Relativized Linearization

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May 26, 2005

General assumption:
A grammar is an optimal satisfaction of requirements imposed by the interfaces (LF, PF) (Chomsky (2000; 2001; 2005)).

Background (Fox & Pesetsky (2003; 2004; 2005)):
Phenomena involving *shape conservation* with movement operations should not be accounted for by invoking specific constraints demanding just that (Müller (2001), Williams (2003)), or by syntax-internal constraints (like the *Minimal Link Condition*, as in Collins & Thráinsson (1996)). Rather, they follow from an independently motivated system of *cyclic linearization* applying to local spell-out domains (*phases*).

Claims:
(i) A cyclic linearization approach to shape conservation is worth pursuing.
(ii) The cyclic linearization approach developed by Fox & Pesetsky faces empirical and conceptual problems.
(iii) These problems can be avoided if cyclic linearization is assumed to be *relativized* rather than *rigid*, and if more emphasis is placed on the derivational nature of the system.

(Predecessor: *Rigid Minimality* in Chomsky (1986), Baker (1988) vs. *Relativized Minimality* in Rizzi (1990), Fanselow (1991)).

Plot:
(i) Cyclic linearization (section 1)
(ii) Problems (section 2)
(iii) Successive-cyclic movement (section 3)
(iv) Relativized linearization (section 4)

1. Cyclic Linearization

(1) *Basic assumptions* (Fox & Pesetsky):
   a. Syntactic structure is created incrementally, bottom-up, by alternating applications of external and internal Merge (i.e., Merge and Move).

   b. There is no locality constraint like the *Phase Impenetrability Condition* (PIC) that restricts search space in derivations, and there is no notion of "escape hatch"; the necessity of successive-cyclic movement via phase edges is derived from cyclic linearization.
   c. The possibility of successive-cyclic movement via phase edges is determined independently (e.g., by EPP feature insertion at phase edges if this has an effect on outcome; Chomsky (2001)).

(2) *Cyclic linearization*:
   a. Linearization of syntactic structure applies cyclically, to spell-out domains (phases).
   b. Spell-out domains are CP, VP/vP, and DP.
   c. Linearization adds new ordering statements to the set of statements established by the linearization of previous spell-out domains.
   d. A new ordering statement generated in a spell-out domain must not contradict an ordering statement of a previous spell-out domain.

Consequence:
Shape conservation emerges as a by-product: The linear ordering of items is regulated by external and internal Merge operations within a spell-out domain, but it is fixed for the remainder of the derivation at the end of each spell-out domain.

1.1. Successive-Cyclic Wh-Movement

(3) *Wh-movement via phase edges*:
   a. $[_{CP}$ What$_1$ do you $[_{VP}$ t$_1'''$ think $[_{CP}$ t$_1''$ that she $[_{VP}$ t$_1'$ read t$_1$]]]] ?
   b. $[_{CP}$ What$_1$ did she $[_{VP}$ t$_1'$ read t$_1$]] ?

Note:
It must be ensured that intermediate movement steps are (a) possible and (b) necessary. The possibility may follow from (4) (Chomsky (2000; 2001). The necessity follows from cyclic linearization.

(4) *Optional EPP Feature Condition* (OFC):
The head X of phase XP may be assigned an EPP-feature (after the phase XP is otherwise complete), but only if that has an effect on outcome.

(5) *Cyclic linearization in (3-b)*:

a.	(i)	$[_{VP}$ what$_1$ read t$_1$]	→ *what* < *read*
	(ii)	$[_{CP}$ what$_1$ did she $[_{VP}$ t$_1'$ read t$_1$]]	→ *what* < *read*
b.	(i)	$[_{VP}$ read what$_1$]	→ *read* < *what*
	(ii)	$[_{CP}$ what$_1$ did she $[_{VP}$ read t$_1$]]	→ **what* < *read*

Consequence:
A *wh*-phrase originating in a no-edge position of VP can only end up in a SpecC position (where it precedes all other items of a clause) without contradicting the ordering statements for the spell-out domain VP if it first moves to the left-peripheral edge in VP.

