Rebooting Slavic phonology

A view from Russian

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1 Introduction

1.1 Outline

- A whirlwind history
- Claim: lots of life yet in a middle of the road approach
- Case studies
  - The phonology of /v/
  - *e* ~ *ʼo* and Stratal Phonology
  - The Big One: yers

2 Slavic and the origins of phonology

2.1 The Kazan School

- 'Discoverers of the phoneme'
- Focus on alternations
- Polish and Russian

2.2 The Leningrad school

- Phonemes as minimal units of lexical contrasts
- Focus on Russian

2.3 Nikolai Trubetzkoy

- Invented phonology
- Mostly in order to write a new historical phonology of Russian
- (He never did)

2.4 Roman Jakobson

- Actually wrote the new historical phonology of Russian
- Edited Trubetzkoy's magnum opus
- Invented distinctive features
- Invented abstract analyses of Russian

2.5 Morris Halle

- Helped Jakobson invent distinctive features

- Single-handedly[1] cancelled the phoneme with Russian data
- Translated Jakobson's abstract analyses of Russian into the new language of generative phonology

[1] Not really

2.6 *Theodore Lightner*

- MIT dissertation (1965): *Segmental phonology of Modern Standard Russian*
- Consistent abstract approach
  - Underlying /i/ and /ɨ/
  - Underlying /ĕ/
  - Underlying /ъ/ and /ь/

2.7 *The classic view of Slavic phonology*

- Underlying representations very close to Proto-Slavic
- Long derivations largely recapitulating history
- [krʲikʲi] ← [kriki] ← /krikɨ/
- [lʲozʲa] ← ((ˈlɛg+e+i)+NC)
- [proʃt͡ʃʲu] ← ((proθt+i+i)+m)

/mex-ьk-ъ/	/mex-ьk-a/	/mex-ьk-ьk-ъ /	/mex-ьk-ьk-a/
[mʲeʂok]	[mʲeʂka]	[mʲeʂot͡ʃek]	[mʲeʂot͡ʃka]

2.8 *Where are we now?*

- Arguably, much current work still revolves in this orbit
- Certainly the case for Russian
- See, however, Gussmann[2] and the in-depth review by Scheer[3] on Polish
  - Less computation: CVCV phonology
  - More representation: underlying palatalization, more allomorphy

[2] Edmund Gussmann. 2007. *The phonology of Polish*. Oxford: Oxford University Press.

[3] Tobias Scheer. 2010. Review of Edmund Gussmann. 2007. *The phonology of Polish*. Oxford: Oxford University Press. *Studies in Polish Linguistics* 5. 111–160.

3 *Can we do better?*

3.1 *Later advances*

- Lexical Phonology[4]
- Vowel/zero alternations and CVCV[5]
- Palatalization is not (only) triggered by front vowels[6]

[4] David Pesetsky. 1979. Russian morphology and lexical theory. MS., Massachusetts Institute of Technology; Paul Kiparsky. 1985. Some consequences of Lexical Phonology. *Phonology Yearbook* 2. 85–138; Lev Blumenfeld. 2003. Russian palatalization and Stratal OT: Morphology and [back]. In Wayles Brown et al. (eds.), *Annual workshop on formal approaches to Slavic linguistics: The Amherst meeting 2002*, 141–158. Ann Arbor, MI: Michigan Slavic Publications.

[5] Tobias Scheer. 2011. Slavic yers. In Marc van Oostendorp et al. (eds.), *The Blackwell companion to phonology*. Oxford: Blackwell Publishing; Tobias Scheer. 2019. On the difference between the lexicon and computation (regarding Slavic yers). *Linguistic Inquiry* 50(1). 197–218.

[6] Donna Marie Farina. 1991. *Palatalization and jers in modern Russian phonology: An underspecification approach*. Champaign: University of Illinois at Urbana-Champaign. (Doctoral dissertation); Edmund Gussmann.

3.2 *Claim*

- Progress can be made if we adopt a careful view of the interfaces
  - Featural representations[7]
  - Phonetics-phonology interface

– Interfaces with morphology with a moderate Stratal Phonology framework[8]

[8] Ricardo Bermúdez-Otero. 2018. Stratal phonology. In S. J. Hannahs & Anna R. K. Bosch (eds.), *The Routledge handbook of phonological theory*, 100–134. London, New York: Routledge.

