LingVaria
Rok XX (2025) | 1 (39) | s. 171–187
https://doi.org/10.12797/LV.20.2025.39.12

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PHONOTACTICS OF POLISH TOPONYMS – CONSONANT SEQUENCES

Keywords: phonotactics, consonant groups, scales, toponyms
Słowa klucze: fonotaktyka, zbitki spółgłoskowe, skala, toponimy

1. Introduction

Statistically, clusters of consonants are very uncommon in the world's languages. For example, Ian Maddieson (1999) states that only about 30% of languages display clusters, while John Algeo (1978) ventures a standpoint about which of those are or should be possible. Elisabeth Selkirk (1982) presents the idea of sonority sequencing, in terms of which an optimal word, cluster-wise, should be more or less something of a [dɹɪŋk] *drink*, with obstruent-sonorant word beginnings and sonorant-obstruent word endings. These typological suggestions taken into account, it seems that the reality of Polish groups is far more revealing. Although CV (consonant-vowel) sequences are the most obtainable on our planet, Polish runs afoul of these statistic investigations as much as possible. Polish toponyms seem to be even better at that idiosyncrasy.

In this article, Polish toponyms will be presented with a view to analyzing profiles of consonant groups occurring at the edges of words, both word-initial and word-final. Firstly, Polish as a language of multiple consonants will be given a closer look, also with respect to other languages. Secondly, multi-consonantal clusters which occur at the edges of Polish place-names will be considered so as to see to what extent they differ from those occurring in the regular lexicon. Thirdly, a few

etymological sources of clusters will be briefly discussed. Fourthly, a discussion will follow. Finally, conclusions will be drawn.

2. Polish as a language of consonant clusters

Consonant sequences in the middle of words are anything but special in Indo-European languages. If we consider the English word *mo**nstr**ous*, we witness a group of four, i.e. [nstɹ]. This is nothing extraordinary. However, unlike English, French and most languages spoken in Europe, as well as many other human tongues, Polish is classified by Tobias Scheer (2007) as an 'anything-goes' language. What is meant by this is that Polish allows a great number of consonant groups at the edges of words, especially in word-initial positon[1]. Binary clusters can be found initially in French, e.g. [kʁ] in ***cr**ois* – 'believe', finally in German, e.g. [holts͡] *Ho**lz*** – 'wood', and both in Norwegian e.g. [slæjp] – 'slippery' (Kristoffersen 2000: 55). Ternary groups are also found in languages such as English, e.g. [strɹ] in ***str**ing* and [mpt] in *pro**mpt***. However, in Polish common words we may find four consonants at the left edge, e.g. [fstɾ][2] in ***wstr**ęt* – 'repulsion', and five at the right edge, e.g. [mpstf] in *następstw* – 'consequence-gen.pl.'. Thus, Polish phonotactic constraints appear to be far less restrictive than those of most other languages.

Many clusters result from a variety of processes, phonological and morphological, as well as synchronic and diachronic. Such combinations are well-described in the literature, e.g. Bargiełówna (1950); Kuryłowicz (1952); Leszczyński (1969); Sawicka (1974, 1995); Dunaj (1985); Gussmann, Cyran (1998); Cyran, Gussmann (1999); Rowicka (1999); Rochoń (2000); Kijak (2008); Cyran (2010); Jaskuła (2010, 2014, 2019); Orzechowska (2019); Zydorowicz, Jankowski, Dziubalska-Kołaczyk (2021). All of these are of importance here to a certain extent. What is now dealt with is the real matter of this article: Polish place-names.

It ought to be said at the outset that Polish orthography is not very crucial here, since voiced obstruents and clusters of these undergo regular devoicing word-finally, which leads to voicing neutralization (Ostaszewska, Tambor 2000: 108). For instance, words like *kot* 'cat' and *kod* 'code' are classic examples of homophones,

1 It should be mentioned that other Slavic languages, e.g. Czech, Slovak and Serbo-Croatian, have similar clusters. They even display words without orthographic vowels, e.g. *vlk* – 'wolf' (Cz), *krk* – 'neck' (Sl) or *krv* – 'blood' (S-C). Nonetheless, their phonological inventories include syllabic sonorants, which are absent from Polish. Moreover, non-attested forms are marked here in the usual fashion (*).

2 The IPA-faithful phonetic accuracy regarding the treatment of rhotics is observed here. The English approximant is not [r], and the Polish liquid is not [r] either, contrary to what is proposed in pronunciation dictionaries (i.e. Karaś, Madejowa 1977; Wells 1990, etc.). These are [ɹ] and [ɾ], respectively.

i.e. [kɔt]. This phenomenon is also typical of final consonant clusters, e.g. [st] in the bird-name *drozd* – 'thrush' and the architectural structure *most* – 'bridge'. Thus, in the following analysis we should proceed in the spelling-apart sort of way.

3. Polish toponyms[3]

3.1. Examples of toponyms with word-initial consonant groups

What is shown below includes a considerable number of examples including word-initial consonant clusters occurring in Polish place-names. We begin the survey with bi-consonantal sequences. These are divided into groups arranged in terms of place and manner of articulation. The consonant groups which surface in most toponyms also occur in the regular lexicon. They are confronted with many examples of those which do not belong to the regular lexicon[4].

