# SYNTAX

## CRITICAL CONCEPTS IN LINGUISTICS

Edited by
ROBERT FREIDIN AND HOWARD LASNIK

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# CONTENTS

## VOLUME III TRANSFORMATIONS (2)

# INTRODUCTION

Volume III continues the discussion of transformations. Chapters 40–43 concern the rightward displacement of clauses and PPs. Chapter 44 concerns the transformational analysis of existential sentences (see also Ch. 93, Vol. VI). Chapters 45–50 deal with head movement; and Chapters 51–55 cover the topic of deletion.

Koster's 1978 article 'Why subject sentences don't exist' (Ch. 40) provides an excellent overview of the empirical and theoretical issues concerning the apparent rightward displacement of clausal constructions, generally designated as 'extraposition' phenomena, involving pairs of sentences in which a clause may occur either in the predicate or (apparently) in subject position.

(1) a. It is unlikely that the problem will be solved quickly.
    b. That the problem will be solved quickly is unlikely.

The paper compares the rightward extraposition analysis of Rosenbaum 1967 with the leftward 'intraposition' analysis of Emonds's 1970 MIT doctoral dissertation, reviewing the anomalies of the former which the latter resolves. Koster goes on to discuss several theoretical drawbacks to a rule of Intraposition, including its reliance on coindexing between a clause and an NP. He proposes instead that 'intraposed clauses' that appear to be in subject position are actually in a satellite position external to S-bar (i.e. CP) and that they bind a wh-trace in subject position – an analysis he supports with evidence from Dutch and English. In effect, intraposition constructions are reanalysed as another species of covert wh-movement. Koster concludes with a discussion of how the anomalies associated with the extraposition analysis are also resolved under his satellite hypothesis.

The nonmovement analysis for extraposition phenomena, which begins with Koster 1978, is extended in Rochemont and Culicover's 1997 paper 'Deriving dependent right adjuncts in English' (Ch. 41) to extra-position phenomena involving the apparent rightward displacement of relative clauses and result clauses. Taking constraints on leftward movements to hold for movement in general, the paper argues that linguistic theory is incompatible with rightward movement and raises the possibility that these apparently displaced constituents are not moved but rather left behind via leftward

movement. Central to their analysis is the claim that the height of attachment of an extraposed constituent is restricted to the minimal XP containing its 'antecedent' – what they call the Complement Principle. Given this principle, they raise the question of whether a rightward movement analysis is necessary and consider instead three potential leftward movement accounts. The paper also compares extraposition phenomena with heavy NP shift and presentational *there* insertion constructions, which appear to be less susceptible to a leftward movement analysis.

Fox and Nissenbaum's 1999 paper 'Extraposition and scope: a case for overt QR' (Ch. 42), in contrast to the Rochemont and Culicover paper, argue that the difference in the behavior of extraposed adjuncts vs. extraposed complements suggests that only the latter undergo movement. To account for the fact that adjunct extraposition does not obey the restriction against adjunct extraction out of NP, as illustrated in (2), they propose that extraposed adjuncts are in fact merged with their associate NP after it has been raised via Quantifier Raising (QR) to a position outside of VP.

(2) a. *??[from where] did you see [a painting t]
    b. We saw [a painting (t)] yesterday [from the museum]

Under this analysis, based in part on Lebeaux's hypothesis (1988) that adjuncts undergo late insertion, (2b) doesn't involve adjunct extraction from NP. The paper goes on to investigate various predictions of the analysis:

a. that adjunct extraposition marks scope
b. that complement extraposition shows movement effects
c. that QR effects are not detectable for an NP whose complement has been extraposed.

To show how these predictions hold, Fox and Nissenbaum consider a range of constructions involving definiteness effects, Condition C, coordination, and parasitic gaps.

However, applying QR, which has no PF effect, before the merger of the adjunct, which does, forces them to reject the standard model for derivations in which all operations that have PF effects (and are therefore overt) must occur before any operation which has no PF effect (and is therefore considered covert). In the standard model, the separation of overt and covert operations is mediated by a derivational point, Spell-Out, where the derivation bifurcates into two parts, one pertaining to PF and the other to LF. Under Fox and Nissenbaum's analysis, PF effects will be determined by which element of a chain is targeted by the phonology: the head for 'overt' operations, but the tail for 'covert' operations.