1.2. Simple Object Shift and Holmberg's Generalization

Generalizations (Holmberg (1986; 1998), Vikner (1990; 1994), Collins & Thráinsson (1996)):
(i) Object shift in the Scandinavian languages moves unstressed pronouns out of the VP.
(ii) The operation applies obligatorily with pronouns in contexts where (iv) can be respected; it applies optionally with non-pronominal DPs.
(iii) Icelandic has both types of object shift, Mainland Scandinavian has only pronominal object shift.
(iv) The operation depends on raising of the main verb to a position in front of the shifted object ('Holmberg's generalization').

(6) *Obligatoriness of pronominal object shift in Danish*:
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

(7) *Obligatoriness of main verb raising in Danish*:
a. Hvorfor skal Peter ikke købe den$_1$?
why shall Peter not buy it
b. *Hvorfor skal Peter den$_1$ ikke købe t$_1$?
why shall Peter it not buy

(8) *Obligatoriness of pronominal object shift in Swedish*:
a.(*)Jag kysste inte henne$_1$
I kissed not her
b. Jag kysste henne$_1$ inte t$_1$
I kissed her not

(9) *Obligatoriness of main verb raising in Swedish 1*:
a. Jag har inte kysst henne$_1$
I have not kissed her
b. *Jag har henne$_1$ inte kysst t$_1$
I have her not kissed

(10) *Obligatoriness of main verb raising in Swedish 2*:
a. att jag inte kysste henne$_1$
that I not kissed her
b. *att jag henne$_1$ inte kysste t$_1$
that I her not kissed

(11) *Optionality of non-pronominal object shift in Icelandic*:
a. Jón las ekki bækurnar$_1$
Jón read not the books
b. Jón las bækurnar$_1$ ekki t$_1$
Jón read the books not

(12) *Obligatoriness of main verb raising in Icelandic*:
a. Jón hefur ekki lesið bækurnar$_1$
Jón has not read the books
b. *Jón hefur bækurnar$_1$ ekki lesið t$_1$
Jón has the books not read

Assumptions (Fox & Pesetsky):
(i) The landing site of object shift is outside the spell-out domain (phase) VP.
(ii) Object shift cannot target a phase-edge position as an intermediate landing site (in contrast to *wh*-movement).

Analysis (Fox & Pesetsky):
(i) Linearization of VP invariably generates an ordering statement V $<$ DP$_O$.
(ii) This ordering statement remains present througout the remainder of the derivation; it must not be contradicted.
(iii) If object shift out of VP takes place and is not accompanied by further raising of the main V, subsequent linearization of CP generates a contradictory ordering statement DP$_O$ $<$ V.
(iv) If object shift is accompanied by further raising of the main V, subsequent linearization of CP generates a compatible ordering statement V $<$ DP$_O$.

Conclusion:
Holmberg's generalization is derived as a shape conservation effect that follows automatically from general assumptions about cyclic linearization.

1.3. Multiple Object Shift

Observation:
There is a similar shape conservation effect with multiple object shift of pronouns and non-pronominal DPs in double object constructions.

(13) *Multiple pronominal object shift in Danish 1*:

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$_1$

(14) *Multiple pronominal object shift in Danish 2*:

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

(15) *Multiple non-pronominal object shift in Icelandic 1*:

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

(16) *Multiple non-pronominal object shift in Icelandic 2*:

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

Analysis (Fox & Pesetsky):
The account is exactly as before:
(i) Linearization of VP generates the ordering statements
$V < DP_{IO}$, $V < DP_{DO}$, and $DP_{IO} < DP_{DO}$.
(ii) These ordering statements can only be respected after (multiple) object shift if (a) the main V moves to a higher position in front of both objects, (b) the two shifted objects reassemble in their pre-movement order:
$V < DP_{IO}$, $V < DP_{DO}$, and $DP_{IO} < DP_{DO}$.
(iii) A derivation in which the main V fails to move contradicts an ordering statement in the VP domain:
$DP_{IO} < V$, $\mathrm{DP}_{DO} < \mathrm{V}$.
(iv) A derivation in which the two shift objects fail to preserve the pre-movement order established in VP is also ruled out:
$\mathrm{DP}_{DO} < \mathrm{DP}_{IO}$.