(1a) obstruent + sonorant
[pl] *Plany*, [pɾ] *Pranie*, [pw] *Płachty*, [pɲ] *Pniewy*;
[bl] *Blenda*, [bɾ] *Braki*, [bw] *Błaszki*;
[tl] *Tleń*, [tɾ] *Trawniki*, [tw] *Tłoki*;
[dɾ] *Drawa*, [dw] *Dłoń*, [dm] *Dmenin*;
[kl] *Klady*, [kɾ] *Kraczew*, [kw] *Kłady*, [km] *Kmiczyn*, [kn] *Knapy*, [kɲ] *Kniazie*;
[gl] *Glanów*, [gɾ] *Grab*, [gw] *Gładków*, [gm] *Gmurowo*, [gn] *Gnatowo*, [gɲ] *Gniazdów*;
[t͡sw] *Cło*, [t͡sm] *Cmolas*, [t͡ʂw] *Człuchów*, [t͡ɕmʲ] *Ćmielów*, [t͡ɕm] *Ćmachowo*;
[fl] *Flaki*, [fɾ] *Frampol*;
[vl] *Wleń*, [vɾ] *Wrocław*, [vw] *Władysławowo*, [vn] *Wnęki*;
[sɾ] *Srebrna*, [sw] *Słabęcin*, [sm] *Smagów*, [sn] *Snopki*;
[zl] *Zleszyn*, [zɾ] *Zręcin*, [zw] *Złatna*, [zm] *Zmysłowo*, [zn] *Znajce*, [zɲ] *Zniesienie*;
[ʂl] *Szla*, [ʂm] *Szmule*, [ʂn] *Sznury*;
[ʐɾ] *Żrekie*, [ʐw] *Żłobin*, [ʐm] *Żmigród*, [ʐɲ] *Żnin*;
[ɕl] *Ślaban*, [ɕɾ] *Śradówka*, [ɕm] *Śmiary*, [ɕɲ] *Śniadków*;
[ʑl] *Źlinice*, [ʑɾ] *Źrebce*;

3 The toponymical data come mainly from the official document entitled *Wykaz urzędowych nazw miejscowości i ich części*, https://www.gov.pl/web/mswia/wykaz-urzedowych-nazw-miejscowosci-i-ich-czesci. Book sources such as Rospond (1984), Rymut (1987) and NMP have been consulted for etymological purposes. As for the regular vocabulary, the relevant items can be found in NKJP and SJP PWN.

4 At the outset, it should be mentioned that not all the cluster forms questioned are accompanied with counterexamples, since that policy would enlarge this paper into an unbearable size.

[xl] *Chlebice*, [xɾ] *Chraboły*, *Hrubieszów*, [xw] *Chłaniów*, *Hłomcza*, [xmʲ] *Chmiel*

The following clusters occur in no Polish word: [bɲ] ***Bni****n*, [t͡ʂm] ***Czm****oń*, [ɛn] *Śnobiel*, [xn] ***Hn****atkowice* and [xɲ] ***Hni****szów*. Toponyms such as Żłabne, Żmiąca, ***Wl****onice*, ***Włęcz*** and ***Włyń*** are also suspicious, since [zw] does not normally surface before [a], [zmʲ] is not found before back vowels, [vl] does not appear before [ɔ], while [vw] never occurs in front of [ɛ] or [ɨ]. Some of these groups are acceptable in the middle of the word, e.g. [bɲ] in *podo****bni****e* – 'alike' and [zmʲ] in ż*mija* – 'adder'.

(1b) stop + stop/affricate/fricative
[pt] *Pturek*, [ps] *Psarki*, [pʂ] *Przasnysz*, [pɛ] *Psiary*;
[bz] *Bzów*, [bʐ] *Brzeg*, [bʑ] *Bzite*;
[tk] *Tkaczew*, [tf] *Twarda*, [tʂ] *Trzaski*, [tx] *Tchórz*;
[dv] *Dwórzno*, [dvʲ] *Dwikozy*, [dʐ] *Drzazgi*, *Dżyłówka*;
[kt] *Ktery*, [kf] *Kwasy*, [ks] *Ksany*, [kʂ] *Krzaki*, [kɛ] *Ksiki*;
[gb] *Gbiska*, [gd] *Gdańsk*, [gv] *Gwarek*, [gʐ] *Grzawa*, [gz] *Gzel*, [gʑ] *Gzik*

Let us now see the place-names displaying groups which are not part of the lexicon: [pt͡ɛ] ***Pci****m*, [pt͡ʂ] ***Pcz****elin*, [bd͡z] ***Bdz****or*, [tt͡ʂ] ***Tcz****ew*, [kt͡s] ***Kc****ynia* and [kt͡ʂ] ***Kcz****ewo*. As regards ***Zb****ąszyń* and ***Zb****erki*, it may be observed that [zb] does not occur before [ɔ̃] or [ɛ]. It does surface in ***zb****uk* – 'bad egg'. Regarding [pt͡ɛ], it is found medially in *ka****pci****e* – 'slippers-nom.pl.', the nominative singular being *kapeć*. Thus, some clusters occurring in toponyms can be found in the regular lexicon in vowel-zero alternations. No vowel-zero phenomenon ever occurs in place-names, so it may be safely ignored here.

(1c) affricate + stop/affricate/fricative
[t͡sf] *Cwaliny*, [t͡ʂf] *Czworaki*, [t͡ʂt͡ɕ] *Czciradz*, [t͡ɕfʲ] *Ćwiercie*;
[d͡zb] *Dzbanów*, [d͡zv] *Dzwonek*, [d͡ʐv] *Dźwierzno*

The foregoing can be confronted with [t͡ɕk] *Ćków*, [t͡ʂx] ***Czch****ów* and [d͡ʑb] ***Dźb****ów*, whose initial clusters are absent from the regular vocabulary. [t͡ɕk] is normal medially in *paćka* – 'mash'. However, its genitive plural is *paciek*, which shows vowel-zero alternation again.