Müller's 1995 paper 'On extraposition and successive cyclicity' (Ch. 43) approaches the constraints on extraposition constructions through a theory

of improper movement, and therefore unlike the previous three chapters assumes that extraposition is a movement phenomenon. The paper is concerned with two basic constraints on movement via extraposition: one, that it is strictly clause-bounded, unlike leftward movement, and two, that it allows extraction out of NP, which for leftward movement is generally prohibited.

Müller proposes to account for the two asymmetries via a general theory of improper movement that appropriately restricts successive cyclic movement. This theory rests on the Principle of Unambiguous Binding (Müller and Sternefeld 1993).

(3) Principle of Unambiguous Binding
A variable that is α-bound must be β-free in the domain of the head of its chain (where α and β refer to different types of positions).

(3) is independently motivated by ruling out successive cyclic super-raising as in (4).

(4) A man$_i$ seems [$_{CP}$ t$'_i$ (that) [$_{IP}$ there was killed t$_i$]]

The variable in the object position of *killed* is bound by the trace in Spec-CP and also by the NP *a man* in the matrix Spec-IP, in violation of (3) because the two Specs constitute different types of positions. Müller extends this analysis to German where a constituent that has been moved rightward by extraposition cannot then undergo successive cyclic leftward movement. To account for the fact that extraposition shows no NP-island effect, he proposes that the extraposed constituent first adjoins to NP and then to IP positions of the same type. The proposal captures the following contrast between (5a) and (6a) (Müller's (21a) and (21c)) under the analyses (5b) and (6b).

(5) a. daß eine Frau den Raum betreten hat mit blauen Augen
that a woman the room entered had with blue eyes
b. daß [$_{IP}$ [$_{IP}$ [$_{NP}$ [$_{NP}$ eine Frau t$_j$] t$_j$] den Raum betreten hat [$_{PP}$ mit blauen Augen]$_j$]

(6) a. *Mit blauen Augen hat eine Frau den Raum betreten.
with blue eyes has a woman the room entered
b. [$_{PP}$ mit blauen Augen]$_j$ hat [$_{IP}$ [$_{IP}$ [$_{NP}$ [$_{NP}$ eine Frau t$_j$] t$'_j$] den Raum betreten] t$''_j$]

In (6b) the trace t$_j$ constitutes a variable that is ambiguously bound by the intermediate trace t$'_j$ and by the PP$_j$ in Spec position. The article discusses evidence for the adjunction analysis involving CP extraposition, Heavy NP Shift, and PP extraposition. It then considers some consequences for the

full analysis for cataphoric pronouns (German *es*) and CP extraposition from PP.

At the beginning of transformational grammar, the syntactic derivation of existential constructions was also thought to involve a rightward movement – of the subject NP to the right of the verb *be*, as in (7a) whose underlying structure was assumed to be (7b).

(7) a. There is a mouse in the bedroom.
b. A mouse is in the bedroom.

Stowell's 1978 paper 'What was there before there was there' (Ch. 44) is one of the first analyses to propose instead that sentences like (7b) are in fact derived via the optional leftward movement of the subject into an empty subject position. When the leftward movement does not occur, the pleonastic *there* is inserted into the empty subject position, deriving the existential construction. This analysis is based on the assumption that the verb *be* is a transitive verb, i.e. takes a NP complement. The article demonstrates how this analysis of *be* provides a natural account of several restrictions on existential constructions.[1]

The previous chapters of this and the previous volume have focused on various types of phrasal movement. The following six chapters, in contrast, are primarily concerned with the syntax of head movement where a single head is moved out of the phrase it projects.

In Chapter 45 we start with Lasnik's 1981 commentary on the analysis of the English auxiliary system from *Syntactic Structures*. The article 'Restricting the theory of transformations: a case study' shows how powerful descriptive devices (including obligatory rules, extrinsic ordering statements, and complicated contextual stipulations (sometimes involving Boolean conditions)) of the *Syntactic Structures* system of rules can be eliminated in favor of a single natural constraint on morphological structure. Lasnik notes that much of the complication in this transformational system results from the need to prevent an affix from remaining unattached at the end of the derivation. Lasnik proposes an alternative approach that factors this constraint against a 'stranded affix' out of the grammar of English, making it instead a general morphological condition of UG. The chapter details how this constraint interacts with a simpler set of rules to account for the properties of the English auxiliary system, including interrogatives, negation, and imperatives.

