

This talk discusses the nature of prosodic representations in phonology, focusing on a case study from Old Icelandic (Reiss, 1994). Traditionally, generative phonology assumes that prosodic units are arranged hierarchically into moras, syllables, feet etc. (Nespor & Vogel, 1986). In Old Icelandic, analyses of the conditions put on assimilation, deletion and preservation of /r/ in /lr/ and /nr/ sequences appear to necessitate the inclusion of both hierarchical syllable structures as well as node labels within the repertoire of UG (Reiss, 1994). The table in (1) below provides a summary overview of the paradigm.

(1) Environment	Outcome	UR	SR	Type
i. Stressed short V	preservation	/sél-r/	[sélr]	P
ii. Diphthong, or long V	assimilation	/stein-r/	[steinn]	A
iii. Unstressed short V	assimilation	/gamal-r/	[gamall]	A
iv. Geminate /l, n/	preservation	/full-r/	[fullr]	P
v. /l, n/ after other C	deletion	/fugl-r/	[fugl]	D

Reiss (1994) provides an elegant account of (1) above in terms of syllable templates. Briefly, Reiss (1994) argues that Old Icelandic makes use of a standard syllable template, with the following main caveats:

(2)

- a. Stressed syllables, like long vowels, project a branching nucleus.
- b. Consonants are assigned from left to right to coda positions, provided sonority is decreasing.
- c. A single unassigned consonant can be assigned to one final appendix position (ONLY).

Given the assumptions in (2), Reiss (1994) argues that prior approaches to constraining feature spreading, such as c-command as barriers to assimilation (cf. Steriade, 1988), fail to account for Old Icelandic. Rather, Reiss appeals to node labels. In type-P forms (1 above), both of which exhibit stressed branching nucleus, the preceding consonant is always incorporated under the nucleus node. Reiss (1994) argues, that in Old Icelandic features cannot spread across a dominating nucleus node, thus allowing the underlying /r/ to surface. In contrast, in type-A forms the lack of a dominating nucleus node allows features to spread, resulting in assimilation. Finally, for type-D, Reiss (1994) argues that the final /r/ remain unassigned to any position at all, since the only appendix slot is allotted to /l/, and are thus subject to deletion. Crucially, in Reiss' (1994) the phenomena is captured in terms of equivalence classes. The class of nucleus-incorporated sonorants do not trigger assimilation. A bare syllable-structure, sans labels, fails to capture this generalization since features regularly spread from codas to following onsets (Reiss, 1994; 335).

Reiss'(1994) analyses is elegant, and preserves much of the foundational assumptions of generative phonology, and reiterates the importance of equivalence classes. The alternative proposed here retains Reiss'(1994) focus on computations driven by classes, but seeks to reduce the representational complexity of phonology for biolinguistic concerns (Chomsky, 2005). In the decades since hierarchical prosody became mainstream, much of what was once thought to necessitate such representations have been reanalysed in flat theories, including phonotactics (Heinz, 2007), vowel harmony (Mailhot and Reiss, 2007; Samuels, 2009) and stress (Scheer & Szigetvari, 2005). I argue that Universal Boundary Theory (UBT; Andersson, 2020), a completely flat prosodic framework that makes no reference to syllable structure or labels, and makes use of a single universal boundary symbol (|), can adequately account for phenomena of the sort seen in Old Icelandic, and more. UBT has no notion of syllables, and conceives of phonological structures as linear strings. Segments are bundles of valued features, and feature bundles are linearly hierarchical – i.e. phonological structures are linear strings of feature-bundles (x-slots, in the old terminology, but without any projections), demarcated by interspersed boundary symbols. Boundary symbols (|) are formally represented by the feature bundle [-segment]. [-segment] has no phonetic reading, and thus is not externalized. However, it is visible to computations and thus affects the externalization of neighbouring bundles. I also assume that derivation proceeds by phases (Chomsky, 2008). Spell-out by phases means phonology receives its inputs one phase at a time, automatically padded with initial and final boundary symbols. Having received our initial boundary symbols for free, UBT assumes that further boundary symbols are inserted and deleted by extrinsically ordered rules, just as any other feature-bundle. Since boundary symbols are feature-bundles, qua feature-bundles, they can be referred to by the syntax of phonological rules. I will also borrow

from x-slot theory (Kaye & Lowenstamm, 1984) the practice of referring to segments that take up two x-slots as [+Long]. With these assumptions in place, (3) below shows the typical derivation of Old Icelandic forms in UBT.

(3)

UR		selr	steinr	gamalr
Boundary Insertion	$\emptyset \rightarrow [-\text{seg}] / l/n _ r$	sel r	stein r	gamal r
Boundary Deletion (1)	$[-\text{seg}] \rightarrow \emptyset / [+long, +syl] [l,n] _$	-	steinr	-
Boundary Deletion (2)	$[-\text{seg}] \rightarrow \emptyset / [-\text{stress} +syl] [l,n] _$	-	-	gamalr
Assimilation	$r \rightarrow l/n / l/n _$	-	steinn	gamall
SR		sel r	steinn	gamall

For type-D forms, the UBT derivation will be as illustrated above, with the final /r/ is retained if either (a) only one of the two preceding segments are consonants, or (b) both are coronal sonorants. Further evidence from analyses longer and more complex forms will be presented during the talk.

I argue that UBT provides multiple advantages over traditional hierarchical approaches. First, conceptually Occam's Razor implies that if a theory can derive the SR without hierarchies then it is to be preferred over ones that require them. Second, UBT brings phonological representations closer to its animal comparanda by adopting the linearly hierarchical structural schema familiar from animal biology (Samuels, 2009; Fitch, 2018). In both forms below, and not unlike the proposed representation in (3) above, constituents form linear strings with systematic intervals marked by boundary markers. Since phonology is likely to fall entirely within the purview of faculty of language in the broad sense (FLB; Hauser et al. 2002), such structural similarities are very much to be expected.

(4) Baboon social dominance relations

(xxx)(xx)(xxxx)(xx)(xxxxxx)

(5) Structure of Songbird Songs

{motif(n) (nn) (nnn)} {motif(nn)(n)(nnn)}

Finally, note that all of this (single boundary symbol, no hierarchies, closeness to animal comparanda) is attained without compromising the core tenets of generative phonology. Phonological computations are still UR to SR mappings that operate over feature-bundles, and are extrinsically ordered. Rules are composed in terms of equivalence classes, and when the triggering environment cannot be thus characterized, UG leads the learner to posit to distinct rules (boundary insertion rules 1 and 2, in this case). In light of the emphasis placed on the evolutionary characterization of the language faculty by the biolinguistic program (Hauser et al., 2002), it seems worthwhile to investigate UBT and the extent to which it can help us flatten phonological representations.

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