(1d) fricative + stop/affricate/fricative
[ft] *Wtelno*, [ft͡ɕ] *Wcisły*, [fs] *Wsola*, [fɕ] *Wsiarz*, [fʂ] *Wszachów*;
[vd] *Wda*, [vz] *Wzorek*, [vʐ] *Wziąchów*, [vʑ] *Wrząca*;
[sp] *Spała*, [st] *Stachowo*, [sk] *Skaszyn*, [sf] *Swajnie*, [sx] *Schodnia*;
[zb] *Zbarzewo*, [zd] *Zdania*, [zg] *Zgoda*, [zʝ] *Zgierz*, [zd͡ʑ] *Zdziarka*, [zv] *Zwanowice*;

[ɕp] *Śpigiel*, [ɕt͡ɕ] *Ściborki*, [ɕf] *Świątonia*, [ʂp] *Szpaki*, [ʂt] *Sztok*, [ʂk] *Szkarada*, [ʂt͡ʂ] *Szczaki*, [ʂf] *Szwaby*, [ʐbʲ] *Żbijowa*, [xf] *Chwalęcin*, [xʂ] *Chrzan*

The toponyms which show idiosyncratic groups include: [vd͡z] ***Wdz****ydze*, [vd͡ʐ] ***Wdż****ary*, [zd͡ʐ] ***Zdż****ary*, [ʐb] Żb*ery* and [ʐd͡ʐ] *Żdżary*. Regarding [ʐg] in ***Rzg****ów*, it occurs in one Polish word, i.e. ż*gać* – 'stab', which is a less common version of ***dźg****ać*[5].

(1e) sonorant + consonant
[lv] *Lwówek*, [lɲ] *Lniano*;
[ɾd] *Rdutów*, [ɾd͡z] *Rdzawa*, [ɾd͡ʑ] *Rdziostów*, [ɾd͡ʐ] *Rdżawka*, [ɾʐ] *Rżaniec*;
[wb] *Łbiska*;
[mʐ] *Mżygłód*, [ml] *Mlądz*, [mɾ] *Mrocza*, [mɲ] *Mnichowo*, [mw] *Młodów*, [mx] *Mchawa*

Irregular sequences are: [lg] ***Lg****ota*, [lʲ] ***Lgi****ń*, [ld͡z] ***Ldz****ań*, [lz] ***Lz****y*, [rʲ] ***Rgi****elew*, [ɾd͡ʐ] ***Rdż****awka*, [ɾd͡ʑ] ***Rdzi****ostów*, [ɾʂ] ***Rsz****ew*, [mz] ***Mz****yki* and [md͡z] ***Mdz****ewko*. The group [lg] is fairly normal in the interior, as it occurs in *u****lg****a* – 'relief'. As for [mg] in ***Mg****owo*, it can be a part of a larger group [mgw] in ***mgł****a* – 'fog' and its derivatives.

Now, let us turn to word-initial combinations made of three consonants. These are also subdivided for convenience.

(2a) obstruent + sonorant + obstruent
[bɾvʲ][6] *Brwinów*, [dɾv] *Drwały*, [dɾvʲ] *Drwinia*, [kɾf/kɾv] *Krwony*

These examples are confronted with the toponymical [dɾʲ] ***Drgi****cz*, [klf/klv] ***Klw****aty*, [t͡sɾk] ***Crk****ów* and [xɾt͡s] ***Chrc****ynno*. As regards [bɾd] in ***Brd****ów*, this group is found in one Polish word which is very rare, i.e. ***brd****ysać* – 'to frolic'.

(2b) obstruent + sonorant + sonorant
[bɾɲ] *Brnik*, [smɾ] *Smroków*

There are no toponymical counterexamples here.

(2c) three obstruents (but never three of a kind)
[pʂt͡ʂ] *Pszczelin*, [bzd] *Bzdyczka*, [kʂt] *Krztyk*, [tʂpʲ] *Trzpioły*, [fsp] *Wspólna*, [fɕt͡ɕ] *Wścieklice*, [wzg] *Wzgórze*

5 In Polish, both *ż* and *rz* stand for the voiced fricative [ʐ], although they are etymologically unalike.
6 Gussmann (2007) is followed here in terms of representing palatalized bilabial plosives and fricatives, i.e. [pʲ, bʲ, fʲ, vʲ].

[stpʲ] in ***Stpi**ce*, [zdbʲ] in ***Zdbi**ce* and [zdb] in ***Zdbo**wo* are not found in the lexicon. Other toponymical specimens include: [pɛt͡ɕ] ***Pści**nno*, [kʂt͡ʂ] ***Krzcze**ń*, [kʂt͡ɕ] ***Krzci**n*, [gvd] ***Gwda***, [gzd] ***Gzd**ów* and [fkʂ] ***Wkrz**any*. [zbʐ] in ***Zbrz**a* is also special, since this cluster does not regularly occur before [a]. Medially, [pɛt͡ɕ] in e.g. *skie**pści**ć* – 'fail/lose' is normal. Regarding [vzd] in ***Wzd**ów*, in the lexicon this group never occurs in front of [u][7].

(2d) obstruent + obstruent + sonorant
[gʐmʲ] *Grzmiąca*, [fkɾ] *Wkra*

The conspicuous counterexample is [bʐɲ] in ***Bżni**akówka*. It resembles [bʐmʲ] in ***brzmi**eć* – 'sound'. Nonetheless, these two are not identical.

