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Soft labial conspiracy in Kurpian[1]

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This article investigates soft labial conspiracy in Kurpian, a dialect of Polish that has not been discussed in the generative literature to date. The conspiracy involves four processes: decomposition, simplification, depalatalization, and vowel retraction. These processes are united by the goal to eliminate palatalized labials from the surface representation. The article argues against bidirectional IDENT constraints and for the tenet of Derivational/Stratal OT that analysis must proceed in steps. The evidence comes from the nature of decomposition and from the fact that depalatalization constitutes a Duke-of-York derivation.

Kurpian, a dialect of Polish spoken in northern-eastern Poland, exhibits a complex pattern of alternations involving labial consonants exemplified in (1). I adopt the convention of representing the data in both Standard Polish orthography and, after a slash, in Kurpian orthography in all instances in which there is a difference between Polish and Kurpian. For example, the entry for 'dog' (NOM.SG) is *pies*/*pśes*, where *pies* is written in Polish and *pśes* in Kurpian. The gen.sg form is *ps*+*a* in both orthographic systems, so it is simply written *ps*+*a* rather than *ps*+*a*/*ps*+*a*.[2] IPA transcription is provided for the relevant portions of the examples.

[1] I would like to thank the three *Journal of Linguistics* referees for discussion and criticism, which led to considerable improvement of both the content and the presentation of my analysis. However, let me add that the responsibility for this article is solely mine. I would also like to thank my Kurpian consultants, especially Tadeusz Grec, Stanisław Sieruta and Henryk Gadomski as well as Apolonia Cis, Leszek Czyż, Michalina Dębowska, Irena Górska, Stefania Górska, Mirosław Grzyb, Czesława Kaczyńska, Alina Kulesza, Henryk Kulesza, Celina Kopeć, Danuta Kostewicz, Krystyna Koziatek, Grażyna Magdzińska, Hanna Małż, Krystyna Mróz, Marianna Piórkowska, Stefania Prusaczyk, Marianna Staśkiewicz, and Lucyna Ścibek.

[2] Since Kurpian dictionaries do not exist (see Section 2), the representation in Polish orthography permits the reader to trace the word in Polish dictionaries. The spelling system for Kurpian was introduced by Rubach (2009) and is now in wide use in Kurpia. The system is closely phonetic and hence helpful in determining the pronunciation. In the ways that are relevant to this article, the correspondences between letters and sounds are as follows:

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 tɕ dʑ ɲ], respectively

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(1) (a) Labial stops alternate with stop-fricative clusters: [p b] – [pɕ bʑ]
sklep [p] 'store' (NOM.SG) – sklepi + e/sklepś + e [pɕ] (LOC.SG)
pies/pśes [pɕ] 'dog' (NOM.SG) – ps + a [p] (GEN.SG)
bab + a [b] 'woman' (NOM.SG) – babi + e/babź + e [bʑ] (LOC.SG)

(b) Bilabial nasal alternates with prepalatal nasal: [m] – [ɲ]
bram + a [m] 'gate' (NOM.SG) – brami + e/brań + e [ɲ] (LOC.SG)
Niemiec/Ńëńec [ɲ] 'German' (N; NOM.SG) – Niemc + a/Ńëmc + a [m] (GEN.SG)

(c) Labio-dental fricatives alternate with prepalatal fricatives: [f v] – [ɕ ʑ]
paragraf [f] 'paragraph' (NOM.SG) – paragrafi + e/paragraś + e [ɕ] (LOC.SG)
hufiec/huśec [ɕ] 'detachment' (NOM.SG) – hufc + a [f] (GEN.SG)
sprawa [v] 'matter' (NOM.SG) – sprawi + e/spraź + e [ʑ] (LOC.SG)
pewien/peźën [ʑ] 'sure' (short form) – pewn + y [v] 'sure' (long form)

(d) Underlying /sfi/ changes to [ɕfɨ] by palatalizing the consonant (s → ɕ) and retracting the vowel (i → ɨ[3]), as in świni + a [ɕfʲiɲa] (Polish) / świyń + a [ɕfɨɲa] (Kurpian) 'pig'

I argue in this article that the patterns exhibited in (1) originate from palatalized labials, either underlying or derived at an intermediate stage of derivation. The driver for the processes in (1) is the markedness constraint *SOFT-LAB that prohibits palatalized [p' b' m' f' v']. Following the Slavic tradition, I refer to palatalized consonants as 'soft' consonants and transcribe them with an apostrophe. Non-palatalized consonants are velarized and are called 'hard' consonants.

Looking at the data in (1) above, the obedience to *SOFT-LAB invokes a number of disparate repairs.

(2) Insertion of a prepalatal fricative: *p' b'* → *pɕ bʑ*
Deletion of a labial consonant: *m' f' v'* → *ɲ ɕ ʑ*
Depalatalization: *p' b' m' f' v'* → *p b m f v*
Vowel retraction: *i* → *ɨ*

The data in (1) and the observations in (2) contribute to the study of phonological systems in two ways. First, palatalization of labials is generally rare cross-linguistically (Bhat 1978) and hence merits attention. Second, the disparate responses to *SOFT-LAB bear on the discussion of the 'too many solutions' problem.

In Polish orthography, [ɕ ʑ tɕ dʑ ɲ] are written either as *ś*, *ź*, *ć*, *dź*, *ń* or as *si*, *zi*, *ci*, *dzi*, *ni*, where *i* is not pronounced if it is followed by a vowel letter. See Rubach (1984, 2011a) for further explanation.

[3] As noted in footnote 2, Kurpian high front and central vowels are lax, but I ignore this fact and transcribe them as [i] and [ɨ], respectively.

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In her study of labial palatalization, Bateman (2010) has explored 117 languages and found that if labial palatalization exists at all, it is of the secondary articulation type, where the consonant is palatalized but its labial place of articulation remains unchanged, as in *p→p'*. A shift in the place of articulation, which Bateman terms 'full palatalization', exists only in two languages: the Moldavian dialect of Romanian (p b→k' g', f v→ʃ ʒ) and Tswana, a Bantu language (p p^h b ɸ → $tʃ^w$ $tʃ^{hw}$ $dʒ^w$ (t)$ʃ^w$). In neither of these languages is palatalization active synchronically, so the evidence for the changes comes from diachronic sources (Bateman 2010).[4] Kurpian is different in this regard because it has an entirely productive system of full labial palatalization synchronically.

The 'too many solutions' problem is a consequence of the fact that Optimality Theory (OT henceforth; McCarthy & Prince 1995, Prince & Smolensky 2004) has divorced structural change from structural description in linguistic generalizations. The prediction is that many different processes may conspire in order to satisfy a single markedness constraint. The data and the observations in (1) and (2) above illustrate the point: palatalized labials are eliminated by a variety of processes which constitute a phonological conspiracy: insertion, deletion, depalatalization, and vowel retraction. The question debated by some researchers is whether the options afforded by OT as responses to the demands of markedness constraints are actually attested in the world's languages (Steriade 2001, Blumenfeld 2006, among others). For example, Steriade (2001) and Blumenfeld (2006) observe that Coda Devoicing (no voiced obstruents in the coda) can be satisfied not only by devoicing the obstruent, /abra/→[ap.ra], but also in a number of other ways: epenthesis, /abra/→[a.bə.ra], deletion, /abra/→[a.ra], metathesis, /abra/→[ar.ba], to name just a few (the example here comes from Blumenfeld 2006). It appears that of all of these options only devoicing is attested. That is, languages do not insert vowels, delete obstruents or metathesize consonants in order to satisfy Coda Devoicing. This situation is termed a 'too many solutions' problem.

There are also researchers (de Lacy 2006, Baković 2007, and others) who question the legitimacy of the 'too many solutions' problem. For example, in his study of local assimilation, Baković (2007) demonstrates that AGREE constraints may induce deletion and epenthesis in addition to enforcing assimilation. It may therefore be the case that the 'too many solutions' problem does not exist. Rather, what we have is a 'too few data' problem.[5] That is, further exploration of phonological systems of various languages may turn up evidence motivating conspiracies that have been regarded thus far as impossible.

[4] Bateman's analysis of these historical processes is set in the framework of Articulatory Phonology (Browman & Goldstein 1986).

[5] Thanks to a referee for drawing my attention to this point.

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This study of labial palatalization conspiracy is a contribution to the 'too many solutions'/'too few data' problem. It argues that the response to the *SOFT-LAB constraint involves not only depalatalization, an expected strategy, but also deletion, vowel retraction and insertion or rather decomposition (fission) whereby in order to survive in the surface representation a labial grows a clone that acts as a buffer. Less importantly, this article is a contribution to the debate of whether IDENT constraints can be unidirectional (Pater 1999, Rubach 2008a). It is also a study of opacity based on novel data whose analysis supports the tenets of Derivational OT/Stratal OT. Least importantly, this article makes a case for absolute neutralization, where underlying representations need to contain segments (soft labials) that are never attested in surface representations.

The presentation is organized as follows. Section 1 provides a general background for subsequent analysis. Section 2 deals with labial stops. Section 3 addresses the issue of nasal decomposition and simplification (deletion). Section 4 looks at labial fricatives and, finally, Section 5 summarizes the conclusions.

1. Background

This section introduces constraints involved in the process of palatalization and thus prepares the ground for the discussion of soft labials in the subsequent sections. The illustrative material is drawn from Russian. Even though palatalization affects all consonants, the focus is on labials in order to underscore the parallel between Russian and Kurpian.

The facts of Russian are straightforward: soft labials occur as both underlying and derived segments. They are underlying in contexts that do not warrant palatalization, such as the context before a back vowel, as in (3a). Before front vowels, as in (3b), they are derived by a process of palatalization.

(3) *Soft labials in Russian*

(a)	*p'a*t' [p'a] 'five'	*m'a*so [m'a] 'meat'
	*b'u*ro [b'u] 'office'	*v'a*z' [v'a] 'bond'
(b)	du*b* [p] 'oak' (NOM.SG)	du*b* + *e* [b'ɛ] (LOC.SG), du*b* + *i*k [b'i] (DIMIN)
	tru*p* [p] 'corpse' (NOM.SG)	tru*p* + *e* [p'ɛ] (LOC.SG), tru*p* + *i*k [p'i] (DIMIN)
	do*m* [m] 'house' (NOM.SG)	do*m* + *e* [m'ɛ] (LOC.SG), do*m* + *i*k [m'i] (DIMIN)
	ška*f* [f] 'wardrobe' (NOM.SG)	ška*f* + *e* [f'ɛ] (LOC.SG), ška*f* + *i*k [f'i] (DIMIN)
	kl'u*v* [f] 'beak' (NOM.SG)	kl'u*v* + *e* [v'ɛ] (LOC.SG), kl'u*v* + *i*k [v'i] (DIMIN)

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From the perspective of OT, palatalization is expressed as the following two constraints (Rubach 2000a, 2003a):

(4) (a) PAL-*i*
A consonant and a following high vowel agree in backness.
(b) PAL-*e*
A consonant and a following mid vowel agree in backness.

The job of these constraints, illustrated by the data in (3), is to enforce the change of a hard (i.e. velarized) consonant into a soft (i.e. palatalized) consonant before a front vowel.[6]

Russian, like Standard Polish and Kurpian, exhibits an opposition of hard and soft consonants, such as those in (5).

(5) *bu*kva [bu] 'letter' – *b'u*st [b'u] 'breasts'

All consonants are either hard or soft, and there are no neutral consonants. Hard consonants are velarized whereas soft consonants are palatalized. The secondary articulations of velarization and palatalization are expressed by means of the features [+back] and [–back], respectively, which are attached to consonants. Consequently, the change of hard /b/ into a soft [b'] in, for example, *dub* + *ik* 'oak' (DIMIN), /dub + ik/→[dub'ik], is characterized as a change of [+back] into [–back] on the consonant. This change is an effect of [–back] spreading from the vowel /i/ of the suffix -*ik* to the preceding /b/ of the root *dub*. The spreading means that palatalization violates the IDENT constraint that mandates the preservation of [+back] on the consonant.[7]

(6) IDENT-C[+back]
[+back] on the input consonant must be preserved as [+back] on an output correspondent of that consonant.

It appears that the ranking PAL-*i* >> IDENT-C[+back] can now deliver the desired palatalization effect. The tableau in (7), for /dub + ik/, shows that this need not be the case. The undesired winner is indicated by the left-pointing hand ☜. The icon ☹ marks the desired winner that has lost in the evaluation.

[6] Rubach (2000a, 2003a) argues that PAL-*i* and PAL-*e* are independent constraints since they can be ranked differently in different languages. For example, Ukrainian has palatalization before *i* but not before *e*, as shown by the alternations in *holub* [b] 'pigeon' (NOM.SG) – holu*b* + *iv* [b'i] (GEN.PL) – holu*b* + *e* [bɛ] (VOC.SG) (see e.g. Bilodid 1969). To derive the correct results, PAL-*i* must be ranked above while PAL-*e* below IDENT-C[+back], the constraint prohibiting palatalization: PAL-*i* >> IDENT-C[+back] >> PAL-*e*. In Russian (see below) and Kurpian (see Section 2 below), palatalization occurs before all front vowels, so IDENT-C[+back] is bottom-ranked.

[7] As argued in Rubach (2003a), IDENT constraints may refer to specific values of features, hence [+back] in (6).

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(7) /dub + ik/→[dub'ik] (failed evaluation)

	PAL-*i*	IDENT-C[+back]
(a) dubik	*!	
☹ (b) dub'ik		*!
☜ (c) dubɨk		

Both (7b) and (7c) satisfy PAL-*i*, which asks for agreement in [±back] between the consonant and the vowel. Candidate (7b) solves this problem by palatalizing the consonant, so the feature [+back] on the input /b/ is changed into [–back] on the output [b']. However, candidate (7c) is just as successful yielding to the demands of PAL-*i*. The output [bɨ] satisfies PAL-*i* since both the consonant and the vowel are [+back][8] because the feature [+back] has spread from the consonant to the vowel producing vowel retraction: /i/→[ɨ]. Vowel retraction violates IDENT-V[–back].

(8) IDENT-V[–back]
[–back] on the input vowel must be preserved as [–back] on an output correspondent of that vowel.

The ranking IDENT-V[–back] >> IDENT-C[+back] derives the correct palatalization effect. The evaluation in (7) is now corrected as follows (the right-pointing hand ☞ indicates the desired winner):

(9) /dub + ik/→[dub'ik]

	PAL-*i*	IDENT-V[–back]	IDENT-C[+back]
(a) dubik	*!		
☞ (b) dub'ik			*
(c) dubɨk		*!	

With this background, I turn to the analysis of soft labials in Kurpian. Since the effects of labial palatalization in Kurpian are different with stops, nasals and fricatives, each of these classes of segments is considered in a separate section.

