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The Vocalic System of Kurpian

Abstract
This article presents the vowel system of Kurpian, a dialect of Polish spoken in northern Poland. The data come from the fieldwork that I conducted in Kurpia over a period of many years. Kurpian has a much richer system of vowel contrasts than Standard Polish, with three high vowels, five mid vowels and two low vowels. While in most contexts these vowels are contrastive, there are also contexts in which they can be derived by general processes of Kurpian. Two such processes are discussed here: Nasal Tensing and Nasal Backing. They are analysed in terms of Optimality Theory.[1]

Keywords:
Kurpian phonology, vowels, Optimality Theory, Polish dialects, Polish phonology

Streszczenie
System wokaliczny dialektu kurpiowskiego
Niniejszy artykuł omawia system samogłoskowy dialektu kurpiowskiego. Przedstawione dane pochodzą z prowadzonych przeze mnie badań terenowych na Kurpiach w okresie ostatnich ośmiu lat. Artykuł dowodzi, że system wokaliczny kurpiowszczyzny jest znacznie bogatszy od systemu wokalicznego języka ogólnopolskiego i obejmuje dziesięć samogłosek będących segmentami kontrastywnymi w fonologicznej strukturze głębokiej. Charakter alofoniczny mają jedynie dwie samogłoski średnie i to tylko w kontekście przed spółgłoskami nosowymi. Samogłoski te da się opisać za pomocą bezwyjątkowych reguł dystrybucyjnych, które określam jako reguły ścieśnienia i cofnięcia. Przedstawione w artykule generalizacje opisowe są poddane analizie fonologicznej w ramach teorii optymalności.

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

Kurpians are a community of about 70 thousand people living in the northeastern part of Poland.[2] The biggest town is Ostrołęka, which is the administrative centre, but the real ethnic capital of Kurpia is a smaller town called Myszyniec.

[1] I am grateful for helpful criticism and the improvements suggested in the revieweing process.
[2] While I owe a debt of gratitude to all of my Kurpian native speaker consultants (see footnote 3), I am particularly grateful to Tadeusz Grec and Stanisław Sieruta, with whom I worked most closely and more than with anybody else and from whom I learned more than from anybody else.

The settlement of the region that was later called *Kurpie* 'Kurpia' began in the second half of the 16th century. The villages were the property of the king, and Kurpians were never serfs bound to the land. They have always considered themselves as a separate ethnic group with their own traditions and speech.

In communist Poland, after the Second World War, the policy of the government was to eradicate the Kurpian dialect as an uneducated and shameful variety of Polish. This policy enforced Standard Polish in all public institutions, especially in schools. Towards this end, teachers were brought from outside the Kurpian area and students were given failing grades when they used Kurpian. The destruction of the dialect was massive. Today Kurpian is spoken only in villages and not in towns. The people who can speak it in a reliably native way are all more than seventy years old and most of them never had more than an incomplete elementary education. On the other hand, educated younger Kurpians who make an effort to speak the dialect are native speakers of Standard Polish.

Since the fall of the communist system in 1989, Kurpia, like Kashubia, has been going through a renaissance of ethnic culture and language. Regional holidays have become festive celebrations, attracting many tourists. There are song and dance festivals, recital and story-telling competitions, and so forth. In the past few years, schools have begun teaching folklore courses. While most of the attention is focused on songs, dances and attire, in some schools an endeavor is made to teach the Kurpian dialect.

There is much enthusiasm in Kurpia to revitalize the language. This is particularly true for the middle age generation who remember how Kurpian was spoken at home and have intuitions regarding what would constitute the correct pronunciation. The revitalization effort has until now been hampered by the fact that Kurpian, like other dialects of Polish, cannot be written. In spite of this problem, some, for example, Ceberek (2003), have attempted to write Kurpian using the orthography of Standard Polish. The difficulty here is that the sound system of Kurpian is significantly different from that of Standard Polish, so much of the information is distorted or simply lost. This is exactly what Ceberek complained about when I interviewed him a few years ago. Some other Kurpians, for example, Tadeusz Grec, a poet and a teacher, have simply refused to write Kurpian using the Standard Polish orthography because they have judged that the distortions are too significant to tolerate.

I became interested in Kurpian eight years ago. The more I worked on this dialect, the more fascinating this work was because I was discovering that the phonological system of Kurpian is significantly different from that of Standard Polish. I conducted a large number of interviews and made a large number of recordings.[3] This article reports on the findings regarding the vocalic system.

[3] I would like to thank the following native speaker consultants for their help with collecting the Kurpian data: Celina Bałdyga, Stanisława Bandzul, Zofia Bieńkowska, Stanisław Ceberek, Apolonia Cis, Kazimierz Cudnik, Leszek Czyż, Henryk Dąbrowski, Józef Dąbrowski, Michalina Dębowska, Antoni Dymerski, Władysława Dymerska, Józef Dziczek, Irena Górska, Stefania Górska, Zofia Górska, Zofia Grądzka, Tadeusz Grec, Helena Gwiazda, Władysław Gwiazda, Stanisława Hajduk, Czesława Kaczyńska, Alina Kulesza, Henryk Kulesza, Celina Kopeć, Danuta Kostewicz, Krystyna Koziatek,

Section 1 presents the system of vowels focusing on attested contrasts. Section 2 looks at two productive processes that govern the distribution of vowels. Section 3 offers an analysis of these processes in terms of Optimality Theory. Section 4 summarizes the conclusions.

