Voicing behavior of Polish /v/

Underspecified word-internally, specified word-externally

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NAPhC 2025, Montreal (spiritually, if not bodily)

Variable activity

Phonological processes can be variably active

Undergoer: process P applies to a segment in some inputs (mutability) but not others (inalterability)

Trigger: process P is triggered by a segment in some inputs (catalysis) but not others (quiescence)

The discussion is heavily based on Dabbous, Gorman, Reiss (2025)

Batzan Basque: /a/~[e] after a high vowel

(1) Auxiliary verbs with raised vowel after high vowel (Hualde 1991:29–30.):

a.	torri d**e**	‘he has come’	cf. gan d**a**	‘he has gone’
b.	gain d**e**	‘he will go’	cf. lorriko d**a**	‘he will come’
c.	torri g**e**ra	‘we have come’	cf. gan g**a**ra	‘we have gone’
d.	torri z**e**ra	‘you have come’	cf. gan z**a**ra	‘you have gone’
e.	in z**e**zu	‘do it’	cf. jan z**a**zu	‘eat it’

Mutability/inalterability: an example

Batzan Basque: /a/~[e] after a high vowel. There are exceptions

(2) torri n**a**iz ‘I have come’

Barrow Inupiaq: palatalization of coronals after /i/. There are exeptions

(3) Palatalization (Kaplan 1981)

a.	iki	'wound'	iki-**ʎ**u	'and a wound'	iki-**ɲ**ik	'wounds'
b.	ini	'place'	ini-**l**u	'and a place'	ini-**n**ik	'places'

Recent work on Logical Phonology argues that both types of variability arise through contrastive underspecification

- Prespecification: inalterability and catalysis
- Underspecification: mutability and quiescence

(4) $[+\text{cons}] \sqcup \{+\text{F}\} \; / \; \_\_\_[+\text{vowel}, -\text{G}]$

a. $[+\text{cons}] \rightsquigarrow [+\text{cons}, +\text{F}]$

b. $[+\text{cons}, +\text{F}] \rightsquigarrow [+\text{cons}, +\text{F}]$

c. $[+\text{cons}, -\text{F}] \rightsquigarrow [+\text{cons}, -\text{F}]$

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(5) [+cons] ⊔ {+F} / ___[+vowel, −G]

a. [+cons] ⇝ [+cons, +F]

b. [+cons, +F] ⇝ [+cons, +F]

c. [+cons, −F] ⇝ [+cons, −F]

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(6) [+cons] ⊔ {+F} / ___[+vowel, −G]

a. [+cons] ⇝ [+cons, +F]

b. [+cons, +F] ⇝ [+cons, +F]

c. [+cons, −F] ⇝ [+cons, −F]

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(7) $[+\text{cons}] \sqcup \{+\text{F}\} \;/\; \_\_\_[+\text{vowel}, -\text{G}]$

a. $[+\text{cons}]/[+\text{vowel}] \rightsquigarrow [+\text{cons}]$

b. $[+\text{cons}]/[+\text{vowel}, +\text{G}] \rightsquigarrow [+\text{cons}]$

c. $[+\text{cons}]/[+\text{vowel}, -\text{G}] \rightsquigarrow [+\text{cons}, +\text{F}]$

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(8) [+cons] ⊔ {+F} / ___[+vowel, −G]

a. [+cons]/[+vowel] ⇝ [+cons]

b. [+cons]/[+vowel, +G] ⇝ [+cons]

c. [+cons]/[+vowel, −G] ⇝ [+cons, +F]

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(9) [+cons] ⊔ {+F} / ___[+vowel, −G]

a. [+cons]/[+vowel] ⇝ [+cons]

b. [+cons]/[+vowel, +G] ⇝ [+cons]

c. [+cons]/[+vowel, −G] ⇝ [+cons, +F]

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The application to something like lexical exceptionality is clear: get the URs right, the exceptionality follows. But the idea is more general.

Running in cycles

Suppose a segment is underspecified in cycle N but becomes specified in cycle N+1. The prediction is that

- Cycle N: mutable & quiescent
- Cycle N+1: immutable & catalyctic

Today's claim: Polish /v/ presents an example of such a pattern

Polish has two distinct voicing assimilation processes (Gussmann 2007; Cyran 2014): first is the regressive voicing assimilation that applies in obstruent-obstruent sequences

(10) Regressive voicing assimilation (RVA)

DV	TT	TV	DD
dech [dɛx]	*dch-u* [txu]	*prosić* [proɕit͡ɕ]	*prośba* [proʑba]
breath.NOM.SG	breath-GEN.SG	ask.INF	request.NOM.SG
wesz [weʃ]	*wsz-y* [fʃɨ]	*lyczyć* [lit͡ʃit͡ɕ]	*lyczba* [lid͡ʒba]
louse.NOM.SG	louse-GEN.SG	count.INF	number.NOM.SG

