

A Phase-based approach to the cross-linguistic distribution of “mixed” word-order types

A. Assume:

(i) the strict version of the Phase Impenetrability Condition (PIC) (Chomsky, 2000: 108). Hence in the configuration in (1), where H^0 is a phase head, only **bold material** is accessible to X^0 , Z^0 , etc; material in outline font has already been sent to Spellout;

(1) $[_{ZP} \dots Z^0 [_{XP} \dots X^0 [_{HP} \dots \mathbf{H^0} [_{YP} \dots Y^0 [_{WP} \dots \mathbf{W^0} \dots$

(ii) Kayne’s (1994) Linear Correspondence Axiom (LCA): asymmetric c-command determines linear precedence;

(iii) following Chomsky (2005), phase heads determine many properties of the heads in their phasal domain (i.e. all the heads they c-command, subject to (1)), including whether they are probes, but

(iv) any head may independently have an EPP-feature (a movement-inducing linearization feature), such that the movement diacritic on head X (written as X_{EPP}) signals that X’s complement must move to X’s specifier, thereby resulting in the order *complement* > X.

B. Now consider (2), a consequence of assumption (iii), for a given phase PH:

(2) If phase-head H_{EPP} , then all heads Y, W... in H’s domain are Y_{EPP} , W_{EPP} , etc.

Applying (2) to the vP phase, we arrive at the following:

(3) a. $v_{EPP} \quad V_{EPP} \rightarrow [[_{VP} \text{ O V }] \text{ v }]$ (consistent head-final order)

b. $v \quad V \rightarrow [\text{ v } [_{VP} \text{ V O }]]$ (consistent head-initial order)

c. $v \quad V_{EPP} \rightarrow [\text{ v } [_{VP} \text{ O V }]]$ (disharmonic order I: initial-over-final)

d. $*_{EPP} \quad V \rightarrow [[_{VP} \text{ V O }] \text{ v }]$ (disharmonic order II: final-over-initial)

The “harmonic” orders in (3a,b) are of course widely attested. Disharmonic order I is also fairly widely-attested: if auxiliaries are in v, then Germanic “verb-projection raising” is a case of this, as illustrated in (4):

(4) .. dat Jan $[_{VP} \text{ wil } [_{VP} [_{DP} \text{ ‘n huis}] \text{ koop}]]$ (Modern Spoken Afrikaans)
that John want a house buy “.. that John wants to buy a house”

This is a consequence of assumption (iv) above. But disharmonic order II, as in (3d), is extremely rare. This is primarily a consequence of assumption (iii).

C. The rarity of final-over-initial order is supported by the following observations: (a) Old and modern Germanic varieties exhibit a mix of head-initial and head-final orders in VP and IP, with all permutations of Aux, V and Object attested except VOAux (den Besten & Edmondson 1983, Hróarsdóttir 2002). The unattested VOAux order is a case of (3d). Finnish, which also permits mixed orders, shows the same pattern. (b) Sentence-final complementisers are not found in VO languages (Hawkins 1990). This is since both $[_{CP} [_{TP} [_{VP} \text{ V O }] \text{ T }] \text{ C }]$ and $[_{CP} [_{TP} \text{ T } [_{VP} \text{ V O }]] \text{ C }]$ parallel (3d). (c) In the nominal domain, Finnish has mixed projections too: it has both pre- and postpositions and N-Complement (N-O) as well as Complement-N order. All permutations of P, N and O are found except N-O-P, the order in (3d). (d) The pattern in (3d) is also relevant to Greenberg’s Universal 20 (“When any or all of the items (demonstrative, numeral and descriptive adjective) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite” Greenberg 1963:87). Disregarding the order of A and N, supposing the universal first-merged order $D(em) > Num > N$, and taking D to be a phase head, we see that this order corresponds to (3b), while $N > Num > D(em)$ corresponds to (3a) and $D(em) > N > Num$ (not predicted by Greenberg, but attested according to Cinque 2005) corresponds to (3c). $Num > N > D(em)$ corresponds to (3d), and is very rare.