1. The vowel system

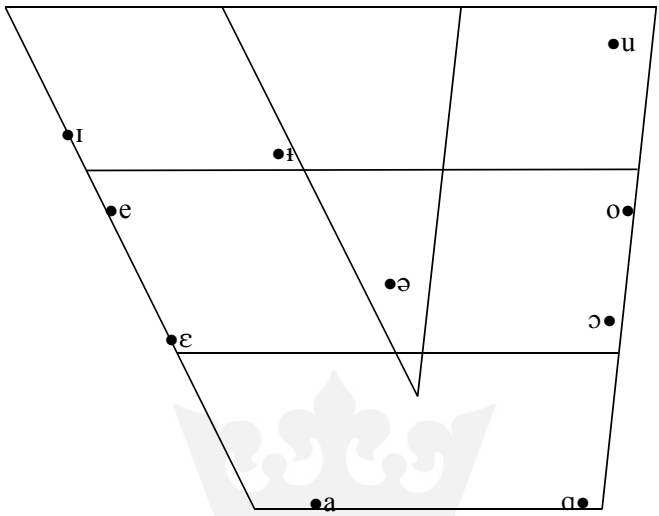
The literature on Kurpian phonology virtually does not exist. It is limited to one monograph and brief mentions in books on dialects of Polish. The monograph is *Gwara kurpiowska. Fonetyka* by Henryk Friedrich. Friedrich conducted a survey of the dialects spoken in various villages in Kurpia in the 1930's. He perished during the Second World War. The 1955 monograph (Friedrich 1955) is a posthumous publication of his fieldwork notes. The work before Friedrich, such as that of Nitsch (1923), and after Friedrich, such as that of Urbańczyk (1972), includes only a cursory treatment of Kurpian. All of the post-war work is, in fact, derivative from Friedrich (1955), for instance, Dejna (1993) and Zduńska (1965). Neither of these publications nor an independent study by Furdal (1955) shed any new light on Kurpian because they purport to present a wide range of Polish rural dialects and little attention is devoted to Kurpian itself. All of this literature on Kurpian can be characterized as prestructuralist.

In what follows, I report on the findings from my fieldwork in central and western Kurpia that I conducted in the following villages: Bandysie, Brzozowy Kąt, Brodowe Łąki, Charcibałda, Czarnia, Długie, Kadzidło, Lipniki, Oberwia, Olszyny, Pełty, Surowe, Wykrot, Zalas, Zaręby, and Zdunek. The vocalic system in these villages is uniform, even thogh the distribution of the specific vowels need not be. For example, in the Oberwia region, the word *Kurp* 'Kurpian' (noun) is pronounced [korpɛ̨], with tense [o], while elsewhere, it is pronounced [kurpɛ̨]. These distributional differences are small and insignificant because they have little or no bearing on the functioning of the phonological system. That is, the vowel system and the phonological rules are not affected by these differences.

In terms of the classic cardinal vowels diagram, the vocalic system of Kurpian can be characterized as follows.

Kazimierz Kozikowski, Stanisław Kuczewski, Witold Kuczyński, Irena Lis, Maria Luto, Grażyna Magdzińska, Hanna Małż, Józef Młynarczyk, Czesław Młynarski, Jadwiga Mocarska, Krystyna Mróz, Stanisław Mróz, Leopolda Murawska, Marianna Olszewska, Wiesława Olszewska, Jerzy Osowiecki, Teresa Pardo, Stanisław Pijanowski, Marianna Piórkowska, Stanisław Ploski, Stanisława Popielas, Stefania Prusaczyk, Stanisława Puchalska, Wanda Puchalska, Janina Pyśk, Maria Ruszczyk, Kamil Rydel, Eugenia Sielawa, Stanisław Sieruta, Franciszek Siok, Maria Siok, Marianna Siwik, Zofia Stachelek, Marianna Staśkiewicz, Lucyna Ścibek, Dorota Świder, Zofia Trzcińska-Parzych, Zofia Warych, Rozalia Witkowska, Janina Zachłowska, Celina Zera, and Weronika Zyśk.

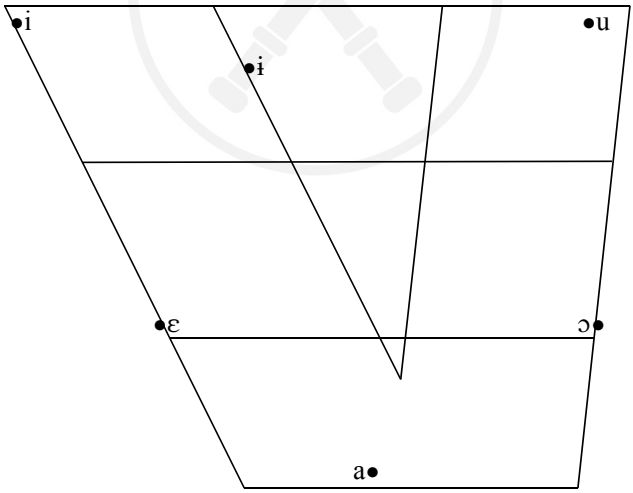
(1) Kurpian vowels



In addition, there are two mid nasal vowels that are represented in the spelling as *ę* and *ą*. The exact description of these vowels and their distribution call for further investigation and cannot be presented here.

