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Formal Description of Slavic languages
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WHY RUSSIAN VOWEL-ZERO ALTERNATIONS ARE NOT DIFFERENT, AND WHY LOWER IS CORRECT

(1) purpose
to show that in Russian
a. vowel-zero alternations are not any different from those found in other Slavic languages.
b. there are two yers, not just one or three
All attempts to use an e→o rule to predict yer quality fail.
c. yer vocalization is not predictable from syllable structure.

2. Empirical generalizations

(2) property #1, shared by all Slavic languages
whether a vowel alternates with zero or not cannot be predicted from stress, its phonetic, contrastive or morphological properties.

alternating and non-alternating vowels of the same quality

	alternating		non-alternating		
	CvC	CøC-V	CvC	CvC-V	gloss
Russian	kusók	kusøk-á	rabót	rabót-a	piece Nsg, Gsg; work Gpl, Nsg
Polish	pies	pøs-a	bies	bies-a	dog Nsg, Gsg; devil Nsg, Gsg
Czech	lev	løv-a	les	les-a	lion Nsg, Gsg; forest Nsg, Gsg
BCS	tajac	tajøc-a	pajac	pajac-a	silence Nsg, Gsg; clown Nsg, Gsg

(3) alternating and non-alternating vowels of the same quality in Russian
e.g. Lightner (1972:38ff), Garde (1980:§132), Melvold (1989:31f), Farina (1991:255), Yearley (1995:538)

			alternating		non-alternating		
			CvC#	CøC-V	CvC#	CvC-V	gloss
a.	nominal inflection	e	d'én'	dn'-á	olén'	olénj-a	day Nsg, Gsg; deer Nsg, Gsg
			p'én'	pn'-á	l'én'	l'én'-i	log Nsg, Gsg; laziness Nsg, Gsg
			l'ev	l'v-á	m'ést	m'ést-o	lion Nsg, Gsg; place Gpl, Nsg
			ot'éc	otc-á	m'atéz	m'atez-á	father Nsg, Gsg; rebellion Nsg, Gsg
			m'ést'	mst'-í	mést	mést-o	vengeance Nsg, Gsg; place Gpl, Nsg
		o	úgor'	úgr'-a	Ígor'	Ígor'-a	eel Nsg, Gsg; Igor Nsg, Gsg
			l'ón	l'n-á	kl'on	kl'on-a	linen Msg, Gsg; maple Nsg, Gsg
			rót	rt-á	pót	pót-a	mouth Nsg, Gsg; sweat Nsg, Gsg
			kusók	kusk-á	koról'	korol'-á	piece Nsg, Gsg; king Nsg, Gsg
			són	sn-á	spór	spór-a	dream Nsg, Gsg, dispute Nsg, Gsg
			rót	rt-á	vórot	vórot-a	mouth Nsg, Gsg; collar Nsg, Gsg
			lób	lb-á	vól	vol-á	forehead Nsg, Gsg, ox Nsg, Gsg
			kot'ól	kotl'-á	tól'	tól'-a	kettle Nsg, Gsg; roofing felt Nsg, Gsg
b.	short-long forms of adj.	e	b'éd'en	b'édøn-ɨj	b'él	b'él-ɨj	poor; white
			bólen	bol'n-oj			sick
			krás-en	krás-n-yj			red
		o	pólon	póløn-ɨj	poxóž	poxóž-ɨj	full; resembling
			dolog	doløg-a	lákom	lákom-yj	long; tempting, tasty
c.	derivation	e	m'ést'	møst'-ít'			vengeance; to avenge
			léd	l'd-ín-a			ice; block of ice
			léd-nik	l'd-íst-yj			refrigerator; covered with ice
		o	vóš	vøš-ívɨj			louse; lice-ridden

(4) vowel-zero alternations occur
a. in all lexical categories: nouns, verbs, adjectives, prefixes, prepositions etc.
b. in all morphological categories: roots, suffixes, prefixes
c. note near-minimal pairs:
l'on - l'n-á "linen Nsg, Gsg"
vs.
kl'on - kl'on-a "maple Nsg, Gsg"