(2e) sonorant + sibilant + stop/affricate
[mɛt͡ɕ] *Mściów*

We can spot the following peculiar groups in place-names such as [mst] ***Mst**ów*, [mzd] ***Mzd**owo*, [mʂt͡ʂ] ***Mszcz**onów* and [lɛt͡ɕ] ***Lści**n*. Interestingly, [mst] is found word-medially in *ze**mst**a* – 'revenge', while [mʂt͡ʂ] does not normally occur before [ɔ].

(2f) *s*-like sound + stop + sonorant
[spl] *Spleżnia*, [skl] *Sklęczki*, [spɾ] *Sprowa*, [stɾ] *Strachocin*, [skɾ] *Skrajnica*, [spw] *Spławie*, [skw] *Skład*;
[zdɾ] *Zdroje*, [zgɲ] *Zgniłka*;
[ʂpɾ] *Szprotawa*, [ʂtɾ] *Sztremlarowo*, [ʂkl] *Szklana*

[zgl] in ***Zgl**echów* and [zbl] ***Zbl**ewo* are very rare in the lexicon. These are found only in the non-standard *z* + ***gl**ebić* – 'put sb. on the ground violently/humiliate', or another sub-standard *z* + ***bl**uzgać* – 'use very foul words towards one'. [zbl] is not found before [ɛ]. Both are morphologically complex, i.e. [z + b/g]. In the common word ***zgl**iszcza* – 'burnt ruins'[8], however, the cluster apparently comes from PS **zęg*, meaning 'burn'.

(2g) *s*-like sound + stop + fricative
[spʂ] *Sprzeczno*, [stʂ] *Strzała*, [stf/stv] *Stwolno*, [skʂ] *Skrzatki*, [skf/skv] *Skwary*;
[zdʐ] *Zdrzewno*;
[ʂkf/ʂkv] *Szkwał*

7 In contemporary Polish, both *u* and ó represent the same vowel [u].
8 I owe this observation to my mother, Elżbieta, a librarian emeritus, with no knowledge of phonology.

There seem to be no toponymical counterparts here.

(2h) three plosives in a row
no examples

The cluster [ptk] is found word-initially in no Polish word except ***Ptk**anów*. It does not appear at the right edge either, while it occurs word-medially in only three words, to the best of my knowledge. One is *ade**ptk**a* – 'female trainee', the second being *ne**ptk**a* – 'half-wit-gen.sg.', whereas the third is *kry**ptk**a* – 'small crypt'[9]. However, this trio displays spurious clusters, since the genitive plural of 'female trainee' is *adeptek*, the nominative singular of 'half-wit' is *neptek* (a slang word), while the genitive plural of 'small crypt' is *kryptek*. As can be seen, vowels split the consonants and that makes this group false as it illustrates vowel-zero alternation.

Finally, there are also tetra-consonantal groups of consonants in place-names. These are shown below:

(3) [pstɾ] *Pstrąże*, [fskʂ] *Wskrzesin*, [fstɾ] *Wstronie*

Polish words do not regularly begin in [skɾb], as in ***Skrb**eńsko*, or [stɾvʲ], i.e. ***Strwi**ążek*. These singletons are originally from Czech and Ukrainian. Regarding the cluster [fstɾ], it could be countered by *wstręt* – 'repulsion'. In any event, this combination is not found before a back vowel in the lexicon.

3.2. Examples of toponyms with word-final consonant groups

This long list is about to reveal a great number of consonant clusters found at the right edge of the Polish word. These toponyms are divided into groups for convenience, again confronted with the regular words. As the reader may observe, we are now turning the tables regarding the sonority profiles. Here, sonorants usually come first:

(4a) liquid/glide + obstruent/nasal
[ɾp] *Karp*, *Czystogarb*, [ɾt] *Bągart*, [ɾk] *Malbork*, [ɾf] *Karw*, [ɾʂ] *Darż*, *Bursz*, [ɾt͡s] *Derc*, *Garc*, [ɾt͡ʂ] *Turcz*, [ɾt͡ɕ] *Barć*;

9 This word is not common, since it is a diminutive of *krypta* – 'crypt', once used by a famous Polish poet and songwriter, Wojciech Młynarski, in his lyrical song *Obiad rodzinny* – 'family dinner'. Moreover, as the word *septa* – 'priestess of the sept/seven', appearing in the *Game of Thrones* saga has also been adopted into Polish, its diminutive should potentially be *septka*. More information about triconsonantal groups can be found in Szymanek (2012). The editor suggests also *receptka* – 'prescription-dim.' and *szczyptka* – 'pinch-dim.' as an additional couple of examples.

[lk] *Falk*, *Becylk*, [ls] *Auls*, [lʂ] *Olsz*, [l͡ts] *Sielc*, [l͡tʂ] *Gulcz*;
[wp] *Chełb*, [wt] *Barwałd*, [wk] *Bełk*, [wt͡ɕ] *Dziepółć*, [wm] *Chełm*;
[jk] *Dejk*, [js] Łajs, [jn] *Dorszlejn*

The toponymical counterexamples include quite a few items. [ls] and [lʂ] are very rare, as they surface in *pu**ls*** – 'pulse' and *o**lsz*** – 'alder tree-gen.pl.', respectively. [l͡ts] can be found in foreign words like *wa**lc*** – 'waltz', whereas [l͡tʂ] exclusively in imperatives such as *mi**lcz*** – 'be silent!' and *wa**lcz*** – 'fight!' [wɕ] in *Upełź* and *Podupełź* does not occur in standard Polish, similarly to [wx] in *Be*łch and *Pe*łch, as well as [wt͡ʂ] in *Wa*łcz and *Be*łcz. [wt͡ɕ] and [wm] are rare, e.g. żółć – 'bile' and *he*łm – 'helmet'. [jk], [js] and [jn] are found usually in loanwords, e.g. *stra**jk*** – 'strike' and *sze**jk*** – 'sheikh', *re**js*** – 'cruise' and *komba**jn*** – 'combine-harvester', respectively.