2. Labial stops

Kurpian is a dialect of Polish spoken in Kurpia in northern Poland. Even though Kurpia is inhabited by some 70,000 people, the speakers of the dialect

[8] The vowel [ɨ] is central, but central vowels pattern with back vowels in the world's languages, so they are characterized as [+back]. The difference between [ɨ] and [u] is made in terms of [±round].

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are few in number and are people of the older generation (70 years or older). Therefore, the dialect is on the verge of extinction. However, it should be noted that much effort is now being made to revive the culture and the language of Kurpians.

The literature on Kurpian is minimal. It is limited to one monograph (Friedrich 1955), one textbook (Rubach 2009) and some brief mentions in books dealing with Polish dialectology, such as Zduńska (1965) and Dejna (1973). Friedrich (1955) is a survey of Kurpian as spoken in a number of villages in Kurpia in the 1930s,[9] when the fieldwork was conducted. The report on the findings contains the basic facts concerning the treatment of soft labials but suffers from the methodology of the 1930s dialectal studies, whereby, among other things, the language is presented by citing isolated examples, with no generalizations or rules that would help construct the grammar. Rubach (2009) is a textbook of Kurpian, written for Kurpians in order to help them preserve their language. It contains many observations regarding the data but lacks theoretical analysis.

Since the description of Kurpian is incomplete in significant ways,[10] the primary source of the data for this article is the fieldwork that I conducted over the period of ten years. The dialect under analysis is that of Central Kurpian, spoken in the area extending from Lelis to Myszyniec and Zaręby.[11]

Kurpian exhibits an entirely productive palatalization process illustrated in (10), whereby dental consonants become prepalatal, /s z t d n/→[ɕ ʑ tɕ dʑ ɲ], and labial stops [p b] change into [pɕ bʑ] before various front vowel suffixes.

(10)	(a)	wago*n*/wagó*n* [n] 'carriage' (NOM.SG)	wago*ni* + *e*/wagó*ń* + *e* [ɲɛ] (LOC.SG)
			wago*n* + *i*k/wagó*ń* + *i*k [ɲi] (DIMIN)
		głos [s] 'voice' (NOM.SG)	głos*i* + *e*/głoś + *e* [ɕɛ] (LOC.SG)
			głos + *i* + k/głoś + *i*k [ɕi] (DIMIN)
		wła*z*/włåz [s][12] 'hatch' (NOM.SG)	wła*zi* + *e*/wła*ź* + *e* [ʑɛ] (LOC.SG)
			wła*z* + *i* + k/wła*ź* + *i*k [ʑi] (DIMIN)
		skle*p* [p] 'store' (NOM.SG)	skle*pi* + *e*/skle*pś* + *e* [pɕɛ] (LOC.SG)
			skle*p* + *i*k/skle*pś* + *i*k [pɕi] (DIMIN)
	(b)	dzia*d*/dźå*d* [t] 'old man' (NOM.SG)	dzia*dzi* + *e*/dźa*dź* + *e* [dʑɛ] (LOC.SG)
			dzia*dz* + *i*n + a/dźa*dź* + *i*na [dʑi] (DIMIN)

[9] Friedrich's (1955) book was published posthumously, 11 years after the author's death.

[10] The main problem is that the literature does not report on alternations, so it is not clear whether the cited facts refer only to the historical changes that have already taken place or to the productive phonology of contemporary Kurpian.

[11] The Central Kurpian villages in which I conducted fieldwork include Bandysie, Brzozowy Kąt, Brodowe Łąki, Charcibałda, Czarnia, Długie, Kadzidło, Dylewo, Obierwia, Olszyny, Pełty, Surowe, Zaręby, and Zdunek.

[12] Kurpian has Final Devoicing, as this and other examples below illustrate.

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	chło*p* [p] 'man' (NOM.SG)	chło*pi* + *e*/chło*pś* + *e* [pɕɛ] (LOC.SG)
		chło*p* + *i*n + a/chło*pś* + *i*n + a [pɕi] (DIMIN)
	ba*b* + a [b] 'woman' (NOM.SG)	ba*bi* + *e*/ba*bź* + *e* [bʑɛ] (LOC.SG)
		ba*b* + *i*n + a/ba*bź* + *i*na [bʑi] (DIMIN)
(c)	kwa*s* [s] 'acid' (NOM.SG)	kwa*si* + *e*/kwa*ś* + *e* [ɕɛ] (LOC.SG)
		za + kwa*s* + *i*/za + kwa*ś* + *i* [ɕi] 'he makes sour'
	wó*z* [s] 'cart' (NOM.SG)	wo*zi* + *e*/wo*ź* + *e* [ʑɛ] (LOC.SG)
		wo*z* + *i*/wo*ź* + *i* [ʑi] 'he transports'
	po*t* [t] 'sweat' (NOM.SG)	po*ci* + *e*/po*ć* + *e* [tɕɛ] (LOC.SG)
		po*c* + *i*/po*ć* + *i* [tɕi] 'he sweats'
	sad/så*d* [t] 'orchard' (NOM.SG)	*sadzi* + *e*/sa*dź* + *e* [dʑɛ] (LOC.SG)
		sadz + *i*/sa*dź* + *i* [dʑi] 'he plants'
	dzwo*n*/dzwó*n* [n] 'bell' (NOM.SG)	dzwo*ni* + *e*/dzwó*ń* + *e* [ɲɛ] (LOC.SG)
		dzwo*n* + *i*/dzwó*ń* + *i* [ɲi] 'he rings'
	za + ku*p* [p] 'shopping' (NOM.SG)	za + ku*pi* + *e*/za + ku*pś* + *e* [pɕɛ] (LOC.SG)
		za + ku*p* + *i*/za + ku*pś* + *i* [pɕi] 'he buys'
	ślu*b* [p] 'wedding' (NOM.SG)	ślu*bi* + *e*/ślu*bź* + *e* [bʑɛ] (LOC.SG)
		po + ślu*b* + *i*/po + ślu*bź* + *i* [bʑi] 'he marries'

The prepalatal fricatives [ɕ ʑ] in the clusters [pɕ bʑ] and the [ɕ ʑ] derived from /s z/ in (10) are identical. The reason is that native speakers judge the consonant clusters in (11) as containing the same segments [ɕ ʑ], even though the source of these segments is different.

(11)

	NOM.SG	LOC.SG	GLOSS
(a)	kla*ps* [ps]	kla*psi* + e/kla*pś* + e [pɕ]	'smack'
	skle*p* [p]	skle*pi* + e/skle*pś* + e [pɕ]	'store'
(b)	ka*bz* + a [bz]	ka*bzi* + e/ka*bź* + e [bʑ]	'purse'
	ba*b* + a [b]	ba*bi* + e/ba*bź* + e [bʑ]	'woman'

The [ɕ ʑ] in [pɕ] and [bʑ] of *klapsi* + *e*/*klapś* + *e* (LOC.SG) and *kabzi* + *e*/*kabź* + *e* (LOC.SG) are related to [s z] while the [ɕ ʑ] in [pɕ] and [bʑ] of *sklepi* + *e*/*sklepś* + *e* (LOC.SG) and *babi* + *e*/*babź* + *e* (LOC.SG) are related to [p b].

The alternations between [s z t d n] and [ɕ ʑ tɕ dʑ ɲ] in (10) are classic instances of palatalization, a process that Kurpian shares with Standard Polish. In contrast, the alternations between [p b] and [pɕ bʑ] are new and specific to Kurpian. The question is how the relationship between [p b] and [pɕ bʑ] should be analyzed.[13]

A referee asks whether labial alternations can be analyzed in terms of epenthesis. Indeed, we appear to be looking at a process of insertion because single segments, [p b], that are not contextually restricted alternate with

[13] Kochetov (1998), working in the framework of Articulatory Phonology, analyzes the palatalization of /p b/ to [pɕ bɕ] in terms of overlapping gestures.

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clusters, [pɕ bʑ], that are contextually restricted to the palatalization environment. Looking at *sklep* 'store' (NOM.SG) – *sklepi* + *e*/*sklepś* + *e* (LOC.SG), the scenario for the epenthesis analysis is as follows. The putative epenthetic [ɛ] is a response to two constraints: PAL-*e* and *SOFT-LAB. PAL-*e* outlaws the faithful candidate [sklɛp + ɛ] because [p] has not been palatalized by the front vowel [ɛ]. The palatalization option /p/→[p'] is closed by the segment markedness constraint *SOFT-LAB, which accounts for the distributional generalization that [p' b' m' f' v'] are not attested in the surface representation in Kurpian.

(12) *SOFT-LAB: Don't be a palatalized labial.

While the combined action of PAL-*e* and *SOFT-LAB eliminates [sklɛpɛ] and [sklɛp'ɛ] as winners, nothing in the analysis so far excludes [sklɛptɕɛ] that satisfies both of these constraints. The answer lies with syllable structure.

Given the choice between the output candidates [sklɛ.pɕɛ][14] and [sklɛ.ptɕɛ], where a dot marks a syllable boundary, the grammar prefers the former to the latter because [ptɕ], unlike [pɕ], violates the Sonority Sequencing Generalization. This constraint, first stated by Jespersen (1904) and elaborated in Selkirk (1982), requires that sonority must decrease as we move away from the nucleus.

(13) *Sonority Sequencing Generalization* (SSG)
Segments in syllable margins that are closer to the nucleus must have greater sonority than segments that are further away from the nucleus.

SSG gives the syllable structure schema that has stops as the outward consonants:

Stop Fricative Nasal Liquid Vowel Liquid Nasal Fricative Stop

SSG is not one constraint but a family of constraints that regulate the well-formedness of syllable margins (Prince & Smolensky 2004). The constraints relevant for this article are stated informally in (14).

(14) (a) *SSG(Sonor-Obstr)
Sonorants cannot be further away from the vowel than obstruents.
(b) *SSG(Plateau)
No segments of the same sonority class in a syllable margin.
(c) *SSG(Fric-Stop)
Fricatives cannot be further away from the vowel than stops.

Kurpian, like Standard Polish, maximizes onsets, an effect of NO-CODA (syllables cannot have codas) >> *COMPLEX-Onset (no complex onsets). Consequently words such as *dobry* 'good', *butla* 'bottle', *jasny* 'bright', and

[14] Here and below, the syllabifications are based on native speaker intuitions of my informants.

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łatwy 'easy' are syllabified [dɔ.brɨ], [bu.tla], [ja.snɨ], and [wa.tfɨ], respectively. Onset maximization is thwarted by *SSG(Sonor-Obstr), so *karta* 'card' and *banda* 'gang' are syllabified [kar.ta] and [ban.da], respectively, an effect of *SSG(Sonor-Obstr) >> NO-CODA.[15] In contrast, *SSG(Plateau) and *SSG(Fric-Stop) do not have the power to override NO-CODA, so *kaptur* 'hood', *pochwa* 'sheath', *dumny* 'proud', *pusty* 'empty, and *kośćce* 'skeletons' are syllabified [ka.ptur], [pɔ.xfa], [du.mnɨ], [pu.stɨ], and [kɔ.ɕtɕtsɛ], respectively. This generalization is expressed by the ranking: NO-CODA >> *SSG(Plateau), *SSG(Fric-Stop).

Returning to the choice between [sklɛ.pɕɛ] and [sklɛ.ptɕɛ] debated earlier, the candidate [sklɛ.ptɕɛ] violates *SSG(Plateau) because stops and affricates are in the same sonority class. In contrast, the competitor [sklɛ.pɕɛ] has a perfect sonority slope with the fricative being closer to the vowel than the stop and hence is preferred by the grammar.

A further question is what ensures that it is [ɕ] rather than [ʑ] that is inserted in /sklɛp + ɛ/→[sklɛpɕɛ]. The answer is that [sklɛpʑɛ] is suboptimal from the point of view of Voice Assimilation, which is expressed by a standard AGREE[±voice] constraint that mandates agreement in voicing in obstruent clusters.[16]

The success of the epenthesis analysis with the candidates considered thus far is demonstrated by the evaluation in (15). For this analysis to work, DEP-Seg that penalizes insertion must be ranked low.

(15) /sklɛp + ɛ/→[sklɛ.pɕɛ] (epenthesis analysis)

	PAL-*e*	*SOFT-LAB	AGREE[±voice]	*SSG(Plateau)	DEP-Seg
(a) sklɛ.pɛ	*!				
(b) sklɛ.p'ɛ		*!			
(c) sklɛ.ptɕɛ				*!	*
(d) sklɛ.psɛ	*!				*
☞ (e) sklɛ.pɕɛ					*
(f) sklɛ.pʑɛ			*!		*

Candidate (15d) has inserted [s] rather than [ɕ], which appears to be a better choice because [s] is less marked than [ɕ]. However, [sklɛpsɛ] fails on PAL-*e*.

[15] The violation of SSG constraints is never circumvented by inserting a vowel or deleting a consonant, so MAX-Seg (don't delete segments) and DEP-Seg (don't insert segments) are ranked above the SSG constraints.

[16] The candidate [sklɛbʑɛ] obeys AGREE[±voice] but loses to [sklɛpɕɛ] on IDENT[–voice] because underlying /p/ has been voiced to [b].

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In general, the dominant ranking of PAL-*e* restricts the class of viable epenthetic segments to those that carry the feature [–back] and hence satisfy PAL-*e*. In Kurpian, this class includes [ɕ ʑ ʨ ʥ ɲ j].[17]

A little problematic for the epenthesis analysis are candidates containing sonorants, such as [sklɛpɲɛ]. They could be eliminated by AGREE[±sonor], but this constraint cannot be motivated independently. AGREE constraints, for example, AGREE[±voice] or AGREE(Place), have a solid basis in spreading operations but the putative AGREE[±sonor] does not. On the contrary, since [±sonor] is part of the Root node in feature geometric representations, it is predicted not to spread in all cases except Complete Assimilation (McCarthy 1988), as in English /ɪn/→[ɪl] in *il+legal* (with further degemination to [ɪ]).

Finally, the question is how the epenthesis analysis can exclude the candidate [sklɛɕɛ] in which /p/ has changed into [ɕ].[18] A referee suggests that the desired result can be achieved by recruiting MAX(Lab), a constraint of the MAX-Feature family.[19] MAX-F constraints demand that the feature F must surface in the output candidate but do not specify the segment on which F should surface. The absence of this specification constitutes the main difference between MAX-F constraints and IDENT constraints since the latter mandate that the feature F must be found on a surface correspondent of the input segment.

In the case at hand, MAX(Lab) delivers the correct result because the candidate [sklɛɕɛ] contains no LABIAL and hence is eliminated. Problematic for MAX(Lab) are words containing a labial in a different locus than the one exhibiting an alternation, such as *babi+e*/*babź+e*, the loc.sg of *bab+a* 'woman'. The desired winner is [babʑɛ]. The problem is that MAX(Lab) cannot eliminate the candidate [baʑɛ] which is parallel to the candidate [sklɛɕɛ], the reason being that [baʑɛ] satisfies MAX(Lab) because [Labial] occurs on the initial segment. I conclude that MAX(Lab) is inadequate and the MAX-F analysis of Kurpian labial alternations is on the wrong track. I argue later that the correct analysis must use IDENT constraints.

