

Chapter 8

Complexity of endangered minority languages: The sound system of Wymysorys

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This paper demonstrates that Wymysorys – a severely endangered minority Germanic language – exhibits remarkable complexity despite its moribund status. By analyzing twelve phonetic/phonological properties, the author concludes that the complexity of Wymysorys is greater, both locally and globally, than that of two control languages: Middle High German and Modern Standard German. In most cases, the surplus of complexity attested is attributed to contact with the dominant and aggressive language, i.e. Polish.

1 Introduction

Language endangerment, language shift, language obsolescence, and language death all have “considerable impact” on the *structure* of the languages affected (Palosaari & Campbell 2011: 110).¹ The most pervasive form of impact is the apparent simplification and impoverishment of the *grammar* of endangered and moribund languages (see Dorian 1973: 590–591, 1980: 85; Silva-Corvalán 1995: 9; Mesthrie et al. 2009: 256; Palosaari & Campbell 2011: 110–117; Sallabank 2012: 101, 111, 118, 2013: 126; Filipović & Pütz 2016: 2; Aikhenvald 2007: 43; Meakins et al. 2019: 294, 297) – whether it is phonetics/phonology, morphology, syntax,

¹The present article emerged as a result of my PhD dissertation, *Polish borrowings in Wymysorys: A formal linguistic analysis of Germano-Slavonic language contact in Wilamowice* (Andrason 2021).

or vocabulary (Dorian 1978: 591, 1980: 85; Palosaari & Campbell 2011: 110, 113–115).² Even though these reductive processes are especially patent and the most rampant in the varieties used by semi-speakers or rusty speakers, who do not learn the language fully in an intergenerational transmission and/or do not use it for the greater parts of their lives (see Palosaari & Campbell 2011; Grinevald & Bert 2011), simplification and impoverishment also seem to affect speakers whose language acquisition was uninterrupted and/or who have spoken the language relatively continuously. Overall, an endangered or dying language viewed as *a holistic* (even though not uniform) *linguistic phenomenon* apparently reduces its complexity generation after generation (Austin 1986: 203–203; see also see Dorian 1978, 1980; Swiggers 2007; Sallabank 2012, 2013; Palosaari & Campbell 2011; Filipović & Pütz 2016).³ This especially occurs in destabilized or unbalanced types of language contact in which the endangered language is gradually displaced by the dominant aggressive code (Aikhenvald 2007: 47; Meakins et al. 2019).⁴

Simplification is a common phenomenon in language contact (McWhorter 1998, 2001; Matras & Sakel 2007). It is typical of pidgins (Mühlhäusler 1977, 1986; Trudgill 1986, 1996, 2010: 306–308; Kusters 2003; Siegel 2008: 190; Juvonen 2008: 321–322) and, albeit to a lesser extent and not without contest (DeGraff 2003, 2005; Ansaldo & Matthews 2007: 12–14; Hammarström 2008: 300; Bakker et al. 2011) of creoles (McWhorter 1998, 2001, 2005; Seuren & Wekker 2001; Parkvall 2008). The noticeable exceptions are mixed languages, which may maintain or, even, increase complexity (Matras 2009: 288, 305; Meakins et al. 2013; Velupillai

²Simplification typically implies reduction or loss of marked features (Palosaari & Campbell 2011: 113; Sallabank 2013: 126) due to regularization and overgeneralization (Silva-Corvalán 1995: 9–10; Palosaari & Campbell 2011: 113; Sallabank 2013: 126; Filipović & Pütz 2016: 2). The features that tend to be reduced or lost involve: phonological contrasts (Dorian 1980: 85; Palosaari & Campbell 2011: 113), morphological marking and distinctions (Dorian 1980: 85; Palosaari & Campbell 2011: 115; Meakins et al. 2019: 297), synthetic structures (which are replaced by analytic construction) (Silva-Corvalán 1995: 10; Palosaari & Campbell 2011: 115; Meakins et al. 2019: 297), syntactic (Dorian 1980: 85; Palosaari & Campbell 2011: 115) and stylistic patterns (ibid.), as well as vocabulary (Sallabank 2012: 118).

³It should be noted that many scholars speak about the simplification of endangered and dying languages *in general* (Dorian 1980: 85; Austin 1986: 203–203; Swiggers 2007: 24; Mesthrie et al. 2009: 256; Palosaari & Campbell 2011: 110, 112; Sallabank 2013: 118) rather than referring to the variety that is *only* used by semi-speakers. After all, would it be surprising that, similar to imperfect L2 speakers, semi-speakers would not make use of the entire linguist repertoire available in the language?

⁴Certainly, language endangerment and language contact are not the same phenomena. However, even though a language may die “without language shift” (Austin 1986: 201), most cases of language endangerment and language deaths “involve language *replacement* or *shift*” (ibid.). This presupposes a contact between the languages involved and the bilingualism of endangered language speakers, at least at a population level.

2015: 301–307, 329–330, 402; Meakins et al. 2019: 296–297, 326–327) and layered languages, which may exhibit traces of both simplification and complexification (Aikhenvald 2007: 42–43).⁵

The present paper examines whether the severe endangerment of a language – specifically, a minority language that has nearly been replaced by another code and drifts towards a seemingly imminent death – is correlated with structural simplicity; or, inversely, whether severely endangered languages may exhibit remarkable complexity due to the transfer of elements from the dominant code. The language system under analysis is Wymysorys – a colonial East Central German variety that has interacted with the dominant Polish language for more than seven centuries (Putschke 1980: 498; Wiesinger 1980: 497–498, Wicherkiewicz 2003) and that, due to increasingly aggressive Polonization, has been, more or less, endangered since the end of World War I in 1918 (Neels 2016), currently finding itself on the verge of total extinction (Andrason & Król 2016).⁶ I will study the linguistic repertoires of fluent speakers – the remaining 65 native Wymysorys speakers born between 1913 and 1993 who have acquired the language in uninterrupted intergenerational transmission and have spoken it relatively continuously.⁷ Inversely, the idiolects of semi-speakers – who do exhibit radical simplification and impoverishment processes but have no bearing on the transmission of Wymysorys to the younger generations and thus the language’s structure as such – are not taken into consideration.

This study centers the idea of absolute complexity (Kusters 2008; Dahl 2004, 2009; Miestamo 2008, 2009). To calculate absolute complexity, I deploy the concept of effective complexity (Gell-Mann 1995; Gell-Mann & Lloyd 2004) and take into account two main criteria: distinctiveness and economy (Miestamo 2006a, 2008; Sinnemäki 2008, 2009, 2011; Parkvall 2008). I start – and focus – my analysis on local complexities pertaining to twelve distinct phonetic/ phonological

⁵Although pre-pidgins, stabilized pidgins, expanded pidgins, creoles, and post-creole varieties are often simpler than the feeding languages (Velupillai 2015), they tend to – in the above order – gradually increase their complexity (Mühlhäusler 1986: 5–11; Parkvall 2008: 281; Trudgill 2010: 306; Velupillai 2015). Thus, both simplification and complexification are important factors in the development of pidgins and creoles (Heine & Kuteva 2005: 258, Trudgill 2010: 309), operating with distinct intensity at different stages of the pidgin-creole life cycle.

⁶Wymysorys is classified as “nearly extinct”, in the Extended Graded Intergenerational Disruption Scale and “moribund” or “severely endangered” by Moseley (2010). The language is currently used by less than fifty elderly native speakers (Ritchie 2016: 73; Chromik 2016: 91) whose number rapidly decreases every year (Andrason & Król 2016; Andrason 2021).

⁷The number of these speakers was 65 at the beginning of the 21st century, when I started my research on Wymysorys. Unfortunately, many of them have passed away in the interim (cf. footnote 6 above). For the complete list of these speakers, their names, and dates of birth see Andrason 2021.

features, subsequently combining them into a global value representing the complexity of the entire sound-system module (Miestamo 2006b, 2006a, 2009; Deutscher 2009; Sinnemäki 2014). The complexity of Wymysorys, both feature-locally and module-globally, will not be quantified autonomously, but will rather be narratively estimated in relation to two control systems: (a mother-system) Middle High German and (a sister-system) Modern Standard German (cf. Deutscher 2009; Dahl 2009). In instances where Wymysorys exhibits a surplus of information – i.e. a positive difference in complexity when compared to the control languages – I will examine whether this surplus can be attributed to Polish influence, either entirely or partially.

The article will be organized as follows: in section 2, I will explain the theoretical framework underlying my study or the manner of complexity measurement adopted. In section 3, I will introduce evidence, comparing the complexities of Wymysorys with those of Middle High German and Modern Standard German – first locally and next globally. In section 4, I will verify whether, and how intensively, the surplus of information attested in Wymysorys draws on Polish – again, first locally and next globally. In section 5, I will draw conclusions and propose lines of future research.

2 Framework – measuring language complexity

The approach adopted in this paper is one of the most common and theoretically least problematic manners of analyzing the complexity of natural languages. It draws on the idea of complexity that is: (a) epistemologically absolute, (b) computationally effective, (c) built around the criteria of distinctiveness and economy, (d) relational, and (e) primarily local. Below, I explain these five ideas in detail.

1. From an epistemological perspective, the type of complexity analyzed in this research is absolute. This complexity type pertains to the system viewed as ‘an autonomous entity’ in disconnection from the observer (Kusters 2008: 4). Absolute complexity is therefore the ‘objective property of the [language] system’ (Miestamo 2008: 23; Dahl 2004), regardless of the characteristics of its users, whether speakers, hearers, first-language or second-language learners.⁸

⁸Inversely, I am not concerned with relative complexity or complexity experienced by users of a given language (see Kusters 2003; Miestamo 2008: 23, Miestamo 2009: 81–82). Some scholars do not regard relative complexity as complexity *sensu stricto* (Dahl 2004: 39–40) instead preferring the terms ‘difficulty’ and ‘cost’ (Miestamo 2008: 27; Lindström 2008).

2. To compute absolute complexity, I will deploy the concept of effective complexity otherwise referred to as Gell-Mann complexity (Gell-Mann 1995; Gell-Mann & Lloyd 2004). This complexity measure refers to the amount of information necessary to describe non-randomness within a system – the longer the description of regularities is, the more complex a system is (Mitchell 2009: 99). In linguistics, this corresponds to the amount of information required to describe rules governing a language (McWhorter 2005, 2007, 2009; Miestamo 2008: 25, 2009: 81–82; Sinnemäki 2008, 2009, 2011; Parkvall 2008).⁹
3. In the quantification of effective complexity, I will take into consideration two main criteria: a distinctiveness criterion and an economy criterion (Miestamo 2006a, Miestamo 2006b, 2008; Sinnemäki 2008, 2009, 2011; Parkvall 2008). According to the distinctiveness criterion, the complexity of a language increases with a greater categorical diversity, i.e. with more distinctions being made and more domains being overtly specified. According to the economy criterion, complexity increases with a greater formal diversity, i.e. with more manners of encoding of a given category or distinction.¹⁰
4. The degree of complexity of Wymysorys will be estimated in relation to the complexities of two diachronic and dialectal control-systems (cf. Deutscher 2009; Dahl 2009): Middle High German and Modern Standard German. Middle High German is regarded as a non-distant ancestor of Wymysorys or its mother-language (Kleczkowski 1920; Wiesinger 1980: 496, 498; Wiesinger 1983: 911; Morciniec 1984; Zieniukowa & Wicherkiewicz 1997: 308; Zieniukowa & Wicherkiewicz 2001: 492–493; Wicherkiewicz 1998: 200; Wicherkiewicz & Olko 2016: 19; Żak 2016: 132).¹¹ Modern Standard German is a closely related West Germanic sister-language (Chromik & Dolatowski 2013; Chromik & Wicherkiewicz 2013). Neither of the control

⁹The other common manner of quantifying complexity is algorithmic complexity, also referred to as Kolmogorov complexity. This manner of quantification calculates disorder or randomness, e.g. the ‘amount of surprise’ contained in a message (Mitchell 2009: 97–98) or the ‘difficulty of description’ (Shalizi 2006: 52).

¹⁰Thus, synonymy, redundancy, allomorphy, and free variations increase complexity (McWhorter 2007, 2008). Similarly, exceptions contribute to the increase in complexity as they constitute additional rules (cf. Hammarström 2008: 29; see also McWhorter 2007, 2008).

¹¹The selection of Middle High German and Modern Standard German as pre-contact and non-contact ‘control’ languages, also stems from the availability of extensive and detailed grammatical studies dedicated to these languages, which render the comparison fully operational.

systems has experienced intense influence from Polish or other Slavonic languages.

