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PHONOLOGICAL AND MORPHOLOGICAL FUNCTIONS OF PALATALISATION IN IRISH AND POLISH

0. Introduction

The paper aims to present some basic facts concerning the functions that palatalisation of consonants plays in the phonology and morphology of Irish and Polish. The choice of the two languages is partly due to the apparent similarities that they exhibit. Both languages have more or less obvious palatalisation phenomena, which are not only present in the respective phonological systems in the form of processes and contrasts, but also seem to be used in morphological derivation and inflection. However, the similarities end at the level of generality. A closer look at the linguistic facts from Irish and Polish shows that the two languages differ markedly in detail.

0.1. Origin of palatalisations and present-day systems

The term *palatalisation* is rather broad and ambiguous, as it subsumes two quite disparate linguistic situations. Namely, it may be understood as a dynamic phonetic or phonological process of producing a secondary articulation of a consonant in the context of the following front vowel [i/e] or glide [j].[1] In this sense, palatalisation is allophonic, that is, a context dependent assimilatory process, as may be the case with Irish *bith* [bʲi] 'existence', or Polish *kiść* [kʲiɕt͡ɕ] 'bunch'.[2] On the other hand, both Irish and

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[1] The effects of palatalisation also elude a single-term description. Palatalisation may produce secondary articulation (tongue raising), or create a new primary place – a palatal consonant. It may cause fronting of back consonants, or retraction of front ones. It is often described as softening, but in some cases considered to be instances of palatalisation, for example [k] > [t͡ʃ] in Polish, the term is hardly adequate.

[2] The phonetic transcription in this paper is that of IPA. The dialect of Irish chosen for this discussion is that of Munster (e.g. Ó Cuív 1975, Sjoestedt 1931, Ó Sé 2000).

Polish seem to show that palatalisation of consonants may also be independent of the context, in which case we are not dealing with a process of palatalisation, but with a genuine lexical property of given consonants, that is, a phonemic distinction. This point can be illustrated by such forms as Irish *beo* [bʲoː] 'alive' and Polish *biodro* [bʲodro] 'hip'. Here the palatalised consonant is followed by a back vowel and could not have been derived by any process. In our phonological considerations in this paper, we will look at both aspects of palatalisation. Morphologically speaking, on the other hand, it will be shown that mainly the phonemic distinctions are relevant and may be used in morphological processes. It is mainly in this aspect that phonological and morphological functions of palatalisation may coincide.

Historically speaking, the palatalisation of consonants in the two languages looks very similar. It originates from the interaction between consonants and the following front vowels [i, e]. In a system which does not possess the phonological contrast between palatalised and non-palatalised consonants, the fronting / softening of consonants before front vowels may be viewed as allophonic, or phonetic in nature, as schematised below.

(1) $C \rightarrow C^j$ / _ {i, e}

It is a phenomenon which can be described as an articulatory anticipation of the following vowel. This was the case in the history of both Irish and Polish. During the phonetic / allophonic stage, phonological conditioning of palatalisation may be observed. For example, only some types of consonants are affected, while others, for example, labials show resistance to this process. Additionally, there is a strict connection between the phenomenon and the context in which it occurs – the process and the context are inseparable.

The status of palatalised consonants may with time be phonologised, that is, they may become contrastive and independent units (phonemes).[3] One may expect some uniformisation in the consonantal system at this stage. For example, classes of speech sounds which had resisted the process of palatalisation, e.g. labials, now become part of the system of lexical contrasts. Such shifts in status – from allophonic to phonemic – are usually precipitated by developments which lead to the break-up between a given process and the context in which it takes place. One example of this break-up is the situation which arose due to the loss of final syllables in the history of both Irish and Polish.

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[3] Phonologisation may be followed by another step in the diachronic development, i.e. morphologisation (see, for instance, Janda (2003)). Instances of (partially) morphologised palatalisation will be discussed in what follows.

(2) $C^jV_{i,e} \rightarrow C^j$ / _ #

In Irish, the consonant took over the role of encoding case or gender distinctions by retaining the palatalisation as part of its own representation. This is visible in the tendency in the Modern Irish lexicon that feminine singular nouns in nominative case end in a palatalised consonant, while masculine singular nouns in nominative case end in a non-palatalised one.[4] The situation is reversed in the respective genitive cases.

(3)

	Nom. sg.	Gen. sg.	Gloss
Feminine	_C^j# *máthair* [ˈmɑːhɪrʲ]	_C# *máthar* [ˈmɑːhər]	'mother'
Masculine	_C# *focal* [ˈfokəl]	_C^j# *focail* [ˈfokɪlʲ]	'word'

A parallel development took place in the history of Polish, and is connected with the loss of the so called jers. There were two types of jers; front [ь] and back [ъ], which mainly originated from the short vowels [i] and [u] respectively. They were schwa-like vowels, which eventually disappeared word-finally, as well as in some word-medial positions. The front jer [ь] left a trace on the final consonant, or cluster, in the form of palatalisation.

(4) ...C^jь# → C^j#

As mentioned earlier, the loss of final syllables only precipitated the rise of contrastive palatalisation, which is observed in the modern versions of the two languages also in other positions in the word. Consider the following data, which illustrate two important points about the status of palatalisation in Irish and Polish. Firstly, the palatalised consonants in both languages manifest their phonological independence in that they do not require a front vowel context, e.g. Irish *ciumhais* [kʲuːʃ] 'edge' and Polish *biały* [bʲawɨ] 'white' (5a). On the other hand, forms like the Irish *tuí* [tiː] 'straw', and the Polish *beli* [belʲi] 'roll, gen.sg.' show that a presence of a front vowel [i, e] is no longer a guarantee of palatalisation of the consonant (5b).

(5)   ***Irish***   ***Polish***

a.   *cúis* [kuːʃ] 'reason'   *bały* [bawɨ] 'were afraid, fem.pl.'
       ciumhais [kʲuːʃ] 'edge'   *biały* [bʲawɨ] 'white'
       bó [boː] 'cow'   *wodą* [vodoʷ] 'with water'
       beo [bʲoː] 'alive'   *wiodą* [vʲodoʷ] 'they lead'

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4 This tendency was much more regular in Middle Irish.

b.   *tuí* [tiː] 'straw'   *beli* [belʲi] 'roll, gen.sg.'
        tí [tʲiː] 'house, gs.'   *bieli* [bʲelʲi] 'whiteness, gen.sg.'

It seems that much of the dynamic aspect of palatalisation, which historically speaking makes Irish and Polish very similar systems, has been lost in the modern versions of the two languages. However, some vestigial effects retaining the process-context connection can still be observed and will be mentioned in the respective description of the two languages, and compared in the closing sections of this paper.

Before we begin the descriptions of Irish and Polish with respect to the function of palatalisation in phonology and morphology, let us make a few introductory remarks on the respective consonantal systems.

Irish has two sets of consonants which are typically referred to as velarised and palatalised. For the sake of simplicity and comparison with Polish we will refer to the velarised series as non-palatalised and will not mark this series with any diacritic. The list of Irish consonants of contrastive quality is as follows.

(6)   non-palatalised p t   k b d g f   s   χ   h v   ɣ m n ŋ   l   r
        palatalised   pʲ tʲ kʲ bʲ dʲ gʲ fʲ ʃ[5] χʲ hʲ vʲ j mʲ nʲ ŋʲ lʲ rʲ

The two qualities listed above are utilised in expressing lexical contrasts, e.g. *cúis* [kuːʃ] 'reason' vs. *ciumhais* [kʲuːʃ] 'edge', as well as in expressing grammatical functions, e.g. *fear / fir* [fʲar ~ fʲirʲ] 'man, nom.sg. / gen.sg.', of which more will be said in the sections below.

In comparison to Irish, the Polish inventory of consonants according to quality is a complex matter. Their listing as contrastive units in general is not difficult given the criteria we used above in (5): if a given segment can stand alone independently of a palatalising context, it is a palatal or palatalised phoneme, if not, it is an allophone. The problem arises once we want to arrange the segments according to their relationship based on palatalisation. Unlike in Irish, where the relationship is simple and pairwise, in Polish the relationships may be multiple, and are almost always a matter of a particular morphological context that they are involved in. Below, following the classification of Gussmann (2007: 5–7), we present all Polish consonants. The underlined speech sounds, e.g. [t̪ʲ] and [c] are not contrastive, but allophonic and will be discussed in more detail in the following section.

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[5] We follow the Irish tradition of representing the palatalised version of [s] as [ʃ], which is in fact a palatal sound.

(7)

bilabial	p	pʲ	b	bʲ	m	mʲ	w				
labio-dental	f	fʲ	v	vʲ							
dental	t	tʲ	d	dʲ	s	sʲ	z	zʲ	t͡s	t͡sʲ	d͡z	n
alveolar	ʃ	ʃʲ	ʒ	ʒʲ	t͡ʃ	t͡ʃʲ	d͡ʒ	d͡ʒʲ	l	lʲ	r	rʲ
alveolo-palatal	ɕ	ʑ	t͡ɕ	d͡ʑ								
palatal	j	ɲ										
palato-velar	c	ɟ	ç									
velar	k	g	x	ŋ								

The complexity of the Polish consonantal system is obvious. We have palatal consonants like [c, ɟ, ç] which do not enjoy a phonemic status, and palatalised consonants, in the sense of having a secondary articulation, e.g. [pʲ, bʲ, mʲ, fʲ, vʲ], which are independent units. It should be borne in mind that what is referred to as an independent unit is a segment that exhibits palatalisation without the need to be followed by a front vowel.[6]

Except for the allophonic relationships C~Cʲ, e.g. *bok / boki* [bok ~ boci] 'side, nom.sg. / nom.pl.', which will be discussed below, any other relationships between segments, which are based on broadly understood palatalisation, are best observed in various alternations connected with particular morphological derivations. Following Gussmann (2007: 125) we will view these alternations as morphophonological palatalisation replacements of segments rather than effects of phonological rules. Next to obvious alternating pairs such as [b~bʲ], e.g. *ryba / rybie* [rɨba ~ rɨbʲe] 'fish, nom.sg. / dat. (loc.)sg.' we also observe less obvious relationships which in generative analyses were expressed in terms of different phonological rules of palatalisation. To illustrate this point, let us look at alternations involving the obstruents [t, d, s, z, k, g] in two different morphological contexts, which yield two distinct replacement patterns (Gussmann 2007: 126).