(4b) nasal + obstruent
[mt͡ʂ] *Niemcz*, [nt] *Ant*, [nt͡s] *Ferenc*, [nt͡ʂ] *Kolincz*, [ɲt͡s] *Kamieńc*, [ɲt͡ʂ] *Jeleńcz*, [ŋk] *Owink*

[mt͡ʂ] is found only in the said place-name and exactly the same imperative, whose meaning is 'Germanize!' [nt] occurs only in borrowings, e.g. *ka**nt*** – 'edge', just like [nt͡s], e.g. *gla**nc*** – 'gloss/shine', [nt͡ʂ], e.g. *la**ncz*** – 'lunch', and [ŋk], e.g. *ba**nk*** – 'bank'. [ɲt͡s] surfaces only in *słoń*c – 'sun-gen.pl.', whereas [ɲt͡ʂ] in imperatives, e.g. *ta*ńcz – 'dance!'

(4c) ś + ń or *l*
[ɕɲ] *Trześń*, *Turośń*;
[ɕl] *Supraśl*

[ɕɲ] is not commonplace but regular, e.g. *pleś*ń – 'mold' and *baś*ń – 'fairy tale', although it does not occur after [ɔ]. [ɕl] is also uncommon. It surfaces in *myś*l – 'thought'.

(4d) obstruent + obstruent
[pt] *Egipt*, [pʂ] *Trybsz*, *Niechnabrz*, [pt͡ʂ] *Trzebcz*, *Wabcz*;
[ks] *Maks*, [kʂ] *Mukrz*, *Mokrz*, *Dziekcz* [kt͡ʂ];
[sk] *Dłusk*, [st] *Berest*, *Gozd*;
[ɕt͡ɕ] *Brześć*, *Góźdź*, [ʂt͡ʂ] *Choroszcz*, *Łężcz*

[pt͡ʂ] is found in imperatives, e.g. *sze**pcz*** – 'whisper!' [t͡sk] in *Pło**ck***, *Wącho**ck***, [ft͡ʂ] in Ło***wcz***, [fk] in *Sierzy**wk*** and [ʂk] in *O**rzk*** are not part of the lexicon. [ks] and [kʂ] normally occur in borrowings, e.g. *seks* – 'sex', and imperatives, e.g. *powię**ksz*** – 'enlarge!' [kt͡ʂ] apparently occurs in only one word, i.e. *zmię**kcz*** – 'soften-imp.sg.', preceded by the velar nasal. [ʂt͡ʂ] does not surface in front of a nasalized vowel. [ɕt͡s] in

*Wychó**dźc*** is a complete stranger to regularity word-finally, although this cluster can be found medially in *ucho**dźc**a* – 'refugee'.

Let us now proceed to tri-consonantal groups in word-final position.

(5a) liquid/glide + obstruent + obstruent
[lsk] *Bielsk*, *Nasielsk*, *Nowosielsk*, *Dólsk*, *Skulsk*, *Smolsk*;
[lʂt͡ʂ] *Pilszcz*;
[jsk] *Leżajsk*, *Rajsk*, *Tujsk*, *Wojsk*, [jst͡s] *Gojsc*

The most noticeable counterexample, [ɾsk] in *Cze**rsk***, *Bo**rsk***, Ćwie***rsk***, *Ga**rsk***, *Przeo**rsk***, *Siewie**rsk*** and *Wąpie**rsk*** is very common in toponyms, while it is absent from the rest of the lexicon. Almost the same can be said about [lsk], but it does occur in the genitive plural of a few augmentatives, e.g. *cie**lsk*** – 'heavy body'. [ɾɛl] in *Cze**rśl***, [wt͡sk] in *Pa*łck, *Pe*łck, and [wst] in *Che*łst are not found in the regular vocabulary. [lʂt͡ʂ] is found only in the imperative *spo**lszcz*** – 'Polonize!', [jsk] only in *wo**jsk*** – 'army-gen.pl.', while [jst͡s] exclusively in *mie**jsc*** – 'place-gen.pl.' [ɾpt͡s] in *Sie**rpc*** appears to be fairly uncommon. Medially, it can be spotted in *kie**rpc**e* – 'highlander shoes'.

(5b) nasal + obstruent + obstruent
[ɲsk] *Płońsk*, *Gdańsk*, *Mińsk*, *Pińsk*, *Brańsk*, *Młyńsk*, *Radońsk*, *Rańsk*, *Rożyńsk*, *Słońsk*

[ɲsk] occurs in one word, the colloquial genitive plural augmentative of *wino* – 'wine', that is *wi*ńsk. [msk] in *Szu**msk***, *Kra**msk***, [nt͡sk] in Łąck, *Drw*ęck, as well as [ɲt͡ɕk] in *Cię*ćk find no match in the lexicon.

