Deriving the contrasts from the s-structural positions on the other hand proves problematic.

Let us mention two more things here. First, while data seem to be straightforward with variable binding, there are potential complications as far as Principle C is concerned. For example, Guéron & May (1984) provide examples in which a subject pronoun seems to have no negative effects on a name within an extraposed object result clause:

- (39) She_i told so many people about the concert that Mary_i made Bill nervous.

This sentence contrasts with (38.a) above (from Reinhart (1983)). Likewise, Culicover & Rochemont (1990) claim that coreference options in an extraposed object relative clause shift with extraposition:

- (40) a. I sent her_i many gifts last year that Mary_i didn't like.
 b. * I sent her_i many gifts that Mary_i didn't like last year.^{C&R(13a/b)}

These data then lead us to the conclusion that coreference possibilities - but not variable binding - might alternatively be calculated wrt. s-structural positions (see also Culicover & Rochemont 1994 for cases like these). However, the issue requires further investigation. But even if we make this proviso, we believe that a reconstruction approach can handle the data at least as satisfactorily as the s-structure explanations given in the literature.

Secondly, it has been noted that extraposed subject clauses

behave like object relative clauses in that they interact with object pronouns and quantifiers.

- (41) a. * It (should have) bothered her_i that Rosa_i had failed.^{R(52b)}
 b. It surprised each of the candidates_i that he_i was not elected.^{R(48a)}

As we mentioned above, this behavior is unexpected even if we consider the clause to be lowered to a VP adjoined position (as is assumed in the literature). An alternative solution would be to claim that subject clauses are base generated VP-internally (see Koster (1978) and Belletti & Rizzi's (1988) treatment of psych-verbs with nominal subjects). Accordingly, their behavior would again follow from their d-structural position. A further complication arises, though, for subject clauses in preverbal position do not show coreference restrictions:

- (42) That Rosa_i has failed (should have) bothered her_i.^{R(52a)}

Here, we would have to assume that movement of the clause to SpecIP need not be reconstructed wrt. Principle C (presumably because it is A-movement, see again Huang (1993: footnote 3)). Alternatively, one might follow Koster (1978) in assuming that the subject clause in (42) is not a real subject (hence not moved), but a 'satellite.' Accordingly, reconstruction will not take place.

What these tentative remarks are supposed to show is that the evidence that argues in favor of an s-structural account for binding and coreference wrt. extraposed clauses is not as compelling as one might believe. On the contrary, we believe that the reconstruction/connectivity approach advocated in this paper offers interesting perspectives on the English data as well.

4. Stranding and Licensing

In this section we will address the question of how extraposed clauses which belong to phrases that precede V - namely relative clauses and argument clauses to N - are licensed in right peripheral positions. This question is crucial for both the Base and the LCA Analysis. It will turn out that the interpretive rules needed with the Base Analysis are too strong. The derivations needed within the LCA Analysis on the other hand are prohibited given current assumptions about movement.

4.1 Interpretive Licensing

Given the Base Analysis, no antecedent-trace relation holds between an extraposed clause and the NP it is semantically dependent on. Constructing and restricting these dependencies is done by additional interpretive rules.

Let us first consider clauses that entertain an argument relation to a lexical head. We assume that this relation is expressed by Θ -role assignment. Θ -role assignment requires that the role assigner govern the assignee, i.e. the argument clause. This requirement is met by object clauses, regardless of whether they occur to the left or to the right of the Θ -role assigning verb.

If the clause receives its Θ -role from an N, it should be governed by that N. This, however, is impossible if the clause is excluded by the NP. Relevant cases are given in (43) (we indicate the relation of Θ -assignment by co-subscription).

- (43) a. He made [_{NP} the claim_i] yesterday [that he was sick]_i
 b. We talked [_{PP} about [_{NP} the fact_i]] yesterday [that he was sick]_i

If Θ -assignment is restricted to complement (or narrowly 1-related) positions, examples like (43) should be ungrammatical. Otherwise, non-trivial modifications of Θ -theory are required.

A similar problem is found with relative clauses. Haider (1993b:2) proposes that an extraposed relative clause has to be c-commanded by the NP projected by its head noun.¹⁰ This restriction rules out cases like in (44) (= Haider's (5a); the NP to which the relative clause belongs is printed in italics).

¹⁰ This is reminiscent of the Complement Principle from Guéron (1980:642), adopted and modified in Guéron & May (1984:4) and Culicover & Rochement (1990:26). Note though that this indexing is a pure artefact of these analyses. It should not be confused with the indices used by either Trace Theory or Binding Theory. For one thing, no movement has taken place given the Base Analysis. And even if it had (as Guéron (1980) assumes), the movement trace is not affected by the Complement Principle. Additionally, the licensing relation does not hold between NP and CP but between N and CP, at least for restrictive relative clauses (the same holds for complement clauses to N and A as noted in Baltin (1983:159)).

On the other hand, there is no sense in which the NP and the relative clause corefer. Rather the two of them must jointly be interpreted as the descriptive content of a single referring term in much the same way as, say, an adjective and its head noun (see also footnote 13).

By the same token we fail to see in what sense the relation between an NP and an extraposed relative should be predicative in nature, as stated by Frey (1993:110). On any account, predication corresponds to the set theoretic notion of membership to the set denoted by the predicate (or vice versa if one adopts a Generalized Quantifier perspective). But the relation between an NP and its relative clause is that of set intersection of the N's denotation with that of the clause, which is, if anything, related to modification.

- (44) * [_{VP} Etwas zugeflüstert [_{RelCP} der dort steht]]
 something to-whispered who there stands
 hat sie *dem Mann* *t_{VP}*
has she the man
 'She whispered something to the man who is standing there'

In this example, VP topicalization has taken place. The extraposed relative clause is topicalized with VP but the NP *dem Mann* ('the man') is left behind. There is no c-command between the NP and its relative clause (see section 5 for details of these constructions).

Given the Movement Analysis that we are advocating here, (44) is ruled out for lack of c-command, too, but this time because the extraposed relative clause does not c-command its trace. We assume that - if for no other reason - CP must c-command its trace in order to antecedent-govern it. This is necessary because the relative clause does not receive a Θ -role and therefore cannot be head governed. Notice that the VP can be reconstructed at LF. Still, the CP trace within the scrambled NP *dem Mann* is not c-commanded by the extraposed clause. (45) shows example (44) after LF reconstruction of VP.

- (45) sie hat
-
- ```

graph TD
 Root[] --- NP2["[dem Mann t1]2"]
 Root --- VP1[VP]
 VP1 --- VP2[VP]
 VP1 --- CP1[CP1]
 VP2 --- t2[t2]
 VP2 --- V["V\'der dort steht"]
 CP1 --- etwas1[etwas]
 CP1 --- zugefluestert1[zugeflüstert]
 V --- etwas2[etwas]
 V --- zugefluestert2[zugeflüstert]

```

For CP to be able to govern its trace, NP<sub>2</sub> must be reconstructed, too. This, however, is not possible because A-movement cannot be undone, as stated above.<sup>11</sup>

Let us now turn to another example which the Base Analysis predicts to be ungrammatical.

- (46) ? [<sub>VP</sub> *Dem Mann* etwas           zugeflüstert] hat sie *t<sub>VP</sub>*  
           *the man something to-whispered has she*  
 [<sub>RelCP</sub> *der dort steht*]  
           *who there stands*  
 'She whispered something to the man who is standing there.'

<sup>11</sup> Following the arguments presented in Mahajan (1990), we take scrambling to be A-movement.

In (46), the NP *dem Mann* is topicalized with VP, but the relative clause that belongs to it is left in right peripheral position. Hence, the NP does not c-command the extraposed CP violating the licensing condition of the Base Analysis. However, as indicated by the question mark, (46) is considerably better than (44). Rather it is on a par with (47) which the Base Analysis predicts to be perfectly fine.

