

Melody vs. structure: German consonants

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In several languages (English, Finnish, Estonian, French, Friulian, German – Chen [1970], Baroni & Vanelli [2000]...), vowel quantity depends on consonantal voice (strength / aspiration). From a purely phonetic point of view, this correlation is not surprising (cf. Chen [1970], Kluender, Diehl & Wright [1988], Laeufer [1992], Raphael, Dorman & Liberman [1980]...). However, from the phonological side, the correlation is problematical: it involves the influence of a low-level property (voicing belongs to the melody) on an upper-level one (duration – i.e. structure). Taking the (Modern Standard) German facts as an example, we will try to give a satisfying interpretation of this correlation. This work is grounded on the analysis of a database containing 13246 (New High German – NHG) roots, stored along with their respective etymologies.

In NHG and in the transition between Middle High German (MHG) and NHG, vowel quantity depends/has become dependent on the voice/aspiration/strength value of a following consonant: in NHG, short vowels are disfavoured before voiced obstruents (e.g. *B[a]d but B[.:]d “bath”); between MHG and NHG, short monophthongs have become long whenever they were preceding a voiced obstruent (e.g. MHG ba/d/ > NHG B[.:]d “bath”) but have remained short when the following obstruent was underlyingly voiceless in MHG (e.g. MHG gate > NHG G[a]tte “husband”) (Burghauser [1891], King [1988], Kranzmayer [1956], Leys [1975], Wiesinger [1983]...).

In German, this correlation cannot be purely phonetic: first of all, it has a high phonological relevance (which a similar correlation does not enjoy in French or English). Secondly, it is simply incompatible with the following fact: the opposition between voiced (unaspirated / weak) and voiceless (aspirated / strong) obstruents is neutralized word-finally but a vowel preceding a word-final consonant must be long whenever the following consonant is underlyingly voiced and tend to be short when the following consonant is (underlyingly) voiceless (e.g. NHG L[i:]d “song” vs. R[I]tt “ride”). Another argument is coming from sonorants: these are always voiced in German but can be preceded by long or short vowels in NHG (e.g. Höhle “cave” vs. Hölle “hell”).

It will be argued here that voicing, in languages like German, is the simple correlate of another property of the following consonant, namely: (phonological) quantity – in other words, (phonologically) voiceless obstruents are geminates. It will be shown that the observed voice-length correlation only indirectly involves the melody and that the (consonantal) property which is truly responsible for differences in vocalic quantity is consonantal quantity itself, i.e. structure. In other words, German is like Italian, in which vocalic and consonantal length are complementary (Bertinetto [1981], Chierchia [1986], Nespor & Vogel [2007]). A first characteristic of German is then that – for independent reasons which will be identified – the phonological system prevents these consonants to surface as phonetically long objects (their true identity can only be read on their environment – e.g. a preceding vowel). A second property of German concerns the status of the correlation which is not purely phonetic (as in English or French) but has a true phonological dimension.