(5c) three obstruents
[psk] *Babsk*, *Gudebsk*, *Lipsk*, *Nowolipsk*

[psk] is part of a few augmentatives, e.g. *ba**bsk*** – 'foul woman-gen.pl.', *choró**bsk*** – 'terrible illness-gen.pl.', and *du**psk*** – 'arse-gen.pl.' [fsk] in *Krze**wsk***, *Szpęga**wsk***, *Sła**wsk***, *Połto**wsk***, [ʂt͡ʂk] in *Mie**szczk***, *Go**szczk***, and [kʂk] in *Mo**krzk*** do not belong to the lexicon. [pɾt͡ʂ] *Do**brcz*** is found it this place-name exclusively.

As for tetra-consonantal groups, there are only two toponymical examples:

(6) [mpsk] *Krępsk*, *Klępsk*

It is easy to observe that the penultimate part of many groups in (4d), (5a), (5b), (5c) and (6) is either [s] or its derivative (e.g. [t͡s]), while the last element is frequently [k]. Such endings are typical of place-names, not only in Polish but also in Ukrainian and Russian, e.g. *Луганськ* [ɬuɦaɲsk], *Донецьк* [doɲet͡sk], *Івано-Франківськ* [francifsk],

Иркутск [irkut͡sk], *Подольск* [podolsk] and *Омск* [omsk]. This issue will be referred to and discussed below.

4. A note on the etymology of clusters in Polish

Polish has inherited numerous consonant combinations from Proto-Indo-European (PIE), e.g. [kɾ] in [kɾɔŋk] *krąg* – 'ring', [st] in [sta͡ɛ] ***st**ać* – 'stand', and also from Proto-Slavic (PS), e.g. [pl] in [plɛmʲɛ] *plemię* – 'tribe'. As regards the right edge of the word, apparently there were no consonant clusters in PS (Stieber 1969: 85), as all words ended in vowels or yers, the latter being either front [ь] or back [ъ][10].

Fairly intriguingly, the PIE root **(s)kVr* (SEBor: 257)[11], later with *-g*, possibly nasalized, has entered Polish at least three times. The first was into PS, whose present result was [kɾɔŋk/g] *krąg* – 'circle'. The second time was in the late Middle Ages, when it returned (from Middle German) as the initially truncated form of Proto-Germanic (PG) **hring* > [riŋg] – 'a (round/central) place in the middle of town'. No comment required, a Germanism *par excellence* it was. Polish treated [riŋg] as [ɾiŋk] in word-final position, and [k] started to be the basic sound in alternations, which is why [na ɾynku] *na rynku* – 'on/in the ring' is a norm nowadays. The impact of the omnipresent yer-zero alternation finally gave rise to the nominative [ɾinɛk] *rynek* – 'market place'. The third import was from the English [rɪŋg] or [rɪŋ], the meaning being 'a square space for boxers'. It is difficult to determine whether or not there was the final agma in the English word once it was adopted. In Polish it was interpreted in a binary fashion, as [ŋk] in the nominative and as [ŋg] in most other oblique paradigmatic cases. Speakers of Polish, knowing words such as *krąg*, *rynek* and *ring*, know nothing or little about their etymological brotherhood.

Other modifications which once led to the creation of new sequences involve palatalization, e.g. [st] > [ɛt͡ɛ] in [ɛt͡ɛigat͡ɛ] *ścigać* – 'chase', or a combination of this change with simplification, e.g. *[stьklo] > [ɛt͡ɛklo] > [ʂkwɔ][12] *szkło* – 'glass'.

Other developments include metathesis, e.g. *[plx] > [pxł/w] *pchła* – 'flea', or group simplification, e.g. *[mazslo] > [masło] > [maswɔ] *masło* – 'butter'.

Another special process is epenthesis, e.g. *[sverʈʂ] > [sverʂt͡ʂ] > (also devoicing + palatalization) [ɛfʲɛrʂt͡ʂ] *świerszcz* –'cricket', and *[bъtʂela] > (also devoicing) [pt͡ʂela] > [pʂt͡ʂela] (vowel retraction) > [pʂt͡ʂɔwa] *pszczoła* –'bee'.

10 Etymological interpretations presented here are based on SEBr; Stieber (1969); Rospond (1984, 2000); SEBor; Rymut (1987); NMP, and Internet sources.

11 Ranko Matasović (2009: 227) also says that Proto-Celtic (PC) **crundi* gave rise to Old Irish *cruind* 'round/circular'. This means that [k] was present in PIE and was transformed into [h] in PG, but not in PC, which is in accordance with Grimm's Law.

12 It should be noted that [w] in Polish is a version of [l] which developed from [ɬ] in the twentieth century.

Interestingly, the same cluster, i.e. [pʂt͡ʂ], is found in the place-name *Pszczyna* [pʂt͡ʂina]. Nonetheless, as Kazimierz Rymut (1987: 196) assumes, its origin is different. Specifically, it contains the form *[blʁst] – 'shine', its devoicing into *[plʁst], adding the suffix *-ina*, palatalization of [st] into [ʂt͡ʂ] and elision of the lateral liquid, which ultimately resulted in [pʂt͡ʂ]. The semantics of this word may suggest that it comes from the name of a river ('shining water').

Wdzydze [vd͡zɨd͡zɛ] is most probably another riverine place-name which derives from *Wda*. This, in turn, may be a historical reinterpretation of *woda* – 'water'. Hence, we may be dealing here with vowel or yer deletion in [vod] or *[vʁd], and the palatalization of [vd] into [vd͡z].

Brdów [bɾduf] exemplifies vowel or yer deletion from the original *[brʁd], which results in a very unusual sequence of three consonants. This form is apparently related to the word [bɾut] *bród* – 'ford', another noun connected with water.

The final group [wm] in *Chełm* apparently comes from the vocalization of the syllabic liquid [l] into [el] and the labialization of [l] into [w].

