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Final Tensing in Kurpian

Abstract
This article investigates the occurrence of tense vowels in Kurpian and reports on the results of my fieldwork conducted in the villages of central Kurpia. The article looks at declensional paradigms of nouns and concludes that lax vowels alternate with tense vowels when they are followed by a voiced consonant (an obstruent or a sonorant) at the end of the word. The descriptive generalizations are analysed formally in terms of Derivational Optimality Theory, a framework that is well equipped to handle the opacity unveiled by the Kurpian data.

Keywords
Kurpian phonology, Polish dialects, Optimality Theory, derivationalism, Polish phonology

Streszczenie
Ścieśnienia końcowe w dialekcie kurpiowskim
Niniejszy artykuł omawia występowanie samogłosek ścieśnionych w systemie deklinacyjnym dialektu kurpiowskiego. Przedstawione wyniki oparte są na przeprowadzonych przeze mnie badaniach materiałowych we wsiach środkowego pasa regionu kurpiowskiego i dotyczą alternacji pomiędzy samogłoskami nieścieśnionymi a ścieśnionymi. Ścieśnienia zachodzą w końcowej sylabie rzeczowników przed spółgłoską dźwięczną, która może być albo obstruentem albo sonorantem. Analiza opisowych reguł przedstawiona jest w ramach derywacyjnej teorii optymalności.

Słowa klucze
fonologia kurpiowska, dialekty języka polskiego, teoria optymalności, derywacyjność, fonologia polska

This article[1] investigates the occurrence of tense vowels in final syllables in Kurpian, a dialect of Polish spoken in northern Poland. Since the literature

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on Kurpian hardly exits,[2] the data are drawn from my fieldwork in the villages of central Kurpia. The descriptive results of this fieldwork are presented in Section 2. Section 3 offers an analysis of the data in terms of Derivational Optimality Theory. The conclusions are summarized in Section 4. I begin with some background facts in Section 1.

1. Background

The vocalic system of Kurpian is richer than that of standard Polish and includes the following vowels (Rubach 2011).

(1) a. Kurpian[3]

i	ɨ	u
e		o
ɛ	ə	ɔ
	a	ɑ

b. Standard Polish

i	ɨ	u
ɛ		ɔ
	a	

As shown by Rubach (2011), the Kurpian vowels in (1) are all phonemic because they provide for surface contrasts in contexts that are not predictable by rules. The examples in (2) illustrate the point.

(2)

[i] – [ɨ]	głos*i* [ɕi] 'he voices' – głos*y* [sɨ] 'voice' (nom.pl.)
[e] – [ɛ]	*ser*ce [ser] 'heart' – *szer*oki [sɛr] 'broad'
[ə] – [ɛ] – [e]	daj*ę* [ə] 'I give' – daj*e* [ɛ] 'he gives' – *wie* [ʑe] 'he knows'
[o] – [ɔ]	*gór*a [gor] 'mountain' – *gor*ycz [gɔr] 'bitterness'
[a] – [ɑ]	*tak* [tak] 'yes' – *ptak* [ptɑk] 'bird'

Since, as is clear from (2), the spelling of Standard Polish does not reflect the contrasts that play a role in Kurpian, I will adopt the orthographic system devised especially for Kurpian by Rubach (2009) and use it in the remainder of this article. The system is closely phonetic in that letters uniquely correspond to sounds in the following way. The list in (3) shows only those letters whose phonetic correspondents are not obvious.

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[2] The descriptive sources include Friedrich (1955), Rubach (2009, 2011) and brief mentions in books on Polish dialects such as Dejna (1973) and Zduńska (1965). None of these sources discusses the occurrence of tense vowels in final syllables.

[3] The high unrounded vowels [i] and [ɨ] are lax rather than tense, but I will not mark this fact in the transcription.

(3) *ï, y* – front and central high lax vowels, respectively
é, ó – front and back mid tense vowels [e, o], respectively
ë, å – schwa [ə] and back low [ɑ], respectively
ł – glide [w]
ś, ź, ć, dź, ń – prepalatal [ɕ ʑ, ʨ ʥ ɲ], respectively.

A featural classification of the Kurpian vowels in (1) is given in (4).

(4) Kurpian vowels

	i	ɨ	u	e	o	ɛ	ə	ɔ	a	ɑ
high	+	+	+	–	–	–	–	–	–	–
low	–	–	–	–	–	–	–	–	+	+
back	–	+	+	–	+	–	+	+	+	+
tense	–	–	+	+	+	–	–	–	–	+
round	–	–	+	–	+	–	–	+	–	–

Following Wood (1975), I assume that the feature [±tense] describes the degree of constriction in four distinct regions: hard palate, soft palate, upper pharynx, and lower pharynx. The result is that upper high, upper mid and backer low vowels are [+tense]. The other mid and low vowels are lax. This means that [ɛ ɔ a] as well as schwa[4] are [–tense].

In the remainder of this paper, I focus on alternations between [ɛ ɔ a] and [e o ɑ] that occur in the declension system of Kurpian. I demonstrate that, contrary to what we find in Standard Polish, the processes involved in these alternations are fully productive. The underlying generalizations interact in an opaque way, but this does not constitute a problem for Derivational Optimality Theory.

2. Data and basic generalizations

This section reports on the results of my fieldwork regarding the occurrence of tense vowels in final syllables. I begin by looking at the [ɔ] – [o] alternation and then proceed to the two other types of alternation: [ɛ] – [e] and [a] – [ɑ]. In each case, the presentation of the data is summed up by stating basic descriptive generalizations in a semi-formal way.