- (47) ?<sub>[NP</sub> *Dem Mann*] [<sub>C</sub> hat sie *t*<sub>NP</sub> etwas zugeflüstert  
           *the man*           *has she something to-whispered*  
       <sub>[RelCP</sub> *der dort steht*]  
                   *who there stands*

In contrast to this, the Movement Analysis explains the contrasts between (44) on one hand and (46) and (47) on the other. We assume that both the VP in (46) and the NP in (47) are reconstructed because they are A'-moved. The relative clauses, being adjoined above VP, govern their traces at LF. We will return to the question of why (46) and (47) are nevertheless marked in section 5.3.

Another class of cases where the Base Analysis is too strong in its predictions is illustrated in (48).

- (48) a. Sie hat [<sub>PP</sub> mit einem Mann<sub>i</sub>] gesprochen  
           *she has with a man spoken*  
           <sub>[RelCP</sub> *der dort steht*]<sub>i</sub>  
                   *who there stands*  
           'She spoke to a man who was standing there.'
- b. Er hat [<sub>NP</sub> ein Buch [<sub>PP</sub> über [<sub>NP</sub> den Vater einer  
           *he has a book about the father of-a*  
           Professorin<sub>i</sub>]]] gelesen [<sub>RelCP</sub> die er sehr schätzt]<sub>i</sub>  
           *professor read who he very appreciates*  
           'He read a book about the father of a professor who he  
           appreciates very much.'
- c. She talked to a man yesterday who was sitting next to her.
- d. ? We talked about a book by the mother of a professor yesterday who often quotes himself.

The English sentences (48.c) and (48.d) are parallel to the German (48.a) and (48.b) respectively. In general, an extraposed relative clause can be related to any NP contained within VP. This is impossible given the Base Analysis since neither *man* in (48.a)/(48.c) nor *professor* in (48.b)/(48.d) can possibly c-

command the extraposed relative clause.<sup>12</sup> Again, these facts follow directly from the Movement Analysis since the relative clause is adjoined to VP/IP and may c-command its trace, regardless of how deeply embedded within VP the trace is.

It should have become clear throughout this subsection that base generating NP related clauses as 'discontinuous constituents' of the form  $NP_i \dots CP_i$  does not provide a satisfactory account for the relevant data. The required licensing mechanisms are stipulative and empirically inadequate.

## 4.2 The Kayne Mutiny

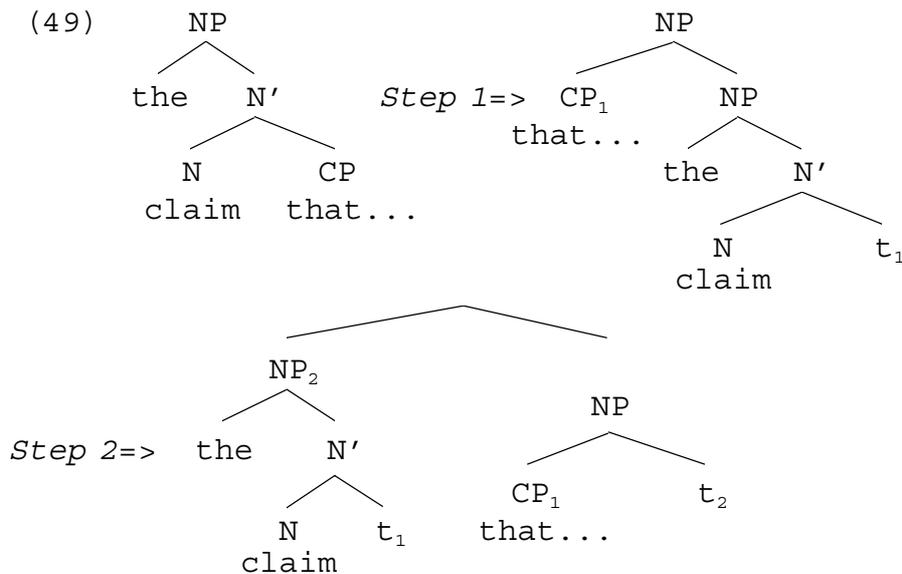
Following the assumptions of the LCA Analysis, extraposed clauses are simply stranded in right peripheral positions while the NPs they belong to move to the left. We have seen above that relative clauses and argument clauses are base generated in positions properly included by the XPs they belong to (see sections 3.1 and 4.1). According to the LCA Analysis then, in a configuration like  $[_{NP} \dots CP \dots]$ , NP must be moved leftward while CP is stranded. This requires CP to adjoin to NP first. Rightward movement being excluded, this adjunction must be to the left of NP. As a next step, the lower segment of NP is moved leftward, stranding the adjoined CP. This derivation is illustrated in (49):<sup>13</sup>

---

<sup>12</sup> This very problem for interpretive licensing is also mentioned in footnote 11 of Guéron (1980:646). However, no solution is presented.

<sup>13</sup> The same could reasonably be said about relative clauses. The semantic interpretation of restrictive relatives favors an  $[_N, N CP]$  analysis over a  $[_{NP} NP CP]$  one (see, however, Bach & Cooper (1978) for a semantically feasible implementation of the latter approach). However, given Kayne's (1994) theory,  $[_{NP} NP CP]$  cannot be base generated anyway but has to be analyzed as  $[_{NP} NP_1 CP t_1]$ . In other words, if CP is base generated as an adjunct to NP, it must precede the N. This in turn requires for there to be an additional shell position for the N(P) to move to in cases like *the fact, that* or *the man, who* - something like  $[_{XP} X^o [_{NP} CP [_{NP} N]]]$ .

With discontinuous  $NP \dots CP$  structures, XP must either be missing, or CP must again be adjoined to XP prior to leftward movement of XP. Since we will demonstrate that neither of these derivations can provide the basis for stranding, we will not further dwell on this issue. The problem of unmotivated short leftward movement will be investigated in detail wrt. argument clauses in section 6.



What is important here is that the second step in the derivation (49) is unknown in the world of syntax (this point has also been observed by Haider (1993b:12/13)). Consider the examples in (50):

- (50) a. He passed [the information that the party was rescheduled] on to his classmates  
 b. \* [<sub>NP</sub> The information  $t_2$ ]<sub>1</sub> was passed [<sub>NP</sub> [that the party was rescheduled]<sub>2</sub> [<sub>NP</sub>  $t_1$ ]] on to his classmates  
 c. \* [<sub>NP</sub> The information  $t_2$ ]<sub>1</sub> he passed [<sub>NP</sub> [that the party was rescheduled]<sub>2</sub> [<sub>NP</sub>  $t_1$ ]] on to his classmates

In (50.b) and (50.c), a relative clause is stranded in the base position of its head NP while the NP is moved to the left by A- and A'-movement, respectively. As the examples show, both kinds of stranding are totally impossible (the prohibition against moving segments is even explicitly derived in Kayne (1994:17)). But this very movement is necessary in order to derive the standard case of relative clause extraposition in Dutch or German under the SVO hypothesis:

(51) Sie hat [<sub>AGROP</sub> [<sub>NP</sub> den Mann  $t_2$ ]<sub>1</sub> gesehen [<sub>NP</sub> [der  
*she has the man seen who*  
 Hemingway geschlagen hat]<sub>2</sub> [<sub>NP</sub>  $t_1$ ]]]  
*Hemingway beaten has*

(52) Zij heeft de man gezien die Hemingway geslagen heeft.  
*she has the man seen who Hemingway beaten has*  
 'She saw the man who beat Hemingway.'

The LCA Analysis takes the extraposed relatives in (51) and (52) to be stranded in their base positions, just like those in

(50.b) and (50.c). If the latter are excluded by principles of grammar, so should be (51) and (52).

