

Handout #12

Some alternations in Russian

Russian

(Kenstowicz and Kisseberth 1979: 46-62)

<i>Nominative singular</i>	<i>Dative singular</i>	<i>Nominative plural</i>	<i>Gloss</i>
xlep	xlebu	xleba	<i>bread</i>
tšerep	tšerepu	tšerepa	<i>skull</i>
tsvet	tsvetu	tsveta	<i>color</i>
les	lesu	lesa	<i>forest</i>
storof	storozu	storozza	<i>guard</i>
rok	rogu	roga	<i>horn</i>

Russian (Another declension class)

<i>Nominative singular</i>	<i>Dative singular</i>	<i>Nominative plural</i>	<i>Gloss</i>
grip	gribu	gribu	<i>mushroom</i>
grop	grobu	grobu	<i>coffin</i>
xolop	xolopu	xolopu	<i>bondman</i>
trup	trupu	trupu	<i>corpse</i>
sat	sadu	sadu	<i>garden</i>
prut	prudu	prudu	<i>pond</i>

Russian

<i>Nominative singular</i>	<i>Dative singular</i>	<i>Nominative plural</i>	<i>Gloss</i>
zakat	zakatu	zakatu	<i>sunset</i>
ras	razu	razu	<i>time</i>
zakas	zakazu	zakazu	<i>order</i>
us	usu	usu	<i>whisker</i>
duf	dufu	dufu	<i>shower</i>
porok	porogu	porogu	<i>threshold</i>

Russian

<i>Nominative singular</i>	<i>Dative singular</i>	<i>Nominative plural</i>	<i>Gloss</i>
rak	raku	raku	<i>crayfish</i>
porok	poroku	poroku	<i>vice</i>

Morphemes

- The dative singular is marked by the suffix **-u**.
- The nominative plural is marked by **-a** in one declension, and by **-u** in the other.
- **Alternating morphemes:**
 - xlep ~ xleb storof ~ storoz zakas ~ zakaz
 - rok ~ rog grip ~ grib porok ~ porog
 - grop ~ grob sat ~ sad
 - prut ~ prud ras ~ raz

Distribution of alternating sounds

- The **alternating sounds** that distinguish these alternants are:
 - $p \sim b, t \sim d, k \sim g, s \sim z, \int \sim ʒ$
- **Distribution of the alternating sounds:**
 - Voiceless obstruents occur at the end of a word, as well as elsewhere.
 - Voiced obstruents do not occur at the end of a word, but they do occur elsewhere.

Analysis

- **Underlying representations of alternating morphemes:**
 - /xleb, storoz, rog, grib, grob, sad, prud, raz, zakaz, porog/
- **Underlying representations of nonalternating morphemes:**
 - /tʃerɛp, cvet, les, xolop, trup, zakat, us, duʃ, rak, porok, u, a, u/
- **Rule (Final devoicing):**
 - [-son] --> [-voice] / ____ #

Derivations

Underlying representation	/porok/	/porok-u/	/porog/	/porog-u/
Final devoicing	_____	_____	/porok/	_____
Surface representation	[porok] ("vice, n. sg.")	[poroku] ("vice, d. sg.")	[porok] ("threshold, n. sg.")	[porogu] ("threshold, d. sg.")

More Russian

<i>Infini- tive</i>	<i>Masc. past</i>	<i>Fem. past</i>	<i>Neuter past</i>	<i>Gloss</i>
<i>pisatʲ</i>	<i>pisal</i>	<i>pisala</i>	<i>pisalo</i>	<i>write</i>
<i>visetʲ</i>	<i>visel</i>	<i>visela</i>	<i>viselo</i>	<i>hang</i>
<i>govoritʲ</i>	<i>govoril</i>	<i>govorila</i>	<i>govorilo</i>	<i>speak</i>
<i>tsitatʲ</i>	<i>tsital</i>	<i>tsitala</i>	<i>tsitalo</i>	<i>read</i>
<i>smotretʲ</i>	<i>smotrel</i>	<i>smotrela</i>	<i>smotrelo</i>	<i>look</i>

More Russian

<i>1st sing. pres.</i>	<i>Masc. past</i>	<i>Fem. past</i>	<i>Neuter past</i>	<i>Gloss</i>
grebu	grep	grebla	greblo	<i>row</i>
skrebu	skrep	skrebla	skreblo	<i>scrape</i>
nesu	nes	nesla	neslo	<i>carry</i>
pasu	pas	pasla	paslo	<i>herd</i>
lezu	les	lezla	lezlo	<i>crawl</i>
peku	pek	pekla	peklo	<i>bake</i>

