

ABSTRACT: Paradigm Uniformity in Czech Prefix Vocalization

Introduction The nature of inflectional paradigms in morphology is controversial, with some (e.g. Bobaljik, 2008) arguing that some supposed paradigmatic effects are instead due to morphosyntactic properties. I look at Czech prefix vocalization, a phenomenon in which consonant-final prefixes sometimes require a vowel (in Czech, this is always [ɛ]) at their end when attaching to a root. I analyze it as morphophonologically driven epenthesis and show that it overapplies across an inflectional paradigm, arguing that the paradigm is a meaningful linguistic unit. I account for prefix vocalization with Optimal Paradigms (McCarthy, 2005).

Generalization Prefix vocalization is triggered by a root beginning with two consonants and is not predictable from the root-initial cluster alone (1b,d). In fact, we see prefix vocalization when the root (in bold below) has *two or more consonants* and *no vowels* in the *surface form* (1d–f). This is true even when an underlying root vowel has been deleted to resolve the hiatus with the theme vowel (1f). If the root has a surface vowel (1b,c) or only one consonant (1a), the prefix does not vocalize (I ignore voicing assimilation):

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|-----------------------------|--------------|-----------------|------------------------------|----------------|-------------------|
| (1) a. /roz- d -a-t/ | [rozdat] | “to distribute” | d. /roz- br -a-t/ | [rozɛbrat] | “to dismantle” |
| b. /roz- brɛtʃ -ɛ-t/ | [rozbrɛtʃɛt] | “to make cry” | e. /roz- xts -a-t sɛ/ | [rozɛxtsat sɛ] | “to start to pee” |
| c. /roz- kri -Ø-t/ | [rozkri:t] | “to uncover” | f. /roz- fr̩ -a-t/ | [rozɛfr̩a:t] | “to warm up” |

Paradigm uniformity Czech prefix vocalization also shows a paradigm uniformity effect: when any member of an inflectional paradigm requires vocalization as described above, the entire paradigm vocalizes as well. I define the paradigm as all forms of a verb that share a meaning (i.e., a root and prefix) and aspect (perfective or imperfective). This includes the infinitive, past tense, passive participle, and deverbal noun (all formed with past morphology) and the non-past inflected forms, the imperative, and, for imperfectives, the present participle (all formed with non-past morphology). The past and non-past morphology may differ in the presence of a vowel in the root—this is not predictable—and in the choice of thematic vowel.

In (2), the first two roots show no allomorphy other than predictable length alternations of [ɛ/i] and [i:], and prefix vocalization applies as expected. The roots for “to grind” and “to read” have root allomorphs with a vowel in the non-past and no vowel in the past, or vice versa. We see in (2i) and (2j,k) that prefix vocalization overapplies in forms with a root vowel, triggered by members of the paradigm without surface root vowels, (2g,h) and (2l).

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| (2) “uncover” | “chafe” | “grind up” | “start to read” |
| a. roz-kri-i-t | d. rozɛ-dr̩-i-t | g. rozɛ-ml-i-t | j. rozɛ-tʃi:s-Ø-t INF |
| b. roz-kri-l | e. rozɛ-dr̩-ɛ-l | h. rozɛ-ml-ɛ-l | k. rozɛ-tʃɛt-Ø-l PAST.MASC.SG |
| c. roz-kri-Ø-jɛ | f. rozɛ-dr̩-Ø-ɛ | i. rozɛ-mɛl-Ø-ɛ | l. rozɛ-tʃt-Ø-ɛ NONPST.3.SG |

Analysis I analyze prefix vocalization as epenthesis (as Rysling, 2016; Czaykowska Higgins, 1988 do in Polish) driven by a markedness constraint on the shape of the root:

- (3) *C[CC]_{root}: If a verb root follows a consonant and contains at least two consonants, it must also contain a vowel.

CONTIGUITY-IO_{stem} ensures that the vowel is epenthesized before the root, not within or after it (anywhere within the stem, which excludes the prefix):

- (4) CONTIGUITY-IO_{stem}: Adjacent stem input segments must correspond to adjacent output segments.