(8)　　a.　　　***dative / locative -e***

t	~	t͡ɕ	*wat-a* [vata] 'cotton wool'	*waci-e* [vat͡ɕe]
d	~	d͡ʑ	*mod-a* [moda] 'fashion'	*modzi-e* [mod͡ʑe]
s	~	ɕ	*los* [los] 'fate'	*losi-e* [loɕe]
z	~	ʑ	*skaz-a* [skaza] 'blemish'	*skazi-e* [skaʑe]
k	~	t͡s	*ręk-a* [reŋka] 'hand'	*ręc-e* [rent͡se]
g	~	d͡z	*wag-a* [vaga] 'scales'	*wadz-e* [vad͡ze]

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[6] This does not mean that the distribution of such segments is totally free as it is in Irish. For example, the word-final context, known from the phonological tradition as "coda position", excludes all voiced and most palatalised units, leaving only [f, w, t, s, t͡s, n, ʃ, t͡ʃ, l, r, ɕ, t͡ɕ, k, x]. The coda context can be extended also to pre-consonantal position, which has similar restrictions.

b. ***various other derivational relations***

t	~	t͡s	*lot* [lot] 'flight'	*lec-ę* [let͡se] 'I fly'
d	~	d͡z	*rad-a* [rada] 'advice'	*radzę* [rad͡ze] 'I advise'
s	~	∫	*kos-a* [kosa] 'scythe'	*kosz-ę* [ko∫e] 'I mow'
z	~	ʒ	*woz-u* [vozu] 'cart, gen. sg.'	*woż-ę* [voʒe] 'I cart'
k	~	t͡∫	*skok* [skok] 'jump, n.'	*skocz-y-ć* [skot͡ʃit͡ɕ] 'vb.'
g	~	ʒ	*wag-a* [vaga] 'scales'	*waż-y-ć* [vaʒɨt͡ɕ] 'weigh'

Thus far one thing is clear: due to the break-up of the relationship between effect and context, the alternations shown above cannot be viewed as phonological in nature. The morphological functions of palatalisation are discussed in more detail in the following section devoted to Polish, preceded by a short survey of palatalisation facts, which may be viewed as live phonological phenomena.

1. Polish

1.1. Phonological function of palatalisation

For decades, Polish palatalisations have attracted the attention of numerous linguists (see, for instance, Gussmann (1978), Rubach (1981)). Most recently, the palatalisation processes in Polish have been explored anew, in two lengthy chapters, by Gussmann (2007; see the relevant earlier literature therein). The contexts are defined as well as the nature and degree of regularity of the processes involved. The status of different types of palatalisation is ascertained, along the phonology – morphophonology dimension. Alternative formal solutions are also reviewed, depending on the requirements of a particular phonological framework: traditional structuralist, derivational generative as well as the recent Government Phonology interpretation. New descriptions of the phenomenon couched in terms of other theoretical frameworks are also available; see, for instance, the studies by Rubach (2003, 2006) and Ćavar (2004) which draw on the model of Optimality Theory.

What is understood by the term phonological function of palatalisation is simply what palatalisation does in a given phonological system once it is used. One of the functions of palatalisation in phonology, which has been mentioned above in the introduction, is providing lexical contrast. We may refer to it as a static function in that no phonological process can be blamed for the derivation of such segments. In Polish, the most obvious cases of contrastive behaviour of palatalisation can be found in labials: [p - pʲ,

b - bʲ, m - mʲ, f - fʲ, v - vʲ].[7] In velars, palatalisation is not contrastive, while the complexity of facts within the class of coronals was signalled in (8) above. Although, as shown in (5) above, palatalisation of consonants is mostly phonemic and independent of the type of vowel that follows, there is strong lexical tendency in native Polish vocabulary concerning the distribution of [i-ɨ] and the preceding consonant. In short, the high front [i] occurs word initially, for example, *igła* [igwa] 'needle', and follows palatalised consonants (Cʲi), while the retracted [ɨ] is found elsewhere. Namely, it follows non-palatalised consonants (Cɨ).[8]

(9)   *bić* [bʲit͡ɕ] 'beat'   *być* [bɨt͡ɕ] 'be'
        pił [pʲiw] 'he drank'   *pył* [pɨw] 'dust'
        sin-a [ɕina] 'blue, fem.sg.'   *syn-a* [sɨna] 'son, gen.sg.'
        mił-a [mʲiwa] 'nice, fem.sg.'   *mył-a* [mɨwa] 'she washed'

Clearly, we are dealing here with a complementary distribution Cʲi vs. Cɨ, and the question has always been whether it is a distribution of palatalisation on consonants, in which case, palatalisation would be allophonic, or one of vowels [i-ɨ], in which case palatalisation would be phonemic.[9]

The same complementary distribution, however, does not concern the other typical "palataliser", that is, the mid vowel [e]. Here, palatalisation of consonants seems to have a clear phonemic status, which yields a number of minimal or near minimal pairs.

(10)   *beli* [belʲi] 'roll, gen.sg.'   *bieli* [bʲelʲi] 'whiteness, gen.sg.'
        raper [raper] 'rapper'   *rapier* [rapʲer] 'rapier'
        pers [pers] 'a Persian (cat)'   *pierś* [pʲerɕ] 'breast'

Thus, on the one hand there is a robust distributional regularity Cʲi vs. Cɨ suggesting that palatalisation may be a live phonological phenomenon in Polish (9). This regularity is watered down by the distribution of [e] (10), and completely marred by the distribution of palatalised consonants and other vowels, as shown in (5). For this reason, we treat the above facts as static conditions on phonological representation rather than a live operation of some phonological process.

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[7] Some examples were given in (5) above.

[8] Except velar stops, which generally cannot be followed by the retracted vowel in native Polish vocabulary.

[9] A most recent discussion of this dilemma and a rather unorthodox proposal can be found in Gussmann (2007: 32–56). We refrain from making definitive claims as to the status of this distributional regularity, noting only the fact that it concerns only one (two?) vowel(s) in Polish.

Next to the static function of providing contrasts, one may think of a dynamic function of palatalisation, that is phonological phenomena in which this property causes or undergoes changes. In what follows we will concentrate on what remains of the dynamic aspect of palatalisation in Polish phonology. Given the strict criterion for rendering a phenomenon phonological, that is, the obligatory effect – context connection, the dynamic function of palatalisation in Polish is really reduced to two types of phenomena: a) surface palatalisation of velars and coronals in particular contexts, and b) palatal assimilation in consonant clusters.

The most prominent set of data involving dynamic palatalisation concerns velars. Generally, in native Polish vocabulary, velar consonants such as [k, g] must be palatalised to [c, ɟ] respectively, when followed by front vowels [i, e].[10]

(11) a. *kiszka* [ciʃka] 'bowel, nom.sg.'   *kɨ...
         gitara [ɟi'tara] 'guitar, nom.sg.'   *gɨ...
         kierownik [ce'rovɲik] 'manager, nom.sg.'   *ke...
         giełda [ɟewda] 'stock exchange, nom.sg.'   *ge...

     b. *bok* [bok] 'side, nom.sg.' *bok-i* [boci] 'nom.pl.' *bok-iem* [bocem] 'sideways'

         róg [ruk] 'horn, nom.sg.' *rog-i* [roɟi] 'nom.pl.' *rog-iem* [roɟem] 'with a horn'

An interesting twist here concerns the behaviour of the retracted vowel [ɨ], which cannot follow the velar consonants ([*kɨ, *gɨ]).[11] Should such a sequence arise through, for instance, concatenation, it is repaired in that the velars get palatalised to [c, ɟ], and the vowel fronted to [i]. This happens in the masculine plural formation, which, among other ways, is produced by adding the ending [-ɨ], e.g. *dom / dom-y* [dom ~ domɨ] 'house, nom.sg. / nom.pl.'. The plural forms *boki* and *rogi* in (11b) are examples of this.

The surface velar palatalisation mentioned above is the only dynamic process of this type which takes place word-internally in native Polish vocabulary. In non-native forms (12a) and across word or morpheme boundaries (12b), surface palatalisation is also observed with coronal segments to yield [sʲ, zʲ, tʲ, dʲ, t͡sʲ, t͡ʃʲ, d͡ʒʲ, rʲ].

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[10] We bypass the behaviour of the velar fricative [x] here.

[11] Except in the surname *Kydryński* [kɨdrɨj̃sci], and the non-native forms like *kynolog* [kɨnolok] 'cynologist', and *gyros* [gɨros] 'gyros'.

(12) a.   *sinus*   [sʲinus] 'sinus'
        Zidane   [zʲiˈdan] 'name'
        butik   [butʲik] 'boutique'
        dinozaur   [dʲiˈnozaur] 'dinosaur'
        citroën   [t͡sʲiˈtroen] 'car'
        Chile   [t͡ʃʲile] 'country'
        dżihad   [d͡ʒʲixat] 'dzhihad'
        rizotto   [rʲiˈzotto] 'risotto'

     b.   *las iglasty*   [lasʲ iˈglastɨ] 'coniferous forest'
        z-integrować   [zʲinteˈgrovat͡ɕ] 'to integrate'
        brat i siostra   [bratʲ i ɕostra] 'brother and sister'
        spod igły   [spodʲ igwɨ] 'brand new'
        noc idylliczna   [not͡sʲ idɨlʲˈlʲit͡ʃna] 'idyllic night'
        smycz Irasiada   [smɨt͡ʃʲ iraˈɕada] 'dog's leash'
        wybór idola   [vɨburʲ iˈdola] 'choice of idol'

Another area in which a dynamic phonological phenomenon seems to be involved concerns palatal assimilation. Quite expectedly, the facts concerning palatal assimilation, or quality agreement in Polish are very complex, as anything connected with palatalisation (e.g. Gussmann 1999, 2007). First, let us consider the alternations between palatalised and non-palatalised clusters, which depend to a great extent on the morphological operation in question.

(13)   *liść*   [lʲit͡ɕ]   ~ *listek*   [lʲistek] 'leaf, nom.sg. / dim.'
       bliźnie [blʲiʑɲe] ~ *blizna* [blʲizna] 'scar, loc.sg. / nom.sg.'
       prości [prot͡ɕi] ~ *prosty* [prostɨ] 'simple, masc.pl. / masc.sg.'

Regardless of the actual role of morphology in these alternations, word-internal sequences of the type *[...ɕt...], or *[...s͡t͡ɕ...] are ruled out by the phonology of Polish.

To understand the totality of palatal assimilation facts in Polish one would have to take a number of aspects into account. For example, the morphological structure of words, the type of the first consonant (C_1) in a cluster C_1C_2, and the nature of C_2 in C_1C_2. In what follows, we look only at a fraction of the palatalisation complex and limit the discussion to clusters in which C_1 is a spirant [s, z] (Gussmann 1999: 391). This should suffice to demonstrate that generally assimilation in Polish is an active phonological requirement. Morphology may utilise palatalisation in morphophonological replacements, but it is phonology that determines the scope of assimilations. Let us review the facts involving [s, z] as the first element of the cluster.

Firstly, there is no palatal assimilation of [s, z] in front of non-coronal obstruents, that is, before labial and velar obstruents, for example, *skiba* [skʲiba] 'ridge' (not *[ɕkʲiba]), *spichlerz* [spʲixleʃ] 'granary' (not *[ɕpʲixleʃ]). This does not mean that a sequence [...ɕpʲ...] is ungrammatical in Polish, e.g. *śpi* [ɕpʲi] 'he sleeps'. Simply, there is no requirement on palatal assimilation in this context.

