


Jan Henrik Holst  
Polish morphophonology<sup>1</sup>



## 1. Introduction

Morphophonology is the area of grammar which is concerned with morphophonological, or morphophonemic, alternations, or short, simply: alternations. Taking a well-known example, in English *sing, sang, sung*, the vowels *i, a, u* alternate. Comparing the noun *breath* and the verb *breathe*, two alternations can be found, as both the vowels and the interdental fricatives following them are not identical. This example also demonstrates that what counts is the phonetics, not the orthography. Acquaintance with Polish phonetics and orthography is taken for granted in the following.

Morphophonology is a neglected field. Irrespectably of which language is treated, grammars and grammatical sketches often do not have chapters or sections devoted to this topic. For Polish, an example for a grammar which does have a section on morphophonology, although short, is provided by Damerau (1967); this section can be found on pp. 18-22. If a separate treatment of the morphophonology is present, the question which can be put next is how long this treatment is, and whether it is done with full respect for a field of its own. It must be underlined that dealing with morphophonology is a useful enterprise, because alternations usually recur through the structure of a language, i.e. they occur in the inflection of several parts of speech as well as in derivation. If morphophonology as a field of its own is not appreciated, this leads to descriptions which treat certain

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alternations among noun inflection (declension), then again in verb inflection (conjugation), etc. Under such circumstances it is likely that the overall structure of the language is not appreciated in a sufficient way.

There are some basic facts about morphophonology which deserve being laid out. As has been pointed out by Holst (2001: 98) and on other occasions, morphophonological alternations are the consequences of sound laws, to be more exact: conditioned sound laws. If the conditions for a sound law apply in parts of a paradigm, these may exhibit a new sound, while other parts of the paradigm still exhibit the old sound; the result is the alternation. There is thus a connection from morphophonology to language history. Indeed, there are two options in language history: making an alternation arise or avoiding it (or abolishing it later on) by analogy.

Another basic observation about morphophonology is that there may be several alternations in one word. In Polish *lód* 'ice' / gen. sg. *lodu* there is an alternation in the vowel as well as in the second consonant because in final position *d* is [t]. In such cases the alternations may be independent of each other, or there may be a connection, e.g. one of them may have caused the other one. The following example contains even three alternations: *chodz-i-ć* 'to go' / preterite *szed-t*; there is indeed no sound in the stem which does not undergo an alternation. In such instances it may happen that the connection is hardly recognizable at first sight.

Morphophonological alternations may be productive or unproductive. This distinction refers to whether they can appear in new words which enter the language, or whether they just occur in fixed instances. The noun *internet* 'internet', a word which has entered Polish only recently, has the locative *internecie* and demonstrates the fact that *t* continues to alternate in this way under certain grammatical circumstances. Examples for unproductive alternations can be seen in *woda* 'water' / *wydra* 'otter' (an animal living in the water) / *wiadro* 'bucket' (a device to carry water). The example draws attention to an important point: in some cases native speakers may not be aware any longer of the fact that the material belongs together. Another instance makes use of the law of the open syllable (the remarkable innovative consonant loss phenomenon of Proto-Slavic): *spać* 'to sleep' / *sen* 'sleep, dream'. These words have the same root and exhibit an alternation of *p* and  $\emptyset$ . This can be seen by considering that Polish *sen* is etymologically connected to many other words within the Indo-European language family which mean 'sleep' or 'dream': Latvian *sapnis* 'dream' etc.; the consonant group *pn* is also present in Greek and Old Indian, while Latin has *somnus* with *mn* < \**pn*. Of course the field of etymology deals

with such connections among words. But the field of morphophonology is involved here, too; this is an entirely different look at the data which deserves being mentioned as well.

What is presented in this article is nothing but a brief survey of the field. It is not the first treatment of Polish morphophonology, as there are some other ones, and there is even a recent monograph on the topic, Kowalik (1997). What is done here is to emphasize certain points which seem worthy of attention. The survey does not claim to be spectacular, and although it addresses all important alternations as well as some less important ones, it is not exhaustive in the sense that it does not treat these alternations from every point of view from which it would be possible to treat them.

This remark leads to the question what indeed can be investigated in a morphophonological alternation. Certainly something must be said about which sounds alternate, it may or may not be possible to say something about the conditioning, and the occurrence in different parts of the grammar may be addressed. Definitely the name of the alternation should be mentioned, if one exists. Examples ought to be given. The relationship to orthography occasionally is of interest. Furthermore, space can be devoted to the historical origin and the age of the alternations (something left untreated by Kowalik 1997), and sometimes to the relative chronology of the rise of the alternations (which may have consequences in the synchronic structure). Finally, typological parallels can be adduced. It is obvious from this wide range of possibilities that in an article only some issues can be addressed for each alternation. The treatment is necessarily selective and highlights various points. From time to time observations are included that have not been made yet in the literature on Polish.