5. The estimation of effective complexity will primarily be conducted at a local level. I will determine how many of the selected phonetic/phonological features (categories) are instantiated in the tested languages (distinctiveness) and how many expression manners of each feature there are (economy).¹² With regard to each feature, the analysis will be captured in a narrative form “drawing on the concepts of (approximate) equality \approx ($x \approx y$ means that x is approximately equal to y), inequality \leq ($x \leq y$ means that x is less than or equal to y), [and] strict inequality $<$ ($x < y$ means that x is less than y)” (Andrason et al. forthcoming).¹³ However, the analysis of complexity will not be limited to separated local domains. On the contrary, I will combine the local complexities into a global value that indicates the complexity of the entire sound-system module of each of the three languages.

The approach used in this paper has its limitations, which are all inherent to and unavoidable in complexity studies. To begin, contemporary science lacks a single, comprehensive, all-purpose complexity measure. Instead, a variety of measurement methods – at least 48 as observed by Edmonds – coexist simultaneously, differing in what is calculated and how the calculation is executed. Crucially, the various methods yield different complexity results (for an overview consult Peliti & Vulpiani 1988, Badii & Politi 1997, Rescher 1998, Edmonds 1999, Shalizi 2006, and Mitchell 2009). Similarly, linguists have not reached an agreement as for how language complexity should be measured and compared (Newmeyer & Preston 2014: 7).

¹²The features analyzed in the present study are principally phonetic features. Therefore, I will consistently use square bracket notation when talking about the sounds of Wymysorys and the two control languages. However, I will occasionally refer to phonology as well. This phonetic orientation is motivated. First, scholarship still lacks a phonological analysis of the Wymysorys language – all descriptions being virtually phonetic. Second, more generally, phonology is much more theory-dependent than phonetics (see that, in Polish, under certain theoretical premises, [i] and [ɨ/i] are treated as a single phoneme despite being clearly distinct from an articulatory perspective and being indeed perceived as two distinct vowels by native speakers). Accordingly, all the inventories from other authors are phonetic (for instance, with respect to Standard Modern German see Johnson & Braber 2008, Fagan 2009, O’Brein & Fagan 2016; see also Eisenberg 1994: 352 and Dodd et al. 2003) unless stated otherwise (for Modern High German see Russ 1994, Wiese 1996, and Fox 2005).

¹³Given the narrative approach adopted, the symbols \approx , \leq , and $<$ reflect three types of relationships between x and y : similarity, minimal difference, and substantial difference (cf. Andrason et al. forthcoming).

Virtually every scholar develops an at least minimally different method of measurement. However, neither this disagreement nor the excessive proliferation of measurement techniques is surprising. They rather reflect the fact that natural languages constitute genuine complex systems, which renders any modeling fragmentary, provisional, and tentative, irrespective of how potent and sophisticated it is (Cilliers et al. 2013: 3; Andrason & Król 2016). With regard to the method adopted in this paper, a number of objections could be raised. First, absolute complexity is theory-oriented and, perhaps, heavily theory-dependent (Miestamo 2008: 24; Kusters 2008: 5, 8; Hammarström 2008: 289). It depends on the theories of language in which the description of grammar and its analysis are conducted (Miestamo 2008: 27; Kusters 2008: 5, 7-8; Hammarström 2008: 289). Second, local complexity allows for various manners of granularity. That is, each local complexity can be fragmentized into more atomic types, which inversely means that each local complexity constitutes global complexity from the perspective of more fragmentary levels of analysis. As a result, local but modular complexities are not free from three further problems typical of global complexity: sampling problems, commensurability problems, and modularity problems. Third, given the quantitative depth of a language, the account of all the details included in a single module and their quantification are unfeasible, both theoretically and practically (Miestamo 2006b: 30, 2008). Linguists rather determine a more or less restrictive sample of studied phenomena, limiting themselves to analyzing a set of distinctions or categories – rather than all of them. No universal methods of such delimitation exist and often detail-ness is determined by utilitarian aspects such as the aim of the analysis to be undertaken, the (maximal) feasibility of the research, and the scientist's theoretical paradigm (Deutscher 2009: 248). Fourth, even for modular complexity, it is uncertain how to commensurate the different features found in a single module and represent them in identical numerical terms, since each such term refers to qualitatively different phenomena and encapsulates, in principle, incomparable properties (see Miestamo 2006a, 2006b, 2008: 30, 2009: 83). Fifth, the dividing of the module into distinct features or categories presupposes the highly problematic division of language into separate parts – for which local complexities are subsequently calculated. All those limitations – of which linguists are well aware – render the measurement of local complexities and that of modular complexity (i.e. global complexity at a module level), as well as their comparison across languages extremely difficult, if not elusive. My method partially responds to these problems.

To mitigate theory-dependence, I am eclectic with regard to theory underlying the description of features. By taking into account a number of studies that follow different theoretical principles, I purposefully average the complexities inferred from the available descriptions. To mitigate granularity and sampling problems, the categories selected coincide with categories distinguished in general phonetic/phonological studies and with phonetic/phonological features usually described in comparative works on the Germanic and Slavonic language families (Rothstein et al. 1993; Jacobs et al. 1994; Sussex & Cubberley 2006; Harbert 2007). Lastly, to mitigate the commensurability problem, I use a narrative method instead of a strictly numerical one. The problem of modularity cannot be mitigated, as the division of the sound-system module into separated units is presupposed by the method used in my study. Additionally, there are two problems related to the control systems used in estimating the changes in complexity of Wymysorys. First, the data related to the sound systems of Middle High German and Modern Standard German are secondary and draw on the studies presented by other scholars. Although all such studies are generally recognized in Germanic scholarship as authoritative, the information presented in them need not be exhaustive. This especially applies to Middle High German as this language may have contained some features that have not been reported thus far. The results of my comparison of Wymysorys with Middle High German are inevitably contingent on the other linguists' views of Middle High German and their interpretation of direct textual evidence. This type of risk is unavoidable in typological and diachronic studies when one must rely on others' data and analyses. Second, Middle High German itself is an umbrella term that encompasses a number of German varieties that (a) were spoken between the 11th/12th and 14th/15th centuries; (b) were successors of Old High German; and (c) entirely or partially underwent the second consonant shift. This means that the grammatical repertoire of Middle High German is possibly richer than the repertoire of any single German variety that was spoken between the 11th/12th and 14th/15th centuries. To put it simply, while Wymysorys is a single variety of East Middle German, Middle High German is a conglomerate of many varieties. Again, this problem is typical of studies that compare modern languages with old, classical, and extinct languages (see Andrason et al. forthcoming).

3 Evidence

The Wymysorys language described below is a heterogenous and internally diversified linguistic system. Most sources employed make reference to Wymysorys spoken at the time of its near extinction, i.e. at the end of the 20th and the beginning of the 21st century (Lasatowicz 1994; Wicherkiewicz 1998, 2003; Ziemiukowa & Wicherkiewicz 2001; Ritchie 2012; Weckwerth 2015; Żak 2016, 2019). When describing this modern Wymysorys variety, I will widely draw on an original database developed over the course of more than fifteen years of field-work activities conducted by Tymoteusz Król and myself. This primary evidence has been the foundation of several of the papers that I have published alone or in collaboration with Król (in particular Andrason 2014b, 2014a, 2015; Andrason & Król 2016). I will refer extensively to the findings of those studies.¹⁴ Additionally, the data presented will draw on three works dedicated to pre-war Wymysorys – the stage at which true endangerment had already began, even though it was still less pronounced than it is currently (Kleczkowski 1920, 1921; Mojmir 1930; and Wicherkiewicz 2003, who describes the language used by Florian Biesik in his poems, the majority of which were written between 1920 and 1924). The evidence related to Middle High German and Modern Standard German is secondary and draws on canonical studies dedicated to these two languages and the (West) Germanic linguistic family. In particular, regarding Middle High German: Wright (1917), de Boor & Wisniewski (1973), Simmler (1985), Paul (2007), Hennings (2012), and Hall (2017). Regarding Modern Standard German: Hall (1992, 2000), Russ (1994), Eisenberg (1994), Wiese (1996), Dodd et al. (2003), Fox (2005), Johnson & Braber (2008), Fagan (2009), Caratini (2009), and O’Brein & Fagan 2016; and generally (West) Germanic: Iverson & Salmons (1995, 1999, 2003, 2008), Goblirsch (1997, 2018), Harbert (2007), van der Hoek (2010), and van Oostendorp (2019).

In this section, I will first determine the value of the twelve local complexities of Wymysorys in relation to the two control systems (§3.1–§3.12). Next, I will estimate the relational complexity of the three languages at the global level of the sound-system module (§3.13).

3.1 Monophthongs

Depending on the study, the number of monophthongs in Wymysorys oscillates between sixteen and eight. Most analyses distinguish well above ten vowels. Max-

¹⁴The informants who have participated in the empirical research conducted by Król and myself, and whose language is reflected in previously published articles as well as in this paper, are (or were) fluent native speakers of Wymysorys (see section §1).

imal systems have been proposed by Andrason & Król (2016), Kleczkowski (1920) and Mojmir (1930). Andrason & Król (2016: 20) identify fifteen core vowels: [i], [ɪ], [e], [ɛ], [a], [ɑ], [o], [ɔ], [u], [y], [ʏ], [ə], [ø], [œ], and [ɐ]. Kleczkowski (1920: 11–12, 171 and Mojmir (1930: xii–xiii) recognize thirteen vowels: [i], [ɪ], [e], [ɛ], [a], [ɑ], [o], [ɔ], [u], [ʊ], [y], [ʏ], [ə].¹⁵ Systems of twelve monophthongs are proposed by Lasatowicz (1994), Zieniukowa & Wicherkiewicz (2001), Wicherkiewicz (2003), and Andrason (2014a). Lasatowicz (1994: 32–41) distinguishes: [i], [e], [ɛ], [a], [ɑ], [o], [ɔ], [u], [y], [ʏ], [ø], [ə]. Zieniukowa & Wicherkiewicz (2001: 499–500) distinguish: [i], [e], [ɛ], [a], [ɑ], [o], [u], [y], [ʏ], [ø], [ə], and [ɪ]. Wicherkiewicz (2003: 407) distinguishes the same set of vowels merely replacing [o] with [ɔ]. Andrason (2014a: 126–127) distinguishes: [i], [ɪ], [e], [ɛ], [a], [ɑ], [o], [ɔ], [u], [y], [ʏ], and [ø]. The most reduced systems of monophthongs are postulated by Weckwerth (2015) and Ritchie (2012) who discern nine vowels: [i], [ɪ], [e], [y], [ø], [a], [ɑ], [ɔ], and [u].¹⁶

The vocalic inventory of Middle High German consists of at least nine basic short monophthongs: *a* [a], *e* [e], *ë* (transcribed as [ɛ̃]), *ä* [ɛ], *i* [i], *o* [o], *ö* [ø], *u* [u], and *ü* [y] (Wright 1917: 2–5; Simmler 1985: 1131, 1133; de Boor & Wisniewski 1973: 36–37, 41; Paul 2007: 62–63, 87–97; Hall 2017: 9; Schmidt 2017: 69).¹⁷ Additionally, the reduced vowel *e* [ə] was used in unaccented syllables (Wright 1917: 3; Simmler 1985: 1133; Hall 2017: 9). The language also had long vowels (see section 3.5 below), of which some may have exhibited slightly different qualities when compared to their short counterparts, apart from distinctive quantity (Wright 1917: 3; Caratini 2009: 185; cf. with Hall 2017: 9 and Schmidt 2017: 69). This would increase the total number of monophthongs to maximally eighteen vowels. The vocalic system of Modern Standard German includes 15 vowels of different qualities: [i:], [ɪ], [y:], [ʏ], [e:], [ø:], [ɛ:], [œ], [u:], [ʊ], [o:], [ɔ], [a:], [ə] and [ɐ] (Fagan 2009: 7, 17; Johnson & Braber 2008: 109–110; O’Brein & Fagan 2016: 17–19; see also Russ 1994: 119, Wiese 1996: 19–21, and Fox 2005: 35, 41 who analyze the vocalic phonemes of Modern Standard German). In some studies, additional sounds [ɑ] (Eisenberg

¹⁵The phonetic interpretation in IPA terminology is mine. Kleczkowski (1920) offers detailed descriptions which allow for such an interpretation. Given the limitations in space, I will not provide examples of phonetic/phonological features in words and/or constructions. These may be found in the works referred to in each section.