*C[CC]_{root} must outrank DEP-IO-V, which penalizes vowel epenthesis. MAX-IO-C, which penalizes consonant deletion, must outrank DEP-IO-V to ensure vowel epenthesis instead of deletion of a root consonant (here I do not explain the lengthening of the theme vowel):

(5)

roz-[[ml] _{root} -ε-t] _{stem}	*C[CC] _{root}	MAX-IO-C	DEP-IO-V	CONTIGUITY-IO _{stem}
a. roz[[ml] _{root} i:t] _{stem}	*!			
b. rozε[[ml] _{root} i:t] _{stem}			*	
c. roz[[mεl] _{root} i:t] _{stem}			*	*!
d. roz[[m] _{root} i:t] _{stem}		*!		

Prefix vocalization then overapplies due to an Optimal Paradigms (McCarthy, 2005) constraint enforcing correspondence between all members of the inflectional paradigm as defined above:

- (6) DEP-OP-V: For members of a paradigm P_1, P_2 , any vowel that appears in P_2 must have a corresponding vowel in P_1 .

I assume that allomorphs with alternating vowels like [ml] and [mεl] are suppletive, and that MAX-IO-V and CONTIGUITY-IO_{stem} are ranked above DEP-OP-V to prevent leveling to [ml] or [mεl], respectively. DEP-OP-V must outrank DEP-IO-V (I only count violations of DEP-OP-V from the prefix and root):

(7)

roz- $\left\{ \begin{array}{l} \text{ml-}\varepsilon\text{-}\{t, \dots\} \\ \text{m}\varepsilon\text{l-}\emptyset\text{-}\{e, \dots\} \end{array} \right\}$	*C[CC] _{root}	MAX-IO-C	MAX-IO-V	CONTIG-IO _{stem}	DEP-OP-V	DEP-IO-V
a. ⟨rozmlɪ:t, rozmɛɛ, ...⟩	*!				*	
b. ⟨rozɛmlɪ:t, rozmɛɛ, ...⟩					**!	*
c. ⟨rozɛmlɪ:t, rozɛmɛɛ, ...⟩					*	**
d. ⟨rozɛmlɪ:t, rozɛmɛ, ...⟩			*!			**
e. ⟨rozmɛɪɪ:t, rozmɛɛ, ...⟩				*!		*

Alternative analyses Prefix vocalization overapplies in Czech and Slovak, but not Polish and Russian, so analysis of prefix vocalization in the latter languages (e.g. Gribanova, 2015) will not hold in Czech. Rubach (1993) and Ziková (2016) link prefix vocalization to the presence of a yer (an alternating vowel) in the root or a vowelless root in Slovak and Czech, respectively. Both accounts predict that prefix vocalization overapplies for every instance of a given root, not just within a paradigm. However, in Czech, related forms with CC roots outside of a verb’s paradigm do not trigger prefix vocalization:

- (8) a. žl-nou-t “to glow” but roz-žɛfi-nou-t not *roze-žɛfi-nou-t nor *roze-žfi-nou-t “to light”
 b. vy-řk-nou-t “to utter” but od-řek-nou-t not *odɛ-řek-nou-t nor *odɛ-řk-nou-t “to cancel”

These accounts also treat forms like [rozɛfi:ɹ:t] (1f), where a root vowel gets deleted, as exceptions.

The instances of overapplication in (2) also hold relevance for another debate: while Jarosz (2008) and Rysling (2016) evoke Optimal Paradigms in their analyses of Polish yers, Sturgeon (2003) argues that Czech nominal paradigms have a privileged base and that other forms are in correspondence with that base. Czech prefix vocalization, however, can be triggered by any member of a paradigm: the past-tense stem [rozɛ-ml-i:t] (2g) yields overapplication in the non-past [rozɛ-mɛl-∅-ɛ] (2i), while the reverse is true with [rozɛ-tʃi:s-∅-ɛ] (2j) and [rozɛ-tʃt-∅-ɛ] (2l). Thus, no member of the paradigm can serve as the privileged base, and correspondence must be enforced between every pair of members as in Optimal Paradigms.

Summary While earlier analyses have motivated prefix vocalization through the presence of an alternating vowel across the lexicon, I have argued that in Czech, it is sensitive only to the morphology of a given form and the other members of its inflectional paradigm. The distribution of vocalized prefixes in Czech thus provides evidence of the paradigm as a meaningful unit of representation.