The place-name *Ełk* is an item which involves the changing prominence of yers and a subsequent morphological reanalysis of the original form *[łek]. The more frequent usage of oblique cases, i.e. [do ł/wku] *do Łku* – 'to Łek' and especially [ze wku] *ze Łku* > [z ewku] – 'from Łek', finally led to the establishment of the cluster [wk] as word-final in the nominative. This might be an example of paradigmatic leveling.

Sierpc [ɛɛɾpt͡s] is another instance of hardly predictable changes. Its forms from the fourteenth century, namely *Sieprz* and *Szeprcz* (SGKP X: 594), suggest that the earlier cluster [pɾ] was later metathesized into [ɾp]. Rymut (1987: 216) proposes that the change was based on the word [ɛɛɾp] *sierp* – 'sickle', while the ending may have been that of the possessive. It may not be accidental that the ending *-c* is Mazovian and appears in another peculiar place-name, that is *Wychódźc*. Nonetheless, there seems to be no explanation of this idiosyncrasy in the literature on Mazovian (e.g. Garczyńska 2010). Other odd forms from this area include *Mokrzk* [mɔkʂk] and *Mieszczk* [mʲɛʂt͡ʂk]. Most probably, as Urszula Bijak (2001: 336) suggests, in such examples the clusters from the oblique cases must have influenced the nominative at a certain early stage, which resulted in the removal of the vowel-zero alternating vowel. Hypothetically, **Mieszczek* (nom.) vs. *do Mieszczka* – 'to Mieszczek' (dat.) changed the nominative form to *Mieszczk*.

Kamieńc [kamʲɛɲt͡s] and *Jeleńcz* [jɛlɛɲt͡ʂ] are similar cases, this time connected with the Kashubian region and dialect. These names are not found in the aforementioned sources. *Kamińca-Młin* ('The mill of Kamień' = 'millstone?')[13] is allegedly

13 Unfortunately, reliable data is far from obtainable. Consider this, for want of better evidence: https://pl.wikipedia.org/wiki/Kamieńc.

a previous name suggesting the same development: the genitive cluster must have given rise to the loss of a former yer in the nominative.

Gdańsk [gdaɲsk] may shed light on at least two phenomena[14]. As the form *Gyddanyzc* from the tenth century may indicate, vowel or yer deletion was responsible for the initial cluster. The ending *-sk* is typical of many nominal and adjectival forms which are not only Slavic, e.g. Danish (*dansk*), Norwegian (*norsk*), Swedish (*svensk*) or English (Old English *Englisc* palatalized to [ʃ]). In Polish it usually occurs with a vowel, e.g. [sci] *-ski* in *polski* – 'Polish', [ska] in *wiejska* – 'rural-fem.', and [scɛ] in *końskie* – 'equine'. If we assume that *-sk* was a norm in the eastern part of Europe over time, Polish place-names such as *Dulsk* are anything but exceptional.

The sequence [xn] in *Hnatkowice* is in accordance with the above considerations about possible foreign influence. *Hnatko* [ɦnatko] is a diminutive of the Ukrainian masculine name *Ihnatij – Ignatio/Ignacio*. *Strwiążek* also comes from the Ukrainian name of *Strywihor* or *Strwjaż*, combined with the apparently diminutive suffix *-ek*. [skɾb] in *Skrbeńsko* derives from Czech and is most likely related to the name of a Moravian noble house. Should it be called a Bohemism, or just a native adaptation of a toponym that was there for decades?

Given the foregoing, we may be inclined to consider foreign influence on Polish clusters in general. Many of those may sound unfamiliar. However, are they truly foreign?

5. Phonetic interpretations of consonant sequences in foreign words

The most typical Polish sonority profile word-initially is obstruent + sonorant or its slight modifications. Regarding these, we observe borrowed clusters such as [ʂn] *sznaps* – 'heavy drink' (German) and [ʂm] *szmondak* – 'schmuck' (Yiddish). Moreover, there are adaptations like [ps] *psychologia* – 'psychology', and [ks] *ksenon* – 'xenon' (Greek). Word-finally, on the other hand, we see items such as [nʂt] *kunszt* – 'craft', (German) [nt͡ʂ] *klincz* – 'clinch' and *brancz* – 'brunch' (English), which are in line with the broadly defined Polish preferences.

Other, unfamiliar groups, are either filtered by Polish phonology (and, sometimes, orthography) or accepted straightaway. For instance, the name of the *Pfitzer* pharmaceutical company is pronounced not as *[pfitsɛr] but as [fajzɛr] (a clear phonetic borrowing from English), since no Polish (or English) word begins with [pf], while the Japanese word *tsunami* is realized as [tsunamʲi], although Polish does not allow word-initial [ts], unless the two sounds are pronounced synchronically as one segment, i.e. as the affricate [t͡s][15].

14 https://solidarnosc.gda.pl/po-godzinach-z-solidarnoscia/na-koncu-jezyka/co-kryje-w-sobie-nazwa-gdansk-dlaczego-jest-taka-tajemnicza/.

15 Important details of word-adaptation into Polish are broadly described by e.g. Szpyra-Kozłowska (2016a, 2016b).

Polish speakers seem to be very tolerant also towards recent borrowings of names from African or other exotic tongues. To the best of my knowledge, the surnames of football players from African countries, which include initial nasals followed by homorganic plosives, are pronounced without any difficulty by any Polish football fan-on-the-street. For example, *Mbappe* (Cameroonian and Berber, Real Madrid, La Liga, Spain) is realized as [mbapɛ], while *Nkunku* (Kongo, Chelsea, Premier League, England) is pronounced as [ŋkuŋku][16]. Also, the Calabrian mafia name of *Ndrangheta* (originally a Greek word) is fairly easily pronounced as [ndɾaŋgɛta], at least by Polish cognoscenti.