¹⁶Lasatowicz (1994: 270) limits his set of vowels to eight sounds of an uncertain phonetic interpretation: *i*, *e*, *o*, *ô*, *ö*, *u*, *a*, *y*. Given the lack of linguistic training of its author, this system cannot be regarded as trustful (see a similar observation in Wicherkiewicz 2003).

¹⁷On the status of the vowels *e* (closed), *ë* (mid-open), and *ä* (open), consult Simmler (1985: 1132, 1134); see also Wright 1917: 2–5; de Boor & Wisniewski 1973: 36–37, 41; Paul 2007: 87–91). In a few studies, the number of vowels is reduced to seven (Caratini 2009: 184–185).

1994: 350; Dodd et al. 2003: 3; Johnson & Braber 2008: 110; Caratini 2009: 71) and [æ:], as different in quality from [ɛ], are distinguished (Fox 2005: 35–36, 38).¹⁸

Overall, monophthongs (*M*) are typical features of both Wymysorys and the two control languages. Quantitatively, the number of monophthongs in Wymysorys is (with minor disturbances) similar to that of Modern Standard German and Middle High German. Therefore, the complexity of monophthongs in the three languages can be viewed as approximately equal: $M^W \approx M^{MHG}$ and $M^W \approx M^{MSG}$.¹⁹

3.2 Diphthongs

The number of Wymysorys diphthongs varies between nine and six.²⁰ Kleczkowski (1920: 12–13) and Mojmir (Mojmir 1930: xiii–xiv) distinguish nine diphthongs: [iɛ:], [iɛ:], [aj], [oj], [ə(:)j], [ou], [au], [uø:] / [u:ø], and [uə:].²¹ Systems of eight diphthongs are proposed by Lasatowicz (1994), Wicherkiewicz (2003), and Zieniukowa & Wicherkiewicz (2001). Specifically, Lasatowicz (1994: 33, 40–41) distinguishes: [i(:)ᵃ], [eᵃ], [æ], [aᵃ], [ɔᵃ], [ø(:)ᵃ], [y(:)ᵃ], and [u(:)ᵃ]. Wicherkiewicz (2003: 407–408) distinguishes: [i(:)ᵃ], [eᵃ], [æ], [aᵃ], [ɔᵃ], [ø(:)ᵃ], [y(:)ᵃ] and [uᵃ]. Zieniukowa & Wicherkiewicz (2001: 499–500) distinguish: [ai], [ye], [iɪ], [ij], [au], [øe], [oo], and [ue]. Systems of six diphthongs are formulated by Andrason & Król (2016) and Weckwerth (2015). Andrason & Król's (2016: 21) system contains [ai], [ei], [ɔi], [œɣ], [iə] and [ɪə], while Weckwerth's system (2015: 1) includes [ai], [ei], [ɔɣ], [øə], [yə] and [ɪə].

The system of diphthongs in Middle High German tends to consist of six sounds: *ei*, *ou*, *öu* (*öi*, *öü*), *ie*, *uo*, and *üe* (Wright 1917: 2–3, 5–6, 17; de Boor & Wisniewski 1973: 39–41, 45; Simmler 1985: 1133; Paul 2007: 62–63, 103–108; Hall 2017: 9; Schmidt 2017: 69). Their phonetic interpretation was most likely [eɪ], [ou], [øʏ], [iɛ], [uɔ], and [yɛ], respectively (Paul 2007: 103–108; Hall 2017: 9). Some linguists expand this system to nine sounds, adding the diphthongs *au* [aʊ], *eu* [ɔɣ]/[ɔɪ], and *ui* [ui] (Caratini 2009: 185). In Modern Standard German, the number of genuine diphthongs has decreased to three: [ai], [aʊ], and [ɔɪ] (Eisenberg 1994: 354;

¹⁸Note that Fox (2005) analyzes phonemes. Sporadically, in unassimilated English borrowings, one finds two additional vowels, namely [æ] and [ʌ] (Fox 2005: 53; Caratini 2009: 73).

¹⁹The following abbreviations will be used in this paper: W – Wymysorys; MHG – Middle High German; MSG – Modern Standard German.

²⁰The largest set of fourteen diphthongs is posited by Latosiński (1909: 270): *ia*, *iu*, *iy*, *ie*, *uö*, *uy*, *oe*, *oi*, *ou*, *ei*, *ae*, *aei*, *au*, *yi*. (cf. Wicherkiewicz 2003: 411). As in section §3.1, I will disregard this system in my discussion.

²¹This system could be extended to ten sounds if [uø:] and [u:ø] are viewed as different diphthongs.

Dodd et al. 2003: 4; Johnson & Braber 2008: 112–113; Fagan 2009: 9; O’Brein & Fagan 2016: 19). However, a new wave of diphthongs has also emerged due to the vocalic pronunciation of *r* as [ɐ] and the assimilation of loanwords ending in *-ion* and *-ation*. As a result, the inventory of diphthongs has been enriched by [i:ɐ], [u:ɐ], [e:ɐ], and [ɔ:] (Eisenberg 1994: 354; Fox 2005: 53–54; Fagan 2009: 9).²²

Overall, both Wymysorys and the two control languages contain diphthongs (*D*). Moreover, quantitatively, the number of diphthongs found in Wymysorys, on the one hand, and those present in Middle High German and Modern Standard German, on the other hand, are similar. As a result, the complexity of diphthongs is approximately equal in the three languages: $D^W \approx D^{MHG}$ and $D^W \approx D^{MSG}$.

3.3 Triphthongs

The Wymysorys vocalic system contains one true triphthong, i.e. a sequence of three vocalic elements (usually glide, vowel and glide) used within the same nucleus. This triphthong is [ɣøœ], noted alternatively as [ʏøœ] or [ʏøə]) (Andrason 2014a: 126; Andrason & Król 2016: 23).

True triphthongs are absent in Middle High German (Hall 2017: 10). Neither Wright (1917), de Boor & Wisniewski (1973), Simmler (1985), Paul (2007), nor Schmidt (2017) mention them in their grammatical analyses. Similarly, there are no true triphthongs in Modern Standard German. Accordingly, they do not feature in works dedicated to the German phonetics (see Eisenberg 1994, Johnson & Braber 2008, Fagan 2009, and O’Brein & Fagan 2016) and phonology (see Russ 1994, Wiese 1996, and Fox 2005).²³

Overall, the category of triphthong (*T*) is only instantiated in Wymysorys. Hence, by definition, the complexity of triphthongs in the two control languages is strictly lower than in Wymysorys: $T^W > T^{MHG}$ and $T^W > T^{MSG}$.

3.4 Vocalic sonorants

A syllable – and in particular its nucleus – can be formed in Wymysorys not only by genuine vowels, but by sonorants as well. Five sonorants can be syllabic or vocalic: [l], [r], [ŋ], [m], and [ɲ] (Kleczkowski 1920: 12; Mojmir 1930: xiii:). By far, the most common are [l] and [ŋ] (Andrason 2021).

²²Two additional diphthongs, i.e. [er] and [oʊ], may appear in unadjusted English loanwords (Caratini 2009: 73).

²³Sporadically, the sequence [jaʊ] in words such as *jauchen* is analyzed as a marginal example of triphthongs in Modern Standard German (Abrams et al. 2017: 243).

The sound system of Middle High German did not, most likely, possess syllabic or vocalic sonorants, as the Proto-Indo-European [ɲ], [ɹ], [l], and [r] developed a full vocalic component, namely *u*, *o*, *ü*, or *ö* (from Old High German *o* and *u*, and an earlier Germanic **u*) (Paul 2007: 62, 66, 146–150; see also de Boer & Wisniewski 1973: 48). A possible case, where the presence of syllabic sonorants has been hypothesized, involves the metathesis of *ər* into *rə* through an ‘*r̥*’ stage (Paul 2007: 147). Even if a few (highly debatable) instances of syllabic sonorants could be hypothesized, the relevance of such sounds was minimal for the vocalic system of Middle High German. In contrast, syllabic liquids ([l] and [r]) and syllabic nasals ([ɲ], [ɹ], [ɳ]) are a common feature of Modern Standard German, where they arose due to the reduction of *shwa* (Fagan 2009: 24, 32; Johnson & Braber 2008: 130–131; O’Brein & Fagan 2016: 18).

Overall, the category of syllabic/vocalic sonorants (*S*) is instantiated in Wymysorys and one of the control languages. It is present in Modern High German but absent in Middle High German. The number of syllabic/vocalic sonorants found in Wymysorys and Modern Standard German are quantitatively similar. Therefore, the complexity of syllabic/vocalic sonorants is approximately equal in these two languages: $S^W \approx S^{MSG}$. In contrast, the complexity relationship between Wymysorys and Middle High German is that of strict inequality: $S^W > S^{MHG}$.

3.5 Vocalic length

Most studies recognize the presence of long vowels and the significance of vocalic length in Wymysorys. Their most fervent advocates are Kleczkowski (1920) and Mojmir (1930). Kleczkowski (1920: 174) argued that, contrary to contemporary Polish, length was a part of the vocalic system of Wymysorys, and that the opposition between short and long vowels was fundamental from a systemic perspective (ibid:11–12; 26–27; see also Mojmir 1930: xiii–xiv). In fact, Kleczkowski (1920: 26) distinguishes four grades of length, splitting long and short vowels into two sub-classes each: extra-long (‘przedługie’) and long, on the one hand; and middle (‘średnie’) and short, on the other hand. In his model, the following monophthongs can be long or extra-long: [i:], [e:], [ɛ:], [a:], [ɑ:], [o:], [ɔ:], [u:], [y:] (Kleczkowski 1920: 11–12, 26–27). More reduced systems of long vowels are discerned by Lasatowicz (1994), Zieniukowa & Wicherkiewicz (2001), and Wicherkiewicz (2003). Lasatowicz (1994: 40–41) distinguishes seven long vowels: [i:], [ɑ:], [e:], [o:], [y:], [ø:], [u:]. Zieniukowa & Wicherkiewicz (2001: 499–500) distinguish six long vowels: [i:], [e:], [ɑ:], [u:], [y:], and [ø:]. Wicherkiewicz (2003: 405–407) distinguishes five long vowels: [i:], [ɑ:], [e:], [u:], [y:], [ø:]. The

relevance of vocalic length is also acknowledged by Andrason & Król (2016: 28, 27). In contrast, Weckwerth (2015: 1–2) suggests that vocalic length, even though present, has a limited distinctive role, as the main contrast between vowels involves quality rather than quantity.²⁴

Length was a relevant and contrastive feature of the vocalic system of Middle High German (Simmler 1985: 1133; Seiler 2005; Moosmüller & Brandstätter 2015). In addition to short singletons (see section §3.1), the language possessed eight long vowels: *â* [a:], *æ* [æ:], *ê* (ie) [e:], *î* [i:], *ô* (uo) [o:], *oe* (üe) [ø:], *û* [u:], and *iu* [y:] (Wright 1917: 2–7; de Boor & Wisniewski 1973: 37–38, 41; Simmler 1985: 1133; Paul 2007: 62–63, 97–100; Hall 2017: 9; Schmidt 2017: 69). As mentioned in §3.1, the short and long vowels likely exhibited at least minimal qualitative differences (Wright 1917: 3; Caratini 2009: 185; cf. Hall 2017: 9 and Schmidt 2017: 69). Length also plays an important role in Modern Standard German, where vowels differ both in quality and quantity (Fagan 2009: 7–9; O’Brein & Fagan 2016: 17, 19; see also the short and long phonemes in Russ 1994: 118–119 and Wiese 1996; Fox 2005: 39–41).²⁵ Length is responsible for the systemic division of all vowels into ‘lax’ and ‘tense’. Lax vowels are always short, while tense vowels are long in a stressed position. The tense long vowels comprise eight sounds: [i:], [e:], [ɛ:], [a/ɑ:], [o:], [u:], [y:], and [ø:] (Eisenberg 1994: 350–352; Johnson & Braber 2008: 109–110; Fagan 2009: 7–9; O’Brein & Fagan 2016: 17, 19; see also Russ 1994: 118–119; Wiese 1996: 19–21; Fox 2005: 38–39, 41, and their discussion of long vowel phonemes) sometimes expanded by an additional vowel [æ:] (Fox 2005: 35–36, 38).²⁶

Overall, the category of vocalic length (*VL*) is instantiated in both Wymysorys and the two control systems. The number of long vowels in the two groups is similar. As a result, the complexity of vocalic length in Wymysorys, Middle High German, and Modern Standard German is approximately equal: $VL^W \approx VL^{MHG}$ and $VL^W \approx VL^{MSG}$.