D. We are not predicting an absolute ban on structures like (5), however (unlike Holmberg 2000, Julien 2000):

(5) $[_{Head1} [_{Head2P} \text{ Head}_2 \text{ Compl }] \text{ Head}_1]$

The ban on final-over-initial order instead holds only where (i) $Head_1$ is a phase head, (ii) $Head_2$ is a PIC-accessible non-phase head in the complement of $Head_1$. Cases of (5) where $Head_1$ is a not phase head include many VO languages with clause-final negation (notably, a range of genetically distinct languages in Western-Central Africa and many Papuan languages; cf. Dryer 2006, Reesink 2002). If negation is either not a head or not a phase-head,

these cases are consistent with our assumptions. Similarly, a range of VO languages, primarily in East Asia or in Central Africa, show final tense-aspect particles (e.g. Logbara, Mamvu [cf. Tucker & Bryan 1966] and a range of other languages in the same geographical area [cf. Dryer 2006]; and also see Duffield 2001 and Simpson 2005 on this phenomenon in East Asian languages, including Chinese). Here the tense/aspect particle is provably non-verbal – in many cases, it alternates with a fully inflected counterpart which occupies a clause-internal position; hence it cannot be *v* or a V-related non-phase head. A third kind of case is represented by clause-final “force” particles in VO languages: again roughly the same groups of languages show these (cf. Dryer 2006 on the “clustering” of Final-over-Final violations). Here it may be possible to invoke a “split-C” system, with the lower C triggering movement of TP to its specifier, while the higher C is the true phase head – these orders would then be cases parallel to (3c) (see Shih & Sybesma 2007 for an analysis of Mandarin along these lines). Finally, circumpositions of the type found in West Germanic (*auf den Berg hinauf* - “up the mountain DIR-up”) probably fall under this umbrella too (see Svenonius, to appear for arguments that the “postpositional” element is not a phase head, and Aboh 2004 on “fake postpositions” in similar constructions in the Gbe languages).

Cases of (5) where (ii) doesn’t hold fall into two kinds: (a) those where Head₂ is PIC-accessible to Head₁ but a phase head; this would be the case of head-initial DPs in head-final VPs in languages like German, and (b) those where Head₂ is not PIC-accessible to Head₁; hence we might expect that, for example, the C-system requires one surface head-complement order and the *v*-system or the D-system another. This kind of case is familiar from Germanic and elsewhere.

E. There is some evidence that (5) is also allowed where Head₁ and Head₂ are categorially distinct. If P is not a phase head, this is our account of prepositional complements to final verbs in German and similar languages (if P is a phase head, these fall under the account of head-initial DPs in head-final VPs just given). If this is correct, then we must modify (2) as follows:

(2’) If phase-head $H[\alpha N, \beta V]_{EPP}$, then all heads $Y[\alpha N, \beta V]$, $W[\alpha N, \beta V] \dots$ in H’s domain are $Y[\alpha N, \beta V]_{EPP}$, $W[\alpha N, \beta V]_{EPP}$, etc.

In other words, phase heads which are categorially distinct from their complements do not impose their EPP-feature on the heads in their phasal domain.

F. Assumption (ii) above (the LCA) is crucial since there really appears to be an asymmetry in the attestation of initial-over-final orders, (3c), and final-over-initial orders, (3d). The evidence from mixed typologies in Germanic, Finnish, Basque and many other languages supports this. This also implies that parsing-based approaches, relying on the relative ease of processing harmonic vs disharmonic orders are inadequate. Both (3c) and (3d) are disharmonic, but (3c) is not hard to find, while (3d) is. A parsing-based approach like that of Ackema & Neeleman (2002), which appeals to severe restrictions on backward localisation – here of the selected head in a selection dependency – also fails, despite the fact that it draws the necessary distinction between different types of disharmonic orders (cf. Cecchetto 2007 for a proposal along these lines): the counterexamples mentioned above make it clear that such backward localisations are possible and cannot therefore lie at the root of the problem.

G. Assumption (i) is vital for our account. Crucially, unlike Chomsky and others, we assume that completion of a phase leads to the *radical removal* from the computation of the material in the spellout domain associated with that phase (VP, TP, etc.). Thus VOAux order cannot be derived by raising a *vP* of the kind in (3b) containing no Aux (Aux being merged in T) to SpecTP, for example. Such a derivation will give rise to surface AuxVO order, thanks to our interpretation of the PIC (or VAuxO order if V moves to *v*). The unmoved VP contained in *vP* is no longer present in the computation after the completion of a (nondefective) *vP* phase.

H. Taken together, the four assumptions given above give rise to a general, phase-based account of linearization which is rich in typological implications, particularly in its potential for giving a more principled account of the nature and cross-linguistic distribution of “mixed” word-order types than has hitherto been possible.