(5) property #2
morpheme-final clusters may or may not host a vowel-zero alternation
a. existence of minimal pairs:
láska - Gpl lask "caress"
vs.
láska - Gpl lások "weasel"
Townsend (1975:71), Pesetsky (1979:3), Garde (1980:§135), Farina (1991:256ff), Bethin (1998:210f)
b. illustration

	alternating		non-alternating		
	CvC#	CøC-V	CC#	CC-V	gloss
rn e	zeren	zern-a	sern	sern-a	grain Gpl, Nsg; chamois (zool.) Gpl, Nsg
tr	v'et'er	v'etr-a	metr	metr-a	wind Nsg, Gsg; meter Nsg, Gsg
str o	kost'or	kostr-á	kóstr	kostr-á	campfire Nsg, Gsg; boon (textile) Nsg, Gsg
sk	lások	lásk-a	lásk	lásk-a	weasel Gpl, Nsg; caress Gpl, Nsg
	mísok	mísk-a	óbysk	óbysk-a	basin Gpl, Nsg; search Nsg, Gsg
	mások	másk-a	rísk	rísk-a	mask Gpl, Nsg; risk Nsg, Gsg
sl	posól	posl-á	mysl	mysl-i	ambassador Nsg, Gsg; thought Nsg, Gsg
br	bob'ór	bobr-á	bóbr	bobr-á	beaver fur Gpl, Nsg; beaver Gpl, Nsg
vr	kovër	kovr-á	lávr	lávr-a	rug Nsg, Gsg; laurel Nsg, Gsg
tr	šatór	šatr-á	metr	metr-a	tent Nsg, Gsg; meter Nsg, Gsg
dr	odór	odr-á	výdr-a	vydr	Schindmähre Nsg, Gsg; otter Nsg, Gsg
kr	svókor	svókr-a	íkr-y	íkr	father in law Nsg, Gsg; calves Npl, Gpl
kl	stëkol	stekl-a	svëkl	svëkl-a	beet Gpl, Nsg; glass Gpl, Nsg
mt	lomót'	lomt'-á	poč'támt	poč'támt-a	lump, slice (of bread) Nsg, Gsg; post office Nsg, Gsg
rt	rót	rt-á	sórt	sórt-a	mouth Nsg, Gsg; sort, quality Nsg, Gsg
rk	turok	turk-a	park	park-a	Turc Nsg, Gsg; park Nsg, Gsg
rl	or'ól	orl-á	p'erl	perl-a	eagle Nsg, Gsg, perl Gpl, Nsg

(6) property #3
stress is irrelevant
a. alternating stressed vowel: kusók - kusøk-á "piece Nsg, Gsg"
alternating unstressed vowel: úzel - uzøl-á "knot Nsg, Gsg"
b. sometimes vowels are never stressed in any form of the word
==> impossible (for speakers and linguists) to determine its quality
kúkl-a - kúkol "doll Nsg, Gpl"
where the spelt o (according to etymology) is a schwa
c. stress never impacts vowel-zero alternations,
but vowel-zero alternations impact stress:
Melvold (1989)

(7) consequence of this empirical record: alternating vowels must be lexically distinct
a. it cannot be predicted
1. whether a given vowel alternates with zero
2. where alternation sites occur
b. both properties must be recorded in the lexicon:
analyses must somehow distinguish "true" (i.e. stable) from "false" (i.e. alternating) vowels of the same quality.
b. and they must be able to identify the presence of an alternation site in the lexical representation of morphemes.

3. Insertion is out

(8) insertion or deletion?
are alternating vowels underlyingly absent and inserted, or present and deleted?
a. insertion-based analyses:
epenthesis occurs in order to break up "difficult" or ill-formes consonant clusters.
Laskowski (1975, Polish), Czaykowska-Higgins (1988, Polish), Piotrowski (1992, Polish), Townsend (1975:62ff, Russian).
b. they are convincingly refuted by Pesetsky (1979, Russian), Gussmann (1980:26ff, Polish), Rubach (1984:28f, 1993:134ff, Polish and Slovak), Szpyra (1992a:280ff, 1995:94ff, Polish), Farina (1991:256f, Russian) and Yearley (1995:538, Russian).