Polish has two distinct voicing assimilation processes (Gussmann 2007; Cyran 2014): second is progressive voicing assimilation that applies in obstruent-sonorant sequences (as diagnosed through the [r]~[ž] alternation)

(11) Progressive voicing assimilation (PVA)

TR[−pal]	TR[+pal]
gr-a [gra]	*grz-e* [gže]
game-NOM.SG	game-DAT.SG
kr-a [kra]	*krz-e* [kše]
ice.floe-NOM.SG	ice.floe-DAT.SG

Under the assumption that sonorants are underlyingly neither [±voice]

(12) a. [−sonorant] \ {αvoice]} / ___[−sonorant, −αvoice]

b. [−sonorant] ⊔ {αvoice} / ___[−sonorant, αvoice]

c. [+sonorant] ⊔ {αvoice} / [−sonorant, αvoice]___

Now enters /v/

The segment /v/ behaves the following way:

- /v/ undergoes RVA
- /v/ doesn't trigger RVA word-internally
- /v/ triggers RVA word-externally
- /v/ undergoes PVA word-internally
- /v/ doesn't undergo PVA word-externally

(13) Properties of /v/ in Polish

a.	__vowel	__[−voice]	b.	vowel__	[−voice]__
	wesz [veʃ]	*wsz-y* [fʃɨ]		*szew-ek* [ʃɛvɛk]	*szw-y* [ʃfɨ]
	louse.NOM.SG	louse-GEN.SG		seam-DIM	seam-NOM.PL

c.	__vowel	__#	__#/v/
	stek-u [stɛku]	stek [stɛk]	stek wyzwisk [stɛgvɨzvisk]
	load-GEN.SG	load.NOM.SG	load.NOM.SG abuse.GEN.PL

Word-internal cycle: /v/ is quiescent for RVA & mutable for PVA

Word-external cycle: /v/ is catalyctic for RVA & immutable for PVA

(14) a. [−sonorant] \ {αvoice} / ___ [−sonorant, −αvoice]

b. [−sonorant] ⊔ {αvoice} / ___[−sonorant, αvoice]

c. [] ⊔ {αvoice} / [−sonorant, αvoice]___

Cycle 1: /v/ is quiescent wrt. RVA, /v/ is mutable wrt. PVA
Cycle 2: /v/ is catalyctic wrt. RVA, /v/ is immutable wrt. PVA

(15) a. [−sonorant] \ {αvoice} / ___[−sonorant, −αvoice]

b. [−sonorant] ⊔ {αvoice} / ___[−sonorant, αvoice]

c. [] ⊔ {αvoice} / [−sonorant, αvoice]___

Quiescence for [±voice]-triggered rule
Mutability for [±voice] insertion rule

(16) a. [−sonorant] \ {αvoice} / ___[−sonorant, −αvoice]

b. [−sonorant] ⊔ {αvoice} / ___[−sonorant, αvoice]

c. [] ⊔ {αvoice} / [−sonorant, αvoice]___

Catalysis for [±voice]-triggered rule
Immutability for [±voice] insertion rule

(17) a. [−sonorant] \ {αvoice} / ___[−sonorant, −αvoice]

b. [−sonorant] ⊔ {αvoice} / ___[−sonorant, αvoice]

c. [] ⊔ {αvoice} / [−sonorant, αvoice]___

Fate of /v/

Word-internal cycle: underspecification
Word-external cycle: prespecification

(18) Default voicing rule (applies late)
[−sonorant] ⊔ {+voice}

RVA » PVA » Default voicing

(19) a. [−sonorant] \ {αvoice} / ___[−sonorant, −αvoice]

b. [−sonorant] ⊔ {αvoice} / ___[−sonorant, αvoice]

c. [] ⊔ {αvoice} / [−sonorant, αvoice]___

d. [−sonorant] ⊔ {+voice}

RVA » PVA » Default voicing

- RVA and default voicing: counterfeeding
- PVA and default voicing: counterbleeding

If the same rules apply,

- counterbleeding results in blocking at the next cycle
- counterfeeding results in activation at the next cycle

Another way to put the behavior of /v/: /v/ triggers voicing only across a word juncture. In Cracow Polish, sonorants and vowels do too.

(20)

UR	gloss	Warsaw Polish	Cracow Polish
<brak oceny>	'lack of mark'	[k ɔ]	[g ɔ]
<brak jasności>	'lack of clarity'	[k j]	[g j]

Another way to put the behavior of /v/: /v/ triggers voicing only across a word juncture. In Cracow Polish, sonorants and vowels do too.

(21) Warsaw Polish default voicing
[−sonorant] ⊔ {+voice}

(22) Cracow Polish default voicing
[] ⊔ {+voice}

Logical Phonology: underspecification as a theory of phonological activity. The core tenets are rather general.

Summary

This talk has argued that the dual behavior of Polish /v/ across cycles can be given an analysis in the same spirit.

Thus, Logical Phonology can provide insight into cyclicity phenomena, with the analytical idea being changing the under-/pre-specification status of a segment through relatively late rules.