The data in (5) show an alternation between lax [ɔ] and tense [o].

[4] Schwa has a limited distribution in Kurpian. It occurs word-finally and before nasals. For discussion, see Rubach (2011).

(5)

gen.sg. [ɔ]	*nom.sg. [o]*	*gloss*
rog+u	róg	'horn'
row+u	rów	'ditch'
bob+u	bób	'broad beans'
grob+u	grób	'grave'
lod+u	lód	'ice'
Bog+a	Bóg	'God'
mroz+u	mróz	'frost'
wodz+a	wódz	'commander'
stroj+u	strój	'dress'
bor+u	bór	'forest'
dwor+u	dwór	'court'
stoł+u	stół	'table'
wądoł+u	wądół	'pit'
goździ+a	góźdź	'nail'
kómor+a	kómór	'mosquito'
ńod+u	ńód	'honey'

This system of alternations is familiar from Standard Polish, but there are two differences. First, in Standard Polish, the alternation is between [ɔ] and [u][5] rather than between [ɔ] and [o], as in Kurpian. Second, the Kurpian pattern is productive while the Standard Polish pattern is not.

(6)

Kurpian		*Standard Polish*		*gloss*
gen.sg.	*nom.sg.*	*gen.sg.*	*nom.sg.*	
matoł+a	motół	matoł+a	matoł	'fool'
dźę̈ćoł+a	dźę̈ćół	dzięcioł+a	dzięcioł	'woodpecker'
grucoł+a	grucół	gruczoł+a	gruczoł	'gland'
chochoł+a	chochół	chochoł+a	chochoł	'straw man'
gryzmoł+a	gryzmół	gryzmoł+a	gryzmoł	'scribble'
bachor+a	bachór	bachor+a	bachor	'kid' (pejorative)
ję̈zor+a	ję̈zór	jęzor+a	jęzor	'tongue'
znachor+a	znachór	znachor+a	znachor	'healer'
scypśor+a	scypśór	szczypior+a	szczypior	'green onions'
muchómor+a	muchómór	muchomor+a	muchomor	'death cap'
warchoł+a	warchół	warchoł+a	warchoł	'troublemaker'

[5] The alternating [u] is spelled *ó*, so the spelling of the examples in (5) with respect to the vowels in question is identical for Standard Polish and Kurpian.

Furthermore, Kurpian extends the pattern to recent borrowings but Standard Polish does not.

(7)

Kurpian		*Standard Polish*		*gloss*
gen.sg.	*nom.sg.*	*gen.sg.*	*nom.sg.*	
teleźïzor+a	teleźïzór	telewizor+a	telewizor	'TV set'
trachtor+a	trachtór	traktor+a	traktor	'tractor'
dyrechtor+a	dyrechtór	dyrektor+a	dyrektor	'director'
motor+a	motór	motor+a	motor	'motor'
humor+u	humór	humor+u	humor	'humour'
patrol+a	patról	patrol+u	patrol	'patrol'
parasol+a	parasól	parasol+a	parasol	'umbrella'
hónor+u	hónór	honor+u	honor	'honour'
profesor+a	profesór	profesor+a	profesor	'professor'
Herod+a	Heród	Herod+a	Herod	'Herod'

Given that the Kurpian data exhibit the alternation between [ɔ] and [o], the question is which of these segments should be posited in the underlying representation and which should be derived by rule. The answer comes from the inspection of inflectional paradigms.

(8) Declension of *strój* 'dress'

	singular	*plural*
nominative	strój	stroj+e
genitive	stroj+u	stroj+ów[6]
dative	stroj+ożu[7]	stroj+óm
accusative	strój	stroj+e
instrumental	stroj+ëm	stroj+ańï
locative	stroj+u	stroj+ach
vocative	stroj+u	stroj+e

It is clear that [ɔ] is the default vowel and [o] is contextually restricted because [o] occurs only in the final syllable of the word when no ending follows. Consequently, it is [o] that is derived from //ɔ// and not *vice versa*. Since the change from //ɔ// to [o] is a change from [–tense] to [+tense] and since it occurs finally, I call this process Final Tensing and state it schematically in (9).

[6] The ending *–ów* is also an instance of Final Tensing, but the vowel is not alternating, so it is possible that //o// is in the underlying representation. Let me add that I use double slashes for underlying representations, single slashes for intermediate forms and square brackets for surface forms.

[7] The Kurpian ending of the dative singular is *-ożu*, not *-ożï*. It derives from the conflation of the Standard Polish endings *-owi*, as in *strój – stroj+owi* 'dress', and *–u*, as in *pan – pan+u* 'sir'.

(9) Final Tensing (first approximation)
ɔ → o / in the final syllable

The corresponding rule in Standard Polish changes //ɔ// into [u].

The triggering context – the presence of a word boundary – obtains also in the gen.pl. of feminine and neuter nouns in Standard Polish, but not in Kurpian because in Kurpian the ending is invariably *-ów*.

(10)

Standard Polish		*Kurpian*		*gloss*
nom.sg.	*gen.pl.*	*nom.sg.*	*gen.pl.*	
krow+a	krów	krow+a	krow+ów	'cow'
nog+a	nóg	nog+a	nog+ów	'leg'
stodoł+a	stodół	stodoł+a	stodoł+ów	'barn'
zboż+e	zbóż	zboz+e	zboz+ów	'corn'

Thus, given that Kurpian has the ending *-ów* in the gen.pl. of feminine and neuter nouns, it appears that the alternation [ɔ] – [o] is limited to masculine nouns because all the examples in (6) and (7) are masculine. This is not true, as the following data show.