3.6 Nasality

The Wymysorys vocalic system is characterized by the presence of nasal and/or nasalized vowels. The most common nasal sounds are the vowels [ɔ] and ɛ [ɛ]

²⁴My recent studies and fieldwork in Wilamowice demonstrate that long vowels are a constant feature of Wymysorys, even though contrast between short and long monophthongs often involves at least minimal changes in quality. See words such as *fool* [fo:w] ‘grey, gray-haired’, or the pair *hoon* [ho:n] ‘roster’ versus *hon* [hɔn]/[hon] ‘rosters’.

²⁵That is, both quality and length are used to differentiate sounds and ultimately lexemes (Eisenberg 1994: 352; Dodd et al. 2003: 3; Johnson & Braber 2008: 109; Fagan 2009: 7–9, O’Brein & Fagan 2016: 17–19).

²⁶As always, Fox’s (2005) analysis concerns phonology.

and three nasal approximants [w̃], [ɥ], [j] that can accompany oral vowels (Andrason 2021). Sporadically, vowels [ã/ɑ] and [ẽ] are used (*ibid.*). The actual nasal feature, and thus the nasalization of a vowel, may vary from strong (a genuine nasal vowel) to weak (a slightly nasalized oral vowel with a nasal consonant) (see Kleczkowski 1920: 12; Mojmir 1930: xiii).

Nasal vowels were absent in Middle High German (cf. Wright 1917; Paul 2007; de Boor & Wisniewski 1973). Their position in Modern Standard German is similarly weak. In general, ‘German vowels are oral [and no] nasal vowel belongs to the core vocalic system’ (Caratini 2009: 71). Nasalized vowels – [ɛ(:)], [ɔ(:)], [ɑ(:)], [œ(:)] – are only found in loanwords from French (Fagan 2009: 9–10; Caratini 2009: 51, 73–74; O’Brein & Fagan 2016: 22). Even there, however, a pronunciation with an oral vowel and a nasal consonant is grammatical (Russ 1994: 78; Fox 2005: 53; Fagan 2009: 9; O’Brein & Fagan 2016: 22). Being ‘unstable’ and restricted to a small number of words of foreign origin, the role of nasal vowels in the vowel system of Modern Standard German is marginal (Fox 2005: 53; Fagan 2009: 10; Johnson & Braber 2008: 90).

Overall, the category of nasality (*N*) is instantiated in Wymysorys and one of the control languages, i.e. Modern Standard German. However, the number of nasal vowels and their systemic relevance is greater in Wymysorys than in Modern Standard German.²⁷ Hence, the complexity relationship between these two languages is of a strict-inequality type, i.e. $N^W > N^{MSG}$. This strict inequality is even more evident if Wymysorys is compared to Middle High German: $N^W > N^{MHG}$.

3.7 Consonants

Both quantitatively and qualitatively, the consonantal system of Wymysorys is remarkable. The size of the fundamental system of consonants oscillates between thirty and thirty-nine sounds. Due to palatalizing processes (see section §3.9), this system may be expanded to more than fifty. As far as ‘non-palatalized’ models are considered, the maximal system is posited by Andrason & Król (2016: 17–18). To be exact, Andrason & Król (*ibid.*) distinguish thirty-nine sounds: (a) plosives: [p], [b], [t], [d], [c], [ʃ], [k], [g], and [ʔ]; (b) fricatives: [f], [v], [s], [z], [ç], [ʒ], [ʃ], [ʒ], [x], and [h]; (c) nasals: [m], [n], [ɲ], and [ŋ]; (d) liquids [l] and [r]; (e) affricates: [ts], [dz], [tʃ], [dʒ], [tʃ], [dʒ], [tʃ], [dʒ]; and approximants: [w] and [j].²⁸ A similarly abundant system of thirty-four consonants was proposed

²⁷That is, fewer sounds can be nasal and the feature of nasality is generally less common.

²⁸The set of approximants may be extended to [ɥ] which occurs before nasals (Andrason & Król 2016: 17–18; Andrason 2021).

by Kleczkowski (1920: 13–14) and Mojmir (1930: xiv–xv). The main difference consists in the presence of [ɫ] instead of [w] ²⁹ and the absence of the distinction between the postalveolars [ʂ], [ʐ], [tʂ], [dʐ] and the palatalo-alveolars [ʃ], [ʒ], [tʃ], [dʒ]. More reduced consonantal systems are proposed by Wicherkiewicz (2003) and Lasatowicz (1994). Wicherkiewicz (2003: 406–409) distinguishes thirty consonants. He expands the set of consonants by [pʃ] and [ç], on the one hand, but pre-scinds from [ɫ], [ʃ], [ʔ] and the distinction between the postalveolars [ʂ], [ʐ], [tʂ], [dʐ] and the palatalo-alveolars [ʃ], [ʒ], [tʃ], [dʒ], on the one hand.³⁰ Lasatowicz (1994: 36, 42, 52) also distinguishes thirty consonants. Similar to Wicherkiewicz (2003), Lasatowicz's system contains the sound [ç] but fails to include consonants [c], [ɟ], [ʔ], [ɲ] and to make the distinction between the postalveolars [ʂ], [ʐ], [tʂ], [dʐ] and the palatalo-alveolars [ʃ], [ʒ], [tʃ], [dʒ].³¹ Since nearly all consonants (except [ʔ] and [h]) have their palatal(ized) variants (see section §3.9; see also Kleczkowski 1920: 15; Mojmir 1930; Andrason & Król 2016), the system of consonants may be extended to fifty-one sounds – or even more – by incorporating, for instance, [pʲ], [bʲ], [tʲ], [dʲ], [mʲ], [ɲʲ], [ʃʲ], [vʲ], [ɫʲ]/[ɭ], [xʲ]/[ç], [rʲ] and [wʲ] (Andrason 2021).

The system of consonants exhibited by Middle High German most likely contained twenty-four sounds. Specifically, (a) plosives: [p], [b], [t], [d], [k], [g]; (b) fricatives: [f], [v], [s], [ʃ], [z] (or [ʒ]), [j], [ç], [x], and [h]; (c) nasals: [m], [n], [ɲ]; (d) liquids: [l], [r] (Paul 2007: 141, 169–171); (e) affricates [pf], [ts], [kx] (de Boor & Wisniewski 1973: 18–19; Simmler 1985: 1135; Paul 2007: 141); and possibly an approximant [w] (Wright 1917: 24; Simmler 1985: 1135). Additionally, some studies expand this system by [β] (de Boor & Wisniewski 1973: 18). The consonantal inventory of Modern Standard German includes the following twenty-seven sounds: (a) plosives: [p], [b], [t], [d], [k], [g], [ʔ]; (b) fricatives: [f], [v], [s], [z], [ʃ], [ʒ] (the last sound is often treated as peripheral), [ç], [j] (also defined as an approximant), [x], [ɣ], [h]; (c) nasals: [m], [n], [ɲ]; and (d) liquids: [l], [r], [ʀ]; and (e) affricates: [pf], [ts], [tʃ] (Eisenberg 1994: 353–355; Johnson & Braber 2008: 92, 99–101, 104; Fagan 2009: 10–14; O'Brein & Fagan 2016: 13–16). If the affricate [dʒ] (O'Brein & Fagan 2016: 16) and the nasal [ɱ] (Hall 2000) are included, the number of consonants increases to twenty-nine 'basic' sounds (see also the more phonologically oriented analyses offered by Russ 1994: 112–115, 121–122, Wiese 1996: 22–26, Hall 2000: 31, and Fox 2005: 35–37).

²⁹At the beginning of the 20th century, ɫ was still pronounced as a velarized alveolar lateral approximant [ɫ] rather than approximant [w] as it is the rule currently (Kleczkowski 1920: 13, 121–126; Mojmir 1930: xiv; Wicherkiewicz 2003: 406; Žak 2019; see section 4.4).

³⁰Note that [dʒ], [dʒ], [dʒ], [z] are unattested in Biesik's poems (Wicherkiewicz 2003: 408–409).

³¹Latosiński (1909: 270) distinguishes twenty-six consonants.

Overall, the category of consonants (*C*) is instantiated in both Wymysorys and the two control languages. However, whether maximal (extended) or minimal (basic), the number of Wymysorys consonants is always larger, in certain models radically, than the number of consonants found in Middle High German and Modern Standard German. As a result, the complexity of consonants in Wymysorys is substantially greater than in the control languages, i.e. $C^W > C^{MHG}$ and $C^W > C^{MSG}$.

3.8 Consonantal length

Consonantal length belongs to the phonetic repertoire of Wymysorys, although different studies ascribe it a distinct systemic relevance. According to Kleczkowski (1920: 15) and Mojmir (1930: xv), although attested, long consonants are not particularly common. In contrast, Wicherkiewicz (2003: 405-407) identifies a number of long consonants in Biesik's poems (namely, [m:], [f:], [p:], [k:], [t:], [ts:], and [ʔ:]) and notes that they are still pronounced at least 'slightly longer' than their short counterparts by modern speakers (ibid. 407). I have detected a relatively large set of long consonants in my own field work, namely: nasals [n:], [ɲ:], [m]; fricatives: [s:], [z:], [f:]; stops: [p:], [t:], [k:]; and affricates [ts:] and [dʒ/dʒ:]; as well as [r:] (Andrason 2021). Although long consonants also allow for a shortened pronunciation as singletons (*pace* Kleczkowski 1920), consonantal length seems to be a regular feature of the Wymysorys sound system.

Long or geminated consonants were a typical component of Middle High German (Wright 1917: 25, 27–28, 30–31; Simmler 1985: 1134–1135; Goblirsch 1997, 2018; Jessen 1998: 334; Paul 2007: 141), where the length played, to an extent, a phonemic function (Fourquet 1963: 85–88; Moosmüller & Brandstätter 2015). The following long consonantal sounds are usually identified for Middle High German: *pp* [p:], *bb* [b:], *tt* [t:]; *gg* [g:], *ff* [f:], *ss* [s:], *mm* [m:], *nn* [n:], *ll* [l:], and *rr* [r:] (Wright 1917: 25; Paul 2007: 141). The set of long consonants is often extended by [ʃ:], [x:], and [k:] (Simmler 1985: 1135; Paul 2007: 142, 171; for a discussion consult Goblirsch 1997, 2018 and Paul 2007: 141–175). Modern Standard German has no geminate or long consonants 'at the phonetic level' (Caratini 2009: 70; Goblirsch 2018). The only consonantal sounds present in the language are thus singletons (Caratini 2009: 70; Fagan 2009) and spelling them with double consonants generally indicates that a preceding vowel is short (Russ 1994: 118, 140).

Overall, the category of consonantal length (*CL*) is instantiated in Wymysorys and one of the control languages, i.e. Middle High German. It is absent in Modern Standard German. The number of long consonants in Wymysorys and Middle High German is relatively similar and, thus, their respective complexities

may be viewed as approximately equal, i.e. $CL^W \approx CL^{MHG}$. The comparison between Wymysorys and Modern Standard German reveals the relation of strict inequality, i.e. $CL^W > CL^{MSG}$.

3.9 Palatalization

A palatalization-based opposition between the so-called hard (non-palatal(ized)) and soft (palatal(ized)) consonants is a pervasive and essential component of the Wymysorys sound system (Kleczkowski 1920; Anders 1933; Wicherkiewicz 2003: 402, 405-409; Andrason 2021). Virtually every non-palatal(ized) hard sound possesses its palatal(ized) soft counterpart (Kleczkowski 1920: 15; Mojmir 1930: xv; Andrason & Król 2016). Apart from the alveolo-palatal (or palatalized postalveolar) sounds (i.e. the fricatives [ç] and [ʒ], the affricates [tʃ] and [dʒ], and the nasal [ɲ]), Wymysorys exhibits the following palatal(ized) consonants, each contrastive with a hard equivalent: [pʲ] – [p], [bʲ] – [b], [tʲ] – [t], [dʲ] – [d], [kʲ]/[ç] – [k], [gʲ]/[ʒ] – [g], [mʲ] – [m], [ɲʲ] – [ɲ], [fʲ] – [f], [vʲ] – [v], [lʲ]/[ʎ] – [l], [xʲ]/[ç] – [x], [rʲ] – [r]; and [wʲ] – [w]. Palatalization also plays a relevant role in the morphology of Wymysorys, for instance, triggering the use of an allomorphic ending *-ja* instead of *-a* in inflectional forms of nouns and adjectives, e.g. *ryk* [rɐk] ‘back’ – dat.pl. *rykja* [rɐç(:)a] (Andrason 2014a, Andrason 2015; Andrason & Król 2016). This large number of palatal(ized) consonants and their extensive use in the lexicon and grammar give the Wymysorys language a soft resonance, fully comparable to Polish, but noticeably distinct from German (Kleczkowski 1920; see also Latosiński 1909: 271–272).³²

Palatalization operated in Middle High German residually. The most evident palatalizing process affected the consonant *s* that was softened to [ʃ] before the consonants *k, l, m, n, p, t, w* (Paul 2007; Fagan 2009: 196, 209; Hennings 2012: 41). Additionally, *g* was palatalized to *j* (Paul 2007: 37). Modern Standard German fails to exploit palatalization and palatal(ized) consonants to an extent that would be comparable to that attested in Wymysorys. The most evident case of palatalization is the softening of [x] to [ç] (Fagan 2009: 26–27; O’Brein & Fagan 2016: 45). The language also contains other palatal sounds, namely [j], [ʃ] and [ʒ] (Johnson & Braber 2008: 92, 95, 104; Fagan 2009: 9, 12–13; van der Hoek 2010; O’Brein & Fagan 2016: 14, 16).