2. Problems

2.1. Spell-Out Domains

Observation:
Spell-out domains do not strictly correspond to phases: vP vs. VP (at least in English and Scandinavian, and unless further assumptions are made, e.g., about covert movement). If vP were a spell-out domain, an ordering statement $DP_S < V$ established in vP would be contradicted by a possible later ordering statement $V < DP_S$ after verb-second movement to C.

(17) *Order of verb and subject in Danish on the vP and CP cycles*:

a. [$_{\mathrm{vP}}$ Peter købte den]
Peter bought it

b. [$_{\mathrm{CP}}$ Hvorfor købte [$_{\mathrm{TP}}$ Peter$_2$ t den$_1$ ikke [$_{\mathrm{vP}}$ t_2 t t_1]]] ?
why bought Peter it not

(18) *Order of verb and subject in English on the vP and CP cycles*:

a. [$_{\mathrm{vP}}$ John has bought it]

b. [$_{\mathrm{CP}}$ Has [$_{\mathrm{TP}}$ John$_2$ t [$_{\mathrm{vP}}$ t bought it] ?

Potential problems:
(i) Assuming that phases are independently semantically motivated (as propositional units; Chomsky (2000; 2001)), this is unattractive.
(ii) Assuming that phases are independently phonologically motivated (Legate (2003), Ishihara (2004), Richards (2004)), there may be evidence for both vP and VP as relevant units.
(iii) A parametrization of spell-out domains seems problematic (e.g., Korean vs. English and Scandinavian).

Note:
Further evidence that vP is a spell-out domain comes from shape conservation phenomena with multiple pronominal object shift in German and multiple *wh*-movement in Bulgarian. In both cases, an ordering statement must be generated for subject and object.

Pronoun fronting in German
Generalizations (standard (Bierwisch (1963, 99-101)), but see Anagnostopoulou (2005)):
(i) Unstressed pronouns are obligatorily moved across adverbs and non-pronominal DPs.
(ii) The only middle-field-internal item that may precede unstressed pronouns is a subject.

(iii) This follows if scrambling is vP-internal, and only subject DPs can undergo movement to SpecT; this latter movement is always optional.

(19) *Pronoun fronting in German*:

a. *dass wahrscheinlich der Fritz es_1 gelesen hat
that probably the Fritz it read has
b. *dass wahrscheinlich es_1 der Fritz t_1 gelesen hat
c. dass es_1 wahrscheinlich der Fritz t_1 gelesen hat
d. dass der Fritz es_1 wahrscheinlich t_1 gelesen hat
e. *dass der Fritz wahrscheinlich es_1 gelesen hat

Observation:
If a subject pronoun and an object pronoun co-occur, the order is invariably $DP_S < DP_O$. Since this cannot be explained by obligatory subject raising to SpecT in German (as it can be in comparable cases in Scandinavian), the phenomenon suggests that subject and object have a common spell-out domain: vP.

Problem then: Why can an object pronoun move across a subject DP (in situ) in the first place? (An availability of Specv as an intermediate landing site for German pronoun fronting cannot be the solution because we would then not expect any shape conservation effect with pronoun fronting.)

(20) *Multiple pronoun fronting with subjects and objects in German*:

a. dass sie_1 es_2 wahrscheinlich t_1 t_2 gelesen hat
that she_{nom} it_{acc} probably read has
b. *dass es_2 sie_1 wahrscheinlich t_1 t_2 gelesen hat
that it_{acc} she_{nom} probably read has

Hypothesis:
Scandinavian object shift and German pronoun fronting are one and the same phenomenon.

Wh-Movement in Bulgarian
Generalizations (Rudin (1988), Billings & Rudin (1996), Grewendorf (2001), Richards (2001), Bošković (2002)):
(i) All *wh*-phrases are fronted in multiple questions in Bulgarian.
(ii) An (agentive) *wh*-subject and a *wh*-object always show up in the order $DP_S < DP_O$.
(iii) The order of objects is often $DP_{IO} < DP_{DO}$, but there are intervening factors (e.g., animacy, DP vs. PP status), and there is often optionality.

