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Vowel Alternations in English

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The purpose of this study is to investigate the nature of vowel alternations observed in English. What we call vowel alternations here consists of shortening and lengthening triggered by Level I affixation:

(1) a. deep ---> depth b. Iran ---> Iranian
[iy] [e] [æ] [ey]

(1a) shows that the vowel [iy] in *deep* is shortened to [e] when the stem is followed by the suffix *-th*; in (1b) the vowel [æ] is lengthened to [ey] in the suffixed form in which the vowel is followed by a sequence 'a consonant + /i/ + a vowel' (*_CiV*). In this study, the following proposals were made: i) the vowel shortening in English is divided into two types (i.e., shortening directly and indirectly conditioned by Level I affixation) and ii) the vowel lengthening in the environment *_CiV* should be attributed to a segmental constraint.

In the first place, three previous analyses of the vowel shortening (Yip (1987), Myers (1987), and Halle and Vergnaud (1987)) were reviewed: although both Yip and Myers attempt to provide a unitary analysis from their own points of view, their analyses suffer from empirical problems; Halle and Vergnaud's system is capable of covering the attested data, but it includes three shortening rules and seems to miss a generalization which could be captured otherwise.

Then, our proposals about the shortening were presented. We classified the relevant data into Type I and Type II shortening. The former corresponds to the shortening observed in a syllable which receives primary stress through affixation; the latter corresponds to the shortening observed in a syllable which loses stress through affixation:

(2) a. déep/dépth, percéive/percéption, etc.
b. státe/státic, divíne/divínity, deríve/derívative, excláim/exclámatory, supréme/suprémacy, etc.
c. náture/nátural, ómen/óminous, etc.

(3) a. reláte/rélative, deríve/dèrivátion, resíde/résident, precéde/précedence, etc.
b. compónent/còmponéntial, equátor/èquatórial, etc.
c. fámous/ínfamous, fínite/ínfinite, etc.

The examples in (2) show Type I shortening: it is triggered by a C-initial suffix in (2a) and by a V-initial one in (2b, c); in (2c) a vowel is shortened in a syllable separated from a suffix. The examples in (3) show Type II shortening: while a trigger is a V-initial suffix in (3a, b) (shortening is observed in a stem-final syllable in (3a) and in a syllable separated from a suffix in (3b)), it is a prefix in (3c).

Taking into consideration the fact that a vowel in a stressless syllable tends to undergo reduction, Type II shortening, which is observed in a stressless syllable, can be explained in terms of stress. Type I shortening, in contrast, is not explained in such a way because a shortened syllable bears stress in an affixed form. Thus, this kind of shortening must be attributed to affixation itself, i.e., it must be regarded as triggered directly by affixation. In this sense, Type II shortening is conditioned indirectly by affixation.

Finally, it is suggested that the lengthening in the environment *_CiV* should be explained by means of a constraint which requires vowels other than /i/ to be long before *CiV*, attributing the phenomenon to the quality of the relevant vowels. We chose this way of thinking because in the same environment *_CiV* the vowel [ay] is shortened to [i] and this shortening can be incorporated in the shortening discussed above. Thus, we concluded that lengthening is a highly marked phenomenon among the vowel alternations at Level I.