(9) reason #1
no context for insertion can be stated (alternating vowels are unpredictable…)
c. Polish (Rubach 2013: 1141)

1. st	oset	ost-u	thistle Nsg, Gsg
	most	most-u	bridge Nsg, Gsg
2. rk	korek	kork-a	cork Nsg, Gsg
	bark	bark-u	shoulder Nsg, Gsg
3. tr	sweter	swetr-a	sweater Nsg, Gsg
	Piotr	Piotr-a	Peter Nsg, Gsg
Russian			
1. sk	lások	lásk-a	weasel Gpl, Nsg
	lásk	lásk-a	caress Gpl, Nsg
2. br	bob'ór	bobr-á	beaver fur Gpl, Nsg
	bóbr	bobr-á	beaver Nsg, Gsg

(10) reason #2
in languages where more than one vowel alternates with zero, speakers would not know which vowel to insert.
Slovak: Rubach (1993:137)

a.

	alternating e		alternating o		
	CvC	CøC-V	CvC	CøC-V	gloss
Russian	p'en'	pn'-a	l'ón	l'n-á	stump Nsg, Gsg; linen Nsg, Gsg
	kál'ek	kál'k-a	pálok	pálk-a	calque Gpl, Nsg; stick Gpl, Nsg
			bob'ór	bobr-á	beaver fur Gpl, Nsg
Slovak	prí-jem	prí-jm-u	ná-jom	ná-jm-u	receipt Nsg, Gsg; hiring Nsg, Gsg
	liter	litr-a	lotor	lotr-a	litre Nsg, Gsg; rascal Nsg, Gsg
	ker	kr-a	cukor	cukr-u	bush Nsg, Gsg; sugar Nsg, Gsg
	šláger	šlágr-a	švagor	švagr-a	hit (music) Nsg, Gsg; brother-in-law Nsg, Gsg

b.

	alternating á, i		non-alternating á, i		
	CøC-V	CáC	CaC-V	CáC	gloss
Slovak	jedl-o	jedál	pedál-ik	pedál	food Nsg, Gpl; pedal dim. Nsg, pedal Nsg
	kart-u	karát	karát-u	karát	card Asg, Gpl; carat Gsg, Nsg
	chrbt-a	chrbát	kabát-u	kabát	back Gsg, Npl; coat Gpl, Nsg

(11) as we will see below, argument #2 is challenged in the literature on Russian.

4. The yer context and Lower

(12) distribution of vocalized and unvocalized alternation sites

	open syllable		closed syllable	
	zero	vowel	vowel	vowel
	C__C-V	C__C-yer Cø	C__C-ø	C__C-CV
Russian	dn'-á	d'en'-ók	d'én'	d'en'-øk-á
	kotøl-á	kot'el-ók	kot'ól	kot'el-øk-á
	igól-øk-a	igól-oč'-ek	igól-ok	igól-oč'-øk-a
Czech	dom-øk-u	dom-eč-ek	dom-ek	dom-eč-øk-u
Slovak	kríd-øl-o	kríd-el-iec	kríd-el	kríd-el-øc-e
Polish	buł-øk-a	buł-ecz-ek	buł-ek	buł-ecz-øk-a
BCS	lakøt-a	lakat-an	lakat	–
		(lakat-øn-og Gsg)		

(13)

Empirical generalization

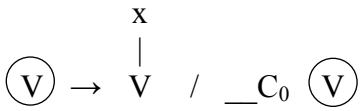
Alternation sites are vocalized in open syllables iff the following vowel alternates with zero.

(14) **the yer context**
alternation sites show

V / __	{ C.CV, C#, C ь,ъ }	in closed syllables	buł-**e**cz-k-a buł-**e**k
		before yers	buł-**e**cz-ek
ø / __	CV	iff V ≠ ь,ъ	buł-**ø**k-a

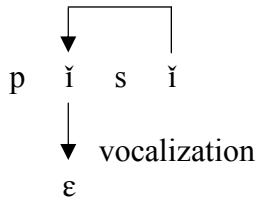
(15) reducing the disjunction
a. is not possible by making reference to closed and open syllables
b. is possible by generalizing the other side of the disjunction:
alternation sites are vocalized iff they are followed by an alternating vowel
c. ==> this is the insight of Lower
Lightner's (1965)
d. Lower
ĭ,ĭ → e,o / __C_0 {ĭ,ĭ}
where the two input symbols are two distinct vowels, called yers, which never appear on the surface as such (they are absolutely neutralized)

(16) autosegmentalised Lower
Rubach (1986)
an x-slot is associated to a floating vowel if that vowel is followed by another floating vowel.