(11) Kurpian feminine nouns

nom.sg.	*gen.sg.*	*gloss*
powódź	powodź+ï	'flood'
sól	sol+y	'salt'

The scarcity of the data exhibiting the [o] – [ɔ] alternation in non-masculine nouns exists for independent reasons. First, as shown in (10), the gen.pl. context that feeds Final Tensing in Standard Polish does not obtain in Kurpian because the ending is *-ów* rather than zero. Second, feminine and neuter nouns have a vowel ending in the nom.sg., *-a*, as in *krow+a* 'cow', and *-e* , as in *zboz+e* 'corn', so the context of Final Tensing is not met. The class of feminine nouns that have underlying //ɔ// and do not take *-a* is very small.

The data showing Final Tensing in (6), (7) and (11) share an important property: the final segment of the word is voiced. This segment is either an obstruent, as in *róg* 'horn', or a sonorant, as in *bór* 'forest' and *strój* 'dress'. The distinction between an obstruent and a sonorant is not essential. What matters is the property that they share: the presence of voicing. This is a significant generalization because Final Tensing does not apply if the consonant is voiceless.[8]

[8] As argued in Rubach (2011), Kurpian has Nasal Tensing, a rule that tenses //ɔ// to [o] before a nasal. Consequently, the vowel in words such as *gróm* 'thunder', *plón* 'crop' and *kóń* 'horse' is tense not only word-finally but also word-medially, as in the nom. pl. *grómy*, *plóny* and *kóńe*.

(12) *Standard Polish*		*Kurpian*		*gloss*
gen.sg.	*nom.sg.*	*gen.sg*	*nom.sg.*	
nos+a	nos	nos+a	nos	'nose'
los+u	los	los+u	los	'fate'
groch+u	groch	groch+u	groch	'pea'
chłop+a	chłop	chłop+a	chłop	'farmer'

As was the case previously, Standard Polish is less regular than Kurpian in yet another way, namely, it has several „positive exceptions" to Final Tensing. These are the words that exhibit the [ɔ] – [u] alternation in spite of the fact that the final consonant is voiceless.[9]

(13) *Standard Polish*		*Kurpian*		*gloss*
nom.sg.	*gen.pl.*	*nom.sg.*	*gen.pl.*	
stop+a	stóp	stop+a	stop+ów	'foot'
sobot+a	sobót	sobot+a	sobot+ów	'Saturday'
robot+a	robót	robot+a	robot+ów	'job'
wrot+a	wrót	wrot+a	wrot+ów	'gate'
cnot+a	cnót	cnot+a	cnot+ów	'virtue'

As (13) shows, the problem does not exist in Kurpian because the nouns are feminine and, consequently, they take the ending *-ów* in the gen.pl. rather than a zero ending, as in Standard Polish.

Finally, in the class of masculine nouns, Standard Polish, but not Kurpian, displays an irregular behaviour of the following words.

(14) *Standard Polish*		*Kurpian*		*gloss*
nom.sg.	*gen.sg.*	*nom.sg.*	*gen.sg.*	
powrót	powrot+u	powrot	powrot+u	'return'
nawrót	nawrot+u	nåwrot	nåwrot+u	'relapse'
przewrót[10]	przewrot+u	przewrot	przewrot+u	'coup'

The problem is that the alternation occurs before a voiceless consonant, which is not the environment for Final Tensing. This problem does not exist in Kurpian because the vowel is invariably [ɔ] and does not alternate with [o].

When Kurpian [o] is found before a voiceless consonant, it is predictably non-alternating. The examples here are the words *bót* 'shoe' (nom.sg.) – *bót+y* (nom.pl.) and *skrót* 'abbreviation' (nom.sg.) – *skrót+y* (nom.pl.). It should be

[9] A reviewer points out that the 'positive exceptions' are limited to the instances of *o* followed by a stop consonant, but this generalization is not fully systematic since we have *o* [ɔ] rather than *ó* [o] in, for example, *szop+a* 'shed' (nom.sg.) – *szop* (gen.pl.) and *głupot+a* 'nonsense' (nom.sg.) – *głupot* (gen.pl.).

[10] On the other hand, the word *zwrot* 'refund', whose structure is parallel to that of the words in (14), has [ɔ] in Standard Polish, as would be expected before a voiceless consonant.

added that restructuring to underlying //o//, and hence the absence of alternations, has occurred also with some words that end in a voiced consonant.

	Kurpian		*gloss*
(15)	*nom.sg.*	*gen.sg.*	
	król	król+a	'king'
	ból	ból+u	'pain'
	chór	chór+u	'choir'
	scegół	scegół+u	'detail'

The restructuring in (15) is true for both Standard Polish and Kurpian but the parallel is not always exact. Specifically, the feminine noun *łódź* 'boat' shows an alternation in Standard Polish but not in Kurpian: *łódź* (nom.sg.) – *łodź+i* (gen.sg.) in Standard Polish but *łódź* (nom.sg.) – *łódź+ï* (gen.sg.) in Kurpian.

The discussion thus far can be summarized as the following rule that supersedes rule (9).