4 *Case study: the phonology of /v/*

4.1 *The basic problem*

{v*} functions as a sonorant if followed by a sonorant, and as an obstruent if followed by an obstruent[9]

[9] Morris Halle. 1959. *The sound pattern of Russian: A linguistic and acoustical investigation*. 's Gravenhage: Mouton, 63.

(1) a. [zo̲v̲a] *зова* 'call-G S G'

b. [zo̲f̲] *зов* 'call'

(2) a. [bʲi̲t̲v̲a] *битва* 'battle'

b. [po̲d̲v̲ʲi̲k̲] *подвиг* 'feat'

(3) a. [pʲiv̲ʲe͡fs̲] *певец* 'singer'

b. [pʲift͡s̲a] *певца* 'singer-G S G'

4.2 *Transparency of sonorants*

- Jakobson:[10] sonorants are transparent to voicing assimilation

[10] Roman Jakobson. 1978. Mutual assimilation of Russian voiced and voiceless consonants. *Studia Linguistica* 32(1/2). 107–110.

(4) a. [ʁ̲t̲#ozʲirə] *от озера* 'from a lake'

b. [ʁ̲t̲#łoʂ̲kʲi] *от ложки* 'from a spoon'

c. [ʁ̲d̲#ɫ̲guna] *от лгуна* 'from a liar'

4.3 *Transparency of /v/*

Falls ein Geräuschlaut einem stimmhaften Geräuschlaut vorangeht, so wird auch der erste von den beiden stimmhaft, gleichgültig ob die beiden unmittelbar nacheinanderfolgen oder zwischen ihnen ein einfaches oder langes, hartes oder weiches *v* auftritt.[11]

[11] Roman Jakobson. 1956. Die Verteilung der stimmhaften und stimmlosen Geräuschlaute im Russischen. In Margarete Woltner & Herbert Bräuer (eds.), *Festschrift für Max Vasmer zum 70. Geburtstag am 28. Februar 1956*, 199–220. Wiesbaden: Otto Harrassowitz.

(5) a. [k̲#ozʲeru] *к озеру* 'to a lake'

b. [g̲#d̲ʲerʲevu] *к дереву* 'to a tree'

c. [k̲#vorənu] *к ворону* 'to a raven'

d. [g̲#vd̲aˈvʲe] *к вдове* 'to a widow'

Everything transpires as if {v} or {v,} had been absent[12]

[12] Halle, *The sound pattern of Russian*, 64.

4.4 *Devoicing of /v/*

(6) a. [vʸi-xat] *выход* ‘exit’

b. [f̲-xot] *вход* ‘entrance’

c. [is̲#fx̲odə] *из входа* ‘from an entrance’

- Here, /v/ → [f] creates a trigger of devoicing

4.5 *Lexical Phonology account*

Rule	/zoW/	/zob/	/K#WoroNu/	/iz#WKuSa/	/LguN/
Lexical phonology					
Final devoicing		zop			
Default voicing			k#WoroNu	is#Wkusa	
Postlexical phonology					
Final devoicing	zo̯w				
Voicing assimilation			—	is#w̯kusa	
Default voicing			k#woronu		lgun
/w/ strengthening	zof		k#voronu	is#fkusa	

4.6 *A proposal*

- The (de)voicing of sonorants in Russian is phonetic
  - Actually, this is relatively uncontroversial
- The (de)voicing of /v/ in Russian is phonetic in much the same way
  - We need to recognize the phonological repercussions of this position

4.7 *Sonorant (de)voicing*

- Sonorant devoicing is uncontroversially *possible*

(7) Before voiceless (and devoiced) obstruents

a. [sʲe̯r̯p] *серб* ‘Serb’

b. [sʲe̯r̯p] *серп* ‘sickle’

(8) Word-finally, especially after another consonant[13]

a.	[mʏisl̥ʲ]	*мысль*	'thought'
b.	[ʐʏizn̥ʲ]	*жизнь*	'life'

It seems likely that effects involving sonorants should be handled by the phonetic component.[14]

- What about /v/ then?

