Order Preservation, Parallel Movement,
and the Emergence of the Unmarked

Gereon Müller (IDS Mannheim)

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Abstract:
Order preservation effects are documented with a number of movement operations in various languages, among them *wh*-movement in English (superiority), multiple *wh*-movement in Bulgarian, object shift in Danish and Icelandic, pronoun fronting in German, Case-driven NP raising in English, and quantifier raising in German. Beginning with Lakoff (1971), several analyses have been suggested in the literature that rely on the basic intuition that certain types of movement, under certain conditions, must preserve the pre-movement order of arguments. However, a *unified*, non-construction specific approach to the phenomenon that reduces all order preservation effects to a single underlying constraint is still outstanding, for what at first sight appear to be good reasons: In many cases, overt movement operations can freey change D-structure order (e.g., this holds for *wh*-movement of an object across a non-*wh*-subject). Thus, order preservation should best be viewed as the unmarked case, arising if there is an initial ambiguity of rule application. This idea turns out to be extremely difficult to express in standard syntactic approaches that recognize only inviolable constraints; but things are different under an optimality theoretic approach in which constraints are violable and ranked. In view of this, I will argue for an optimality theoretic analysis that is based on one general constraint called "Parallel Movement" (PAR-MOVE) and thus permits a unified account of order preservation effects. PAR-MOVE is violable and typically ranked quite low; it is thereby correctly predicted that order preservation emerges as the unmarked case with syntactic movement, but is often overruled by higher-ranked constraints.

Keywords:
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Languages:
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1. Introduction

In many cases, there is no ambiguity in movement rule application: There is only one designated position that the movement operation can target, and there is only one designated item that can be affected by the movement operation. A typical example for this is *wh*-movement in simple questions in English. However, sometimes ambiguity does show up in the application of a movement operation, either because the movement operation may (or must) apply more than once, or because there is more than one item in the clause that can in principle be moved. A curious but nevertheless prevalent feature of many of these latter instances of rule application is that movement must be order-preserving. So far, this property of movement operations does not seem to have been explained in a simple and unified way; and it is the main goal of this article to give an account of why it should hold. The account is based on the general constraint Parallel Movement (henceforth PAR-MOVE) in (1), which I will try to justify in what follows.

(1) PAR-MOVE:
If α c-commands β at level L_n, then α c-commands β at level L_{n+1}
(where α, β are arguments).

The basic idea is that c-command relations between arguments must be preserved from one level of representation to the next one. Assuming strict binary branching, c-command relations between arguments are necessarily asymmetric. Assuming furthermore (contra Chomsky (1995)) a model of grammar as in Chomsky (1981; 1986) that recognizes three levels of syntactic representation (D-structure, S-structure, and LF), (1) demands that asymmetric c-command relations between arguments at D-structure must be preserved at S-structure, and that asymmetric c-command relations between arguments at S-structure must be preserved at LF.[1] I will show that PAR-MOVE permits a straightforward account of order preservation with various instances of ambiguous movement (superiority effects in English, multiple *wh*-movement in Bulgarian, object shift in Danish and Icelandic, Case-driven NP raising, pronoun fronting in German, and quantifier raising in German).

Before I turn to an illustration of how PAR-MOVE accounts for order preservation effects with otherwise ambiguous movement rule application, a fundamental problem should be noted that the constraint appears to raise for non-ambiguous movement operations affecting objects – like, e.g., simple *wh*-movement or topicalization in languages like English (cf. (2-ab)).[2]

(2) a. (I don't know) [$_{CP}$ what$_2$ [$_{TP}$ she$_1$ said t$_2$]]
b. [$_{CP}$ John$_2$ [$_{TP}$ she$_1$ doesn't really like t$_2$]]

Both examples clearly violate PAR-MOVE because NP_2 is asymmetrically c-commanded by NP_1 at D-structure but ends up asymmetrically c-commanding NP_1 at S-structure. In view of this, various steps could be taken. First, PAR-MOVE could be rejected immediately. Second, PAR-MOVE could be split up in such a way that it is formulated only for specific movement operations, or only for certain kinds of items.[3]

[1] Note that since PAR-MOVE correlates two non-adjacent steps in the derivation (here encoded as levels), this constraint belongs to the class of "global rules" (in the sense of Lakoff (1971)), just like Chomsky's (1981) Projection Principle does.

[2] Throughout this article, I assume as background the clause structure argued for in Chomsky (1995), with CP dominating TP, TP dominating vP, and vP dominating VP. This clause structure will later be extended by adding a functional projection related to pronouns.

[3] This second strategy does indeed roughly correspond to construction-specific predecessors of PAR-MOVE that can be found in the literature. Thus, Lakoff (1971), Kroch (1974), Reinhart (1983), Huang (1982), and Lasnik & Saito (1992) (also cf. Huang (1995, 165-166) for further references) develop constraints on relative scope assignment that in one way or another incorporate the gist of PAR-MOVE. Their proposals are confined to the interaction of quantified XPs (on which see 3.7 below), and can be interpreted as requiring multiple quantifier raising to maintain S-structure order. (Lakoff's analysis is formulated in the framework of generative semantics, where D-structure plays the role of logical form, and accordingly, his version of the constraint requires that relative scope at D-structure must be preserved at surface structure.) Clearly, these approaches are not in conflict with the existence of order-changing movement operations as in (2); but they do not generalize to other instances of order-preserving movement either. Similar conclusions apply in the case of Watanabe's (1992) constraint regulating (anti-)

Given that this would mean giving up a unified explanation and potentially missing a generalization, I will opt for a third possibility and assume that PAR-MOVE's apparent violability does in fact not disqualify it from being a fundamental constraint that restricts all movement operations.

To execute this idea, I will develop an optimality theoretic approach (cf. Prince & Smolensky (1993)) to order-preserving movement that covers both the cases in which (1) seems to be relevant and the cases in which it seems to be irrelevant. The main idea is that PAR-MOVE belongs to the class of faithfulness constraints that demand identity of input and output of a derivation. The constraint has the following properties: It is violable, universal, and typically ranked low. The last property ensures that its effects are often blurred by higher-ranked constraints and can therefore be observed only under favourable conditions. Thus, the analysis involves a prototypical instance of what McCarthy & Prince (1994) call the "emergence of the unmarked." On a more general note, what follows can be viewed as an argument for an optimality-theoretic organization of grammar: (i) Different constructions exhibit the same property P; (ii) P can be accounted for by a general constraint C, or by several construction-specific constraints c_1, c_2, etc. (iii) Ceteris paribus, C is to be preferred over c_1, c_2, etc., for reasons of explanatory adequacy. (iv) Since C must be assumed to be violable and ranked, the concepts of violability and ranking must play a role in syntactic theory.

2. Background Assumptions

An optimality theoretic grammar has two subcomponents (cf. Prince & Smolensky (1993)). One part of the grammar (called GEN) more or less conforms to standard assumptions: It contains only inviolable constraints, and its main task is to generate the candidates that compete for wellformedness. As for the constraints that make up GEN, I will assume that they include X-bar theoretic restrictions, constraints on θ-assignment, and others. The candidates themselves can be viewed as output representations (such as Grimshaw's (1997) S-structure representations), as n-tuples of representations, or as complete derivations (cf. Chomsky (1995)). Here I will adopt the last view.[4] The derivations that are created by GEN are then subjected to a process of "harmony evaluation" in the second, optimality theoretic part of the grammar. This grammatical subcomponent consists of a set of constraints that are universal, violable, and ranked. Depending on how well it satisfies the ranked constraints, a derivation may or may not be optimal (= grammatical) in its candidate set. Optimality can be defined as follows:

(3) *Optimality*:
A derivation D_i is optimal (= grammatical) iff, for every derivation D_j in the same candidate set, D_i satisfies the highest-ranking constraint on which D_i and D_j differ better than D_j.

Another background notion in need of clarification is that of a candidate set. Although matters turn out to be a little more complex on closer inspection, it may suffice for present purposes to adopt the concept of candidate set developed in Chomsky (1995) that is based on identical numerations (i.e., simplifying somewhat, on identity of lexical material):

(4) *Candidate Set*:
Two derivations D_i and D_j are in the same candidate set iff they have an identical numeration.

Two types of constraints can be distinguished that impose conflicting requirements on candidates (which must then be resolved by a ranking of the constraints). First, there are faithfulness constraints which

superiority, and in the case of Haegeman's (1995) and Meinunger's (1995) constraints on relation preservation in A-chains.

[4]Not much depends on this in the present context, though. The derivational constraints that will be discussed below, including PAR-MOVE, do of course presuppose that the candidates they apply to are derivations; but these constraints could all straightforwardly be reformulated as representational constraints. However, see Müller (1997a) for some arguments in support of a truly derivational view of competing candidates.

ensure that the input and the output of a derivation differ as little as possible, and which thereby minimize the effects of syntactic operations. Among these I take to be a constraint that blocks S-structure movement, viz., STAY:[5]

(5) STAY:
S-structure movement is not allowed.

Another faithfulness constraint is PAR-MOVE; like STAY, it minimizes the effects of movement on a given input.

In contrast, a second class of markedness constraints demand that the input and the output of a derivation differ; these constraints thereby ensure that movement operations occur in syntax. Particularly relevant in this context will be X-CRIT ('X-Criterion') constraints that trigger S-structure movement of a designated element to an X-position, such as WH-CRIT (triggering *wh*-movement) and PRON-CRIT (triggering pronoun movement).

On the basis of these assumptions, I will now turn to various instances of order preservation effects, and I will show that they can be accounted for in a unified way by invoking PAR-MOVE as a violable and ranked constraint. The structure of the argument will look as follows. Given a ranking X-CRIT $\gg$ STAY, two cases of order preservation effects induced by PAR-MOVE can be distinguished. Suppose first that PAR-MOVE is ranked lower than X-CRIT. In that case, a candidate may violate PAR-MOVE if this is necessary to fulfill X-CRIT, but the violation must be kept minimal: If X-CRIT can be satisfied equally well by more than one derivation, PAR-MOVE forces the choice of the derivation that minimally violates it. Second, it might be that PAR-MOVE is ranked higher than some X-CRIT constraint. Now, PAR-MOVE cannot be violated anymore by X-movement so as to fulfill X-CRIT. Rather, if X-movement cannot be order-preserving, a derivation will be optimal that avoids X-movement in favour of X-in situ. As we will see, both these cases are attested, and even in a single language (with different movement types, i.e., different X-CRIT constraints).