The system in (1) is significantly different from that of Standard Polish. In (2), I show the diagram for Standard Polish vowels that I cite from Biedrzycki (1974: 28).

(2) Standard Polish vowels



As is clear from the comparison of (1) and (2), the Kurpian system is much richer than the Standard Polish system and includes ten rather than six vowels.

(3) a. Kurpian vowel system

ɪ	ɨ	u
e		o
ɛ	ə	ɔ
a		ɑ

b. Standard Polish vowel system

i	ɨ	u
ɛ		ɔ
	a	

A distinctive feature characterization of Kurpian vowels calls for the feature [±tense] in addition to the standard features [±high], [±low], [±back] and [±round]. According to Wood (1975), [±tense] is defined as a degree of constriction in the regions of hard palate, soft palate, upper pharynx, and lower pharynx. In this understanding, upper high, upper mid and backer low vowels are [+tense]. Other vowels are [-tense]. The crucial point is the distinction between backer low vowels, hence Kurpian [ɑ], and other low vowels, hence Kurpian [a]. The former is [+tense] whereas the latter is [-tense].

The distinction between [ɑ] and [a] cannot be made in terms of the feature [±advanced tongue root] ([±ATR], henceforth) because it divides the low vowels region into upper and lower, exactly as is the case with mid and high vowels. That is, upper high, upper mid and upper low vowels are [+ATR]. Other vowels are [–ATR]. The problem is that both Kurpian [ə] and Kurpian [ɑ] are [–ATR] in this classification. This poses two questions:
(i) What feature distinguishes [ɑ] from [a]?
(ii) Is it correct to group into the same natural class both [a] and [ɑ] with, for example, [ɛ] and [ɔ]? Such grouping is predicted by [±ATR] because all of these vowels are classified as [–ATR].

If [a] and [ɑ] are both [–ATR] and the feature [±tense] does not exist, the only way to distinguish these vowels is to use [±back]. Then, [ɑ] is [+back] and [a] is [-back]. The problem with this classification is that it makes the wrong prediction for Palatalization, a process that applies before front vowels, i.e., the vowels that are [-back]. The true front vowels trigger Palatalization but [a] does not, as the following examples show.

(4) sos [sɔs] 'sauce'
a. [sɔɕ+ɛ], loc.sg., [sɔɕ+ɪk], diminutive
b. [sɔs+u], gen.sg., [sɔs+of], gen.pl.
c. [sɔs+ax], loc.pl.

The data in (4a-b) show that Palatalization, *s* → ɕ, occurs before front vowels, [ɛ] and [ɪ] in (4a), but not before back vowels, [u] and [o] in (4b). This is exactly what would be expected of a palatalization process. The crucial observation is that [a] in (4c) aligns itself with the back vowels in (4b) in that it does not trigger Palatalization. I conclude that [a] must be classified as a [+back] rather than as a [-back] vowel. If this is so, then [±back] cannot distinguish between Kurpian [a] and [ɑ]. Since [±ATR]

cannot make this distinction either, it is [±tense] in the understanding proposed by Wood (1975) that is the appropriate feature for the classification of Kurpian vowels.

The same conclusion emerges from the behaviour of [a] and [ɑ] towards a process that tenses vowels in the last syllable of the word.[4]

(5)

gen.sg.	*nom.sg.*	*gloss*
stroj+u [strɔju]	strój [stroj]	'clothes'
klej+u [klɛju]	klej [klej]	'glue'
kraj+u [kraju]	kraj [krɑj]	'country'

The lax vowels [ɔ] and [ɛ] change into the tense vowels [o] and [e], respectively, and [a] changes into [ɑ]. If [a] is [-tense] and [ɑ] is [+tense], as proposed by Wood (1975), both the inputs and the outputs of this process form a natural class: non-high [-tense] vowels change into [+tense] vowels. I conclude that the use of [±tense] to distinguish between [a] and [ɑ] is supported phonologically.

The classification of the lax central high vowel [ɨ] and the lax central mid vowel schwa [ə] is not controversial, but the following comment makes the matter clear. Since all feature theories (for example, Chomsky and Halle (1968), Sagey (1986), Halle 1992, 1995, 2005, Halle, Vaux and Wolfe 2000, and others) use [±back] to define the front-back dimension in vowels, central vowels must be classified as either [-back] or [+back]. The decision is based on the phonological behaviour of these vowels *vis-à-vis* phonological rules. One piece of evidence comes from Palatalization.

The data in (6) show that the central vowels [ɨ] and [ə] do not trigger Palatalization.

(6) mas+a [mas+a] 'mass' (nom.sg.)
a. [maɕ+ɛ], loc.sg.: s → ɕ / — ɛ
b. [mas+ɨ], gen.sg., [mas+ə], acc.sg.

The absence of Palatalization in (6b) aligns [ɨ] and [ə] with back vowels, so they are properly characterized as [+back]. The distinction between [ɨ] and [u] as well as between [ə] and [ɔ] is made in terms of [±round], where [ɨ] and [ə] are [-round] while [u] and [ɔ] are [+round].[5]

The discussion just presented is summarized by the following feature chart for Kurpian vowels.

(7) Kurpian vowels

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

[4] The exact nature of this process requires further investigation.