(16) Final Tensing (second approximation)
ɔ → o / —— [+voiced] #

The rich system of Kurpian vowels provides an opportunity for Final Tensing to affect vowels other than //ɔ//. The data in (17) show that lax [ɛ] alternates with tense [e] in exactly the same context in which lax [ɔ] alternates with tense [o].

(17) [ɛ] – [e] alternation

	gen.sg.	*nom.sg.*	*gloss*
a. *masculine*	chleb+a	chléb	'bread'
	śńeg+u	śńég	'snow'
	brzeg+u	brzég	'shore'
	śledź+a	ślédź	'herring'
	krzew+u	krzéw	'bush'
	cel+u	cél	'aim'
	przyjåćel+a	przyjåćél	'friend'
	łobywåtel+a	łobywåtél	'citizen'
	klej+u	kléj	'glue'
	złodźej+a	złodźéj	'thief'
	ćńel+a	ćńél	'humble-bee'
b. *feminine*	gołoledź+ï	gołolédź	'slickness'
	ńedź+ï	ńédź	'copper'
	kolej+ï	koléj	'railway'
	kąpśel+y	kąpśél	'bath'
	gårdźel+y	gårdźél	'throat'

The alternation is productive with borrowings.

(18) *gen.sg.*	*nom.sg.*	*gloss*
pasazer+a	pasazér	'passenger'
Norweg+a	Norwég	'Norwegian' (N)
Śwed+a	Śwéd	'Swede'

I conclude that Final Tensing turns //ɛ// into [e] in (17) and (18).

Some words have restructured their underlying representation and now have underlying //e// where there was //ɛ// at an earlier historical stage. Predictably, these words do not exhibit alternations.

(19) underlying //e//

	nom.sg.	*gen.sg.*	*gloss*
a. *masculine*	chléw	chléw+a	'pigsty'
	zléw	zléw+u	'sink'
	jéz	jéz+a	'hedgehog'
	rycérz	rycérz+a	'knight'
	påćérz	påćérz+a	'prayer'
	sér	sér+a	'cheese'
	kawalér	kawalér+a	'bachelor'
	kołńérz	kołńérz+a	'collar'
	paśérzb	paśérzb+a	'step-son'
	grdél	grdél+a	'hooligan'
b. *feminine*	rzéź	rzéź+ï	'slaughter'
	zérdź	zérdź+ï	'perch'

As would be expected, Final Tensing does not apply before voiceless consonants.

(20)	*gen.sg.*	*nom.sg.*	*gloss*
a. *masculine*	sklep+u	sklep	'store'
	kotlet+a	kotlet	'chop'
	kret+a	kret	'mole'
	proces+u	proces	'process'
	człźek+a	człźek	'man'
	prejzes+a	prejzes	'chairman'
b. *feminine*	rzec+y	rzec	'thing'
	ćec+y	ćec	'liquid'

As was the case with [o], if tense [e] occurs before a voiceless consonant, then it is predictably non-alternating, and hence is part of the underlying representation.

(21)	*nom.sg.*	*gen.sg.*	*gloss*
a. *masculine*	grzéch	grzéch+u	'sin'
	grzbźét	grzbźét+a	'back'
	lék	lék+u	'drug'
	mléc	mléc+a	'dandelion'
	klésc	klésc+a	'tick'
b. *feminine*	śéć	śéć+ï	'net'

There is a systematic class of exceptions to Final Tensing exemplified in (22).

(22) *nom.sg.*	*nom.pl.*	*gloss*
chaber	chabr+y	'cornflower'
ceber	cebr+y	'pail'
świager	świagr+y	'brother-in-law'
źïcher	źïchr+y	'wind'
meter	metr+y	'meter'
kubeł	kubł+y	'bucket'
wężeł	wężł+y	'knot'
lew	lw+y	'lion'
bez	bz+y	'lilac'
bąbel	bąbl+e	'blister'
kómpel	kómpl+e	'pal'
kartofel	kartofl+e	'potato'

The vowel in the final syllable of the nom.sg. forms is [ɛ] rather than [e], even though the environment of Final Tensing is met: the words end in a voiced consonant. The [ɛ] vowels that fail to undergo Final Tensing are identified by a common property: they alternate with zero, as shown by the nom.pl. forms, for example, *chaber* (nom.sg.) – *chabr+y* (nom.pl.).

The pattern of *e* – zero alternations is well known in Slavic languages. The alternating *e* is called a yer.[11] The generalization exhibited in (22) can therefore be stated as follows.

(23) Yers do not undergo Final Tensing.

In sum, with the exception of yers, the pattern of [ɛ] – [e] alternations parallels that of [ɔ] – [o] alternations and hence is derivable via Final Tensing. Consequently, the rule must be extended to allow //ɛ// as an input.

Final Tensing affects also //a// as an input, yielding [ɑ] as the output, as the following examples document.

[11] See Section 3, points (44) and (45), for further discussion of the yers.

(24)	*gen.sg.*	*nom.sg.*	*gloss*
	[a]	[ɑ]	
a. *masculine*	gad+a	gåd	‘reptile’
	dźad+a	dźåd	‘old man’
	sąśad+a	sąśåd	‘neighbour’
	staw+u	ståw	‘pond’
	sad+u	såd	‘orchard’
	raz+u	råz	‘time’
	pokaz+u	pokåz	‘show’
	schab+u	schåb	‘pork’
	pokład+u	pokład	‘layer’
	dar+u	dår	‘gift’
	gar+a	går	‘pot’
	kawał+u	kawåł	‘joke’
	kraj+u	kråj	‘country’
	zwycaj+u	zwycåj	‘custom’
	łobraz+a	łobråz	‘picture’
	maj+a	måj	‘May’
	targ+u	tårg	‘market’
	skarb+u	skårb	‘treasure’
b. *feminine*	kadź+ï	kådź	‘barrel’
	stal+y	stål	‘steel’

The generalization extends to borrowings.