3. Order Preservation

3.1. Superiority Effects in English

Superiority effects as they show up with *wh*-movement in English can be viewed as a typical example of a restriction on otherwise ambiguous rule application. In cases in which there is more than one possible *wh*-phrase that might undergo *wh*-movement, the rule of *wh*-movement can in fact not apply ambiguously to either of the *wh*-phrases; rather, the highest *wh*-phrase has to undergo movement (cf. Chomsky (1973)). This is shown by "standard" superiority effects as in (6-ab) (i.e., effects that have been shown to be reducible to the ECP in Aoun, Hornstein & Sportiche (1981) and Chomsky (1981)), and by "pure" superiority effects as in (6-cd) (i.e., effects that involve two objects and are, therefore, not reducible to the ECP in an obvious way; cf. Hendrick & Rochemont (1982) and Pesetsky (1982)):

(6) a. I wonder [$_{CP}$ who$_1$ C [$_{TP}$ t$_1$ bought what$_2$]]
b. *I wonder [$_{CP}$ what$_2$ C [$_{TP}$ who$_1$ bought t$_2$]]
c. Whom$_1$ did John persuade t$_1$ [$_{CP}$ to visit whom$_2$] ?
d. *Whom$_2$ did John persuade whom$_1$ [$_{CP}$ t$'_2$ to visit t$_2$] ?

Various proposals have been suggested in the literature to account for these effects. However, PAR-MOVE offers a new perspective on the phenomenon: The candidates in (6-ac) maintain D-structure order, their competitors in (6-bd) reverse D-structure order. If it can be shown that this PAR-MOVE violation is fatal

[5] See Grimshaw (1997), Legendre, Wilson, & Smolensky (1998), and others. This constraint is an amalgamation of Chomsky's (1995) economy constraints Last Resort and Procrastinate.

in (6), but tolerable in simple questions like (2-a), the superiority effect is derived. To this end, I will now introduce some constraints that regulate *wh*-movement.

I assume that *wh*-movement is triggered by the Wh-Criterion (WH-CRIT) (cf. May (1985), Lasnik & Saito (1984; 1992), and Rizzi (1991), among others).[6] WH-CRIT forces *wh*-phrases to overtly show up in the domain of $C_{[+wh]}$ (where the notion of "domain" is that of Chomsky's (1993) "checking domain"), either via substitution in the specifier position of a C node that bears a [+wh] feature, or via adjunction in the C domain.

(7) WH-CRIT:
$XP_{[+wh]}$ is in the domain of $C_{[+wh]}$ at S-structure.

Clearly, STAY and WH-CRIT impose conflicting requirements on derivations. As shown in Müller (1997a), Ackema & Neeleman (1998), and Legendre, Smolensky, & Wilson (1998), the relative ranking of STAY and (a version of) WH-CRIT yields the contrast between *wh*-in situ type languages such as Korean, Japanese, and Chinese, and *wh*-movement languages like English and German: A language with the ranking STAY $\gg$ WH-CRIT is predicted to lack overt *wh*-movement; in a language with the ranking WH-CRIT $\gg$ STAY, *wh*-movement is forced, in (minimal) violation of STAY.

To distinguish Bulgarian type languages that exhibit multiple *wh*-movement (cf. Rudin (1988)) from English type languages that have only single *wh*-movement even in multiple questions, another constraint is necessary. Assuming that the specifier of C is always unique, it is clear that a maximal satisfaction of WH-CRIT in multiple questions requires adjunction in the C domain. The constraint that we are looking for must therefore be one that blocks this latter operation. Such a constraint has indeed been argued for on independent grounds by Grimshaw (1997); she dubs it PURE-EP ('Purity of Extended Projection'). The following, modified version of PURE-EP may suffice for present purposes (most importantly, Grimshaw's notion of "highest subordinate extended projection" is here replaced by "domain of C").[7]

(8) PURE-EP:
Adjunction is prohibited in the domain of C at S-structure.

Under a ranking PURE-EP $\gg$ WH-CRIT, question formation of the English type is predicted: One *wh*-phrase can undergo overt movement (thereby violating the lower-ranked STAY), but all the other ones must stay in situ, so as to fulfill the higher-ranked PURE-EP (which would be violated after *wh*-adjunction in the C domain). If, on the other hand, WH-CRIT $\gg$ PURE-EP, this implies that the violation of PURE-EP incurred by *wh*-adjunction is permitted if this leads to maximal satisfaction of WH-CRIT; thus, multiple overt *wh*-movement of the Bulgarian type is derived.

The question now is how PAR-MOVE is ranked in English. Clearly, WH-CRIT is in conflict not only with STAY (since it triggers overt movement), but also typically with PAR-MOVE (since it may force a reversal of the D-structure order of arguments). The fact that (2-a) is nevertheless the optimal candidate (as opposed to a candidate with *wh*-in situ at S-structure, which violates neither STAY nor

[6] Also compare Grimshaw's (1997) OP-SPEC and Legendre, Smolensky, & Wilson's (1998) *Q, which yield partially similar effects. Note furthermore that the formulation of WH-CRIT here is a simplification; I believe that the constraint must be decomposed into two conjunctive statements (one about *wh*-phrases, and one about $C_{[+wh]}$ nodes) if more intricate *wh*-constructions are taken into account; cf. Müller (1997a).

[7] Note that PURE-EP does not only block adjunction to a maximal projection, but also adjunction to C. Ultimately, this latter consequence is responsible for blocking V raising to C via adjunction in embedded questions in English in Grimshaw's approach. Assuming that V raising to C can be substitution in root clauses (where C is arguably radically empty), in contrast to embedded clauses (where C bears selection features), V raising in root questions does not have to violate PURE-EP. This can ultimately account for the well-known root/embedded asymmetry concerning V raising in *wh*-questions that Grimshaw (1997) captures by restricting PURE-EP to embedded contexts. See Rizzi & Roberts (1989) for related discussion of C in root and embedded contexts; Vikner (this volume) for a further application of a constraint like PURE-EP; Grimshaw (1999) for a factorization of her PURE-EP into more elementary subconstraints; and Legendre (1998) for the postulation of a whole class of *STRUCTURE constraints of which PURE-EP in its present formulation would be just one instantiation.

PAR-MOVE) therefore shows that WH-CRIT must outrank the two faithfulness constraints in English. We can thus postulate the following ranking for English (where the relative ranking of PAR-MOVE and STAY is irrelevant for the cases considered here).

(9) *Ranking in English*:
PURE-EP $\gg$ WH-CRIT $\gg$ PAR-MOVE $\gg$ STAY

The competition from which the derivation that generates the S-structure representation in (2-a) emerges as the optimal candidate in its candidate set is illustrated in tableau T_1:

T_1: Simple Wh-Movement in English

Candidates	PURE-EP	WH-CRIT	PAR-MOVE	STAY
$\Rightarrow$D$_1$: [$_{CP}$ what$_2$ C John$_1$ ... t$_2$]			*	*
*D$_2$: [$_{CP}$ – C John$_1$ ... what$_2$]		*!		

Next, consider the pair of examples in (6-a) and (6-b) that illustrates the superiority effect in English. The derivations that generate (6-a) and (6-b) have an identical numeration and thus enter the optimality theoretic competition, together with other derivations that, e.g., leave both *wh*-phrases in situ, or that move both *wh*-phrases overtly. The competition is illustrated in tableau T_2.

T_2: Multiple Wh-Movement in English

Candidates	PURE-EP	WH-CRIT	PAR-MOVE	STAY
$\Rightarrow$D$_1$: [$_{CP}$ who$_1$ C t$_1$ ... what$_2$]		*		*
*D$_2$: [$_{CP}$ – C who$_1$ ... what$_2$]		*!*		
*D$_3$: [$_{CP}$ who$_1$ what$_2$ C t$_1$ ... t$_2$]	*!			**
*D$_4$: [$_{CP}$ what$_2$ who$_1$ C t$_1$ ... t$_2$]	*!		*	**
*D$_5$: [$_{CP}$ what$_2$ C who$_1$ ... t$_2$]		*	*!	*

Given the partial ranking PURE-EP $\gg$ WH-CRIT, multiple overt movement as in D_3 and D_4 is blocked, and given the partial ranking WH-CRIT $\gg$ STAY, a complete *wh*-in situ strategy as in D_2 is excluded. All these candidates incur violations of high-ranked constraints. The competition of D_1 and D_5 is of particular importance in the present context. The candidates have an identical constraint profile except for PAR-MOVE, which by itself is ranked fairly low and can in principle be violated by *wh*-movement in English (see tableau T_1). However, given that, all other things being equal, D_1 respects PAR-MOVE and D_5 does not, D_5 is blocked by D_1, and the superiority effect is accounted for, as the consequence of a fatal violation of the low-ranked constraint PAR-MOVE – a violation of a type that is permitted in other candidate sets, where there is no initial ambiguity (i.e., no otherwise identical constraint profile) involved.[8]

[8]The question arises of how the lack of superiority effects in a language like German (see, e.g., Haider (1993)) is to be explained in this approach; cf. (i):

(i) a. (Ich weiß nicht) [$_{CP}$ wer$_1$ C was$_2$ gelesen hat]
I know not who$_{nom}$ what$_{acc}$ read has
b. (Ich weiß nicht) [$_{CP}$ was$_2$ C wer$_1$ t$_2$ gelesen hat]
I know not what$_{acc}$ who$_{nom}$ read has

The problem is that German is otherwise similar to English with respect to the constraints regulating *wh*-movement (but see Müller (1997a) for discussion of some differences, mainly pertaining to partial *wh*-movement in German). I will not try to develop a full-fledged account of the lack of superiority effects in German here. It may suffice to point out that this problem arises under most approaches to superiority in English, including one in terms of the original Superiority Condition (or a variant thereof, like Chomsky's (1995) MLC). Fanselow (1997) argues that German does not exhibit superiority effects with arguments that are clause-mates because *wh*-movement of, say, the object NP in (i-b) may apply from a scrambling position in front of the