[5] Additionally, Kurpian [ɨ] differs from [u] in tenseness: [ɨ] is [-tense] while [u] is [+tense].

Before I present examples showing vowel contrasts, I wish to digress and explain the principles of Kurpian orthography. I limit the discussion to the portion of the orthographic representation that is relevant for the examples used in the remainder of this article.

Rubach (2009) has introduced the following letters to represent Kurpian vowels.

(8) [ɪ] is the letter *ï*, as in *cïchy* 'quiet'
[ɨ] is the letter *y*, as in *ty* 'you'
[u] is the letter *u*, as in *tu* 'here'
[e] is the letter *é*, as in *rzéka* 'river'
[ɛ] is the letter *e*, as in *rzecz* 'thing'
[ə] is the letter *ë*, as in *masë* 'mass' (acc.sg.)
[o] is the letter *ó*, as in *góra* 'mountain'
[ɔ] is the letter *o*, as in *to* 'this'
[a] is the letter *a*, as in *tak* 'yes'
[ɑ] is the letter *å*, as in *pråwda* 'truth'[6]

The prepalatals [ɕ ʑ tɕ dʑ ɲ], called 'soft' consonants, are spelled uniformly by writing an accent over the letters *s, z, c, dz* and *n*.

(9) [ɕ] is *ś*, as in *śano* (Standard Polish *siano*) 'hay'
[ʑ] is *ź*, as in *źarno* (Standard Polish *ziarno*) 'grain'
[tɕ] is *ć*, as in *ćało* (Standard Polish *ciało)* 'body'
[dʑ] is *dź*, as in *dźådek* (Standard Polish *dziadek*) 'grandfather'
[ɲ] is *ń*, as in *ńebo* (Standard Polish *niebo*) 'sky'

The orthographic representations in (9) are the o n l y way to write soft consonants in Kurpian. This is a much simpler system than that of Standard Polish, where soft consonants are written in three different ways, as shown in (10).

(10) Soft consonants in Standard Polish orthography
a. Before a consonant or at the end of the word, the softness of consonants is marked as an accent over the letter:
struś [ɕ] 'ostrich', kość [ɕ] 'bone'
paź [ʑ] (actually [ɕ] due to Final Devoicing), groźba [ʑ] 'threat'
dać [tɕ] 'give', ćma [tɕ] 'moth'
łódź [dʑ] (actually [tɕ] due to Final Devoicing), dźgać [dʑ] 'poke'
drań [ɲ] 'rascal', hańba [ɲ][7] 'shame'

6 Given this spelling system, the words *klej* 'glue' and *kraj* 'country' cited earlier in (5) are written *kléj* and *kråj*, respectively.

7 The [ɲ] is decomposed into [jm] in all styles of speech except spelling pronunciation. For discussion, see Rubach (2008).

b. Before *i*, the softness of consonants is not marked at all:
*s*iny [ɕ] 'blue' *z*ima [ʑ] 'winter'
*c*ichy [tɕ] 'quiet' *dz*iwny [dʑ] 'strange'
*n*igdy [ɲ] 'never'
c. Before vowel letters other than *i*, the softness of consonants is indicated by the letter *i*, the so-called mute *i* because it is not pronounced:
*si*odło [ɕ] 'saddle' koz*i*oł [ʑ] 'goat'
*ci*asny [tɕ] 'narrow' *dzi*ura [dʑ] 'hole'
*ni*e [ɲ] 'no'

Since the orthographic system of Kurpian proposeded by Rubach (2009) marks the softness of consonants in one way only — by placing an accent over the letter – the examples in (10) are written uniformly as follows.

(11) a. stru*ś* ko*ść*
på*ź* groź*b*a
da*ć* *ć*ma
łó*dź* *dź*gać
dra*ń* ha*ń*ba
b. *ś*iny *ź*ima
*ć*ichy *dź*iwny
*ń*igdy
c. *ś*odło koź*o*ł
*ć*asny *dź*ura
*ń*e

The Kurpian system is superior to that of Standard Polish not only because it is simpler but also because it avoids ambiguity. In the Standard Polish system, words such as *sinus* 'sine' and *Zanzibar* 'Zanzibar' are exceptional in that the *s* and *z* before *i* do not correspond to the sounds [ɕ] and [ʑ], respectively. This exceptionality does not exist in Kurpian because the softness of consonants is represented uniquely by an accent over the letter and the words *sinus* and *Zanzibar* are written *sïnus* and *Zanzïbar*, without an accent, so it is clear that *s* and *z* do not stand for [ɕ] and [ʑ].

With this background, we return to the Kurpian vowel system. The vowels enumerated earlier in (3a) are all phonemes (underlying segments) because they occur in contrastive distribution, as shown by the following minimal or near minimal pairs.