More Russian

<i>1st sing. present</i>	<i>Masc. past</i>	<i>Fem. past</i>	<i>Neuter past</i>	<i>Gloss</i>
seku	sek	sekla	seklo	<i>thrash</i>
mogu	mok	mogla	moglo	<i>be able</i>
beregu	berek	beregla	bereglo	<i>guard</i>

Morphemes

- Inflectional morphemes:
 - $-t^j$ “infinitive”
 - $-l \sim \emptyset$ “past”
 - $-a$ “feminine”
 - $-o$ “neuter”
 - $-u$ “1st singular present”

Alternations

- **Alternating morphemes:**

- $-l \sim \emptyset$ “past”
- grep ~ greb
- skrep ~ skreb
- lez ~ les
- mog ~ mok
- bereg ~ berek

Alternations

- **Alternating sounds:**
 - $p \sim b, k \sim g, s \sim z, l \sim \emptyset$
- The alternation in voicing is covered by the distribution and rule we have already stated.
- The past tense $-l$ is missing just in one case, in the masculine past following a consonant.
- **Statement of distribution for the alternation $l \sim \emptyset$:**
 - $*C [+lat] \#$

Analysis

- **Underlying representations of the alternating morphemes:**
 - /greb, skreb, lez, mog, bereg, l /
- **Rule (Lateral deletion):**
 - [+lat] --> \emptyset / C ____ #

Interaction

- We now have two rules that refer to the end of a word:
 - Final devoicing: [-son] --> [-voice] / ____ #
 - Lateral deletion: [+lat] --> ∅ / C ____ #
- Lateral deletion changes where the end of the word is.
- For example, in /**nes-l**/ --> [**nes**], the [s] becomes word-final as an effect of the deletion.

Interaction

- We could apply final devoicing before lateral deletion, in the order in which we discovered them.
- Then we derive a pattern in which obstruents must be voiceless if they are word-final, **unless** they are followed by an alternating $l \sim \emptyset$.
- This is not the pattern in Russian.

Derivations: Wrong order

Underlying representation	/greb-l/	/greb-l-a/
Final devoicing	_____	_____
Lateral deletion	/greb/	_____
Surface representation	*[greb]	[grebla]

Derivations

- If we apply lateral deletion before final devoicing, then we derive a pattern where *all* final obstruents are voiceless, including those that came to be final by lateral deletion.
- This is the right pattern.
- Lateral deletion feeds Final devoicing
- Thus Lateral deletion must be ordered before Final devoicing.

Derivations: Right order

Underlying representation	/greb-l/	/greb-l-a/
Lateral deletion	/greb/	_____
Final devoicing	/gɾep/	_____
Surface representation	[gɾep]	[grebla]

More Russian

<i>1st sing. pres.</i>	<i>Masc. past</i>	<i>Fem. past</i>	<i>Neuter past</i>	<i>Gloss</i>
metu	mel	mela	melo	<i>sweep</i>
pletu	plel	plela	plelo	<i>plait</i>
obretu	obrel	obrela	obrelo	<i>find</i>
bredu	brél	brela	brelo	<i>lounge</i>
kradu	kral	krala	kralo	<i>steal</i>
kladu	klal	klala	klalo	<i>place</i>

A new alternation

- **Alternating morphemes:**
 - met ~ me, plet ~ ple, obret ~ obre, bred ~ bre,
krad ~ kra, klad ~ kla
- **Alternating sounds:**
 - t ~ ø, d ~ ø
- The alternant with the **t/d** occurs in the 1st singular present, while the alternant without **t/d** occurs in all the past tense forms.

A new alternation

- In other words, **t/d** is missing just in those cases where it would have been followed by *l*.
- The sequences that don't occur are ***tl** and ***dl**.
- **Statement of distribution for the alternating sounds:**
 - ***[+cor, -cont] [+lat]**

Analysis

- **Underlying representations of alternating morphemes:**
 - /met, plet, obret, bred, krad, klad/
- **Rule (Stop deletion):**
 - [+cor, -cont] --> \emptyset / _____ [+lat]

Interaction

- We now have two rules that refer to sequences of a consonant followed by a lateral:
 - Lateral deletion: $[+lat] \rightarrow \emptyset / C _ \#$
 - Stop deletion: $[+cor, -cont] \rightarrow \emptyset / _ _ _ [+lat]$
- Lateral deletion deletes the lateral in $C+l$ sequences, while stop deletion deletes the C.