3.2. Wh-Movement in Bulgarian

Rudin (1985; 1988) observes that Bulgarian exhibits multiple overt *wh*-movement, in the sense that all *wh*-phrases must be in the domain of $C_{[+wh]}$ at S-structure. This is shown by the contrast in (10):

(10) a. [$_{CP}$ Koj$_1$ kogo$_2$ C [$_{TP}$ t$_1$ vižda t$_2$]] ?
who$_{nom}$ whom$_{acc}$ sees
b. *[$_{CP}$ Koj$_1$ C [$_{TP}$ t$_1$ vižda kogo$_2$]] ?
who$_{nom}$ sees whom$_{acc}$

Interestingly, the moved *wh*-phrases must show up in a fixed order subject $\succ$ object:

(11) *[$_{CP}$ Kogo$_2$ koj$_1$ C [$_{TP}$ t$_1$ vižda t$_2$]] ?
whom$_{acc}$ who$_{nom}$ sees

As Rudin (1988) shows, given certain additional assumptions, this effect can be treated more or less on a par with the superiority effect in English in a framework that incorporates the ECP. However, the phenomenon is more general (cf. Rudin (1985)). Multiple *wh*-movement of three *wh*-arguments in double object constructions also typically results in a fixed order. This order happens to be the D-structure one; cf.:[9]

(12) a. [$_{CP}$ Koj$_1$ kogo$_2$ kakvo$_3$ C [$_{TP}$ t$_1$ e pital t$_2$ t$_3$]] ?
who whom what asked
b. *[$_{CP}$ Koj$_1$ kakvo$_3$ kogo$_2$ C [$_{TP}$ t$_1$ e pital t$_2$ t$_3$]] ?
c. *[$_{CP}$ Kakvo$_3$ koj$_1$ kogo$_2$ C [$_{TP}$ t$_1$ e pital t$_2$ t$_3$]] ?
d. *[$_{CP}$ Kakvo$_3$ kogo$_2$ koj$_1$ C [$_{TP}$ t$_1$ e pital t$_2$ t$_3$]] ?
e. *[$_{CP}$ Kogo$_2$ koj$_1$ kakvo$_3$ C [$_{TP}$ t$_1$ e pital t$_2$ t$_3$]] ?
f. *[$_{CP}$ Kogo$_2$ kakvo$_3$ koj$_1$ C [$_{TP}$ t$_1$ e pital t$_2$ t$_3$]] ?

This state of affairs strongly suggests a constraint like PAR-MOVE at work in both (10-a)/(11) and (12). However, in order to derive these data from PAR-MOVE, an additional assumption seems necessary: In contrast to what is postulated by Rudin (1988), fronting of *wh*-phrases must not proceed via right-adjunction of one NP_1 to another NP_2 that is located in SpecC (or to another NP_2 at an earlier stage in the derivation, when NP_2 is still in situ, as suggested by Ackema & Neeleman (1998) and Grewendorf & Sabel (1996)), but rather via left-adjunction to CP, as in (13); only this way does the linear order of fronted *wh*-phrases correspond to a simple notion of asymmetric c-command:[10]

(13) [$_{CP}$ Koj$_1$ [$_{CP}$ kogo$_2$ [$_{CP}$ kakvo$_3$ C [$_{TP}$ t$_1$ e pital t$_2$ t$_3$]]]] ?

Indeed, adopting (13) seems to be compatible with the main bulk of evidence that Rudin (1988) presents in support of right-adjunction to SpecC (most of which suggests that *wh*-fronting in Bulgarian moves all *wh*-phrases to the left of C, unlike what is the case in, e.g., Polish). Furthermore, PURE-EP penalizes both adjunction to CP and adjunction to SpecC, and therefore does not discriminate between the two options. In addition, closer inspection reveals that the kind of *wh*-cluster formation that is envisaged by Rudin (1988) raises a number of conceptual and empirical problems.[11] Therefore, I will assume that adjunction

subject. Such an approach, which essentially ties the absence of regular superiority effects in German to the relative freedom of clause-internal word order, could presumably be reconciled with the PAR-MOVE account developed here.

[9] There are some apparent exceptions to this generalization where the order of the moved *wh*-phrases is not completely fixed (reflecting D-structure optionality), or additional factors seem to intervene. Cf. Billings & Rudin (1994) for further discussion.

[10] Of course, more intricate notions of c-command could technically do the job under the NP-adjunction hypothesis; see Watanabe (1992) and Kayne (1994), among others. (Note incidentally that whereas SpecC is occupied by the leftmost *wh*-phrase in Rudin (1988), it is occupied by the rightmost *wh*-phrase on Kayne's (1994) assumptions.)

[11] First, adjunction of one argument NP_2 to another argument NP_1 (that does not dominate NP_2 in the pre-movement structure) invariably violates the Strict Cycle Condition of Chomsky (1995) as an instance of syntactic lowering, irrespective of whether NP_1 is in situ or in SpecC at the point at which adjunction applies (technically, the reason is that an embedded feature

to CP is the only way that is permitted by GEN for WH-CRIT to be fulfilled in multiple questions.

Suppose now that the only parametric difference to English that is relevant in this context concerns the ranking of WH-CRIT; this constraint dominates PURE-EP in Bulgarian, thereby inducing multiple *wh*-movement at S-structure in a multiple question.

(14) *Ranking in Bulgarian*:
WH-CRIT $\gg$ PURE-EP $\gg$ PAR-MOVE $\gg$ STAY

In simple *wh*-questions, where PURE-EP can be vacuously fulfilled, we expect Bulgarian to behave exactly like English. In (15), a *wh*-object is moved across a non-*wh*-subject, in violation of PAR-MOVE.

(15) [$_{CP}$ Kakvo$_2$ pravi$_V$ [$_{TP}$ Ivan$_1$ t$_V$ t$_2$]] ?
what does Ivan

The derivation generating (15) is optimal for the very same reasons that the derivation generating (2-a) in English is; tableau T_3 mirrors tableau T_1:

T_3: Simple Wh-Movement in Bulgarian

Candidates	WH-CRIT	PURE-EP	PAR-MOVE	STAY
$\Rightarrow$D$_1$: [$_{CP}$ kakvo$_2$ pravi Ivan$_1$ t$_2$]			*	*
*D$_2$: [$_{CP}$ – pravi Ivan$_1$ kakvo$_2$]	*!			

In multiple questions, things begin to differ. Due to the partial rankings WH-CRIT $\gg$ PURE-EP and WH-CRIT $\gg$ STAY, all *wh*-phrases must undergo overt *wh*-movement in Bulgarian, as they indeed do in (12). It is therefore unavoidable that the optimal candidate in a candidate set that includes the derivations generating the S-structure representations in (12) violates PURE-EP twice (because two instances of CP-adjunction must occur, triggered by WH-CRIT), violates STAY three times (WH-CRIT forces movement of all three *wh*-phrases), and does not violate WH-CRIT at all. Thus, with respect to these three constraints, all the candidates in (12) have an identical profile. It is here that the low-ranked PAR-MOVE becomes relevant again; it discriminates between the candidates and chooses as the sole optimal derivation the one that preserves the D-structure order. All this is shown in tableau T_4.

T_4: Multiple Wh-Movement in Bulgarian

Candidates	WH-CRIT	PURE-EP	PAR-MOVE	STAY
$\Rightarrow$D$_1$: [$_{CP}$ koj$_1$ kogo$_2$ kakvo$_3$ ... t$_1$ t$_2$ t$_3$]		**		***
*D$_2$: [$_{CP}$ koj$_1$ ... t$_1$ kogo$_2$ kakvo$_3$]	*!*			*
*D$_3$: [$_{CP}$ koj$_1$ kogo$_2$ ... t$_1$ t$_2$ kakvo$_3$]	*!	*		**
*D$_4$: [$_{CP}$ – ... koj$_1$ kogo$_2$ kakvo$_3$]	*!**			
*D$_5$: [$_{CP}$ koj$_1$ kakvo$_3$ kogo$_2$ ... t$_1$ t$_2$ t$_3$]		**	*!	***
*D$_6$: [$_{CP}$ kakvo$_3$ koj$_1$ kogo$_2$ ... t$_1$ t$_2$ t$_3$]		**	*!*	***

Here, D_2 is a derivation that fatally violates WH-CRIT but would have won under the English ranking. Similarly, D_4 is a derivation that is excluded by WH-CRIT; this candidate would have been classified as optimal under a Korean type ranking. D_3 is a candidate in which two *wh*-phrases undergo movement, and one stays behind in its in situ position; this candidate is predicted to be suboptimal under any ranking of

is checked by overt movement). A related problem is posed by the fact that adjoining NP$_2$ to NP$_1$ yields a configuration in which c-command of t$_2$ in the strict sense is not available anymore (cf., e.g., Koster (1987) and Stechow & Sternefeld (1988)). Furthermore, it is shown in Stechow (1996) and Beck (1996) that genuine *wh*-cluster formation by NP-adjunction poses problems for a strictly compositional interpretation of multiple questions, in contrast to what is the case with (13). Finally, it turns out that assuming this type of acyclic adjunction operation to be possible leads to substantial overgeneration problems with (non-*wh*) scrambling in free word order languages (cf. Müller (1998b, ch. 4)).

the constraints adopted here. Finally, D_5 and D_6 are (some of the) derivations that exhibit *wh*-movement of all three *wh*-phrases but fail to maintain the D-structure order, in contrast to D_1, which therefore emerges as optimal.

In sum, under a partial ranking WH-CRIT $\gg$ PAR-MOVE it is correctly predicted that *wh*-movement must preserve order if it can (as in multiple questions in English and Bulgarian); but if there is no way in which *wh*-movement may do so, PAR-MOVE can selectively be violated (as in simple questions in English and Bulgarian). In the next subsection, I turn to a manifestation of the other conceivable situation – a movement type either respects PAR-MOVE or cannot apply at all.