The head movement involved in the English auxiliary system obeys the Head Movement Constraint (HMC) of Travis 1984, which prohibits a verbal head from moving to another head position when this involves crossing over another c-commanding head position. Thus the perfective auxiliary in (8) cannot move directly from V to C by crossing over I, which contains a modal *will*, because such movements are prohibited by the HMC.

(8) *Have John will t left on time?

However, there is also another type of head movement, so-called 'long head movement' found in various Slavic and conservative Romance dialects that appears to be immune to the HMC, as illustrated in (9) (cited in Roberts's 1994 paper 'Two types of head movement in Romance' (Ch. 46)).

(9) Seguir-te-ei por toda a parte [literary European Portuguese]
Follow-you-will-(I) by all the part
'I will follow you everywhere'

In (9) the main verb has raised over the auxiliary *ei* to the left of the subject. Roberts investigates other instances of long head movement, including clitic climbing, the long movement of infinitives in Romance, and Aux to Comp movement in Italian. He proposes a distinction between head movement that involves morphological selection between the two head positions and head movement that involve no such selection. The former obeys the HMC, whereas the latter does not.

Roberts offers an Empty Category Principle (see Chs 60–63 in Vol. IV) account whereby antecedent government must be defined differently for the two types of movement. He applies this analysis to the history of French, where during the seventeenth century nonfinite AGR lost its status as a head-governor, resulting in the disappearance of several instances of long head movement. On the basis of this analysis, Roberts offers a parametric typology of Romance languages based on whether AGR and C can be head governors.

The precise formulation of the operation that performs head movement raises further issues for the theory of grammar. There are two possibilities: either head movement is a form of substitution operation (cf. Freidin 1992, 2004) or it is a form of adjunction, the latter being the more standard view. From the perspective of bare phrase structure (Chomsky 1995 (Ch. 24, Vol. I)), both operations would violate a cyclic principle that is defined in terms of the Extension Condition (Chomsky 1993 (Ch. 90, Vol. VI)). Head movement would not extend a target phrase marker by embedding it within a larger structure. In Chapter 47 Bobaljik and Brown's 1997 squib 'Interarboreal operations: head movement and the extension requirement' addresses this problem by proposing that head movement is in fact a two-step process whereby a head in a phrase marker is copied and adjoined to another head that is not part of the initial phrase marker. Then the newly formed adjunction structure is itself adjoined to the initial phrase marker. They call this an *interarboreal operation* (cf. also Nuñes 2004 where this operation is designated as 'sideward movement'). They show that such movement operations could not be extended to phrasal movement because they would violate the Chain Condition (Rizzi 1986).

Lasnik's 1995 paper 'A note on Pseudogapping' (Ch. 48, Vol. III) argues that Pseudogapping phenomena, as illustrated in (10b) involve two processes: overt A-movement of the Pseudogapping survivor, which is *Harry* in (10a), (to Spec-$Agr_OP$ in his analysis) followed by deletion of the remnant VP.

(10) a. Mary hasn't dated Bill, but she has Ø Harry[2]
b. Mary hasn't dated Bill, but she has [$_{Agr_OP}$ Harry$_i$ $Agr_OP$ [$_{VP}$ ~~dated $t_i$~~]]

As Lasnik notes, the idea that VP deletion targets a VP which contains a gap left by movement in this construction goes back to Jayaseelan 1990, where Heavy NP shift (HNPS), one kind of rightward movement, does this job. Lasnik provides arguments that HNPS does not provide a general source of Pseudogapping. For instance, the first object of the double object construction can escape Pseudogapping by raising out of VP but cannot undergo HNPS:

(11) a. ?John gave Bill a lot of money, and Mary will ~~give~~ Susan ~~a lot of money~~
b. *John gave *t* a lot of money the fund of the preservation of VOS languages

In contrast to the first object, the second object cannot be a survivor, as in (12).