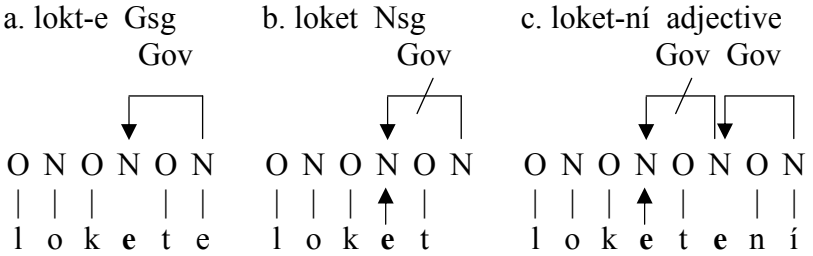
(17) Lower describes a lateral relation
   a. the only information which is needed in order to compute the phonetic value of alternation sites concerns the following vowel,
      1. which is either a yer (i.e. a floating piece of melody) ==> vocalization
      2. or a non-yer (an associated piece of melody). ==> non-vocalization
   b. basic insight of Lower:
      vowel-zero alternations are the result of a regressive (right-to-left) intervocalic relationship: the patient is the leftmost vowel, whose phonetic value is determined by its neighbor to the right.

(18) Lower describes a lateral and regressive relationship between vowels



Czech pes 'dog' Nsg

(19) the lateral relation at hand is government
Scheer (2005), Ziková (2008) etc.



5. Anti-insertion argument challenged: predictability of the quality of alternating vowels

5.1. Only one yer? Or three?

(20) at stake:
   a. if the quality of alternating vowels can be predicted,
   b. i.e. if underlyingly there is only one alternating vowel (yer),
   c. the anti-insertion argument evaporates: speakers do not need to know which vowel to insert into which root.

(21) yer quality is not predictable from the consonantal environment (palatal vs. non-palatal)

	ó		é		
C__	són	sn-á	vengérk-a	véngr	sleep Nsg, Gsg; Hungarian woman, Hungarian
C'__	l'ón	l'n-á	p'en'	pn'-a	linen Nsg, Gsg; stump Nsg, Gsg
__C	l'ód	l'd-á	chrebét	chrebt-á	ice Nsg, Gsg; spine Nsg, Gsg
__C'	ogón'	ogn'-á	seméj	semj-á	fire Nsg, Gsg; family Gpl, Nsg

(22) one- vs. two-yer approaches

a. traditional: /E/ and /O/
Lightner (1965), Melvold (1990), Yearley (1995) and Plapp (1999:42ff).
Yearley (1995:538): "the epenthetic approach […] is completely impracticable for Russian […]: it is altogether unpredictable whether it is e or o that will turn up in the output".

b. single yer
Townsend (1975:69, note 1), Hamilton (1980:103ff) and Farina (1991)
==> need to transform the single underlying yer into two surface yers: e→o

(23) e - o alternations in Russian
e.g. Lightner 1965:21ff, 139ff, 1969, 1972:20ff, 42f, Townsend 1975:9,69f)

	o	e	related form	gloss
a.	ber'óz-a	beréz-nik		birch tree, birch forest
	s'óstr-y	s'éstr-in		sister Npl, sister's
	upr'ók	bez-upréč-n-ost		reproach, irreproachable
b.	l'ód	l'ed-óv-y		ice, ice adj.
		l'éd-nik		refrigerator
c.	v'ós'en	v'esn-á		spring Gpl, Nsg
d.	m'órz-l-ɨj	m'érzost'		frozen, vile thing
	pad'óž	pad'éž		animal plague, case
e.		jél'i	jést'	they were eating, to eat
	jólka	jél'i		spruce, spruce trees Npl

(24) e→o rule[1]
purpose: killing two birds with one stone

a. maintain the unity of a common underlying form for e- and o- versions of the same morpheme

b. account for the "unnatural" palatalization of consonants preceding o.
Hence l'ód "ice" is based on /led/ whereby the e first palatalizes the lateral and then undergoes e→o.

c. é→ó
to be precise:
all cases at stake where analysts are tempted to derive [o] from /e/ involve stressed vowels: e→o is in fact é→ó.

d. but what is the context for é→ó ??
Many authors simply don't address this question.