3.3. Pronominal Object Shift in Danish

Object shift is a clause-internal A-movement operation that is restricted to weak (unstressed) pronouns in Mainland Scandinavian languages like Danish. Object shift is dependent on leftward raising of the main verb to a higher position (i.e., on V/2 movement in Danish, which lacks overt V-to-I movement; see Vikner (1990)); furthermore, if V raising has applied, object shift is normally obligatory for weak pronouns (see Holmberg (1986), Vikner (1990; 1994), Deprez (1994), and Roberts (1995), among others). A pair of examples that illustrates the obligatoriness of object shift in Danish is given in (16) (cf. Vikner (1994)):

(16) a. *Hvorfor købte$_V$ Peter – ikke t$_V$ den$_1$?
why bought Peter not it
b. Hvorfor købte$_V$ Peter den$_1$ ikke t$_V$ t$_1$?
why bought Peter it not

If two (weak) object pronouns show up in a double object construction, both have to undergo object shift. Interestingly, multiple object shift preserves the D-structure order of arguments (cf. Vikner (1990) and Johnson (1991)). This is shown by the data in (17):

(17) a. Peter viste hende$_1$ den$_2$ jo t$_1$ t$_2$
Peter showed her it indeed
b. *Peter viste den$_2$ hende$_1$ jo t$_1$ t$_2$
c. *Peter viste – – jo hende$_1$ den$_2$
d. *Peter viste – – jo den$_2$ hende$_1$
e. *Peter viste hende$_1$ – jo t$_1$ den$_2$
f. *Peter viste – den$_2$ jo hende$_1$

This pattern is exactly what we would expect, given PAR-MOVE. Interestingly, there is a further restriction: Simple object shift of a pronominal direct object across a lexical indirect object NP is blocked, in contrast to object shift of a pronominal indirect object in the presence of a non-pronominal direct object; cf. (18) (from Vikner (1990)):

(18) a. *Peter viste den$_2$ jo Marie$_1$ t$_2$
Peter showed it indeed Marie
b. Peter viste hende$_1$ jo t$_1$ bogen$_2$
Peter showed her indeed the book

Again, this suggests PAR-MOVE at work – the S-structure representation in (18-b) preserves the argument order established at D-structure, which the S-structure representation in (18-a) does not. However, in contrast to what we have seen in the case of simple *wh*-movement in English and Bulgarian, here it looks as though PAR-MOVE has a somewhat stronger effect on movement: Either pronominal object shift respects PAR-MOVE, or it may not apply at all. That this difference is related to different movement types, and not to different languages, is shown by the fact that simple *wh*-movement and topicalization

can freely violate PAR-MOVE, as shown in (19) (from Vikner (1990; p.c.)):[12]

(19) a. Hvilken bog_2 har $Peter_1$ læst t_2 ?
which book has Peter read
b. Denne bog_2 viste Peter ikke $Marie_1$ t_2
this book showed Peter not Marie

Towards an account of order preservation with object shift, I would like to suggest that object shift of pronouns in the Scandinavian languages is triggered by a constraint that is analogous to WH-CRIT. This constraint will be referred to in what follows as the Pronoun Criterion, or PRON-CRIT. PRON-CRIT forces weak pronouns to show up in the domain of a functional head π at S-structure. I will assume that the functional projection πP intervenes between TP and vP/VP.[13]

(20) PRON-CRIT:
Weak pronouns must be in the domain of π at S-structure.

Now the data in (17) can be analyzed in complete analogy to what was said about order preservation in Bulgarian multiple questions in the previous subsection. To fulfill PRON-CRIT, all pronouns in a double object construction undergo overt raising to πP, with one pronoun substituting in Specπ, and the other one adjoining to πP.[14] PRON-CRIT must be ranked higher than STAY in Danish, but whether PAR-MOVE dominates PRON-CRIT or is dominated by it does not play a role for the data in (17). The situation is different in (18-a), which is repeated here as (21-a), and augmented by (21-b) (cf. Vikner (1990)):

(21) a. *Peter viste den_2 jo $Marie_1$ t_2
Peter showed it indeed Marie
b.??Peter viste – jo $Marie_1$ den_2
Peter shows indeed Marie it

(21-a) corresponds to the *wh*-movement cases (2-a) in English and (15) in Bulgarian in the sense that it involves unambiguous movement violating PAR-MOVE. However, in this case, ungrammaticality results, and this implies that PAR-MOVE must in fact be ranked higher than PRON-CRIT in Danish. Consequently, the optimal candidate violates PRON-CRIT to fulfill PAR-MOVE, and not vice versa. Hence, it is (21-b) (with the direct object pronoun in situ despite V raising), rather than (21-a), that turns out to be optimal.[15]

Under these assumptions, we end up with a ranking like (22) for Danish:

[12]Note that (19-b) also shows that one cannot argue that the presence of the indirect object in (18-a) turns VP into an island for extraction.

[13]Here and in what follows, I abstract away from the fact that Scandinavian object shift depends on movement of the main verb to a higher position. This requirement could be integrated into PRON-CRIT, but such a move might raise problems for a unified account of object shift in Danish and pronoun movement in German, which does not seem to depend on V raising (see below). The reason for this difference will have to be left open in this article.

[14]Note that PURE-EP only rules out adjunction to CP, not adjunction to πP, so the fact that Danish does not exhibit multiple *wh*-movement is unproblematic here.

[15]As observed by Vikner (1990), (21-b) is the only way a sentence can be created on the basis of this lexical material, but it is not completely acceptable. The question arises of how the deviance of (21-b) is to be accounted for. The key to a solution of this problem might be Vikner's (1990, section 4.3.3.1) observation that (21-b) improves significantly if the pronoun is stressed. Under present assumptions, stressing the pronoun renders it irrelevant for PRON-CRIT. Thus, the optimal candidate here might in fact not be one which violates PRON-CRIT, but one which respects both PAR-MOVE and PRON-CRIT at the cost of the violation of a lower-ranked faithfulness constraint that prohibits pronoun "strengthening," i.e., turning an initially weak pronoun into a strong one in the course of the derivation. (The question marks in (21-b) should then not be interpreted as signalling intermediate acceptability, but rather as signalling illformedness if *den* is weak (unstressed), and complete wellformedness if *den* is strong.) On this view, the optimal candidate of the competition underlying (21) (with a weak pronoun in the numeration) would be identical to the optimal candidate of a minimally different competition in which the pronoun was strong to begin with. See Legendre, Smolensky, & Wilson (1998) and Baković & Keer (this volume) for discussion of this concept of syntactic "neutralization" of different input specifications.

(22) *Ranking in Danish*:
PURE-EP ≫ WH-CRIT ≫ PAR-MOVE ≫ PRON-CRIT ≫ STAY

Tableau T_5 then illustrates the situation with multiple object shift in Danish (cf. (17)):

T_5: Multiple Object Shift in Danish

Candidates	PAR-MOVE	PRON-CRIT	STAY
⇒D_1: V [hende$_1$ [den$_2$ π... t_1 t_2]]			**
*D_2: V [den$_2$ [hende$_1$ π ... t_1 t_2]]	*!		**
*D_3: V [– [– π ... hende$_1$ den$_2$]]		*!*	
*D_4: V [– [– π ... den$_2$ hende$_1$ t_2]]	*!	**	*
*D_5: V [– [hende$_1$ π ... t_1 den$_2$]]		*!	*
*D_6: V [– [den$_2$ π ... hende$_1$ t_2]]	*!	*	*

D_3–D_6 incur violations of PRON-CRIT because they fail to move either one or even both of the pronouns. D_1 and D_2, in contrast, both respect PRON-CRIT via multiple object shift. The constraint profile of these two candidates is identical, except for the fact that D_1 respects PAR-MOVE and D_2 violates it; the latter violation therefore becomes fatal.

The competition in cases of simple object shift of a direct object pronoun in double object constructions in Danish is shown in tableau T_6 (cf. (21)):

T_6: Simple Object Shift in Danish

Candidates	PAR-MOVE	PRON-CRIT	STAY
*D_1: V [den$_2$ π... Marie$_1$ t_2]	*!		*
⇒D_2: V [π ... Marie$_1$ den$_2$]]		*	

Here, the optimal candidate is one that violates PRON-CRIT to fulfill the higher-ranked PAR-MOVE (but see the qualification in note 15). Thus, we have derived the fact that object shift can never change the order of arguments in Danish – the movement type respects D-structure order or does not apply at all.[16]

Note finally that the partial ranking WH-CRIT ≫ PAR-MOVE ≫ PRON-CRIT yields the result that simple *wh*-movement may alter the D-structure order of arguments, in contrast to simple object shift; cf. (19-a). Thus, tableau T_7 is identical in all relevant aspects to tableau T_1 from English:

T_7: Simple Wh-Movement in Danish

Candidates	PURE-EP	WH-CRIT	PAR-MOVE	STAY
⇒D_1: [$_{CP}$ hvilken bog$_2$ C Peter$_1$ ... t_2]			*	*
*D_2: [$_{CP}$ – C Peter$_1$ ... hvilken bog$_2$]		*!		

[16] Another derivation D_3 that generates the ill-formed sentence (i) must also be ruled out.

(i) *Peter viste Marie$_1$ den$_2$ jo t_1 t_2
Peter showed Marie it indeed

Here, *Marie*$_1$ and *den*$_2$ both undergo object shift, with only two violations of STAY arising (and no violation of either PRON-CRIT or PAR-MOVE). However, such a derivation violates a general and high-ranked constraint (that we may call F-MATCH) which demands that α can be moved to a position β only if α is equipped with features that match those of β; perhaps, this constraint should in fact be viewed as inviolable and belonging to GEN. Among other things, F-MATCH ensures that there is no movement of [–wh] phrases to Spec$C_{[+wh]}$; and it also implies that there can be no object shift of non-pronouns to the π domain in Danish. Alternatively, F-MATCH could be built into the formulation of PRON-CRIT itself, by adding a statement such as "... and only weak pronouns can be in the domain of π." The choice between the two options depends on a number of further assumptions, and the difference is in any case a subtle one.