[13] Nina Aleksandrovna Lyubimova. 1975. Zavisimostʹ kachestva sonantov ot foneticheskogo polozheniya v slove. In Alekseĭ Alekseevich Leontʹev & Nadezhda Ivanovna Samuĭlova (eds.), *Voprosy̆ fonetiki i obuchenie proiznosheniyu*, 112–124. Moscow: Izdatelʹstvo Moskovskogo universiteta.

[14] Jaye Padgett. 2002. Russian voicing assimilation, final devoicing and the problem of [v]. MS., University of California, Santa Cruz.

4.8 *The problem of -Cv#*

- A [f] ← /v/ by final devoicing triggers variable assimilation

(9)

a.	[trʲezvʏij]	*трезвый*	'sober-ATTRIB'
b.	[trʲesf]	*трезв*	'sober-PRED'
c.	[trʲezf]		

- Same in morphologically derived -CC# clusters[15]

(10)

a.	[słuspˠ]	*служб*	'service.GPL'
b.	[słuzp̬ˠ]		
c.	[trʲesf]	*трезв*	'sober.PRED'
d.	[trʲezf]		
e.	[mosk]	*мозг*	'brain'
f.	*[moz̬k]		

[15] Sergeĭ Vladimirovich Knyazev. 2004. Ob ierarkhii fonologicheskikh pravil v russkom yazy̆ke: Neskolʹko novy̆kh soobrazheniĭ po povodu *yazv* A. A. Refomatskogo. In Viktor Alekseevich Vinogradov (ed.), *Semiotika, lingvistika, poétika: K stoletiyu so dnya rozhdeniya A. A. Reformatskogo*, 133–150.

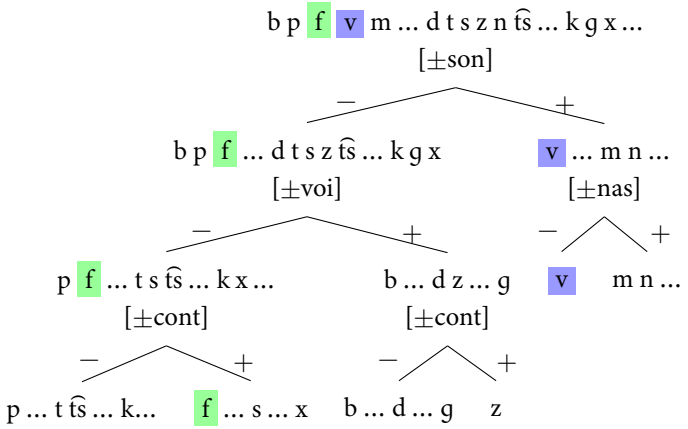
4.9 *Conclusion on /v/*

- Voicing in *both* obstruents and sonorants has a gradient *phonetic* component
- /v/ coarticulates like an obstruent precisely when it is most like an obstruent phonetically
- No strong evidence for phonological /v/ → [f] in Russian

4.10 *Brief analysis*

- /v/ and /f/ are not 'contrastive twins'[16]

[16] Henning Andersen. 1969. The phonological status of the Russian 'labial fricatives'. *Journal of Linguistics* 5(1). 121–127; Dresher & Hall, 'Trade-offs in the contrastive hierarchy'.



- For more detail: Iosad (2018), Manchester Phonology Meeting talk

5 *Case study:* e ~ ʼo

5.1 The problem

- In native vocabulary, surface [e] only follows palatalized consonants and [ʂ ʐ t͡ʂ]
- Before a following non-palatalized consonant, *some* stressed [e]'s alternate with [o]

(11) a. [sʲelʲ-skʲ-ij] *сельский* 'rural'

b. [sʲol-a] *сёла* 'village-NPL'

- In some morphemes, [e] never alternates:

(12) a. [bʲelʸ-ej] *белый* 'white'

b. [bʲelʲ-enʲkʲ-ij] *беленький* 'white-DIM'

- Yet in others, [o] after a palatalized consonant never alternates

(13) a. [tʲotʲ-a] *тётя* 'aunt'

b. [tʲot-uʂk-a] *тётушка* 'aunt-DIM'