(12) *John gave Bill a lot of money, and Mary will ~~give Bill~~ a lot of advice

This asymmetry between the first and second objects receives a straightforward account under Lasnik's analysis. The second object is not allowed to move over the first object under Relativised Minimality (Rizzi 1990 (Ch. 63, Vol. IV)), which in turn makes it impossible for the target of ellipsis to only include the lexical V and the first object.

Lasnik's leftward object movement analysis of Pseudogapping relies on the hypothesis that when VP-ellipsis does not apply, the lexical verb moves higher than the moved internal argument, i.e. to the head of another VP projection through the Agr (Koizumi 1995 (Ch. 11, Vol. I), Johnson 1991 (Ch. 30, Vol. II)).

(13) Mary has [$_{VP}$ dated$_i$ [$_{Agr_OP}$ Harry$_j$ [$_{Agr_O}$ $t'_i$] [$_{VP}$ $t_i$ $t_j$]]]

Since this V-raising is normally obligatory, Lasnik reasonably asks why the lexical V can stay *in situ* when VP deletion applies. His answer to this question is that the V that raises has a strong feature, which must be checked off before Spell-Out or it would cause the derivation to crash at PF (Chomsky

1993 (Ch. 90, Vol. VI)). Deletion, being a PF process, can therefore remove this ill-formed PF object by deleting (a constituent including) it.

Boeckx and Stjepanović's 2001 paper 'Head-ing for PF' (Ch. 49) provides an argument for Chomsky's suggestion (2000 (Ch. 95, Vol. VI)) that head movement, unlike XP-movement, occurs in the PF component, rather than prior to the LF-PF split at Spell-Out, based on Lasnik's 1995 analysis of Pseudogapping in the previous chapter. Boeckx and Stjepanović point out that the Lasnik-type account is not compatible with Chomsky's (1995b, 2001) 'attractor-oriented' view of overt movement in which features that require checking always reside in attracting.heads. They also point out that under the 'mover-oriented' approach to overt movement, it is not clear why VP deletion does not save the violation caused by an object being *in situ*, as in (14).

(14) *Debbie got chocolate, and Kazuko got$_i$ ~~[$_{VP}$ t$_i$ chocolate]~~ too

They argue that if head movement, unlike XP movement, is a PF process, then it makes sense that only head movement competes with deletion. Movement of *chocolate* in (14) is required for syntactic reasons. That is why deletion can save a structure where a head fails to move but not one where XP fails to move.

The dichotomy between phrasal and head movement that Boeckx and Stjepanović, as well as Lasnik, take for granted is questioned in Baltin's 2002 paper 'Movement to the Higher V is remnant movement' (Ch. 50). He observes that the non-elided counterpart of the Pseudogapping construction in (15) presents a problem.

(15) Although he isn't very fond of Sally, he is ~~very fond~~ of Martha

If the Pseudogapping analysis of (15) parallels the analysis of (10b), then the PP complement of the adjective *fond* will move out of AP to a higher position – presumably Spec-Agr. If this movement is obligatory, then in the non-elided counterpart (16a) would require the remnant AP containing *very fond* in the second conjunct to move to a still higher position, which Baltin takes to be the specifier in a split AP construction, as given in (16b).

(16) a. Although he isn't very fond of Sally, he is very fond of Martha.
b. he is [$_{AP}$ [$_{AP}$ very fond t$_j$ ]$_i$ A [$_{AgrP}$ [$_{PP_j}$ of Martha] Agr [$_{AP}$ t$_i$]]]

In (16b), the PP has moved to Spec-AgrP out of the lower AP, and then that AP undergoes remnant movement to the Spec of the higher AP where the moving phrase contains a trace (see Müller 1995 (Ch. 43) and Koopman and Szabolcsi 2000 for further discussion). Based on this, Baltin claims that PF phrasal movement exists.[3]

In an extremely influential work on the analysis of ellipsis phenomena, Ross's 1969 paper 'Guess who?' (Ch. 51) shows that sentences such as the second sentence in (17a) are derived through a deletion transformation targeting CP,[4] which he called Sluicing. He shows that analysing the second sentence of (17a) as a simple sentence (17c) is problematic and also argues that deletion must apply to the structure given in (17b), rather than the one given in (17d); namely that Sluicing applies after Question Formation (wh-movement).