Secondly, palatal assimilation takes place before coronals, especially if the two consonants are not separated by a morphological boundary, e.g. *ściana* [ɕt͡ɕana] 'wall' (not *[st͡ɕana]). If morphological boundary is involved and [s, z] act as prefixes or prepositions, then assimilation may occur, but it is not obligatory, e.g. *z-działać* [zd͡ʑawat͡ɕ] or [zd͡ʑawat͡ɕ] 'achieve'.

Thirdly, the effects of assimilation vary before sonorants depending on the position in the word and the voice specification of the spirant. Consider the following data involving initial and medial [sm, zm, sn, zn].

(14)

a. **word-initial context**

śmierć	[ɕmʲert͡ɕ] 'death'	# *[smʲ...]
śnieg	[ɕɲek] 'snow'	# *[sɲ...]
zmiana	[zmʲana] 'change'	# *[ʑmʲ...]
znicz	[zɲít͡ʃ] 'candle'	# *[ʑɲ...]

b. **word-medial context**

pismo [pʲismo] 'writing, nom.sg.'	*piśmie* [pʲiɕmʲe] 'loc.sg.'	*[...smʲ...][12]
wiosna [vʲosna] 'spring, nom.sg.'	*wiośnie* [vʲoɕɲe] 'dat.sg.'	*[...sɲ...]
wezmę [vezme] 'I will take'	*weźmie* [veʑmʲe] 'he will take'	*[...zmʲ...]
błazna [bwazna] 'fool, gen.sg.'	*błaźnie* [bwaʑɲe] 'loc.sg.'	*[...zɲ...]

As we see in (14a), in the word-initial context voice specification of the spirant is responsible for the opposite effects. A voiceless spirant [s] must be assimilated to the following palatalised nasal, while the voiced [z] must not. On the other hand, word-medially both spirants undergo assimilation (14b).

There is an additional set of forms related to (14) and noted in Gussmann (1999: 391), in which [z] may remain unassimilated word-medially if it is preceded by another consonant. Thus, for example, *marznąć* [marznoɲt͡ɕ] 'freeze' alternates with *marznie* [marzɲe] or [marʑɲe] '(s)he freezes'. Likewise, *pełznąć* [pewznoɲt͡ɕ] 'creep' alternates with *pełznie* [pewzɲe] or [pewʑɲe] '(s) he creeps'.

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[12] Except in non-native vocabulary, e.g. *kosmiczny* [kosˈmʲit͡ʃnɨ] 'space related'.

Thus, we have seen that palatal assimilation in Polish consonant clusters has diverse phonological conditioning which depends on the nature of the consonants involved, the position within the word, voice specification of the target, and the presence of another consonant in front of the cluster in question. The phonological conditioning of assimilations strongly points to the fact that, next to the surface palatalisation illustrated in (11) and (12) above, these phenomena belong to a dynamic aspect of Polish phonology. They are the main examples of live phonological processes.

In what follows, a survey of the morphological functions of palatalisation is provided. The connection between phonology and morphology consists mainly in using palatalisation based segment replacements signalled in (8) in a number of morphological processes.

1.2. Morphological function of palatalisation – a continuum?

Below we shall abstract away from the details of the strictly phonological, theoretical controversies and will focus instead on the diverse linguistic functions attributable to palatalisation effects in Polish.

The following continuum suggests itself, where we see, initially, that there is very little of grammatical function of palatalisation to speak about until, at the other extreme, we are able to recognise and document a significant role played by Polish palatalisations in conveying a variety of morphosyntactic and semantic concepts.

1.2.1. No grammatical function *per se*

In numerous words, Polish palatalisation is an automatic phonetic / phonological effect, obligatorily triggered by the context (i.e., typically, the high front vowel [i], and some occurrences of the front vowel [e]). In this sense, palatalisation is a context-dependent assimilatory process, a case of allophonic variation. As already mentioned above in (11), this phenomenon concerns velar consonants. Some more examples are given below.[13]

(15) *Nominative*	*Plural*	*Instrumental*
stok [stok] 'slope'	*stok-i* [stoci]	*stoki-em* [stocem]
szlak [ʃlak] 'trail'	*szlak-i* [ʃlaci]	*szlaki-em* [ʃlacem]
pieróg [pʲeruk] 'dumpling'	*pierog-i* [pʲeˈroɟi]	*pierogi-em* [pʲeˈroɟem]
wymóg [vɨmuk] 'requirement'	*wymog-i* [vɨˈmoɟi]	*wymogi-em* [vɨˈmoɟem]

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[13] Due to space limitations, we shall not be concerned, in what follows, with the interaction between Polish palatalisations and vocalic alternations, notably the problem of vowel–zero alternation, as in *pies* [pʲes] 'dog, nom.sg' – *ps-a* [psa] 'gen.sg.'.

Alternatively, the presence of a palatalised consonant is a lexical feature of a given root morpheme; cf., in particular, the case of so-called soft stems, where a palatalised segment appears stem-finally, without any conditioning factor that might be held responsible for it: *koń* [koɲ] 'horse', *ziemi-a* [ʑemʲa] 'earth', *leń* [leɲ] 'idler', *kość* [koɕt͡ɕ] 'bone', etc. Crucially, the soft consonant recurs throughout the inflectional paradigm, regardless of the phonological quality of the ending. Consider the declension of *koń* [koɲ] 'horse':

(16) ***The declensional paradigm of the soft-stemmed noun* koń *'horse'***

	Singular	Plural
Nominative	*koń*	*koni-e*
Genitive	*koni-a*	*kon-i*
Dative	*koni-owi*	*koni-om*
Accusative	*koni-a*	*koni-e*
Instrumental	*koni-em*	*koń-mi (koni-ami)*
Locative	*koni-u*	*koni-ach*
Vocative	*koni-u*	*koni-e*

In this sense, the occurrence of the palatal(ised) consonant is fully automatic and predictable by virtue of the fact that the noun belongs to the class of soft stems.[14]

However, the lack of any tangible grammatical function for palatalisation may be disputed here: as it encodes the soft-stemmed nature of certain lexemes, it can be viewed as a word-class marker. This information may have important consequences for the morphosyntax; cf., in particular, the special syb-type of underived soft-stemmed nouns which, characteristically, end with a consonant in nom.sg. (like typical masculine nouns) even though they are of feminine gender: *sieć* [ɕet͡ɕ] 'net', *dłoń* [dwoɲ] 'palm', *baśń* [baɕɲ] 'fairy tale', *pleśń* [pleɕɲ] 'mould', *kość* [koɕt͡ɕ] 'bone', etc. Hence palatalisation here helps preserve the inflectional integrity of the pattern in question.

In a similar vein, the presence or absence of palatalisation in the lexical representation of feminine nouns determines the choice of the dat./loc. sg. ending so that one can argue that the phonological feature in question has some remote morphological effect. Nouns which end in a hard consonant take the vowel -*e* (which, as might be expected, induces palatalisa-

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[14] However, alternations of the relevant consonant do exist in some derived forms, due e.g. to depalatalisation; cf. *koń* [koɲ] > *konny* [konnɨ], *ziemia* [ʑemʲa] > *ziemny* [ʑemnɨ], *ziemski* [ʑemsci] (for details, see Gussmann 2007: 34)). Processes of depalatalisation will be left undiscussed in this account.

tion) while the soft-stemmed nouns take the ending *-i/-y* (see Gussmann
(2007: 106). Both sets are illustrated below:

(17)   a.   ***Feminine Noun, hard-stemmed***

        (Nom.sg.)   *(Dat./Loc.sg.)*

ryb-a [rɨba] 'fish'	*rybi-e* [rɨbʲe]
traw-a [trava] 'grass'	*trawi-e* [travʲe]
kos-a [kosa] 'scythe'	*kosi-e* [koɕe]
szmat-a [ʃmata] 'rag'	*szmaci-e* [ʃmaʨe]
wod-a [voda] 'water'	*wodzi-e* [voʥe]
skór-a [skura] 'skin'	*skórz-e* [skuʒe]
mąk-a [moŋka] 'flour'	*mąc-e* [mon͡tse]
nog-a [noga] 'leg'	*nodz-e* [no͡dze]
much-a [muxa] 'fly'	*musz-e* [muʃe][15]

       b.   ***Feminine Noun, soft-stemmed***

        (*Nom.sg.*)   (*Dat./Loc.sg.*)

ziemi-a [ʑemʲa] 'earth'	*ziem-i* [ʑemʲi]
sieć [ɕet͡ɕ] 'net'	*siec-i* [ɕet͡ɕi]
gałąź [gawoˠɕ] 'branch'	*gałęz-i* [gaˈweˠʑi]
kość [koɕt͡ɕ] 'bone'	*kośc-i* [koɕt͡ɕi]
mysz [mɨʃ] 'mouse'	*mysz-y* [mɨʃɨ]

    Absence of palatalisation, before a "palatalising vowel", may also be
viewed as a lexical property of certain words, stem-internally. However,
this is only possible with the vowel [e]; cf. *beli* [belʲi] 'roll, gen.sg.', *pewny*
[pevnɨ] 'sure', *pełny* [pewnɨ] 'full', plus numerous loan words[16] (*beż* [beʃ]
'beige', *pesymizm* [peˈsɨmʲism] 'pessimism', *welur* [velur] 'velour', *febra*
[febra] 'fever', etc). In the latter case (borrowings), the lack of palatalisa-
tion may be said to signal the non-native status of individual lexemes.[17]

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[15] The synchronic effects of Polish palatalisation are represented not only by phonetical-
ly palatalised segments (such as [pʲ, bʲ, mʲ] etc.) but also by what are termed "functional-
ly soft/palatalised" consonants, which include the palatals [ʃ, ʑ, t͡ʃ, d͡ʑ] as well as [t͡s, d͡z, l]
(see Gussmann (2007: 44, 48)).

[16] With some older loans, the situation is less stable: e.g. *geniusz* [geɲjuʃ] 'genius', *generał*
[geˈneraw] 'general' – [ge ...] side by side with the now obsolete [ɟe ...].

[17] As illustrated in (12a) above, in the case of coronal obstruents like [t, d, s, z], the non-native sta-
tus of words (lack of phonetic adaptation) is marked by the presence of Surface Palatalisation
which yields, respectively, [tʲ, dʲ, sʲ, zʲ]; cf. *tiara* [tʲara] 'tiara', *dioda* [dʲoda] 'diode', *silos* [sʲilos]
'silo', *Zin* [zʲin] 'proper name'. This stands in contrast with the regular native alternations: [t]
~ [t͡ɕ], [d] ~ [d͡ʑ], [s] ~ [ɕ], [z] ~ [ʑ]. However, Surface Palatalisation operates as well in native
forms when a word boundary separates the consonant and the conditioning segment (*i* or *j*);
cf. *lo*[sʲ] *Ireny* 'Irene's fate', *lo*[sʲ] *Janka* 'Janek's fate' (Rubach (2006: 241) and (12b) above).