- In some morphological contexts, the shift overapplies

(14) a. ['tʲemʲ-enʲ] *темень* 'darkness'

b. [tʲomʲ-en] *тёмен* 'dark.PRED.MASC.SG'

(15) a. [tʲetʃ͡ʲ] *течь* ‘leak’
b. [o-ˈtʲok] *отёк* ‘swelling’
c. [o-ˈtʲokʲ-i] *отёки* ‘swelling-PL’

5.2 *Classic analysis: Lightner*

- Underlying /ě/ and /e/
- /e/ → [o] in the context ˈCʲ_C
- Cyclic overapplication
  - [mʲot] ‘honey’: ((méd)ъ) → ((mʲéd)ъ) → (mʲódъ) → …
  - [(o) mʲode] ‘honey-PREP.SG’: ((méd)e) → ((mʲod)e) → (mʲodʲe) → …

5.3 *Overapplication and constituents*

- Sometimes constituent structure is not enough:

(16) a. [kaˈlʲos-a] *колёса* ‘wheel-NOM.PL’
b. [kaˈlʲes-nʲik] *колесник* ‘wheelwright’

(17) a. [tʲeˈnʲot-a] *тенёта* ‘net-NOM.PL’
b. [tʲeˈnʲot-nʲik] *тенётник* ‘spider’

- ((kolés-ьn-ik)-ъ) vs. (((tenét)-ьn-ik)-ъ)

5.4 *The true story of the trigger*

- The alternation is *morpheme-driven*[17]
  - Non-alternating [Cʲo] is /Cʲo/
  - Non-alternating [Cʲe] is /Ce_1/ + yer version
  - Alternating [Cʲe] ∼ [Cʲo] is /Ce_2/ + yer version
- The outcome of /$Cʲe_2$/ depends on the *next morpheme*
- If the next morpheme palatalizes a preceding consonant, it *also* requires [Cʲe]

[17] Il’ya Borisovich Itkin. 1994. Eshche raz o cheredovanii *e* ∼ *ʾo* v sovremennom russkom yazȳke. *Voprosȳ yazȳkoznaniya* 1994/1. 126–133; Il’ya Borisovich Itkin. 2007. *Russkaya morfonologiya*. Moscow: Gnozis; Paul V. Cubberley. 2002. *Russian: A linguistic introduction*. Cambridge: Cambridge University Press.

(18) a. [grʲop] *грёб* ‘row.PAST.SG.MASC’
b. [grʲebʲenʲ] *гребень* ‘comb’

(19) a. [lʲod] *лёд* 'ice'

b. [golo-lʲedʲ-it͡s-a] *гололедица* 'ice crust'

(20) a. [grʲoza] *грёза* 'dream-NSG'

b. [grʲezʲ-u] *грежу* 'I dream'

c. [grʲezʲ-it] *грезит* '(s)he dreams'

- If the next morpheme does not palatalize a preceding consonant, it requires [Cʲo]

(21) a. [tvʲerdʲ] *твердь* 'firmament'

b. [tvʲordˠ-ij] *твёрдый* 'solid'

(22) a. [po-ˈsʲelʲ-it] *поселит* '(s)he will settle'

b. [po-ˈsʲol-ok] *посёлок* 'settlement'

- *However*, some suffixes are 'indifferent' and inherit the *e*/*o* vowel from the base

(23) a. [mʲorz-nu-tʲ] *мёрзнуть* 'be cold.INF'

b. [mʲorz-lʲ-i] *мёрзли* 'be cold.PAST.PL'

(24) a. [t͡ʃʲuzʲe-ˈzʲemʲ-et͡s] *чужеземец* 'foreigner'

b. [t͡ʃʲuzʲe-ˈzʲem-k-a] *чужеземка* 'female foreigner'

c. [novo-ˈsʲol] *новосёл* 'new settler'

d. [novo-ˈsʲol-k-a] *новосёлка* 'female new settler'

5.5 Side note

- Mid vowel alternations are quite common in Slavic:
  - Bulgarian <bʲal> ~ <beli> 'white.SG.MASC ~ PL' ≠ <vešt> ~ <vešti> 'clever.SG.MASC ~ PL'
  - Polish *biały* 'white' ~ *biel* 'white colour', *gnieść* ~ *gniotę* 'knead.INF ~ PRES.1SG'

5.6 *Stratal solution*

- The descriptive generalizations are heavily indebted to Itkin[18]
- Basic claim:
  - 'Indifferent' suffixes are word-level suffixes
  - Overapplication of *e* ∼ *'o* is entirely normal cyclicity
- Palatalizing suffixes that are compatible with *'o*

[18] Itkin, *Russkaya morfonologiya*.

