

STRENGTH HIERARCHIES AND ENGLISH

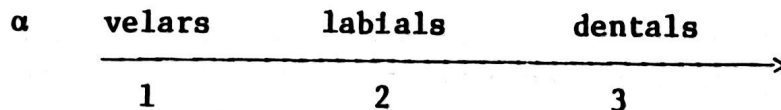
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Foley (1977) proposes a number of hierarchies of phonological strength in an attempt to provide a theory of phonology which is more explanatory than others currently in use. These hierarchies are based on data from a wide range of languages, and can be used to explain a number of phonological facts such as lenition, umlaut and assibilation which are not easily explained in standard generative phonology. There are, however, some problems for these hierarchies in the phonology of English. Page references are to Foley (1977).

Consonants.

Foley expresses consonantal strength along four different parameters, each of which is labelled with a Greek letter. His α parameter is realized in the Germanic languages as:



(p. 145) with the dentals as the strongest consonants. Data from English is taken into account in this hierarchy (pp. 49, 126), so English is expected to act as a Germanic and not as a Romance language in this respect.

In assimilation, "weak elements assimilate to strong elements" (p. 36), so that Latin *dictus* gives Italian *detto* with weak [k] assimilating to strong [t] rather than **decco*. Yet in English the dentals (read 'alveolars'), supposedly the strongest consonants, do assimilate to a following velar or labial, while velars and labials do not assimilate to following consonants:

ran back	→	[ræm bæk]
ran clear	→	[ræŋ kliθ]
rum do	↯	[rʌn du]

rum cake	ʌ	[rʌŋ keɪk]
rang Bob	ʌ	[ræm bɒb]
rang Dick	ʌ	[ræŋ dɪk]
bad boy	→	[bæb bɔɪ]
bad girl	→	[bæg gɜ:l]
cab door	ʌ	[kæd dɔ:]
lab coat	ʌ	[læg kəʊt]
big boy	ʌ	[bɪb bɔɪ]
big dog	ʌ	[bɪb dɒg]

Foley (p. 126) explains the replacement of voiceless [t] in a word like *fountain* by [ʔ] by what he terms "modular depotentiation", which means that the strongest consonant on a given parameter is replaced by the weakest consonant on the same parameter in a position where strengthening might be expected. While such a process might explain the use of the glottal stop along with or instead of [t] in assimilation, it cannot explain the parallel glottalization of other voiceless stops, and it cannot explain the assimilation of the voiced stops and nasals illustrated above.

Another of Foley's parameters is also relevant in a discussion of English consonant assimilation, the ρ parameter, which is realized (p. 145) as:

ρ	stops	spirants	nasals	liquids	...
	—————→				
	1	2	3	4	...

Now while it is true that the dental stops and nasals assimilate in English, the corresponding fricatives (whether these are taken to be [θ, ð] or, more likely, [s, z]) do not assimilate to following stops or nasals:

sat back	→	[sæp bæk]
batman	→	[bæpmæn]
bath baby	ʌ	[bɒf beɪbɪ]
bath mat	ʌ	[bɒf mæt]
this book	ʌ	[ðɪf buk]
this man	ʌ	[ðɪf mæn]
ban bombs	→	[bæm bɒmz]
done me	→	[dʌm mi]

bad boy	→	[bæb bɔɪ]
bad man	→	[bæb mæn]
breathe badly	↗	[brɪv bædli]
seethe madly	↗	[sɪv mædli]
these books	↗	[ðɪv buks]
these men	↗	[ðɪv men]

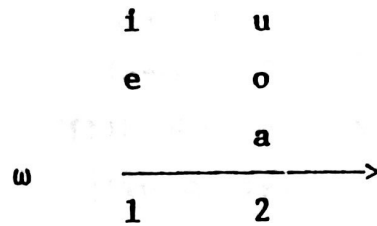
The hierarchy would predict that only elements occurring on a continuous segment of the hierarchy would assimilate: it makes the correct prediction that [l] can sometimes assimilate (*tell me* → [tem ml]) but that [r], in those dialects that have post-vocalic [r], cannot, since [l] is said to be weaker than [r] (p.38); it makes the correct prediction that assimilation will apply easily to nasals but only in a very limited way to liquids; but it makes incorrect predictions about the behaviour of fricatives.

There is an alternative explanation for the lack of assimilation of fricatives, namely that there is no bilabial or velar fricative in the English system which could be used in such assimilation. This is strictly irrelevant, since there is no palatal fricative in the English system either, and yet one appears in assimilation as the result of the sequence [hʃ], but even ignoring this there are two points to be made against such a position. Firstly, in a phrase like *bath night* the strong nasal assimilates to the place or articulation of the weak fricative, and not vice versa, which confirms the fact that dental fricatives do not assimilate while stops and nasals do. Secondly, [f, v] assimilate to bilabials in other places in English, so there is no apparent reason why they should not here. Consider, for example, the assimilated pronunciation [sevm] of *seven*. While this is not the only possible assimilated pronunciation of this word, it is one, and the strong alveolar nasal has assimilated to the weak labial fricative, treating the labiodental in the same way as a bilabial.

Vowels

Foley discusses the relative phonological strength of vowels in terms of two parameters, the η and the ω (p. 146):

	ü	ö	
	i	e	a
	u	o	
η	—————→		
	1	2	3



Although these vowel hierarchies give only three values for vowel height and two for front/back, the general outline would seem to be clear.

Now consider the current New Zealand Vowel Shift (see Bauer, 1979) in terms of these parameters. Among the monophthongs there seems to be a general weakening: [u] → [ʊ] or [əu], [ɔ] → [o], [ʌ] → [a], [ɑ] → [a:], [æ] → [ɛ], [ɛ] → [e], [i] → [ɪ]. All these changes are weakenings, either in terms of the two parameters given above or by diphthongization, which is also a weakening (p. 43). Furthermore, these changes can be seen in terms of a unitary push-chain operation. However, [ɪ] becomes [ɪ̄], and though this can be seen as part of the same push-chain, it represents a strengthening on the ω parameter. As far as the diphthongs are concerned, there is another push-chain, so that [ei] → [æi], [ai] → [ɔi], [ɔi] → [oi]. While the first two of these changes are strengthenings, the last is a weakening, although all appear to be the result of a unitary change. Foley's hierarchies seem as unable as standard generative phonology to capture the unity in these shifts.

It may be that the hierarchies that Foley provides differ from language to language: Foley himself (pp. 52, 145) notes that the α parameter is different in the Romance languages from the Germanic languages. In fact, the hierarchies have already been criticized elsewhere for not being universal (Katamba, 1979). But if this view is taken, then the cross-linguistic data adduced by Foley in the setting up of the hierarchies is irrelevant, and the problem posed by the vowel shift is still not solved.

REFERENCES

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- Foley, J. 1977. *Foundations of Theoretical Phonology*. Cambridge University Press, Cambridge and London.
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