On the other hand, stranding a relative clause in an intermediate A-position (SpecAGRP) should be on a par with the example in (51). Contrary to that, they are ungrammatical:

- (53) \* Den Mann<sub>1</sub> hat sie [<sub>AGROP</sub> [t<sub>1</sub> der Hemingway geschlagen hat]<sub>2</sub> gesehen t<sub>2</sub>]

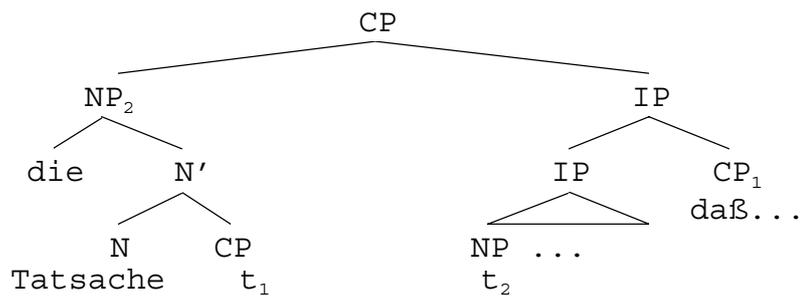
This pattern can be observed with clauses that are complements to N, too. Again, stranding is in general impossible, although this is exactly what the SVO hypothesis requires in order to derive the surface constituency of Dutch and German.

- (54) a. ...weil ihn [<sub>NP</sub> die Tatsache [<sub>CP</sub> daß Hemingway  
...because him the fact that Hemingway  
geschlagen worden ist]]<sub>1</sub> beeindruckt hat t<sub>1</sub>  
beaten been has impressed has  
b. ...weil ihn [die Tatsache]<sub>2</sub> beeindruckt hat [t<sub>2</sub> daß  
Hemingway geschlagen worden ist]  
c. \* Die Tatsache<sub>2</sub> hat ihn [t<sub>2</sub> daß Hemingway geschlagen  
worden ist]<sub>1</sub> beeindruckt t<sub>1</sub>  
'...because the fact that Hemingway was beaten  
impressed him'

In (54.a) the NP *the fact* and its argument clause *that Hemingway was beaten* are in preverbal position, i.e. moved, according to the LCA Analysis. (54.b) shows that the complement clause may show up postverbally as well, i.e. 'be stranded.' But no such stranding is possible preverbally, as (54.c) shows. Again, an explanation for this within the LCA Analysis is lacking.

Given the Movement Analysis, on the other hand, these data are easily explained. Right peripheral clauses are not derived by stranding but by rightward movement.

- (55)
- 
- => (optionally)



Since stranding a clause is prohibited in general (as demonstrated in (50)), it follows that the only possible position for a detached argument or relative clause is clause final in SOV as well as in SVO languages.

The question is, of course, why movement of the clause is only possible to the right. We adopt the theory developed in Müller (1994). In a nutshell, Müller shows that for a clause to leave NP it has to right-adjoin to NP first. By the Principle of Unambiguous Binding (PUB, Müller & Sternefeld (1993)) this intermediate step prohibits subsequent movement into positions to the left. This not only explains the rightward boundedness of certain clauses (namely those embedded within NP) but also the clause boundedness of extraposition in general.

Finally, even if the problems for the LCA Analysis mentioned in this subsection could be overcome by either allowing for stranding or postulating short leftward movement of the extraposed clause, serious problems remain. Consider (56) and (57), taken from Guéron (1980:644):

- (56) a.  $[_{NP} \text{ A book } t_1]_2$  was believed  $[_{IP} t_2 \text{ to be on the table}]$   
by all of us  $[_{CP} \text{ which was written by William Shawcross}]_1$
- b. \* A book was believed to be on the table which was written by William Shawcross by all of us.
- (57) a.  $[_{NP} \text{ Many people } t_1]_2$  seemed  $[_{IP} t_2 \text{ to be hard to get along with}]$  to the other members of the department  $[_{CP} \text{ who had at first made a good impression}]_1$
- b. \* Many people seemed to be hard to get along with who had at first made a good impression to the other members of the department.

In the grammatical (a)-examples, the extraposed subject relative clauses follow PPs that belong to the matrix verb, i.e. the CPs must be adjoined to the matrix clause. But obviously the base position of the extraposed relatives is within the embedded clause. Leaving the relative clauses within the embedded clause, however, is ungrammatical, as the (b) examples show. Hence, sentences like (56) and (57) are impossible to derive given the

LCA Analysis, even if stranding was possible in principle.

Following the Movement Analysis, the relatives in the (a)-sentences are adjoined to the matrix clauses by rightward movement. Since we know that extraposition is clause bound, we are led to the conclusion that it has taken place from the matrix SpecIP after raising of the embedded subject. These examples also show that A-movement cannot be reconstructed as we already stated in the introduction to section 3. In principle, extraposition could take place prior to raising, adjoining the relative to the embedded clause. However, after raising the subject, the relative clause would no longer c-command its trace but only the trace of the subject. If reconstruction was possible for the subject, the relative clause would govern its trace at LF and the (b)-sentences should be grammatical.

In general then, the LCA Analysis faces the problem that a number of clauses in right peripheral position can by no means be analyzed as occupying the postverbal base position of the argument. It thus remains unclear how their actual distribution can be derived. Furthermore, the fact that only a small class of extraposed clauses can be claimed to indicate the postverbal base position deprives the LCA Analysis of both its appealing simplicity and its conclusiveness. Whatever means are employed to derive extraposed relatives and N-complements could as well have been used in constructions with postverbal argument clauses. In other words, one of the original arguments for the SVO hypothesis is lost, which renders the hypothesis virtually vacuous. In section 6, we will demonstrate that things can get even worse.

## **5. VP-Topicalization**

### **5.1 No Particular Position for Extraposition**

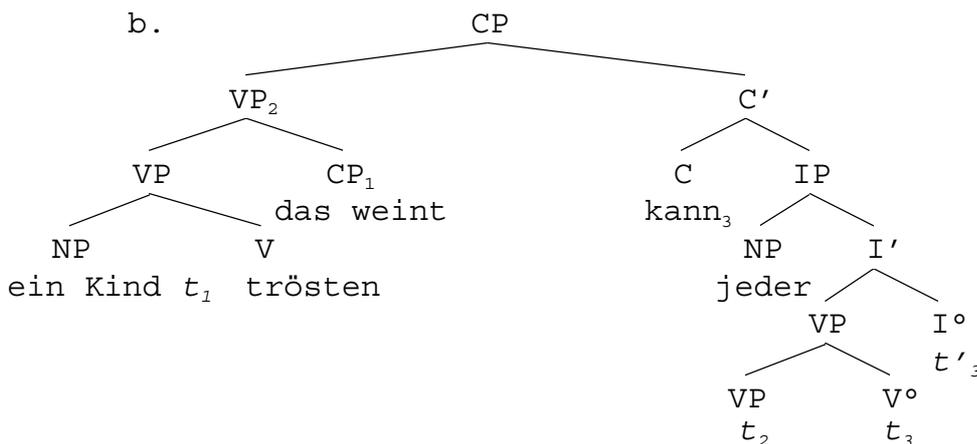
In this section we invalidate an argument which has been brought up by proponents of the Base Analysis (Haider 1993b) against the Movement Analysis. It will be shown that the data are not without problems for either the Base Analysis or the LCA Analysis. We will then outline a dynamic approach to VP topicalization which makes use of a trigger condition for the extraposition of clauses. This approach will be shown to be able to handle the facts without further stipulations, whereas both competing analyses require problematic assumptions.

The argument goes as follows. Remember from section 1 that clauses appear postverbally if they are extraposed.

- (58) ...weil er den Mann kannte der Hemingway geschlagen hatte  
 ..because he the man knew who Hemingway beaten had  
 'because he knew the man who had beaten Hemingway'

According to our assumptions, the finite verb is raised to the clause final  $I^\circ$  in German. Thus, the extraposed clause has to adjoin higher up in the tree, at least to  $I'$  or IP. The Movement Analysis faces a problem if the VP and the extraposed CP are topicalized together: If the CP is adjoined to  $I'$ , it does not form a constituent with the VP. Hence topicalizing both should be impossible - contrary to fact. In order to form a constituent, the CP has to adjoin to VP, if they are topicalized together. (59.b) is the structure of (59.a):

- (59) a. Ein Kind trösten, das weint, kann jeder.  
 a child console that weeps is-able everybody  
 'Everybody is able to console a child that weeps'



On the understanding of the Base Analysis, CP is a sister of V, that is, V and CP always form a constituent. Being the deepest constituent in the tree, this complex can easily undergo topicalization. The Movement Theory has to adopt two different constituent structures: the extraposed clause is adjoined to IP if it is not topicalized along with the VP. It is adjoined to VP if it is topicalized together with the VP.