(25) Case suffixes in /ʲe/: inflection

a.	[utʲos]	*ymëc*	'cliff.NSG'
b.	[utʲosʲe]	*ymëce*	'cliff.PREP.SG'

(26) Past tense plural /ʲi/: inflection

a.	[mʲorz-nu-tʲ]	*мёрзнуть*	'be cold.INF'
b.	[mʲorz-l-i]	*мёрзли*	'be cold.PAST.PL'

(27) Diminutive /ʲik/: highly productive

a.	[t͡ʃʲort]	*чёрт*	'devil'
b.	[t͡ʃʲortʲ-ik]	*чёртик*	'wee devil'

(28) Diminutive /ʲet͡s/: highly productive

a.	[rʲeʂot]	*решёт*	'sieve.GEN.PL'
b.	[rʲeʂot-t͡s-e]	*решётце*	'sieve.DIM'

- Crucially, these suffixes trigger *word-level* consonant palatalization: [o-ˈtʲokʲ-e] 'swelling.PREP.SG', *[oˈtʲot͡ʃʲe]
- Non-palatalizing suffixes that are compatible with *e*

(29) a. [t͡ʃʲuzɐ-ˈzʲem-k-a] *чужеземка* 'female foreigner'

b. [novo-ˈsʲol-k-a] *новосёлка* 'female new settler'

- Itkin:[19] *diminutive* /ʲik/ and /ʲet͡s/ are 'indifferent' (=word-level), but homonymous *non-diminutive* morphemes are not (=stem-level)

[19] Itkin, *Russkaya morfonologiya*, 241.

(30) a. [var^{j}-on-ɨj] *варёный* ‘boiled’

b. [var^{j}-en^{j}-ik] *вареник* ‘dumpling’

(31) a. [l^{j}iʂ-on-n-ɨj] *лишённый* ‘deprived’

b. [l^{j}iʂ-en^{j}-et͡s] *лишенец* ‘one deprived of civil rights’

- $[[\sqrt{\widehat{\text{tʃ}^{j}\text{ort}}}]_{\mathcal{SL}}\text{-}^{j}\text{ik}]_{\mathcal{WL}}$
  - Palatalization compatible with word level
  - Cyclic overapplication
  - Compositional semantics
  - Productive morphology
- $[[\sqrt{\text{var}}\text{-}^{j}\text{en-}^{j}\text{ik}]_{\mathcal{SL}}]_{\mathcal{WL}}$
  - Palatalization compatible with stem-level
  - Transparent application in the stem-level cycle
  - Idiosyncratic semantics
  - Non-productive morphology

5.7 Getting rid of the yat’

- If the *e* ~ *’o* alternation is stem-level, good predictions follow if we accept that stem-level phonology is *stem allomorphy*[20]
  - Morphemes with underlying /ě/ = morphemes with only /e/ allomorphs
  - Morphemes with underlying /e/ = morphemes with /e/ and /o/ allomorphs
  - Unmotivated overapplication of /e/ → [o] = morphemes with only [o] allomorphs

[20] Ricardo Bermúdez-Otero. 2012. The architecture of grammar and the division of labour in exponence. In Jochen Trommer (ed.), *The phonology and morphology of exponence: The state of the art* (Oxford Studies in Theoretical Linguistics 41), 8–83. Oxford: Oxford University Press.