The epenthesis analysis runs into analytical difficulties with words such as those in (16).

[17] As I point out later in this section, the idea that PAL-*e* can control epenthesis does not work for morpheme-internal alternations because PAL-*e* is restricted to derived environments and cannot look into morphemes. I argue that the correct analysis involves decomposition (fission).

[18] The candidate in which /p/ has been deleted is eliminated by MAX-Seg that prohibits deletion.

[19] Derivational Optimality Theory that I adopt later in this article does not admit MAX-Feature constraints, so the option discussed below is not a viable analysis from the point of view of that theory.

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(16)	FEM.NOM.SG	DAT.SG	GLOSS
	szaf + a/saf + a [f]	szafi + e/saś + e [ɕ]	'wardrobe'
	traw + a/tråw + a [v]	trawi + e/tråź + e [ʑ]	'grass'
	słom + a/słóm + a [m]	słomi + e/słóń + e [ɲ]	'straw'

The problem is that the epenthesis analysis cannot distinguish between the desired winners and a host of the competitors listed in (17).

(17)	DESIRED WINNER	UNDESIRED WINNERS
	[saɕɛ]	[sazɛ], [satɕɛ], [sadʑɛ], [saɲɛ], [sajɛ]
	[trɑʑɛ]	[trɑɕɛ], [trɑtɕɛ], [trɑdʑɛ], [trɑɲɛ], [trɑjɛ]
	[swoɲɛ]	[swoɕɛ], [swoʑɛ], [swotɕɛ], [swodʑɛ], [swojɛ]

The undesired winners in (17) as well as the attested outputs all satisfy PAL-*e* and *SOFT-LAB. They also fare equally well on SSG constraints because the relevant onsets are simple. Further, there is no sense in which AGREE constraints could discriminate between the candidates since the inserted segments are intervocalic and do not occur in clusters.

The correct generalization is that the winners in the output must inherit the features of the source segments in the input. This generalization is readily captured by IDENT constraints but they, by definition, have no jurisdiction over epenthetic segments as such segments do not enter into correspondence relations between the input and the output. I conclude that the epenthesis analysis is incorrect, which raises the question of what underlying representations should be posited for labial palatalization morphemes.

As noted in (1) above, labial palatalization alternations occur not only at morpheme boundaries, as in the examples considered in this section, but also morpheme-internally. To avoid repetitiveness, I discuss stops, nasals and fricatives together because the line of argumentation is the same for all types of labials. I conclude that morpheme-internal alternations present evidence for underlying soft labials /p' b' m' f' v'/. The derivation of surface forms involves absolute neutralization in the sense of Kiparsky (1973) because soft labials never occur phonetically in Kurpian.

Morpheme-internal alternations are caused by vowel deletion.

(18)	NOM.SG	GEN.SG	GLOSS
	pies/pśes [pɕɛs]	ps + a [psa]	'dog'
	hufiec/huśec [xuɕɛts]	hufc + a [xuftsa]	'detachment'
	owies/łoźes [wɔʑɛs]	ows + a/łows + a [wɔfsa]	'oats'
	Niemiec/Ńěńec [ɲəɲɛts]	Niemc + a/Ńëmc + a [ɲəmtsa]	'German' (N)

The pattern of vowel – zero alternations in (18) is an effect of Yer Vocalization and Yer Deletion, the renowned processes of Slavic languages that affect a subclass of mid vowels called 'yers'. Since some but not all mid vowels alternate with zero, yers must be distinct in the underlying representation from non-alternating mid vowels. The details of the analysis need not

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concern us here.[20] Suffice it to say that, descriptively, yers vocalize (that is, appear in the surface representation) if they are in the final syllable of the word and delete in all other contexts. Following the Slavic tradition, I transcribe yers as capital letters. Schematically:

(19) *Yer Vocalization*
E→ɛ in the final syllable
Yer Deletion
E→Ø

The operation of these processes is illustrated in (20).

(20) kufel [kufɛl] 'mug' (NOM.SG) – kufl + a [kufla] (GEN.SG): vowel – zero alternation, hence a yer stem
/kufEl/→[kufɛl] by Yer Vocalization (final syllable)
/kufEl + a/→[kufla] by Yer Deletion (non-final syllable)

Note that the /f/ of *kufel* 'mug' does not palatalize to [ɕ] before [ɛ], so *kufel* [f] (NOM.SG) – *kufl* + *a* [f] (GEN.SG) contrasts with *hufiec*/*huśec* [ɕ] 'detachment' – *hufc* + *a* [f] (GEN.SG) listed in (18). The observation is that palatalization before [ɛ] morpheme-internally is unpredictable. This generalization extends to all consonants, not just labials, and is true regardless of whether [ɛ] derives from the yer /E/ or from the 'full' vowel /ɛ/, that is, the /ɛ/ that does not alternate with zero.

(21)

PALATALIZATION	NO PALATALIZATION
pies/pśes [pɕɛ] 'dog'	cypel [pɛ] 'promontory'[21]
piekł + o/pśekł + o [pɕɛ] 'hell'	perł + a [pɛ] 'pearl'
bieg/bźég [bʑe] 'run' (N)	bel + a [bɛ] 'log'
mieszkać/ńeskać [ɲɛ] 'live'	mew + a [mɛ] 'sea-gull'
siek + a + ć/śek + a + ć [ɕɛ] 'chop'	sekund + a [sɛ] 'second'
ziew + a + ć/źew + a + ć [ʑɛ] 'yawn'	żegn + a + ć/zegn + a + ć [zɛ] 'bless'
ciekaw + y/ćekaw + y [tɕɛ] 'interesting'	temat [tɛ] 'subject'
dzieł + o/dźeł + o [dʑɛ] 'work'	deszcz/desc [dɛ] 'rain'
nie/ńe [ɲɛ] 'no'	nerw/nérw [ne] 'nerve'

These data highlight two points. First, the contrast between palatalization and its absence must be encoded in the underlying representation.

[20] There is a huge volume of literature on the phonology of yers in Polish, including, *inter alia*, Lightner (1963), Steele (1973), Laskowski (1975), Gussmann (1980), Rubach (1984, 1986), Spencer (1986), Czaykowska-Higgins (1988), Bethin (1992), Piotrowski, Roca & Spencer (1992), and Szpyra (1992). A widely accepted view due to Rubach (1986) and Kenstowicz & Rubach (1987) is that yers are moraless vowels in the underlying representation. Yer Vocalization supplies a mora in specified contexts and thus turns yers into 'full' vowels. The yers that have not received a mora by Yer Vocalization remain deficient and are deleted context-freely by Yer Deletion.

[21] Both *pies/pśes* and *cypel* are yer stems because their [ɛ] alternates with zero when non-final, as in the gen.sg forms *ps* + *a* and *cypl* + *a*.

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Second, PAL-*e* is inert before morpheme-internal [ɛ]. Since, as documented earlier, palatalization before [ɛ] is perfectly productive across morpheme boundaries, PAL-*e* is a derived environment generalization.[22]

Given that Palatalization must be encoded in underlying representations,[23] the simplest assumption is that soft consonants attested in the surface representation are present in the underlying representation. This is uncontroversial for non-alternating forms such as *ciekaw* + *y*/*ćekaw* + *y* [tɕɛ] 'interesting' and *mieszk* + *a* + *ć*/*ńesk* + *a* + *ć* [ɲɛ] 'live' which can derive from the identical underlying representations /tɕɛ/ and /ɲɛ/, respectively. However, the alternating forms exemplified in (18) are problematic.

If the underlying representations of, for example, *pies*/*pśes* [pɕɛs] 'dog' and *hufiec*/*huśec* [xuɕɛts] 'detachment' are simply /pɕEs/ and /xuɕEts/ (these are yer stems), the question is how [p] and [f] are derived in the gen.sg forms *ps* + *a* [psa] and *hufc* + *a* [xuftsa].

Problematic for this analysis are the output candidates [pɕsa] and [xuɕtsa]. If we include the nasals, as in *Niemiec*/*Ńëmec* [ɲəɲɛts] 'German' (NOM.SG) – *Niemc* + *a*/*Ńëmc* + *a* [ɲəmtsa] (GEN.SG), the alternation [ɲ] – [m] is also a problem because [m] cannot be derived from the putative underlying /ɲ/. The clusters and the contrasts in (22) make this point clear.

(22) (a) kie*pści*utki/ke*pść*utky [pɕtɕ] 'miserable'
*kszt*ałt/*kśt*ałt [kɕt] 'shape'
gźdź + é + ć [gʑdʑ] 'burn' (no corresponding word in Standard Polish)
pstr + y [pstr] 'gaudy'
*wskrz*es + i + ć/*wskrześ* + é + ć [fskʃ] 'resurrect'

(b) hufiec/huśec [xuɕɛts] 'detachment' (NOM.SG) – hufc + a [xuftsa] (GEN.SG)
vs.
półpasiec/półpaśec [powpaɕɛts] 'shingles' (NOM.SG) – półpaśca [powpaɕtsa][24]

(c) Niemiec/Ńëńec [ɲəɲɛts] 'German' (N; NOM.SG) – Niemc + a/Ńëmc + a [ɲəmtsa] (GEN.SG)
vs.
kaganiec/kagańec [kagaɲɛts] 'muzzle' (NOM.SG) – kagańc + a [kagaɲtsa] (GEN.SG)

[22] There is no clear answer to the question of how derived environments should be handled in OT. For discussion, see Łubowicz (2002) and McCarthy (2003).

[23] This assertion is strengthened by the observation that morpheme-internal labial alternations occur also before back vowels, as in *pień*/*pśëń* [pɕaɲ] 'trunk' (NOM.SG) – *pni* + *a*/*pń* + *a* [pɲa] (GEN.SG) and *pewien*/*peźën* [pɛʑən] 'sure' (short form) – *pewn* + *y* [pɛvnɨ] 'sure' (long form).

[24] Actually *półpasiec*/*półpaśec* is morphologically complex but I ignore this fact here. See the analysis in (35) below.

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Looking at the complexity of the clusters in (22a), it is hard to imagine what deletion process would ban the cluster in the undesired winner [pɕsa], *ps*+*a* 'dog' (GEN.SG).[25] Similarly, there is nothing wrong with the cluster [pɕn] and yet this cluster would have to be banned in the candidate [pɕɲa] if the underlying representation of *pień*/*pśëń* [pɕəɲ] 'trunk' (NOM.SG) – *pni*+*a*/*pń*+*a* [pɲa] (GEN.SG) contained /pɕ/. By the same reasoning, *hufiec*/*huśec* 'detachment' in (22b) and *Niemiec*/*Ńëńec* 'German' in (22c) cannot have underlying /ɕ/ and /ɲ/, respectively, because the putative processes *ɕ*→*f* and *ɲ*→*m* are belied by the contrasts in *półpaśca* [ɕts] 'shingles' in (22b) and *kagańca* 'muzzle' in (22c). I conclude that the palatalization alternants [pɕ], [ɕ] and [ɲ] cannot be posited in the underlying representation. Since the hard alternants [p m f] cannot underlie the alternation either,[26] the underlying representation must include soft labials /p' f' m'/, so, for example, *pies*/*pśes* 'dog' derives from underlying /p'Es/. Postulating soft labials here is motivated by two observations. First, labials are attested in surface forms: [p], [f] and [m] occur in the gen.sg *ps*+*a* 'dog', *hufc*+*a* 'detachment' and *Niemc*+*a*/*Ńëmc*+*a* 'German'. Second, morpheme-internal palatalization before [ɛ] is unpredictable and, consequently, must be encoded in the underlying representation.

Soft labials exist in the underlying representation but are not found in the surface representation, which is an effect of the undominated *SOFT-LAB that leads to absolute neutralization in the sense of Kiparsky (1973). However, when soft labials disappear, they always leave a trace in the surface representation.

(23) /p' b'/→[pɕ bʑ]
preserved properties: [–back] for palatalization, obstruent, the value for [±voice]
/m'/→[ɲ]
preserved properties: [–back] for palatalization, sonorant, nasal
/f' v'/→[ɕ ʑ]
preserved properties: [–back] for palatalization, obstruent, the value for [±voice]

It is the job of IDENT constraints to ensure that the properties of the input are preserved in the output, so the correct analysis of labial palatalization is in terms of IDENT constraints. The question is how the particular changes in (23) can be executed in OT. In the remainder of this section, I focus on /p' b'/→[pɕ bʑ]. The discussion of /m'/→[ɲ] and /f' v'/→[ɕ ʑ] is postponed till Sections 3 and 4.

[25] Compare *lipiec/lypśec* [lʲipɕɛts] 'July' – *lipc*+*a/lypc*+*a* [lʲiptsa]. The cluster in the candidate [lʲipɕtsa], not the attested output, is in all relevant ways the same as in *kiepściutki/kepśćutky* [pɕtɕ] 'miserable'.

[26] Recall that hard labials do not alternate with reflexes of palatalization, for instance, *kufel* 'mug' (NOM.SG) – *kufl*+a (GEN.SG) cited in (20) retains the underlying hard /f/ in all contexts.

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Given the prominent role of IDENT constraints, [pɕ bʑ] are obtained from /p' b'/ by decomposition (fission), whereby the input segment is split into two correspondents in the output. Decomposition violates INTEGRITY.

(24) INTEGRITY (INT)
No multiple correspondents of an input segment.

The goal of decomposition as a strategy for removing an undesired segment, the palatalized [p'] in *pies/pśes* 'dog', underlying /p'Es/, is to yield an output in which the undesired segment does not occur. When executing this task, the grammar works under the obligation that the properties of the input segment cannot be lost. The consequence is that the output has two correspondents of the input segment, each carrying a different property contained in the source segment in the input. Thus, in *p'*→*pɕ*, /p'Es/→[pɕɛs], the LABIAL property of the input is retained on the [p] part of the cluster while the [–back] property (palatalization) is represented as [ɕ]. Struijke (2000) points out that decomposition leads the 'the emergence of the unmarked' (TETU), an idea that goes back to McCarthy & Prince (1994; see also Rubach 2008b). A TETU effect consists in the preservation of the properties of the input in output correspondents that are less marked than the input. In the instance at hand, [p] is less marked than [p']. The choice of [ɕ] as the other correspondent of /p'/ may appear to be less obvious but, given that the correspondent must be an obstruent and that it must preserve palatalization as well as the value for [±voice], [ɕ] is in fact the optimal output from the point of view of the Kurpian obstruent inventory that includes [ɕ ʑ tɕ dʑ].[27]

The generalization that under decomposition output correspondents preserve the properties of their input is expressed by IDENT constraints. For /pʲ/→[pɕ], the relevant constraints are those in (25).[28] Their statement makes the standard assumption that correspondence is bidirectional (McCarthy & Prince 1995): a feature found in the input is also found in the output, and, conversely, a feature found in the output is also found in the input.