But a closer look at the data reveals that (59) is just one of the relevant cases and that the analysis in terms of the Base Analysis just given cannot be generalized to other cases of VP-topicalization. If an auxiliary or modal verb is stranded with VP topicalization, the Base Analysis cannot avoid different constituent structures either. In (60.a), the verb is topicalized together with its clausal object and the infinitival verb form *können* ('to be able') stays behind. This topicalized constituent, however, cannot appear in the base, as is

illustrated in (60.b). To create the correct base order the Base Analysis has to generate *zeigen* ('to show') and the modals *können* ('to be able') and *möchte* ('wants') as a complex V, such that the CP is licensed as a sister to it ((60.c)). In other words, the Base Analysis requires that *zeigen* and its CP complement must be base generated as a VP embedded by *können* in (60.a), but may not be in (60.b).

- (60) a. [<sub>VP</sub> Zeigen daß die Erde eine Scheibe ist] möchte er t<sub>VP</sub>  
           *show that the globe a disk is wants he*  
           können.  
           *can*
- b. \* ...weil er [<sub>VP</sub> zeigen daß die Erde eine Scheibe ist]  
           können möchte
- c. ...weil er [<sub>VP</sub> [<sub>V°</sub> zeigen können möchte] daß die Erde  
           eine Scheibe ist]  
           '...because he wants to be able to show that the Earth  
           is a disk'

Topicalization of *zeigen* and its CP complement has therefore to start out from a structure different to the base structure in (60.c) because verb complex formation is not possible here. Thus, the Base Analysis, too, has to assume more than one constituent structure for VP-topicalization. It remains unclear, however, how the relevant constraints on base generating complex Vs as opposed to stacked VPs can be stated.

In the next section, we show that the Movement Theory offers a plausible explanation for the different phrase structures. The choice of the various attachment sites of extraposed clauses naturally follows from an independently needed trigger for rightward movement.

## 5.2 Rightward Ho!

We propose the following trigger for extraposition:

- (61) Finite sentences may not be governed by V° or I°. <sup>14</sup>

The filter is reminiscent of Stowell's Case-Resistance Principle (Stowell (1981:146) and variants of it (von Stechow & Sternefeld (1988:398), Kiss (1993:162))). It rules out finite sentences in

---

<sup>14</sup> We define government as in van Riemsdijk & Williams (1981:291): X governs Y if and only if Y is contained in the maximal X'-projection of X, X<sup>max</sup>, and X<sup>max</sup> is the smallest maximal projection containing Y, and X c-commands Y.

their base position. This is illustrated in (62.a). The clause has to flee from the government domain of V and I, that is, it has to adjoin to a position higher than I'. There are three options for an object clause to fulfill (61). It can be extraposed, see (62.b). It can be topicalized alone ((62.c)) or together with VP ((62.d)). In the last case, adjunction to VP is sufficient in order to fulfill our generalization: the clause is outside of the government domain of I and also V, which cannot govern into an adjoined position.

- (62) a. \* ...weil er [daß Schnaps gut schmeckt] gesagt hat  
           ...because he that schnapps good tastes said has  
       b. ...weil er gesagt hat [daß Schnaps gut schmeckt]  
       c. [Daß Schnaps gut schmeckt] hat er gesagt  
       d. [<sub>VP</sub> [<sub>VP</sub> Gesagt] [daß Schnaps gut schmeckt]] hat er  
           '...because he said that schnapps tastes good'

Relative clauses and CP-complements of N are protected from V-government by the NP. Consequently, extraposition is facultative here:

- (63) a. ...weil er den Dirigenten, der gerade den  
           ...because he the conductor who actually the  
           Rosenkavalier dirigiert, persönlich kennt  
           Rosenkavalier directs personally knows  
       b. ...weil er den Dirigenten persönlich kennt, der gerade  
           den Rosenkavalier dirigiert  
           '...because he personally knows the conductor who is  
           actually directing the Rosenkavalier'

Our generalization gives us another result for free: Short extraposition is not enough to protect a clause from government by I. It is therefore impossible for a clause to adjoin to VP if this VP does not move out of the government domain of I, i.e. if it is not topicalized:

- (64)\* ...weil Hans gesagt daß er hungrig ist hat  
           ...because Hans said that he hungry is has  
           '...because Hans said that he is hungry'

We have illustrated that the generalization in (61) does account for the relevant data. Notice that the different adjunction sites, which we had to assume in the previous section are targeted by extraposition, now follow from the general freedom of move  $\alpha$ . Extraposition as an instance of move- $\alpha$  proceeds dynamically, that is, adjunction may in principle target any position provided that the resulting structure fulfills (61). An

extraposed clause can adjoin to VP, in case VP is topicalized, because topicalization carries the clause out of the government domain of I. 'Local' extraposition is still necessary if the clause is to escape government by V. If VP stays in its base-position, the extraposed clause has to adjoin higher up because of the influence of I. Thus, the positional variation follows from the fact the sentence must flee the government domain. There is no designated target for extraposition, and different phrase structures are no challenge to the Movement Analysis as proposed here.<sup>15</sup>

### 5.3 Verb Cluster and V°-Topicalization

While extraposition as a movement to escape government nicely accounts for the different adjunction sites of extraposed clauses under the Movement Analysis, the Base Analysis is faced with a dilemma if bare verbs are topicalized. Recall that base generation of a complex V° is obligatory if an extraposed complement clause semantically belongs to an embedded verb. The relevant example is (60.c), repeated here:

- (65) ...weil er [<sub>v°</sub> zeigen können möchte] daß die Erde  
 ...because he show be-able wants that the Earth  
 eine Scheibe ist  
 a disk is

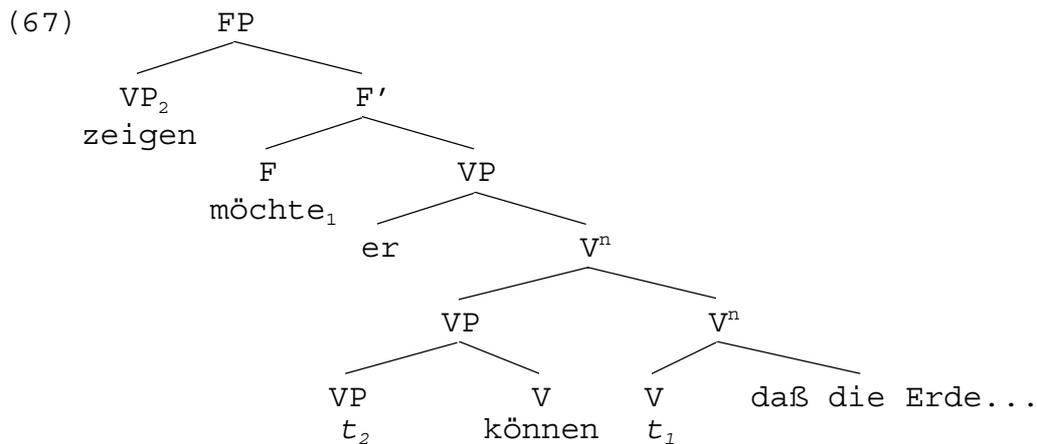
Suppose that the verb could be topicalized out of the complex V. Still, X°-categories are excluded in the SpecCP position, for the landing site of topicalized elements is reserved for maximal projections for reasons of structure preservation.

These considerations lead to the conclusion that - given the Base Analysis - the d-structure corresponding to (65) must not contain a verb cluster, but separate VP shells which allow for topicalization. (67) is the structure of (66):

- (66) Zeigen möchte er können, daß die Erde eine Scheibe ist  
 show wants he be-able that the Earth a disk is

---

<sup>15</sup> H. Truckenbrodt (p.c.) has pointed out to us that our filter fails to generalize to cases of PP extraposition. One might therefore want to replace (61) by some version of Truckenbrodt's (1994) prosodic condition. The argument, however, goes through just as before.