(25) three yers ?

a. two alternating [o]'s: from /E/ vs. from /O/

b. <ë>
Russian spelling has a specific character for stressed ó that is held to be underlying /e/ (and has an opaque palatalizing action on the preceding consonant).

c. The symbol ë is also often used in the phonological literature where examples are given in transliteration.

[1] I only talk about the e→o "rule", but do this without implying any theoretical commitment. See Padgett (2010) where a constraint set achieves the same effect.

d. These works thus de facto use three symbols:

ë (→o): лёд	l'ëd [l'ód]	l'd-ín-a	"ice, block of ice"
e (→e): день	d'én'	dn'-á	"day Nsg, Gsg"
o (→o): сон	son	sn-á	"sleep Nsg, Gsg"

e. what that takes:
   1. absolute neutralization of ë
   2. opaque palatalization: the l' in [l'od] is palatal because of /ë/

f. but we still don't know what the context for ë→o is.

(26) o→e ?
with an explicit context, but which does not work

a. /O/ → e / C'__ unstressed /O/
   /O/ → e / C'__C' stressed /O/
   Hamilton (1980)

b. needless to say, there are numerous counter-examples, which Hamilton (1980:131) goes about like this:

   "[i]n fact, the number is so great that common sense would suggest we should give up on it [the o→e rule]",

   before discounting them with reference to analogy.

5.2. E-o alternation: diachronic source and (hopeless) synchronic implementations

(27) diachronic situation
let's try to go by the diachronic events that are behind the modern situation

a. the e→o rule has a diachronic reality
   e.g. Shevelov (1964:423), Carlton (1991:289), Kiparsky (1963:107ff), Lightner (1969:44ff):

b. CS e > Ru o / __C before non-palatal consonants
   / __# word-finally
   Kiparsky (1963:107)

(28) SPE: underlyingly, modern languages look like their ancestors 1000 years ago

a. Lightner (1969:50) takes over the CS > Ru rule into the synchronic grammar of Modern Russian without any change.

b. (29)a: ok
   the e is followed by a palatal consonant (or a consonant palatalized by a following front vowel), while the o is not.

c. (29)b

l'od - led-nik	ok
l'ed-ov-yj	fails (underapplies): the e is only followed by non-palatal segments

d. é where we should get ó
many lexical counterexamples (i.e. in morphemes that have only one shape) where the rule unerapplies:
l'éto "summer"
v'éra "faith"
sn'ég "snow"
d'élo "business"
m'ésto "place"

e. (29)c
nightmare case, reverse distribution: e before non-palatal, o before palatal C

f. (29)d
both é and ó can exist in identical contexts

g. (29)e
minimal pair for alternating and non-alternating é where two homophonous é-bearing items (jél'i) have either related forms with é all through (the root meaning "to eat"), or alternating forms with ó (the root for "spruce").

h. ==> the rule is hopeless
no complementary distribution in sight for é and ó that alternate with zero

(29) [REPEATED from above for convenience]
e - o alternations in Russian
e.g. Lightner 1965:21ff, 139ff, 1969, 1972:20ff, 42f, Townsend 1975:9,69f)

	o	e	related form	gloss
a.	ber'óz-a	beréz-nik		birch tree, birch forest
	s'óstr-y	s'éstr-in		sister Npl, sister's
	upr'ók	bez-upréč-n-ost		reproach, irreproachable
b.	l'ód	l'ed-óv-y		ice, ice adj.
		l'éd-nik		refrigerator
c.	v'ós'en	v'esn-á		spring Gpl, Nsg
d.	m'órz-l-ɨj	m'érzost'		frozen, vile thing
	pad'óž	pad'éž		animal plague, case
e.		jél'i	jést'	they were eating, to eat
	jólka	jél'i		spruce, spruce trees Npl