(17) a. Mary hired someone. I don't know who.
b. I don't know [$_{CP}$ who Mary hired]
c. I don't know [$_{NP}$ who]
d. I don't know [$_{IP}$ Mary hired who]

His arguments include matching effects in case marking and agreement. For example, in cases like (18), the verb shows singular agreement, which suggests that it agrees with the clause, part of which is deleted, rather than with *which problems*.

(18) He's going to give us some old problems for the test, but which problems ~~he's going to give us for the test~~ isn't clear.

Matching effects of this sort are readily accounted for if the elided material exists early and is deleted later in the derivation. Ross also observes that some properties of wh-movement observed in non-sluiced wh-questions are carried over to their sluiced counterpart. The (im)possibility of pied-piping in a wh-question sentence as in (19a) correlates with what can appear as a sluicing remnant as in (19b).

(19) a. I know he has a picture of somebody, but I don't know {who/ of whom/ *a picture of whom}
b. I don't know {who he has a picture of/ of whom he has a picture/ *a picture of whom he has}

This fact strongly argues not only that the deletion rule is involved in this ellipsis phenomenon but also Question Formation precedes Sluicing in the derivation. Ross further points out one extremely interesting consequence of this view, which concerns interaction between deletion and island effects. He observes that Sluicing makes islands effects weaker, as can be seen in the following pair (with Ross's judgments) involving a Complex NP island:

(20) a. *She kissed a man who bit one of my friends, but Tom doesn't realise which one of my friends she kissed a man who bit

b. ?She kissed a man who bit one of my friends, but Tom doesn't realise which one of my friends ~~she kissed a man who bit~~

Ross, unlike many of the later studies on this phenomenon, takes a contrast of this sort to indicate that though they are weaker, the island effects still are observed under Sluicing and therefore that the islands constraints are derivational constraints, rather than conditions on final representations. Finally, Ross also makes some more general points on deletion transformations: among others, (i) that variables in transformational rules can range over 'sentence boundaries' (because the rule should be able to operate across different utterances); and (ii) the identity condition for ellipsis, or what is often called the 'parallelism requirement,' must be formulated in a way that it can deal with sloppy identity, which is observed for VP-ellipsis as well as Sluicing.

While Ross is concerned with parallelism governing application of Sluicing and VP-ellipsis, Williams's 1978 paper 'Across-the-board rule application' (Ch. 52) discusses another sort of parallelism, which governs Across-the-board (ATB) application of movement and deletion. We say that a rule applies to coordinate structures in ATB fashion when it simultaneously targets elements inside each conjunct. Williams attempts to formulate the parallelism requirement on ATB rule application so that the two conjuncts in (21a) count as 'parallel' but those in (21b) do not.

(21) a. I know a man who$_i$ [$_{S_1}$ John saw $t_i$] and [$_{S_2}$ Bill likes $t_i$]
b. *I know a man who$_i$ [$_{S_1}$ Bill saw $t_i$] and [$_{S_2}$ $t_i$ likes Mary]

His main proposals include the following: (i) conjuncts are represented in parallel, rather than in linear order; transformations factor such structures with vertical lines (as illustrated in (22) below); and (ii) Recoverability of Deletion requires that only identical terms in the same factor can be targeted by movement/deletion transformations. In (22), wh-movement successfully targets the terms in factor 3, since the wh-elements in factor 3 are identical.

(22)

| [$_{S'}$ COMP | [ [$_S$ John saw | who] | and ] ] |
|---|---|---|---|
| | [$_S$ [$_S$ Bill likes | who] | |
| 1 | 2 | 3 | 4 |

Williams shows how these conditions successfully derive the effects of Ross's Coordinate Structure Constraint (1967 (Ch. 56, Vol. IV)) with movement and deletion rules.

Williams's 1977 paper 'Discourse and logical form' (Ch. 53) investigates interactions of VP ellipsis and other grammatical rules (cf. also Sag 1976). Example (23) illustrates a typical instance of VP ellipsis, where the