(12) Vowel contrasts in Kurpian
a. [ɬ] — [ɪ]
wozy [vɔzɬ] 'carts' woźï [vɔʑɪ] 'he carries'
nosy [nɔsɬ] 'noses' nośï [nɔɕɪ] 'he bears'
rany [ranɬ] 'wounds' rańï [raɲɪ] 'he hurts'

b. [e] — [ɛ]

chléwy [xlevɬ] 'pigsties'	śpiewy [ɕpɕɛvɬ] 'singing'
grzéch [gʒex] 'sin'	strzecha [stʃɛxa] 'straw roof'
mléko [mlekɔ] 'milk'	deko [dɛkɔ] 'ten grams'

c. [ɛ] — [ə]

ńeśe [ɲɛɕɛ] 'he carries'	śë [ɕə] 'self'
zuje [zujɛ] 'he chews'	zujë [zujə] 'I chew'
bogate [bɔgatɛ] 'rich' (fem. nom.pl.)	chatë [xatə] 'house' (acc.sg.)

d. [u] — [o]

Bug [buk] (river name)	Bóg [bok] 'God'
lud [lut] 'people'	lód [lot] 'ice'
mur [mur] 'wall'	bór [bor] 'forest'

e. [ɔ] — [o]

chory [xɔrɬ] 'sick'	chóry [xorɬ] 'choirs'
pot [pɔt] 'sweat'	bót [bot] 'shoe'
pora [pɔra] 'season'	góra [gora] 'mountain'

f. [a] — [ɑ]

gada [gada] 'reptile' (gen.sg.)	gådå [gɑdɑ] 'he talks'
cas [tsas] 'time'	mås [mɑs] 'you have'
brat [brat] 'brother'	blåt [blɑt] 'top'

The vowels specific to Kurpian, [e o ɑ] as well as [ə] that I discuss in the next section, are not by any means marginal. They occur in many words and in many different contexts.

(13) a.

śćérka 'rag'	sérce 'heart'
młodźéz 'youth'	rycérz 'knight'
sér 'cheese'	rzéź 'slaughter'

b.

córka 'daughter'	bóść 'gore'
scegół 'detail'	król 'king'
ból 'pain'	skrót 'abbreviation'

c.

håk 'hook'	tråwa 'grass'
jå 'I'	pokårm 'food'
ptåk 'bird'	Kozåk 'Cossack'

The correspondence between Standard Polish vowels and Kurpian vowels is not predictable. This is obvious where Kurpian has more vowels in a given class than Standard Polish. Thus, in the class of mid non-round vowels, Kurpian has [e ɛ ə] while Standard Polish has only [ɛ]. In the class of back rounded vowels, Kurpian has [u o ɔ] while Standard Polish has [u ɔ], and in the class of low vowels, Kurpian has [a ɑ] while Standard Polish has only [a]. It would appear that the correspondence should obtain where the number of segments is the same in a given class. Thus, Kurpian has [ɪ ɨ u] and so does Standard Polish: [i ɨ u], so, for example, Standard Polish [i] should correspond to Kurpian [ɪ]. This may but need not be the case. The complexity in the system of vowel correspondences is illustrated in (14).

(14) Vowel correspondences: Standard Polish — Kurpian

a. [i] → [ɪ], [ɨ], [e], [o]

Standard Polish	*Kurpian*	*gloss*
cichy	ćïchy	‘quiet’
świst	świst	‘whistle’
piła	pśéła	‘saw’ (noun)
pił	pśół	‘he drank’

b. [ɨ] → [ɨ], [e], [o], [ə]

Standard Polish	*Kurpian*	*gloss*
ty	ty	‘you’
była	béła	‘she was’
był	ból	‘he was’
tymczasem	tëmcasëm	‘in the meantime’

c. [u] → [u], [o]

Standard Polish	*Kurpian*	*gloss*
cud	cud	‘miracle’
pułk	półk	‘regiment’

d. [ɛ] → [ɛ], [e], [ɪ], [ə], [a]

Standard Polish	*Kurpian*	*gloss*
deska	deska	‘board’
lek	lék	‘drug’
nie ma	ńï må	‘there isn’t’
potem	potëm	‘then’
jedzie	jadźe	‘he travels’

e. [ɔ] → [ɔ], [u], [o]

Standard Polish	*Kurpian*	*gloss*
to	to	'this'
skobel	śkubel	'staple'
koń	kóń	'horse'

f. [a] → [a], [ɑ], [o], [ɛ]

Standard Polish	*Kurpian*	*gloss*
tak	tak	'yes'
kowal	kowål	'blacksmith'
mam	móm	'I have'
jak	jek	'how'

In sum, there is no reliable way of "translating" Standard Polish vowels into Kurpian vowels, but this does not mean that it is not possible to state generalizations regarding Kurpian vowels. The problem is addressed in the following section.

2. Phonological processes

This section discusses two processes involving vowels that I call Nasal Tensing and Nasal Backing. A remarkable fact about these processes is that they are completely exceptionless, even though the changes that they induce are phonemic rather than allophonic, i.e., they involve underlying segments rather than non-contrastive surface segments. Because of their regularity, Nasal Tensing and Nasal Backing provide a key to the correspondences between Standard Polish vowels and Kurpian vowels. The key covers a large portion of the data, but not all the data, or else we would be looking at changes that are allophonic rather than phonemic. The focus of the discussion is on stating descriptive generalizations. A formal analysis is provided in section 3.

The words in (15) all have tense [o] before a nasal.

(15) a. dóm 'house' — gróm 'thunder'
dzwón 'bell' — plón 'crops'
kóń 'horse' — bróń 'arms'
b. dómu 'house'(gen.sg.) — strómy 'steep
bróna 'harrow' — postrónek 'rope'
kóńec 'end' — góńec 'runner'

c.	pómpa 'pump'	kómuńïsta 'communist'
	świadrón 'squadron'	kóncert 'concert'
	kónserwa 'tin'	mónstrancjå 'monstrance'

A comparison of (15a) and (15b) shows that the occurrence of [o] has nothing to do with syllable structure because [o] is found in both closed syllables (15a) and open syllables (15b). The words in (15c) demonstrate that [o] occurs regularly in borrowings, so the rule is fully productive. The generalization is stated schematically in (16).