This basically exhausts the number of ways in which PAR-MOVE can interact with a conflicting constraint X-CRIT that triggers movement: Either X-CRIT is ranked higher, in which case it permits a violation of PAR-MOVE if there is no other way for it to be satisfied (this holds for WH-CRIT in all the languages discussed here); or X-CRIT is ranked lower, in which case the optimal candidate is one without X-movement in the case of conflict (this holds for PRON-CRIT in Danish). All other pieces of evidence for a constraint like PAR-MOVE that will be presented follow one of the two patterns that have now been established.

3.4. Object Shift of Lexical NPs in Icelandic

The situation with multiple object shift of non-pronominal NPs in Icelandic is similar to what we have seen with pronominal object shift in Danish. However, unlike pronominal object shift, lexical object shift in Icelandic is optional; cf. Holmberg (1986), Vikner (1990), and Collins & Thráinsson (1996), among others. The following data show that multiple object shift of full NPs in double object constructions is order-preserving (from Collins & Thráinsson (1996)):

(23) a. Ég lána Maríu$_1$ bækurnar$_2$ ekki t$_1$ t$_2$
I lend Maria the books not
b. *Ég lána bækurnar$_2$ Maríu$_1$ ekki t$_1$ t$_2$
I lend the books Maria not

Interestingly, even though object shift is in principle optional for full NPs in Icelandic, it is blocked if the shifted item is the direct object, and the indirect object stays in situ. The indirect object, on the other hand, can shift even if the direct object stays in situ. This is shown in (24):

(24) a. *Ég lána bækurnar$_2$ ekki Maríu$_1$ t$_2$
I lend the books not Maria
b. Ég lána Maríu$_1$ ekki t$_1$ bækurnar$_2$
I lend Maria not the books

Again, the contrasts in (23) and (24) suggest an account in terms of PAR-MOVE. The main difference between the two object shift types that is relevant in the present context is that non-pronominal object shift in Icelandic is an optional movement operation. As is typical for all syntactic theories employing an economy constraint like STAY, permitting true optionality of rule application initially poses a problem. In line with the standard approach taken in view of this situation (see, e.g., Chomsky (1995)), I will assume that the apparent optionality of object shift of lexical NPs in Icelandic is to be reanalyzed as being due not to a genuine optionality of rule application, but rather to the optional presence of movement-triggering features on lexical items – the movement operation as such is obligatory. Thus, suppose that there is a constraint that obligatorily triggers object shift of lexical NPs bearing a certain feature F ('F-CRIT'), and that F is optionally instantiated on a lexical item in the numeration. What exactly this feature F looks like, and what position F-CRIT forces F-bearing NPs to move to, depends on further assumptions about which I have nothing to say here; but a clarification of this issue is not necessary for the account of order preservation developed in what follows.[17] The empirical evidence suggests that F-CRIT (unlike, e.g., WH-CRIT) is ranked lower than PAR-MOVE in Icelandic, in complete analogy to the partial ranking PAR-MOVE $\gg$ PRON-CRIT in Danish. From such a ranking it then follows that object shift of lexical

[17] A proposal concerning the trigger of Icelandic object shift that can straightforwardly be reconciled with this general view is made by Collins & Thráinsson (1996). They suggest that object shift of non-pronominal NPs in Icelandic is an instance of optional A-movement to a Case position, and that the pertinent feature for object shift can be either strong or weak – strength of this feature would then correspond to the presence of F, in the framework adopted here.

NPs in Icelandic either respects PAR-MOVE or does not apply at all.[18]

(25) *Ranking in Icelandic*:
PURE-EP ≫ WH-CRIT ≫ PAR-MOVE ≫ F-CRIT ≫ STAY

To account for the data in (23) and (24), we have to consider three candidate sets. In one candidate set (cf. tableau T_8), F is present on both the direct and the indirect object. Here, the derivation generating (23-a) (D_3) is the optimal candidate. The competing derivation generating (23-b) (D_4) is blocked due to a fatal PAR-MOVE violation; and the derivations that underlie (24-a) and (24-b) (viz., D_5 and D_2, respectively) involve fatal violations of F-CRIT, since F is present on both objects, by assumption.

T_8: Non-prononimal object shift, with F on indirect object & direct object

Candidates	PAR-MOVE	F-CRIT	STAY
*D_1: – Neg NP_2 NP_3		*!*	
*D_2: NP_2 Neg t_2 NP_3		*!	*
⇒D_3: NP_2 NP_3 Neg t_2 t_3			**
*D_4: NP_3 NP_2 Neg t_2 t_3	*!		**
*D_5: NP_3 Neg NP_2 t_3	*!	*	*

But of course, the string in (24-b) is well formed as such, so there must be a derivation that generates it which is optimal. Indeed, the derivation generating (24-b) emerges as a winning candidate in a second candidate set that contains derivations in which the object shift feature is present only on the indirect object; cf. tableau T_9.

T_9: Non-pronominal object shift, with F on indirect object only

Candidates	PAR-MOVE	F-CRIT	STAY
*D_1: Neg NP_2 NP_3		*!	
⇒D_2: NP_2 Neg t_2 NP_3			*

The relevant derivations that need to be considered here are D_1, in which the indirect object fails to undergo object shift, and D_2, in which it is moved. Clearly, the latter candidate is the only one that fulfills F-CRIT, and it is therefore optimal.[19]

However, (24-a) is blocked as suboptimal in all candidate sets. In particular, it is blocked as involving a fatal PAR-MOVE violation in a third candidate set that contains the relevant feature F only on the direct object; here, the optimal derivation is one with both object NPs in situ; cf. tableau T_{10}.[20]

[18] As an alternative to optionality of feature instantiation, the optionality of object shift of lexical NPs in Icelandic might also be accounted for by an appropriately (globally) defined constraint tie that would involve F-CRIT and STAY. Cf. Prince & Smolensky (1993) for the concept, and Pesetsky (1998), Ackema & Neeleman (1998), Legendre, Smolensky, & Wilson (1998), and Müller (1997a) for some applications in syntax.

[19] Note that, due to a high-ranked (or inviolable) constraint like F-MATCH, we can disregard from the start those derivations that involve an additional and unmotivated movement of the direct object, as in the candidates D_3, D_4 (both with multiple object shift), and D_5 in T_8. Similar considerations apply with respect to tableau T_{10} below.

[20] Further corroboration of this analysis is provided by Vikner's (1990 (1995, 198-200)) and Bobaljik & Jonas's (1996, 212-214) observation that object shift can never cross the in situ-subject in transitive expletive constructions in Icelandic; cf.:

(i) a. *θaδ* lauk einhver$_1$ verkefninu$_2$
there finished someone the assignment
b. **θaδ* lauk verkefninu$_2$ einhver$_1$ t_2
there finished the assignment someone

Given that the subject NP_1 asymmetrically-commands the object NP_2 at D-structure, the contrast in (i) follows directly from PAR-MOVE, along the same lines as (23-b). That said, it seems that the empirical evidence is not quite as clearcut as one might wish. For instance, a different assessment of data involving object shift in transitive expletive constructions in Icelandic

T_{10}: Non-pronominal object shift, with F on direct object only

Candidates	PAR-MOVE	F-CRIT	STAY
⇒D_1: Neg NP_2 NP_3		*	
*D_5: NP_3 Neg NP_2 t_3	*!		*

Thus, PAR-MOVE restricts object shift of lexical NPs in Icelandic in such a way that it must not apply if D-structure argument order cannot be preserved, in complete analogy to pronominal object shift in Danish. Since D_1 emerges as optimal not only in the candidate set underlying T_{10} (with F instantiated on the direct object only), but also in yet another candidate set in which F is not instantiated at all, we end up with the result that a sentence with both objects in situ is derivationally ambiguous, in the sense that it can be the winner of two different competitions (i.e., we have another instance of neutralization of input specifications, cf. note 15).

3.5. Case-driven NP Raising

According to some analyses (cf. note 17), optional object shift of lexical NPs in Icelandic is already an instance of Case-driven NP raising. However, quite independently of this specific issue, the problem of accounting for order preservation with Case-driven NP raising shows up in general in approaches that postulate multiple Case-driven movement within a single clause. Assuming with Chomsky (1995) that NPs are base-generated VP-internally and must raise to an external position to check structural Case, a well-known problem arises: Why does NP raising (be it overt or covert) of, e.g., a subject NP and an object NP in a simple transitive structure result in asymmetric c-command of the object by the subject, and not vice versa? For the sake of concreteness, suppose, basically as in Chomsky (1995), that objects are base-generated VP-internally, and that subjects are base-generated in the specifier of a light verb v, as in (26). The question then is why the target of Case-driven subject movement must be SpecT, and why the target of Case-driven object movement must be a position in the domain of v (a second specifier of v, or, as I will assume here, a vP-adjoined position).

(26) $[_{TP} - [_{T'}\ T\ [_{vP}\ Adj_2\ [_{vP}\ [_{Spec_1}\ NP_{Subj}\ ]\ [_{v'}\ v\ [_{VP}\ V\ NP_{Obj}\ ]]]]]]$

It is clear that order preservation effects with Case-driven NP raising can be explained as the result of a violable and low-ranked PAR-MOVE constraint that interacts with the relevant markedness constraint (F-CRIT or, perhaps more specifically, the CASE FILTER): NP_{Subj} raising to SpecT accompanied by NP_{Obj} raising to Adj_2 of v in (26) respects PAR-MOVE, whereas NP_{Subj} raising to Adj_2 accompanied by NP_{Obj} raising to SpecT does not, and the latter option is therefore blocked as suboptimal by the former one.[21]

3.6. Pronoun Fronting in German

Movement of weak (unstressed) pronouns to Wackernagel positions results in a fixed order in German (see, e.g., Lenerz (1977; 1992) and Haftka (1981)).[22] As shown in (27), displaced subject pronouns

is reported in Collins (1997, 18).