## 2. Vowel alternations

### 2.1. *e* ruchome and similar phenomena: presence and absence of vowels

In Polish, very often the presence of a vowel alternates with its absence. Usually this vowel is *e*, and therefore the term *e* ruchome (movable *e*) exists. In noun inflection *e* ruchome either occurs in the nominative singular or in the genitive plural; it is connected to the absence of a case morpheme. Examples from Damerau (1967: 22) are *sen* 'sleep' / gen. sg. *sn-u*, *dzień* 'day' / gen. sg. *dni-a*. Two types of *e* ruchome have to be distinguished: one type that causes palatalization (another morphophonological

alternation, to be treated later in 3.2. under the consonants), seen here in *dzień*, and one type that does not, seen here in *sen*. The reason is that this *e* has two sources, its origin are the two 'jers' ('reduced vowels'). The matter is explained well by Damerau (1967: 22): the front vowel palatalized the preceding consonant, while the back vowel did not. What is important for the synchronic analysis of Polish is that it is unpredictable within the present language system whether the palatalizing effect occurs or not; this depends on the lexeme. The Polish phenomenon of *e* ruchome has many parallel developments in other Slavic languages, but the languages vary in which vowel they use; Russian typically has an *o*, while Serbo-Croatian typically has an *a*.

Apart from *e*, also other vowels can sometimes alternate with zero: *osioł* 'donkey' / gen. sg. *osł-a*, *koziół* 'buck' / gen. sg. *kozl-a*, *kocioł* 'kettle' / gen. sg. *kotł-a*. Kowalik (1997: 166) mentions a connection of *chci-e-ć* 'to want' and *o-chot-a* 'desire'; here we have an instance of *o* of a different kind. In some cases *y* is affected: *spać* 'to sleep' / *sypialnia* 'bedroom'. Presence and absence of *y* can occasionally mark the difference in aspect: *spotykać* (imperfective) / *spotkać* (perfective) 'to meet'.

## 2.2. Pochylenie

The alternations *ó / o* and *ą / ę* are called *pochylenie*. They can be seen e.g. when comparing the nominative singular of many nouns with the rest of the paradigms, this rest being represented here by the genitive singular:

<b>nom. sg.</b>	<b>gen. sg.</b>	
<i>nóż</i>	<i>noż-a</i>	'knife'
<i>miód</i>	<i>miod-u</i>	'honey'
<i>wieczór</i>	<i>wieczor-a</i>	'evening'
<i>łódź</i>	<i>łodz-i</i>	'boat'
<i>ząb</i>	<i>zęb-a</i>	'tooth'
<i>błąd</i>	<i>błęd-u</i>	'mistake'
<i>mąż</i>	<i>męż-a</i>	'husband'
<i>wąż</i>	<i>węż-a</i>	'snake'

While here the *ó* or *ą* occurs in the nominative singular, it can also occur in the genitive plural when this is a form without any suffix, cf. *ręk-a* 'hand', gen. pl. *rąk*. There is therefore a connection in the conditioning to *e* ruchome, treated above. Further instances which show the absence of any suffix are *mój* 'my' (m.) / *moj-a* 'my' (f.), *rób* 'do' (imperative) / *rob-i-ć* 'to do'. But *pochylenie* can also occur outside these conditions, cf. data such

as *pięć* 'five' / *piąt-y* 'fifth', *osiem* 'eight' / *ósmy* 'eighth', *mówi-ć* 'to speak' / *mow-a* 'speech' (*wy-mow-a* 'pronunciation'), *kora* 'bark' / *skóra* 'skin'. On the last example: the bark is the skin of a tree, cf. also other languages, e.g. Japanese and Burushaski, in which 'bark' and 'skin' are connected. For all examples with *q* / *ɛ* note that *q* and *ɛ* have several pronunciations depending on which consonant follows.

Pochylenie is a special Polish development. There are parallel developments in some other Slavic languages, however, of which one could mention Ukrainian, Sorbian, and most notably Czech. In Polish, *pochylenie* does not occur before nasals, cf. *dom* 'house', gen. sg. *dom-u*, while in Czech the nasals do not disturb the occurrence of the Czech alternation. What is historically behind all these alternations is that a so-called reduced vowel got lost, and this influenced the vowel in the preceding syllable in its quantity or quality. Modern Polish does not have an opposition of short and long vowels any longer; what we see in *pochylenie* is an alternation in quality.

It is useful to be aware of *pochylenie* because this helps to spell Polish correctly. The sound [u] can be spelt either *ó* or *u*. These were actually pronounced differently in earlier times, but they have fallen together. The rule now is that if there are related forms which contain *o* (it does not matter whether in the same paradigm or only connected via derivation), the spelling *ó* is correct. If such forms cannot be found, *u* is spelt. There are only few exceptions to this rule; there is sometimes *ó* also in words which have no related form with *o*, and moreover it may be hard in practice to find the form with *o*. It is especially important to keep in mind the spelling *ó* in the words *król* 'king', *gówno* 'shit' (unless you want to avoid this word altogether), *róża* 'rose', *mózg* 'brains', *góra* 'mountain', *chór* 'choir' and some others. Another useful hint to choose between *ó* and *u* is to use other languages (especially other Slavic languages).