(21) *Multiple wh-movement with subjects and objects in Bulgarian*:

a. $[_{CP}$ Koj_1 $kogo_2$ C $[_{vP}$ t_1 vižda t_2]] ?
who_{nom} $whom_{acc}$ sees
b. *$[_{CP}$ $Kogo_2$ koj_1 C $[_{vP}$ t_1 vižda t_2]] ?
$whom_{acc}$ who_{nom} sees

Conclusion:
This suggests that (agentive) subjects and objects are part of one linearization domain: vP. However, this is incompatible with V-to-C movement in front of subject DPs in SVO languages.

2.2. Scrambling

Observation:
Order-changing scrambling a priori poses a problem for all approaches based on some notion of shape conservation – it has been argued that a reversal of the pre-movement is the very reason behind the existence of scrambling in German is the first place (Haider (1993)).

(22) *Scrambling in German*:

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

Conclusion:
First, scrambling may not exist as a syntactic operation (Fanselow (2001)). Second, scrambling in German may be a syntactic phenomenon; then various questions arise for all approaches that rely on shape conservation.

2.3. A-Movement in Passive Constructions

Observation:
There is evidence that unaccusative and passive vPs are phases/spell-out domains (Legate (2003), Richards (2004)). Under this assumption, there is a problem for Fox and Pesetsky's analysis: An ordering statement $V < DP_O$ in the VP domain is later followed by a reverse ordering statement $DP_O < V$ in the CP domain.

(23) *A-movement in passive constructions in English*:
a. [$_{vP}$ v [hit John$_1$]]
b. [$_{CP}$ [$_{TP}$ John$_1$ was [$_{vP}$ hit-v [t t$_1$]]

Observation (Bobaljik (2004)):
The same phenomenon shows up with A-movement in passivized double object constructions in Icelandic; but here the problem might be even more pressing because in addition to a violation of shape conservation with the DP in SpecT and the verb, there is a shape conservation effect among the DPs.

(24) *A-movement in double object passive constructions in Icelandic*:
a. [$_{vP}$ v [$_{VP}$ gefnar konunginum$_1$ ambáttir$_2$]]
given the king$_{dat}$ slaves$_{nom}$
b. [$_{CP}$ Um veturinn voru konunginum$_1$ [$_{vP}$ gefnar-v [$_{VP}$ t t$_1$
in the winter were$_{pl}$ the king$_{dat}$ given
ambáttir$_2$]]]
slaves$_{nom}$

2.4. Verb-Second in SOV languages

Observation:
Verb-second in an SOV language like German may systematically reverse the ordering statements of the lower spell-out domain – evidently so for objects, but also for subjects, given that there is evidence that subjects belong to this domain (from pronoun fronting).

(25) *Verb-second in German*:
a. Gestern las$_1$ Maria [$_{VP}$ ein Buch$_2$ t$_1$]
yesterday read Maria$_{nom}$ a book$_{acc}$
b. dass Maria gestern [$_{VP}$ ein Buch$_2$ las$_1$]
that Maria$_{nom}$ yesterday a book$_{acc}$ read

Possible solutions:
(i) Assume a uniform base order V < DP. In verb-final clauses, DP moves across the verb before the linearization domain is reached; in verb-second clauses, it cannot do so (unless it eventually ends up in front of the verb in topic position).
(ii) Assume a uniform base order DP < V. In verb-second clauses, the verb raises across the DP before the linearization domain is reached; in verb-final clauses, the verb must stay in situ.

Problem:
This instance of order reversal can only be accounted for if an extremely abstract base structure of the vPs in question is assumed. However, doing so threatens to undermine the whole approach: If highly abstract linearization domains (that are never attested on the surface) are available for the SOV language German, one might wonder why they are not for the Scandinavian SVO languages, where a surface-oriented approach seems crucial.