(25)	*nom.pl.*	*nom.sg.*	*gloss*
	dular+y	dulår	‘dollar’
	morał+y	morål	‘moral’
	standard+y	standård	‘standard’

Predictably, there is no tensing before a voiceless consonant.

(26)	*gen.sg.*	*nom.sg.*	*gloss*
	cas+u	cas	‘time’
	kat+a	kat	‘hangman’
	mak+u	mak	‘poppy’
	strach+u	strach	‘fear’

Furthermore, in parallel to [ɔ] – [o] and [ɛ] – [e], if there is [ɑ] before a voiceless consonant, then it does not alternate, that is, it is an underlying //ɑ//.

(27)	*nom.sg.*	*gen.sg.*	*gloss*
	krzåk	krzåk+a	'bush'
	håk	håk+a	'hook'
	ptåk	ptåk+a	'bird'
	pśåch	psåch+u	'sand'
	Tómås	Tómås+a	'Thomas'
	buråk	buråk+a	'beetroot'
	légåt	légåt+a	'lazy person'

Some words have restructured with //ɑ//, even though they end in a voiced consonant.

(28)	*nom.sg.*	*gen.sg.*	*gloss*
	bål	bål+a	'log'
	gospodårz	gospodårz+a	'host'
	kowål	kowål+a	'blacksmith'
	bår	bår+u	'bar'
	strzał	strzał+u	'shot'
	sygnał	sygnał+u	'signal'
	gëneråł	gëneråł+a	'general'
	korål	korål+a	'bead'
	sål	sål+u	'shawl'
	Śwåb	Śwåb+a	'German' (N; pejorative)
	hektår	hektår+a	'hectare'

To summarize, Final Tensing affects not only //ɔ// and //ɛ// but also //a// when they occur before a voiced consonant at the end of the word.

A reviewer draws my attention to the fact that Final Tensing stated as a general process would have the consequence of predicting that vowels are tensed not only in the nom.sg., as documented in (6–7), (11), (17–18), and (24–25), but also in the imperative form of the verb if the verb ends in a voiced consonant. I do not know if this prediction is borne out because I have no data on imperative forms. Consequently, I limit the statement of Final Tensing to the nominative singular case. The statement in (16) is now replaced with the one below.[12]

(29) Final Tensing (final version)
ɔ ɛ a → o e ɑ / —— [+voiced] # in the nominative singular

Final Tensing is a descendant of Final Lengthening, a rule that operated in Old Polish. The rule lengthened vowels before word-final voiced obstruents

[12] There is unclarity regarding *a* before a final nasal. On the one hand, I have noted the alternation between [a] and [o] in *baran+a* 'ram' (gen.sg.) – *barón* (nom.sg.) and *Jedam+a* 'Adam' (gen.sg.) – *Jedóm* (nom.sg.). On the other hand, I did not find this alternation in *cham* 'cad', *bałagan* 'mess' and *drań* 'scoundrel'. Clearly, this matter requires further investigation.

and sonorants. As noted by Stieber (1973), the evidence is based on a treatise on Polish spelling written by Jakub, son of Parkosz, in the mid 15th century. Parkosz systematically doubles vowels in the contexts that correspond to Final Tensing (29), so Parkosz's long vowels correspond to Kurpian tense vowels.

(30) *15th c. Polish*	*Modern Kurpian*	*gloss*
roog	róg	'horn'
meedz	ńédź	'copper'
gaad	gåd	'reptile'

According to Stieber, long *oo* and *ee* were "narrower" than short *o* and *e* while long *aa* "was articulated farther back than short *a*" (Stieber 1973: 78). This description fits well the facts of Modern Kurpian, so the long vowels in (30) must have been tense [o: e: ɑ:] while the short vowels must have been lax [ɔ ɛ a], exactly as attested in today's Kurpian.[13]

3. Analysis

This section provides an analysis of Final Tensing in terms of Derivational Optimality Theory.

Rephrased as a constraint, Final Tensing is stated as follows.

(31) Final Tensing (FIN-TENSING): No lax vowels before a word-final voiced segment in the nominative singular.

Looking at //ɔ//, FIN-TENSING[14] is violated if it finds [ɔ] in the final syllable of the word ending in a voiced consonant, as in the candidate [bɔr], from underlying //bɔr// *bór* 'forest'. The satisfaction of FIN-TENSING can take several guises, of which the desired output [bor] is only one possibility. Underlying //ɔ// may change to [u], [e] or [ɑ], all of which are [+tense]. To ban these changes, we appeal to the faithfulness constraints in (32).

(32) a. IDENT[–high]: [–high] on the input segment must be preserved as [–high] on an output correspondent of that segment.
b. IDENT[–low]: [–low] on the input segment must be preserved as \ [–low] on an output correspondent of that segment.

[13] A reviewer adds that lax–tense alternations are found not only in Kurpian but also in other dialects of Polish.

[14] The high vowels [i] and [ɨ], which are lax in Kurpian, are exempted from the effects of this constraint by an IDENT constraint that mandates the preservation of [±tense] on high vowels.

c. IDENT[+back]: [+back] on the input segment must be preserved as [+back] on an output correspondent of that segment.
d. IDENT[–tense]: [–tense] on the input segment must be preserved as [-tense] on an output correspondent of that segment.