Confronted with the foregoing data, truly foreign clusters found in Polish toponyms do not appear to be so foreign as regards Polish phonotactics on the one hand and Polish place-names on the other. Polish phonotactics is not about to change, while the tolerance to unfamiliar consonant sequences keeps growing painlessly.

6. Discussion

The question to be asked and answered now is how the clusters occurring in place-names could be classified in the Polish language. One radical standpoint is that only sequences occurring in the lexicon are considered as correct, proper and truly belonging to the language at hand, all the others being disfavored. The other extreme attitude, a polar opposite, may be that all sequences that Polish speakers are likely to employ are fine. Nonetheless, there might be another way of handling this situation, the key term being *scalarity*.

Explicitly, assuming that most sequences are regular, surfacing in both toponyms and the vocabulary to which Polish speakers are exposed, we may be dealing with at least three levels of tolerance towards consonant groups which are irregular or foreign. Terms such as *marked* and *unmarked* may also be perceived as useful tools at this juncture[17].

The first level embraces clusters which occur in both sub-systems, the place-names and the lexicon, but which are sporadic or grammatically conditioned. Specifically, word-initial [gd, pstɾ] can be found only in a couple of words such as *gdy* – 'when' and *gderać* – 'nag', *pstrąg* – 'trout' and *pstry* – 'motley'. In word-final position, the same can be said about [n͡tʂ, psk], e.g. *tańcz* – 'dance' and *kończ* – 'finish' (both 2sg. imperatives), as well as łapsk – 'paws' and *dupsk* – 'arses' (both genitive plural augmentatives). These are rare, albeit not foreign. Consequently, these are marked to a point.

16 This is what I have personally heard. Many (un)reliable Internet sources suggest [emba`pe].

17 In Jaskuła, Szpyra-Kozłowska (2020) a slightly different terminology is advocated.

The second type includes exclusively certain Polish place-names, e.g. word-initial [bɲ, mst, stp, ptk] or word-final [kʂk, ɾpt͡s, ɾɛl], which severely violate Polish phonotactic regulations evidenced by the lexicon. These toponymical clusters might be called truly marked.

Finally, there go the 'exotic' loanwords whose sonority profiles are strictly foreign or doubly marked, namely the initial [mb, ndɾ, ŋk, ts].

7. Conclusion

Polish toponyms appear to be an issue which is worth considering, both in terms of Indo-European languages and universally.

Polish is a language which is extremely tolerant of consonant groups occurring at the edges of the words of its own lexicon as well as those found in its lateral linguistic sachets or pockets, including toponyms and loanwords.

Nonetheless, that phonological tolerance may not be radical or extreme but rather scalar. Specifically, consonant groups occurring in both the regular vocabulary and place-names come first and there is nothing special about them. Secondly, clusters in lexical words and toponyms which are rare may be treated as unusual, but still not truly marked. The really marked sequences occur exclusively in toponyms. In other words, the speakers can pronounce them with a hint of hesitation or doubt, but without rejection. Those may be lexical gaps resulting from veiled dialectal, social or foreign-language-influence idiosyncrasies.

As an aside, since the prior aim of this paper was not to refer to true loanwords, as they do not occur in toponyms, a word or two should be said about pronounceable imports from other, frequently unfamiliar sound systems. Those come in different shapes and sizes and constitute a growing bulk of Polish vocabulary. Therefore, from the viewpoint of Polish phonotactics, they should be perceived as doubly marked, or tolerated 'on a global basis'. What remains to be re-analyzed in the foreseeable future, changing from day to day, is the degree of developing the lexicon at which the groups mentioned just above are 'aiming'. Given the ongoing geopolitical changes, we may expect at least a few influxes of totally foreign items with which Polish phonotactic constraints will need to cope in the years to come.

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Phonotactics of Polish Toponyms – Consonant Sequences
Abstract

This paper deals with consonant groups occurring at both edges of words in Polish toponyms. Consonant sequences are normal and typical of very few languages of the world. Therefore, their position in a word may matter. Interestingly, Polish clusters are legendary as regards the number of consonants which can stand together in a number of words and which occur at the edges of words. Analyses of these consonant sequences are countless. However, few of them take into account place-names in a comprehensive manner. In this analysis, I consider these consonant combinations, both initial and final, in great detail, with a view to considering one basic aim: are Polish toponyms in accordance with Polish phonotactics? This study is far from being statistic. It simply shows the status quo presented in an official document.

Fonotaktyka polskich toponimów – sekwencje spółgłosek
Abstrakt

Polskie zbitki spółgłoskowe wydają się wyjątkowo złożone na tle wielu języków, w których takie grupy występują. Zbitki spółgłosek pojawiające się w polskich toponimach, które nie zawsze są tożsame z występującymi w regularnym słownictwie kombinacjami, nie uzyskały obecnie należnego im miejsca w licznych analizach dotyczących polskiej fonotaktyki. Niniejszy artykuł zawiera kompletny zestaw grup spółgłosek uzyskany na podstawie oficjalnych dokumentów rządowych dotyczących polskich nazw miejscowych. Pomijając statystykę słów w korpusach oraz leksykon, zaproponowano tu skalarne stanowisko odnośnie do fonologicznej interpretacji zbitek przez użytkowników języka polskiego.