The Unbearable Lightness of Being High:
Openness as Structure and the Consequences for Prosody

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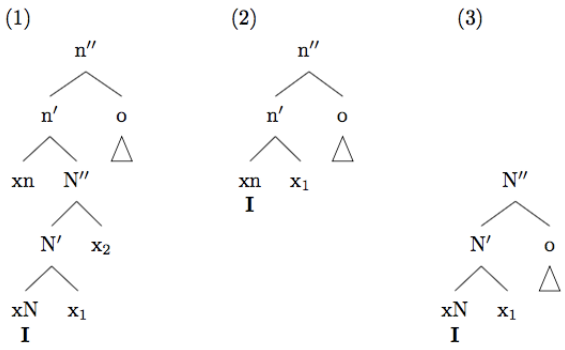
Problem. In unstressed position, English allows schwa (*bitt<u>e</u>r*, *sof<u>a</u>*), the high vowels [ɪ/iː] (*att<u>i</u>c*, *pon<u>y</u>*), [ʊ/uː] (*alb<u>u</u>m*, *iss<u>ue</u>*; often in variation with [ə]), and (in some varieties) [ɨ] (*ros<u>es</u>*). But whether the final syllable of words like *rabbi* bears (secondary) stress (Giegerich 1992) or is unstressed but unreduced (poorly defined in Ladefoged & Johnson 2010) is unresolved. Recent papers by Szigetvári (2017, 2020) investigate the distribution of English vowels with respect to prosody, but are restricted to description. Similarly, Burzio (1994) stipulates that syllables with high vowels/schwa/syllabic rhotic are extra-prosodic in peripheral position (hence pre-antepenultimate stress in *áccuracy*, *présidency*). *How* vowel quality relates to prosody or *why* remains unaddressed. Here I argue that many aspects of that link are derivable from the structure of vowels assumed in Government Phonology (GP) 2.0 (Pöchtrager 2006, 2018, 2020, Kaye & Pöchtrager 2013, Živanovič & Pöchtrager 2010), a further development of (classic) GP (Kaye, Lowenstamm & Vergnaud 1985, 1990).

Background. GP 2.0 reinterprets as structural some phonological properties commonly taken as melodic. This includes the element **A**, encoding aperture in vowels and coronality in consonants (Broadbent 1991, Cyran 1997, Goh 1997). One quirk of **A** is its interaction with (constituent) structure, in that it allows for bigger structures than otherwise possible. Some scholars (Fudge 1969, Selkirk 1982, Vaux & Wolfe 2009) assume syllabic positions reserved for coronals to capture why the upper size limit of English monosyllables (VVC/VCC; *seek*, *late*/*sink*, *left*) can be exceeded (VVCC) if both final consonants are coronal: *fiend* (**fiemp*, **fienk*), *count* (**coump*, **counk*), *feast* (**feasp*, **feask*) etc. But special syllabic positions for coronals do not explain why coronals are privileged. Similar "excesses" occur with vowels: Southern British English has long *a* (**A**) in *draft*, *task*, *clasp* with only one coronal following; the vowel makes up for a second coronal. Hungarian allows long vowels before clusters with vowels containing **A** (Polgárdi 2003) etc. — GP 2.0 builds on this and reinterprets **A** as structural (Pöchtrager 2006, 2010, 2012, 2018, 2020, 2021a, b), with part of the structure "unused" and available to adjacent segments. (In *fiend* the vowel can "borrow" unused space from the final coronals to be long.) Coronality (old **A** in consonants) and aperture (old **A** in vowels) *are* structure; objects which used to contain **A** are bigger than those without.

Proposal. Nuclei have a bipartite structure (Pöchtrager 2018, 2020, 2021a) involving up to two heads (xn and xN), with xn on top of xN (if both are present). Each head can project maximally twice (xN–N'–N", xn–n'–n"). The more open a vowel, the bigger it is in size (more precisely: the more empty positions it has). Thus: *Being unstressed implies being small in size.* The converse does not hold; small vowels (like *i*) are not necessarily unstressed (*l<u>i</u>tter*).



This can be captured: While unstressed high vowels (plus schwa) involve a full projection of the lower head xN (unstressed [ɪ/iː] in 3), their stressed (primary/secondary stress following Giegerich) or "unreduced" (Ladefoged & Johnson) counterparts are fully contained in the projection of the higher head xn (2, stressed/unreduced [ɪ/iː]). For vowels bigger than that, there is no choice: they extend across the projections of xN *and* xn (1, stressed [æ/ɛː]) and are therefore barred from truly unstressed position. Thus: **1.** We establish the desired link between prosody and quality while **2.** maintaining a distinction between size (aperture) and stress/"unreducedness". **3.** Prosodic prominence can be formally identified as as the head xn, which for high vowels (plus schwa) can (but does not have to) be

involved. (Schwa has a structure like [ɪ/iː] without the element **I**; the additional empty position makes it mid.)

Generalisability. 1. High vowels (plus schwa) often display various signs of (prosodic) weakness: They are uneasy with secondary stress in Finnish (Anttila 2008). They are typical reduction outcomes in languages like Brazilian Portuguese (Cristófaro Alves da Silva 1992) or Eastern Catalan (Wheeler 2005), analysable as loss of structure (Pöchtrager 2018). They can undergo devoicing in Japanese (Fujimoto 2015), explained by reference to conditions under which empty positions can be silenced (Youngberg & Pöchtrager 2020), only possible for vowels with few empty positions (i.e. high vowels). **2.** More importantly, stress is also linked to another property more patently structural: Length. Languages like Italian or Estonian (Pöchtrager 2006) bar long (and overlong) unstressed vowels. Like in English, this involves a cap on structure in the absence of stress. What is different is what kind of structure is limited; that expressing length (Italian, Estonian) or that involved in aperture (English).

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