(16) Nasal Tensing
ɔ → o / — [+nasal]

Nasal Tensing is a powerful generalization because, as mentioned before, it does not admit any exceptions whatsoever.

Since there are no alternations between [ɔ] and [o] in the pre-nasal context, the question is whether [o] is not simply present in the underlying representation. The answer is negative. Positing //o// rather than //ɔ// in (15) would miss a significant distributional generalization: first, the occurrence of [o] instead of [ɔ] before a nasal is entirely predictable and, second, [ɔ] is never found before a nasal, so we witness a distributional gap. The gap is explained if Nasal Tensing is recognized as a rule of Kurpian.

The occurrence of schwa in Kurpian is limited to two contexts: [ə] appears word-finally (17a) and before a nasal (17b). Word-final schwa corresponds to Standard Polish word-final nasal [ɛ̃], written *ę*.

(17)	*Standard Polish*	*Kurpian*	*gloss*
a.	pas*ę* [ɛ̃][8]	pas*ë* [ə]	'I graze'
	nog*ę* [ɛ̃]	nog*ë* [ə]	'leg' (acc.sg.)
	imi*ę* [ɛ̃]	jïńë [ə]	'name'
	si*ę* [ɛ̃]	*śë* [ə]	'self'
b.	pot*em* [ɛm]	pot*ëm* [əm]	'then'
	jed*en* [ɛn]	jed*ën* [ən]	'one'
	t*en* [ɛn]	t*ën* [ən]	'this'
	c*ień* [ɛɲ]	*ćëń* [əɲ]	'shadow'

The schwas in (17a) come historically from [ɛ̃] but they are oral vowels in Kurpian, with no trace of nasality whatever. They occur in contrastive distribution *vis-à-vis* other vowels, including [ɛ], as in *pas* + *ë* [pasə] 'I graze' – *paś* + *e* [paɕɛ] 'he grazes'. In sum, schwa is an underlying segment.

The situation is different before nasals: the absence of [ɛ] and [e] is conspicuous. This observation extends to recent borrowings.

[8] Actually, it is [ɛ̃w̃] rather than [ɛ̃], but I ignore this fact here. See Biedrzycki (1963) for discussion.

(18)	*Standard Polish*	*Kurpian*	*gloss*
	b*en*zyna [ɛn]	b*ën*zyna [ən]	'petrol'
	kom*en*da [ɛn]	kóm*ën*da [ən]	'police station'
	c*en*tralny [ɛn]	cëntralny [ən]	'central'
	s*en*s [ɛn]	s*ën*s [ən]	'sense'

The distributional evidence for the relationship between front mid vowels and schwa in pre-nasal contexts is strengthened by alternations.

(19) źé [ʑe] 'he knows' (Standard Polish *wie*)
źé+s [ʑe+s] 'you know' (Standard Polish *wie+sz*) BUT
źë+m [ʑə+m] 'I know' (Standard Polish *wie+m*)

In the present tense conjugation, the root of the verb 'know' is //ʑe//. The //e// changes into [ə] when the 1st person present tense suffix is added in *źë+m*: //ʑe+m// → [ʑəm].

To conclude, Kurpian has a rule that changes front mid vowels into schwa before nasals. Schematically:

(20) Nasal Backing
e ɛ → ə / — [+nasal]

Nasal Backing is completely productive and entirely exceptionless.

3. Analysis

This section provides an analysis of Nasal Tensing and Nasal Backing. The analysis is set in the framework of Optimality Theory (OT, henceforth; Prince and Smolensky 2004, McCarthy and Prince 1995). The task is to establish the interaction between the relevant faithfulness constraints and markedness constraints. The former prohibit disparity between the input (here: the underlying representation) and the output (here: the surface phonetic representation). The latter mandate that inputs must be changed to accommodate the demands of universal constraints that optimize phonological structure. This article adds to the list of markedness constraints two new constraints: Nasal Tensing and Nasal Backing.

Recall that Nasal Tensing, the rule discussed in the preceding section, changes lax //ɔ// into tense [o] before a nasal, as in *dóm* 'house', *kóń* 'horse' and *bróna* 'harrow'. I propose that this generalization be captured by the following OT constraint:

(21) NASAL TENSING: No lax mid vowels before a nasal.

Nasal Tensing as a constraint can claim independent evidence it its favour from Southern American English, the dialect spoken in the southern United States. In this dialect, [ɛ] is replaced by [ɪ] before a nasal.

(22)		*General American*	*Southern American*
	ten	[tɛn][9]	[tɪn]
	sense	[sɛns]	[sɪns]
	pen	[pɛn]	[pɪn]

The effect is that the pairs *ten — tin*, *sense — since* and *pen — pin*, which contrast in General American by the opposition [ɛ] — [ɪ], are indistinguishable in Southern American. The driver constraint for this neutralization is Nasal Tensing (21), even though the surface effect is the lax vowel [ɪ] rather than a tense vowel. Since Nasal Tensing prohibits [ɛ] before a nasal, it would be expected that //ɛ// should tense to [e] since [e] is the nearest vowel and it is tense. This expectation is not borne out, however. The reason is that English does not have the short vowel [e] in its inventory of attested segments, so the constraint *[e] (don't be [e]) is undominated. Given this constraint plus the faithfulness constraints that mandate the preservation of the features [-back] and [-low], the best way of satisfying Nasal Tensing is to raise //ɛ// to [ɪ] since [ɪ] is not a mid vowel and hence is not within the purview of Nasal Tensing.