(25) (a) IDENT[–back]
Correspondent segments in the input and the output are [–back].
(b) IDENT(Lab)
Correspondent segments in the input and the output are LABIAL.

Counter to expectation, the constraint system worked out so far does not yield the correct result for soft labial decomposition, as shown in (26), where I look at the evaluation of *pies/pśes* /p'Es/ 'dog'. As observed earlier, PAL-*e*

[27] Recall that [ptɕ] violates *SSG(Plateau) and is hence suboptimal.

[28] Other constraints, such as IDENT[–contin], which I will not state here, make sure that the winner from the input /p'/ has a labial stop rather than a labial fricative.

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is inactive morpheme-internally, so it is omitted. Integers keep tally of correspondence.

(26) /p'$_1$E$_2$s$_3$/→[p$_1$ɐ$_1$ɛ$_2$s$_3$] (failed evaluation)

	*SOFT-LAB	IDENT-C[–back]	IDENT(Lab)	INT
(a) p'$_1$ɛ$_2$s$_3$	*!			
☹ (b) p$_1$ɐ$_1$ɛ$_2$s$_3$		*	*!	*
☞ (c) p$_1$ɛ$_2$s$_3$		*		

Candidate (26b) violates IDENT-C[–back] on the [p] part of the cluster because [p] is not soft and IDENT(Lab) on the [ɐ] part of the cluster because [ɐ] is not labial. There is no ranking of the constraints in (26) that could deliver the correct result. The reason is that candidate (26b), the desired winner, has a superset of the violations of candidate (26c), the wrong winner.

The source of the problem in (26) is the statement of the IDENT constraints in (25). These constraints are bidirectional, so the input and the output must match in the relevant property. This is a problem because, by definition, decomposition yields correspondents that are partially but not fully faithful to the input. The solution is to assume that IDENT constraints are unidirectional, as suggested by Pater (1999). Specifically, they mandate the preservation of a feature in an output correspondent without requiring that the feature identity be bidirectional: from the input to the output and from the output to the input. The constraints in (25) are now restated in (27).

(27) (a) IDENT-C[–back]
[–back] on the input consonant must be preserved as [–back] on an output correspondent of that consonant.
(b) IDENT(Lab)
LABIAL on the input consonant must be preserved as LABIAL on an output correspondent of that consonant.

As the word 'preserve' suggests, the direction of identity is from the input to the output, which is marked as I→O, but I will ignore this marking and assume that it is the default specification.

The evaluation in (26) is now corrected as follows.

(28) /p'$_1$E$_2$s$_3$/→[p$_1$ɐ$_1$ɛ$_2$s$_3$]

	*SOFT-LAB	IDENT-C[–back]	IDENT(Lab)	INT
(a) p'$_1$ɛ$_2$s$_3$	*!			
☞ (b) p$_1$ɐ$_1$ɛ$_2$s$_3$				*
(c) p$_1$ɛ$_2$s$_3$		*!		

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Candidate (28b) does not violate IDENT-C[–back] because the [–back] property of the input /p'/ is preserved on [ɕ]. Neither does it violate IDENT(Lab) because the LABIAL property of the input is preserved on [p]. However, it violates INT because the input /p'/ has two correspondents in the output: [$p_1ɕ_1$].

The analysis of /p'/→[pɕ] is not complete yet. We need to make sure that both correspondents of /p'/ are obstruents, so that the candidates [$p_1ɲ_1$] and [p_1j_1] are excluded.

The relevant constraint is the (O)utput→(I)nput IDENT in (29).

(29) $_{O\rightarrow I}$IDENT[±sonor]
[±sonor] on an output segment must be found on the input correspondent of that segment.

The constraint is violated if the value for [±sonorant] in the output is not matched in the input. For example, the candidate containing [$p_1ɲ_1$] from the input /p'$_1$/ satisfies $_{O\rightarrow I}$IDENT[±sonor] on the [p_1] part but violates it on the [$ɲ_1$] part because [$ɲ_1$] is a sonorant while /p'$_1$/ is an obstruent. The same would be true for any other sonorant correspondent of /p'$_1$/ such as [p_1j_1].

The foregoing discussion is illustrated by the evaluation of *pies*/*pśes* /p'Es/ 'dog' in (30). INT is a dominated constraint in order to permit decomposition in the desired winner.

(30) /p'$_1$E$_2$s$_3$/→[$p_1ɕ_1ɛ_2s_3$]

	*SOFT-LAB	$_{O\rightarrow I}$IDENT[±son]	IDENT-C[–back]	IDENT(Lab)	INT
(a) p'$_1ɛ_2s_3$	*!				
☞ (b) $p_1ɕ_1ɛ_2s_3$					*
(c) $p_1ɛ_2s_3$			*!		
(d) $p_1ɲ_1ɛ_2s_3$		*!			*
(e) $ɕ_1ɛ_2s_3$				*!	

Candidate (30a) violates *SOFT-LAB because it has [p']. IDENT-C[–back] and IDENT(Lab) eliminate candidates (30c) and (30e), respectively, since [$p_1ɛ_2s_3$] has lost the palatalization property of /p'/ and [$ɕ_1ɛ_2s_3$] has failed to preserve the labiality. Candidate (30d) has [ɲ] whose input correspondent is /p$^{\text{l}}$/, so it loses by $_{O\rightarrow I}$IDENT[±son].[29]

[29] Following up on a referee's question, let me point out that IDENT-C[–back] could not be replaced with MAX-C[–back]. This is documented by *pień*/*pśëń* [pɕəɲ] 'trunk' (NOM.SG) – *pni* + *a*/*pń* + *a* [pɲa] (GEN.SG). The problem is that MAX-C[–back], unlike IDENT-C[–back], cannot eliminate the candidate [pəɲ] because [–back] can reside on [ɲ]. This candidate is eliminated by IDENT-C[–back] because [–back] is found on the correspondent of /ɲ/ rather than on the correspondent of /p'/. Recall that the difference between

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An outstanding question is what constraint guarantees that /p'$_1$/ is decomposed into [p$_1$ɕ$_1$] and not into [ɕ$_1$p$_1$]. The answer is that it is *SSG(Fric-Stop) stated earlier in (14c). The tableau in (31) looks at the relevant candidates.

(31) /p'$_1$E$_2$s$_3$/→[p$_1$ɕ$_1$ɛ$_2$s$_3$]

	*SOFT-LAB	INT	*SSG(Fric-Stop)
(a) p'$_1$ɛ$_2$s$_3$	*!		
☞ (b) p$_1$ɕ$_1$ɛ$_2$s$_3$		*	
(c) ɕ$_1$p$_1$ɛ$_2$s$_3$		*	*!

Candidates (31b) and (31c) pay tribute to the IDENT constraints and to *SOFT-LAB, but (31c) violates *SSG(Fric-Stop) since a fricative is further away from the nucleus than a stop. *SSG(Fric-Stop) acts here as a constraint producing a TETU effect in the sense that it makes a choice between the candidates that are otherwise identical and points to the less marked output. To perform this function, *SSG(Fric-Stop) can be ranked anywhere in the tableau, including the lowest position.

The discussion of /p'$_1$E$_2$s$_3$/→[p$_1$ɕ$_1$ɛ$_2$s$_3$] has clarified the mechanics of decomposition but it has not addressed the problem of the [pɕ] – [p] alternation in [pɕɛs] (NOM.SG) – [ps + a] (GEN.SG). The system of the constraints developed thus far cannot account for this alternation, as (32) shows. I look at the relevant candidates and the relevant constraints only.

(32) /p'$_1$E$_2$s$_3$ + a$_4$/→[p$_1$s$_3$a$_4$] (failed evaluation)

	*SOFT-LAB	IDENT-C[–back]	INT
(a) p'$_1$s$_3$a$_3$	*!		
☹ (b) p$_1$s$_3$a$_3$		*!	
☜ (c) p$_1$ɕ$_1$s$_3$a$_4$			*

The observation is that /p/ decomposes into [pɕ] before vowels, /p'$_1$E$_2$s$_3$/→[p$_1$ɕ$_1$ɛ$_2$s$_3$], but depalatalizes to [p] before consonants, /p'$_1$E$_2$s$_3$ + a$_4$/→[p$_1$s$_3$a$_4$]. To account for this generalization, I adopt the proposal put forward in Rubach (2008b) that the prevocalic context is a position of faithfulness privilege.[30]

IDENT-F constraints and MAX-F constraints lies in the fact that the former, but not the latter, specify the exact locus where a given property of the input should occur in the output.

[30] Rubach (2008b) argues that Prevocalic Faithfulness should replace Onset Faithfulness.

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(33) IDENT-C[–back]$_{\text{Prevocalic}}$
[–back] on the input consonant must be preserved in an output correspondent of that consonant before a vowel.

In accordance with the principles of positional faithfulness, the positional faithfulness constraint, here IDENT-C[–back]$_{\text{Prevocalic}}$, must be ranked above the generic constraint, here IDENT-C[–back].

The evaluations of /p'$_1$E$_2$s$_3$/→[p$_1$ɕ$_1$ɛ$_2$s$_3$] and /p'$_1$E$_2$s$_3$ + a$_4$/→[p$_1$s$_3$a$_4$] are now as follows.

(34) i. /p'$_1$E$_2$s$_3$/→[p$_1$ɕ$_1$ɛ$_2$s$_3$]

	*SOFT-LAB	IDENT-C[–back]$_{\text{Prev}}$	INT	IDENT-C[–back]
(a) p'$_1$ɛ$_2$s$_3$	*!			
(b) p$_1$ɛ$_2$s$_3$		*!		*
☞ (c) p$_1$ɕ$_1$ɛ$_2$s$_3$			*	

ii. /p'$_1$E$_2$s$_3$ + a$_4$/→[p$_1$s$_3$a$_4$]

	*SOFT-LAB	IDENT-C[–back]$_{\text{Prev}}$	INT	IDENT-C[–back]
(a) p'$_1$s$_3$a$_4$	*!			
☞ (b) p$_1$s$_3$a$_4$				*
(c) p$_1$ɕ$_1$s$_3$a$_4$			*!	

As shown by (34ii), INT must outrank the generic IDENT-C[–back], so that candidate (34ii-c) loses to candidate (34ii-b), the desired result.

The analysis of soft labial alternations becomes more complex than presented thus far when we consider palatalization before yers, i.e. the vowels that vocalize in the last syllable of the word and delete in all other contexts. The data in (35) show that palatalization occurs not only before vocalized yers that are represented on the surface as [ɛ] but also before unvocalized yers, that is, the yers that are deleted in the surface representation. The examples in (35) all have a morpheme boundary between the consonant and the yer *E*, so palatalization is executed by PAL-*e*. The yer suffix is /Ets/, as shown by the alternations.[31]

[31] Unlike *hufiec/huśec* 'detachment' cited earlier in (22), the examples below have a morpheme boundary before *-ec*. I intentionally consider words containing *ec* as part of the root (22) and words containing *-ec* as a suffix (35) in order to underscore the similarity of the surface effects.

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(35) /s/→[ɕ]

pa*s* [s] 'waist'	pół + pa*si* + *e*c/półpa*ś* + *e*c [ɕɛ] 'shingles' (NOM.SG)
	pół + paś + c + a [ɕts] (GEN.SG)

/st/→[ɕtɕ]

czy*st* + y/cy*st* + y [st] 'clean'	czy*ści* + *e*c/cy*ść* + *e*c [ɕtɕɛ] 'purgatory' (NOM.SG)
	czyś*ć* + *c* + a/cyś*ć* + *c* + a [ɕtɕts] (GEN.SG)

/zd/ → [ʑdʑ] / [ɕtɕ] (Voice Assimilation)

ja*zd* + a [zd] 'ride' (N; NOM.SG)	je*ździ* + *e*c/je*źdź* + *e*c [ʑdʑɛ] 'rider' (NOM.SG)
	je*źdź* + *c* + a [ɕtɕts] (GEN.SG)

The evaluations in (36) demonstrate that the grammar can derive the correct form when the yer has vocalized (36i) but not when the yer has deleted (36ii). I look at the relevant fragment of *pól* + *pasi* + *ec*/*pół* + *paś* + *ec* 'shingles' (NOM.SG) – *pół* + *paś* + *c* + *a* (GEN.SG). Palatalization causes a violation of IDENT-C[+back], which mandates the preservation of the underlying hard consonant.

(36) i. /pas + Ets/→[paɕɛts]

	PAL-*e*	IDENT-C[+back]
(a) pasɛts	*!	
☞ (b) paɕɛts		*

ii. /pas + Ets + a/→[paɕtsa] (failed evaluation)

	PAL-*e*	IDENT-C[+back]
☜ (a) pastsa		
☹ (b) paɕtsa		*!

Standard OT fails to select the correct candidate in (36ii) because the front vowel has been deleted and hence PAL-*e* has no force. To solve the problem, we need a theory that can handle opacity. The choice of the theory is prompted by the observation that there is no palatalization at the prefix-stem juncture, even though the derived environment condition (the presence of a morpheme boundary) is fulfilled, so PAL-*e* should apply.

(37) *z* + *e*lektryzować /zɛ/ = [zɛ] 'galvanize'
vs. koz + a [z] 'goat' – ko*zi* + *e*/ko*ź* + *e* (LOC.SG): /z + ɛ/→[ʑɛ]

The apparently contradictory behavior of /z + ɛ/ in (37) is exactly what Derivational Optimality Theory (DOT henceforth) predicts. DOT called also Stratal OT assumes that evaluation proceeds in steps called levels (Kiparsky 1997, 2000; Rubach 1997, 2000a, 2000b, 2003a, 2003b; Bermúdez-Otero 1999, and others). A language may make use of three levels defined in

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terms of morphological domains: the stem level, the word level and the postlexical level (Kiparsky 2000).[32] From the perspective of Slavic languages, the stem level comprises roots and suffixes while the word level extends this domain to prefixes (Rubach 2003a). The postlexical level, uncontroversially, covers the domain of sentences. The winning candidate from level 1 becomes the input to level 2, and the winning candidate from level 2 is the input to level 3. Constraints may be reranked between the levels but the reranking is minimal (Rubach 2000b).

DOT has no difficulty solving the contradictory behavior of PAL-*e* in (37): palatalization at the root + suffix juncture in *kozi* + *e*/*koź* + *e* 'goat' (LOC.SG) but no palatalization at the prefix + stem juncture in *z* + *elektryzować* 'galvanize'. The analysis is that PAL-*e* is active at level 1 (root + suffixes) but not at level 2 (prefix + stem). This generalization is captured by the reranking of PAL-*e* and IDENT-C[+back].