### 2.3. Przeglós

Another Polish vowel alternation is called *przegłos*. It designates certain alternations *e* / *o* and *e* / *a*. An introductory example is provided by the verb forms *umie-ć* 'to know, to be able, to master', *umie-m* 'I know', but *umia-l* 'he knew', but then again *umie-l-i* 'they knew'. Historically, *e* / *o* goes back to \**e*, and *e* / *a* goes back to \**ê* (Damerau 1967: 20). These vowels were shifted to *o* and *a* respectively before *t*, *d*, *s*, *z*, *n*, *r*, *l*. All of these consonants are dentals, with the exception of *l* which is nowadays a labial [w], but which was a dental until recently. Note that the dental



affricates *c* and *dz* are not in the list. The sound law that underlies przegłos can also be seen in words which do not exhibit any alternation. The word *siostra* 'sister' has its *o* because of this, cf. the cognates Czech *sestra*, Lithuanian *sesuõ* and German *Schwester*; Latin *soror* does not have any significance in this respect because its *o* is new as well, due to a development within Latin (Szemerényi 1990: 41). As Rothstein (1993: 696) points out, the alternation has sometimes spread by analogy to further lexemes, e.g. to the verb *wlokę* 'I drag' / *wlecz-esz* 'you (sg.) drag'; there exists a case with przegłos before *k* here for this reason.

Przegłos has several interesting features. One is that it leaves the observer puzzled as to which vowel he ought to regard as 'basic'. We know that historically one may argue that *e* is basic, but the synchronic analysis may be a different matter and deserves consideration of its own. Consider the following data:

*wiatr* 'wind' / *po-wietrz-e* 'air'  
*żona* 'wife' / *żeni-ć* 'to marry'  
*biorę* 'I carry' / *bierz-e* 'he carries'

In the first pair, certainly *a* will be felt as basic by native speakers and probably also by many linguists. However, this is the same alternation as in *umieć* / *umiał*, discussed above, in which *e* feels basic. The second pair makes *o* look basic, while the third pair may not evoke an equally clear statement. (For a deeper treatment one may bring other forms of the paradigms or derived words into play, because something that is important for intuitive judgements of 'basicness' is apparently the frequency with which vowels occur. Moreover, these judgements will be influenced by which forms are deemed important in a paradigm, such as e.g. the nominative singular of nouns.) An important point to realize now is that language structure shows *relationships* between entities, and morphophonology shows relationships between sounds. It is *linguistics* in many varieties which makes the necessity arise to regard or define some entity as basic. Languages themselves do not impose any such necessity. As has been stressed by Holst (2001: 95), there are not really 'processes' in a language, but this is a metaphor.

Another interesting point about przegłos is that it occurs in the declension of some nouns. The number of nouns exhibiting it is not high, but the phenomenon exists. These are all examples I have been able to collect; they are arranged according to the alternations *e* / *o* and *e* / *a*, and within this according to gender:

	<b>nom. sg.</b>	<b>loc. sg.</b>	
m	<i>anioł</i>	<i>aniel-e</i>	'angel'
	<i>kościół</i>	<i>kościel-e</i>	'church' (gen. <i>kościół-a</i> )
	<i>popiół</i>	<i>popiel-e</i>	'ashes' (gen. <i>popiół-u</i> )
n	<i>czół-o</i>	<i>czel-e</i>	'top'
m	<i>świat</i>	<i>świeci-e</i>	'world'
	<i>kwiat</i>	<i>kwieci-e</i>	'flower'
	<i>obiad</i>	<i>obiedzi-e</i>	'lunch'
	<i>las</i>	<i>lesi-e</i>	'forest, woods'
	<i>wiatr</i>	<i>wietrz-e</i>	'wind'
	<i>sąsiad</i>	<i>sąsiedzi-e</i>	'neighbour'
	<i>zjazd</i>	<i>zjeździ-e</i>	'congress'

Plus all other nouns in *-jazd*, see Kowalik (1997: 132) who gives 13 examples.

f	<i>miar-a</i>	<i>mierz-e</i>	'measure'
	<i>wiar-a</i>	<i>wierz-e</i>	'belief'
	<i>gwiazd-a</i>	<i>gwieździ-e</i>	'star'
	<i>jazd-a</i>	<i>jeździ-e</i>	'journey, ride'
	<i>ofiar-a</i>	<i>ofierz-e</i>	'victim'
	<i>niewiast-a</i>	<i>niewieści-e</i>	'woman' (not the usual word)
n	<i>lat-o</i>	<i>leci-e</i>	'summer'
	<i>miast-o</i>	<i>mieści-e</i>	'town, city'
	<i>ciast-o</i>	<i>cieści-e</i>	'dough'
	<i>gniazd-o</i>	<i>gnieździ-e</i>	'nest'
	<i>ciał-o</i>	<i>ciel-e</i>	'body'
	<i>światł-o</i>	<i>światl-e</i>	'light'