5.8 Conclusion on e ~ ’o

- The *e* ~ *’o* alternation shows classic properties of the lexical syndrome
  - Cyclic misapplication
  - Exceptionality
  - Part of speech sensitivity
- For more detail, see Iosad (2020) in *Rhema. Рема*

6 Case study: yers

6.1 Yers

- Vowel-zero alternations
  - <son> ~ <sna> ‘dream.NOM~GEN.SG’ ≠ <dom> ~ <doma> ‘house.NOM~GEN.SG’
- Not clearly driven by phonological context

  - <laska> ~ <lasok> 'weasel.NOM.SG~GEN.PL' ≠ <laska> ~ <lask> 'affection'
- Basic generalization: all non-final yers in a sequence of yers vocalize
  - <igla> ~ <igolka> ~ <igolok> 'needle.NOM.SG ~ DIM.NOM.SG ~ DIM.GEN.PL', further <igoločka> ~ <igoloček> 'needle.DIM.DIM.NOM.SG~GEN.SG'

6.2 Yers and other phonology

- At least some yers (appear to) palatalize following consonants
  - <ruka> ~ <ručka> ~ <ruček> 'hand.NOM.SG ~ DIM.NOM.SG ~ DIM.GEN.PL'
  - <perst> 'finger' ~ <perstʲenʲ> ~ <perstnʲa> 'ring.NOM~GEN.SG'

6.3 Deletion or insertion?

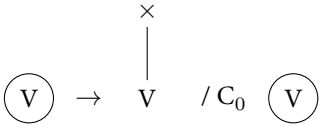
- Both have been proposed, as well as a combination
- Insertion is difficult to motivate in view of <lask> ~ <lasok>

6.4 Lightner: deletion

- Back yer: /sъn-ъ/ ~ /sъn-a/ → [son] ~ [sna]
- Front yer with palatalization: /perst-ьn-ь/ ~ /perst-ьn-a/ → <perstʲenʲ> ~ <perstnʲa>
- The Lower rule: ĭ, ĭ → e, o / _C_0 {ĭ, ĭ}
- Often with cyclic application, left to right

6.5 Autosegmental Lower

- From the mid-1980s: autosegmental approach, defective representations



- Ultimately related but distinct approach: CVCV

6.6 Insertion (semi-)resurrected

- Notably Yearley,[21] also Gouskova;[22] Becker & Gouskova[23]
- Presence of yers is lexical
- But vocalization is based on cluster avoidance, not Lower
- See Scheer[24] for a forceful critique

[21] Jennifer Yearley. 1995. Jer vowels in Russian. In Jill Beckman, Suzanne Urbanczyk & Laura Walsh Dickey (eds.), *Papers in Optimality Theory*, 533–571. Amherst, MA: GLSA.

[22] Maria Gouskova. 2012. Unexceptional segments. *Natural Language & Linguistic Theory* 30(1). 79–133.

[23] Michael Becker & Maria Gouskova. 2016. Source-oriented generalizations as grammar inference in Russian vowel deletion. *Linguistic Inquiry* 47(3). 391–425.

[24] Scheer, 'On the Difference between the Lexicon and Computation (Regarding Slavic Yers)'.

7 *Back to the future*

7.1 *How many yers?*

- General consensus: there are two yers in Russian, <e> and <o>

Among the arguments in favor of deletion, the following are decisive. In those languages, such as Russian, where more than one vowel alternates with zero, it cannot be predicted which vowel will appear in which morpheme. That is, the presence of an alternating e in *'d'en'* – *'dn'-a* 'day (NOM SG/GEN SG)', against alternating o in '*son* – *'sn-a* 'dream (NOM SG/GEN SG)', is a lexical property of the root. An insertion-based analysis would not know which vowel to epenthesize into which root.[3] The second reason is that there is no context for insertion. The

Figure 1: Scheer (2011)

- Gouskova:[25] these are the same vowels that undergo vowel reduction. COINCIDENCE?

[25] Gouskova, 'Unexceptional segments'.

7.2 *Really?*

1.52 Russian possesses a series of stems which have forms with and without vowels. Wherever these alternations are not predictable from other – i.e., grammatical or phonological – factors, it is necessary to indicate them in the dictionary representation of the morpheme. This will be done by writing the symbol # in the position where the vowel is inserted – e.g., {*t'ur#k*} "Turk", but {*p'ark*} "park"; cf. the respective nom. sg. {t'urok} and {p'ark} and the gen. sg. {t'urk+a} and {p'ark+a}.