(38) Level 1: PAL-*e* >> IDENT-C[+back]
Level 2: IDENT-C[+back] >> PAL-*e*

The failed analysis in (36ii) is now repaired as follows. Palatalization is executed at level 1, at which all yers are kept. Yer Vocalization *E*→ɛ, and Yer Deletion, *E*→Ø, operate at level 2.[33] The preservation of [ɕ] from level 1 at level 2 is enforced by IDENT-C[–back].

(39) Level 1: /pas + Ets + a/→[paɕEtsa][34]

	PAL-*e*	IDENT-C[+back]	IDENT-C[–back]
(a) pasEtsa	*!		
☞ (b) paɕEtsa		*	

Level 2: /paɕEtsa/→[paɕtsa]

	IDENT-C[+back]	PAL-*e*	IDENT-C[–back]
☞ (a) paɕtsa			
(b) pastsa			*!

In the case of prefixes, *z* + *elektryzować* 'galvanize', the analysis follows from DOT architecture. Since level 1 is the stem + suffixes level, prefixes are first considered at level 2 but at level 2 PAL-*e* has been reranked below

[32] Rubach (2011b) argues that DOT affords four levels: the stem level, the word level, the clitic level, and the postlexical level.

[33] Technically, MAX-Seg outranks Yer Deletion (*E) at level 1 but this ranking is reversed at level 2.

[34] Actually, in the case of coronal inputs such as /s + ɛ/, PAL-e derives palatalized [s'] at level 1. At level 2, various 'spell-out' constraints induce [s']→[ɕ]. See Rubach (2003a) for reasons why the /s/→[ɕ] change should be split into two steps.

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IDENT-C[+back] and hence is inactive. Consequently, the input [z+ɛ] surfaces faithfully as [zɛ], the correct result.

Returning to underlying soft labials, the question is how they are analyzed in a two level phonology of Kurpian. The answer is that the [pɕ] – [p] alternation in *pies*/*pśes* /p'Es/ 'dog' (NOM.SG) – *ps*+*a* /p'Es+a/ (GEN.SG) is derived at level 2 rather than at level 1. Crucial for this alternation is the depalatalization process, /p'/→[p], which occurs before a consonant. This context is not available at level 1 because, as noted above, Yer Deletion operates at level 2. Consequently, the winner from level 1 contains the yer in the gen.sg form *ps*+*a* [p'Es+a]. At level 2, the yer is deleted, which triggers depalatalization: [p'Es+a]→[psa].

A related question is whether decomposition, /p'/→[pɕ], as in /p'Es/→[pɕɛs], is a level 1 or a level 2 operation. There is no doubt that decomposition must be held off until level 2. If it had occurred at level 1, the input to level 2 would be [pɕEs+a] for the gen.sg *ps*+*a*. Importantly, the [p] and the [ɕ] could no longer be regarded as correspondents of a single segment /p'/ because the derivational history from level 1 is not carried over to level 2. At level 2, [p] and [ɕ] would thus be independent segments. Consequently, the putative derivation of the level 2 input [pɕEs+a]→[psa] would call for *ɕ*-deletion, but, as documented in (22), this operation cannot be carried out. It is precisely for that reason that the underlying representation of the morpheme 'dog' must be /p'Es/, with a soft labial, rather than /pɕEs/, with a cluster of consonants.

Since decomposition must be blocked at level 1, INT, the constraint that penalizes decomposition, needs to be ranked above *SOFT-LAB. Given this ranking, the optimal outputs for /p'Es/ and /p'Es+a/ are the fully faithful candidates [p'Es] and [p'Esa]. At level 2, INT and *SOFT-LAB are reranked, enabling decomposition.

(40) Level 1: INT >> *SOFT-LAB
Level 2: *SOFT-LAB >> INT

The analysis of *pies*/*pśes* (NOM.SG) and *ps*+*a* (GEN.SG) is now as follows. PAL-*e* is inactive morpheme-internally, and hence is not shown in (41). The ranking INT>>IDENT-C[–back] becomes essential for the derivation of *ps*+*a* at level 2.

(41) Level 1:
i. /p'$_1$E$_2$s$_3$/→[p'$_1$E$_2$s$_3$] (no change)

	INT	IDENT-C[–back]$_{Prev}$	*SOFT-LAB	IDENT-C[–back]
☞ (a) p'$_1$E$_2$s$_3$			*	
(b) p$_1$E$_2$s$_3$		*!		*
(c) p$_1$ɕ$_1$E$_2$s$_3$	*!			

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ii. /p'$_1$E$_2$s$_3$ + a$_4$/→[p'$_1$E$_2$s$_3$a$_4$] (no change)

	INT	IDENT-C[–back]$_{Prev}$	*SOFT-LAB	IDENT-C[–back]
☞ (a) p'$_1$E$_2$s$_3$a$_4$			*	
(b) p$_1$E$_2$s$_3$a$_4$		*!		*
(c) p$_1$ɛ$_1$E$_2$s$_3$a$_4$	*!			

Level 2:

i. [p'$_1$E$_2$s$_3$]→[p$_1$ɛ$_1$ɛ$_2$s$_3$]

	*SOFT-LAB	IDENT-C[–back]$_{Prev}$	INT	IDENT-C[–back]
(a) p'$_1$ɛ$_2$s$_3$	*!			
(b) p$_1$ɛ$_2$s$_3$		*!		*
☞ (c) p$_1$ɛ$_1$ɛ$_2$s$_3$			*	

ii. [p'$_1$E$_2$s$_3$ + a$_4$]→[p$_1$s$_3$a$_4$]

	*SOFT-LAB	IDENT-C[–back]$_{Prev}$	INT	IDENT-C[–back]
(a) p'$_1$s$_3$a$_4$	*!			
☞ (b) p$_1$s$_3$a$_4$				*
(c) p$_1$ɛ$_1$s$_3$a$_4$			*!	

Words in which a labial occurs across a morpheme boundary before a yer show the prominent role of PAL-*e* in soft labial conspiracy because PAL-*e* is a derived environment constraint. Below I look at the suffix /Ets/.[35]

(42) ku*p*+owa+ć[p] 'to buy' ku*pi*+*ec*/ku*pś*+*ec*[pɕ+ɛts] 'buyer' (NOM.SG)
ku*p*+*c*+*a* [p+ts+a] (GEN.SG)
skarb/skå*rb* [p] 'treasure' skar*bi*+*ec*/skar*bź*+*ec* [bʑ+ɛts] 'treasury' (NOM.SG)
skar*b*+*c*+*a* [p+ts+a][36]

The underlying representation of *kupi*+*ec*/*kupś*+*ec* 'buyer' (NOM.SG) is /kup+Ets/, with a hard /p/ attested in *kup*+*owa*+*ć* 'to buy'. Palatalization, *p*→*p'*, is enforced by PAL-*e* at level 1. In [kup'+Ets], decomposition ensues

[35] Similar facts are found before other yer suffixes, for example, the adjective suffix /En/, as in *kwas* [s] 'acid' – *kwaś*+*n*+*y* [ɕ] 'sour' and *groz*+*a* [z] 'fear' – *groź*+*n*+*y* [ʑ] 'frightening'. Labials depalatalize before a consonant: *kop*+*a*+*ć* [p] 'dig' – kop+n+y [p] 'deep' and *tråf* [f] 'luck' – *tråf* +*n*+*y* [f] 'happy'.

[36] The [p] in *skårb* and *skarb*+*c*+*a* is due to Final Devoicing and Voice Assimilation, respectively.

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at level 2, exactly as is the case in (41). In [kup'+Ets+a], we witness depalatalization. As noted earlier, PAL-*e* is active at level 1, an effect of PAL-*e* >> IDENT-C[+back], *SOFT-LAB, but inactive at level 2, where it is reranked below IDENT-C[+back].

(43) Level 1:

i. /$k_1u_2p_3$ + E_4ts_5/→[$k_1u_2p'_3E_4ts_5$]

	INT	ID-C[–bk]$_{Prev}$	PAL-*e*	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) $k_1u_2p_3E_4ts_5$			*!			
☞ (b) $k_1u_2p'_3E_4ts_5$				*	*	
(c) $k_1u_2p_3e_3E_4ts_5$	*!					

ii. /$k_1u_2p_3$ + E_4ts_5 + a_6/→[$k_1u_2p'_3E_4ts_5a_6$]

	INT	ID-C[–bk]$_{Prev}$	PAL-*e*	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) $k_1u_2p_3E_4ts_5a_6$			*!			
☞ (b) $k_1u_2p'_3E_4ts_5a_6$				*	*	
(c) $k_1u_2p_3e_3E_4ts_5a_6$	*!					

Level 2:

i. [$k_1u_2p'_3E_4ts_5$]→[$k_1u_2p_3e_3\varepsilon_4ts_5$]

	*SOFT-LAB	ID-C[–bk]$_{Prev}$	ID-C[+bk]	INT	PAL-*e*	ID-C[–bk]
(a) $k_1u_2p'_3\varepsilon_4ts_5$	*!					
(b) $k_1u_2p_3\varepsilon_4ts_5$		*!			*	*
☞ (c) $k_1u_2p_3e_3\varepsilon_4ts_5$				*		

ii. [$k_1u_2p'_3E_4ts_5a_6$]→[$k_1u_2p_3ts_5a_6$]

	*SOFT-LAB	ID-C[–bk]$_{Prev}$	ID-C[+bk]	INT	PAL-*e*	ID-C[–bk]
(a) $k_1u_2p'_3ts_5a_6$	*!					
☞ (b) $k_1u_2p_3ts_5a_6$						*
(c) $k_1u_2p_3e_3ts_5a_6$				*!		

Finally, I return to the evaluation of *sklepi*+*e*/*skleṕ*+*e* 'store' (LOC.SG) discussed earlier in (15) prior to the conclusion that soft labial conspiracy must be analyzed in terms of decomposition and level ordered phonology.

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In all relevant ways, the derivation of *sklepi*+*e*/*sklepś*+*e* is parallel to the derivation of *kupi*+*ec*/*kupś*+*ec* 'buyer' in (43).

(44) Level 1: /$s_1k_2l_3\varepsilon_4p_5+\varepsilon_6$/→[$s_1k_2l_3\varepsilon_4p'_5\varepsilon_6$]

	INT	ID-C[–bk]$_{Prev}$	PAL-*e*	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) $s_1k_2l_3\varepsilon_4p_5\varepsilon_6$			*!			
☞ (b) $s_1k_2l_3\varepsilon_4p'_5\varepsilon_6$				*	*	
(c) $s_1k_2l_3\varepsilon_4p_5\mathfrak{e}_5\varepsilon_6$	*!					

Level 2: [$s_1k_2l_3\varepsilon_4p'_5\varepsilon_6$]→[$s_1k_2l_3\varepsilon_4p_5\mathfrak{e}_5\varepsilon_6$][37]

	*SOFT-LAB	ID-C[–bk]$_{Prev}$	ID-C[+bk]	INT	PAL-*e*	ID-C[–bk]
(a) $s_1k_2l_3\varepsilon_4p'_5\varepsilon_6$	*!					
(b) $s_1k_2l_3\varepsilon_4p_5\varepsilon_6$		*!			*	*
☞ (c) $s_1k_2l_3\varepsilon_4p_5\mathfrak{e}_5\varepsilon_6$				*		

To summarize, the analysis of labial stops documents two strategies of the soft labial conspiracy: decomposition and depalatalization. It also supports three theoretical points. First, OT must admit unidirectional IDENT constraints that match inputs and outputs separately from matching outputs and inputs. Second, labial decomposition is a TETU effect. Third, evaluation must proceed in steps, as envisaged by DOT/Stratal OT.

In the remainder of this article, I look at the decomposition of the soft labial nasal (Section 3) and the soft labial fricatives (Section 4). The facts are strikingly different from those discussed in the analysis of soft labial stops but the goal is the same: soft labials must be eliminated from the surface representation.

3. Labial nasal

The effect of decomposition with the nasal input is different from that found in the decomposition of labial stops: /m'/ appears on the surface as a prepalatal nasal [ɲ]. The missing link in the chain *m'*→*mɲ*→*ɲ* is provided by Southern Kurpian, a dialect spoken in the district of Jednorożec in the south of Kurpia.[38] A comparison of Central Kurpian and Southern Kurpian is instructive because the relationship between [mɲ] and [ɲ] is perfectly systematic.

[37] The candidate [$s_1k_2l_3\varepsilon_4\mathfrak{e}_5\varepsilon_6$], not considered here, is excluded by IDENT(Lab), which must outrank INT.

[38] I conducted fieldwork in the following villages: Cierpięta, Drożdżewo Nowe, Jednorożec, Kobylaki Czarzaste, Kobylaki Wólka, Lipy-Obórki, Małowidz, Orzoł, Parciaki, Połoń, Pogorzel, Ulatowo-Dąbrówka, and Żelazna.

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(45)	SOUTHERN KURPIAN[39]	CENTRAL KURPIAN	POLISH SPELLING	GLOSS
	[mɲastɔ]	[ɲastɔ]	miasto	'town'
	[ɕmɲawɨ]	[ɕɲawɨ]	śmiały	'bold'
	[zamɲar]	[zaɲɑr]	zamiar	'intention'
	[mɲɔdɔvɨ]	[ɲɔdɔvɨ]	miodowy	'honey' (Adj)

It can be hypothesized that, historically, Central Kurpian had the system of nasal decomposition as in Southern Kurpian but moved it to a further stage by deleting the labial of the cluster: *mɲ→ɲ*, a process that I call simplification. The result is that the evidence for nasal decomposition in Central Kurpian appears to have been lost because, synchronically, there is no reason to believe that the words in (45) derive from a representation that is different from that found on the surface. That is, *miast + o/ńast + o* [ɲast + ɔ] probably comes from underlying /ɲast + ɔ/ 'town', a representation that parallels words such as *gniazd + o/gńazd + o* [gɲazd + ɔ] 'nest' in which [ɲ] comes historically from the dental nasal *n*.

Counter to what has been said so far, Kurpian (i.e. Central Kurpian) has a live and fully productive system of phonological alternations between [m] and [ɲ].

(46)		NOM.SG	LOC.SG	GLOSS
	(a)	bram + a [brama]	brami + e/brań + e [braɲɛ]	'gate'
		słom + a/słóm + a [swoma]	słomi + e/słóń + e [swoɲɛ]	'straw'
		rozum [rɔzum]	rozumi + e/rozuń + e [rɔzuɲɛ]	'reason'
	(b)	strom + y/stróm + y [stromɨ] 'steep'	strom + izn + a/stróń + ïzn + a [stroɲizna] 'steep slope'	
	(c)	szum/sum [sum] 'noise' (NOM.SG)	szum + i/suń + ï [suɲi] 'it makes noise'	

Alternations are also found morpheme-internally (47a) and across morpheme boundaries in contexts of Yer Vocalization and Yer Deletion (47b).