Phonologically, because of the partially unpredictable behaviour of consonants before the vowel [e], palatalisation seems to acquire a phonemic status; especially since there are a number of minimal pairs like *beli* [belʲi] 'roll, gen.sg.' vs. *bieli* [bʲelʲi] 'whiteness, gen.sg.', or *raper* [raper] 'rapper' vs. *rapier* [rapʲer] 'rapier' (cf. (10) above).

1.2.2. Palatalisation with expressive function (sound-symbolic value)

Cross-linguistically, palatalisation is found to have a, more or less tangible, sound-symbolic value. For example, Hamano (1994: 154), in a study of "mimetic words" in Japanese, notes the following:

> the sound-symbolic association of palatalisation extends over a semantic continuum of "childishness, immaturity, instability, unreliability, uncoordinated movement, diversity, excessive energy, noisiness, lack of elegance, and cheapness". The semantic continuum of palatalisation can be reduced to a basic association of palatalisation of alveolar stops and fricatives with "childishness" or "immaturity." Studies of language acquisition report palatalisation as one of the universal characteristics of early stages of children's language acquisition. It is also reported as one of the commonest devices of baby-talk [...].

These generalisations are corroborated by the Polish data. First, the vocabulary characteristic of child language and baby-talk reveals a number of instances of "consonant replacement in which the stem-final consonant, regardless of its original quality, becomes substituted with the voiceless palatal fricative [ɕ]" (Szpyra 1995: 32) (occasionally, instead of [ɕ], one finds its voiced equivalent, i.e. [ʑ]). Consider the following examples:

(18)	*ręk-a* [reŋka] 'hand, arm'	*rąsi-a* [roῶɕa]
	brzuch [bʒux] 'belly'	*brzusi-o* [bʒuɕo]
	wnuk [vnuk] 'grandson'	*wnusi-o* [vnuɕo]
	nog-a [noga] 'leg'	*nózi-a* [nuʑa]
	Bóg [buk] 'God'	*Bozi-a* [boʑa]

It must be stressed that this sort of expressive replacement has little in common with the regular patterns of palatalisation, which result in distinct and predictable alternations (e.g. [k] will normally alternate with either [t͡ʃ], [t͡s] or [c] but not with [ɕ]). The tendency in question extends beyond the common vocabulary of child language / baby-talk and may be seen at work also in the formation of one type of Polish hypocoristics from personal names (see Szpyra (1995: 32)). For example:

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(19) *Adam* [adam]   *Adaś* [adaɕ]
      Jan [jan]   *Jaś* [jaɕ]
      Zofi-a [zofʲa]   *Zosi-a* [zoɕa]
      Monik-a [moˈɲika]   *Monisi-a* [moˈɲiɕa]
      Justyn-a [jusˈtɨna]   *Justysi-a* [jusˈtɨɕa]

Alternatively, the stem-final consonant may undergo[18] the regular processes of palatalisation, which results in a variety of predictable alternations like the following:

(20) *Mart-a* [marta]   *Marci-a* [mart͡ɕa]
      Wand-a [vanda]   *Wandzi-a* [vaɲd͡ʑa]
      Róż-a [ruʒa]   *Rózi-a* [ruʑa]
      Jan [jan]   *Jani-o* [jaɲo]

In the three classes of formations evidenced above, palatalisation has a vaguely expressive function, as it may suggest a variety of meanings like 'endearment', 'affection', 'familiarity', etc. More broadly speaking, the palatalisations in question are claimed to have a morphological rather than purely phonological function (see Kuryłowicz (1987: 217), Szpyra (1995: 31)). Kuryłowicz (1987: 217) attributes the extra expressive value of the palatal(ised) consonants to the fact that, in Polish, these segments, as a class, are phonologically marked with respect to their plain (hard) counterparts.

Another potentially expressive, overtly morphologised category ought to be mentioned here: the diminutive. Polish diminutives are regularly derived by means of the suffixes *-ik/-yk* and *-ek/-k*(*a*)/*-k*(*o*). Leaving aside the complicated distribution of these rival formatives,[19] one should emphasise the fact that, since they incorporate the vowels [i] and [e], their attachment often results in palatalisation of the stem-final consonants. Thus, the former suffix (which attaches to masculine nouns only) produces various palatalisations of non-velar consonants while the latter one turns the velar obstruents [k, g, x] into the corresponding palatal counterparts: [t͡ʃ, ʒ, ʃ], respectively. Consider the following forms:

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18 Quite often, Polish hypocoristics are based on a stem which results from the clipping of the final sequence in the name, followed by palatalisation of the last consonant(s), e.g. *Edward* [edvart] > *Edzio* [ed͡ʑo]. We need not be concerned with the clipping process here (see Szpyra (1995) for a detailed description).

19 See, for instance, Kreja (1989), Malicka-Kleparska (1985), Gussmann (2007: 143).

(21)		*Noun (masc.sg.)*	*Diminutive*
	a.	*sklep* [sklep] 'shop'	*sklepik* [sklepʲik]
		samolot [saˈmolot] 'plane'	*samolocik* [samoˈloʨik]
		notes [notes] 'notebook'	*notesik* [noˈteɕik]
	b.	*rak* [rak] 'crayfish'	*raczek* [raˈt͡ʃek]
		róg [ruk] 'horn'	*rożek* [roʒek]
		dach [dax] 'roof'	*daszek* [daʃek]

Moreover, the presence of palatalisation may spread over two adjacent syllables before the final suffix, in cases of so-called double diminutives (see Szymanek and Derkach (2005)); for instance: *stół* [stuw] 'table' > *stol-ik* [stolʲik] 'small table' > *stol-icz-ek* [stoˈlʲit͡ʃek] 'very small table', *dach* [dax] 'roof' > *dasz-ek* [daʃek] 'small roof' > *dasz-ecz-ek* [daˈʃet͡ʃek] 'very small roof'. The cases evidenced above clearly demonstrate that palatalisation is a salient feature of Polish diminutivisation, as it is inextricably interwoven, in most cases, with the morphological operation of suffix attachment. For this reason, palatalisation may be looked upon here as a morphological co-formative which encodes the diminutive function together with the suffix.[20] Viewed more broadly, Polish palatalisation is a significant expressive device in its own right.

Another piece of evidence for the expressive involvement of palatalisation are certain phenomena from Polish nominal declension, to be more precise: the plural of masculine personal nouns. In brief, the facts are as follows: a major pattern of nominative plural for such nouns is when the suffix *-i*/*-y* is added to the stem, producing palatalisation of the stem-final consonant. This may be juxtaposed with the plural of similar nonpersonal nouns, where palatalisation is not triggered, as illustrated below:

(22) *Plural of masculine personal nouns* (before suffix *-i*/*-y*)

Noun (sg.)	*Noun (pl.)*		*Noun (sg.)*	*Noun (pl.)*
student 'student'	*studenc-i*	vs.	*patent* 'patent'	*patent-y*
[student]	[stuˈdeɲʨi]		[patent]	[paˈtentɨ]
doktorant 'Ph.D. student'	*doktoranc-i*		*doktorat* 'Ph.D. thesis'	*doktorat-y*
[dokˈtorant]	[doktoˈraɲʨi]		[dokˈtorat]	[doktoˈratɨ]
dyrektor 'director'	*dyrektorz-y*		*traktor* 'tractor'	*traktor-y*
[dɨˈrektor]	[dɨrekˈtoʒɨ]		[traktor]	[trakˈtorɨ]

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[20] Incidentally, the "diminutive suffix" does not always convey the expected meaning of smallness; it can be used as a general expressive marker only (e.g. *socz-ek* [sot͡ʃek] < *sok* [sok] 'juice' or *rocz-ek* [rot͡ʃek] < *rok* [rok] 'year' hardly mean 'small juice' or 'small year').

Now, crucially, the impersonal pattern is sometimes employed in case of names denoting humans, for expressive effect. That is to say, the plural form shows no trace of palatalisation:

(23) ***Pejorative / Substandard Plural of masculine personal nouns*** (before suffix -*i*/-*y*)

Noun (sg.)	Noun (pl.)
student [student] 'student'	*student-y* [stuˈdentɨ]
doktorant [dokˈtorant] 'Ph.D. student'	*doktorant-y* [doktoˈrantɨ]
dyrektor [dɨˈrektor] 'director'	*dyrektor-y* [dɨrekˈtorɨ]

The above alternative forms, without palatalisation, are strongly suggestive of very colloquial register or dialectal (substandard) speech. In this sense, they are strongly expressive, connoting, for instance, deliberate pejorative downgrading or contempt (in some other forms, the same pragmatic effect may be achieved by replacement of the inflectional suffix; cf. *ministr-owie* [mʲiɲisˈtrovʲe] 'ministers' (regular, unmarked form) vs. *ministr-y* [mʲiˈɲistrɨ] 'id., expressive').

The following picture of this situation is sketched in Wierzbicka (1988: 455):

> Human masculine nouns with a hard stem can take one of the following three endings: -*i*, -*y*, and -*owie*. (Human masculine nouns with a soft stem can take either -*owie* or -*e*). Of these, -*i* is neutral, in the sense that it implies nothing beyond 'human male'. The ending -*owie* is marked, implying, in addition to 'human male', also 'importance' or 'dignity'. The ending -*y*, which is otherwise characteristic of non-human masculine nouns, implies contempt.

Because the key formal difference between the endings -*i* and -*y* is that the former regularly induces palatalisation while the latter does not, palatalisation is linked here with the unmarked (regular) forms (cf. the personal forms in (22)), while absence of palatalisation implies marked, expressive usage). The special significance of palatalisation is best visible in nouns ending in -*r*, as in *dyrektorz-y* [dɨrekˈtoʒɨ] vs. *dyrektor-y* [dɨrekˈtorɨ] above, since the forms are actually identical in phonetic terms (due to a phonological adjustment of the quality of the final vowel), apart from the stem-final contrast [ʒ] vs. [r].[21]

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[21] In the case of noun-stems which end in a velar consonant, the "normal" plural shows a morphonological replacement [k] > [t͡s], [g] > [d͡z], while the "pejorative" plural displays the effect of phonological surface (velar) palatalisation; cf. *Polak* 'Pole' > *Polac-y* 'pl.' vs. *Polak-i* 'pl. pejor.', *ginekolog* 'gynaecologist' > *ginekolodz-y* 'pl.' vs. *ginekolog-i* 'pl. pejor.'. Interestingly, as pointed out in Dressler (2003: 464), the pejorative forms which in-

To sum up, the presence of stem-final palatalisation in the above nouns seems to be linked to a specific morphosyntactic category, that of human masculine nouns, via their major exponent in the plural, viz. the vowel -*i*. But the significance of this category, as well as the role of concomitant palatalisation, extends beyond noun plurals. Nouns with the -*i* ending (also -*owie*) "have a special human-masculine ('virile') agreement, i.e. they impose a special 'virile' form on the verbs and adjectives governed by them." (Wierzbicka (1988: 456)). This may be illustrated with a few examples of inflected adjectives given below, where the items in the left-hand column are the ordinary plural forms (masc./fem./neut.), while the forms on the right are the ones to be used with human-masculine nouns only:

(24)   **_Adjective, plural_**   **_Adjective, plural_**
          (masc./fem./neuter)   **_(human-masculine)_**

    słab-e [swabe] 'weak'   *słab-i* [swabʲi]
    ładn-e [wadne] 'nice'   *ładn-i* [wadɲi]
    głuch-e [gwuxe] 'deaf'   *głus-i* [gwuɕi]
    cich-e [t͡ɕixe] 'quiet, silent'   *cis-i* [t͡ɕiɕi]
    star-e [stare] 'old'   *starz-y* [staʒɨ]

By virtue of agreement, one gets phrases like *cis-i mnis-i* [t͡ɕiɕi mɲiɕi] 'silent monks', where palatalisation is a characteristic feature of the stem-final consonant in both the adjective and the noun, as opposed to the singular form: *cich-y mnich* [t͡ɕixɨ mɲix] 'silent monk'.[22] But this only happens in phrases headed by 'virile' nouns (cf. *cich-y dźwięk* [t͡ɕixɨ d͡zvʲeŋk] 'quiet sound' > *cich-e dźwięk-i* [t͡ɕixe d͡zvʲeɲci] 'quiet sounds'). However, when a human-masculine noun is to be used with a pejorative connotation (see above), then its modifying adjective should follow non-human agreement, with no palatalisation on the stem-final consonant of either the noun or adjective. Hence we get *cich-e mnich-y* [t͡ɕixe mɲixɨ] 'silent monks, expr.'.

