

A rule with exceptions or a minor rule? Polish revisited

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Introduction. It is difficult to identify whether a rule is default or exceptional when a language supplies many examples of rule undergoers and non-undergoers. Polish vowel-zero alternations are such a case. The tendency has been to give Polish and Russian alternations a unified analysis. We supply analytic and quantitative arguments for analyzing Polish alternations as general and epenthetic, but subject to exceptions, in contrast to Russian's exceptional alternation caused by deletion (Gouskova 2012, Gouskova Becker 2013).

Polish yers. In Polish, [e] alternates with zero in the final syllables of some words but not others, shown in (1). Hayes (2009, ch. 12) points out that whether the alternation is treated as deletion (Gussmann 1980, Bethin 1992, Jarosz 2008, Rubach 1986, 2013) or epenthesis (Czaykowska-Higgins 1988), there must be lexical exceptions: there are vowels that do not alternate (1a), and there are contexts (e.g., [t_r]) in which vowels appear in some words but not others (cf. (1c) and (1e)). Regardless of a word's pattern with case suffixes, [e] appears in the last stem syllable with the diminutive suffix [-ek], as in the 'Diminutive' column in (1)—except in obstruent-obstruent clusters, which may be unbroken in the diminutive (see (1e)).

(1) *Six types of patterns in Polish*

	UR	Unaffixed	Case Suffix	Diminutive	Gloss
(a) Nonalternating V	/seter/ /kalek/	seter kalek	seter-i kalek-i	seter-ek kalet͡s-ek	'setter' 'cripple'
(b) Epenthesis: 1σ	/dɲ/ /mgw/	d͡zɛɲ mɟiew	dɲ-i mgw-i	d͡zɛɲ-ek mɟiew-ek	'day' 'fog'
(c) Epenthesis CC# > 1σ	/sfetr/ /lalk/	sfeter lalek	sfetr-i lalk-i	sfeter-ek lalet͡s-ek	'sweater' 'doll'
(d) Variable epenthesis	/bit-v/ /vew-n/	bitf, bitef vewn, vewen	bitv-i vewn-i	bitev-ek vewen-ek	'battle' 'wool'
(e) Exceptional blocking I	/vʲatr/ /katedr/	vʲatr katedr	vʲatr-i katedr-i	vʲater-ek kateder-ek	'wind' 'cathedral'
(f) Exceptional blocking II	/most/ /swuɟb/	most swuɟp	most-i swuɟb-i	most-ek swuɟb-ek	'bridge' 'service'

Analysis. We argue that Polish vowel-zero alternations should be analyzed as epenthesis, using lexically indexed constraints (Pater 2008 inter alia). In non-alternating words such as (1a), the vowel is present in the UR. Alternating words such as (1b–d) differ in which constraint triggers epenthesis: in monosyllables, it is HEADEDNESS, the pressure to have a vowel nucleus (Szpyra 1992, Hayes 2009). In longer alternating words, the vowel breaks up a CC# cluster, so *CC# > DEP (see (2a)). Sonorant-final clusters are especially common in this category. The third category of words has optional alternations at the morpheme boundary, usually affecting the same suffixes (-v, -n). The cases in which there are no alternations between unaffixed and case forms (see (1e, f)) are specified as exceptions to epenthesis: indexed CONTIGUITY_{Ex} is ranked above *CC#, see (3). For such morphemes, CONTIGUITY_{Ex} may be dominated, since there is obligatory epenthesis for CR-final stems in the context of diminutives: compare (3a) and (3b) for evidence that *CRC > CONTIGUITY_{Ex}. We attribute this to the selectional requirements of the [-ek] suffix, which favors bases that do not end in CR clusters. *CC# also determines the site of epenthesis in /CCC/ words: in /mgw-a/ [mɟw-a] 'mist' and /pxw-a/ [pɟw-a] 'flea,' the vowel always appears after the first two consonants: [mɟiew] 'mist (gen. pl.).' Finally, there are words with no alternations at all, such as (1f), in which epenthesis is blocked by CONTIGUITY, but also not triggered by *CRC in diminutives.

Why not deletion? In our analysis, [vʲatr] and [most] are exceptions to epenthesis. The alternative is that [seter] resists deletion. A deletion analysis does not explain why only the

[e] vowel alternates, or why [e] is predictably present in the context of the diminutive suffix even in morphemes that resist the alternation elsewhere. To explain that pattern, a Russian-style deletion account (Gouskova 2012) would still have to posit epenthesis in diminutives.

(2) *Analysis of Polish words with alternations*

/sfetr/ 'sweater'	HEADEDNESS	*CRC	CONTIG _{EX}	*CC#	DEP
a. sfetr~sfetr				W	L
/sfetr-i/ 'sweater'					
b. sfetri~sfeteri					W
/mgw/ 'mist'					
c. mgjew~mgw	W				L

(3) *Analysis of Polish words without alternations*

/viatr/ 'wind'	*CRC	CONTIG _{EX}	*CC#	HEADEDNESS	DEP
a. viatr~viter					W
/viatr-k-a/					
b. viterka~vitrka	W	L			L

Alternation is the general rule. The POLEX lexicon of Polish (Vetulani et al. 1998) contains 41,742 nouns. Of these, 6.3% contain a non-alternating [e] (see (4b)), 15.8% exhibit vowel alternation (see (4a)), and 16.1% end in CC# in some grammatical case (see (4c)). Of nouns that end in CC#, which may be considered exceptions to alternation, the majority end in the suffixes [-oɛtɕ], [-izm], [-ist], [-stv], [-ovɲ] and [-itm], see (4ci). These suffixes categorically never host alternating vowels, tend to be part of a more formal register in language use, and represent 11.1% of the lexicon. Thus, 5.0% of the lexicon ends in CC#, but does not contain these particular suffixes, see (4cii). If Polish speakers know that the above suffixes are unacceptable contexts for vowel insertion, and so rank faithfulness to them above *CC#, then the number of CC# words that must be treated as idiosyncratic exceptions to the epenthesis rule (5% of the lexicon) is far smaller than the number of words that undergo it (15.8% of lexicon) in Polish, compared to Russian's 17% unbroken CC# and ~9% alternation.

(4) *Corpus statistics*

		Count of forms	Of lexicon	Example
(a)	Alternating [e]	6,581	15.8%	sfetri~sfeteri
(b)	Non-alternating [e]	2,624	6.3%	seter~seteri
(c)	Ends in CC# cluster	6,729	16.1%	
i.	<i>Suffixed</i>	4,630	11.1%	markɛizm~markɛizmu
ii.	<i>All unsuffixed</i>	2,099	5%	swuɕp~swuɕba
(d)	CCV# or non-[e] CVC	25,808	61.8%	azja~azji
	Total	41,742	100%	

Discussion. Russian and Polish vowel alternations are historically related, but they diverged: in Russian, they are exceptionally triggered, but in Polish, they are the result of a productive rule subject to exceptions. Many differences between the languages follow from this. In Russian, alternation is not extended to loanwords (dizel/dizel'a `diesel'), vowel quality is only semi-predictable (mid [e] and [o]), and there are paradigm gaps (e.g., [mgla] `mist' does not have a genitive plural). In contrast, Polish readily extends alternation to loanwords (dizel/dizl-a `diesel'), predictably alternates [e], and has no paradigm gaps (/mgw-/ `mist' is [mgjew] in the genitive plural). The analysis makes a testable prediction that Polish speakers should extend the alternation to novel items more readily than Russian speakers; this prediction differentiates our theory from traditional accounts that posit similar representations for yers both languages.