Overall, the category of palatalization (*P*) is instantiated in Wymysorys and the two control languages. However, the number of palatalized consonants and

³²The perception of Wymysorys as a soft language – and in that regard equal to Polish – is a usual reaction when a non-Wymysorys speaker who is familiar with German (and Polish) is exposed to the Wymysorys language.

the systemic effects of palatalization are far more significant in Wymysorys than in Middle High German and Modern Standard German. Hence, palatalization is substantially more complex in Wymysorys than in the control languages: $P^W > P^{MHG}$ and $P^W > P^{MSG}$.

3.10 Aspiration

In Wymysorys, voiceless plosive consonants /p/, /t/, /k/ fail to be aspirated in a word-initial position, and in all other positions (however, see further below), thus appearing as [p], [t], [k] (Kleczkowski 1920: 14–15, 28; Mojmir 1930: xiv–xv; Andrason & Król 2016: 17–19). This means that they contrast with /b/, /d/, /g/ in terms of voicing ‘jak w polskiem’ (Kleczkowski 1920: 28), the latter series being pronounced voiced in word-initial and word-internal position (Andrason & Król 2016: 17–19).³³ An analogous situation is found in Biesik’s poems where /p/, /t/, /k/ were unaspirated, and the opposition with /b/, /d/, /g/ involved the feature of voicing only (Wicherkiewicz 2003: 399–409). Aspiration is also absent in the Wymysorys variety described by Lasatowicz (1994: 42).³⁴ Only sporadically, a soft aspiration of /p/, /t/, and /k/ is audible in a word-final position (Andrason & Król 2016: 19).

In studies on Middle High German, the opposition between /p/, /t/, /k/ and /b/, /d/, /g/ is generally viewed in terms of tenseness (Goblirsch 1997, 2018; Jessen 1998) – alternatively referred to as ‘spread glottis’ (Harbert 2007: 44; Iverson & Salmons 2003: 44; 2008) – that is, *fortis* versus *lenis* (Simmler 1985: 1134; Weddige 2007: 18; Hennings 2012: 8–10; Paul 2007: 131, 141; Moosmüller & Brandstätter 2015). However, the determination of the precise phonetic nature of this opposition is elusive. Most likely, the contrast translated onto a set of phenomena, such as force, quantity, voicing, and aspiration, all of them characterized by distinct degrees of relevance (Simmler 1985: 1133–1135). The most relevant of them were articulatory force (Wright 1917: 22–23; Weddige 2007: 18) and quantitative augmentation (Goblirsch 1997, 2018; Jessen 1998: 334; see also Simmler 1985: 1135) – both related to intensity. Often, voicing is considered the third crucial property correlated with tenseness (de Boer & Wisniewski 1973: 18; Simmler 1985: 1133; Weddige 2007: 19; Seiler 2009; Hennings 2012: 8–10). In contrast, even though aspiration is apparently ‘inherent’ to the Germanic family (Iverson & Salmons

³³In a final position, /b/, /d/, and /g/ are generally devoiced, and thus their opposition with /p/, /t/, and /k/ is neutralized.

³⁴Lasatowicz argues for a fortis-lenis distinction between /p/, /t/, /k/ and /b/, /d/, /g/, without explaining how this contrast should be understood in phonetic terms (Lasatowicz 1994: 42).

2003: 44; Iverson & Salmons 2008: 2), its role in Middle High German was secondary and the three *fortes* consonants were most likely not (fully) aspirated (Simmler 1985: 1133; Hennings 2012: 9; see also Paul 2007: 133). In Modern Standard German, the system of plosives is also based on the tenseness or spread-glottis contrast, such that the opposition between /p/, /t/, /k/ and /b/, /d/, /g/ is generally explained as *fortis* versus *lenis* (Russ 1994: 115; Wiese 1996; Jessen 1998: 22, 136, 142–143; Fox 2005: 42; Iverson & Salmons 2008: 3; Caratini 2009). The feature of tenseness is correlated primarily with aspiration, with /p/, /t/, /k/ being ‘heavily aspirated in prosodically prominent positions’ (Iverson & Salmons 2008: 3), e.g. word-initially (Russ 1994: 115, 117, 121; Iverson & Salmons 2003, 2008; Fox 2005: 42; Caratini 2009).³⁵ In this system, voicing is viewed as a secondary feature (Jessen 1998: 334).

Overall, the category of aspiration (*A*) is not instantiated (or very poorly instantiated) in Wymysorys and Middle High German while it is present and central in Modern Standard German. Therefore, the complexity relationship between Wymysorys and the control languages is as follows: $A^W \approx A^{MHG}$ and $A^W < A^{MSG}$.

3.11 Onset clusters

Wymysorys tolerates elaborated consonant onsets (Andrason 2015: 71). Monosegmental onsets may exhibit all consonants except [ŋ].³⁶ Bisegmental onsets exhibit a considerable variety, tolerating the following clusters: (a) stop + liquid/nasal/fricative/approximant; (b) fricative/ liquid/nasal/fricative/stop/approximant/affricate; and (c) affricate + liquid/nasal/fricative (Andrason 2021). Contrary to many West Germanic languages (see below; see section §4.7), Wymysorys tolerates bisegmental onsets such as [tl] and [dl]; onsets whose second segment is a glide [j/w]; and onsets with a voiced sibilant as the first element, e.g. [zm], [ʒm], [ʒv]. Additionally, it contains other onsets rare in German and its relatives: [kf], [tf], [tx], [ps], [pf], [bʒ], [gʒ], [tʃf], and [tʃ]. Three consonant onsets are also common in Wymysorys, and a wide range of combinations are possible: stop + fricative + nasal (e.g. [bʒn]); fricative + fricative + stop (e.g. [fsp], [fst], [vzd], [vzg]); fricative + fricative + nasal (e.g. [vzm]); fricative + stop + fricative (e.g.

³⁵ Although most scholars reject voice as a distinctive feature in Modern Standard German, its relevance is also acknowledged (Wiese 1996: 169), since the series /b/, /d/, /g/ surfaces not only as unaspirated but also as partially voiced (Iverson & Salmons 2008: 3). Overall, the plosives contrast in both aspiration (primarily) and voicing (secondarily). The tense consonants /p/, /t/, /k/ are aspirated and/or unvoiced. The lax consonants /b/, /d/, /g/ are unaspirated and/or voiced (Jessen 1998: 43–44; see also Caratini 2009: 70).

³⁶ This means that contrary to Modern Standard German (see below), [ʃ] and [x] may form monosegmental onsets.

[fkʃ], [stf]); fricative + stop + liquid (e.g. [skr], [spr], [str], [skn]; and [ʃkl], [ʃkr], [ʃpr], [ʃtr]). Although not particularly frequent, a few onsets composed of four consonants are attested, e.g. [vskʃ] and [pstr]. In addition to the quantitative complexity outlined above, Wymysorys attests to a significant qualitative variety of onset clusters. This is evident in the fact that the language tolerates not only sequences that conform to the sonority scale, but also those that violate it.³⁷ Apart from clusters whose first element is a sibilant [s] or [ʃ] (which is common in Germanic languages; see below), a large number of such ‘ill-formed’ sequences is tolerated, especially: (a) fricative + stop + fricative (e.g. [fkʃ]) and (b) fricative + fricative + stop (e.g. [fsp], [fst], [vzd], [vzg]).

Middle High German maximally contains three consonants in onsets, which is typical of the Germanic family in general (Harbert 2007: 66; van Oostendorp 2019: 34). As elsewhere in the Germanic family (van Oostendorp 2019: 35), monosegmental onsets exhibit very few restrictions, e.g. [x], [ç], and [ŋ]. In biconsonantal onsets, sequences composed of an obstruent and a liquid are allowed with the exception of [tl] and [dl] (cf. van Oostendorp 2019: 36; compare with Wymysorys above). Other types of onsets are more restricted, with a number of combinations being disallowed, e.g. onsets whose second segment is a glide [j/v/w] and onsets composed of sibilants and voiced obstruents (cf. van Oostendorp 2019: 36–38). In general, conforming to the behavior exhibited by West Germanic languages, Middle High German complies with the sonority-based constraints (Harbert 2007: 68, 73; van Oostendorp 2019: 36), to a much larger extent than is the case in Wymysorys. In Modern Standard German, monosegmental onsets tolerate most consonants with the exception of [x], [ŋ], and [ʃ] (Fox 2005: 58).³⁸ For complex onsets, only doubles are relatively common. Two basic types can be discerned: obstruent (plosive, fricative, affricate) + liquid ([r/l]) and fricative (mostly, [ʃ]) + C (Fox 2005: 58). Specifically, the following combinations are grammatical: stop

³⁷The sonority scale depicts the increase in the relative sonority of sounds and their ‘vowel-likeness’ (Foley 1977; Clements 1990). Generally, the sonority increases from obstruents to vowels, via sonorants. A more fine-grained representation of the scale is as follows: voiceless stops > voiced stops > voiceless fricatives > voiced fricatives > nasals > l > r > glides / high vowels > low vowels (Harbert 2007: 65). This scale imposes sonority restrictions whereby, in onsets, consonants placed higher on the sonority scale may not occur before consonants placed lower on the sonority scale (ibid. 66, 68). In other words, the sonority of a syllable may not decrease from the left edge to its nucleus, but rather increases (ibid. 66, 68). Inversely, elements in codas must ‘decline in sonority toward the right edge of the syllable’ (ibid. 73).

³⁸When describing the consonant clusters in Modern Standard German in sections §3.11 and §3.12, I will often refer to Russ (1994), Wiese (1996), Hall (2000), Fox (2005), and O’Brein & Fagan (2016). It should be noted that, in their discussion of phonotactics, these authors are principally concerned with phonemes.

+ liquid/nasal/fricative; fricative + liquid/nasal; and only for ʃ, fricative + fricative/stop (Veith et al. 1980: 133; Eisenberg 1994: 356; Russ 1994: 120). The only common second segments are sonorants (Fagan 2009: 35; see also O'Brein & Fagan 2016: 66; Hall 2000: 231). Additionally, affricates may combine with a liquid or a fricative (Fagan 2009: 35, 58). Triple onsets are scarce and highly restrictive, both qualitatively and quantitatively (Kučera & Monroe 1968: 50). Only five permutations are grammatical (i.e. [skl], [skr], [ʃpl], [ʃpr], [ʃtr]), all of them of the type [s, ʃ] + stop + liquid (Fox 2005: 58; Fagan 2009: 36; cf. Hall 1992: 69; Hall 2000). Quadruple onsets are disallowed (Kučera & Monroe 1968: 50; Eisenberg 1994: 355; Fox 2005: 55; see also Wiese 1996). Onsets largely comply with the sonority scale principle (Wiese 1996: 260; Fox 2005: 60; van Oostendorp 2019: 36–37). The only common exceptions involve [ʃ] and [s] which may occur before stops (Fox 2005: 60; van Oostendorp 2019: 39–40).

Overall, consonant clusters (OC) in onsets are instantiated in Wymysorys and the two control languages. However, onset clusters are significantly longer (i.e. larger sequences are tolerated) and more varied (i.e. a more diverse set of combinations is grammatical) in Wymysorys than in Middle High German and Modern Standard German. This yields the following complexity relationships between Wymysorys and the control languages: $OC^W > OC^{MHG}$ and $OC^W > OC^{MSG}$.

