Danish, Estonian, English: Variations on a theme

Markus A. Pöchtrager (markus.poechtrager@univie.ac.at), University of Vienna

Most accounts of Danish stød (a laryngealisation, marked [ʔ]) rely on the mora: Basbøll (1988, 2005) takes stød to signal the second mora in odd-numbered syllables (counting from the right), (1a). The mora seems crucial to unify long vowels and tautosyllabic short vowel+sonorant (*vs.* obstruent), (1b). The restriction to odd-numbered syllables remains unexplained, though. I claim that the distributional pattern is **(C1)** neither restricted to Danish or stød, **(C2)** nor does it require moras.
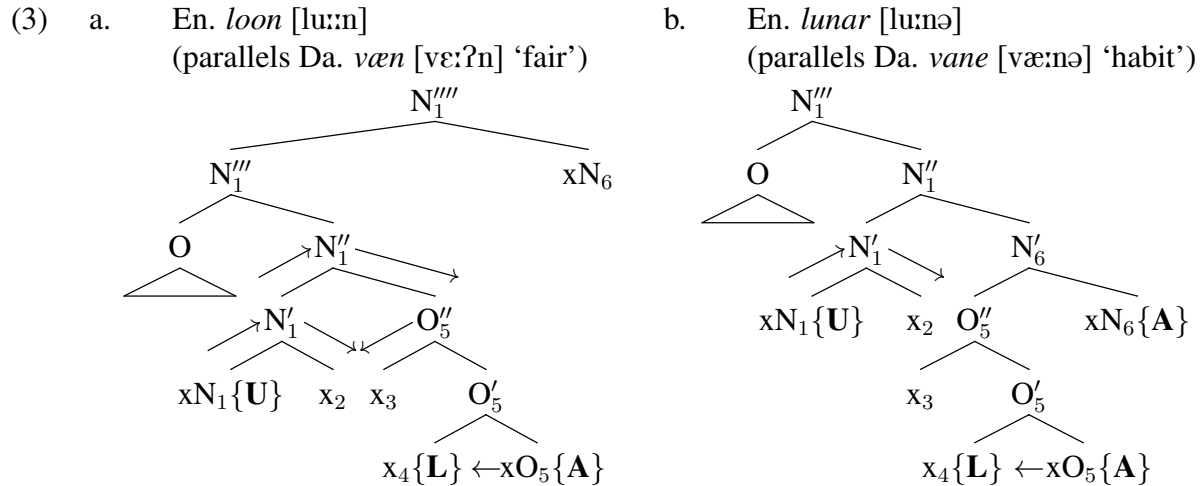
(1)   a. *væn* [vɛːʔn] 'fair' (1st σ from right)
       vane [væː.nə]/*[væːʔ.nə] 'habit' (2nd σ from right)
       (Native trisyllabic words are rare; but *cf.* the pronunciation of Latin *insula* [eʔn.su.læ])
   b. *væn* [vɛːʔn] 'fair' ∼ *bank* [bænʔg] 'bank' ≁ *pagt* [pɑgd]/*[pɑʔgd] 'pact'

   C1. The distribution of Danish (Da.) stød is virtually identical to that of Estonian (Ee.) and English (En.) overlength. En. overlength is often not referred to as such, though its effects are well known in the literature as (the lack of) "pre-fortis clipping" (Crystal & House 1988, Denes 1955, Heffner 1937, Klatt 1976, Lehiste 1970, Lisker 1957, Luce & Charles-Luce 1985, Luce, Charles-Luce & McLennan 1999, Peterson & Lehiste 1960, Rositzke 1939, Umeda 1975). Its relevance for phonology is argued for in detail in Pöchtrager (2006, 2014). (2a–e) give parallels and examples from Da. stød (left column) and Ee./En. overlength (middle/final columns, respectively):

(2)   a. Stress is a necessary condition for both stød and overlength.
       fon ['foːʔn] 'phone' *vs.*   *siid* ['siːːd] 'silk' *vs.*   *settee* [sɛ'tiːː] *vs.*
       fonem [fo'neːʔm] 'phoneme'   *['sidiːː]   *city* ['sɪtiː]/*['sɪtiːː]

   b. Monosyllabic words ending in a vowel are always overlong/take stød.
       bi [biːʔ] 'bee'   *tee* [deːː] 'road'   *bee* [biːː]

   c. Bisyllabic monomorphemic words never allow overlength/stød.
       vane [væːnə] 'habit'   *sooni* [soːni] 'cut in! IMP.'   *lunar* [luːnə]
       vs. væn [vɛːʔn] 'fair'   *vs. toon* [doːːn] 'tone'   *vs. loon* [luːːn]