Returning to Kurpian tensing in words such as //dɔm// → [dom] 'house', care must be taken to ensure that //ɔ// changes into [o] rather than into some other vowel. For example, //ɔ// could change into [u], [ɑ] or [e], all of which satisfy Nasal Tensing as the lax [ɔ] has been removed from the surface representation and replaced by a tense vowel. The options just mentioned, ɔ → *u,* ɔ → ɑ and ɔ → *e*, are excluded by the following faithfulness constraints.

(23) a. IDENT[-high]: [-high] on an input segment must be preserved as [-high] on an output correspondent of that segment.

b. IDENT[-low]: [-low] on an input segment must be preserved as [-low] on an output correspondent of that segment.

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

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

Given these constraints, the evaluation of *dóm* 'house' proceeds as in (24). The right-pointing hand ☞ shows the winning candidate. An exclamation mark means that the candidate has been eliminated.

[9] I ignore the fact that the vowel is nasalized.

(24) //dɔm// → [dom]

	ID[-low]	ID[-high]	ID[+back]	NAS-TENSING	ID[-tense]
a. dɔm				*!	
☞ b. dom					*
c. dum		*!			*
d. dem			*!		*
e. dɑm	*!				*
f. dəm				*!	

Candidates (24a) and (24f) violate NASAL TENSING because they have the lax vowels [ɔ] and [ə] respectively. Candidate (24c) has changed //ɔ// to [u], so the feature [-high] has been changed into [+high], a violation of IDENT[-high]. Candidate (24d) has responded to NASAL TENSING by changing lax //ɔ// into tense [e]. The change satisfies NASAL TENSING but violates IDENT[+back] because //ɔ//, the input vowel, is [+back] while [e], the output vowel, is [-back]. Candidate (24e) has tense [ɑ], which puts it outside the jurisdiction of NASAL TENSING. However, [ɑ] violates IDENT[-low] because the input vowel //ɔ// is [-low] while the output vowel [ɑ] is [+low]. Candidate (24b) has tensed //ɔ// to [o]. This, however, is a minor offence because NASAL TENSING is ranked above IDENT[-tense]. Consequently, [dom] is the winner, the correct result.

The system of the constraints introduced thus far cannot account for the effects of Nasal Backing (20), a process that turns //ɛ// and //e// into schwa, as in *potëm* 'then'. The icon ☹ denotes the desired candidate that has lost the race; the left-pointing hand ☜ shows the incorrect winner.

(25) //pɔtɛm// → [pɔtəm] (failed evaluation)

	ID[-low]	ID[-high]	ID[-back]	NAS-TENSING	ID[-tense]
a. pɔtɛm				*!	
☜ b. pɔtem					*
c. pɔtum		*!	*		*
d. pɔtom			*!		*
e. pɔtɑm	*!		*		*
☹ f. pɔtəm			*!	*	

Relevant in (25) is IDENT[-back] rather than IDENT[+back] because the input //ɛ// is a front vowel.

(26) IDENT[-back]: [-back] on an input segment must be preserved as [-back] on an output correspondent of that segment.

The evaluation in (25) designates candidate (25b), [pɔtem], as the winner, the wrong result. The desired winner in (25f) fails because schwa is a lax back vowel, so the candidate fatally violates both NASAL TENSING and IDENT[-back]. The analysis is repaired by postulating NASAL BACKING as a constraint.

(27) NASAL BACKING: No front mid vowels before a nasal.

In order to have an effect, NASAL BACKING must be ranked above IDENT[-back] because it enforces the change of front vowels into back vowels, so IDENT[-back] is always violated. Furthermore, NASAL BACKING must outrank NASAL TENSING since schwa, a lax vowel, is preferred to [e], a tense vowel. The interaction of these constraints is displayed in (28).

(28) //pɔtɛm// → [pɔtəm] (failed evaluation)

	ID[-low]	ID[-high]	NAS-BACK	ID[-back]	NAS-TENSING	ID[-tense]
a. pɔtɛm			*!		*	
b. pɔtem			*!			*
c. pɔtum		*!		*		*
☜ d. pɔtom				*		*
e. pɔtɑm	*!			*		*
☹ f. pɔtəm				*	*!	

The introduction of NASAL BACKING has successfully eliminated the candidate [pɔtem] as the winner, but the result is still incorrect since the undesired [pɔtom] wins in (28). The problem is that IDENT[-back] cannot distinguish between [pɔtom] and [pɔtəm] since both have replaced the front vowel //ɛ// with a back vowel ([o] and schwa, respectively), so both violate IDENT[-back]. The dilemma is resolved by activating IDENT[-round].

(29) IDENT[-round]: [-round] on an input segment must be preserved as [-round] on an output correspondent of that segment.

