Integrating syntactic, semantic, and phonological factors for 'free' word order phenomena

Scrambling in German has been used almost *ad nauseam* to discuss the causes and effects of 'free word order phenomena'. Countless works propose that information structure projections such as [TopicP] attract DP arguments to their specifiers (Meinunger 2000, to name but one). However, the current implementation of movement as *internal merge* robs these proposals of their explanatory force. Furthermore, <u>phonological</u> factors influence scrambling - but cannot be implemented without *look-ahead* to PF in spec-driven approaches. In our proposal, syntactic processes yield spell-out <u>options</u> for scrambled elements <u>without</u> resorting to notions like [topic]. PF then determines <u>final spell-out positions</u>, on the basis of <u>phonological</u> factors. Potential parameters of typological variation follow.

Internal merge, according to the *duality of semantics*, yields scope and binding effects, and/or implements information structural properties (Chomsky 2005, 2006). If none of these effects is achieved or if the effects can be achieved without movement, no internal movement occurs (Chomsky 1999). However, almost ironically, elements in German that <u>have</u> a (marked) focus reading stay put in *v*P, while [-Focus] elements may leave *v*P (cf. Lenerz 1977, Meinunger 2000):

(1) [$_{CP}$ ...   topics ... V$_{fin}$ ... [$_{TP}$ ... DP$_{S-Foc}$ ...[(NegP) (AdvP) [$_{vP}$ ... DP$_{S±Foc}$ ...] V$_{nonfin}$]

Likewise, *in-situ* DPs can be interpreted as topics (Lenerz 2002), so [topic] should not trigger movement. Scrambling also does not always yield binding effects (cf. Müller & Sternefeld 1993, 1994):

(2)   weil [[seine$_j$ /SCHUHe]$_i$ [PETER$_j$ t$_i$ vergessen]] hatte
        because his   shoes   Peter   forgotten   had   (scrambled binder
        'because Peter had forgotten his (own) shoes'   *does not bind R-expression)*

Last but not least, scope effects are famously absent in at least some cases, where a 'reversed' scope seems to be attained by a contrastive focus marking (cf. Krifka 1998):

(3)   weil   ein einzelner Arzt [[/ALLen Patienten]$_i$ ja NICHT [t$_i$]] wird helfen können.
        because a single   doctor   all   patients PART not   will   help can
        'because a single doctor will not be able to help all patients'   *(only reading: ¬∀!)*

Scrambling thus straight-forwardly fails to conform to the requirements imposed on <u>optional</u> movement operations. Could scrambling be an <u>obligatory</u> movement − contrary to appearances?

Biberauer & Richards (2006) propose that SpecTP does not always host a subject DP (as in English), but can host the whole pied-piped *v*P (e.g. in German). The movement, according to standard assumptions, is <u>obligatory</u>, driven by the universal EPP of T. In our analysis, some elements leave *v*P for a semantic effect (e.g. QP$_2$ in (4)). Precisely those elements that had <u>no</u> reason to leave *v*P are 'shuttled along' when *v*P <u>obligatorily</u> moves to SpecTP. Thus, for all elements still in *v*P at the phase level, two copies remain in the derivation, and a decision for their spell-out position has to be made at PF. PF rules (in German and other languages) require that information foci (e.g., Obj$_{Foc}$ in (4)) be pronounced in their rightmost occurrence. Thus, the spell-out position of focussed elements is invariably in their *in-situ* position. For non-foci (e.g., QP$_1$ in (4)), other purely phonological requirements of German determine the spell out position - without any *look-ahead* involved. These appear to 'move optionally' - but only in the sense that no <u>semantic</u> effect is observed (or, indeed, expected):

- Phonologically 'heavy' material preferably occurs in the <u>lower</u> copy (i.e., the *Gesetz der wachsenden Glieder*, cf. already Behaghel 1909).
- Contrastive foci, and their associated intonational rise, must maintain some distance to the F^0 fall associated with the rightmost focus (cf., e.g., Fery 1993 for German). Thus, <u>short</u> contrastive topics tend to occur in the <u>higher</u> *v*P copy, to keep some distance to the focus fall (in the lower *v*P copy). Alternatively, PF implements a low spell-out using <u>other</u> prosodic devices, e.g. <u>pauses</u>.

Note that both orders can straight-forwardly be achieved <u>at PF</u>, e.g. for QP$_1$ in (4):

(4)   a)   PF: [$_{TP}$ [$_{vP}$ ~~QP$_1$~~ v ~~QP$_1$~~ ~~Obj$_{Foc}$~~ ~~V~~] (AdvP)   [QP$_2$ [$_{vP}$ QP$_1$ v ~~QP$_2$~~ Obj$_{Foc}$ ~~V~~] V]
        b)   PF':   [$_{TP}$ [$_{vP}$ QP$_1$ v ~~QP$_1$~~ ~~Obj$_{Foc}$~~ ~~V~~] (AdvP)   [QP$_2$ [$_{vP}$ ~~QP$_1$~~ v ~~QP$_2$~~ Obj$_{Foc}$ ~~V~~] V]

This analysis does not require any additional stipulations as far as the required core syntactic and PF operations are concerned: *v*P movement is required by word order properties (cf., again, Biberauer & Richards 2006). *Distributed Deletion* of phrases is independently motivated for German, too: Fanselow & Cavar convincingly demonstrate that well-attested 'split movements' in German warrant this PF operation, when a single phrase has to fulfil spell-out requirements of two positions simultaneously (2002). Thus, if an argument inside *v*P is focussed, but *v*P itself is attracted by the EPP of T, *v*P is expected to split. Thus, syntactic, semantic and phonological factors can be integrated architecturally:

- *v*P arguments that move for a semantic *effect on outcome* can move freely to the edge of *v*P. LF
  licenses these optional movements − but arguments that have no LF reason to move remain *in-situ*.
- *v*P moves to SpecTP for syntactic reasons. Arguments contained in *v*P are too deeply embedded
  inside *v*P structurally to bind or scope from 'their' new position − there is no LF *effect on outcome*.
- PF determines spell-out positions, where *Distributed Deletion* allows phonological factors to do so.

Implicit in this analysis is a set of variables that define potential typological variation: German moves adverb phrases, argument DPs (in its *middle field*), and *v*P (to SpecTP), and furthermore allows them to spell out distributively. Dutch, on the other hand, only allows variable adverb placement to implement its 'pull-type' scrambling (Neeleman & Reinhart 1998), but allows neither *v*P movement nor *Distributed Deletion*. English uses none of these options. Languages that would move categories larger than individual arguments, but would not spell them out distributively might appear to move, e.g., both the object and the verb together − or else move neither. Obviously, a lot more will have to be said in order to account for different types of *scrambling*, and similar phenomena − say, *object shift* in the Scandinavian languages. However, the current proposal outlines an architectural framework that integrates phonological, semantic and syntactic factors without *look-ahead* to the interfaces. The analysis thus hopefully sketches out a new vista for word order research. One question it solves already, we submit, is the interdependence of syntactic, PF and LF properties of *scrambling* operations in German.

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