In nouns such vowel alternations are a typological peculiarity for Slavic: Slavic languages usually do not alter stem vowels in declension. (Russian has alternations in pronunciation due to stress.) Superficially, the data just presented remind of Umlaut in Germanic, e.g. in English *man / men*, German *Mann / Männer*; such data from Germanic languages exhibit umlauted vowels when there was a front vowel in the next syllable. The Polish data do show *-e* in the locative. Interestingly, however, the background of the vowel alternation is radically different in Polish. Certain dental consonants at the end of stems caused vowel shifts *outside* the locative, while in the locative these consonants had been palatalized already

and could therefore not cause the shifts (Masculine and neuter nouns show the *e* only in the locative singular, whereas feminine nouns show it not only in the locative, but also in the dative, which is identical.)

Przegłos does not occur in all nouns in which it could occur from a historical point of view. It is absent e.g. in *żona* 'wife', loc. sg. *żonie*, and in *ściana* 'wall', loc. sg. *ścianie*. This is due to *analogy*: once there was the alternation also in these words, but the locative adopted the vowel from the nominative and other forms. Scholars have strived for classifying the different types of analogy, and the type we see here is *leveling*; this is the term used when a distinction once made in a set of forms gets lost. The data are also a good example for *Sturtevant's paradox* which designates the following connection: Either sound change is regular and the consequences of it in morphology are an irregularity, namely the alternation in *aniol / aniel-e* etc., or the resulting paradigm is regular, which then implies, however, that we do not see the consequences of regular sound change everywhere; the form *żonie* is not regular in a historical sense.

#### 2.4. Other alternations

Polish has some instances of *ablaut*. This is the designation for a group of extremely old vowel alternations which existed already in Proto-Indo-European. To a large extent ablaut has not survived in Slavic, but there remain some traces. There are some pairs of verbs such as *nieś-ć / nos-i-ć*, both meaning 'carry', in which the second verb is an iterative-intensive to the first verb. The alternation *e / o* seen in these verb pairs is a direct continuation of Indo-European ablaut *\*e / \*o*. Cf. also *po-tok* 'brook' / *ciek-nąć* 'to flow', which can be charted as follows in order to highlight the connection:

<i>po-</i>	<i>t</i>	<i>o</i>	<i>k</i>	
	<i>ci</i>	<i>e</i>	<i>k</i>	<i>-nąć</i>

The *ci* is from *\*t* because of the following front vowel, cf. the section on consonants below (3.2.). As *przegłos* also contains *e / o*, the type of ablaut laid out may look like a part of *przegłos*, although the origin is different. What can be learned from this is that the whims of language history may produce the same alternation at different times in different ways. The question arises whether in a synchronic grammar one ought not subsume all the cases of *e / o* under one heading. In my opinion this is not recommendable. Not only would one deviate from the diachronic facts, but



also synchronic differences exist: as explained above, przegłos can only occur before dentals (plus *ʃ*), and ablaut does not have this crucial limitation.

What we have seen so far is qualitative ablaut; there was also quantitative ablaut. It seems that this can be seen in aspect pairs with *a / o* or *a / ó* such as *wracać / wrócić* 'to return', but research has not yet come to end on such data, cf. Mathiassen (1974: 154f.).

Extremely rarely Polish exhibits vowel alternations which involve *Winter's law*. This is the designation for a sound law that affected Proto-Balto-Slavic; the original version was set up by Werner Winter and first presented on a congress in 1976 – by the way in Poland. The paper appeared as Winter (1978). Since then there has been an extensive discussion on how exactly to establish this law. Attention must be drawn to Holst (2003) in this respect which limited the law to stressed syllables, offering data and argumentation, and this version was then also appreciated by Winter himself. (Several publications after Holst 2003 contain mistakes in what they claim about Holst 2003.) Now to an example of the effect of the law. The Polish word *sadza* 'soot' is etymologically connected to *siedzieć* 'to sit', and *sadza* once contained an *\*o* which stood in the usual ablaut relationship to the *e* of *siedzieć*; subsequently due to Winter's law this *\*o* was lengthened to *\*ō*, which became Slavic *a* regularly.

Finally, there are other vowel alternations here and there in Polish which are unproductive and rare.