Notice that *zeigen* and *können* cannot form a verb cluster in (67) because *zeigen* has been moved to SpecFP. This shows that the complement clause of *zeigen* must have been base-generated as a sister to the finite verb *möchte*, which cannot license a CP complement. If the complex predicate cannot form a verb cluster, this is the only possible hierarchy, once we assume that the linear precedence immediately maps into hierarchical order. It remains unclear, though, how the sentence embedding *V zeigen* 'show' should license (i.e.  $\Theta$ -mark) the complement clause, for it cannot govern it, either before or after VP topicalization.

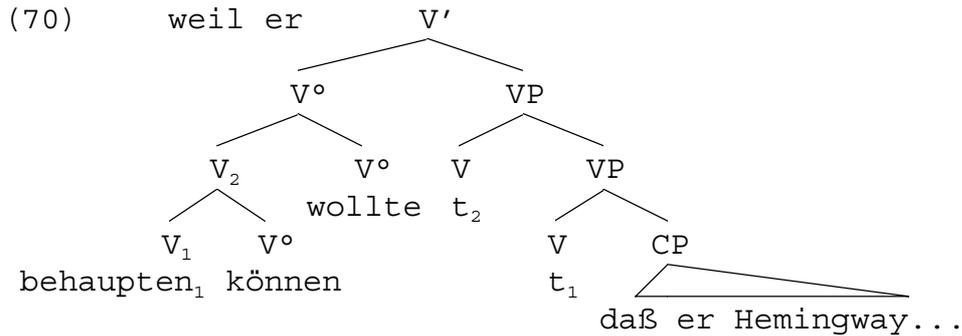
The LCA Analysis also needs verb cluster formation in embedded clauses. Raising the lower Vs to the highest Vs is necessary in order to derive the correct serialization of verbs in German, otherwise the underlying order would yield the ungrammatical (68).

- (68) \*...weil er wollte können behaupten daß er Hemingway  
 ...because he want be-able claim that he Hemingway  
 geschlagen hat  
 beaten has  
 '...because he wanted to be able to claim that he has  
 beaten Hemingway'

If we assume that the object clause is base-generated to the right of its selecting verb *behaupten* ('claim'), this verb has to raise to the higher verb(s) in order to derive the right verb sequence at the surface.

- (69) ...weil er behaupten können wollte daß er Hemingway  
 geschlagen hat

In (70), the structure of (69), verb-raising of the CP-selecting verb *behaupten* forms a verb cluster with *können*. The complex is then adjoined to the finite verb.



Note that, if the verb *behaupten* ('claim') is topicalized, the LCA Analysis faces the same problems as the Base Analysis. Even if we allow for excorporation of *behaupten* out of the verb complex, structure preservation prohibits the verb from moving to SpecCP. Thus, bare V-topicalization is expected to be ungrammatical, contrary to fact:

(71) *Behaupten wollte er können daß er Hemingway geschlagen hatte.*

It is unclear how a bare V can be topicalized at all. If we assume that topicalization always involves maximal projections, the stranded complement clause - which is a sister to the verb within the LCA Analysis - has to leave the deepest VP somehow. Rightward movement being excluded, the only possibility is short movement to the left, as depicted in (72). But this step is not triggered by the necessity of feature checking, for we know that complement clauses must have weak features (see section 1.2 above). Therefore, the attachment site of the clause cannot be the specifier of some AGR projection.

(72) *Gesagt hat er angeblich, daß er Hemingway geschlagen habe.*  
*said has he supposedly the he Hemingway beaten has*  
 'He supposedly said that he has beaten Hemingway'

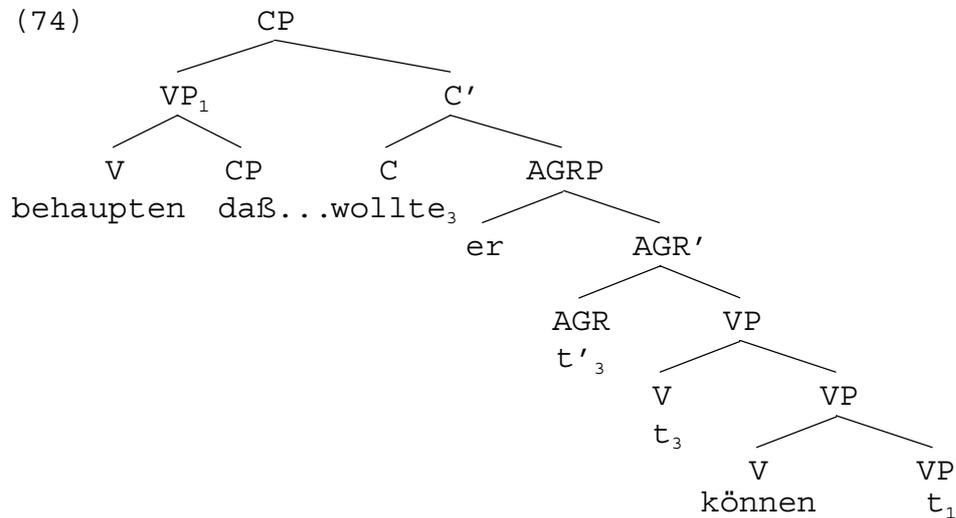
$[_V \text{Gesagt } t_1]_2 \text{ hat er angeblich } [_{VP} [\text{daß er Hemingway geschlagen habe}]_1 t_2]$

The only alternative that one could think of is again V°-topicalization.

(73)  $[_V \text{Gesagt}]_1 \text{ hat er angeblich } [_{VP} t_1 [\text{daß er Hemingway geschlagen habe}]]$

Let us go back to section 5.1 for a moment. Recall that VP-topicalization had to start from a structure different from the usual embedded d-structure. This holds for the LCA Analysis as

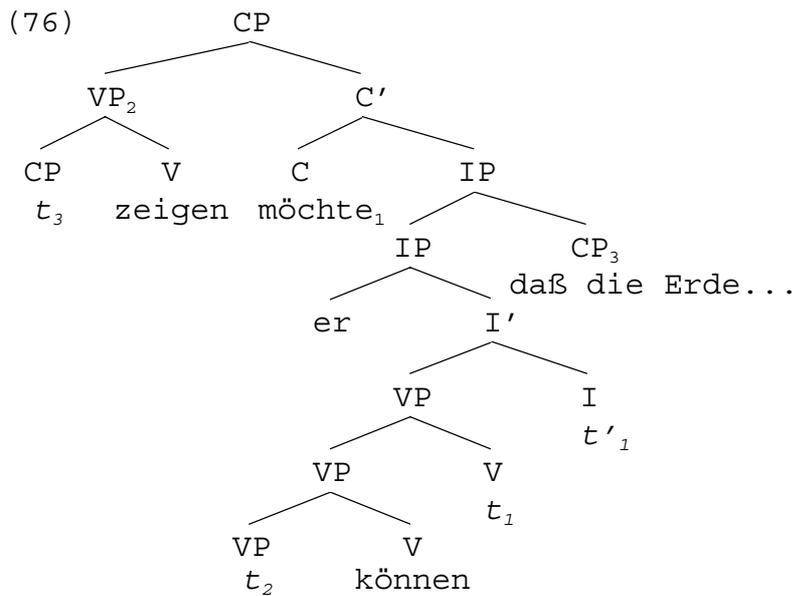
well. The topicalized constituent in (74) does not and could not exist in the source structure, if the latter looks like (70), because the verb *behaupten*, which selects the embedded clause, obligatorily moves. Hence (74) cannot be derived from (70).



The Movement Analysis doesn't need additional assumptions in any of these cases. As for bare V topicalization, the CP extraposes and adjoins to IP while the emptied VP is topicalized (cf. den Besten & Webelhuth (1990)).