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volve surface palatalisation are more natural, on the parameter of morphotactic transparency, compared to the "normal" noun plurals. This is a bit of a paradox, since the normal plurals appear to be less opaque (thus: more natural) in terms of morphosemantic transparency.

[22] Of course, the [x] ~ [ɕ] alternation evidenced here is not the only alternation that the velar spirant [x] participates in. Actually, this pattern is rather limited (cf., for instance, the dubious status of ?*sus-i* [suɕi] 'dry, pl., human-masc.' < *suchy* [suxɨ] 'dry'), compared to such productive alternations as [x] ~ [ʃ], well attested by the class of diminutives. But cf. also the nouns derived from the adjectives on the list: *głuch-y* [gwuxɨ] 'deaf' > *głusz-a* [gwuʃa] 'wilderness', *cich-y* [t͡ɕixɨ] 'quiet, silent' > *cisz-a* [t͡ɕiʃa] 'silence'.

1.2.3. Palatalisation as a morphological co-formative, due to
 morphophonological replacement

As argued in Gussmann (2007: 162–3), some instances of stem-final pal-
atalisation ought to be viewed as being triggered by a special type of proc-
ess called morphophonological replacement. In fact, according to this view,
"the majority of alternations of consonants termed 'palatalisations' are mor-
phophonological replacements of segments" (Gussmann 2007: 125). Such re-
placements or modifications are lexically governed by special diacritics.[23]

As a case in point, consider a few examples of so-called possessive ad-
jectives in Polish:[24]

(25) **_Noun_**   **_Derived 'possessive' Adj_** (fem.sg.nom.)
 ryb-a [rɨba] 'fish'   *rybi-a* [rɨbʲa]
 kot [kot] 'cat'   *koci-a* [kot͡ɕa]
 lis [lʲis] 'fox'   *lisi-a* [lʲiɕa]
 szczur [ʃt͡ʃur] 'rat'   *szczurz-a* [ʃt͡ʃuʒa]

Such phenomena seem to point to the fact that the palatalisations involved
in them have a secondary morphological function in that they co-signal, al-
beit indirectly and in conjunction with overt morphological markers, specif-
ic inflectional or derivational categories (like the class of "possessive adjec-
tives" illustrated above). To put it differently, the grammatical status of a form
like *rybi-e* [rɨbʲe] (noun: 'fish, dat.(loc.)sg.' or derived adjective: 'fish_, piscine,
nom./acc. neuter sg. or nom./acc.pl.') is disambiguated, first of all, on the ba-
sis of its syntactic position, agreement relations, etc. (when context is avail-
able), but there is a strong hint which comes from the palatal quality of the
stem-final consonant that the form in question is an adjective. It ought to be
stressed that the adjectival stem always ends in a palatalised [bʲ] while the
nominal one has this consonant only in two syncretic case-forms of the sin-
gular: the dative and the locative (hence we get a case of inflectional homoph-
ony). Another difference is that in the inflected noun *rybi-e* [rɨbʲe] palatalisa-
tion operates as a regular phonological process (note the following front vow-
el) while in the derived adjective it results from a morphophonological mod-

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[23] The theory of morphophonological replacements is laid out in detail in Gussmann
(2007).

[24] This categorial label is an overgeneralisation, given the fact that the actual meaning of
some of the adjectives in question may extend beyond the strictly "possessive" semantics;
and so, while in *rybi ogon* [rɨbʲi ogon] 'fish tail' the relation is certainly that of possession
(inalienable possession, to be more precise), in *rybia łuska* [rɨbʲa wuska] 'fish scale' the
inalienability of possession may be put into question, while in *rybie mięso* [rɨbʲe mʲeᵚso]
'fish (meat)' the relation is not possessive at all ('meat from_').

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ification which takes place even before a back desinential vowel (e.g. *rybi-a*
[rɨbʲa] 'adj, fem.nom.sg.'). Consider the following sentential examples:

(26)   a.   *Dałem   mięsa   rybie.*
              I-gave   meat   fish-DAT
              'I gave meat to a/the fish.'

        b.   *Rybie   mięso   jest   drogie.*
              Fish-ADJ meat   is   expensive
              'Fish is expensive.'

Morphologically, the pattern of possessive-adjective formation has been
described as a specific case of so-called paradigmatic derivation (or conver-
sion), in the sense that the morphological process shifts the input form from
one inflectional paradigm to another. As a result, both the old as well as
the new paradigm are characterised by a unique set of desinences. This ex-
hausts the morphological operation in such prototypical instances of para-
digmatic derivation as *zł-y* [zwɨ] 'bad, evil' > *zł-o* [zwo] 'evil, n.'. In adjec-
tives like *rybi-a* [rɨbʲa], the extra feature of the derivative, apart from par-
adigm shift, is palatalisation.

Another pattern of this sort is evidenced by a relatively small (unpro-
ductive) class of "soft-stemmed" de-adjectival nouns (see Gussmann (2007:
163) for details):

(27) ***Abstract de-adjectival nouns***

Adjective	Noun (nom.sg)	
biał-y [bʲawɨ] 'white'	*biel* [bʲel] 'whiteness'	a ~ e
czarn-y [t͡ʃarnɨ] 'black'	*czerń* [t͡ʃerɲ] 'blackness'	a ~ e
zielon-y [ʑeˈlonɨ] 'green'	*zieleń* [ʑeleɲ] 'greenness'	o ~ e
czerwon-y [t͡ʃerˈvonɨ] 'red'	*czerwień* [t͡ʃervʲeɲ] 'redness'	o ~ e
żółt-y [ʒuwtɨ] 'yellow'	*żółć* [ʒuwt͡ɕ] 'yellowness'	

The colour terms on the left have their corresponding lexicalised nominal-
isations which end, characteristically, in a palatalised consonant. Moreover,
when we look at their forms in the nominative, palatalisation appears to be the
only formal marker of the derivational process (apart from the occasional vow-
el alternation), since there is no overt ending of the nominative for these fem-
inine nouns.[25] However, this is a bit misleading: when one examines the com-

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[25] However, a few other nouns, which also belong to this pattern, do reveal a vocalic desi-
    nence in the nominative; cf. the neuter derivative *zdrowi-e* [zdrovʲe] 'health' < *zdrow-y*
    [zdrovɨ] 'healthy'.

plete paradigm of the nouns in question, it will transpire that case endings do turn up; e.g. *biel-i* [bʲelʲi] 'gen./dat.(loc.)sg.', *biel-ą* [bʲeloⁿ] 'instr.sg.', etc. In other words, this group is not really different from the previously mentioned class of soft-stemmed possessive adjectives: again, palatalisation conspires with paradigmatic conversion in ensuring the formal identity of the derivative.

Finally, there are also certain lexical pairs, involving verbs and nouns, like the following: (a) *krok*$_N$ [krok] 'step' > *krocz-y-ć*$_V$ [kroʧiʨ] 'stride, march' (imperative: *krocz* [kroʧ]); (b) *lecz-y-ć*$_V$ [leʧiʨ] 'treat, cure' (imperative: *lecz* [leʧ]) > *lek*$_N$ [lek] 'drug, medicine'. Arguably, in both patterns, the formal difference between the noun and the imperative is minimal and reducible to presence vs. absence of palatalisation on the root-final consonant. However, there is no direct derivational relationship between these two forms; quite simply – nouns are not derived from imperatives. That is to say, palatalisation hardly operates here, on its own, as a morphological device. What happens, according to traditional accounts, is that both patterns result from conversion (paradigmatic derivation): either a verb is derived from a noun (as in (a)) or, the other way round, a noun is derived from a verb (a verb stem, to be more precise; cf. (b)).[26]

1.2.4. Palatalisation as a morphological formative?

To sum up, it seems that this is almost as far as one can go in ascribing morphological function to palatalisation in Polish: the cases of soft-stemmed denominal adjectives (25) and de-adjectival nouns (27) considered above mark the other extreme on the functional continuum suggested at the outset. One may conclude that while palatalisation is sometimes deceptively prominent, almost suggesting that it is the sole exponent of a particular morphological category, a careful analysis reveals that it never works alone, being supported by overt morphological markers: derivational affixes (cf. diminutivisation), inflectional affixes (cf. the dat.(loc.)sg. ending of nouns like *rybi-e* [rɨbʲe] 'fish'), or paradigm sets (conversion).

A truly morphological function might, perhaps, be attributed to the palatalisation which appears stem-finally in the following "minimal pair" of personal derivatives from the noun *fajk-a* [fajka] 'pipe' > *fajk-arz* [fajkaʃ] 'pipe manufacturer' vs. *fajcz-arz* [fajʧaʃ] 'pipe smoker' (note the alternation [k] ~ [ʧ]). But such cases of semantic contrast where palatalisation alone is responsible are extremely rare. On the other hand, Polish word-

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[26] By the same logic, palatalisation alone cannot be held responsible for deriving the noun *lot* [lot] 'flight' from the verb *leci-e-ć* [leʨeʨ] 'fly', or from its imperative form *leć* [leʨ] – note the vowel alternation in the root as an extra feature.

formation offers a few more examples where palatalisation of the stem-final consonant, before a derivational suffix, is a matter of free variation, as it does not result in any semantic difference. Consider the following locative formations: *bażant* [baʒant] 'pheasant' > *bażant-arni-a* [baʒanˈtarɲa] / *bażanci-arni-a* [baʒaɲˈtɕarɲa] 'pheasantry', *królik* [krulʲik] 'rabbit' > *królik-arni-a* [krulʲiˈkarɲa] / *królicz-arni-a* [krulʲiˈtʃarɲa] 'rabbit warren', etc. (see Górska (1985) and Gussmann (2007: 138) for more examples and discussion). Interestingly, such free variation is not found before the inflectional suffixes.