It has been shown by Klagstad that with a few exceptions which must be given in a list, the vowel features of # can be predicted from the context.[24] # will, therefore, be characterized as vocalic and nonconsonantal with zeros for all other features, i.e., as a vowel without reference to any other vowel feature.

Figure 2: What Halle (1959) knew

7.3 *Really really?*

А. Основная цепь формул перехода (обязательная для всех словоформ)

I. Переход части звездочек в нуль и сопутствующие изменения

1. $* (+ СГ,\ С'Г$ или $С|Г,\ С'|Г) \rightarrow Ø$
2. (не $л+)'\ (+ н,\ л,\ р,\ ц,\ с$ или $т) \rightarrow Ø$
3. $С\ (+ j$ или $|j) \rightarrow С'$

II. Переход остальных звездочек в гласные [170]

4. $*_{безуд.}\ (+ j) \rightarrow и$
5. $* (+ j) \rightarrow е$
6. $(j,\ ',\ Ш$ или $ц+) * (+ ц,\ л'$ или $н') \rightarrow е$
7. $* \rightarrow о$

Figure 3: What Zaliznyak (1965) knew

7.4 *Really really really?*

I am claiming that a jer has absolutely no segmental content underlyingly, and that it therefore has much in common with the completely unspecified underlying vowel /o/, and with the vowel inserted by morphological rule in compounding (see Chapter 4). However, the jer is not *inserted* like the "epenthetic" vowel in noun compounds, but is present in underlying representation, like underlying /o/ and /e/. Unlike underlying /o/ and /e/, it has no underlying syllable head, and can only be syllabified by various language-specific syllabification rules (see below).

Figure 4: What Farina (1991) knew

7.5 *Are yers predictable?*

- Why does Scheer[26] think there are two yers?

[26] Scheer, 'Slavic yers'.

[3] It is also not the case that the quality of alternating vowels may be predicted from the palatal *vs.* non-palatal character of the preceding consonant. In *bobr-á – bob'ór* 'beaver fur (NOM SG/GEN PL)', for example, an *o*, not an *e*, appears after a palatalized labial.

Figure 5: The crux

- The crucial issue is the interaction of consonant palatalization and yers

7.6 *Where does palatalization come from?*

- In most of Russian generative phonology post-Lightner,[27] palatalization on consonants is not phonemic
  - <son> vs. <konʲ> is /sʲɜnʲɜ/ vs. /konʲɜ/
- Alternations also come from front vowels
  - <veršina> 'summit' < /vʲɛrx-in-a/
  - <kotʲik> 'cat-DIM' < /kot-ik-ʲɜ/

[27] Theodore M. Lightner. 1965. *Segmental phonology of Modern Standard Russian*. Cambridge, MA: Massachusetts Institue of Technology. (Doctoral dissertation).

7.7 *What about yers?*

- We expect
  - /Cʲɜ/ → [Co] ~ [C]
  - /Cʲɜ/ → [Cʲe] ~ [Cʲ]
- What comes first: yer quality or palatalization?
  - Farina:[28] a yer is [o] after /C/, [e] after /Cʲ/
- So what about Scheer's <bobʲër> ~ <bobra>?
- It is our old friend the *e* ~ *'o* alternation

[28] Farina, 'Palatalization and jers in modern Russian phonology'.

7.8 How does this work?

- C + yer ⇒ CoC ~ CC
- C^{j} + yer
  - C^{j}oC ~ C(^{j})C in back context
  - C^{j}eC ~ C(^{j})C in front context
- A vocalized yer is [o] *unless* preceded by a palatalized consonant *and* in a fronting context wrt *e ~ ’o*

7.9 How well does this work?

- The 100% exhaustive study of Russian nominal inflection by Zaliznyak[29] lists a total of 13 exceptions from the asterisk vocalization rules
  - 5 [i] ~ zero alternations: <od^{j}in> ‘one.MASC’ ~ <odna> ‘one.FEM’, <jajco> ‘egg’ ~ <jaic> ‘egg.GEN.PL’ + 3 Church Slavonic items
  - 1 [a] ~ zero alternation
  - 2 words with irregular consonant palatalization patterns
  - 5 genuine exceptions such as <xr^{j}eb^{j}et> ~ <xr^{j}ebta> ‘ridge.NOM.SG~GEN.SG’; all are non-alternating <e>’s

[29] Andreĭ Anatol’evich Zaliznyak. 1967. *Russkoe imennoe slovoizmenenie*. Moscow: Nauka.