(75) [<sub>VP</sub> t<sub>1</sub> Gesagt]<sub>2</sub> hat [[<sub>IP</sub> er angeblich t<sub>2</sub>] [daß er Hemingway geschlagen habe]<sub>1</sub>]

In the same way, the Movement Analysis can deal with VPs that contain modals and auxiliary verbs. In accordance with the selectional properties, the complement clause is generated as a sister to the verb selecting it, *sagen* ('say'). As the clause has to escape from the government domain of I, it extraposes. Now, the deepest VP can easily topicalize. No problems with the Structure Preservation Principle arise.



In general, the Movement Analysis advocated here does not require V-to-V movement. Accordingly we don't need to specify why this process is necessary and under which conditions it can be suspended. We will briefly return to the issue of verb raising in section 6.

Note that the topicalized VPs in (75) and (76) are reconstructed at LF in order for the extraposed CP to govern its trace. This has already been discussed in section 4.1 wrt. examples (46) and (47) repeated here.

- (77) a. ? [<sub>VP</sub> Dem Mann etwas            zugeflüstert] hat sie t<sub>VP</sub>  
           *the man something to-whispered has she*  
           [<sub>RelCP</sub> der dort steht]  
           *who there stands*  
           'She whispered something to the man who is standing  
           there.'
- b. ? [<sub>NP</sub> Dem Mann] [<sub>C'</sub> hat sie t<sub>NP</sub> etwas            zugeflüstert  
           *the man has she something to-whispered*  
           [<sub>RelCP</sub> der dort steht]  
           *who there stands*

What then is the difference between the grammatical examples (75) and (76) and the marked ones in (77)? In the former examples, the CP trace is sister to V while in the latter it is a sister to N. Recall from the discussion of Müller (1994) in section 4.2 that for the CP to leave NP it has to right-adjoin to NP first. Accordingly, there are intermediate traces in adjoined positions within the topicalized constituents in (77) but not in (75) and (76). Therefore, the correct representation of e.g. (77.a) is as in (78).

(78) [<sub>VP</sub> [<sub>NP</sub> [<sub>NP</sub> Dem Mann  $t_1$ ]  $t_1'$ ] etwas zugeflüstert] hat sie  $t_{VP}$   
 [<sub>RelCP</sub> der dort steht]<sub>1</sub>

For those speakers who find (77) deviant, we have to claim that there is a stronger requirement for traces in adjoined positions: They have to be properly governed at s-structure, too.

## 6. Short Movements (Got No Reason)

In this section we will address one of the necessary prerequisites of the LCA Analysis, namely that any object-verb order must be derived by moving the argument to the left. This is compatible with the Minimalist Program (Chomsky (1993)), where NP movement is necessary for reasons of case checking. We have shown in section 5 that a common feature of recent theorizing, namely the assumption that there is no optional movement, is in conflict with an LCA Analysis of German VP topicalization. In this section we will show that an LCA Analysis of SOV languages has to crucially violate another basic assumption of the Minimalist Program, namely that movement is to designated positions and that the generation of target position is restricted by considerations of selection and economy.

### 6.1 Short Verb Movement

We have already shown in section 4 that not all cases of postverbal clauses can be analyzed as 'clause in base position.' While the arguments presented there suggested that clauses generated within a postverbal constituent cannot *remain* there, this subsection deals with clauses which - following the assumptions of antisymmetric syntax - cannot *originate* there in the first place.

Cases in question are subject clauses ((79)), subject relative clauses ((80)) and adjunct clauses ((81)). All of these can or even must occur postverbally, although they must be base generated preverbally within an LCA Analysis. Accordingly, short movement of the V across the clause must be assumed.

(79) a. ...weil (es) den alten Mann beeindruckt  
 ...because it the old man impresses  
 daß Hemingway kommt  
 that Hemingway comes  
 '...because it impresses the old man that Hemingway drops by'

- b. ...weil (es) [<sub>AGROP</sub> den alten Mann<sub>1</sub> [beeindruckt<sub>2</sub> [<sub>VP</sub> [**daß Hemingway kommt**] [<sub>v</sub>, t<sub>2</sub> t<sub>1</sub>]]]]
- (80) a. ...weil eine Frau die Geschichte erzählte die  
 ...because a woman the story told who  
 dabei war  
 there was  
 '...because a woman who was there told the story'
- b. ...weil eine Frau<sub>3</sub> die Geschichte<sub>1</sub> [erzählte<sub>2</sub> [[t<sub>3</sub> die  
**dabei war**] [<sub>v</sub>, t<sub>2</sub> t<sub>1</sub>]]]
- (81) a. ...weil er bleibt bis Hemingway kommt  
 ...because he stays until Hemingway comes  
 '...because he'll stay until Hemingway comes along'
- b. ...weil er<sub>2</sub> [bleibt<sub>1</sub> [<sub>VP</sub> [**bis Hemingway kommt**] t<sub>2</sub> t<sub>1</sub>]]]

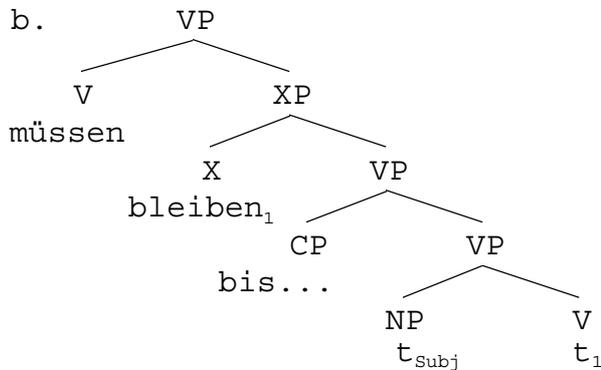
The (b) examples in (79) through (81) show how the LCA Analysis would have to derive these examples. The 'original' VP containing the clause in question is printed in boldface. In all of these cases the verb must move across the clause to some higher head position. The structures given remain agnostic about the question of which head it is that V moves to. A good guess would of course be some functional projection, say, AGRO° or T° (something like this seems to be assumed by Zwart (1992:18)). This, however, cannot be correct. To see this we have to look at cases where the V is embedded by a modal (or auxiliary) verb.<sup>16</sup> In this case the verb cannot cross the modal to reach a functional projection. What is important now is that a constituent of the form [V AdjunctCP] can be topicalized while an non-finite modal remains in sentence final position (see also section 5).

- (82) [Bleiben [<sub>CP</sub> bis Hemingway kommt]] wird er müssen  
 stay until Hemingway comes will he must-INF  
 'He'll have to stay until Hemingway arrives.'

This means that the topicalized constituent must be a projection - call it XP - which is higher than the V *bleiben* but beneath the modal *müssen*. V moves to the head of XP and XP is topicalized. The s-structure thus looks like (83.a). (83.b) shows an LCA compatible phrase structure prior to topicalization of XP.

<sup>16</sup> There is ample evidence that modals and auxiliaries are true Vs in German and Dutch (as opposed to INFL, as it has been proposed for English), see e.g. Roberts (1993). Furthermore, the examples discussed could as well be constructed with AcI embedding verbs like *lassen* 'let'/'have'.

(83) a. [<sub>XP</sub> Bleiben<sub>1</sub> [<sub>VP</sub> [bis Hemingway kommt] t<sub>1</sub>]<sub>2</sub>] wird er [<sub>VP</sub> müssen t<sub>2</sub>]



The questions are of course: 'What is XP?', 'Why does XP trigger V movement?', and 'Where is XP in sentences without VP topicalization?' None of these has been profoundly addressed so far by proponents of the LCA Approach.

Note in passing that data similar to these stand in the way of explaining the differences in verb serialization between Dutch and German in terms of V-raising versus V-in-situ within the LCA Analysis, as it is attempted in Lattewitz (1993). According to her proposal, the verb order in a Dutch sentence like (84.a), which is the mirror image of the German verb order (84.b), reflects the d-structure of an SVO language (hence of every language, according to the LCA Analysis): The higher the verb, the further to the left it occurs.