3.12 Coda clusters

Wymysorys allows for elaborated and qualitatively diversified consonant codas. All consonants are allowed in monosegmental codas with the exception of [ʔ] and [h], as well as voiced plosives, due to devoicing processes operating in a word-final position. Diverse combinations are also tolerated in codas composed of two consonants, including a large set of clusters containing the affricates [tʃ] and [dʒ] and their variants (also resulting from the devoicing of /dʒ/ and /dʒ/).³⁹ Nevertheless, certain constraints operate, of which the most pervasive is the ungrammaticality of the final [j], [h], and [ʔ] as well as the avoidance of final voiced obstruents. Three-segment codas are also widely attested; however, they are only common in morphologically complex forms. Their presence in mono-morphemic (i.e. non-inflected) lexemes is in contrast limited. The most common mono-morphemic three-segment codas are: [nft], [mpt], as well as [mpl] and [ndl] in cases where the final sonorants are not syllabic. The most common combinations found in pluri-morphemic words involve [Cst] and [Cct] which tend

³⁹For example, one finds [tʃt] and [tʃst] as the first segment; and [ʃtʃ], [lʃtʃ], [nʃtʃ], [rʃtʃ]; [wʃtʃ], [lʃtʃ], [nts], [rts], [ndʒ] as the second segment (Andrason 2021).

to arise in inflected forms of verbs (e.g. in the present tense and the preterite) and adjectives (e.g. superlative), e.g. [tst], [kst], [fst], [hst], [mst], [nst], [ɲst], [wst], [ŋkt], [wtst]. Four-consonant coda are also grammatical being attested exclusively in inflected forms of verbs and adjectives. The first element is always a sonorant, the second is a stop, while the third and fourth segments are usually filled out by the cluster [st], e.g. [wdst], [lkst], [ntst], and [nkst]. Five-segment codas are generally avoided in Wymysorys. Codas typically comply with the sonority-scale principle. Common exceptions are clusters ending in a plosive and a sibilant, e.g. [ps] or [ks].

As is typical of West Germanic languages (van Oostendorp 2019: 40), in Middle High German, [h] and [ʔ] were disallowed in mono-segmental codas in a word-final position (Paul 2007: 161), as is, most likely, also true of the voiced plosives due to their final devoicing (*ibid.* 19). Bi-segmental codas were common, and a diversified set of combinations was tolerated, e.g. liquid + obstruent (including [lt]) or nasal + obstruent (cf. van Oostendorp 2019: 41–42). Codas longer than two consonants – i.e. triplets and quadruplets – usually emerge in forms that exhibit complex morphology, e.g. verbal, nominal, and adjectival inflections. The typical word-final element in complex codas are voiceless coronal obstruents as is the rule in West Germanic languages in general (*ibid.* 43–44; for various examples in Middle High German see Paul 2007: 146–175). In Modern Standard German, all consonants, except [b, d, g, v, z, j, h, ʔ], are grammatical in monosegmental codas (Fox 2005: 59; van Oostendorp 2019: 41). Two-consonant codas also show minimal restrictions and a large variety of combinations are grammatical (Eisenberg 1994: 356; Russ 1994: 124–125). Specifically, bisegmental codas cannot end in voiced obstruents, [j, h, ʔ], and voiced plosives. The allowed clusters are mostly of the four types: [l/r] + obstruent or nasal; nasal + obstruent; obstruent + [t]; and plosive + fricative (Fox 2005: 59). Codas composed of three segments are common, especially due to the presence of inflectional endings (Russ 1994: 125). However, certain important restrictions on their combinatory freedom operate as well (Fox 2005: 59; Fagan 2009: 37). The most pervasive of them is the presence of *t* or *s* in the final position (Fox 2005: 59). Four-segment codas invariably have a sonorant as their first element, and [st^h] or [t^hs] as their third and fourth elements (Fagan 2009: 37–38). Their presence within a single morpheme is extremely rare – only two lexemes are attested (Fox 2005: 59; Fagan 2009: 3; see also Hall 1992: 121). Inversely, they tend to appear in multi-morphemic forms, e.g. in inflected nouns, adjectives, and verbs (Hall 1992: 121; Russ 1994: 125; Fagan 2009: 37–38; van Oostendorp 2019: 43–44). Five-segment codas are highly problematic. There are only three inflectional forms that exhibit such combinations of sounds (Hall 1992: 121; Russ 1994: 125). For some scholars, these clusters are ‘not well formed’ (Wiese

1996: 48) being indeed ‘unpronounceable for many Germans’ (Fagan 2009: 51 referring to Hall 1992: 121). As was the case of onsets (see §3.11), codas generally conform to the sonority scale principle, a common exception being [ps] and [t^hs] (Wiese 1996: 260; Fox 2005: 60; Fagan 2009: 37).

Overall, complex codas (CC) are instantiated both in Wymysorys and the two control systems. In all three languages, coda clusters exhibit similar length and variety. These degrees of complexity of Wymysorys, Middle High German, and Modern Standard German are thus approximately equal: $CC^W \approx CC^{MHG}$ and $CC^W \approx CC^{MSG}$.

3.13 Module-global complexity

The relational complexities of Wymysorys, Middle High German, and Modern Standard German determined locally for the twelve phonetic/phonological features are recapitulated in Table 1 below. For each feature studied, relational complexity was determined in terms of equality \approx (similar), inequality \leq / \geq (minimally lower/greater), and strict inequality $< / >$ (substantially lower/greater). The evidence shows that the complexity of Wymysorys is substantially greater than the complexity exhibited by Middle High German and Standard German with regard to the features of triphthongs, nasality, consonants, palatalization, and onset clusters. With regard to the feature of vocalic sonorants and consonantal length, the complexity of Wymysorys is substantially lower than the complexities of Middle High German and High German, respectively. Lastly, with regard to aspiration, the complexity of Wymysorys is substantially lower than the complexity exhibited by Modern Standard German. In the remaining cases, the complexity of Wymysorys is equal to the complexities of Middle High German and Modern Standard German.

When analyzed globally from the perspective of the entire sound-system module, Wymysorys exhibits greater complexity than the two control systems. In comparison to Middle High German, Wymysorys exhibits greater complexity in half of the features – in the other half, the complexity of the two languages is equal. In comparison to Modern Standard German, Wymysorys also exhibits greater complexity in six features; in one feature, the complexity of Modern Standard German surpasses that of Wymysorys; in the remaining five features, the complexities of the two languages are equal. If one allocates 1 for being substantially greater ($>$), 0 for equality (\approx), and -1 for being substantially lower ($<$), the relational global sound-system complexity values (SS-COMPL) are the following: Wymysorys (+6) versus Middle High German (-6); and Wymysorys (+5) and

Table 1: Local complexity of Wymysorys in relation to Middle High German and Modern Standard German

Features	Wymysorys versus Middle High German	Wymysorys versus Modern Standard German
Monophthongs	$W \approx \text{MHG}$	$W \approx \text{MSG}$
Diphthongs	$W \approx \text{MHG}$	$W \approx \text{MSG}$
Triphthongs	$W > \text{MHG}$	$W > \text{MSG}$
Vocalic sonorants	$W > \text{MHG}$	$W \approx \text{MSG}$
Vocalic length	$W \approx \text{MHG}$	$W \approx \text{MSG}$
Nasality	$W > \text{MHG}$	$W > \text{MSG}$
Consonants	$W > \text{MHG}$	$W > \text{MSG}$
Consonantal length	$W \approx \text{MHG}$	$W > \text{MSG}$
Palatalization	$W > \text{MHG}$	$W > \text{MSG}$
Aspiration	$(?) W \approx \text{MHG}$	$W < \text{MSG}$
Onset clusters	$W > \text{MHG}$	$W > \text{MSG}$
Coda clusters	$W \approx \text{MHG}$	$W \approx \text{MSG}$

Modern Standard German (-4). Accordingly, $\text{SS-COMPL}^W > \text{SS-COMPL}^{\text{MHG}}$ and $\text{SS-COMPL}^W > \text{SS-COMPL}^{\text{MSG}}$.

It is also possible to relate the complexities of the three languages simultaneously, and thus take into account complexity relationship linking Middle High German and Modern Standard German in addition to relationships involving Wymysorys. The scale in Figure 1 below represents the relative position of the three languages. The scale is limited by two extremes: maximal score +24 (the complexity of language x is substantially greater than the complexity of languages y and z in all features) and minimal score -24 (the complexity of language x is substantially lower than the complexity of languages y and z in all features). Out of possible 24 points (12 for each comparative analysis with one of the other systems), Wymysorys scores +11 (12 >; 11 \approx ; 1 <). Middle High German scores -7 (1 >; 15 \approx ; 8 <). Modern Standard German scores -4 (3 >; 14 \approx ; 7 <). This again demonstrates the greater module-global complexity of Wymysorys if compared to the two control languages.

For some features (i.e. triphthongs, vocalic sonorants, nasal vowels, and consonantal length) the contrast between Wymysorys, Middle High German, and Modern Standard German concerns the presence of a category (distinctiveness), not only the number of the category's expression manners (economy). That is,

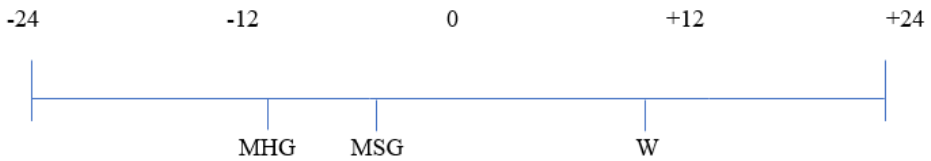


Figure 1: Relative complexity of Wymysorys, Middle High German and Modern Standard German

in one language (or two languages) a certain category is instantiated, while in the remaining one(s), it is not instantiated at all. In total, Wymysorys instantiates 11 categories (only the category of aspiration is not expressed); Middle High German instantiates 8 categories (the absent categories are triphthongs, vocalic sonorants, nasality, and most likely aspiration); Modern Standard German instantiates 10 categories (the absent categories are triphthongs and consonantal length). If, for the instantiation of each category, a language is allocated 1 point, Wymysorys scores 11, Middle High German 8, and Modern Standard German 10 – Wymysorys being thus more complex than the control languages.

As explained in section 2, the estimation of module-global complexity is always problematic due to the issue of commensuration and the availability of various manners of combining local complexities. Therefore, the converging results of the three complexity measurements of the sound-system module used in this section – which all identify Wymysorys as the most complex among the analyzed languages – demonstrate that Wymysorys’ greater complexity score is not accidental or theory-driven. It is thus very likely that the sound system of Wymysorys is *objectively* more complex than the two control languages.⁴⁰

4 The origin of the surplus

Having established that as far as the sound system is concerned, the global complexity of Wymysorys is greater than the complexity of Middle High German and Modern Standard German, I will determine whether this complexity surplus exhibited by Wymysorys is attributable to contact with Polish. First, the source of the complexity surplus found in seven features will be analyzed: triphthongs,

⁴⁰Since the absence of a category has more far-reaching systemic effects than the distinct numbers of encoding manners, one could arguably give even more weight to the complexity of those languages where a category is present. Since the complexity hierarchy of the three languages would remain the same, this would have no important bearings on the result of my study.

vocalic sonorants, nasality, consonants, consonantal length, palatalization, and onset clusters (§4.1–§4.7). This will subsequently allow me to determine the surplus’ origin from a global perspective (§4.8).

4.1 Triphthongs

Currently, the vocalic system of Polish contains only short monophthongs.⁴¹ Inversely, syllables may not exhibit complex nuclei, and thus long vowels, diphthongs, and triphthongs (Gussmann 2007: 181; see also Strutyński 1998: 59–60, 72, 74; Jassem 2003: 105–106; Sussex & Cubberley 2006: 154, 156; see however Wągiel 2016). At previous diachronic stages, specifically between the 10th and the 15th century, Polish did exhibit long vowels. Vocalic length was however lost in the 16th century (Długosz-Kurczabowa & Dubisz 2006: 132, 136–137). Although absent at a phonemic level, diphthongs emerge in Polish due to nasalization processes (Wągiel 2016: 53, 62–64, 83)⁴² and also exist in dialects (Dejna 1973; Bąk 1997). Sometimes, sequences composed of a vowel and the approximants [j] or [w] are analyzed as diphthongs (Jassem 1973; Demenko 1999; Wągiel 2016: 81–83). In any case, neither presently nor at its previous developmental stages, Polish possessed true triphthongs. As a result, the presence of triphthongs in Wymysorys cannot result from contact with Polish.⁴³

4.2 Vocalic sonorant

Although Polish admits sequences with ‘trapped’ sonorants, in which a sonorant is enclosed between two elements of lower sonority, typically two obstruents, e.g. [drg] *drgać* ‘vibrate’ (Kijak 2008: 62, 66), it fails to possess true syllabic sonorants. This contrasts with the situation attested in other (neighboring) Slavonic languages where sonorants used in the above-mentioned sequences tend to exhibit a syllabic status (Sussex & Cubberley 2006; Kijak 2008: 66; see the absence of syllabic sonorants in discussions of Polish phonetics and phonology, e.g. Strutyński 1998, Jassem 2003, Gussmann 2007, and Wągiel 2016). As a result, the presence of vocalic sonorants in Wymysorys cannot be attributed to Polish influence.⁴⁴

⁴¹These vowels are /i, i/ɤ, u, e, a, o/. Often, [i/ɤ] and [i] are considered allophones of a single phoneme (Sussex & Cubberley 2006: 154, 156).