2.5. Intermediate Landing Sites

Observation:
The crucial difference between movement types that respect shape conservation and movement types that do not boils down to the ability/inability to move successive-cyclically via SpecC. This has been regarded as a problem because an important property of the system has thus been left unexplained (Nilsen (2004), Williams (2004), Bobaljik (2004), Müller (2004)).

Fox & Pesetsky (2004):
"Our proposals say nothing in themselves, however, about the circumstances under which movement to these left-edge positions is allowed or prohibited."

Generalization:
The most obvious conclusion would be that the decisive property of movement types is their A- vs. A-bar status (cf. theory of improver movement). This fails to account for shape conservation effects with *wh*-movement, pronoun fronting in German (which licenses parasitic gaps), and does not explain why A-movement in passive context can to some extent violate shape conservation (viz., with respect to the verb).

A more general problem (Sells (2001), Richards (2004)):
It does not seem accidental that the shape conservation property of object shift (with respect to V) is correlated with its being extremely local; even A-movement to SpecT does not obey shape conservation. This is not captured by the A-bar vs. A distinction.

2.6. Derivational Syntax

Note:
Fox & Pesetsky assume a derivational organization of syntax; however there is a large representational residue (also cf. Sells (2004)):
(i) All ordering statements that have been generated for a given spell-out domain remain active and visible throughout the rest of the derivation.

Arguably, in a strictly derivational approach, information that has undergone cyclic spell-out should become inaccessible.
(ii) Since the *Phase Impenetrability Condition* (PIC) is abandoned, search space is in principle unlimited. It is unclear whether dispensing with the PIC is a virtue, assuming that the PIC is primarily motivated by complexity considerations (reduction of search space) rather than empirically.

Conclusion:
One may want to look for an analysis of shape conservation effects in terms of cyclic linearization that evades these problems.

Proposal:
A theory of shape conservation should
(i) rely on a strictly derivational organization of grammar according to which pieces of information (including ordering statements) are lost in the derivation;
(ii) rely on a relativization of ordering statements (instead of fixed spell-out domains, the creation of ordering statements is a relativized property of Merge operations);
(iii) rely on an explicit theory of successive-cyclic movement according to which *all* movement must take place successive-cyclically: information is passed on locally.

3. Successive-Cyclic Movement

(26) *Phase Impenetrability Condition* (PIC) (Chomsky (2000, 108; 2001, 13)):
The domain of a head X of a phase XP is not accessible to operations outside XP; only X and its edge are accessible to such operations.

Note:
The PIC requires successive-cyclic movement via phase edges. However, given that unforced movement is blocked (the *Last Resort* requirement), there must be another constraint that forces movement to an intermediate position. One possibility is the OFC (s.a.; Chomsky (2000; 2001)); another one, which I will adopt here, is *Phase Balance* (Heck & Müller (2000b;a), Müller (2003), Fischer (2004), Heck (2004)).

(27) *Phase Balance*:
Every XP has to be balanced: For every feature [*F*] in the numeration there must be a potentially available feature [F] at the phase level.

Terminology (Adger (2003), Sternefeld (2003)):
[*F*] is a probe feature with an EPP (more generally: movement-inducing)

property.
[F] is a matching goal feature.

(28) *Potential availability*:
A feature [F] is potentially available if (i) or (ii) holds:
(i) [F] is on X or edgeX of the present root of the derivation.
(ii) [F] is in the workspace of the derivation.
(The workspace of a derivation D comprises the numeration N and material in trees that have been created earlier and have not yet been used in D.)

Consequence:
Phase Balance triggers movement without feature matching to intermediate positions.

Assumption:
All saturated XPs qualify as phases (this excludes VP).

Consequence:
Wh-movement must proceed via every XP (except for VP) on its way to its ultimate target position (the $C_{[*wh*]}$ node that attracts it). Predecessors: Riemsdijk (1978), Koster (1978), Sportiche (1989; 1998), Takahashi (1994), Agbayani (1998); also: GPSG analyses that rely on SLASH feature percolation (Gazdar (1981), Gazdar, Klein, Pullum & Sag (1985)), and Koster's (2000) analysis based on feature percolation in gap phrases.