   d. In monosyllabic words ending in a consonant, the presence of overlength/stød
      depends on the nature of the final consonant. (Though in different ways, see below.)
       lam [lamʔ] 'lamb' *vs.*   *siid* [siːːd] 'silk' *vs.*   *bead* [biːːd] *vs.*
       lap [lap]/*[lapʔ] 'rag'   *[siːːdː]   *beat* [biːt]/*[biːːt]

   e. Morphological structure plays a crucial role stød/overlength.
      (English example by Abercrombie 1964.).
       [[*mus*]*en*] [muʔz̥ən]   [[*moos*]*i*] [moːːz̥i]   "Take Grey [over-
       'the mouse'   'jam PAR. SG.'   long] to London"
       [[*muse*]*n*] [[muːz̥ən]]   [*moosi*] [moːz̥i]   "Take Greater
       'the muse'   'jam GEN. SG.'   [long] London"

Those parallels suggest that stød and overlength realise the same underlying phonological property. This takes us to C2, the mora being unnecessary for establishing a formal link. The analysis is couched in Government Phonology 2.0 (GP 2.0: Kaye & Pöchtrager 2013, Pöchtrager 2006, 2010, 2014, 2015, Živanovič & Pöchtrager 2010) and illustrated here by two representative cases, monosyllabic and (initially stressed) bisyllabic words:

C2. Following Pöchtrager (2006), two assumptions suffice: Firstly, stressed vowels have their following syllable embedded (3b), or, if no syllable follows, the word-final consonant(s) (3a). Secondly, lenis consonants like n (O_5'') in En. *loon* (3a) are characterised by an empty position inside, x_3. In monosyllabic (3a), this position is captured by the preceding (stressed) vowel, yielding *over*long [uːː] (comprising xN_1, x_2, x_3). In bisyllabic *lunar* (3b) x_3 is out of reach for the preceding vowel: There is a closer nuclear head (xN_6), where closeness means 'contained in the lowest possible projection' (N_6'). The [uː] is only long (xN_1, x_2). Exactly the same holds for Estonian. The position giving us overlength is contained in the consonant (*loo<u>n</u>*); hence when grouped with a following vowel (*lu.<u>n</u>ar*) in bisyllabic words, this position is inaccessible for the stressed nucleus.

(3) a. En. *loon* [luːːn]
 (parallels Da. *væn* [vɛːʔn] 'fair')

 b. En. *lunar* [luːnə]
 (parallels Da. *vane* [væːnə] 'habit')

This explains (2a, c) (*cf.* Pöchtrager 2006 for (2b)) and extends to Da. *væn* [vɛːʔn] 'fair'/*vane* [væːnə] 'habit': Again, depending on the grouping of x_3 we get stød or not; x_3 is the location of stød, not a mora in the preceding nucleus. The behaviour of mono- *vs.* bisyllabic words follows, while it had to be stipulated under a mora-based account. (2c–d) are covered. Furthermore, C_1 in a cluster C_1C_2 replaces the second part of a long vowel (*i. e.* x_2), thus explaining the parallel in (1b).

Bisyllabic forms seemingly violating the pattern always involve morphology: Da. [[*muse*]*n*] 'the muse' has a bisyllabic base, thus no stød. But [[*mus*]*en*] 'the mouse' has a monosyllabic base, hence stød. The suffixed determiner (analytic) has no effect in either case. Exactly the same holds true of the Estonian example in (2e); the English case only differs in that the contrast cannot be seen in the comparison of different suffixes, but instead in the behaviour of clitics (like *to*) *vs.* forms without clitics. This explains (2c, e).

All this addresses the distribution, but not yet the nature of stød. Larsen's (1994) Strict CV analysis took stød as the realisation of an empty, unlicensed position. Assume that a nuclear head in Da. can only claim one position, *i. e.* x_2 in (3a). Thus, x_3 remains unclaimed and is spelled out as stød. In (3b) x_3 is part of the projection of the second nucleus which licenses x_3, keeping it silent. In fact, this will not suffice, as not all lenis consonants allow stød in Danish, but only sonorants (2d). I will explore the assumption that sonorants contain even more empty positions than obstruents and that stød spells out more than one position.

Despite one complication (some few words lack stød), the account sketched out allows for the unification of two seemingly disparate phenomena. By giving up the mora as the locus of stød, both its location with respect to the word edge and its link to other phenomena falls out.

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