### 3. Consonant alternations

#### 3.1. Voiced and voiceless consonants

In Polish, voiced and voiceless consonants frequently alternate. Such alternations are extremely commonplace from a typological point of view. It is useful first to mention two facts of Polish phonotactics. For those consonants which share the voiced / voiceless opposition, Polish only has the voiceless ones in word-final position. Moreover, consonant groups are unified in this feature; there are the clusters [st] and [zd], for instance, but no mixture of voiced and voiceless obstruents within a cluster. Both of these traits are shared by many other languages. There are now consequences of these facts for the morphophonology. From the stem *jeż-* 'hedgehog', for example, which forms gen. sg. *jeż-a*, dat. sg. *jeż-owi* etc., the nom. sg. is *jeż* with final [ʃ], as no final [ʒ] is tolerated by the phono-

tactic system. The noun *dziadek* 'grandfather' has the genitive *dziadk-a* without *e* ruchome, and *dk* in this form is phonetically [tk]; the assimilation is regressive. The alternation can extend over two segments, cf. *mózg* [sk] 'brain', gen. sg. *mózg-u* [zg].

The alternation is usually not expressed in spelling; this is valid for all examples adduced so far, and it is indeed the reason why IPA transcriptions had to be added in order to make the alternation visible. But sometimes there are exceptions, and the voiced / voiceless alternation does appear in spelling. These exceptions occur especially when the connection among the forms is felt less. For instance, *k-to* 'who' and *g-dzie* 'where' share the same stem, but it is spelt in different ways, adjusting to the following consonant. Russian orthography proceeds like Polish with these two words, but Czech does not: Czech *k-do* 'who', *k-de* 'where' (with [gd]). For an even more direct Polish example cf. *kiedy* 'when' (interrogative pronoun) vs. *gdy* 'when' (conjunction). Behind many of the interrogative pronouns, plus some other words, is the stem *k-*, just as English uses *wh-*, and Latin *qu-* (and in fact all these three are historically identical, going back to Proto-Indo-European \**k<sup>w</sup>-*).

Another example is provided by *gniazdo* 'nest' in which *-zd-* is the reduced form of the stem *sied-* which appears in *siedzieć* 'to sit'. It must be admitted, however, that probably only after the invention of Indo-European linguistics the connection of these words has become clear. Polish *gniazdo* is related to English *nest*, Latin *nīdus* and further cognates, and the word already existed thousands of years ago; on this basis the Indo-Europeanists realized that it actually designates a place to 'sit down' for the bird. It is no surprise that the spelling does not account for the connection.

The question arises whether there are only somewhat peculiar, or even far-fetched, examples in which the voiced / voiceless alternation appears in spelling. In searching for the answer it must be remarked that there are sometimes more direct examples than those treated so far. Their number across the whole language would have to be checked; what can be done here is only to give some examples. The preposition *z* 'from' is always spelt this way when treated as a separate word: *z Niemiec* [z] 'from Germany', *z Polski* [s] 'from Poland'. However, one spells *skąd* 'from where', the morphological segmentation of which is clearly *s-kąd*, cf. *dokąd* 'where (to)', which contains the preposition *do* 'to'. Note also *stąd* 'from here, hence', *dotąd* 'here, hither'. Also the prefix *z-* / *s-*, mostly used with verbs, is actually one prefix. (Czech seems to have *z-* more often.) Moreover,

cf. the noun *dech* 'breath', gen. sg. *tch-u*, dat. sg. *tch-owi*. The same root is present in the imperfective / perfective verb pair *w-z-dych-a-ć* / *we-s-tch-ną-ć* 'to sigh'. Apart from the different suffixations involved, the basic difference between the aspects lies in the fact that the imperfective aspect has an *y* which the perfective aspect has not. This has several consequences: in the perfective aspect the first consonant of the stem has to become voiceless, likewise the immediately preceding prefix, and even the first prefix does not have the same shape, as it uses an additional *e* in order not to produce a consonant cluster which even Polish does not tolerate.

### 3.2. Non-palatalized and palatalized consonants

Several Slavic languages have alternations of non-palatalized and palatalized consonants, and Polish belongs here, too, cf. simple examples such as *stopa* 'foot', loc. sg. *stopie*. An important point about Polish, however, is that in certain instances the difference is no longer a simple one of non-palatalized vs. palatalized, but the phonetic development has gone on and produced other oppositions. The resulting picture is:

still simple opposition non-palatalized / palatalized		representing further developments	
<i>p</i>	<i>pi</i>	<i>t</i>	<i>ci</i>
<i>b</i>	<i>bi</i>	<i>d</i>	<i>dzi</i>
<i>f</i>	<i>fi</i>	<i>s</i>	<i>si</i>
<i>w</i>	<i>wi</i>	<i>z</i>	<i>zi</i>
<i>m</i>	<i>mi</i>	<i>ł</i>	<i>ł</i>
<i>n</i>	<i>ni</i>	<i>r</i>	<i>rz</i>
<i>k</i>	<i>ki</i>		
<i>g</i>	<i>gi</i>		

The orthographic *i* expresses palatalization (left) or its effects (right, first four lines); the effect in these four cases is a shift to the alveolo-palatal point of articulation, an innovation in Polish. The pairs *t / ci* and *d / dzi* are characterized additionally by the fact that the first members are plosives and the second members are affricates. (In orthography the *i* is left out before the vowel *i*, and there are still further spellings which are not included in the table: *ń ć dź ś ź*).