Interaction

- If Lateral deletion applies before Stop deletion, then the lateral in *tl* or *dl* will be deleted only if it is word-final.
- If such a sequence is not word-final, then the stop will be deleted.
- This is not the right pattern, so this is not the right order of application.

Derivations: Wrong order

Underlying representation	/met-u/	/met-l/	/met-l-a/
Lateral deletion	_____	/met/	_____
Stop deletion	_____	_____	/mela/
Surface representation	[metu]	*[met]	[mela]

Interaction

- If stop deletion were to apply before lateral deletion, then the stop would always be deleted before a lateral, whether it was word-final or not.
- The lateral would only be deleted after a C that wasn't a coronal stop.
- This is the right pattern, so this is the correct order.
- Stop deletion **bleeds** Lateral deletion, which means that application of stop deletion reduces the opportunities for lateral deletion to apply.

Derivations: Right order

Underlying representation	/met-u/	/met-l/	/met-l-a/
Stop deletion	_____	/mel/	/mela/
Lateral deletion	_____	_____	_____
Surface representation	[metu]	[mel]	[mela]

More Russian

(Halle and Clements 1983: 115)

- p^ji'ku “I bake (1st sing. present)”
 - 'p^jok “he baked (masculine past)”
 - 'p^jok l'i “whether he baked”
 - 'p^jog bu “were he to bake”
- v^ji'zu “I carry (1st sing. present)”
 - 'v^jos “he carried (masc. present)”
 - 'v^jos l'i “whether he carried”
 - 'v^joz bu “were he to carry”

More Russian

- ma'gu “I can (1st sing. present)”
 - 'mok “he could (masculine past)”
 - 'mok lʲi “whether he could”
 - 'mog bu “were he to be able to”
- 'moknu “I soak (1st sing. present)”
 - 'mok “he soaked (masc. present)”
 - 'mok lʲi “whether he soaked”
 - 'mog bu “were he to carry”

Alternations

- **Alternating morphemes:**
 - $p^j ik \sim 'p^j ok \sim 'p^j og$, $v^j iz \sim 'v^j os \sim 'v^j oz$,
 $'m ok \sim 'm og \sim mag$, $'m ok \sim 'm og$
- **Alternating sounds:**
 - $i \sim a$, $i \sim o$, $k \sim g$, $s \sim z$
- The vowel alternations are conditioned by stress, and we don't have the data here to sort them out.

Distribution of the alternating sounds

- But with respect to the voicing alternation, an obstruent always agrees with an immediately following obstruent in voicing.
 - A voiceless obstruent does not occur before a voiced obstruent, though it does occur elsewhere.
 - A voiced obstruent does not occur before a voiceless obstruent, but does occur elsewhere.

Distribution

- The previous generalization about word-final obstruents must be revised.
- Previous generalization:
 - Voiced obstruents do not occur at the end of a word, but they do occur elsewhere.
- Revised generalization:
 - Voiced obstruents do not occur at the end of a word, *except when followed by a voiced obstruent*, but they do occur elsewhere.

Analysis

- The **underlying representation** of the alternating morphemes is the form found word-internally before a sonorant:
 - / p^jok, v^joz, mog, mok /
- **Rule (Voicing assimilation):**
 - [-son] --> [α voice] / _____ [-son, α voice]
 - (α is a variable over the coefficients + and -. The obstruent changes to the value for [voice] that matches that of the following obstruent.)

Derivations: Right order

Underlying representation	/ ^l mog/	/ ^l mog bu/
Final devoicing	/ ^l mok/	/ ^l mok bu/
Voicing assimilation	————	/ ^l mog bu/
Surface representation	[^l mok]	[^l mog bu]

Interaction

- If we were to apply the rules in the opposite order, we get another result.
- If Voicing assimilation is applied before final devoicing, then the latter gets the last word.
- Then the pattern would be that an obstruent always agrees with a following obstruent in voicing, *except if the first obstruent is word-final*.

Derivations: Wrong order

Underlying representation	/ ^l mog/	/ ^l mog bu/
Voicing assimilation	_____	/ ^l mog bu/
Final devoicing	[^l mok]	/ ^l mok bu/
Surface representation	[^l mok]	*[^l mok bu]

Russian: Order of rules

- Stop deletion
 - Lateral deletion
 - Final devoicing
 - Voicing assimilation
- The arcs connect rules that are **crucially ordered**, i.e. we have evidence that the ordering of those two rules must be this way.

Reference

- Halle, Morris, and G.N. Clements (1983). *Problem Book in Phonology*. MIT Press, Cambridge.
- Kenstowicz, Michael and Charles Kisseberth (1979). *Generative Phonology: Description and Theory*. Academic Press, San Diego.