(30) jat'

a. modern é that never alternates with ó comes from CS ě
OCS ѣ called jat', whose original phonetic value is unclear, maybe diphthongal: Shevelov (1964:164f, 422f), Carlton (1991:98f)

b. e→o only affects CS e and yers
it does not affect CS jat'

c. jat' and e are merged in Russian
"ě […] merges completely with e in all respects except that ě does not undergo the 'e > 'o process" (Carlton 1991:287)

(31) import of jat' into synchronic grammar
==> jat' also becomes a yer (which it never was historically)

a. former ě and e being synchronically indistinguishable, there is no way to state the context of a rule that would take /é/ to [ó].

b. except if undergoers and non-undergoers are distinct underlyingly according to their diachronic identity.
Unsurprisingly, Lightner goes for this "abstract" option whereby the synchronically underlying forms of a modern language mimic the state of affairs of some thousand years ago.

c. hence the three-yer system of (25):

1. o derived form e	ë (→o): лёд	l'ëd [l'ód]	l'd-ín-a	"ice, block of ice"
2. stable e	e (→e): день	d'én'	dn'-á	"day Nsg, Gsg"
3. stable o	o (→o): сон	son	sn-á	"sleep Nsg, Gsg"

d. Lightner (1972:42f)

1. CS ě vs. e = Ru long /ē/ vs. short /e/
2. the e→o rule applies only to short /e/
   /led/ → l'ód "ice"
   vs.
   /snēg/ → sn'eg "snow"
3. /ē/ is thus absolutely neutralized: there is no overt vowel length in Russian;
   /ē/ → e after e→o has applied
4. e→o is ordered after Lower:

	/pEs/
Lower	pes
e→o	p'ós

(32) still counterexamples
even with this machinery

a. not all vowels that alternate with zero and are followed by a non-palatal consonant undergo e→o.

b. should bear ó:
   l'év - Gsg l'v-á "lion"
   chrebét - Gsg chrebt-á "spine"
   korčm-á - Gpl korčém "inn tavern"

c. Lightner (1972:75ff) discounts them by the lexical diacritic feature [±Russian]
   /l'Ev/ → l'év = [-Russian]
   /pEs/ → p'ós = [+Russian]
   only [+Russian] morphemes undergo e→o

(33) more recent work that follows the jat'-based three-way contrast

a. Plapp (1999:22ff)
b. Matushansky (2002)

5.3. Another alleged predictor that does not work: stress

(34) Farina (1991)
  a. é→ó, context-free
     i.e. for alternating e/o
     1. o occurs when stressed
     2. e occurs when unstressed
  b. note that Farina's rule concerns all e-o alternations, not just yers.

(35) e - o alternations in Russian: stress conditioned?

	o	e	related form	gloss
a.	p'eč'ón-k-a	p'éč'en		liver (of an animal, as food), liver
	v'ós'en	v'esn-á		spring Gpl, Nsg
b.	d'en'-ók	túf'el'-ek		day dim., show dim.
	st'iš-ók	or'éš-ek	stích, or'éch	verse dim., nut dim.; verse, nut
c.		rub'éž	rub'ež-á	border Nsg, Npl
		mat'éž	mat'ež-á	mutiny Nsg, Npl
	grab'óž	grab'ež-á		robbery Nsg, Npl
	kut'óž	kut'ež-á		binge Nsg, Npl

(36) what Farina mentions
  a. (35)a
     works: the alternating e/o occurs before a non-palatal C in both forms and surfaces as o under stress, as e when non-tonic.
  b. (35)b
     1. Farina (1991:260ff) studies diminutives in -ek / -ok (whose vowel alternates with zero).
     2. -ók occurs when the suffix is stressed, but -ek is found when stress falls elsewhere.
     3. velar-final roots: ample illustration (nov'ič'-ók vs. or'éš-ek)
        non-velar-final roots: one single word (túf'el'-ek)

(37) what Farina does not mention
  a. we have already seen that not all stressed /e/'s turn into ó: those that were former jat's do not.
     sn'eg "snow" etc.
  b. (35)c
     the suffix -ež/-ož sometimes appears as -óž under stress (and then has an alternating form in -ež when unstressed), but at other times is -éž in tonic position (in which case the vowel quality is stable in unstressed position).
  c. quality of unstressed vowels cannot be determined
     it is mysterious how Farina is able to detect that the unstressed vowel after so-called hushing consonants (š,č,ž,šč, e.g. Townsend 1975:4) as in or'éš-ek is e, rather than o: unstressed vowels reduce and completely neutralize in this context: they are phonetically indistinguishable (ikanie and akanie, e.g. Zubritskaya 1995:98ff).
     ==> Farina's analysis is based on spelling.