(84) a. ...dat hij moet kunnen blijven  
 ...that he must can-*INF* stay  
 b. ...daß er bleiben können muß  
 ...that he stay can-*INF* must  
 '...that he must be able to stay'

In the German counterpart, on the other hand, we find the order derived by obligatory V-to-V raising. The difference between both languages then reduces to a difference in the strength of V-features, namely weak for Dutch and strong for German.

This account, however, cannot be correct. If we modify the main verb *blijven* 'stay' by a temporal adjunct clause, this clause may appear in either of two positions:

(85) a. ...dat hij tot Hemingway komt moet kunnen blijven  
 ...that he until Hemingway comes must can-*INF* stay  
 b. ...dat hij moet kunnen blijven tot Hemingway komt

- c. \* ...dat hij moet kunnen tot Hemingway komt blijven  
 '...that he must be able to stay until Hemingway  
 arrives'

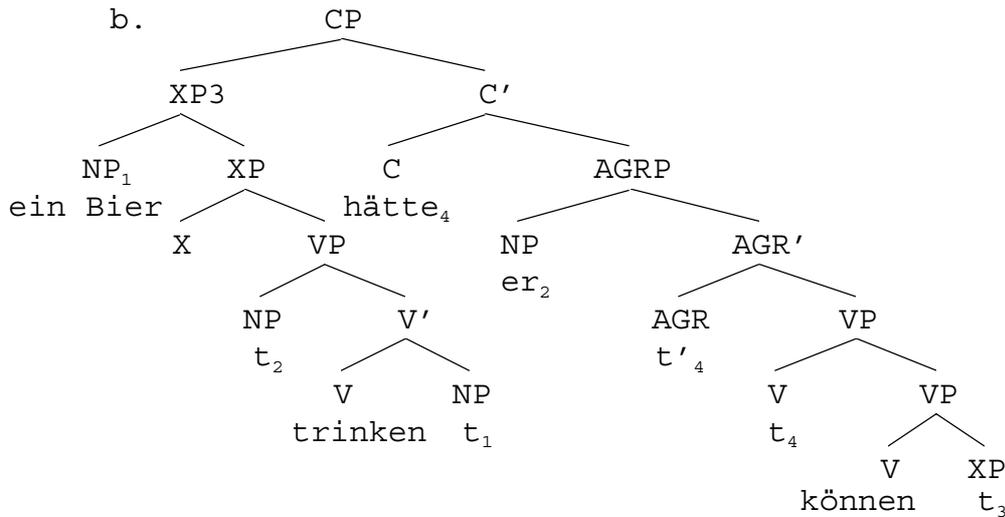
In (85.b), the adjunct clause follows all verbs. This is expected, if we take the clause to be extraposed by rightward movement, but totally unexpected if we consider it to be in its base position. In that case it should precede the main verb *blijven*, as shown in (85.c). But this order is totally impossible in Dutch. In a LCA Analysis, then, the infinite verb *blijven* must have moved across the adjunct clause, just like in the German cases discussed above. In other words, V-raising cannot be the relevant property that distinguishes German from Dutch. Note furthermore that *blijven* still follows the higher modal *kunnen* 'can'. That would mean that either V-raising in Dutch is to a head X which is dominated by the modal V but higher than the main V, or V-movement proceeds to the higher V, but adjoins to the right rather than to the left. Neither option seems very attractive to us.

If we continue to assume instead that Dutch is SOV underlyingly, the adjunct clause in (85.a) is in its base position, attached to the lowest VP. The only alternative order is derived by extraposition of the clause, yielding (85.b). All other orders are excluded, in accordance with the data. Furthermore, since we have seen above that a Movement Analysis does not assume V-to-V raising in German, the difference between the two language can be explained - as it were - by the presence versus absence of V-raising, as proposed in the literature (see Evers (1975) and subsequent work).

## 6.2 Short NP Movement

Let us next consider cases of [NP V] topicalization as in (86):

- (86) a. [Ein Bier trinken] hätte er können  
           a beer drink had he could-INF  
           'He could have drunk a beer.'



(86.b) shows an LCA compatible structure in full detail. The direct object *ein Bier* 'a beer' originates in postverbal position. Therefore it has to move across V to derive the surface order within the topicalized constituent. But the target position of that NP - SpecXP in (86.b) - cannot be AGROP. This is witnessed by the fact that the nonfinite modal *können* 'could' occurs in sentence final position (this position follows the subject and all non-clausal complements and adjuncts). Accordingly, XP must again be some projection between V and the modal. Its specifier position attracts the object and it seems that XP can be freely iterated in order to host several objects, see (87). (87) also shows that XP in these constructions cannot be identical to XP in (83). If it were, X should attract the main verb, so *geben* should precede the second object in (87), which is completely impossible.<sup>17</sup>

(87) [Dem Mädchen das Buch geben] hätte er nicht sollen  
*the girl-DAT the book give had he not should*  
 'He shouldn't have given the book to the girl.'

Again, we find that the LCA Analysis has to postulate projections of various properties within the verbal complex for the sole purpose of providing landing positions. None of these positions is required given the Movement Analysis. We refer the reader back to section 5 for an account of VP topicalization.

More complicated examples involving topicalization of VPs

<sup>17</sup> Recall that - following Kayne (1994:22) - each projection allows for one adjunct/specifier only. Therefore, there must be two phrases 'on top' of VP in (87), at least the higher one of which may not attract the verb. This argument, however, can be reiterated with more complex VPs (including adverbs and the like) which makes it more plausible to assume that V remains in situ here.

with adjunct clauses and NP arguments are readily construed. We do not want to pursue this matter here, however. It should have become clear that the analysis of simple VP topicalization data leads to quite serious problems for the LCA Analysis. The constituent ordering can only be accounted for if one is willing to postulate numerous empty projections within the verbal complex. This, however, is at odds with almost every assumption of the Minimalist Program. The hypothesized categories do not have any morphological or semantic content, they occur occasionally and only with certain VP topicalization structures (recall that none of the structures discussed in this section is ever to be found in sentences without VP topicalization). Kayne himself (1994:30) realizes that there must be as many functional projections as landing sites are needed. The heads of these projections don't have to be contentful necessarily. As to what triggers movement he remains rather agnostic: 'I leave open the question what drives all these movements' (p.140/fn.3). Finally, the abstract categories have the potential to attract V and NP and check their features. This in turn raises the question, what governs the distribution of features within a single clause. Again, we believe that questions like these must remain unanswered simply because they are built on wrong premises, namely that all languages are SVO and that movement is to the left only.

## **7. Concluding Remarks: Rightward Movement Rules OK**

In this article, we compared a Movement Account of extraposition with two proposals which claim that embedded clauses are base-generated in postverbal position. We tried to argue that any attempt to do without rightward movement fails to account for the extraposition phenomena in a satisfying way.

Let us summarize our main results. We showed that many properties of extraposed clauses can only be derived if they differ in their base position: Extraction from extraposed clauses exhibits typical island effects only if the clause is an island already at d-structure. Different base positions were also shown to be necessary in order to account for Principle C effects. A pronoun may not c-command an R-expression within the extraposed clause after this CP is reconstructed at LF. The same holds for variable binding into embedded clauses - a quantified object NP cannot bind a pronoun in a subject relative clause. All these arguments weaken analyses which base generate all embedded clauses in structurally identical positions. We went on to show that an antecedent-trace relation holds between an extraposed CP and the NP it semantically depends on. The

alternative licensing condition (NP must c-command the extraposed clause) was neither able to account for the grammaticality of remnant topicalization of an NP within VP, nor could it explain constructions where an embedded NP does not c-command its dependent extraposed clause in the base.

On the other hand we showed that the claim that extraposed clauses really are in their postverbal base position at s-structure cannot be correct. Empirically there are various constructions in which embedded clauses are separated from their alleged base positions by other material, for example with extraposed subject sentences. Theoretically, we have seen that 'stranding' CPs related to nouns is generally impossible, even if the clause is left adjoined initially. Weakening the pertinent constraints would lead to a considerable loss of adequacy in the theory. Furthermore, it turned out that any derivation separating NPs from CPs by leftward movement of NP must fail to derive the well-known asymmetries in coreference and variable binding.