The change from //ɛ// to [o] violates IDENT[-round] because //ɛ// is [-round] and [o] is [+round]. This violation is not incurred when schwa replaces //ɛ// because [ə] is [-round]. IDENT[-round] can be a top-ranked constraint or, alternatively, it can be ranked lower but crucially not below NASAL TENSING, as shown by the following evaluation.[10]

[10] The candidate with tense schwa, not shown in (30), is eliminated by the segment inventory constraint that prohibits tense schwa.

(30) //pɔtɛm// → [pɔtəm]

	ID [-low]	ID [-high]	ID [-round]	NAS-BACK	ID [-back]	NAS-TENSING	ID [-tense]
a. pɔtɛm				*!		*	
b. pɔtem				*!			*
c. pɔtum		*!			*		*
d. pɔtom			*!		*		*
e. pɔtɑm	*!				*		*
☞f. pɔtəm					*	*	

The evaluation of *źë+m* 'I know', //ʑe+m// → [ʑəm], is, in all essential ways, parallel to the evaluation of *potëm* 'then' in (30). The technical difference is that //e// → [ə] violates IDENT[+tense] rather than IDENT[-tense], a constraint that mandates the preservation of [+tense] in an output correspondent of a tense vowel in the input. To conclude, the system of the constraints introduced in this section can deliver the correct results for the processes discussed in section 2: Nasal Tensing and Nasal Backing.

4. Conclusion

Kurpian has a richer system of vowels than that found in Standard Polish. In the class of mid vowels, Kurpian displays contrasts between lax [ɛ ɔ] and tense [e o ə], none of which are found in Standard Polish. The class of low vowels includes [a] and [ɑ], where the latter is specific to Kurpian. In the class of high vowels, Kurpian and Standard Polish [u] are the same, but the other vowels are different. Standard Polish [i] and [ɨ] are tense while Kurpian [ɪ] and [ɬ] are lax.

There are two vocalic processes that account in part for the distribution of Kurpian [o] and [ə]: Nasal Tensing and Nasal Backing. Both are conditioned by the presence of nasals and both are entirely exceptionless. A discussion of other vocalic processes, such as tensing in the word-final position, requires further investigation and more extensive fieldwork than I have conducted thus far.

References

Biedrzycki Leszek (1963): Fonologiczna interpretacja polskich głosek nosowych. — *Biuletyn Polskiego Towarzystwa Językoznawczego* 22, 25–45.

Biedrzycki Leszek (1974): *Abriss der polnischen Phonetik*. — Warszawa: Wiedza Powszechna.

Ceberek Stanisław (2003): *Słownik gwary kurpiowskiej. Chciołom wom łopoziedzieć. Słówka i gadki kurpiowskie*. — Ostrołęka: Polska Oficyna Wydawnicza.

Chomsky Noam, Halle Morris (1968): *The Sound Pattern of English.* — New York: Harper and Row.

Dejna Karol (1993): *Dialekty polskie*. — Wrocław: Zakład Narodowy im. Ossolińskich.

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

Furdal Antoni (1955): *Mazowieckie dyspalatalizacje spółgłosek miękkich.* — Wrocław: Zakład Narodowy im. Ossolińskich.

Halle Morris (1992): Phonological features. — [In:] William Bright (ed.): *International Encyclopedia of Linguistics*; Oxford: Oxford University Press, 207–212.

Halle Morris (1995): Feature geometry and feature spreading. — *Linguistic Inquiry* 26, 1–46.
Halle Morris (2005): Palatalization/velar softening: what it is and what it tells us about the nature of language. — *Linguistic Inquiry* 36, 23–41.
Halle Morris, Vaux Bert, Wolfe Andrew (2000): On feature spreading and the representation of place of articulation. — *Linguistic Inquiry* 31, 387–443.
McCarthy John J., Prince Alan (1995): Faithfulness and reduplicative identity. — [In:] Jill N. Beckman, Laura Walsh Dickey, Suzanne Urbanczyk (eds.): *University of Massachusetts Occasional Papers in Linguistics* 18; Amherst, Massachusetts: GLSA Publications, 249–384.
Nitsch Kazimierz (1923): *Gramatyka języka polskiego.* — Kraków: Gebethner.
Prince Alan, Smolensky, Paul (2004): *Optimality Theory: Constraint Interaction in Generative Grammar*. — Oxford: Blackwell. [Revision of 1993 technical report, Rutgers University Center for Cognitive Sciences. Available on Rutgers Optimality Archive, ROA-537.]
Rubach Jerzy (2008): Palatal nasal decomposition in Slovene, Upper Sorbian and Polish. — *Journal of Linguistics* 44, 169–204.
Rubach Jerzy (2009): *Zasady pisowni kurpiowskiego dialektu literackiego*. — Ostrołęka: Związek Kurpiów.
Sagey Elizabeth (1986): *The Representation of Features and Relations in Non-linear Phonology*. — Doctoral dissertation, Cambridge, Mass.: MIT.
Urbańczyk Stanisław (1972): *Zarys dialektologii polskiej.* — Warszawa: Państwowe Wydawnictwo Naukowe.
Wood Sidney A. J. (1975): Tense and lax vowels — degree of constriction or pharyngeal volume? — *Working Papers in Linguistics* 1; Lund University, 109–134.
Zduńska Helena (1965): *Studia nad fonetyką gwar mazowieckich. Konsonantyzm.* —Wrocław: Zakład Narodowy im. Ossolińskich.