The constraints in (32) are undominated except for IDENT[–tense], which must be ranked below FIN-TENSING, so that FIN-TENSING can have an effect. This is illustrated in (33), where I look at *bór* 'forest' (nom.sg.), underlying //bɔr//, where //ɔ// is lax because of the alternation in *bor+u* [bɔr+u] (gen.sg.). The icon ☞ shows the winning candidate.

(33) //bɔr// → [bor]

	ID[–low]	ID[–high]	ID[+back]	FIN-TENSING	ID[–tense]
a. bɔr				*!	
☞ b. bor					*
c. bur		*!			*
d. ber			*!		*
e. bɑr	*!				*
f. bər				*!	

The faithfulness constraints IDENT[–low] and IDENT[–high] restrict the response to FIN-TENSING by allowing only mid vowels as acceptable output candidates. IDENT[+back] narrows down the response further by excluding front vowels. The effect is that the system must choose one of the back mid vowels as optimal, so the choice is between [ɔ], [ɘ] and [o]. The former two violate FIN-TENSING, so the candidate containing [o] is the optimal output, the correct result.

The evaluation of //ɛ// → [e], as in *cél* 'aim', is parallel to that in of //ɔ// → [o] in (33) except that IDENT[–back] rather than IDENT[+back] is the relevant constraint. IDENT[–back] restricts the choice to [ɛ] and [e], and FIN-TENSING picks [e] as optimal, exactly as desired.

The evaluation of //a// → [ɑ], as in *dår* 'gift' runs in a similar way, but the relevant constraint is IDENT[+low] rather than IDET[–low]. IDENT[+low] restricts the choice of the vowel in the optimal output to [a] and [ɑ] since these are the only low vowels in Kurpian. FIN-TENSING selects [ɑ] because [a] is [–tense].

(34) //dar// → [dɑr]

	IDENT[+low]	FIN-TENSING	IDENT[–tense]
a. dar		*!	
☞ b. dɑr			*
c. dor	*!		*

An analysis of words that end in a voiced obstruent is problematic.

(35)	*gen.sg.*	*nom.sg.*	*gloss*
a.	kot+a [kɔt+a]	kot [kɔt]	'cat'
	sklep+u [sklɛp+u]	sklep [sklɛp]	'store'
	bat+a [bata+a]	bat [bat]	'whip'
b.	wrog+a [vrɔg+a]	wróg [vrok]	'enemy'
	chleb+a [xlɛb+a]	chléb [xlep]	'bread'
	gad+a [gad+a]	gåd [gɑt]	'reptile'

A comparison of (35a) and (35b) shows that Kurpian has Final Devoicing rather than Intervocalic Voicing because obstruents contrast in voicing intervocalically: [vrɔg+a] 'enemy' (gen.sg.) – [kɔt+a] 'cat' (gen.sg.). Therefore, the underlying representation of *wróg* 'enemy' contains //g//, and Final Devoicing derives [k] in [vrok].

The problem is that Final Devoicing wipes out the context for Final Tensing. The data in (35a) make it clear that Final Tensing does not apply before voiceless consonants, so the final consonants in (35b) must be voiced at the derivational stage at which Final Tensing takes effect. This is a problem for standard OT because the theory adheres to the principle of strict parallelism that excludes any form of derivation (Prince and Smolensky 2004, McCarthy and Prince 1995).

A formal analysis of the data in (35b) needs to be prefaced with a clarification of how Final Devoicing is analysed in OT. The current analysis, due to Rubach (2008), is to derive Final Devoicing from the interaction of presonorant faithfulness and the feature inventory constraint *[+voice].

(36) a. IDENT[+voice]$_{\text{Presonorant}}$: [+voice] on the input segment must be preserved as [+voice] on an output correspondent of that segment before a sonorant.

b. IDENT[+voice]: [+voice] on the input segment must be preserved as [+voice] on an output correspondent of that segment.

c. *[+voice]: No [+voice] on an obstruent.

In order for Final Devoicing to have an effect, IDENT[+voice] that prohibits devoicing must be ranked lower than *[+voice] that bans the retention of [+voice] on an obstruent. The tableau in (37) evaluates the word *cud* [ʦut] 'miracle', underlying //ʦud//. Note the occurrence of [d] in the gen.sg. form *cud+u* [ʦud+u].

(37) //ʦud// → [ʦut]

	*[+voice]	IDENT[+voice]
a. ʦud	*!	
☞ b. ʦut		*

The peril that the constraint ranking in (37) wipes out all voiced obstruents in the surface representation is eliminated by IDENT[+voice]$_{\text{Presonorant}}$. Ranked above *[+voice], IDENT[+voice]$_{\text{Presonorant}}$ extends its protection to all obstruents that are before sonorants, so the //b// in *brud* [brut] 'dirt' (compare the gen.sg. *brud+u* [brud+u]) cannot be realized as [p] in the optimal candidate.

(38) //brud// → [brut]

	IDENT[+voice]$_{\text{Presonorant}}$	*[+voice]	IDENT[+voice]
a. brud		**!	
b. prud	*!	*	*
c. prut	*!		**
☞ d. brut		*	*

Returning to Final Devoicing shown by the examples in (35b), the problem is that standard OT cannot deliver the correct result, a fact made clear by the analysis *wróg* 'enemy' in (39). I omit the candidates that circumvent Final Tensing by changing //ɔ// to non-mid or front vowels. The undesired winner is marked by ☜ and the sad face icon ☹ shows the desired winner.