(29) *Derivation of wh-questions*:
(I wonder) what John read
a. $[_{vP}$ what$_1$ John$_2$ v+read$_3$ $[_{VP}$ t$_3$ ~~t$_1$]]~~
→ workspace: {$C_{[*wh*]}$, $T_{[*D*]}$}
b. $[_{TP}$ what$_1$ John$_2$ T $[_{vP}$ t$'_1$ t$_2$ v+read$_3$ ~~$[_{VP}$ t$_3$ t$_1$]]]~~
→ workspace: {$C_{[*wh*]}$}
c. $[_{CP}$ what$_1$ C $[_{TP}$ t$''_1$ John$_2$ T ~~$[_{vP}$ t$'_1$ t$_2$ v+read$_3$ $[_{VP}$ t$_3$ t$_1$]]]]~~
→ workspace: {−}

Two consequences:
(i) There are now two types of movement: feature-driven and Phase Balance-driven. This difference will become highly relevant for the relativization of ordering statements.
(ii) The PIC now drastically reduces search space; this implies that ordering statements are quickly forgotten by the derivation.

4. Relativized Linearization

4.1. Analysis

Assumptions:
(i) Syntactic representations do not tolerate contradictory ordering statements (Fox & Pesetsky (2003; 2004; 2005)).
(ii) The domain on which ordering statements are generated is extremely local: the syntactic operation (relevant here: Merge) (Epstein & Seely (2002)).
(iii) As soon as a phase is completed, the domain of its head (including all ordering statements generated for this domain) is spelled out and rendered inaccessible for further syntactic operations, in accordance with the PIC.
(iv) Ordering statements are generated according to (partly language-specific) precedence rules; e.g.: a head precedes its complement (English); a [+V] head follows its complement, a [–V] head precedes its complement (German).
(v) Only a subset of the ordering statements that could in principle be generated are in fact generated by syntactic operations. (To ensure a total order of all lexical items, it presumably does not quite suffice to extend the set of ordering statements by transitive closure and the nontangling condition; but the relevant linearization information can be read off post-syntactically. Some further post-syntactic operations are necessary anyway; e.g., deletion of – syntactically relevant – ordering statements that do not correspond to lexical material anymore because the latter has been moved).
(vi) External Merge is feature-driven (Svenonius (1994), Collins (2003), Adger (2003), Sternefeld (2003)).
(vii) There are three types of Merge status:

(30) *Merge status*:
- a. [b]: required in position by external Merge (base)
- b. [f]: required in position by a local EPP-probe (feature-driven)
- c. [p]: required in position by a non-local EPP-probe (Phase Balance-driven)

Co-occurrence of Merge status information:
(i) [b] and [p/f] can both be visible on a category.
(ii) If [p] and [f] co-occur, only [p] is visible.

Assumption:
Information about Merge status is independently available in any given syntactic domain. The hypothesis here is that the system exploits such information in its generation of ordering statements – e.g., it "knows" that there is a good chance that any ordering statement for two categories where one has Merge

status [f] and the other one has Merge status [p] will later be undone (because the item with status [p] will have to move, the item with status [f] not), and therefore does not postulate such a statement in the first place.

(31) *Relativized Linearization*:
Merge of α and β generates an ordering statement for X, Y if (a) and (b) hold:
- a. X and Y are heads that are (reflexively) dominated by α and β.
- b. X and Y have an identical Merge status.

Note:
All ordering statements are generated for heads; heads form the gist of sentence structure.

4.2. Sample Derivatons

4.2.1. Simple object shift

Assumption:
Object shift is feature-driven movement to Specv.