(47)		NOM.SG	GEN.SG
	(a)	Chamiec/Chańec [xaɲɛts] (name)	Chamc + a [xamtsa]
		Niemiec/Ńëńec [ɲəɲɛts] 'German' (N)	Niemc + a/Ńëmc + a [ɲəmtsa]
	(b)	tasiemi + ec/taśëń + ec [taɕəɲɛts] 'tapeworm'	tasiem + c + a/taśëm + c + a [taɕəmtsa]
		sami + ec/sań + ec[40] [saɲɛts] 'male'	sam + c + a [samtsa]

[39] The occurrence of [mɲ] is attested not only in Southern Kurpian but also in the Mazovian dialects neighboring on Kurpia.

[40] The word is bimorphemic, as shown by *sam + ic + a/sań + ïc + a* 'female'.

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These words constitute evidence that the alternation comes either from underlying /m'/ (47a) or from [m'] that is produced at an intermediate stage of derivation (47b).

Looking at [xaɲɛts] – [xamts + a] in (47a), the simplest hypothesis is that the underlying representation contains either /ɲ/ or /m/ as these are the segments attested in the surface representation. However, neither of these hypotheses is true. If the underlying representation has /ɲ/, we have a problem deriving the gen.sg form [xamts + a]. The putative process *ɲ→m* before a consonant is belied by words such as *kaganiec/kagańec* [kagaɲɛts] 'muzzle' (NOM.SG) – *kagańc + a* [kagaɲts + a] (GEN.SG) in which underlying /ɲ/ does not change to [m] before a consonant. Neither can /m/ be postulated in the underlying representation of [xaɲɛts] since there is no way to enforce the /m/ →[ɲ] change because PAL-*e* is restricted to derived environments and cannot look inside morphemes.[41] Consequently, the fully faithful candidate [xamɛts] would win in the evaluation, the wrong result.

The solution is to postulate palatalized /m'/ as the underlying source of the [m] – [ɲ] alternation, so *Chamiec/Chańec* is /xam'Ets/. Underlying /m'/ never appears in the surface representation because it either depalatalizes to [m], *Chamc + a* (GEN.SG), or undergoes decomposition *cum* simplification and appears as [ɲ]. We are looking here at a case of absolute neutralization that is fully parallel to that of soft labial stops discussed in Section 2 above.

The argument for an intermediate [m'] derived from /m/ through the action of PAL-*e* is based on examples such as *tasiemi + ec/taśëń + ec* 'tapeworm' (NOM.SG) – *tasiem + c + a/taśëm + c + a* (GEN.SG) in (47b). In all essential ways, the reasoning is identical to the argument for intermediate [p'] derived from /p/ in *kupi + ec/kupś + ec* 'buyer' discussed in Section 2. The underlying representation must have hard /m/ rather than soft /m'/ because [m] occurs in the base morpheme *taśm + a* 'tape' (*-a* is the ending of the feminine nom.sg). The /m/ palatalizes to [m'] at level 1 before the front yer of the suffix /Ets/. Recall from Section 2 that yers trigger palatalization regardless of whether they ultimately surface as [ɛ] (Yer Vocalization) or not (Yer Deletion). The examples for obstruents given in (35) are now extended to include nasals.

(48) (a) wy + gna + n + y [vɨgnanɨ] 'chased away'; past participle of wy + gna + ć 'chase away'
(b) wy + gna + ni + ec/wy + gna + ń + ec [vɨgnaɲɛts] 'outcast' (N; NOM.SG)
(c) wy + gna + ń + c + a [vɨgnaɲtsa] 'outcast' (GEN.SG)

[41] Recall the discussion in Section 2 and examples such as *mew + a* [mɛv + a] 'sea-gull', with hard [m] before [ɛ] morpheme-internally.

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The derivation here is an exact parallel to the derivation of *pół+pasi+ec/pół+paś+ec* 'shingles' (NOM.SG) – *pół+paś+c+a* (GEN.SG) in (39) in Section 2. Schematically:

(49) (a) Level 1: /vɨ+gna+n+Ets/→[vɨgnaɲEts] (NOM.SG): PAL-*e*
/vɨ+gna+n+Ets+a/→[vɨgnaɲEtsa] (GEN.SG): PAL-*e*
(b) Level 2: [vɨgnaɲEts]→[vɨgnaɲɛts] (NOM.SG): Yer Vocalization
[vɨgnaɲtsa]→[vɨgnaɲtsa] (GEN.SG): Yer Deletion

The derivation of *tasiemi+ec/taśëm+ec* 'tapeworm' (NOM.SG) – *tasiem+c+a/taśëm+c+a* (GEN.SG) goes through a palatalization stage in an exact parallel to the examples shown in (48). The difference is that soft labials, unlike the soft coronal in (39), cannot maintain palatalization before consonants, so [m'] depalatalizes to [m].

In the remainder of this section, I look at the details of the analysis that derives [ɲ] from the soft labial nasal. I begin with morphemes containing underlying /m'/ and then proceed to morphemes with derived [m']. To make the reading of the transcriptions of output candidates less obtrusive to the eye, I suppress the integers because the correspondence relations between the inputs and the outputs are straightforward.

The morpheme *Chamiec/Chańec* (name, NOM.SG) cited in (47a) is derived from /xam'Ets/. Since palatalization is present in the underlying representation, nothing happens at level 1 and the input to level 2 is the unchanged [xam'Ets]. We need to make sure that the grammar selects [xaɲɛts], the attested surface form, as the winner. The hardest competitor to eliminate is [xamɲɛts], with the decomposition /m'/→[mɲ]. Since, as shown by /p' b'/→[p ɕ bʑ] in Section 2, decomposition is attested in Kurpian, the candidate [xamɲɛts] cannot be eliminated by INT, so there must be some other reason why [xamɲɛts] is banned from surface representations.

The relevant difference between [pɕ bʑ] and [mɲ] is the fact that [pɕ bʑ] but not [mɲ] form good onsets. The sonority slopes in *pies/pśes* [pɕɛs] 'dog' (NOM.SG) and *babi+e/babź+e* [ba.bʑɛ] 'woman' (LOC.SG) are ideal, with the fricative being closer to the vowel than the stop. In contrast, the candidate [xa.mɲɛts] violates *SSG(Plateau), a constraint that prohibits segments of the same sonority class in syllable margins.[42] If *SSG(Plateau) outranks IDENT(Lab), [xa.mɲɛts] loses to [xa.ɲɛts], the desired result. Note that the [ɲ] retains all the properties of the input /m'/ except labiality, so it is a better output correspondent of /m'/ than, for example, [ʑ], and hence [xaʑɛts] cannot win with [xa.ɲɛts]. Technically, this

[42] The candidate [xam.ɲɛts] is excluded by onset maximization. Recall the discussion of Kurpian syllabification and SSG in Section 2.

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generalization is expressed by IDENT constraints. The one for nasality is stated in (50).

(50) IDENT[+nas]
[+nas] on the input segment must be preserved on a correspondent of that segment in the output.

IDENT[+nas] is a surface true and hence undominated constraint in Kurpian.

Finally, the choice of [ɲ] over [mɲ] is not a matter of violating MAX-Seg, a constraint prohibiting deletion. MAX-Seg is mute on [mɲ] and [ɲ] in [xa.mɲɛts] and [xa.ɲɛts] since both of these outputs are correspondents of /m'/. They come from decomposition, so there is no sense in which [ɲ] exhibits deletion.

In (51), I look at the evaluation of *Chamiec*/*Chańec* at level 2. I assume that the syllabification constraints discussed in Section 2 enforce onset maximization. The ranking of the constraints is transferred from the analysis of labial stops in Section 2, but *SSG(Plateau), now relevant, has been added.[43]

(51) Level 2: [xam'Ets]→[xa.ɲɛts]

	ID[+nas]	*SOFT-LAB	ID-C[–bk]$_{Prev}$	*SSG(Plateau)	ID(Lab)	INT	ID-C[–bk]
(a) xa.m'ɛts		*!					
(b) xa.mɛts			*!				*
(c) xa.mɲɛts				*!		*	
☞ (d) xa.ɲɛts					*		
(e) xa.**z**ɛts	*!				*		

The evaluation of the gen.sg form [xam'Ets+a]→[xamtsa] parallels the derivation for [p'Es+a]→[psa] in (41) in Section 2. To save space, IDENT-C[–back]$_{Prevocalic}$ is omitted in (52) because it is irrelevant.

[43] I omit IDENT-C[+back] since it plays no role in this evaluation. Further, decomposition candidates such as [xam**z**ɛts] where [m**z**] are both correspondents of /m'/ are taken out by $_{O\rightarrow I}$IDENT[+nas] mandating that [+nas] on a segment in the output must be found on the correspondent of that segment in the input.

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(52) Level 2: [xam'Ets + a]→[xam.tsa][44]

	ID[+nas]	*SOFT-LAB	*SSG(Plateau)	ID(Lab)	INT	ID-C[–bk]
(a) xam'.tsa		*!				
☞ (b) xam.tsa						*
(c) xamɲ.tsa			*!		*	
(d) xaɲ.tsa				*!		
(e) xa.ɕtsa	*!			*		

The evaluation of words with derived soft labials such as *sami* + *ec*/*sań* + *ec* 'male' and *tasiemi* + *ec*/*taśëń* + *ec* 'tapeworm' parallels that for *kupi* + *ec*/*kupś* + *ec* 'buyer' in (43) in Section 2. The soft labial is derived at level 1 through the action of PAL-*e*. *SOFT-LAB is below INT, so decomposition candidates cannot win. The simplification candidate with [ɲ] is outlawed by IDENT(Lab). Other IDENT constraints, including IDENT[+nas], omitted in (53), make sure that input /m/ does not map to [ʑ] or some such segments. The example is *sami* + *ec*/*sań* + *ec* 'male'.[45]

(53) Level 1: /sam + Ets/→[sam'Ets]

	INT	ID-C[–bk]$_{Prev}$	ID(Lab)	PAL-*e*	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) samEts				*!			
☞ (b) sam'Ets					*	*	
(c) samɲEts	*!						
(d) saɲEts			*!				

As argued in Section 2, INT and *SOFT-LAB, on the one hand, and PAL-*e* and IDENT-C[+back], on the other hand, change places at level 2. These rerankings capture two generalizations. First, *SOFT-LAB >> INT drives decomposition. Second, IDENT-C[+back] >> PAL-*e* renders PAL-*e* inert, hence we have [z] rather than [ʑ] when the prefix *z* is considered at level 2: *z* + *elektryzować* 'galvanize'. *SSG(Plateau) plays no role at level 1 because

[44] The candidates [xa.mtsa] and [xa.mɲtsa], not considered in (52), are eliminated by *SSG(Sonor-Obstr), which outranks NO-CODA. See Section 2 for discussion.

[45] In (53), IDENT(Lab) could be ranked below IDENT-C[–back]$_{Prev}$, which is the ranking required at level 2 (see (54) below). However, IDENT(Lab) must outrank IDENT-C[+back] and *SOFT-LAB, so that (53b) wins over (53d).

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decomposition candidates are eliminated by the high-ranking INT. However, at level 2, INT is reranked to a low position to permit *p' b'*→*pɕ*, *bʑ*, so it is *SSG(Plateau) that eliminates the decomposition candidates [xa.mɲɛts] in (51) and [sa.mɲɛts] in (54) below. The ranking *SSG(Plateau) >> IDENT(Lab), which may exist already at level 1, makes sure that [saɲɛts] wins over [samɲɛts]. To keep the tableaux within reasonable bounds, I will no longer entertain candidates that offend IDENT[+nas] such as [saⁿzɛts]. Also, I will not show IDENT-C[+back] >> PAL-*e* since none of these constraints plays a role in level 2 evaluations.

(54) Level 2: [sam'Ets]→[sa.ɲɛts]

	*SOFT-LAB	ID-C[–back]$_{Prev}$	*SSG(Plateau)	ID(Lab)	INT	ID-C[–bk]
(a) sa.m'ɛts	*!					
(b) sa.mɛts		*!				*
(c) sa.mɲɛts			*!		*	
☞ (d) sa.ɲɛts				*		

The evaluation of the gen.sg form /sam+Ets+a/→[samtsa] 'male' and /vɨ+gna+n+Ets+a/→[vɨgnaɲtsa] 'outcast' (see (47) and (49) above) makes it clear that an intermediate stage in the derivation of [ɲ] from /m/ is warranted. In (55), I ignore the prefix /vɨ/ because it plays no role.

(55) Level 1:
i. /sam+Ets+a/→[sam'Etsa]

	INT	ID-C[–bk]$_{Prev}$	ID(Lab)	PAL-*e*	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) samEtsa				*!			
☞ (b) sam'Etsa					*	*	
(c) samɲEtsa	*!						
(d) saɲEtsa			*!				

ii. /gna+n+Ets+a/→[gnaɲEtsa]

	INT	ID-C[–bk]$_{Prev}$	ID(Lab)	PAL-*e*	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) gnanEtsa				*!			
☞ (b) gnaɲEtsa					*		

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Level 2:

i. [sam'Etsa]→[sam.tsa]

	*SOFT-LAB	ID-C[–back]$_{Prev}$	*SSG(Plateau)	ID(Lab)	INT	ID-C[–bk]
(a) sam'.tsa	*!					
☞ (b) sam.tsa						*
(c) samɲ.tsa			*!		*	
(d) saɲ.tsa				*!		

ii. [gnaɲEtsa]→[gnaɲ.tsa]

	*SOFT-LAB	ID-C[–back]$_{Prev}$	*SSG(Plateau)	ID(Lab)	INT	ID-C[–bk]
☞ (a) gnaɲ.tsa						
(b) gnan.tsa						*!

If the words exhibiting the [ɲ] – [m] alternation, such as [saɲɛts] – [samtsa] 'male' in (55), changed /m/ to [ɲ] directly, the winner in (55i) would be candidate (55i-d), and, consequently, [saɲEtsa] would be the input to level 2. The problem is that, in the relevant ways, [saɲEtsa] would be identical to [vɨgnaɲEtsa] 'outcast' in (55ii), but the surface representations are different: [samtsa] vs. [vɨgnaɲtsa], with the former but not the latter exhibiting depalatalization. This problem does not exist if the input to level 2 is [sam'Etsa], with a soft labial, because [m'] makes [sam'Etsa] distinct from [vɨgnaɲtsa], which has [ɲ] in the input to level 2. I conclude that the intermediate stage with [m'] is warranted.