(39) //vrɔg// → [vrok] (failed evaluation)

	ID[+voice]$_{\text{Presonor}}$	*[+voice]	ID[+voice]	FIN-TENSING	ID[–tense]
a. vrɔg		**!		*	
b. vrog		**!			*
☜ c. vrɔk		*	*		
d. frok	*!		**		*
☹ e. vrok		*	*		*!

The result is incorrect because [vrok] rather than *[vrɔk] is the attested surface form. Notice that there is no way of repairing the evaluation by manipulating the ranking of the constraints. The reason is that the desired winner, [vrok], has a superset of the violations of the undesired winner, [vrɔk]: they both violate *[+voice] and IDENT[+voice] but [vrok], additionally, violates IDENT [–tense].

The problem encountered by standard OT presents no difficulty for Derivational Optimality Theory (DOT, henceforth), whose founding assumption is the tenet that phonological evaluation proceeds in steps (Kiparsky 1997, 2000; Rubach 1997, 2000a, 2000b, and others). In particular, the theory recognizes three levels of evaluation: the stem level, the word level and the sentence level called the postlexical level.[15] Each level constitutes a miniphonology, with its own inputs, outputs and constraint ranking. The winning candidate from level 1 constitutes the input to level 2 and, by the same logic, the winning candidate from level 2 is the input to level 3. The set of constraints is the same at all levels, but their ranking may be different. The default principle is that the ranking is inherited from the earlier level and the reranking is kept to the minimum motivated by the data (Rubach 2000a).

DOT solves the opacity in the interaction between Final Tensing and Final Devoicing by assuming that these processes are active at different levels. Specifically, Final Tensing takes effect at level 1 at which Final Devoicing is kept in check by IDENT[+voice] that is ranked above *[+voice].

(40) Level 1: //vrɔg// → /vrog/

	ID[+voice]$_{\text{Presonor}}$	ID[+voice]	*[+voice]	FIN-TENSING	ID[–tense]
a. vrɔg			**	*!	
☞ b. vrog			**		*
c. vrɔk		*!	*		
d. frok	*!	**			*
e. vrok		*!	*		*

The winner from level 1, /vrog/, is the input to level 2. IDENT[+voice] is now reranked below *[+voice], inducing Final Devoicing.

[15] Rubach (2011) argues that DOT must be extended to include a fourth level: the clitic level.

(41) Level 2: /vrog/ → [vrok]

	ID[+voice]$_{\text{Presonor}}$	*[+voice]	ID[+voice]	FIN-TENSING	ID[–tense]
a. vrog		**!			
☞ b. vrok		*	*		
c. frok	*!		**		

The candidates [vrɔg] and [vrɔk], not considered in (41), are excluded by IDENT[+tense].

(42) IDENT[+tense]: [+tense] on the input segment must be preserved as [+tense] on an output correspondent of that segment.

As shown in (41), the input to level 2 is /vrog/, with tense /o/ and not with lax /ɔ/. Therefore, candidates containing [ɔ] violate IDENT[+tense]. In addition, [vrɔg] violates FIN-TENSING because it has lax [ɔ] before a word-final voiced consonant. The complete evaluation for /vrog/ → [vrok] at level 2 is now as follows. In (43), I omit IDENT[–tense] because the input has a [+tense] vowel, so this constraint has no force.

(43) Level 2: /vrog/ → [vrok]

	ID[+voice]$_{\text{Presonor}}$	*[+voice]	ID[+voice]	FIN-TENSING	ID[+tense]
a. vrog		**!			
☞ b. vrok		*	*		
c. frok	*!		**		
d. vrɔg		**!		*	*
e. vrɔk		*	*		*!

The winner [vrok] is the attested surface form, so the evaluation in (43) is correct. An analysis of the remaining two alternations, //ɛ// → [e] and //a// → [ɑ], is entirely parallel to that presented for //ɔ// → [o], so need not be repeated here.

A two-level analysis of the Final Tensing data is corroborated by the behavior of yers exemplified in (22) in Section 2. Recall that yers escape Final Tensing and surface with lax [ɛ] rather than with tense [e], as in *chabry* 'cornflower' (nom.pl.) – *chaber* [xabɛr] (nom.sg.). Listing words such as *chaber* as exceptions to Final Tensing is not acceptable because a significant generalization would be missed: the "exceptions" are all yers. To capture this generalization, we need to discover the property that distinguishes yers from other vowels and

that can be assumed to be responsible for the special behavior of yers *vis-à-vis* Final Tensing.

The currently widely accepted analysis, due to Rubach (1986) and Kenstowicz and Rubach (1987), assumes that yers are floating melodic segments in the underlying representation, that is, segments that lack a mora (moraic skeletal theory) or an X-slot (X-slot skeletal theory). The analysis is that yers that receive a mora (or an X-slot) by Yer Vocalization surface phonetically as [ɛ] because they become full vowels. All other yers, that is, the yers that remain floating segments, delete context-freely.

The details of this analysis need not concern us here.[16] The only relevant observation is that yers are represented as moraless vowels. Being moraless, yers cannot constitute syllable nuclei and it is this deficiency that makes them invisible to Final Tensing.