(32) *Object shift without main verb raising*:
- a. $[_{\text{VP}}\ {}^{b}\text{V}\ {}^{b}\text{DP}_{O}\ ]$ — $\text{V} < \text{D}_{O}$
- b. $*[_{\text{vP}}\ {}^{f}\text{DP}_{O}\ \text{Adv}\ \text{DP}_{S}\ {}^{f}\text{V+v}\ [_{\text{VP}}\ <\text{V}>\ <\text{DP}_{O}>\ ]]$ — $\text{D}_{O} < \text{V}$

(33) *Object shift with main verb raising to T*:
- a. $[_{\text{VP}}\ {}^{b}\text{V}\ {}^{b}\text{DP}_{O}\ ]$ — $\text{V} < \text{D}_{O}$
- b. $[_{\text{vP}}\ {}^{f}\text{DP}_{O}\ \text{Adv}\ \text{DP}_{S}\ \text{V+}{}^{p}\text{v}\ [_{\text{VP}}\ <\text{V}>\ <\text{DP}_{O}>\ ]]$ — —
- c. Spell-out of VP
- d. $[_{\text{TP}}\ \text{DP}_{S}\ \text{V+}{}^{f}\text{v+T}\ [_{\text{vP}}\ {}^{f}\text{DP}_{O}\ \text{Adv}\ <\text{DP}_{S}>\ <\text{V+v}>]$ — $\text{V} < \text{D}_{O}$

4.2.2. Multiple Object shift

(34) *Multiple object shift without shape conservation*:
- a. $[_{\text{VP}}\ {}^{b}\text{V}\ {}^{b}\text{DP}_{IO}\ {}^{b}\text{DP}_{DO}\ ]$ — $\text{V} < \text{D}_{IO}, \text{V} > \text{D}_{DO}, \text{D}_{IO} < \text{D}_{DO}$
- b. $*[_{\text{vP}}\ {}^{f}\text{DP}_{DO}\ {}^{f}\text{DP}_{IO}\ \text{Adv}\ \text{DP}_{S}\ \text{V+}{}^{p}\text{v}\ [_{\text{VP}}\ <\text{V}>\ <\text{DP}_{IO}>\ <\text{DP}_{DO}>\ ]]$ — $\text{D}_{DO} < \text{D}_{IO}$

(35) *Multiple object shift with shape conservation*:
- a. $[_{\text{VP}}\ {}^{b}\text{V}\ {}^{b}\text{DP}_{IO}\ {}^{b}\text{DP}_{DO}\ ]$ — $\text{V} < \text{D}_{IO}, \text{V} > \text{D}_{DO}, \text{D}_{IO} < \text{D}_{DO}$

b. $[_{vP}\ {}^{f}DP_{IO}\ {}^{f}DP_{DO}$ Adv DP_S V+^{p}v $[_{VP}$
<V> <DP_{IO}> <DP_{DO}>]]
$D_{IO} < D_{DO}$

Note:
This analysis does not explain why a DO pronoun cannot shift across an IO non-pronominal DP (the two items have a different Merge status at the relevant step of the derivation). Assumption: This may be a different type of phenomenon after all (Collins & Thráinsson (1996), also cf. Anagnostopoulou (2003), Bobaljik (2004)).

4.2.3. Pronoun fronting in German

Assumption:
Pronoun fronting is also feature-driven movement to Specv.

(36) *Simple pronoun fronting across a subject in situ or on its way to SpecT*:
a. $[_{VP}\ {}^{b}DP_O\ {}^{b}V\ ]$ $D_O < V$
b. $[_{vP}\ {}^{f}DP_O$ Adv $^{b/p}DP_S\ [_{VP}$ <$^{b}DP_O$> <V>] V+v]]
$D_S < D_O$

(37) *Multiple pronoun fronting of subject and object without shape conservation*:
a. $[_{VP}\ {}^{b}DP_O\ {}^{b}V\ ]$ $D_O < V$
b. *$[_{vP}\ {}^{f}DP_O\ {}^{f}DP_S$ Adv <$^{b}DP_S$> $[_{VP}$ <$^{b}DP_O$> <V>] V+v]]
$D_S < D_O$, $D_O < D_S$

(38) *Multiple pronoun fronting of subject and object with shape conservation*:
a. $[_{VP}\ {}^{b}DP_O\ {}^{b}V\ ]$ $D_O < V$
b. $[_{vP}\ {}^{f}DP_S\ {}^{f}DP_O$ Adv <$^{b}DP_S$> $[_{VP}$ <$^{b}DP_O$> <V>] V+v]]
$D_S < D_O$, $D_S < D_O$