Finally, I look alternations in words such as *bram*+*a* [brama] 'gate' (NOM.SG) – *brami*+*e*/*braṅ*+*e* [braɲɛ] (LOC.SG) listed in (46). These words do not contain allomorphs exhibiting depalatalization, so the derivation of [ɲ] from /m/ parallels that for *sami*+*ec*/*saṅ*+*ec* 'male' (NOM.SG) in (53)–(54). The evaluations in (56) consider the loc.sg form /bram+ɛ/→[braɲɛ].

(56) Level 1: /bram+ɛ/→[braɲɛ]

	INT	ID-C[–bk]$_{Prev}$	ID(Lab)	PAL-*e*	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) bramɛ				*!			
☞ (b) bram'ɛ					*	*	
(c) bramɲɛ	*!						
(d) braɲɛ			*!				

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Level 2: [bram'ɛ]→[braɲɛ]

	*SOFT-LAB	ID-C[–back]$_{Prev}$	*SSG(Plateau)	ID(Lab)	INT	ID-C[–bk]
(a) bra.m'ɛ	*!					
(b) bra.mɛ		*!				*
(c) bra.mɲɛ			*!		*	
☞ (d) bra.ɲɛ				*		

An outstanding question is whether the system of the constraints developed in this analysis does not have an adverse effect on the derivation of *skromni+e/skrómń+e* [skromɲɛ], an adverb from the adjective *skromn+y/skrómn+y* 'modest'. The answer is negative. The crucial difference between [skromɲ+ɛ] 'modestly' and [braɲ+ɛ] is that the former has a nasal cluster in the underlying representation while the latter derives [ɲ] from a single consonant: /skromn+ɛ/ and /bram+ɛ/, respectively. At level 1, /skromn+ɛ/ undergoes palatalization, so the input to level 2 is [skromɲ+ɛ]. The candidate [skroɲɛ] loses to [skromɲɛ], the attested surface form, because it violates MAX-Seg: the [m] has been deleted. In contrast, the absence of [m] in the desired winner in (56d) of level 2, [braɲɛ], does not violate MAX-Seg because [ɲ] is the output correspondent of the input [m'], so there is no deletion to speak of. This is the only admissible understanding of how MAX-Seg works in OT, an understanding that is able to distinguish between instances of deletion and instances of decomposition.

To conclude, the analysis of /m'/ inputs has shown that the goal of eliminating [m'] from the surface representation is achieved in a different way than in the case of the labial stops /p' b'/ discussed in the preceding section: /m'/ defaults to [ɲ], a strategy that I term simplification.

4. Labial fricatives

The first part of this section is structured much like the previous section: I first show that fricative alternations are productive and then develop an argument that Kurpian must have both underlying and derived [f' v']. In the second part of the section, I argue that depalatalization of soft labial fricatives leaves a trace on the preceding sibilant, which constitutes evidence for a Duke-of-York derivation.

The soft labial fricatives /f' v'/ parallel /m'/ in the sense that they exhibit simplification rather than decomposition: /f' v'/→[ɕ ʑ]. The non-alternating [ɕ ʑ] come historically from /f' v'/ and are probably best analyzed as underlying segments (57a). However, the process of deriving [ɕ ʑ] from the palatalized labial fricatives is not dead by any means. On the contrary, it is live

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and productive, a fact that is documented by examples showing alternations in (57b).

(57)	(a)	o*fi*ara/łoś*a*ra [ɕ] 'offering'	*wi*ara/ź*a*ra [ʑ] 'faith'
		*kwi*at/kś*å*t [ɕ] 'flower'	człow*i*ek/cłoź*e*k [ʑ] 'man'
	(b)	paragra*f*[f] 'paragraph' (NOM.SG)	paragra*fi* + *e*/paragraś + *e* [ɕɛ] (LOC.SG)
			paragra*f* + *i*k/paragraś + *i*k [ɕi] (DIMIN)
		tra*f*/tråf [f] 'accident'	traf + u/trå*f* + u [f] (GEN.SG)
			tra*f* + *i*/tråś + *ï* [ɕi] 'he will hit it'
		Li*tw* + a/Lyt*w*a [f] 'Lithuania' (NOM.SG)	Li*tw**i* + *e*/Lytś + *e* [ɕɛ] (LOC.SG)
			Li*tw* + *i*n/Lytś + *ï*n [ɕi] 'Lithuanian' (N; NOM.SG)
		chle*w*/chlé*w* [f] 'pigsty' (NOM.SG)	chle*wi* + *e*/chléź + *e* [ʑɛ] (LOC.SG)
			chle*w* + *i*k/chléź + *i*k [ʑi] (DIMIN)
		staw/ståw [f] 'pond' (NOM.SG)	sta*wi* + *e*/staź + *e* [ʑɛ] (LOC.SG)
			sta*w* + *i*k/staź + *i*k [ʑi] (DIMIN)
		kro*w* + a [v] 'cow' (NOM.SG)	kro*wi* + *e*/kroź + *e* [ʑɛ] (LOC.SG)
			kro*w* + *i*n + a/kroź + *ï*n + a [ʑi] (DIMIN)

The argument for underlying soft /f' v'/ comes from morpheme-internal alternations.

(58) hu*fi*ec/huś*e*c [ɕ] 'detachment' (NOM.SG) – hu*f*c + a [f] (GEN.SG)
kra*wi*ec/kraź*e*c [ʑ] 'taylor' (NOM.SG) – kra*w*c + a [f] (GEN.SG)
o*wi*es/łoź*e*s [ʑ] 'oats' (NOM.SG) – ows + a/łowc + a [f] (GEN.SG)
*wi*eś/ź*e*ś [ʑ] 'village' (NOM.SG) – w*si* + e/wś + e [f] (NOM.PL)

Looking at the first example in (58), the simplest analysis is to derive the alternation either from underlying /ɕ/ by labialization, *ɕ*→*f* before a consonant, or from underlying /f/ by palatalization, *f* →*ɕ* before *e*, but neither of these analyses is correct.

The labialization process is falsified by the fact that [ɕts] is an attested cluster in surface representations, for example, in *pól* + *paś* + *c* + *a* [powpaɕtsa] 'shingles' (GEN.SG) analyzed in Section 2. In general, Kurpian admits prepalatals before consonants, so postulating labialization cannot be correct.

(59) bodziec/bodźec [bɔʥɛts] 'incentive' (NOM.SG) – bodźc + a [bɔʨtsa] (GEN.SG)
gościec/gośćec [gɔɕʨɛts] 'rheumatism' (NOM.SG) – gośćc + a [gɔɕʨtsa] (GEN.SG)

The other hypothesis that [ɕ] – [f] derives from underlying /f/ is also incorrect. If [xuɕɛts] is /hufɛts/, then /f/ must palatalize to [ɕ] by PAL-*e*, but PAL-*e* applies only in derived environments and has no force

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morpheme-internally. This is documented by the fact that [fɛ] and [vɛ] occur in surface representations in, for example, *felczer*/*felcér* 'surgeon' and *wesel*+*e* 'wedding'.

The solution to the problem is to assume that Kurpian has underlying soft labials /f' v'/, and hence the underling representation of *hufiec*/*huśec* is /xuf'Ets/. The analysis of /xuf'Ets/→[xuɕɛts] (NOM.SG) and /xuf'Ets+a/ →[xufts+a] (GEN.SG) is parallel to that discussed for /xam'Ets/→[xaɲɛts] (NOM.SG) and /xam'Ets+a/→[xamts+a] (GEN.SG) in Section 3. Nothing happens at level 1 because soft /f'/ is present in the underlying representation. The prepalatal correspondent of [f'] is derived at level 2.[46]

(60) Level 2:

i. [xuf'Ets]→[xu.ɕɛts]

	*SOFT-LAB	ID-C[−bk]$_{Prev}$	*SSG(Plateau)	ID(Lab)	INT	ID-C[−bk]
(a) xu.f'ɛts	*!					
(b) xu.fɛts		*!				*
(c) xu.fɕɛts			*!		*	
☞ (d) xu.ɕɛts				*		

ii. [xuf'Etsa]→[xu.ftsa]

	*SOFT-LAB	ID-C[−bk]$_{Prev}$	*SSG(Plateau)	ID(Lab)	INT	ID-C[−bk]
(a) xu.f'tsa	*!					
☞ (b) xu.ftsa						*
(c) xu.fɛtsa			*!		*	
(d) xu.ɕtsa				*!		

The argument for derived soft fricatives that constitute an intermediate stage in the derivation of [ɕ ʑ] from /f v/ is parallel to that for intermediate [m'] discussed in Section 3.

(61) sport 'sport' — sport+ow+y (Adj)
sport+o*wi*+ec/sport+o*ź*+ec 'athlete' (NOM.SG) — sport+o*w*+c+a [f] (GEN.SG)

[46] In (60), I ignore candidates that have changed fricatives into sonorants or are unfaithful in voicing, such as [xuɲɛts] and [xuʑɛts]. These candidates are eliminated by IDENT[±sonor] and IDENT[±voice].

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par + a 'steam'	par + ow + y (Adj)
par + o*wi* + *ec*/paro*ź* + *ec* [ʑɛ] 'steamer' (NOM.SG)	par + o*w* + c + a [f] (GEN.SG)

The analysis that derives [ʑ] from /v/ in one swell swoop runs into difficulty in the gen.sg form [spɔrt + ɔf + ts + a], underlying /spɔrt + ɔv + Ets + a/. As argued in the preceding sections, yers are not deleted at level 1 and hence cause palatalization. Consequently, the output of level 1 and the input to level 2 is [spɔrt + ɔɕ + Ets + a], but then there is no way of recovering [f] at level 2 in order to derive the attested form [spɔrtɔftsa]. The reason is the same as in the analysis of *hufc + a* 'detachment' discussed earlier: Kurpian has words such as *pół + paśc + a* 'shingles' (GEN.SG) exhibiting [ɕts], so labialization, *ɕ→f* before a consonant, is not possible. I conclude that an intermediate representation containing [v'] is warranted. The derivation of *sport + owi + ec*/*sport + oź + ec* 'athlete' (NOM.SG) and *sport + ow + c + a* (GEN.SG) proceeds as follows. I ignore the first morpheme, *sport*, since it is irrelevant.

(62) Level 1:
i. /ɔv + Ets/→[ɔv'Ets]

	INT	ID-C[–bk]$_{Prev}$	ID(Lab)	PAL-*e*	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) ɔvEts				*!			
☞ (b) ɔv'Ets					*	*	
(c) ɔvʑEts	*!						
(d) ɔʑEts			*!				

ii. /ɔv + Ets + a/→[ɔv'Etsa]

	INT	ID-C[–bk]$_{Prev}$	ID(Lab)	PAL-*e*	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) ɔvEtsa				*!			
☞ (b) ɔv'Etsa					*	*	
(c) ɔvʑEtsa	*!						
(d) ɔʑEtsa			*!				

At level 2, the constraint ranking is different, as argued in Sections 2 and 3. PAL-*e* is inactive and hence omitted in (63). On the other hand, *SSG(Plateau) is displayed because it plays a role.

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(63) Level 2:
i. [ɔv'Ets]→[ɔ.ʑɛts]

	*SOFT-LAB	ID-C[–bk]$_{Prev}$	*SSG(Plateau)	ID(Lab)	INT	ID-C[–bk]
(a) ɔ.v'ɛts	*!					
(b) ɔ.vɛts		*!				*
(c) ɔ.vʑɛts			*!		*	
☞ (d) ɔ.ʑɛts				*		

ii. [ɔv'Etsa]→[ɔ.ftsa]

	*SOFT-LAB	ID-C[–bk]$_{Prev}$	*SSG(Plateau)	ID(Lab)	INT	ID-C[–bk]
(a) ɔ.f'tsa	*!					
☞ (b) ɔ.ftsa						*
(c) ɔ.fɕtsa			*!		*	
(d) ɔ.ɕtsa				*!		

The evaluation of the forms in (57) that do not exhibit depalatalization such as *paragraf* [f] 'paragraph' (NOM.SG) – *paragrafi* + *e*/*paragraś* + *e*[ɕ] (LOC.SG) and *chlew*/*chlém* [f] 'pigsty' (NOM.SG) – *chlewi* + *e*/*chléź* + *e* [ʑ] (LOC.SG) is, in all relevant ways, identical to the evaluation of *sport* + *owi* + *ec*/*sport* + *oź* + *ec* 'athlete' in (62)–(63). The underlying representations of the loc.sg forms are /paragraf + ɛ/ and /xlev + ɛ/, respectively. The labials palatalize at level 1, /f v/→[f' v'], and undergo simplification at level 2, [f' v']→[ɕ ʑ].

In (64), I look at the *graf* fragment of /paragraf + ɛ/→[paragraɕɛ], the loc.sg of *pragraf* 'paragraph'.

(64) i. Level 1: /graf + ɛ/→[graf'ɛ]

	INT	ID-C[–bk]$_{Prev}$	ID(Lab)	PAL-*e*	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) grafɛ				*!			
☞ (b) graf'ɛ					*	*	
(c) grafɕɛ	*!						
(d) graɕɛ			*!				

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ii. Level 2: [graf'ɛ]→[graɕɛ]

	*SOFT-LAB	ID-C[–bk]$_{Prev}$	*SSG(Plateau)	ID(Lab)	INT	ID-C[–bk]
(a) gra.f'ɛ	*!					
(b) gra.fɛ		*!				*
(c) gra.fɕɛ			*!		*	
☞ (d) gra.ɕɛ				*		

Finally, as was the case with /m'/, the fact that simplification candidates (63d) and (64d) are chosen over decomposition candidates (63c) and (64c) at level 2 has no consequence for the analysis of [vʑ] and [fɕ] clusters that derive from independent input segments. Such clusters do not simplify, for instance, *wziąć*/*wźąźć* [vʑ] 'take', from underlying /vʑ/, and *wśród* [fɕ] 'among', from underlying /fɕ/. The matter is straightforward: as established in Section 3, MAX-Seg is ranked above *SSG(Plateau), so deletion cannot be used to improve sonority relations within the syllable.

A point of special interest is the observation that labial fricatives exhibit a new strategy in the conspiracy to eliminate soft labials: depalatalization *cum* vowel retraction. We see this strategy at work in words such as *świni* + *a*/*świń* + *a* 'pig' in which soft labials are trapped in complex onsets: [ɕf'iɲ + a]→[ɕfɨɲa], where soft [f'] changes into hard [f] with vowel retraction, [i]→[ɨ], ensuing in the wake.

It is by no means true that the context of /i/ alone conditions depalatalization, i.e. that /i/ changes into [ɨ] under decomposition, as shown by the examples in (65).