The success of this scenario rests upon the assumption that the analysis proceeds in steps. At level 1, Yer Vocalization (a constraint or constraints that induce the addition of a mora) is ranked low, so the optimal output is the candidate that contains a yer. This candidate wins because moraless vowels are not within the purview of Final Tensing. At level 2, yers vocalize, that is, receive a mora, but Final Tensing is not active at this level. Specifically, tensing is thwarted by the fact that IDENT-V[–tense] is reranked above Final Tensing, which means that candidates that have tensed their vowels cannot win in the evaluation.

This reasoning is illustrated in (44), where I look at the derivation of *chaber* 'cornflower'. Following the established tradition, I transcribe the moraless yer [ɛ] as the capital letter //E//. The constraint that militates against Yer Vocalization (the insertion of a mora) is DEP-μ (don't insert a mora). Since the desired winner at level 1 is the candidate containing a yer rather than the vocalized full vowel [ɛ], DEP-μ must outrank Yer Vocalization.

(44) Level 1: //xabEr// → /xabEr/ (no change)

	FIN-TENSING	DEP-μ	IDENT[–tense]	YER VOC
☞ a. xabEr				*
b. xabɛr	*!	*		
c. xaber		*!	*	

At level 2, yers are vocalized, so DEP-μ is reranked below YER VOC. The attested surface form, [xabɛr], violates FIN-TENSING, but this violation is irrelevant because IDENT[–tense] has been reranked above FIN-TENSING.

[16] For discussion, see Yearley (1995) and Rubach (2013).

(45) Level 2: /xabEr/ → [xabɛr]

	IDENT[–tense]	YER VOC	FIN-TENSING	DEP-μ
a. xabEr		*!		
☞ b. xabɛr			*	*
c. xaber	*!			*

The result is correct since [xabɛr] is the attested surface form.

4. Conclusion

Unlike Standard Polish, Kurpian exhibits a productive process of Final Tensing. Mid and low vowels [ɛ ɔ a] alternate with [e o ɑ]. The tense vowels occur before a voiced consonant (an obstruent or a sonorant) at the end of the word. The process operates not only in words of native stock but also in borrowings.

Final Tensing is not surface-true because it exhibits two kinds of opacity. First, it applies to words that undergo Final Devoicing that destroys the context for tensing (the occurrence of a voiced consonant). Second, yers systematically fail to undergo Final Tensing and surface with lax vowels before voiced consonants at the end of the word. Both of these types of opacity are readily accounted for in Derivational Optimality Theory by postulating that Final Tensing is active at level 1 while Final Devoicing and Yer Vocalization operate at level 2.

References

Beckman Jill N., Dickey Laura Walsh, Urbanczyk Suzanne (eds.) (1995). *Papers in Optimality Theory* [University of Massachusetts Occasional Papers in Linguistics 18]. Amherst, Massachusetts: Graduate Linguistic Student Association.

Dejna Karol (1973). *Dialekty polskie*. Wrocław: Zakład Narodowy im. Ossolińskich.

Friedrich Henryk (1955). *Gwara kurpiowska. Fonetyka*. Warszawa: Państwowe Wydawnictwo Naukowe.

Kenstowicz Michael, Rubach Jerzy (1987). The phonology of syllabic nuclei in Slovak. *Language* 63, 463–497.

Kiparsky Paul (1997). LP and OT. Handout. Cornell Linguistic Institute, Ithaca, N.Y.

Kiparsky Paul (2000). Opacity and cyclicity. *The Linguistic Review* 17, 351–365.

McCarthy John J., Prince Alan (1995). Faithfulness and reduplicative identity. In Beckman, Dickey, Urbanczyk (eds.), 249–384.

Prince Alan, Smolensky Paul (2004). *Optimality Theory: Constraint Interaction in Generative Grammar*. Oxford: Blackwell. [Revision of 1993 technical report, Rut-

gers University Center for Cognitive Sciences. Available on Rutgers Optimality Archive, ROA-537.]
Rubach Jerzy (1986). Abstract vowels in three-dimensional phonology: the yers. *The Linguistic Review* 5, 247–280.
Rubach Jerzy (1997). Extrasyllabic consonants in Polish: Derivational Optimality Theory. In *Derivations and Constraints in Phonology*, Iggy Roca (ed.), 551–581. Oxford: Oxford University Press.
Rubach Jerzy (2000a). Glide and glottal stop insertion in Slavic languages: A DOT analysis. *Linguistic Inquiry* 31, 271–317.
Rubach Jerzy (2000b). Backness switch in Russian. *Phonology* 17, 39–64.
Rubach Jerzy (2008). Prevocalic faithfulness. *Phonology* 25, 1–36.
Rubach Jerzy (2009). *Zasady pisowni kurpiowskiego dialektu literackiego*. Ostrołęka: Związek Kurpiów.
Rubach Jerzy (2011). The vocalic system of Kurpian. *Studies in Polish Linguistics* 6, 81–98.
Rubach Jerzy (2013). Exceptional segments in Polish. *Natural Language and Linguistic Theory* 31, 1139–1162.
Stieber Zdzisław (1973). *A Historical Phonology of the Polish Language*. Heidelberg: Carl Winter.
Wood Sidney A. J. (1975). Tense and lax vowels – degree of constriction or pharyngeal volume? *Working Papers in Linguistics* 1, 109–134.
Yearley Jennifer (1995). Jer vowels in Russian. In Beckman, Dickey, Urbanczyk (eds.), 533–571.
Zduńska Helena (1965). *Studia nad fonetyką gwar mazowieckich. Konsonantyzm*. Wrocław: Zakład Narodowy im. Ossolińskich.

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