[21]This analysis can be straightforwardly extended to Case-driven movement in double object constructions. If all three arguments undergo overt movement to a Case position, PAR-MOVE requires them to reassemble in their D-structure oder. If Case-driven movement at S-structure does not apply to one (or two) of the objects (because the relevant feature is not present), as argued for German in Müller & Sternefeld (1994), a ranking F-CRIT/CASE FILTER ≫ PAR-MOVE correctly ensures a minimal violation of PAR-MOVE with the moved argument(s).

[22]All generalizations of this subsection hold for *weak*, unstressed pronouns only; both *strong* (stressed) and *clitic* pronouns behave differently. Simplifying somewhat, strong pronouns behave like non-pronominal NPs, as in Danish. They do not undergo movement to a Wackernagel position, and they do not exhibit fixed order effects, just like non-pronominal NPs (cf. (36) below; i.e., all the data in this subsection are acceptable if the pronouns are stressed). Clitic pronouns, on the other hand, must

obligatorily precede displaced object pronouns:

(27) a. daß sie$_1$ es$_2$ wahrscheinlich t$_1$ t$_2$ gelesen hat
that she it probably read has
b. *daß es$_2$ sie$_1$ wahrscheinlich t$_1$ t$_2$ gelesen hat
that it she probably read has

Displaced direct object pronouns precede displaced indirect object pronouns:

(28) a. daß es$_1$ ihm$_2$ der Fritz t$_1$ t$_2$ gegeben hat
that it him ART Fritz given has
b. *daß ihm$_2$ es$_1$ der Fritz t$_1$ t$_2$ gegeben hat
that him it ART Fritz given has

Just like pronominal object shift in Scandinavian, pronoun fronting to a Wackernagel position in German is obligatory; weak pronouns that show up to the right of VP-adjoined adverbials invariably create ungrammaticality:

(29) *daß sie$_1$ wahrscheinlich t$_1$ es$_2$ gelesen hat
that she probably it read has

If all three arguments in a double object construction are weak pronouns, the order after pronoun movement to the Wackernagel position is subject $\succ$ direct object $\succ$ indirect object; all other permutations are ill formed:

(30) a. daß sie$_1$ es$_2$ ihm$_3$ wahrscheinlich zum Geburtstag t$_1$ t$_2$ t$_3$ schenken wird
that she it him probably for the birthday give will
b. *daß sie$_1$ ihm$_3$ es$_2$ wahrscheinlich zum Geburtstag t$_1$ t$_2$ t$_3$ schenken wird
c. *daß es$_2$ sie$_1$ ihm$_3$ wahrscheinlich zum Geburtstag t$_1$ t$_2$ t$_3$ schenken wird
d. *daß es$_2$ ihm$_3$ sie$_1$ wahrscheinlich zum Geburtstag t$_1$ t$_2$ t$_3$ schenken wird
e. *daß ihm$_3$ sie$_1$ es$_2$ wahrscheinlich zum Geburtstag t$_1$ t$_2$ t$_3$ schenken wird
f. *daß ihm$_3$ es$_2$ sie$_1$ wahrscheinlich zum Geburtstag t$_1$ t$_2$ t$_3$ schenken wird

These facts are strongly reminiscent of the situation with pronominal object shift in Danish (the movement operation targets a VP-external position, it results in a fixed order, and it affects only weak pronouns), and therefore suggest a unified approach in terms of PAR-MOVE. However, there are some differences: First, at first glance it looks as though the landing sites of the two operations are not identical: They must be vP/VP external in both cases, but Scandinavian object shift targets a position following the subject, while German pronoun fronting ends up in the Wackernagel position, which can either precede or follow the position of subjects in German; cf.:

(31) a. daß der Fritz$_3$ es$_1$ ihm$_2$ t$_3$ t$_1$ t$_2$ gegeben hat
that ART Fritz it him given has
b. *daß der Fritz$_3$ ihm$_2$ es$_1$ t$_3$ t$_1$ t$_2$ gegeben hat
that ART Fritz him it given has

There is independent evidence that the co-existence of the data in (28) and the data in (31) is due to an optionality concerning the surface position of subjects in German, and not to an optionality in pronoun fronting: Not only is it impossible for a weak pronoun to follow a VP-adverbial (cf. (29)); it cannot follow a lexical indirect object NP either, even if it follows the subject:

(32) a. daß der Fritz$_3$ es$_1$ der Maria$_2$ t$_3$ t$_1$ t$_2$ gegeben hat
that ART Fritz it ART Maria given has

phonologically attach to a lexical host by definition, but the landing site does not have to be in the Wackernagel domain, and the order of the pronouns becomes much less rigid if cliticization is involved.

b. *daß der Fritz$_3$ der Maria$_2$ es$_1$ t$_3$ t$_1$ t$_2$ gegeben hat
that ART Fritz ART Maria it given has

Accordingly, I would like to suggest that this difference between object shift in Danish and Wackernagel fronting in German is unrelated to the issue of pronoun movement: Both movements are triggered by PRON-CRIT and end up in the π domain, which *is* the Wackernagel position. On this view, the difference between Danish and German is simply that German subjects may optionally stay in situ or raise to SpecT (cf. Grewendorf (1989), among others), whereas Danish subjects must raise to SpecT, thereby strictly precluding adjacency of C and a fronted pronoun.[23]

A second (and more fundamental) difference is that the order of the fronted pronouns is direct object $\succ$ indirect object in German, but indirect object $\succ$ direct object in Danish. If both S-structure orders result from the activity of a low-ranked PAR-MOVE constraint, this presupposes that the D-structure order with double object verbs in German is direct object $\succ$ indirect object, in contrast to what I have assumed so far for Icelandic and Danish (where the base order must be indirect object $\succ$ direct object). Indeed, there are some differences between double object constructions in German and, e.g., Danish that support such a view.[24] To name just one, it has been noted by Grewendorf (1988) that a direct object NP can bind an indirect object anaphor that it precedes in German, but not vice versa; cf.:

(33) a. daß der Arzt den Patienten$_1$ sich$_1$ im Spiegel zeigte
that the doctor$_{nom}$ the patient$_{acc}$ himself$_{dat}$ in the mirror showed
b. *daß der Arzt dem Patienten$_1$ sich$_1$ t$_1$ im Spiegel zeigte
that the doctor$_{nom}$ the patient$_{dat}$ himself$_{acc}$ in the mirror showed

As shown in Müller & Sternefeld (1994), this follows if the direct object is base-generated above and to the left of the indirect object. On this view, (33-a) is well formed because the indirect object reflexive can be A-bound at S-structure by the direct object NP, whereas (33-b) is ill formed because it involves an illicit crossover configuration after scrambling of the indirect object to a position c-commanding the direct object reflexive. The situation is different in Danish, however: An indirect object can bind a direct object anaphor that follows it; cf. Vikner (1985).

(34) Jeg viste Jon$_1$ ham selv$_1$ i spejlet
I showed Jon$_{dat}$ himself$_{acc}$ in the mirror

This suggests that the D-structure order is indirect object $\succ$ direct object in Danish, in contrast to what is the case in German. I believe that further differences between German and the Scandinavian languages (related, e.g., to locality, weak crossover, and word order effects) point to the same conclusion (cf. Müller (1995)). For the time being, though, I will leave it at that, and turn to a third crucial difference:

Scandinavian object shift can never violate PAR-MOVE, whereas German pronoun fronting can. This implies that PRON-CRIT must be ranked higher than PAR-MOVE in German, in contrast to what we have seen in Danish. Hence, if pronoun fronting in German leads to a reversal of D-structure argument order with non-pronominal NPs, which are not subject to PRON-CRIT, this is permitted; cf. (28).[25]

[23]Thus, a subject NP in German will only optionally have a feature specification that forces raising to SpecT, by a Case- or EPP-related markedness constraint. Alternatively, a tie of this constraint and STAY could be envisaged.

[24]It has sometimes been claimed on the basis of markedness considerations that the relative D-structure order of direct and indirect object in German depends on the choice of verb (see, e.g., Haider (1992)), and that verbs like *geben* ('give') induce an order indirect object $\succ$ direct object, whereas verbs like *aussetzen* ('expose') induce the reverse order direct object $\succ$ indirect object. In Müller (1998a) I show that this assumption is untenable, and that issues of relative markedness do in fact support the view adopted here, viz., that direct object $\succ$ indirect object is the sole D-structure order in German, with differing unmarked S-structure orders resulting from scrambling operations triggered by optimization needs.

[25]There are two further difference about which I have nothing to say here. As noted above, Scandinavian object shift depends on V movement, which German pronoun fronting does not seem to do; and pronoun fronting in German and pronominal object shift in Scandinavian behave differently with respect to the status as A-bar or A-movement (e.g., the former movement licenses parastic gaps, the latter does not).

Thus, I would like to suggest the following ranking in German, which treats PRON-CRIT on a par with WH-CRIT, as far as the relation to PAR-MOVE is concerned:[26]

(35) *Ranking in German*:
PURE-EP ≫ WH-CRIT ≫ PRON-CRIT ≫ PAR-MOVE ≫ STAY

Given the above assumptions, the order preservation effects with pronoun fronting in German follow from this ranking. For instance, tableau T_{11} shows why (28-a) emerges as the winner of the competition in (28). Both D_1 and D_2 incur two PAR-MOVE violations because two objects are moved across the subject. The violation that is fatal for D_2 is the third PAR-MOVE violation that results from a reversal of the order of the two objects.[27]

T_{11}: Pronoun Fronting in German with a non-pronominal subject

Candidates	PRON-CRIT	PAR-MOVE	STAY
⇒D_1: es_1 ihm_2 der Fritz t_1 t_2 ...		**	**
*D_2: ihm_2 es_1 der Fritz t_1 t_2 ...		***!	**
*D_3: es_1 der Fritz t_1 ihm_2 ...	*!	*	*
*D_4: ihm_2 der Fritz es_1 t_2 ...	*!	**	*
*D_5: der Fritz es_1 ihm_2 ...	*!*		

Similarly, PAR-MOVE yields the correct results for more complex examples, in which all three arguments in a double object construction are pronouns susceptible to PRON-CRIT, as in (30). Tableau T_{12} illustrates that the derivation that generates (30-a), which maximally respects PAR-MOVE, is the sole optimal candidate in its candidate set, and blocks the derivations that generate the remaining S-structure representations in (30).