(65) (a) skle*p* [p] 'store' (NOM.SG) skle*pi* + *e*/skle*pś* + *e* [pɕ + ɛ] (LOC.SG)
skle*p* + *ik*/skle*pś* + *ik* [pɕ + ik] (DIMIN)
ba*b* + a [b] 'woman' (NOM.SG) ba*bi* + *e*/ba*bź* + *e* [bʑɛ] (LOC.SG)
ba*b* + *in* + *a*/ba*bź* + *in* + *a* [bʑina] (DIMIN)
(b) tra*f*/trå*f* [f] 'accident' (NOM.SG) tra*fi* + *e*/trå*ś* + *e* [ɕ + ɛ] (LOC.SG)
tra*f* + *i*/trå*ś* + *i* [ɕ + i] 'he will hit it'
mo*w* + a [v] 'speech' (NOM.SG) mo*wi* + *e*/mo*ź* + *e* [ʑ + ɛ] (LOC.SG)
mó*w* + *i*/mó*ź* + *i* [ʑ + i] 'he speaks'

As these data show, the resolution of the conflict between PAL-*i* and hard labials is in favor of retaining /i/ in the output and adjusting the labials in order to achieve agreement in [–back] between the vowel and the consonant. As expected, labial stops undergo decomposition (65a) while labial fricatives show decomposition with simplification (65b). In order for decomposition to set in, the labial must first become palatalized. This happens at level 1,

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exactly as it does when the trigger is [ɛ], a situation that we saw in Section 2. In (66), I look at *sklep* + *ik*/*skleṕ* + *ik* [sklɛpɕ + ik] 'store', the diminutive of *sklep* cited in (65a). The active constraints at level 1 are the same as in (44), where /sklɛp + ɛ/→[sklɛp'ɛ] was evaluated, but PAL-*i* replaces PAL-*e*. Given the input /p + i/ and the fact that Kurpian has both /i/ and /ɨ/, the output with vowel retraction is a viable candidate: /sklɛp + ik/→[sklɛpɨk]. It should be noted that [pɨ] is widely attested in Kurpian. For example, it occurs in the plural *sklep* + *y* /sklɛp + ɨ/ = [sklɛp + ɨ] 'store' (NOM.PL), where the surface form is identical to the underlying form. Since [sklɛpɨk] is undesired as an output, the derivation must recruit IDENT-V[–back] as an active constraint. IDENT-V[–back] bans the candidate with vowel retraction, as documented in (66).

(66) Level 1: /sklɛp + ik/→[sklɛp'ik]

	INT	PAL-*i*	ID-C[–bk]$_{Prev}$	ID-V[–bk]	ID-C[+bk]	*SOFT-LAB	ID-C[–bk]
(a) sklɛpik		*!					
☞ (b) sklɛp'ik					*	*	
(c) sklɛpɕik	*!						
(d) sklɛpɨk				*!			

The ranking of PAL-*i* above IDENT-C[+back] allows for palatalization, exactly as in (44), while the ranking IDENT-V[–back] >> *SOFT-LAB makes sure that *SOFT-LAB cannot select the vowel retraction candidate in (66d) as the winner.

Level 2 executes decomposition, [sklɛp' + ik]→[sklɛpɕik], so IDENT-C[–back]$_{Prev}$ in conjunction with PAL-*i* prohibits retraction, *i* →*ɨ*. IDENT-V[–back] loses relevance and can be ranked low.[47] The ranking in (67) is transferred from the level 2 evaluations in Sections 2 and 3. Irrelevant constraints have been suppressed. Candidate (67c) exhibits decomposition, so both [p] and [ɕ] are the correspondents of the input [p'].

(67) Level 2: [sklɛp'ik]→[sklɛpɕik]

	*SOFT-LAB	PAL-*i*	ID-C[–bk]$_{Prev}$	ID-V[–bk]	INT	ID-C[–bk]
(a) sklɛp'ik	*!					
(b) sklɛpik		*!	*			*
☞ (c) sklɛpɕik					*	
(d) sklɛpɨk			*!	*		*

[47] In (74) below, I argue below that IDENT-V[–back] is outranked by *SOFT-LAB and PAL-*i*.

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The data in (68) below show a new situation. These words exhibit vowel retraction, /i/→[ɨ] in *świni* + *a*/*świń* + *a* [ɕfɨɲa] 'pig' instead of exhibiting decomposition with simplification, and thus appear to be incompatible with the examples in (65), where /i/ makes it to the surface and triggers decomposition or decomposition with simplification in /sklɛp + ik/ →[sklɛpɕik] and /trɑf + i/→[trɑɕi], *sklep* + *ik*/*sklepś* + *ik* 'store' (DIMIN) and *traf* + *i*/*tråś* + *i* 'he will hit it', respectively.

(68) świnia/świń + a [ɕfɨɲa] 'pig' świt/świt [ɕfɨt] 'dawn'
świder/świder [ɕfɨdɛr] 'drill' świstać/świstać [ɕfɨstatɕ] 'whistle'

Even though these data do not show alternations, their analysis is essential for another reason: Kurpian does not admit sequences of labial fricatives followed by *i*, so [fi] is an ill-formed output. Furthermore, the sibilant before [f] that causes retraction is always prepalatal, so it is [ɕ] and not [s], as in [ɕfɨɲa]. Those generalizations need to be accounted for. In particular, the question is why Kurpian changes the strategy of avoiding [fi] by doing vowel retraction in (68) rather than decomposition with simplification as in /trɑf + i/→[trɑɕi] 'he will hit it'.

The analysis at level 1 is clear: /sfi/→[ɕf'i], where /f/→[f'] is an effect of PAL-*i* and /s/→[ɕ] is enforced by a new constraint that I call Sibilant Assimilation. This constraint can claim much evidence in its favor. The data in (69) show that /s z/ assimilate in [–back] to the following [–back] consonant.

(69) po*st* [st] 'Lent' (NOM.SG) po*ści* + *e*/po*ść* + *e* [ɕtɕɛ] (LOC.SG)
bru*zd* + a/bró*zd* + a [zd] 'furrow' (NOM.SG) bru*ździ* + *e*/bró*źdź* + *e* [ʑdʑɛ] (LOC.SG)
ja*sn* + o [sn] 'clearly' ja*śni* + *ej*/ja*śń* + *éj* [ɕɲej] 'more clearly'

The root-final consonants in (69) palatalize to [tɕ dʑ ɲ] and, consequently, trigger Sibilant Assimilation: /pɔst + ɛ/→[pɔstɕɛ]→[pɔɕtɕɛ] 'Lent'.

Sibilant Assimilation, abbreviated as *sC', is stated as an AGREE constraint.

(70) *Sibilant Assimilation* (*sC')
Sibilants must agree in [–back] with the following [–back] consonant.

A level 1 evaluation is now straightforward: *sC' enforces assimilation, *s*→*ɕ* before *f'*. To keep the tableau within reasonable bounds, I omit the irrelevant constraints: IDENT-V[–back]$_{\text{Prev}}$, INT and IDENT-C[–back].

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(71) Level 1: /sfiɲ + a/→[ɕf'iɲa]

	ID-V[–bk]	PAL-*i*	ID(Lab)	*sC'	ID-C[+bk]	*SOFT-LAB
(a) sfiɲa		*!				
(b) sfiɲa	*!					
(c) sf'iɲa				*!	*	*
☞ (d) ɕf'iɲa					**	*
(e) ɕɕiɲa			*!		**	

The level 2 evaluation appears to be problematic. The problem is what can enforce depalatalization and vowel retraction: [ɕf'iɲa]→[ɕfɨɲa]. The current constraint system cannot deliver this result. On the contrary, IDENT-V[–back]$_{Prev}$ guards the preservation of palatalized consonants in the output representation. On the other hand, IDENT(Lab), which makes sure that /f/ is not changed to [ɕ] at level 1, is reranked to a low position at level 2, so it cannot mandate the preservation of [f].

In order to solve the [ɕf'i]→[ɕfɨ] problem, let us imagine the structure that would be derived from the input [ɕf'i] by the current constraint system at level 2: [f'] would change to [ɕ], yielding [ɕɕi]. Evidently, it is the [ɕɕ] cluster that the grammar does not want to admit.

A hypothesis that Kurpian blocks decomposition with simplification in order to avoid the creation of a cluster cannot be correct. This is shown by words such as *kwit/kśït* [kɕit] 'receipt' and *gwizdać/gźïzdać* [gʑizdatɕ] 'whistle' which begin with the clusters [kɕ] and [gʑ], respectively. The [ɕ ʑ] derive from /f v/ via palatalization to [f' v'] at level 1. At level 2, decomposition with simplification is not hampered by the fact that new clusters are created: [kf'i gv'i]→[kɕi gʑi].

A different hypothesis is that decomposition with simplification cannot lead to the creation of a geminate, so the candidate [ɕɕiɲa] from [ɕf'iɲa] is excluded. This hypothesis is incorrect as well because Kurpian permits the derivation of geminates via decomposition with simplification, as shown in (72).

(72) łyżw + a/łyźw + a [wɨʑva] 'skate' (NOM.SG) – łyżwi + e/łyźź + e [wɨʑʑɛ] (LOC.SG)
trzeźw + y/trzéźw + y [tʃeʑvɨ] 'sober' – trzeźwi + e + ć/trzéźź + é + ć [tʃeʑʑetɕ] 'become sober'

The question is how the words in (72) are different from those in (68). The relevant observation is that the outputs with geminates in (72) syllabify the geminates heterosyllabically: [wɨʑ.ʑɛ] and [tʃeʑ.ʑetɕ]. This option is not open to the words in (68), in which the cluster is derived in the word-initial onset.

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That is, the candidate [ɕɕiɲa] from [ɕf'iɲa] contains a geminate inside one syllable, specifically, in the onset. Such configurations are banned by a constraint that goes back to Trubetzkoy (1939/1969) and Kuryłowicz (1947) that I call Heterosyllabic Geminate and abbreviate as HET-GEM.

(73) *Heterosyllabic Geminate* (HET-GEM)
Geminates must be heterosyllabic.

HET-GEM enforces the syllabification [wiz.zɛ], *łyżwi+e/łyźź+e* 'skate' (LOC.SG), as well as [pan.na], *pann+a* 'miss', which win over the onset maximization candidates [wi.zzɛ] and [pa.nna]. The generalization is expressed as the ranking HET-GEM >> NO-CODA.

Since in (68) the geminate cannot be heterosyllabic because it is word-initial, the [ɕɕ] candidate falls prey to HET-GEM and is eliminated. The derivation of [ɕf'iɲa], the winner from level 1 in (71), continues at level 2 in tableau (74). I omit the irrelevant constraints or the constraints that are ranked too low to matter.

(74) Level 2: [ɕf'iɲa]→[ɕfiɲa]

	HET-GEM	*SOFT-LAB	PAL-*i*	IDENT-C[–bk]$_{Prev}$	IDENT-V[–bk]
(a) ɕf'iɲa		*!			
☞ (b) ɕfiɲa				*	*
(c) ɕfiɲa			*!	*	
(d) ɕɕiɲa	*!				

The evaluation in (74) establishes a new ranking at level 2 that was not evident in the other evaluations: *SOFT-LAB >> IDENT-C[–bk]$_{Prev}$, which favors candidate (74b), the attested output, over candidate (74c).[48] HET-GEM and PAL-*i* are surface-true, so they are undominated. The evaluation documents the reranking of IDENT-V[–back] and *SOFT-LAB. At level 1, the ranking is IDENT-V[–back] >> *SOFT-LAB in order to outlaw vowel retraction, *i* →*ɨ*. At level 2, on the other hand, it is exactly vowel retraction that is the desired change, so the ranking must be reversed and hence candidate (74b) wins over candidate (74a), the correct result.

I conclude that the analysis of the examples in (68) shows a new strategy of the soft labial conspiracy: vowel retraction. At level 1, the labial palatalizes, /sfi/→[sf'i], and the soft [f'] induces Sibilant Assimilation, [sf'i]→[ɕf'i]. At level 2, [f'] depalatalizes to [f], with vowel retraction following in the

[48] The level 2 *SOFT-LAB >> IDENT-C[–bk]$_{Prev}$ is an instance of reranking because at level 1 IDENT-C[–bk]$_{Prev}$ dominates *SOFT-LAB. See the evaluation of *pies/pśes* 'dog' in (41) in Section 2.

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wake: [ɕf'i]→[ɕfɨ]. The derivational stage at which the labial is a palatalized [f'] is recorded in the surface representation on the preceding prepalatal [ɕ], which comes from /s/ via Sibilant Assimilation. The derivation exhibits a Duke-of-York gambit (Pullum 1976): *f*→*f'*→*f*, where /f/ is the input to level 1 (the underlying representation), [f'] is the output of level 1 and the input to level 2, and [f] is the output of level 2 (the surface representation).[49]

A similar Duke-of-York derivation occurs with labial stops, as in *kupi*+*ec*/*kupś*+*ec* 'buyer' in (43) in Section 2. Underlying hard labial /p/ is palatalized to [p'] at level 1 and then decomposed to [pɕ] at level 2: *p*→*p'*→*p*. Such Duke-of-York derivations are afforded by DOT because evaluation is carried out at two levels and is not bound by the classic OT principle of strict parallelism.

5. Conclusion

Unlike many other languages, Kurpian exhibits a rich and productive system of labial palatalization. In a way typical for a phonological conspiracy, a number of actions are undertaken in order to eliminate soft labials from the surface representation: depalatalization (p'→p), decomposition (p'→pɕ), simplification (m'→ɲ), and vowel retraction (fi→fɨ). These repairs are a response to the pressure from the markedness constraint *SOFT-LAB, the IDENT constraints mandating the preservation of the input properties in the output and the markedness constraints enforcing palatalization. The array of disparate repairs contributes to the discussion of the 'too many solutions' problem by providing a typology of changes that have not been reported for labials in the past phonological research.

In addition, the analysis of soft labial conspiracy highlights three further points of theoretical interest: absolute neutralization, the nature of IDENT constraints and the resolution of opacity. First, absolute neutralization is motivated by labial alternations whereby the source of the alternants is a soft labial that never occurs in the surface representation. Second, decomposition requires that IDENT constraints be unidirectional rather than bidirectional. Third, the treatment of opacity calls for Duke-of-York derivations and thus provides evidence for Derivational Optimality Theory.

[49] The Duke-of-York gambit cannot be avoided by recruiting MAX-F theory because the putative MAX[–back] cannot predict where in the surface representation [–back] will dock. It may dock on [ɲ] rather than on the sibilant. That is, nothing can exclude the candidate [sfɨɲa] because MAX[–back] is satisfied by the fact that [ɲ] is [–back].

The derivation /sfiɲ+a/→[ɕfɨɲa] is a problem also for OT-CC (McCarthy 2007). The reason is that the chain {sfiɲa, sf'iɲa, ɕf'iɲa, ɕfiɲa} is rejected by the principle of harmonic improvement because the change from [ɕf'i] to [ɕfi] (ultimately to [ɕfɨ]) subtracts a property (here [–back]), which is prohibited. This failure of OT-CC is not surprising because Standard OT claims that Duke-of-York derivations are impossible in phonology.

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