(38) Farina's rule applies "sometimes" or "most of the time"
  a. Farina does not bother talking about counter-examples or the triggering environment for é→ó. This is as explicit as it gets:
     "(/E/ or /e/ →) e → [ó] (in some stressed positions)" (Farina 1991:259)

b. one-yer analysis
Farina "needs […] only one underlying jer whose backness is (for the most part) determined by the backness of the preceding consonant" (Farina 1991:298)
c. predictability
there is a "a large degree of predictability for the feature [-bk] on jers" (Farina 1991:303).

5.4. Conclusion

(39) summary
a. original diachronic event (allegedly regular)
1. CS e > Ru o / __C before non-palatal consonants
/ __# word-finally
Kiparsky (1963:107)
2. CS jat'
- remains unaffected, i.e. never becomes o
- in Russian merges with CS e,
b. modern Russian e-o alternations
1. prediction according to environmental consonantal palatality
FAILS
2. prediction according to stress
FAILS
c. modern Russian three-yer system
by integrating jat' and making it a third yer (reflected by spelling)
Lightner (1965, 1972)

1. o derived form e	ё (→o): лёд	l'ëd [l'ód]	l'd-ín-a	"ice, block of ice"
2. stable e	e (→e): день	d'én'	dn'-á	"day Nsg, Gsg"
3. stable o	o (→o): сон	son	sn-á	"sleep Nsg, Gsg"

FAILS: still has lexical exceptions

(40) so what about the original issue?
a. recall that the original issue is
the predictability of the quality of yers (vowels that alternate with zero)
b. e→o
is supposed to be able to reduce the classical two-yer system to just one yer, whose quality is managed by e→o
c. e→o FAILS
1. no environment for any version of the rule can be stated in modern Russian
2. typical for diachronic events that have aged: the triggering environment was altered in further evolution.
d. Lightner's three-yer system
is the version of e→o that strikes closest to the mark
==> but this supposes THREE yers, not ONE, and their distribution is lexical

There is no way to run the phonology of mod. Russian with just one yer.
The original argument against insertion holds.

6. Szpyra revival: yer vocalization due to syllable structure?

(41) despite the fact that the locus of alternating vowels cannot be predicted, (elements of) insertion come back in OT-based analyses:
1. Yearley (1995)
2. Gouskova (2012)
(which are the only OT-based analyses of yers to date)

(42) Yearley (1995)
crypto-action of a ban against complex codas
a. yers are underlyingly floating, i.e. moraless segments (Rubach 1986)
b. they are promoted to a surface existence when the candidate that has an extra mora (which originates in GEN) is selected.
c. selection of vocalized and unvocalized forms by
   1. Mseg[μ] every mora in the output must correspond to a mora in the input
      ==> all yers that are realized violate Mseg[μ]
   2. Parse-V feature bundles present in the input must also be realized in the output
      ==> unpronounced yers always violate Parse-V
d. Mseg[μ] >> Parse-V
   ==> no yer can ever be pronounced, except if some higher ranked constraint enforces its presence in the output. This is where syllable structure enters the scene.
e. *Complex[coda]
   /lasOk/ → lások "weasel Gpl" because -sk# is outlawed
   a case of the emergence of the unmarked (Yearley 1995:543)
f. so what about
   /lásk/ → lásk "caress Gpl" ??
   Yearley does not address this issue.
g. and what about yers that occur before word-internal (rather than word-final) consonants?
   Like in Czech /dom-Ek-Ek/ → dom-eč-ek ?
   ==> a configuration not easy to come by in Russian: are there cases of that kind?
h. she merely talks about "a high sensitivity to syllable structure"
   "[t]he various epenthetic analyses of jers […] have been driven by the observation that where jers appear in output forms seems to have a very high sensitivity to syllable structure. This is an important point and one to which we shall return later" (Yearley 1995:538).
   ==> what does "high" mean?
   ==> the reader is waiting for an explicit statement when exactly syllable structure plays a role (*Complex[coda] bites) and when it is irrelevant (*Complex[coda] is toothless).