T_{12}: Pronoun Fronting in German with a pronominal subject

Candidates	PRON-CRIT	PAR-MOVE	STAY
⇒D_1: sie_1 es_2 ihm_3 ... t_1 t_2 t_3			***
*D_2: sie_1 es_2 ... t_1 t_2 ihm_3	*!		**
*D_3: sie_1 ihm_3 ... t_1 es_2 t_3	*!	*	**
*D_4: sie_1 ihm_3 es_2 ... t_1 t_2 t_3		*!	***
*D_5: es_2 sie_1 ihm_3 ... t_1 t_2 t_3		*!	***
*D_6: es_2 ihm_3 sie_1 ... t_1 t_2 t_3		*!*	***
*D_7: ihm_3 sie_1 es_2 ... t_1 t_2 t_3		*!*	***
*D_8: ihm_3 es_2 sie_1 ... t_1 t_2 t_3		*!**	***

Finally, to conclude the discussion of pronoun fronting in German, a remark is due on scrambling. As shown in (36), the strict order preservation effects with pronoun fronting do not show up with non-pronominal NPs; on the contrary, in a double object construction, all permutations derivable by scrambling are well formed (although not equally unmarked; note that the candidate that maximally respects PAR-MOVE by exhibiting D-structure order is (36-b), whereas the unmarked order is that in (36-a)).

[26] Note that the partial ranking WH-CRIT ≫ PRON-CRIT is not actually forced by empirical evidence.

[27] By assumption, the subject NP *Fritz* stays in situ in the derivations of this candidate set; it lacks the relevant feature that triggers overt raising to SpecT. If there is such a feature in a derivation D_X, D_X will belong to a different candidate set, and therefore cannot block D_1 even if it fares better with respect to PAR-MOVE. If, however, *Fritz* is moved in accordance with PAR-MOVE to a clause-initial position without bearing an appropriate feature, a fatal violation of the high-ranked (or inviolable) F-MATCH will result. – Note also that although D_5 is excluded as an ill-formed derivation, the S-structure string as such is indeed well formed (cf. (31) above); however, it is generated by derivation D_X and therefore involves three argument traces (i.e., three STAY violations).

(36) a. daß der Fritz der Maria das Buch gab
that ART Fritz$_{nom}$ ART Maria$_{dat}$ the book$_{acc}$ gave
b. daß der Fritz das Buch der Maria gab
c. daß der Maria der Fritz das Buch gab
d. daß der Maria das Buch der Fritz gab
e. daß das Buch der Fritz der Maria gab
f. daß das Buch der Maria der Fritz gab

Thus, the way out of PAR-MOVE effects that is evidently available for lexical NPs in German must not be available for weak pronouns. In fact, it has been argued by a number of researchers, and on different grounds, that pronoun fronting in German cannot be analyzed as an instance of scrambling; cf. in particular Thiersch's (1978, 84) rule C_1 (which affects pronouns, but not lexical NPs), and also Cardinaletti & Roberts (1991), Schmidt (1992), Zwart (1993), and Müller (1998b). I will assume that whereas pronoun movement is triggered by PRON-CRIT and ends up in the π domain, scrambling in German is a movement rule that affects only lexical NPs (PPs, CPs) and applies within the vP/VP domain. Given STAY and PAR-MOVE, there must be a higher-ranked trigger for scrambling. It has recently been argued that this trigger should not be encoded as a (criterion-like) standard constraint that forces the localization of an XP in a designated structural domain, but rather as a set of various interacting linearization constraints that are themselves violable and ranked, and that center around notions like focus, topic, specificity, definiteness, animacy, etc. A predecessor of such an analysis can be found in Uszkoreit (1984). Optimality-theoretic approaches of this general type include Choi (1996), Costa (this volume), and Müller (1998a). The last paper can be viewed as complementing the present article; it focusses on the inherent tension between the requirement to make scrambling maintain D-structure order that is imposed by PAR-MOVE, and the requirement to make scrambling change D-structure order that is imposed by the higher-ranked linearization constraints.

With the loophole created by scrambling for an explanation of order preservation effects with pronoun fronting in German now closed, and a proper account of the interaction of PAR-MOVE and order-changing scrambling hinted at, I will leave it at that, concluding that a violable PAR-MOVE constraint makes it possible to develop a unified approach that treats pronoun fronting in German in the same way as object shift in Danish.[28]

3.7. Relative Scope and QR in German

At least since Lakoff (1971), it is generally assumed that relative scope at the level of logical form is crucially determined by surface word order in the unmarked case. If scope reversal nevertheless takes

[28] Needless to say, some problems still have to be left open under this analysis. For instance, as noted by Werner Frey (p.c.), there are some constructions that exhibit the same fixed order of fronted pronouns, but where it is less obvious that this order is the D-structure one. This holds, e.g., for coherent infinitive constructions. Consider (i):

(i) a. daß es$_2$ ihm$_3$ keiner t$_3$ [$_\alpha$ t$_2$ zu lesen] empfohlen hat
that it$_{acc}$ him$_{dat}$ no-one$_{nom}$ to read recommended has
b. ?*daß ihm$_3$ es$_2$ keiner t$_3$ [$_\alpha$ t$_2$ zu lesen] empfohlen hat
that him$_{dat}$ it$_{acc}$ no-one$_{nom}$ to read recommended has

Given that the indirect object NP$_3$ is base-generated in the matrix clause in (i-ab), and the direct object NP$_2$ in the embedded infinitive α, it seems that PAR-MOVE would incorrectly predict the ill-formed S-structure order in (i-b) rather than the well-formed S-structure order in (i-a). Thus, under present assumptions, a PAR-MOVE account of the data in (i) seems to presuppose a base-generation approach to coherent infinitives in German that does not postulate the presence of an α constituent in (i) (cf. Haider (1993), among others), so that NP$_3$ does not asymmetrically c-command NP$_2$ in the base. An alternative strategy would be to alter certain premisses that have so far been taken for granted. For instance, it might be that the data in (i) actually indicate the activity of an output/output faithfulness constraint, such that the pronoun order in complex clauses must reflect the pronoun order in simple clauses, which in turn is derived from PAR-MOVE. For reasons of space and coherence, I will not pursue these matters here.

place in a sentence, this can then viewed as a consequence of the presence of one of various intervening factors. Kroch (1974) explicitly suggests handling the impact of these intervening factors in terms of repair strategies (that he calls "scope readjustment rules"). Factors that can create a relative scope that differs from S-structure order include specific intonation patterns, inherent properties of quantifiers (like "strength"), etc.; see, e.g., Kroch (1974), Huang (1982), Reinhart (1983), and Liu (1997).

As far as German is concerned, there is agreement that S-structure word order is indeed highly relevant for determining relative scope (cf. Frey (1989), Moltmann (1991), Pafel (1993), Büring (1996), Beck (1996), Diesing (1997), and Heck (1999)). Abstracting away from certain potentially intervening factors (i.e., assuming that neutral intonation is present, that the quantified expressions that are involved are not inherently prone to wide scope readings, and so on), it seems that by far the most natural (perhaps, the only available) reading for the sentences in (37) that involve a subject quantifier and an object quantifier is one that corresponds to the S-structure order of the quantified items.

(37) a. daß mindestens ein Gast$_1$ viele Geschenke$_2$ mitbrachte
that at least one guest$_{nom}$ many presents$_{acc}$ brought
b. daß viele Gäste$_1$ mindestens ein Geschenk$_2$ mitbrachten
that many guests$_{nom}$ at least one present$_{acc}$ brought
c. daß viele Geschenke$_1$ mindestens ein Gast$_2$ t$_1$ mitbrachte
that many presents$_{acc}$ at least one guest$_{nom}$ brought
d. daß mindestens ein Geschenk$_1$ viele Gäste$_2$ t$_1$ mitbrachten
that at least one present$_{acc}$ many guests$_{nom}$ brought

In (37-a) and (37-b), the subject NP$_1$ precedes the object NP$_2$, and this order determines relative scope. More interesting in the present context are the examples in (37-c) and (37-d). Here, the object NP$_1$ is scrambled across the subject NP$_2$, but relative scope can still be read off the S-structure representation – due to scrambling of the object in front of the subject, the subject does not take scope over the object anymore (assuming as before that a neutral intonation pattern is present, and not one that tends to trigger scope inversion, such as the so-called "I-intonation pattern;" cf. Jacobs (1982) and Büring (1995), among others). Next, consider the relative scope of direct and indirect object in a double object construction in German, as in (38):

(38) a. daß man mindestens einem Gast$_1$ viele Geschenke$_2$ gab
that one at least one guest$_{dat}$ many presents$_{acc}$ gave
b. daß man vielen Gästen$_1$ mindestens ein Geschenk$_2$ gab
that one many guests$_{dat}$ at least one present$_{acc}$ gave
c. daß man mindestens ein Geschenk$_1$ vielen Gästen$_2$ gab
that one at least one present$_{acc}$ many guests$_{dat}$ gave
d. daß man viele Geschenke$_1$ mindestens einem Gast$_2$ gab
that one many presents$_{acc}$ at least one guest$_{dat}$ gave

Again, relative scope corresponds to the S-structure order, irrespective of the base position of the two arguments, and irrespective of how the S-structure order is derived from D-structure. Thus, if an indirect object precedes a direct object, it takes scope over it (cf. (38-a) and (38-b)), and the opposite is the case if the direct object precedes the indirect object at S-structure (cf. (38-c) and (38-d)); note that this way readings can be forced that are not necessarily the pragmatically most plausible ones (this holds, e.g., for (38-c) and (38-d)).[29]

[29]This assessment of the data is in line with the findings of Moltmann (1991), Pafel (1993), Beck (1996), and Büring (1996). Frey (1989) and Heck (1999) systematically permit an additional reading in sentences that involve quantifier scrambling, which corresponds to the relative order of quantifiers after reconstruction (also see Aoun & Li (1993)). This more liberal variety may require some additional assumptions, but does not undermine the claim that order preservation is a prevalent property of quantifier scope that lends itself to an optimality-theoretic analysis; cf. Heck (1999).