Similar to the voiced / voiceless alternation, also the non-palatalized / palatalized alternation can extend over two segments. Therefore cluster alternations such as *st / ści*, *zd / źdi*, *sn / śni*, *zn / źni*, *śl / śł*, *źł / źł* can be

found. Cf. also *list* 'letter' (in the sense of German 'Brief', not 'Buchstabe') and *liść* 'leaf'; note also *list-o-pad* 'november', i.e. the month in which the leaves fall.

The pair *r* / *rz* is of interest because *rz* is not different phonetically from *ż*; both are pronounced as the sibilant [ʒ]. In 2.2. it was discussed that in order to spell [u] *ó* or *u* one may refer to the morphophonology. The question whether to spell [ʒ] *rz* or *ż* is a similar one. Here, too, morphophonology is the safest guide: a [ʒ] which alternates with *r* will be spelt *rz*. In addition, related languages can be used again. Taking *morze* 'sea', for instance, it is possible to infer from the adjective *morski* 'relating to the sea' that the spelling must be *rz*. It may be, however, that *morski* does not come to one's mind, or that one does not know this adjective at all; especially with foreign learners of the language such instances are to be expected. It may then be easier to think of cognates in other languages, e.g. Russian *море*, German *Meer*. An additional remark on this, however: foreign learners get to know much of their vocabulary in the written form first, and in the questions of *ó* or *u* and *rz* or *ż* this is an advantage; once having memorized the spelling, one knows the pronunciation, too. (Next to a voiceless consonant and in final position *rz* is [ʃ], thus *prz* [pʃ] etc.)

Polish is not alone in having shifted the palatalized vibrant to a different sound. In Czech *r'* also shifted, but the result is still different from *ž*. Also Sorbian has some developments of this kind. All these languages are West Slavic. There are dialects in Poland in which *rz* and *ż* have not fallen together, and this may be another incentive to learn the spelling: one may want to understand not only individuals who speak the standard language.

A synchronic observation: contrary to other Slavic languages, e.g. Russian, today's Polish consonant system has only one lateral and only one vibrant, and therefore from a Slavic perspective Polish has a surprisingly small liquid system (*l r*). Note also that in the case of the laterals it was the non-palatalized one which dropped out of the system, while in the case of the vibrants it was the palatalized one which dropped out of the system.

### 3.3. Consequences of the Slavic so-called palatalizations

Proto-Slavic underwent certain changes of its velar consonants, *k g ch* (i.e. [x]), which are called *palatalizations* in historical grammar. It is essential to distinguish this term from the phonetic term: the phonetic term (used in 3.2.) designates a simultaneous articulatory movement towards

the palate, while the historical term designates developments which produced quite different consonants: affricates and sibilants. A survey of the topic which is still useful can be found in Bräuer (1961: 184-196).

The 1st palatalization caused the Polish alternation *k / cz, g / ż, ch / sz*. Examples are *piek-ę* 'I bake' / *piecz-e* 'he bakes', *mog-ę* 'I can' / *moż-e* 'he can' (homophonous with *morze* 'sea'), *mlek-o* 'milk' / adjective *mlecz-n-y*. The 1st palatalization also appears in the irregular plural formations *ok-o* 'eye' / nom. pl. *ocz-y* and *uch-o* 'ear' / nom. pl. *usz-y*; all singular forms of the paradigms have *k* and *ch* respectively, and all plural forms have *cz* and *sz* respectively. A [ʒ] which alternates with *g* is spelt *ż* (and not *rz*).

The 2nd palatalization caused the Polish alternation *k / c, g / dz, ch / sz*. Examples are *Polak* 'Pole' / nom. pl. *Polac-y* and *ręka* 'hand' / nom. pl. *ręce*. The numbering 1st / 2nd refers to the chronological order in the pre-history of Slavic: the 1st palatalization is simply the first in time, and the 2nd palatalization occurred later. Both the 1st and the 2nd palatalization were caused by following front vowels. The question may arise: how is it possible that a 2nd palatalization occurred, when after the 1st palatalization all combinations of velar + front vowel had disappeared from Slavic, having been altered to affricate or sibilant + front vowel? The answer is that new front vowels came into being in the meantime, mainly by monophthongizations, e.g. *\*oi > \*ê* (see any historical grammar of Slavic, e.g. Bräuer 1961: 189). These new front vowels caused the 2nd palatalization. (Moreover some loanwords with the sound sequences in question had been taken up, Bräuer 1961: 190f.)