2. Irish

2.1. Phonological function of palatalisation

There are a number of similarities between Polish and Irish as far as the phonological function of palatalisation is concerned. There are also differences. As mentioned in the introduction to this paper, the origin of palatalised consonants is similar, and so is the present day utilisation of lexical contrasts based on this property (6). The Irish consonantal system of contrasts is rather simple – the consonants are either palatalised or not, [p – pʲ, k – kʲ, d - dʲ].[27] The distinction is also used to express particular morphological functions, of which more will be said below.

As far as live phonological phenomena are concerned, in which the process–context connection still exists, there are two interesting and interconnected aspects which are worth mentioning. One of them is palatal assimilation in consonant clusters. The other concerns the leftward spreading of the property of palatalisation, which affects vowels. It appears that both phenomena may be two facets of the same process. We begin with assimilation.

Both Irish and Polish exhibit a similar pattern here, which boils down to a general condition that consonant clusters should – as far as the phonological conditioning allows – agree in terms of quality. Sometimes this condition takes the form of static restrictions, sometimes however, a clear process of assimilation can be discerned. The data below show quality agreement in clusters in different positions within the word in Irish. Although we show palatalised clusters only, quite obviously, they may be non-palatalised as a whole too, e.g. *gruama* [grʊəma] 'gloomy', *scadán* [skəˈdɑːn] 'herring', nom.sg., *oscail* [ˈoskɪlʲ] 'open', or *corp* [korp] 'body', nom.sg.

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[27] We bypass the question if the non-palatalised series should not be also treated as marked. They are characterised by strong velarisation which is particularly audible before front vowels.

(28)   a.   ***word-initial***

        grian   [gʲrʲɪən] 'sun, nom.sg.'

        bliain   [bʲlʲɪənʲ] 'year, nom.sg.'

        scéal   [ʃkʲial] 'story, nom.sg.'[28]

    b.   ***word-medial***

        uisce   ['ɪʃkʲɪ] 'water, nom.sg.'

        múinteoir   [mu:nʲ'tʲo:rʲ] 'teacher, nom.sg.'

        circe   ['kʲɪrʲkʲə] 'hen, gen.sg.'

    c.   ***word-final***

        coirp   [korʲpʲ] 'body, gen.sg.'

        oscailt   ['oskɪlʲtʲ] 'open, VN'[29]

        caint   [kɑɪnʲtʲ] 'talk, VN'

The data above comprise both static lexical forms and cases involving morphologically conditioned alternations between palatalised and non-palatalised clusters. To the latter group, one may include, e.g. *corp* [korp] ~ *coirp* [korʲpʲ] 'body, nom.sg. /gen.sg.', and *cearc* [kʲark] ~ *circe* ['kʲɪrʲkʲə] 'hen, nom.s.g. / gen.sg.'.

At this point one should ask the question as to the scope of morphological and phonological palatalisation. In other words, whether morphology palatalises both consonants in *coirp*, or just one, while the rest is due to palatal assimilation.[30] We will be able to answer this question shortly, after we have seen more examples below.

The following set of data seem to illustrate a dynamic palatal assimilation, that is, a process. It can be observed word-initially in the case of the definite article in front of masculine nouns beginning with a vowel.

(29)   a.   *an t-ollamh*   [ən 'toləv]   'the professor'

        an t-arán   [ən tə'rɑ:n]   'the bread'

        an t-airgead   [ən 'tarʲɪgʲədʲ]   'the money'

    b.   *an t-im*   [ənʲ tʲi:m]   'the butter'

        an t-iasc   [ənʲ tʲɪəsk]   'the fish'

        an t-éan   [ənʲ tʲian]   'the bird'

The addition of the definite article *an* in these forms causes the so called t-prefixation. The prefixed [t] may be palatalised or not depending on the phonological structure of the base (Cyran 1997: 142). If, or once the pre-

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[28] Recall that [ʃ] is the palatalised form of [s].

[29] VN stands for Verbal Noun.

[30] Note that in *circe* [kʲɪrʲkʲə] 'hen, gen.sg.' the palatalisation of final consonants is accompanied by a vocalic ending.

fix is palatalised, the quality also spreads onto the consonant of the definite article (29b).

Finally, Irish also boasts palatal assimilation in which the fundamental principle of adjacency seems to be breeched. Consider the following examples.

(30) *dorn / doirn*   [dorən ~ dɪrʲɪnʲ] 'fist, nom.sg. /gen.sg.'
      doras / dorais [dorəs ~ dɪrʲɪʃ] 'door, nom.sg. /gen.sg.'
      solas / solais [soləs ~ selʲɪʃ] 'light, nom.sg. /gen.sg.'

In the genitive form, palatalisation affects not only the final consonant but also the preceding one. However, the two consonants are separated by a vowel. This does not happen in other forms in which a reduced vowel (schwa) separates the last two consonants, e.g. *dealramh / dealraimh* [dɑ:rhəv ~ dɑ:rhəvʲ] 'resemblance, nom.sg. /gen.sg.' or *asal / asail* [asəl ~ asɪlʲ] 'donkey, nom.sg. /gen.sg.'.

A closer look at the facts reveals that in the "irregular" cases in (30) the transparent vowel alternates with zero in the plural.

(31) *doirne* [do:rnʲə]   'fist, nom.pl.'[31]
      doirse [do:rʃə]   'door, nom.pl.'
      soilse [si:lʲʃə] 'light, nom.pl.'

The facts in (30) can only be explained if we assume that phonologically the two consonants are indeed adjacent and the vowel appearing in the singular and genitive forms is epenthetic. Conversely, we must assume that in *dealraimh* [dɑ:rhəvʲ] 'resemblance, gen.sg.' and *asail* [asɪlʲ] 'donkey, gen.sg.' the last two consonants are separated by a lexical vowel. Thus, the phonological structure of the word-forms is again crucial here. A similar conditioning was mentioned above concerning the quality of the definite article. Before we determine the scope of morphology and phonology in the phenomenon of palatal assimilation, let us look at some interesting exceptions, which show additional phonological conditioning.

The most spectacular exceptions to the consonant quality agreement concern two instances. The first one is [r] followed by a homorganic consonant, e.g. *doirne* [do:rnʲə] 'fist, nom.pl.' (not *[do:rʲnʲə]), *beirt* [bʲertʲ] 'two people' (not *[bʲerʲtʲ]). The second exception concerns [s] followed by a labial consonant, e.g. *speal* [spʲal] 'scythe, nom.sg.' (not *[ʃpʲal]), *sméar* [smʲiar] 'blackberry, nom.sg.' (not *[ʃmʲiar]).

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[31] The refusal of [r] to undergo palatal assimilation in homorganic contexts is discussed immediately below.

It is time to return to our questions concerning the scope of morphological and phonological palatalisation. Firstly, we saw that as a result of morphological operation of genitive formation two final consonants may become palatalised in, e.g. *corp* [korp] ~ *coirp* [korʲpʲ] 'body, nom.sg. /gen.sg.'. Sometimes, the palatalisation may be accompanied by an additional vocalic ending as in, e.g. *cearc* [kʲark] ~ *circe* [ˈkʲɪrʲkʲə] 'hen, nom.sg. / gen.sg.'. The genitive case can also be formed by palatalising a single final consonant, again, with or without an accompanying vocalic element, e.g. *fear / fir* [fʲar ~ fʲɪrʲ] 'man, nom.sg. / gen.sg.' and *deas / deise* [dʲas ~ dʲeʃə] 'nice, nom.sg. / gen.sg.fem.'. This mini-typology is summarised below.[32]

(32)   ***Nominative***   ***Genitive***

      ...C#   →   ...Cʲ#
      ...C#   →   ...CʲV#
      ...CC#   →   ...CʲCʲ#
   ...CC#   →   ...CʲCʲV#

If the entirety of the palatalisation effects in the genitive above is to be blamed on morphology, one would also have to incorporate the examples from (30), e.g. *dorn / doirn* [dorən] / [dɪrʲɪnʲ] 'fist, nom.sg. / gen.sg.', which exhibit a different pattern, in that the last two consonants are separated by a vowel alternating with zero (...$CV_0C\# \rightarrow$ ...$C^jV_0C^j\#$), and the exceptions mentioned above, e.g. *beirt* [bʲertʲ] 'two people'. This would make morphological description of the phenomenon next to impossible. Clearly, we are dealing with strong phonological conditioning on assimilation. Therefore it is prudent to assume that what morphology does is provide the palatalising agent (autosegment), which affects the final consonant of the stem, while phonology determines how far this palatalizing agent will spread leftwards. This way, phonological conditioning may account for all the surface shapes of the morphological operation.

To sum up: phonology in general requires that two consonants, which are phonologically adjacent, agree in quality. This concerns clusters in all positions in the word. The requirement may take a form of static restrictions, especially in contexts where no morphological operations are expected, or suspected. It may also transpire as a live process of palatal assimilation as witnessed in the case of the definite article in (29), the genitive formation in *coirp* [korʲpʲ] 'body, gen.sg.', and the plural formation

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[32] One should bear in mind that depalatalisation is also a valid morphological tool, especially in a language like Irish, in which the palatalised and non-palatalised series are symmetrical. This leads us to the conclusion that there should be a similar typology of genitive formation as depalatalisation. For example, *athair / athar* [ahirʲ ~ ahər] 'father, nom. sg. / gen.sg.', *bádóir / bádóra* [bɑːˈdoːrʲ ~ bɑːˈdoːrə] 'boatman, nom.sg. / gen.sg.', etc.

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soilse [siːlʲʃə] 'light, nom.pl.'. Phonological conditioning of some of the above mentioned phenomena, as well as of the exceptions strongly suggest that morphology cannot be responsible for the palatalisation of an entire cluster. Rather, the morphological operation must be viewed as simple. It merely provides the palatalising agent, or autosegment, alone, e.g. –ʲ, or in combination with a vocalic element, e.g. –ʲə. An alternative interpretation might be that morphology replaces a non-palatalised consonant with a palatalised one, and vice versa, and then the palatalising agent begins to act phonologically. A precise decision in this respect goes beyond the scope of this paper.

Thus, once the palatalising agent is in the phonological representation, it spreads leftwards as far as phonology allows. In consonantal clusters it may fail to affect the preceding consonant, for example, *beirt* (33b), or not, as in *coirp* (33a).