4.2.4. Multiple Wh-Movement in Bulgarian

(39) *Multiple wh-movement without shape conservation*:
a. $[_{VP}\ {}^{b}V\ {}^{b}DP_O\ ]$ $V < D_O$
b. *$[_{vP}\ {}^{bp}DP_O\ {}^{p}DP_S$ V+v $[_{VP}$ <V> <DP_O>]]
$D_S < D_O$, $D_O < D_S$

(40) *Multiple wh-movement with shape conservation*:
a. $[_{VP}\ {}^{b}V\ {}^{b}DP_O\ ]$ $V < D_O$
b. $[_{vP}\ {}^{bp}DP_S\ {}^{p}DP_O$ V+v $[_{VP}$ <V> <DP_O>]]
$D_S < D_O$, $D_S < D_O$

Note:
Under present assumptions, this analysis requires tucking in (Richards (2001)).

4.2.5. A-Movement in Passive Constructions

(41) *Successive-cyclic A-movement from VP*:
a. $[_{VP}\ {}^{b}V\ {}^{b}DP_O\ ]$ $V < D_O$
b. $[_{vP}\ {}^{p}DP_O\ {}^{f}V+{}^{b}v\ [_{VP}$ <V> <DP_O>] —
c. Spell-out of VP
d. $[_{TP}\ {}^{f}DP_O$ V+^{f}v+^{b}T $[_{vP}$ <DP_O> <V+v>] $D_O < v$

Note:
The contradictory ordering statement arises at a point in the derivation when the primary statement has already been deleted by spell-out. This is where A-movement to SpecT and object shift to Specv differ. The analysis presupposes a local version of the PIC (it is, e.g., incompatible with the more liberal version of the PIC eventually adopted in Chomsky (2001)).

4.2.6. Verb-Second in SVO languages

(42) *Subject-initial verb-second with main verb fronting*:
a. $[_{VP}\ {}^{b}V\ {}^{b}DP_O]$ $V < D_O$
b. $[_{vP}\ {}^{bp}DP_S$ V+^{bp}v $[_{VP}$ <V> DP_O]]
$D_S < v$
c. Spell-out of VP
d. $[_{TP}\ {}^{p}DP_S$ V+v+^{bp}T $[_{vP}$ <DP_S> <V+v>]] —
e. Spell-out of vP
f. $[_{CP}\ {}^{f}DP_S$ V+v+^{f}T+^{b}C $[_{TP}$ <DP_S> <V+v+T>]
$D_S < T$

Assumption:
A DP with status [p] and a head with status [bp] do not have an identical Merge status (hence, no ordering statement in (42-d)).

(43) *Object-initial verb-second with main verb fronting*:
a. $[_{VP}\ {}^{b}V\ {}^{bp}DP_O]$ $V < D_O$
b. $[_{vP}\ {}^{bp}DP_S\ {}^{p}DP_O$ V+^{bp}v $[_{VP}$ <V> <DP_O>]]
$D_S < v$, $D_S < D_O$

c. Spell-out of VP
d. $[_{TP}\ {}^{f}DP_S\ {}^{p}DP_O$ V+v+^{bp}T $[_{vP}$ <DP_S> <DP_O> <V+v>] —
e. Spell-out of vP
f. $[_{CP}\ {}^{f}DP_O$ V+v+^{f}T+^{b}C $[_{TP}\ {}^{f}DP_S$ <DP_O> <V+v+T>]]
$D_O < T,\ T < D_S$

Note:
The analysis again illustrates that the system must be able to forget information quickly: In particular, TP must be a phase (so that the domain of TP is spelled out before the CP cycle is reached).

4.2.7. Verb-Second in SOV languages

Note:
The crucial step is when T moves to C, acquiring Merge status [f]. TP linearization has created an ordering statement $DP_x < T$ (because of a shared [p] status), but there is no statement for T and others items in TP (except, irrelevantly, vP). On the CP cycle, T and DP_x both have status [f], and perhaps also a subject DP in SpecT; for these items, unproblematic ordering statements are generated.

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