For understanding Polish morphophonology it is useful to add that after the 2nd palatalization many further changes in the vowels took place: front vowels could become back vowels and vice versa, and vowels could be lost entirely. Therefore the historical conditioning of the palatalizations is by no means always visible in today's Polish language structures. Comparing *mog-ę* and *moż-e*, for instance, they both contain a front vowel today, but historically *mog-ę* contained a back vowel (Proto-Slavic *\*o*). With some knowledge of the historical development of Polish the conditions of the palatalizations can be understood, but it does not seem wise to try to force these explanations onto a synchronic analysis of the language.

According to most historical grammars of Slavic there is also a 3rd palatalization. Its phonetic results are exactly the same as those of the 2nd palatalization (Bräuer 1961: 189, 193). There has been some discussion on whether the 3rd palatalization came after the 2nd palatalization, or whether it came before the 2nd palatalization (and then the numbering



2nd / 3rd would have to be changed) (Bräuer 1961: 196). I would like to present a new theory on this topic here: in my opinion there was no 3rd palatalization at all. The data that are adduced for the 3rd palatalization are actually nothing more than further examples for the 2nd palatalization. This hypothesis requires some justification. It has been remarked already that the phonetic results are the same; there will be no counterargument against my thesis here. What is allegedly different is the conditioning: while the 2nd palatalization was due to following front vowels, the 3rd palatalization is said to be due to *preceding* front vowels, although many details are unclear. It can be argued, however, that certain forms in the paradigms of the words in question contained front vowels after the velars, these caused the 2nd palatalization, and the resulting consonants then spread by analogy to other forms. A connection to preceding front vowels does not exist. This new theory is better from a universal phonetic point of view because it is usually following vowels, not preceding vowels, which cause shifts in consonants. It also has the advantage that the number of three palatalizations for Slavic, which is suspiciously high, melts down to two.

#### 3.4. Other alternations

There are some verb stems ending in a dental plosive, i.e. *t d*, for which the infinitive has a *ś* in the corresponding position before the infinitive suffix *-ć*. This *ś* is from earlier *\*s*. The alternation is already of Balto-Slavic age, for its occurrence in Latvian see Holst (2001: 102). Verb stems ending in a dental sibilant, i.e. *s z*, form similar infinitives, but a remark on spelling must be made: it is *ś* for stems in *s*, but *ź* for stems in *z*. The result of all that has been said is *-t- / -ść*, *-d- / -ść*, *-s- / -ść*, *-z- / -źć*. These are examples:

	<b>infinitive</b>	<b>1st pers. sg.</b>	
<i>t</i>	<i>gnieś-ć</i>	<i>gniot-ę</i>	'to press'
<i>d</i>	<i>iś-ć</i>	<i>id-ę</i>	'to go'
<i>s</i>	<i>nieś-ć</i>	<i>nios-ę</i>	'to carry'
<i>z</i>	<i>gryź-ć</i>	<i>gryz-ę</i>	'to bite'

Note the following data:

	<b>infinitive</b>	<b>1st pers. sg.</b>	
<i>d</i>	<i>wieś-ć</i>	<i>wiod-ę</i>	'to lead'
<i>z</i>	<i>wieź-ć</i>	<i>wioz-ę</i>	'to bring (transport)'

The two infinitives are homophonous, but they are spelt differently.

Almost all Polish infinitives end in *-ć*, but there is a small group of verbs with infinitives ending in *-c*. These are the verbs which have a stem ending in a velar plosive. Examples are:

	infinitive	1st pers. sg.	
<i>k</i>	<i>piec</i>	<i>piek-ę</i>	'to bake'
<i>g</i>	<i>móc</i>	<i>mog-ę</i>	'to be able'

It might be argued that here we have instances of the same alternation that resulted from the 1st palatalization, see 3.3. Under this analysis, however, the infinitives do not contain any infinitive suffix at all, and it would have to be decided then whether one is willing to accept this implication. Historically, things have been different: the *c* is the result of *\*kt*, i.e. of the consonant cluster that consisted of the velar of the stem and the *\*t* of the infinitive suffix. For the phonetic development cf. Polish *noc* 'night', related to Lithuanian *naktis* 'night' and further cognates in the Indo-European language family.

The last alternation to be touched briefly is the one seen e.g. in *pis-a-ć* 'to write' / 3rd pers. sg. *pisz-e* and *liz-a-ć* 'to lick' / 3rd pers. sg. *liż-e*. Former consonant clusters with *\*j* are responsible for *sz* and *ż* in these examples. There are some other consonant alternations in Polish which are unproductive and not frequent.

#### 4. Suprasegmental alternations

Suprasegmental alternations are not a complicated field in Polish because Polish is poor in suprasegmentals. There is a strong difference here to almost all other Slavic languages.