(33)   a.   b.
        ...   C   Cʲ
                         ←
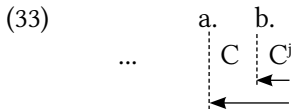
However, this property does not stop at consonants and also affects the preceding vowels, which results in interesting melodic alternations. The phenomenon is also restricted phonologically. Consider the following facts.
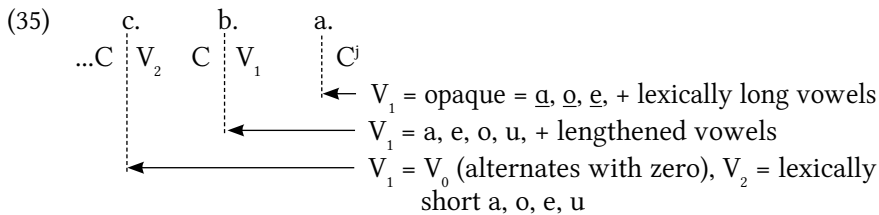
(34) **_The phonological scope of palatalisation_** (once it's there; whatever the source)

a. *cos / cois*   [kos ~ koʃ] 'leg, nom.sg. / dat.sg.'   o̠ ~ o
   cat / cait   [kɑt ~ kɑtʲ] [kɪ tʲ] 'cat, nom.sg. / gen.sg.'   ɑ̠ ~ ɑ
   baile   [bɑlʲə] 'home, nom.sg.'   ...ɑ̠Cʲ
   scoil   [skolʲ] 'school, nom.sg.'   ...o̠Cʲ
   ciúin   [kʲuːnʲ] 'calm'   ...uːCʲ
   géill   [gʲeːlʲ] 'surrender'   ...eːCʲ
   cáis   [kɑːʃ] 'cheese'   ...ɑːCʲ
   múinteoir   [muːnʲtʲoːrʲ] 'teacher, nom.sg.'   ...uːCʲ

b. *muc / muic*   [muk ~ mɪkʲ] 'pig, nom.sg. / dat.sg.'   u ~ ɪ
   sop / soip   [sop ~ sɪpʲ] 'wisp, nom.sg. / gen.sg.'   o ~ ɪ
   cnoc / cnoic   [knok ~ knɪkʲ] 'hill, nom.sg. / gen.sg.'   o ~ ɪ
   olc / oilc   [olk ~ ɪlʲkʲ] 'evil, nom.sg. / gen.sg.'   o ~ ɪ
   fear / fir   [fʲar ~ fʲɪrʲ] 'man, nom.sg. / gen.sg.'   a ~ ɪ
   deas / deise   [dʲas ~ dʲeʃə] 'nice, nom.sg. / gen.sg.fem.'   a ~ e

c. *dorn / doirn / doirne*   [dorən ~ dɪrʲɪnʲ ~ doːrnʲə] 'fist, nom.sg. /gen.sg. / nom.pl.'
   doras / dorais / doirse   [dorəs ~ dɪrʲɪʃ ~ doːrʃə] 'door, nom.sg. /gen.sg. / nom.pl.'
   solas / solais / soilse   [soləs ~ selʲɪʃ ~ siːlʲʃə] 'light, nom.sg. /gen.sg. / nom.pl.'[33]

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[33] A degree of variation is possible in the latter two forms, which is very interesting. For example, Ó Sé (2000:95) gives the pronunciation [dɪrɪʃ], with [i] in the first syllable, but wi-

The forms in (34a) comprise both short and long vowels which resist influence from the following palatalised consonant(s). The resistant short vowels are underlined here to express the fact that they must be lexically marked as opaque.[34] In (34b), we observe vocalic alternations which are due to palatalisation spreading. It is interesting that having affected these vowels, palatalisation spreading stops before the preceding consonant, if it is lexically unpalatalised.[35] The data in (34c) show the by now familiar forms in which palatalisation spreads across a vowel which alternates with zero, affects the preceding consonant, and spreads further to affect the first vowel. Here, the interesting point is that the first vowel may be lengthened in the plural, and it is still affected by palatalisation as in, e.g. *soilse* [siːlʲʃə] 'light, nom.pl.'.[36]

The scope of phonological palatalisation spreading is represented graphically below. The ranges (35a-b-c) correspond to the data in (34).

(35)

$$...C \mid V_2 \quad C \mid V_1 \quad \mid C^j$$

V_1 = opaque = <u>a</u>, <u>o</u>, <u>e</u>, + lexically long vowels
V_1 = a, e, o, u, + lengthened vowels
V_1 = V_0 (alternates with zero), V_2 = lexically short a, o, e, u

Thus in Irish palatalisation spreads further than the preceding consonant and may affect the preceding vowels as well. Phonologically speaking, the function of palatalisation in Irish is similar to that in Polish with respect to the existence of palatal assimilation. However, in Irish palatal assimilation appears to be only a fragment of a more general palatalisation spreading. The phenomenon is subject to phonological conditioning and lexical marking.

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thout palatalisation of [r]. He also gives both [solɪʃ] and [sɪlʲɪʃ], where the type of vowel in the first syllable seems to be correlated with the identification of the following consonant as palatalised or not.

[34] An attempt to explain the parallel behaviour of short opaque and long vowels with respect to palatalisation spreading was made, e.g. in Ní Chiosáin (1991) and in Cyran (1997). The former author proposes that opaque vowels bear full featural specification for backness, as opposed to the alternating vowels. The latter, proposes that opaque vowels are headed, while alternating short vowels and lengthened ones are headless.

[35] In the case of *oilc* [ɪlʲkʲ] 'evil, gen.sg.' the onset is missing, and we only observe the vowel change, while in *fir* [fʲɪrʲ] 'man, gen.sg.' and *deise* [dʲeʃə] 'nice, gen.sg.fem.' the first onset is palatalised lexically.

[36] Recall, that [r] in homorganic contexts resists palatal assimilation. Therefore, the forms *doirne* [doːrnʲə] 'fist, nom.pl.' and *doirse* [doːrʃə] 'door, nom.pl.' do not show any influence of the first vowel.

2.2. Morphological function of palatalisation

In comparison to Polish, the Irish facts concerning the morphological function of palatalisation are much simpler, and the status of palatalisation as an exponent of grammatical categories is more clear and independent. This is mainly due to the fact that the phonemic contrast between palatalised and non-palatalised consonants is symmetrical (6), and a mere replacement of a hard consonant with a soft one, or vice versa, is by and large sufficient for morphological purposes, just as it is for lexical ones in, for example, *bó* [bo:] 'cow' vs. *beo* [bʲo:] 'alive'.

In the preceding section devoted to the phonological function of palatalisation, we were able to determine also the morphological scope of this phenomenon. Namely, morphology provides the palatalising agent at the right edge of words, with or without an additional overt ending, e.g. ⁻ʲ*each*.[37] In what follows, we will limit ourselves to just a few typical examples of palatalisation and depalatalisation, stressing the strong presence of syncretism.

First of all, in a small group of masculine nouns, both the plural and the genitive singular forms are derived by palatalisation alone (36). This type of syncretism is commonplace in Irish morphology.[38] Likewise, depalatalisation may also be used syncretically to derive, e.g. genitive singular, e.g. *athair / athar* [ahirʲ ~ ahər] 'father, nom.sg. / gen.sg.', or the verbal noun, e.g. *coir* [korʲ] 'tire, v.' vs. *cor* [kor] 'VN'. Some of these cases will be returned to below.

(36) | ***Nom.sg.*** | ***Nom.pl.*** | ***Gen.sg.*** | |
|---|---|---|---|
| *bád* [bɑ:d] | *báid* [bɑ:dʲ] | *báid* [bɑ:dʲ] | 'boat' |
| *fear* [fʲar] | *fir* [fʲirʲ] | *fir* [fʲirʲ] | 'man' |

We have seen a fair number of examples of genitive formation in the above sections devoted to phonology. It may also involve adjectives, as in, for example, *beag / big* [bʲog ~ bʲɪgʲ] 'small, nom.sg. /gen.sg.masc.', or *olc / oilc* [olk ~ ɪlʲkʲ] 'bad, nom.sg. /gen.sg.'. For the sake of completeness we should also remind ourselves of the fact that plural or genitive formation may also involve palatalisation combined with a vocalic suffix, e.g. *deas / deise* [dʲas ~ dʲeʃə] 'nice, nom.sg. / gen.sg.fem.'.[39]

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[37] Or takes away the palatalising agent in what we call depalatalisation.

[38] The dative case may also be formed by palatalising the final consonant as well, e.g. *muc / muic* [muk ~ mikʲ] 'pig, nom.sg. / dat.sg.'.

[39] We have also seen earlier that the formative ⁻ʲə is used to derive the nominative plural form as well, e.g. *solas / soilse* [soləs ~ si:lʲʃə] 'light, nom.sg. / nom.pl.'.

Another interesting subgroup of forms involves palatalisation accompanied by a change of the final consonant [χ → gʲ] instead of the expected [χ → χʲ], which is strongly reminiscent of the Polish facts mentioned above, e.g. *lot* [lot] 'flight, nom.sg.' vs. *leć* [let͡ɕ] 'fly, imp.'. This would be a classic case of morphophonological replacement according to studies like Gussmann (2007).

(37)   **Nom.sg.**   **Gen.sg.**
        éadach [iadəχ]   *éadaigh* [iadɪgʲ]   'clothes'
        Éireannach [e:rʲənəχ] *Éireannaigh* [e:rʲənɪgʲ] 'Irishman'

Given the symmetry /C − Cʲ/ in the phonemic system of Irish, it is quite predictable that morphology may also use the reverse replacement, that is, depalatalisation. We use this term for convenience. If the symmetry is to be taken seriously, one should probably use a symmetrical terminology, for example, palatalisation vs. velarisation, or softening vs. hardening. The actual nature of the non-palatalised consonants can only be established through an in-depth phonological analysis.[40]

The last example of the morphological palatalisation that we wish to adduce is present in the verbal system and marks the distinction between the 1st and the 2nd person singular in the simple past forms.

(38)   **1st person**   **2nd person**
        ghlanas [ɣlanəs]   *ghlanais* [ɣlanɪʃ]   'clean'
        chuireas [χɪrəs]   *chuiris* [χɪrɪʃ]   'put'

As emphasised earlier on a few occasions, depalatalisation is as valid a tool in morphological derivation as palatalisation. Below, we illustrate depalatalisation acting as the only exponent of genitive formation (39a), and one accompanied by a vocalic ending (39b).

(39)   **Genitive formation as de-palatalisation**

        Nom.sg.   *Gen.sg.*

    a. *athair* [ahɪrʲ]   *athar* [ahər]   'father'
        deartháir [dʲrʲɪˈha:rʲ] *dearthár* [dʲrʲɪˈha:r] 'brother'

    b. *bádóir* [bɑːˈdo:rʲ]   *bádóra* [bɑːˈdo:rə]   'boatman'
        múinteoir [mu:nʲˈtʲo:rʲ] *múinteora* [mu:nʲˈtʲo:rə] 'teacher'

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[40] A number of phonological studies have claimed that the non-palatalised series of consonants in Modern Irish is also marked by some category. For example, Ní Chiosáin (1991) uses the distinction between −BK and +BK consonants, while Cyran (1997) contrasts I-consonants with U-consonants.