As opposed to that, the version of the Movement Theory advocated here showed considerable success in dealing with all these phenomena using a remarkably smaller number of additional assumptions. In particular we accounted for the puzzling constituency facts around VP topicalization by a simple trigger condition, claiming that finite sentences may not be governed by V or I. We then showed that this trigger interacts with well established principles of Government and Binding Theory so as to yield a dynamic theory of attachment, which turns out to correctly predict the relevant data. Thus, extraposition should reasonably be regarded as just another instance of Move  $\alpha$ .

This is not to say that there are no remaining questions. Why is extraposition so excessively reconstructed? What lies behind the trigger condition? Is there any weaker universal correspondence between hierarchy and linear ordering? Why, in general, do rightward and leftward movement seem to serve quite different purposes crosslinguistically? Our main hope is to have convinced our readers that the rather categorical answers to these questions given in particular by the LCA Analysis throw out the baby with the bath, and threaten to stand in the way of asking more appropriate, fine grained questions about the general properties of Universal Grammar.

## 8. References

- Bach, Emmon & Robin Cooper (1978) The NP-S Analysis of Relative Clauses and Compositional Semantics. *Linguistics and Philosophy* 2. 145-150.

- Baltin, Mark (1982) A Landing Site Theory of Movement Rules. *Linguistic Inquiry* 13. 1-38
- Baltin, Mark (1983) Extraposition: Bounding versus Government-Binding. *Linguistic Inquiry* 14. 155-162.
- Baltin, Mark (1984) Extraposition Rules and Discontinuous Constituent. *Linguistic Inquiry* 15. 157-163.
- Barss, Andrew B. (1986) *Chains and Anaphoric Dependencies*. Doctoral Dissertation. MIT.
- Belletti, Adriana & Luigi Rizzi (1988) Psych Verbs and  $\Theta$ -Theory. *Natural Language and Linguistic Theory* 6,3. 291-352.
- den Besten, Hans & Gerd Webelhuth (1990) Stranding. In: Günther Grewendorf & Wolfgang Sternefeld (eds) *Scrambling and Barriers*. Linguistik Aktuell, Vol.5. Amsterdam/Philadelphia: John Benjamins. 77-92.
- Chomsky, Noam (1981) *Lectures on Government and Binding*. Dordrecht: Foris.
- Chomsky, Noam (1993) 'A Minimalist Program for Linguistic Theory'. In: Hale, Ken & Jay Keyser (eds.) *A View from Building Twenty*. Cambridge, MA: MIT Press. 1-52.
- Culicover, Peter W. & Michael S. Rochemont (1990) Extraposition and the Complement Principle. *Linguistic Inquiry* 21. 23-47.
- Culicover, Peter W. & Michael S. Rochemont (1994) ??? Talk given at the Tilburg Conference on Rightward Movement. This Volume.
- Emonds, Joseph (1976) *A Transformational Approach to English Syntax*. New York: Academy Press.
- Evers, Arnold (1975) *The Transformational Circle in Dutch and German*. PhD dissertation. Utrecht University.
- Frey, Werner (1993) *Syntaktische Bedingungen für die semantische Interpretation* (studia grammatica xxxv). Berlin: Akademie-Verlag.
- Grewendorf, Günther (1988) *Aspekte der Deutschen Syntax*. Studien zur Deutschen Grammatik 33. Tübingen: Narr.
- Guéron, Jaqueline (1980) On the Syntax and Semantics of PP Extraposition. *Linguistic Inquiry* 11. 637-678.
- Guéron, Jaqueline & Robert May (1984) Extraposition and Logical Form. *Linguistic Inquiry* 15. 1-32.
- Haider, Hubert (1986) V-Second in German. In: Haider, Hubert & Martin Prinzhorn (1986) *Verb Second Phenomena in German Languages*. Dordrecht: Foris. 49-75.
- Haider, Hubert (1992) *Branching and Discharge*. Arbeitspapiere des Sonderforschungsbereichs 340 "Sprachtheoretische Grundlagen für die Computerlinguistik". #23.
- Haider, Hubert (1993a) *Deutsche Syntax - generativ*. Tübingen: Narr.
- Haider, Hubert (1993b) *Detached Clauses - The Later the Deeper*. Ms. Stuttgart.
- Huang, C.-T. James (1993) Reconstruction and the Structure of VP: Some Theoretical Consequences. *Linguistic Inquiry* 24. 103-138.
- Kayne, Richard (1994) *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.
- Kiparsky, Paul & Carol Kiparsky (1970) Fact. In: Steinberg, D. & L. Jakobovits (eds) *Semantics. An Interdisciplinary Reader in Philosophy, Linguistics, and Psychology*. Cambridge: Cambridge University Press.

- Kiss, Tibor (1993) *Infinite Komplementation*. Arbeiten des Sonderforschungsbereichs 282 'Theorie des Lexikons', #42.
- Koster, Jan (1978) Why Subject Sentences Don't Exist. In: Keyser, Samuel (ed.) *Recent Transformational Studies in European Languages*. Cambridge, MA: MIT Press.
- Lattewitz, Karen (1993) *Warum Deutsch verwickelter ist als Holländisch. Ein minimalistischer Blick auf Verbraising*. Paper presented at GGS, Cologne.
- Mahajan, Anoop (1990) *The A/A-bar Distinction and Movement Theory*. Doctoral dissertation. MIT.
- Müller, Gereon (1994). On extraposition and successive cyclicity. Ms. Tübingen University.
- Müller, Gereon (1995) *Extraposition as Remnant Movement*. Ms. Tübingen University.
- Müller, Gereon & Wolfgang Sternefeld (1993) Improper Movement and Unambiguous Binding. *Linguistic Inquiry* 24. 461-507.
- Reinhart, Tanya (1980) On the Position of Extraposed Clauses. *Linguistic Inquiry* 11. 621-624.
- Reinhart, Tanya (1983) *Anaphora and Semantic Interpretation*. London & Sydney: Croom Helm.
- van Riemsdijk, Henk & Edwin Williams (1981) NP Structure. *The Linguistic Review* 1. 171-217.
- van Riemsdijk, Henk & Edwin Williams (1986) *Introduction to the Theory of Grammar*. Cambridge, MA: MIT Press.
- Roberts, Ian (1993) *Verbs and Diachronic Syntax*. Dordrecht: Kluwer.
- Rosenbaum, P.S. (1967) *The Grammar of English Predicate Complement Constructions*. Cambridge, MA: MIT Press.
- von Stechow, Arnim & Wolfgang Sternefeld (1988) *Bausteine syntaktischen Wissens*. Opladen: Westdeutscher Verlag.
- Sternefeld, Wolfgang (1994) *Subjects, Adjuncts, and SOV-Order in Antisymmetric Syntax*. Ms. University of Tübingen.
- Stowell, Tim (1981) *Origins of Phrase Structure*. Doctoral Dissertation. MIT.
- Truckenbrodt, Hubert (1994) *Towards a Prosodic Theory of Extraposition*. Talk given at the Tilburg Conference on Rightward Movement. To appear in the proceedings.
- Vikner, Sten (1991) *Verb Movement and the Licensing of NP-Positions in the Germanic Languages*. Doctoral Dissertation. University of Stuttgart.
- Vikner, Sten & Bonnie Schwartz (1991) *The Verb Always Leaves IP in V2 Clauses*. Ms. Stuttgart University & Boston University.
- Wēbelhuth, Gert (1989) *Syntactic Saturation Phenomena and the Modern Germanic Languages*. Doctoral Dissertation, University of Massachusetts/Amherst.
- Zwart, Jan-Wouter (1992) *SOV Languages are Head Initial*. Ms. Groningen.
- Zwart, Jan-Wouter (1993) *Dutch Syntax*. Doctoral Dissertation. University of Groningen.