7.10 Are yer patterns stem-level, too?

- They need to interact transparently with [e] ~ [’o], so yes?
- Clearer example of stem allomorphy: ‘ablaut’: <obod_rat^{j}> ~ <obd^{j}irat^{j}> ‘strip.PERF ~ IMPERF.INF’

7.11 Overapplication

- Clear examples of overapplication before word-level suffixes:

(32)

a.	[lop]	*лоб*	‘forehead-NSG’
b.	[lba]	*лба*	‘forehead-GSG’
c.	[lob^{j}ik]	*лобик*	‘forehead-DIM’
d.	*[lb^{j}ik]		

7.12 Yers and parts of speech

- Prediction: if yer patterns are stem-level, they should follow part-of-speech boundaries

(33) Noun: no yer

a. [mʲesʲtʲ] *месть* 'revenge'

b. [mʲesʲtiʲ] *мести* 'revenge-LOC.SG'

c. [(v) ʋtʲmʲestku] *в отместку* 'in revenge'

(34) Verb and deverbal noun: yer

a. [mstʲitʲ] *мстить* 'take.revenge-IMPF'

b. [ʋtə̲mstʲitʲ] *отомстить*> 'take.revenge-PF'

c. [msʲtʲitʲilʲ] *мститель* 'avenger'

- Scheer:[30] here, N and V are different lexical items ⇒ indeed

[30] Scheer, 'On the Difference between the Lexicon and Computation (Regarding Slavic Yers)'.

7.13 Yer-zero alternations

- Bethin;[31] Scheer[32] identify a crucial contrast in Polish
  - Vocalized yer before a yer but not in a final syllable: *cyfra* 'number' ~ *cyf(*e)r* 'number.GSG ~ *cyferka* 'number-DIM' ⇒ underlying cluster with epenthesis
  - Regular vocalization: *srebro* 'silver' ~ *sreber* 'silver.GSG' ~ *sreberko* 'silver.DIM' ⇒ underlying yer
- Scheer:[33] Russian shows a similar pattern: cf. <igla> 'needle' ~ <igl> 'needle.GPL' ~ <igolka> 'needle.DIM'
- Prediction: the yer position cannot sustain the /e/ ~ /o/ contrast
- Correct, but only because there is no contrast in the first place

[31] Christina Y. Bethin. 1992. *Polish syllables: The role of prosody in phonology and morphology*. Columbus: Slavica Publishers.

[32] Tobias Scheer. 2012. Variation is in the lexicon: Yer-based and epenthetic vowel-zero alternations in Polish. In Eugeniusz Cyran, Henryk Kardela & Bogdan Szymanek (eds.), *Sound, structure and sense: Studies in memory of Edmund Gussmann*, 631–672. Lublin: Wydawnictwo KUL.

[33] Scheer, 'Variation is in the lexicon'.

7.14 Why do the yers vocalize?

- Currently largely agnostic about the mechanism of yer vocalization
- Possible translation of Lower: don't vocalize if something follows in the cyclic domain[34]
- <(ig_l-a)> 'needle-NSG' ~ <(ig_l-∅)> 'needle-GPL' ~ <((igo̲l)-_k-a)> 'needle-DIM'

[34] cf. Welsh in Pavel Iosad. 2017. Welsh svarabhakti as stem allomorphy. *Transactions of the Philological Society* 115. 141–175.

7.15 Summary

- Yer quality is unpredictable only if consonant palatalization is not distinctive
- Apparent exceptions to the rule that palatalized consonants are followed by the front yer are conditioned by the independently existing *e* ~ *'o* pattern
- There is a strong case for yer patterns to be analysed as stem-level: stem allomorphy?

8 Conclusion

8.1 Where do we go from here?

- The Halle-Lightner view of Russian phonology can be revised
- Plenty of scope for shorter derivations within a stratal approach
- As long as we get the right representations and interfaces
- Wide open field for intra-Slavic comparison

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