⁴²Alternatively, the emergent nasal components are analyzed as approximants (Gussmann 2007).

⁴³One should note that, although absent in Modern Standard German (see section §3.3), triphthongs are attested in the West Germanic family, e.g. in Bavarian German and High Alemannic varieties.

⁴⁴On the other hand, syllabic sonorants are also relatively common in various varieties of (Modern Standard) German (see section §3.4) and in other Germanic languages.

4.3 Nasality

Nasality is a prominent feature of the Polish sound system. Polish has two nasal phonemes *q* /ɔ/ and *ę* /ɛ/ (Urbańczyk 1991: 297–298; Rothstein et al. 1993: 659; Bloch-Rozmej 1997; Gussmann 2007; Wągiel 2016: 88, 100). In addition to those two phonemes, which are usually realized as [ɔ] and [ɛ], Polish contains a large number of nasal vowels at a phonetic level, e.g. [ĩ], [ã], [ũ], and [i/ə] (Bloch-Rozmej 1997: 95; Strutyński 1998: 58–59, 61, 72). Overall, for every oral vowel, there is a nasal equivalent used in certain environments (Urbańczyk 1991: 298).⁴⁵ As a result, nasality is viewed as a key phonological and phonetic category in Polish (Bąk 1997; Strutyński 1998: 77; Gussmann 2007: 269–287; Wągiel 2016).⁴⁶

Contrary to Polish, nasal vowels do not constitute a prominent feature in the phonetics and phonology of continental Germanic languages (see their absence in general works on the Germanic family, e.g. Harbert 2007 and Jacobs et al. 1994).⁴⁷ In West Germanic and German varieties, nasal vowels are generally restricted to loanwords, often allowing for an alternative oral pronunciation (Russ 1994: 78, 108; Fagan 2009: 9; Caratini 2009: 51, 73–74). German dialects in which nasality is more prominent are: Swabian (an Upper German, Alemannic dialect), Pfälzisch (*Pfälzisch*) or Palatine German (van Ness 1994: 423; Stevenson 1997: 71; Niebaum & Macha 1999: 197), and the dialect of Luzern (Bacher 1905: 179). Secondary nasal vowels are also found in Yiddish (Weinreich 2008: 583–585, Addendum 606; Herzog et al. 1992: 19–20, 41; Jacobs et al. 2005: 97–99) and Frisian (Hoekstra & Tierstna 1994: 508).⁴⁸

Although nasality is present in the Germanic family, being a common phonetic process from a cross-linguistic perspective, its emergence in Wymysorys most likely stems from Polish influence. Indeed, nasal vowels appear most commonly and most consistently in Polish loans. This complies with the origin of nasality in Yiddish where its presence is attributed to Slavonic influence (Weinreich 2008: 583–585).⁴⁹

⁴⁵Such environments are: /n/ + /fricative/ and /m/ + /f, v/ (Urbańczyk 1991: 298).

⁴⁶In a careful Standard Polish speech, the realization of nasality is asynchronous (Urbańczyk 1991: 297–298; Bąk 1997). This gives rise to the emergence of nasal approximants such as [w̃], [ũ], and [j̃] (Rothstein et al. 1993: 660; Gussmann 2007: 270–271). In colloquial speech, nasal vowels often resolve into oral vowels and nasal consonants (Rothstein et al. 1993: 659; Bąk 1997; Rubach 1977; Rowicka & van de Weijer 1992; Bloch-Rozmej 1997: 84–86; Gussmann 2007: 271).

⁴⁷The exception is a chapter dedicated to Old Icelandic (Þráinsson 1994: 147).

⁴⁸Nasality is more consistently present in peripheral languages: Surinam Dutch (DeSchutter 1994: 444), Afrikaans (Donaldson 1994: 481), and – albeit rather as an archaism used by older speakers – Pennsylvania German (van Ness 1994: 423).

⁴⁹Note also that continental German varieties where nasality is more visible (e.g. Pfälzisch/Palatine and Luzern) are usually spoken in areas adjacent to languages containing prominent nasal vowels, in particular French.

4.4 Consonants

Polish has a large and diversified set of consonants. The basic consonantal inventory consists of 41 sounds: 38 consonants and 3 approximants [j, w, wʲ] (Bąk 1997; Strutyński 1998: 74; Jassem 2003; Gussmann 2007: 3–8). This set is often expanded to nearly fifty due to the inclusion of voiceless sonorants [ɱ, ɲ, ɺ, ɽ] and a voiced velar [ɣ] (Gussmann 2007: 4). With the incorporation of palatalized consonants and the approximant [ɥ], the maximal system ascends to nearly seventy consonants (Strutyński 1998: 54, 72–73). Crucially, the consonants that are absent in Middle High German and Modern German but that currently feature in Wymysorys are all found in Polish too. This includes: (a) laminal alveolo-palatal ([ɕ], [ʒ], [tɕ], and [dʒ]) and postalveolar sibilants and affricates ([ʃ], [ʒ], [tʃ], [dʒ]) (Hamann 2004, 2003, cf. also Karaś & Madejowa 1977; Gussmann 2007: 75–78);⁵⁰ (b) alveolo-palatal nasal [ɲ] (Jassem 2003: 104; alternatively transcribed as a palatal [ɲ]); (c) a series of other palatal(ized) consonants (see section §4.7; Rothstein et al. 1993: 687–690; Strutyński 1998: 38, 42–44, 54; Sussex & Cubberley 2006: 165–166; Gussmann 2007: 4–7); and (d) labialized velar approximant [w] (Jassem 2003; Strutyński 1998; Gussmann 2007).

With regard to soft and hard sibilants and affricates, contact with Polish seems to be the direct and sole factor responsible for their introduction to Wymysorys (Żak 2016; Andrason 2014b, 2014a, 2015, 2021). This can be inferred from the absence of those two series in West Germanic languages, on the one hand, and their particular stability in Wymysorys in lexical borrowings from Polish, on the other hand.⁵¹ For the remaining types of consonantal surplus, Polish seems to have (significantly) strengthened and/or accelerated tendencies that are typologically common and that had operated (at least marginally) language- or family-internally.

Although the presence of the alveolo-palatal nasal [ɲ] may partially be attributed to the Polish influence, being evident in a large number of Polish loan-

⁵⁰The sounds of the ‘hard’ series are defined – especially by Polish scholars – as postalveolars and represented by [ʃ], [ʒ], [tʃ], [dʒ] (cf. Biedrzycki 1974; Spencer 1986; Dogil 1990; Jassem 2003; and Gussmann 2007; see also Stieber n.d.; Rospond 1971; Wierzychowska 1980). The same class has also been viewed – mostly by Anglo-Saxon and German researchers – as retroflex, the respective sounds being transcribed as [ʂ], [ʐ], [tʂ], and [dʐ] (cf. Keating 1991; Ladefoged & Maddieson 1996; Padgett & Zygis 2003; Hamann 2003 and 2004). While the former notation suggests a partially palatalized sound, the latter implies that the tongue shape is concave and apical or subapical. The actual realization of these consonants is, however, neither palatal(ized) nor fully retroflex, but rather laminal and flat – their closest IPA equivalents being [ʃ], [ʒ], [tʃ], and [dʒ] (cf. Hamann 2003).

⁵¹However, the two series of sibilants and affricates are not restricted to the vocabulary borrowed from Polish. They can also be used in genuine Germanic lexemes.

words, in which the original sound [n] is rendered as such, it seems to coincide with language-internal processes. In genuine Wymysorys vocabulary, [n] typically derived from *ń* [ɲ^j] (itself a reflex of an original cluster *ng/nc* [ɲ]) or arose in cases where *n* was followed by palatal sounds *i*, *j*, or *ć* (Andrason 2021). The palatalization of the velar nasal [ŋ] to [ɲ^j] constitutes a recurrent cross-linguistic tendency. It occurred in the Szynwałd/Bojków (Schönwald) dialect, closely related to Wymysorys, which suggests a dialectal – family-internal – development (cf. Gusinde 1911: 98–99). Even though articulatory proximity may motivate the development from [ɲ^j] to [n], this change occurred only after World War II, coinciding with the increased presence of the Polish language in Wilamowice (see that it was still written *ń* by Kleczkowski 1920 and Mojmir 1930). The palatalization of *n* in palatal contexts, which had already taken place before the war (Kleczkowski 1920), is a common cross-linguistic phenomenon. Strong palatalization tendencies affecting *n* operated in Eastern diphthongized Silesian dialects, sometimes even more widely than in Wymysorys (Waniek 1880: 32, 41; von Unwerth 1908: 39–40; Gusinde 1911: 96–98, 115, 144; Andrason 2021).⁵²

Similarly, the presence of other palatal sounds in Wymysorys may be attributed to Polish influence as well as language- and family-internal processes. That is, Polish might have fortified palatalizing tendencies that were already operating in the Wymysorys language and its Silesian relatives. As a result, the visibility of palatal(ized) consonants was intensified, their central status in the phonetic and phonological system was established, and new palatalization rules were introduced to those already operating (see section §4.6).

The development of the labialized velar approximant [w] from the velarized alveolar lateral approximant [ɮ] has also resulted from two drifts: language-external and language-internal (Andrason 2014b, 2015, 2021; Żak 2019). Polish has significantly intensified and perhaps accelerated the process whose foundations were already in place (for a similar view consult Selmer 1933: 234). On the one hand, the change seems to imitate an analogous development operating in Polish, i.e. the replacement of [ɮ] by [w], known under the term *walczenie*. The process appeared in Polish dialects in the 16th and 17th century. At the turn of the 19th and the 20th century, it spread beyond dialects to the standard language, where it became the norm in the second half of the 20th century (Urbańczyk 1991: 372; Gussmann 2007: 28).⁵³ Chronologically, the change of [ɮ] to [w] in Wymysorys

⁵²It also took place in cases where *n* appeared after a short vowel and before dental consonants – compare *k'ent'* 'children' in Szynwałd/Bojków with *kynt* in Wymysorys (Gusinde 1911: 98; Kleczkowski 1920: 116) – contrary to Polish.

⁵³Currently, the pronunciation of *ł* as [ɮ] is perceived as 'an affectation' (Gussmann 2007: 28). More regularly, it occurs only in east-southern dialects (Dubisz et al. 1995: 146; see also Nitsch 1957: 46–47; Żak 2019).

coincides with the period of the full generalization of [w] in Standard Polish, which is also the time where the Polonization of Wilamowice increased substantially. On the other hand, the development of [ɪ] to [w] is found in other Central East (colonial) German varieties. It was, for example, attested in Lower Silesian and diphthongized Silesian dialects (von von Unwerth 1908: 35; Gusinde 1911: 105; Selmer 1933: 233–234). In the Szywna/Bojków dialect, it had been established by the beginning of the 20th century (Gusinde 1911: 104–105; Kleczkowski 1920: 125, 161–162).⁵⁴ The same process could thus have been carried on in Wymysorys. Furthermore, the development of [ɪ] into [w] has occurred in other members of the Germanic family: varieties of Swiss German dialects, Thuringian dialects, Lusatian dialects, East-Low German dialects, Franconian dialects, and Low Franconian dialects (Selmer 1933; Besch et al. 1983: 1111–1112; Leemann et al. 2014).⁵⁵ It is indeed common from a cross-linguistic perspective, featuring not only in Slavonic and Germanic, but also in Romance and other language phyla (Žak 2019).

4.5 Consonantal length

Polish contains geminated or long consonants. They occur in an intervocalic and word-initial position (Gussmann 2007: 241; Wągiel 2016: 82). Since a number of minimal pairs may be identified, geminated consonants play a phonemic role, at least peripherally (Wągiel 2016: 82).