(43) summary

a.	the location of yers is lexical	Lower
b.	there are two yers	Lower
c.	the vocalization of yers depends on whether or not the eventual cluster is "illegal" regarding syllable structure, not on what the following nucleus looks like (yer vs. full vowel)	non-Lower
d.	no word-final yers: word-final consonants are followed by nothing	non-Lower

e. insertion element
   insertion-based analyses of the 80s try to derive the occurrence of yers from the existence of illegal clusters, were the yer not inserted.
f. much akin to Szpyra (1992)
   in fact identical except that what is illegal with Szpyra are word-final consonants which in absence of yer vocalization would remain unsyllabifiable.
g. obvious empirical failure not addressed.
h. there is no discussion of Lower: reasons to abandon Lower, reasons why the Szpyra-based account fares better.

(44) Gouskova (2012)
unpronounceable clusters
a. adopts Yearley's analysis, and still does not discuss Lower.
b. is as cryptic and non-explicit as Yearley on the exact impact of syllable structure:
   "syllable structure constraints matter for the distribution of yers, even if not all of the constraints are surface-true in Russian.
   […] Under Yearley's account, the syllable structure constraints simply apply more stringently to words with yers than to words with other vowels." (Gouskova 2012:83).
   ==> what does "stringent" mean?
   ==> how can the application of a constraint be conditioned by the presence of a particular vowel in word?
   ==> the issue is identified but ignored (sic).
c. acknowledges that identical CC# may or may not be broken up by a yer:
   v'ét'ir - vjétr-ə "wind"
   vs.
   m'étr - m'étr-ə "meter"

   but:
   "In some cases, however, the presence of the underlined vowel is obligatory: without it the cluster would be unpronounceable" (Gouskova 2012: 83):
   - pk# chlópok - chlopk-e "cotton Nsg, Lsg" *chlópk
   - tk# korótok - korotk-á "short, masc., fem" *korótk
d. what does "unpronounceable" mean? There is no physiological, phonetic, muscular, psychological or other obstacle that would prevent Russians (or speakers of any other language for that matter) to pronounce -pk#, -tk#.

(45) unpronounceable clusters are synchronically irrelevant
a. unpronounceable clusters
   this means that the reason for the presence of a yer in chlópok and korótok is enforced by *pk#, *tk#
b. at the same time Yearley and Gouskova subscribe to the underlying presence of yers:
   ==> yers are never synchronically epenthetic.
c. hence the action of *pk#, *tk#, i.e. of yer epenthesis, can only be diachronic. There are two scenarios:

1. accidental gap
   there is no ban -pk#, -tk#. The reason why these clusters don't occur on the surface is that there were no CS words ending in -pk#, -tk# (but there were CS words ending in -p-yer-k#, t-yer-k#).
2. systematic gap: lexicon optimization
   at some point in the history of the language, grammar did not allow for -pk#, -tk#, which led to the epenthesis of a yer into the cluster.

==> in order to find out whether there is a synchronically active grammatical ban on -pk#, -tk#, one would have to have a look at recent loans, acronyms or nonce-words.

(46) unified analysis undesirable?
   a. Lower unifies all vowel-zero alternations: there is only one causality.
   b. Gouskova (2012) believes that there are three different reasons why alternating vowels appear on the surface in Russian:

1. "stringent" application of syllable structure constraints	*lask, hence lások "weasel Gpl"
2. "unpronounceable" clusters	*chlopk, hence chlópok "cotton Nsg"
3. every syllable must be headed by a vowel	*sn, hence són "dream"

   c. this scattered multi-causality is a consequence of the abandon of Lower, i.e. the insight that yer vocalization depends on the nature of the following vowel.
   d. see Rubach's (2013) eloquent refutation of Gouskova (2012).

7. Conclusion

(47) Lower rules, also in Russian
   there is no reason to abandon Lower and the two yer scenario
   a. all attempts to reduce two yers to one fail empirically.
   b. all attempts to predict the quality of yers fail empirically.
   c. the attempt to predict yer vocalization from syllable structure fails empirically. Note that Szpyra's original formulation does not fail empirically.

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