Exceptionality and conspiracy in Polish vowel-zero alternations

Vowel-zero alternations in Slavic languages have received considerable attention over the years due to the numerous exceptions surrounding their application (e.g. Scheer 2011). In Polish, these alternations are commonly found in nominal inflectional paradigms. When the inflectional suffix is null, the vowel /ɛ/ appears between the final two consonants in the stem; when the inflectional suffix contains a vowel, the two consonants remain a cluster (1).

(1)   sweter [sfɛtɛr] (nom. sg.) ~ swetry [sfɛtr+ɨ] (nom. pl.) 'sweater'

However, this is not true of all stem-final consonant clusters. Notably, even lexemes with the same consonant cluster can behave differently. Thus, vowel-zero alternations cannot be analyzed as a straightforward case of epenthesis, since (2a) provides a counterexample. Nor can they be analyzed as a straightforward case of deletion, since (2b) provides a counterexample.

(2)   a.   metr [mɛtr] (nom. sg.) ~ metry [mɛtr+ɨ] (nom. pl.) 'meter'
        b.   seter [sɛtɛr] (nom. sg.) ~ setery [sɛtɛr+ɨ] (nom. pl.) 'setter (dog)'

This irregularity has led many researchers (e.g. Rubach 1984, Gussmann 2007) to propose underlying abstract vowels for lexemes that exhibit vowel-zero; lexemes which fail to show the alternation either have a regular /ɛ/ (2b) or no vowel at all (2a). However, there are arguments against this type of lexical specification. For one, it ignores the tendency for the alternation to follow particular distribution patterns and is unable to explain similar patterns in the emergence of vowel-zero alternations in borrowings (Bethin 1992, Mellander 2000, Gouskova & Becker 2013). Furthermore, it also fails to account for lexemes which optionally exhibit the alternation (see Cyran 2005).

The present study aims to determine the strength of these distributional patterns in Polish, thereby teasing apart just how full of exceptions the vowel-zero phenomenon is. The study analyzes a corpus of 2311 Polish nouns that fall into three patterns: non-alternating stems which end in a consonant cluster (2a); non-alternating stems which end in a CɛC sequence (2b); and stems which exhibit vowel-zero alternations (1). In addition to features relating to the identity of the final two consonants (such as sonority, continuancy, and voicing), the study examines the effect of factors such as the grammatical gender of the noun, the length of the stem, the vowel preceding the consonant cluster, and the size of the consonant cluster.

Statistical analyses of this corpus show that vowel-zero alternations are indeed strongly correlated with particular phonological environments. However, the exact factors involved depend on whether vowel-zero alternations are contrasted with a non-alternating consonant cluster (and thus treated as a process of epenthesis), or whether they are contrasted with a non-alternating CɛC sequence (and thus treated as a process of deletion). Results indicate that there are two grammars conspiring towards vowel-zero on the surface: a phonologically-driven process of vowel epenthesis that relies on factors such as sonority to trigger it; and an allomorphy-based but phonologically-constrained process of deletion that is primarily correlated to synchronic and historical derivational suffixes.

Thus, these results support the argument that the vowel-zero phenomenon is governed by the grammar, and they introduce the possibility that the phenomenon is due to multiple conspiring processes.

References:

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