The only topic to deal with is stress. Polish stress is fixed on the second but last syllable. While this is a simple rule, it has some implications which explicit attention ought to be drawn to. Stress may be on a prefix, somewhere in the stem, or on a suffix. (Polish stems sometimes do not contain any vowels; stress can only be on a prefix or on a suffix then.) Another consequence of the general stress placement rule is that stress alternates in paradigms. The forms *profesor* 'professor' (nom. sg.), *profesora* (gen. sg.) and *profesorowie* (nom. pl.) have their stress in three different places: *profésor*, *profesóra*, *profesorówie*. When hearing the language it is essential to recognize the stems even when the accentual patterns vary. (The example uses an internationalism, but indigenous words

are affected in the same way, of course.) And stress is no guide at all in how to segment a form; this is a consequence of the general stress rule as well.

However, due to its fixed stress Polish does not have any Proto-Slavic stress alternations any longer, which constitutes a difference to Russian – and a simplification.

## 5. Final remarks

Finally, attention shall be drawn here to a point of applied linguistics. Knowledge of Polish morphophonology is obviously needed by the foreign language learner in order to understand declension and conjugation. But the point that shall be made here is a different one. The morphophonological knowledge is extremely useful and important when the learner is acquiring a larger vocabulary in Polish, because the morphophonology is involved considerably in derivation. In case the learner is satisfied with knowing, say, 1000 or 2000 words, the matter does not become fully relevant yet. He will then realize that some items in his vocabulary are connected by derivation but need not grasp exactly how.

But the more ambitious learner will certainly want to go beyond that and acquire a much larger vocabulary. In fact he has to if he wants to follow the real conversations by native speakers because they will not limit themselves to a small vocabulary, except in simple situations. Within the larger vocabulary there will be many connections among items by derivation. Derivational patterns should be more consciously laid out when teaching foreign languages. This then must contain information about the morphophonological alternations as well.

Every suffix ought be accompanied by the information which alternation, if any, it causes. For example, the adjective formation in *-n-y* goes along with the alternation caused by the 1st palatalization, cf. the following data:

<i>mlek-o</i>	‘milk’	<i>mlecz-n-y</i>	‘milky’
<i>smak</i>	‘taste’	<i>smacz-n-y</i>	‘tasty’
<i>rok</i>	‘year’	<i>rocz-n-y</i>	‘yearly, annual’
<i>waga</i>	‘scales’	<i>waż-n-y</i>	‘important’
<i>mog-ę</i>	‘I can’	<i>moż-n-y</i>	‘wealthy’
		(obsolete, but <i>moż-n-a</i>	‘allowed, possible’)
<i>strach</i>	‘fear’	<i>strasz-n-y</i>	‘terrible’
<i>śmiech</i>	‘laughter’	<i>śmiesz-n-y</i>	‘funny’

It is obvious from the table that being aware of the morphophonology helps to memorize the data considerably.

Naturally, one could extend the observations presented in this paper. Polish morphophonology is a field worthy of study.

## References

- Bräuer H., 1961: *Slavische Sprachwissenschaft. Vol. I: Einleitung, Lautlehre*, Berlin
- Damerau N., 1967: *Polnische Grammatik*, Berlin
- Holst J.H., 2001: *Lettische Grammatik*, Hamburg
- Holst J.H., 2003: *Eine Ausnahme des Winterschen Gesetzes*, „Historische Sprachforschung” 116, Pp. 149-173
- Kowalik K., 1997: *Struktura morfonologiczna współczesnej polszczyzny*, Kraków
- Mathiassen T., 1974: *Studien zum slavischen und indoeuropäischen Langvokalismus*, Oslo – Bergen – Tromsø
- Rothstein R.A., 1993: *Polish*, [in:] *The Slavonic languages*, eds. B. Comrie, G.G. Corbett, London – New York, Pp. 686-758
- Szemerényi O., 1990: *Einführung in die vergleichende Sprachwissenschaft*, Darmstadt
- Winter W., 1978: *The distribution of short and long vowels in stems of the type Lith. ésti : vèsti : mèsti and OCS jasti : vesti : mesti*, [in:] *Recent developments in historical phonology*, ed. J. Fisiak, The Hague, Pp. 431-446

## Polish morphophonology

### Summary

The article presents a survey of the field of Polish morphophonology. It consists of general considerations and treatments of the alternations of vowels, consonants and suprasegmentals. Several observations are reported which have not been pointed out yet in the literature on Polish. The text is based on a lecture given on October 26th, 2011, at the Polish department of the Uniwersytet Kazimierza Wielkiego, Bydgoszcz. I thank Prof. Andrzej S. Dyszak and Dr. Janusz Pociask for the organization of the lecture. Moreover, I thank Dr. Carsten Peust, Maximilian Weiß and Prof. Dr. Elmar Ternes for having read the text.

**Jan Henrik Holst** – dr, językoznawca na Uniwersytecie w Hamburgu. Jego zainteresowania naukowe ogniskują się wokół zagadnień: teorii gramatyki, klasyfikacji języków, praw rozwojowych języków z punktu widzenia historycznego, relacji między językami oraz reformy ortografii niemieckiej z dn. 1 VIII 2006 r. Publikuje prace na różne tematy językowe z zakresu synchronii i diachronii.

Jan Henrik Holst

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