Another example of derivations which may be viewed as an instance of depalatalisation is found in verbal noun formation.[41]

(40) ***Verb***   ***Verbal Noun***

      coir [korʲ]   *cor* [kor]   'tire'
      coisc [koʃkʲ]   *cosc* [kosk]   'stop'
      cuir [kɪrʲ]   *cur* [kur]   'put'
      toirmisc [ˈtorʲəmʲɪʃkʲ]   *toirmeasc* [ˈtorʲəmʲəsk] 'prohibit'

To summarise: Irish morphology uses palatalisation on its own and with an additional overt affix in the derivation of grammatical categories. Depalatalisation, is used in the same way, which follows from the symmetry between soft and hard consonants in the phonemic system of contrasts in Irish. Another important feature concerning Irish is the ubiquitous syncretism. Palatalisation and depalatalisation are exponents of more than one grammatical category.

3. Further comparison and conclusion

As noted on a few occasions in this paper, phonologically speaking, what makes Irish and Polish similar is the very presence of palatalisation in the consonantal systems, and also a similar origin of these distinctions. Both languages use phonemic contrasts based on this property, although the systems look markedly different. While Irish presents a highly symmetrical set of contrasts, that is, palatalised vs. non-palatalised, Polish boasts a most intricate system of multilayered relations, for example, [t-t͡ɕ-t͡s] in *lot* [lot] 'flight' / *leci* [let͡ɕi] 'he flies' / *lecę* [let͡seᵚ] 'I fly', which are fully used by morphology. Another common feature of the two systems is the presence of palatal assimilations in consonant clusters. Here, substantial differences lie in the respective ways in which the phenomenon is conditioned phonologically. Polish still possesses what looks like a vestigial live palatalisation of consonants by front vowels. This mostly concerns the velar plosives and the high front vowel in native vocabulary, e.g. *bok / boki* [bok ~ boci] 'side, nom.sg. /nom.pl.'. On the other hand, in Irish the property of palatalisation spreads leftwards further than the preceding consonant, and may affect the preceding vowels as well, e.g. *olc / oilc* [olk ~ ɪlʲkʲ] 'evil, nom.sg. /gen.sg.'.

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[41] See Bloch-Trojnar (2006: 211–213) for a detailed discussion of the intricacies connected with this formation.

As for morphology, we tried to establish the scope of palatalisation. In Polish, we are dealing with palatal segment replacements as in [t-t͡ɕ-t͡s] mentioned above. It may be assumed that, like in Irish, morphology affects the right edge of the word, that is, it replaces only the last consonant, while palatal assimilations are subject to further phonological conditioning.[42] However, while in Polish we are clearly dealing with entire segment replacements, in Irish there seems to be space for alternative views. Namely, it is possible to assume that morphology only adds the palatalisation property to the right edge, or changes the quality of the last consonant from non-palatalised to palatalised and vice versa. Thus, morphology need not replace the entire segment. This is mostly due to the symmetry of the quality contrasts in Irish. There is, however, one example where segment replacement might be at play. It concerns the [χ ~ gʲ] alternation in forms like *éadach / éadaigh* [iadəx] / [iadigʲ] 'clothes, nom.sg. / gen.sg.'.

A marked difference between the morphological functions of palatalisation in the two languages is the fact that, in Polish, segment replacement is hardly ever a sole exponent of a grammatical function. It is always accompanied by other forms of signalling a change of category: overt suffix, e.g. *bok / boczek* [bok ~ bot͡ʃek] 'side, nom.sg. / dim.', or additional modifications, e.g. *lot / leć* [lot ~ let͡ɕ] 'flight' / 'fly, imp.'. In Irish palatalisation may be accompanied by an overt suffix, e.g. *deas / deise* [dʲas ~ dʲeʃə] 'nice, nom.sg. / gen.sg.fem.'does, or not, e.g. *cat / cait* [kɑt ~ kɑtʲ] 'cat, nom.sg. / gen.sg.'.

Even though some Irish vocalic alternations as in *muc / muic* [muk ~ mikʲ] 'pig, nom.sg. / dat.sg.' may superficially resemble Polish *lot / leć* [lot ~ let͡ɕ] 'flight' / 'fly, imp.', in that the dative singular form has final palatalisation with concomitant change of the vowel, Irish vocalic alternations have been shown to be a result of a phonological operation and not morphophonological segment replacement, as in Polish *lot / leć*.

From the functional angle, different sets of lexical and morphosyntactic categories are involved in both languages. For instance, in terms of the inflection / derivation divide, it may be observed that, in Irish, the morphology-related palatalisation co-occurs virtually only with inflectional contrasts (apart from Verbal Noun formation[43]), while in Polish its effects, as a

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[42] The main argument for this course of action comes from exceptions to palatal assimilation, which appear to be conditioned phonologically, for example, *marznąć* [marznɔɲt͡ɕ] 'freeze' alternates with *marznie* [marzɲe] or [marzɲe] '(s)he freezes', *pełznąć* [pewznɔɲt͡ɕ] 'creep' alternates with *pełznie* [pewzɲe] or [pewzɲe] '(s)he creeps'

[43] See also Doyle (1992: 114–119) for a discussion of consonant palatalisation connected with the diminutive suffix *-ín.*

co-formative, reveal themselves both in large areas of the inflectional system as well as in a few patterns of word-formation (e.g. abstract de-adjectival nouns). Additionally – and notably – the Polish palatalisations play a significant role at the "intermediate" level of expressive/evaluative morphology (e.g. diminutives, hypocoristics, pejoratives).

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Fonološke i morfološke funkcije palatalizacije
u irskome i poljskome

Sažetak

U ovome radu uspoređuje se status palatalizacije konsonanata u modernom irskom i poljskom unutar fonoloških i morfoloških sustava tih dvaju jezika. Irski i poljski izabrani su među keltskim i slavenskim jezicima zato što oba imaju palatalizirane suglasnike. Jedna funkcija vezana uz razliku palatalizirano/nepalatalizirano leksička je razlika, npr. irski *cúis* [kuːʃ] 'razlog' vs. *ciumhais* [kʼuːʃ] 'rub' i poljski *beli* [beli] 'svežanj, Gen.sg.' vs. *bieli* [bjeli] 'bjelina, Gen.sg.'. Fonološki gledano, pojam "palatalizacija" prilično je širok i nejasan, budući da podrazumijeva dva potpuno različita lingvistička slučaja. Naime, može ga se shvatiti kao dinamični fonetski ili fonološki proces u kojem se suglasnik pomiče naprijed ili umekšava kad iza njega slijedi prednji samoglasnik [i/e] ili poluvokal [j]. U tom smislu palatalizacija je alofonska, tj. kontekstualno uvjetovan proces jednačenja, kao što je slučaj s irskim *bith* [bʲi] 'postojanje' i poljski *bił* [bʲiw] 'udario je'. S druge strane, čini se da i u irskom i u poljskom palatalizacija suglasnika može biti i neovisna o kontekstu. U tom slučaju ne radi se o procesu, nego o izvornom leksičkom svojstvu suglasnika, tj. o fonološkoj razlici. Ovo se može pokazati na primjerima kao što su irski *beo* [bʲoː] 'živ' i poljski *biodro* [bʲodro] 'bedro'. Budući da iza palataliziranog suglasnika slijedi stražnji samoglasnik, znamo da on nije izazvao palatalizaciju. Drugi dokaz za fonološki status palatalizacije u ovim jezicima pružaju oblici u kojima prisustvo prednjeg samoglasnika ne jamči i palataliziranost suglasnika, npr. irski *tuí* [tiː] 'slamka' (cf. *tí* [tʲiː] 'kuća, gen.sg.') i poljski *beli* [beli] 'svežanj, gen.sg.'. Moglo bi se zaključiti da postoje znatne fonološke sličnosti između irske i poljske palatalizacije. Ipak, slika se komplicira kad se ta dva sustava detaljnije prouče. Kad se jednom pojavi u fonološkom izrazu riječi, palatalizacija u irskom ima sasvim drugačiju funkciju nego u poljskom. U irskom se palatalizacija ponaša kao nezavisno svojstvo (autosegment) i teži širenju nalijevo zahvaćajući kratke samoglasnike koji prethode (npr. *sop / soip* [sop / sipʲ] 'snop / gen.sg'), suglasnike i samoglasnike (npr.. *olc / oilc* [olk / ilʲkʲ] 'zlo / gen.sg.'), ili čak čitave slogove (npr. *dorn / doirn* [dorʌn / dirʲinʲ] 'šaka / gen.sg.'). Iz toga slijedi da palatalizacija kao proces jednačenja nije potpuno neaktivna. S druge strane, u poljskome postoje tragovi međusobnoga djelovanja suglasnika i samoglasnika koji su praktički ograničeni na velare i neke skupine suglasnika. Cilj je ovog rada odrediti uvjete fonološkoga dosega palatalizacije u irskome i poljskome iz perspektive povijesnog

razvoja pojave, ograničenja u distribuciji i sudjelovanja u procesu. Oba jezika uspješno koriste razliku palatalizirano/nepalatalizirano i u odgovarajućim morfološkim sustavima. Povijesni je uzrok ove općenite sličnosti otpadanje završnih suglasnika. U ovom je radu dan pregled različitih leksičkih derivacija i flektivnih paradigmi koje sadrže palatalizaciju.

S formalne točke gledišta, postoje dva glavna slučaja u kojima razlika palatalizirano/nepalatalizirano ima morfološku funkciju, a svaki od njih ima dvije potkategorije:

1) palatalizacija: a) kao samostalan formant: C > Cʲ, npr. irski *bád / báid* 'čamac, nom.sg. / nom.pl.', i poljski *ryb-a / rybi-a* 'riba, nom.sg. / adj.nom. sg.fem.'

b) kao složeni formant: C > Cʲ+samoglasnik, npr. irski *deas / deise* 'dobar / gen.sg.', i poljski *student / studenc-i* 'student, nom.sg. / nom.pl.'.

2) depalatalizacija: a) kao samostalan formant: Cʲ > C, npr. irski *athair / athar* 'otac, nom.sg. / gen.sg.'

b) kao složeni formant: npr. poljski *liść / list-ek* 'listić'.

S funkcionalne točke gledišta, rezultati se u poljskome vide u nekim paradigmama imenske sklonidbe u izvođenju apstraktnih imenica od pridjeva i od posvojnih denominalnih pridjeva, kao i u velikom području ekspresivne tvorbe riječi, itd. Morfološki utjecaj palatalizacije u irskome najbolje se očituje u imenskoj sklonidbi, ali je prisutan i u glagolskoj promjeni i u nekim izvedenicama, npr. u glagolskim imenicama. Potrebne su daljnje lingvističke usporedbe i tipološka istraživanja da bi se u potpunosti razumio status palatalizacije kao poveznice između fonologije i morfologije. U ovome radu pokušali smo postaviti temelje za takvo istraživanje.

Ključne riječi: palatalizacija, morfologija, fonologija, morfofonologija, irski, poljski

Key words: palatalisation, morphology, phonology, morphophonology, Irish, Polish