Hierarchy vs. linearity in phonology and the recursive structure of nuclei

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Compared to classical Government Phonology (GP, Kaye, Lowenstamm & Vergnaud 1985, 1990) and some of its offspring (Strict CV, Strict VC), the newcomer GP 2.0 (Kaye & Pöchtrager 2013, Pöchtrager 2006, Živanovič & Pöchtrager 2010) assumes a rather rich hierarchical structure even at a level that is standardly considered to be flat and devoid of structure. This presentation discusses the raisons d'être of that hierarchy, in particular Phonological Binding Theory, which regulates the occurrence of melodic primes (elements) in an asymmetric fashion and relies on notions like c-command, only expressible in hierarchical terms. Furthermore, it provides evidence that nuclei have an internal x-bar-like structure, where each level is a projection of the nuclear head.

As an example, consider a crucial asymmetry in the English (heavy) diphthong system: We find *oi* in *void*, *oil*, *boy* etc., but no **eu*. Compare the representations of those two diphthongs in GP (1) and GP 2.0 (2), as shown overleaf. The different arrangement of the elements **I** and **U** distinguishes a grammatical from an ungrammatical diphthong. Note that in GP the positions that form the core of the diphthong (x1) and the offglide (x2) are sisters (1), while in GP 2.0 (besides other differences) there is an asymmetrical c-command relation between offglide (x3) and the core, in particular x2 (2). Note that the core is comprised of two positions: xN1 and x2 *together* replace the element **A** in GP 2.0, a so-called adjunction structure, cf. Kaye & Pöchtrager 2013, Pöchtrager 2010.)

Phonological Binding Theory (Pöchtrager 2009, 2015, Živanovič & Pöchtrager 2010) states that (i) binding takes place under c-command and that (ii) **I** can bind **U**, while **U** cannot bind **I**. This explains (2). Crucially, such an account is not available in (1) where the elements are associated to sisters within the tree.

The same asymmetry comes back in Putonghua (Mandarin), but not between core and offglide, rather between onglide and offglide of a complex nucleus; contrast *jaw* to **waj*.[1] In (3), **I** c-commands (therefore binds) **U**, allowed for by Binding. In (4), however, **U** c-commands (therefore binds) **I**, correctly ruled out by Binding. Crucially, there are *independent* reasons why in Putonghua the offglide is closer to the core than the onglide: In cases where the core is schwa, the offglide takes precedence before the onglide in colouring the core: *j+schwa+w* comes out as *jow*, not **jew*; *w+schwa+j* comes out as *wej*, not **woj*. The onglide can only colour a schwa-core if there is no offglide (*j+schwa* gives *je*; *w+schwa wo*), which falls our from the tree structures in (3–4).

In other words, the asymmetries between **I** and **U** find a satisfactory solution in a model allowing for c-command, while they remain a mystery in flat models as under (1). Furthermore, Putonghua illustrates (i) that the existence of **I**/**U**-asymmetries is independent of adjunctions and (ii) that the relation between x1 and x3 ("spec"–"comp") is comparable to that between ("comp"–non-head in adjunction structure). The recursive structure of a nucleus, where offglide and onglide are treated as complement and specifier, respectively, allows for a simple expression of those asymmetries.

Lastly, Binding and a recursive nuclear structure also helps to make sense of Japanese glide+vowel sequences: Focussing on two crucial cases, [j]+*u* vs. *[w]+*i*, we see that that's exactly what Binding would predict: a palatal onglide/specifier with **I** can bind an **U** in the nuclear head, but not the reverse.

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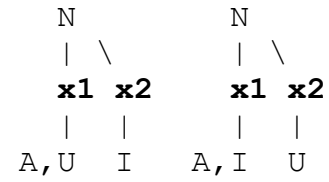
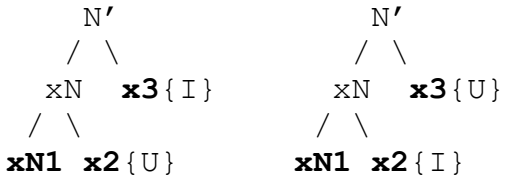
[1] Mandarin *waj* exists with *w* in the onset, but not as part of the nucleus.

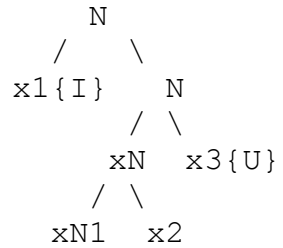
(1) GP: *oi* **eu*



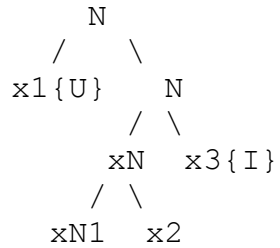
(2) GP 2.0: *oi* **eu*



(3) Putonghua *jaw* in GP 2.0



(4) Putonghua **waj* in GP 2.0



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