As a sketch of an analysis, suppose that quantifiers obligatorily undergo quantifier raising (QR) at LF in order to avoid a type mismatch that would block type-driven interpretation in situ (see Stechow (1996) and Heim & Kratzer (1998), among others); this requirement can be called Q-CRIT (Quantifier-Criterion). It then follows that the data in (37) and (38) show that, in the unmarked case, QR is an order-preserving movement operation, in the sense that it does not change the c-command relations among quantifiers that hold at S-structure. This, of course, immediately follows from PAR-MOVE, in the same way that the order preservation effects that were discussed in the preceding subsections do. The only fundamental difference is that in this case, the evidence exclusively concerns the relationship between S-structure and LF, and not between D-structure and S-structure. Q-CRIT dominates PAR-MOVE, which implies that the relative S-structure order of different quantified NPs must be preserved with multiple QR at LF, but that intervening non-quantified NPs (e.g., proper names) can be crossed by QR if necessary. Furthermore, on this approach intervening factors that create scope reversal (like intonation or inherent quantifier strength) can be represented as constraints that outrank PAR-MOVE and thus blur its effects in the case of conflict.[30]

4. Parallel Movement and the Minimal Link Condition

The last section has shown that a variety of movement types exhibit order preservation effects that are immediately amenable to an account in terms PAR-MOVE, on the basis of an optimality theoretic approach to syntax. These movement types differ substantially with respect to a number of properties. All may face an initial ambiguity concerning the items they can apply to, but some movement types can affect more than one item per clause, whereas others can affect only one item (*wh*-movement in Bulgarian vs. *wh*-movement in English); some movement types are obligatory whereas others are optional (pronominal object shift in Danish vs. object shift of lexical NPs in Icelandic); some movement types show A-bar properties, whereas others show A-properties (pronoun fronting in German vs. pronominal object shift in Danish); some movement types are overt, whereas others are covert (*wh*-movement in Bulgarian, some instances of Case-driven raising vs. quantifier raising in German, other instances of Case-driven raising).

Taken in isolation, each of these order preservation effects with a given movement operation can certainly be accounted for in one way or another without resort to a constraint like PAR-MOVE. However, given that order preservation is a recurring pattern among movement operations with otherwise radically different properties, and among various types of languages, it seems that such a strategy would miss a simple underlying generalization that can be captured directly by a violable and ranked constraint like PAR-MOVE.

The question arises of whether there might be another constraint with comparable empirical range in a standard, non-optimality theoretic model of grammar. An obvious candidate is Chomsky's (1995) Minimal Link Condition in (39) (the notion of closeness here is ideally to be understood in terms of c-command).

(39) MINIMAL LINK CONDITION (MLC):
K attracts α only if there is no β, β closer to K than α, such that K attracts β.

Since the MLC is essentially a feature-based version of the Superiority Condition, it comes as no surprise that it accounts for superiority effects in English (cf. (6)). The MLC as such does not account for order preservation with multiple *wh*-movement in Bulgarian, though (cf. (10-a)/(11), (12)). Richards (1997, 114) and Mulders (1997) suggest economy-based accounts of the phenomenon and add what is essen-

[30] Of course, a thorough execution of this general approach will unravel various complications, will have to integrate further assumptions, and will therefore gain complexity. Still, I think that the basic proposal of a low-ranked and violable constraint requiring order preservation with relative scope would be unaffected by these complications. Also cf. Vikner (1997) and Heck (1999) for elaborate optimality-based approaches to relative scope that incorporate the gist of a constraint like PAR-MOVE.

tially a transderivational shortest path condition to the standard formulation of the MLC; this, however, means that the two instances of order preservation with *wh*-movement do not receive a unified account.

Chomsky (1995, 355-367) discusses in detail the effect of the MLC on Case-driven NP raising as in (26), and observes that the MLC does not predict these movements to be possible without additional assumptions: Since a subject NP asymmetrically c-commands an object NP in the pre-movement structure, the MLC in its standard formulation blocks raising of the object NP to a higher position, crossing the subject NP. In view of this, Chomsky proposes to either define closeness in (39) not in terms of the structural notion of c-command, but in terms of the more liberal notion of minimal domain (equidistance); or to assume that the base position of the subject NP is higher than the Case position of the object NP, which leads to extremely short paths with Case-driven movement and arguably threatens to render the idea of Case-driven movement itself vacuous.

Collins & Thráinsson (1996) and Collins (1997, ch. 3) develop an MLC-based account of order preservation with object shift. They presuppose that object shift is uniformly an instance of Case-driven NP raising, and that the definition of closeness in (39) is not simply defined in terms of c-command, but incorporates the concept of minimal domain/equidistance. Because of equidistance, a derivation of double object shift constructions such as (23-a) in Icelandic is permitted in which first the direct object moves to a position in the same minimal domain as the indirect object, and then the indirect object moves to a higher position. If, however, the indirect object is moved to the lower target position first, and the direct object then raises to a higher position (crossing both the indirect object and its trace), as in (23-b), the MLC is violated because the second movement operation is not sufficiently local anymore. This approach works well for cases like (23) in Icelandic and can be extended to (17) in Danish. However, it does not account for (24) in Icelandic and (18) in Danish. The problem is that the ill-formed examples (24-a) and (18-a) correspond to intermediate steps in the derivation of the well-formed examples (23-a) and (17-a), respectively, and hence cannot violate the MLC for principled reasons. To rule out examples of this type, Collins & Thráinsson (1996, 420-424) introduce additional assumptions that are not related to the MLC, which, again, means that a unified account is impossible.

In view of the fact that the MLC has a significantly smaller range of empirical coverage in these domains than PAR-MOVE that can only be enlarged by additional, unrelated assumptions, and given that MLC-based accounts of order preservation with pronoun fronting and quantifier raising have, to the best of my knowledge, not been proposed (and do not suggest themselves in any obvious way), I would like to contend that an account of order preservation effects in terms of a violable PAR-MOVE constraint is superior to one in terms of an inviolable MLC.

5. Conclusion

Let me summarize the main findings of this article and draw a conclusion. Evidence from a variety of languages suggests that in the unmarked case, all movement operations are order-preserving. In view of this, I have argued that a violable PAR-MOVE constraint that is part of an optimality theoretic grammar can account for that property in a unified way, in contrast to other constraints like the MLC.[31]

The extent to which PAR-MOVE has an effect on a given movement type depends on how the constraint that triggers the movement type (X-CRIT) is ranked with respect to PAR-MOVE. Under a partial ranking X-CRIT $\gg$ PAR-MOVE, it follows that X-movement can selectively violate PAR-MOVE; in this case, PAR-MOVE becomes important only if two candidates behave identically with respect to X-CRIT (and otherwise). This situation holds in the case of *wh*-movement in Bulgarian, English, Danish, Icelandic, etc., pronoun fronting in German, Case-driven NP raising, and quantifier raising in German.

[31] Note that the movement types discussed in this article do not exhaust the list of phenomena that might suggest an approach in terms of PAR-MOVE; see Müller (1997b) for some further possible applications.

However, under a reverse partial ranking PAR-MOVE ≫ X-CRIT, we obtain the result that X-Movement can never violate PAR-MOVE: In the case of conflict, PAR-MOVE blocks X-movement altogether. This more drastic effect has been argued to show up with object shift of pronouns in Danish, and object shift of lexical NPs in Icelandic. Of course, there is no principled reason why such an effect should not show up with *wh*-movement, topicalization, or a related movement type. Indeed, it has been noted that only subjects can undergo relativization in Malagasy (cf. Keenan & Comrie (1977)). Similarly, only subjects can undergo *wh*-movement in Lango (cf. Legendre, Smolensky, & Wilson (1998) and literature cited there). These facts follow from rankings like PAR-MOVE ≫ REL-CRIT and PAR-MOVE ≫ WH-CRIT: Under such rankings, relativization and *wh*-movement maintain asymmetric c-command at D-structure or do not apply at all.

To conclude, given the observation that order preservation is a common and recurring pattern among movement types that otherwise differ substantially, and that most of these movement types are permitted not to preserve order under certain circumstances, I believe that a case can be made for postulating an underlying constraint that is violable and usually ranked quite low, as I have tried to do here with PAR-MOVE. There seems to be no way to maintain a general, non-construction-specific constraint like PAR-MOVE in a grammar that recognizes only inviolable constraints. Therefore, to the extent that the preceding discussion has made the existence of such a constraint plausible, it can be viewed as an argument for an optimality theoretic organization of grammar.

Still, many open questions remain. Some of these have been discussed or at least alluded to in the preceding sections; here, I will confine myself to pointing out one very obvious open question that demands further investigation: Since PAR-MOVE often predicts crossing (rather than nesting) paths with instances of multiple movement, the status of effects that have sometimes been attributed to a nestedness (or path containment) condition (cf. Fodor (1978), Pesetsky (1982), and May (1985)) is unclear – at first sight, it looks as though the two constraints are incompatible. It is not obvious to what extent the two concepts (order preservation/crossing on the one hand, and nesting on the other) can or should be reconciled. However, I think that three observations are worth bearing in mind when this issue is properly addressed. First, surprising as this may seem at first sight, it has turned out that some effects that have been analyzed in terms of a nestedness condition now actually follow from PAR-MOVE. For instance, this holds for superiority effects in English, which are derived from an illicit crossing of paths in Pesetsky (1982). Second, some of the standard nestedness effects involve different movement types that, consequently, are triggered by different criteria (e.g., topicalization and *wh*-movement, *wh*-movement and *tough*-movement, etc.), about which PAR-MOVE says nothing – in these cases, there is no ambiguity in rule application (topics must be moved to topic positions, and *wh*-phrases must end up in *wh*-positions, irrespectively of whether these movements preserve D-structure order or not). Finally, it should be noted that, under present assumptions, the existence of a constraint like PAR-MOVE in a grammar does not imply that there cannot be another constraint in the same grammar that demands the opposite in certain contexts – after all, violability of constraints is one of the crucial assumptions of optimality theory.

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