Length is a pervasive – both synchronically and diachronically – feature of Germanic languages (Harbert 2007: 74–79). Geminate consonants arose in old and medieval Germanic languages, both in the Northern and Western branches, where they acquired a systemic relevance (ibid. 74–75). Subsequently, various languages underwent changes and long consonants have often been simplified (Lass 1992; Harbert 2007: 75–78). This degemination is visible in the development from Middle High German to Modern Standard German and many other West Germanic languages (ibid. 76–78; Schmidt 2017). In modern languages, only North Germanic exhibits genuine long consonants (Harbert 2007: 78–79).

Rather than deriving directly from contact with Polish, the consonantal length in Wymysorys most likely constitutes an inherited Germanic property, as it ex-

⁵⁴However, as in Wymysorys, the change that took place in Szywna/Bojków is attributed to Polish influence; specifically, to the Polish Silesian variety used in the Upper Silesian coal basin and industrial region, where [ɪ] had earlier developed into [w] (Nitsch 1909: 156; Gusinde 1911: 104–105; Kleczkowski 1920: 126).

⁵⁵Often, however, the vocalic pronunciation of *l* in German varieties is regarded as influenced by Romance and Slavonic languages (Selmer 1933: 235–238, 243).

isted in Middle High German – the diachronic source of Wymysorys. The Polish language could however have contributed to the maintenance of long consonants, thus preventing the developments that have taken place in many other modern West Germanic languages and German varieties.

4.6 Palatalization

Polish exhibits various types of palatalizing processes and a wide range of palatalization-based oppositions. Polish has been viewed as one of ‘the most highly palatalized’ languages in the entire Slavonic branch (Sussex & Cubberley 2006: 165), the one that attests to ‘a more advanced state of [...] palatalization than any of the other’ members of this language family (*ibid.*). Indeed, the contrast between palatal(ized) consonants and non-palatal(ized) consonants – generally referred to as ‘soft’ and ‘hard’ respectively (Urbańczyk 1991: 244; Strutyński 1998: 43–44) – underpins not only the sound system of Polish but also the language’s morphology. Crucially, for all consonants, there is a corresponding palatal(ized) consonant, either at a phonemic or a phonetic level (Rothstein et al. 1993: 687–690; Sussex & Cubberley 2006: 165–166; Gussmann 2007: 4–7).⁵⁶

Although certain types of palatalization have operated in the Germanic family, and palatal(ized) sounds feature relatively prominently in Dutch, Frisian, and Afrikaans (Hoekstra & Tierstna 1994: 529; Donaldson 1994: 482; van der Hoek 2010), as well as in Icelandic and Faroese (Barnes & Weyhe n.d.: 193–195; Harbert 2007: 48–49), palatalization is not as essential a component of the Germanic sound system as, for example, aspiration. Its role in the phonetics and phonology of West Germanic languages is certainly less fundamental than is the case of Slavonic languages (see Harbert 2007: 48–49). Crucially, German (see section §3.9) and most of its dialects fail to exploit palatalization and palatal(ized) consonants to an extent that would be comparable to that attested in Polish (and in Wymysorys). As attested at the beginning of the 20th century, German dialects exhibited a slightly more palatalization-oriented character than Standard Modern German (von Unwerth 1908: 38–40, 53–54, 60, 71).⁵⁷

Given the peripheral status of palatalization in German varieties and West Germanic languages in contrast to its central position in Polish and Slavonic languages, it is highly probable that the extensive use of palatal(ized) consonants in

⁵⁶For an exhaustive list of hard and soft consonants consult Strutyński (1998). The phonemic status of palatal(ized) consonants is related to the status of the vowels *i* and *y* (*ibid.* 77–78; Sussex & Cubberley 2006: 167). Regarding phonological and morphophonemic aspects of palatalization in Polish see Gussmann (2007).

⁵⁷Apparently, the strongest palatal effects were found in diphthongized dialects, to which Wymysorys belonged.

Wymysorys and the central position of palatalization in its phonetic and phonological system, may be attributed to contact with Polish (see a similar conclusion in Kleczkowski 1920: 15 and Żak 2016: 136). This proposal is consistent with the scenario posited for Yiddish which acquired a wide array of palatal(ized) consonants most likely under the influence of Slavonic languages (Jacobs et al. 1994: 394; Harbert 2007: 26). Furthermore, two types of palatalizing processes seem to have been transferred directly from Polish, being absent in other colonial Central East German varieties: (a) the regressive palatalization, i.e. a palatal(ized) pronunciation of consonants due to the presence of subsequent front vowels (contrary to the progressive palatalization typical of Silesian German; see next paragraph) and (b) a palatalizing process analogous to the so-called fourth palatalization, i.e. the development of *ky/ke* [k] and *gy/ge* [g] into *ki/kje* [c] and *gi/gje* [ɟ], respectively (Żak 2016: 136; see Dejna 1973: 124–129; Urbańczyk 1991: 244; Długosz-Kurczabowa & Dubisz 2006: 146–147).

However, although Wymysorys and Polish currently exhibit similar sets of palatal(ized) consonants and the regressive palatalization operates both in Wymysorys and Polish, the two systems are not identical. The most relevant difference pertains to the manner with which various palatal(ized) consonants emerged. In genuine Wymysorys vocabulary, the palata(ized) realization of the consonant was – and still often is – conditioned by the vowel that precedes it (Kleczkowski 1920: 125) rather than by the vowel that follows, which is typical of Polish. The same principle governed palatalization in all Silesian German dialects thus revealing a firm family-internal tendency (von Unwerth 1908: 71).⁵⁸

Overall, Polish might have fortified palatalizing tendencies that were already operating in the Wymysorys language and its Silesian relatives. As a result, the visibility of palatal(ized) consonants was intensified, their central status in the phonetic and phonological system was established, and new palatalization rules were added to those already existing.

4.7 Onset clusters

Polish exhibits rich phonotactics, tolerating complex consonant clusters in onset positions (Gussmann 2007; Zydorowicz 2010: 567; Dziubalska-Kołaczyk & Zydorowicz 2014; Zydorowicz & Orzechowska 2017: 101) – a property that is characteristic of the Slavonic family, in general (Sussex & Cubberley 2006). Given that

⁵⁸In a further contrast to Polish, in Silesian German – including the variety of Szywnald/Bojków – palatalization operated spontaneously before a dental consonant, either plosive, nasal, or lateral (von Unwerth 1908: 38–39, 68–69; Gusinde 1911: 98).

both the length of clusters and the number of combinations is “impressive” (Zydorowicz & Orzechowska 2017: 101), Polish is considered as “one of the most permissive languages” as far as phonotactics are concerned (Kijak 2008: 62). With regard to length, onset clusters tolerate maximally four elements (Zydorowicz 2010: 565; Dziubalska-Kołaczyk & Zydorowicz 2014; Zydorowicz & Orzechowska 2017: 98). With regard to combinatority, 231 types of doubles, 165 triples, and 15 quadruples are found in onsets in Polish (Bargielówna 1950; Zydorowicz 2010: 565–567; Zydorowicz & Orzechowska 2017: 107–108). The richness of Polish phonotactics is not only quantitative but also concerns the qualitative properties of clusters. That is, Polish allows for onset clusters that exhibit falling sonority profiles (e.g. [rt]) and clusters with unchanged sonority values (the so-called plateau clusters; e.g. [fsx-]) in addition to those whose sonority is rising (e.g. [tr]) (Dukiewicz 1980; Zydorowicz & Orzechowska 2017: 104). Accordingly, sequences that are ‘ill-formed’ from the perspective of the sonority scale (e.g. [rt], [rdz], [pstr]) are often tolerated (Zydorowicz & Orzechowska 2017: 104).

Even though onset clusters in Germanic languages can be complex (Harbert 2007; van Oostendorp 2019: 33), their complexity is lower than in Polish and Slavonic languages (cf. Kučera & Monroe (1968) who contrast German with Russian and Czech). Overall, only bi- and tri-segmental clusters are allowed in onsets (van Oostendorp 2019: 34–36). Even biconsonantal onsets, the most permissive ones, exhibit various combinatory restrictions (Harbert 2007; van Oostendorp 2019). For instance, onsets with a glide as their second element, onsets composed of sibilants and voiced obstruents, and the clusters [tl] and [dl] are generally disallowed (van van Oostendorp 2019).⁵⁹ The most permissive language as far as phonotactics are concerned, is Yiddish (ibid.) – likely due to Slavonic influence. Three-segmental onsets are even more restricted and mainly appear with [s] and [ʃ] as the first element. With a few exceptions involving [s] and [ʃ], two- and three-consonant onsets must comply with sonority hierarchy (Harbert 2007: 68, 73; van Oostendorp 2019). This compliance is larger than what one observes in Polish.

The greater qualitative and quantitative restrictions exhibited by onsets in Germanic languages than is the case in Polish, as well as the fact that the most complex Wymysorys onsets appear in Polish loanwords suggests the contact-induced increase in the complexity of onsets in Wymysorys.

⁵⁹In contrast, all of these onset clusters are allowed in Polish.

4.8 Module-global perspective

The discussion in section §4.1–§4.7 suggests that most of the surplus of complexity exhibited by Wymysorys in the sound-system module can be attributed to contact with Polish. In case of four features (i.e. nasalization, consonants, palatalization, and onset clusters) contact with Polish is the principle reason for the complexity attested, although in some instances, enhancing the (more or less visible) tendencies already operating at a language- or family-internal level. In case of one feature (i.e. consonantal length), the Polish influence is secondary – it is the family-internal genetic drift that is the primary factor motivating the complexity surplus observed. Lastly, in case of two features (i.e. triphthongs and vocalic sonorants), Polish has not contributed, even minimally, to the complexity surplus exhibited by Wymysorys.

Although contact with Polish has most likely contributed to the complexification of Wymysorys, it is also responsible for its simplification in certain aspects. As explained in section §3.10, in Germanic, the distinction between /p, t, k/ and /b, d, g/ involves primarily the feature of tenseness (Jessen 1998) or spread glottis (Harbert 2007: 44). Its typical acoustic effect is aspiration (Iverson & Salmons 1995, 1999, 2003, Iverson & Salmons 2008; Harbert 2007: 44). Indeed, the spread-glottis principle – referred to as Germanic enhancement (Iverson & Salmons 2003: 44) – with aspiration effects one of the fundamental and ‘inherent’ rules governing the sound system of Germanic languages. It has been operating since the development of the proto-language, being responsible for a series of changes and developments (Iverson & Salmons 2003: 44, Iverson & Salmons 2008: 2–4). The spread-glottis principle and aspiration are absent in Wymysorys. This absence is most likely due to interaction with Polish where tenseness and aspiration have never operated. Overall, however, the contribution of contact with Polish to the complexity of Wymysorys is by far more positive than negative.

5 Conclusion

This contribution demonstrates that Wymysorys – a severely endangered moribund minority language – exhibits remarkable complexity. Therefore, its severe endangerment and moribund status are not correlated with structural simplicity – at least, in the variety used by fluent speakers.⁶⁰ The surplus of complexity is

⁶⁰As explained in section 1, the semi-speakers of Wymysorys, who did not learn the language properly in intergenerational transmission and rarely (if ever) use it, exhibit radical simplification and impoverishment. However, they have no bearing on general language use, the transmission of Wymysorys to the younger generations, and the language’s structure overall.

largely attributable to the transfer of elements from the dominant and/or aggressive code, Polish. This confirms the view of language contact as not only having simplifying effects on languages, but also as contributing to their complexification – even in the situation of seemingly imminent language death.

The analysis of local complexities pertaining to diverse phonetic/phonological features (monophthongs, diphthongs, triphthongs, vocalic length, vocalic sonorants, nasality, consonants, consonantal length, palatalization, aspiration, onset and coda clusters) and their subsequent combination into a global relational value demonstrate the following: (a) locally, the complexity of Wymysorys is typically superior or equal to that of Middle High German and Modern Standard German; (b) module-globally, the complexity of Wymysorys is greater than the overall complexity of Middle High German and Modern Standard German; (c) both locally and globally, the surplus of information exhibited by Wymysorys – and, thus, the positive difference in complexity when compared with the two control languages – can, in its largest part, be attributed to the contact with Polish. That is, by assimilating various Slavonic properties, and simultaneously maintaining its inherited or internally developed Germanic traits, the sound system of Wymysorys is richer than the systems of its mother and sister languages.

While this research only demonstrates the contact-induced complexification of the sound-system module of Wymysorys, it is likely that a similar increase in complexity would be observed in other modules, whether morphology, syntax, or vocabulary. The likelihood of such complexifications is motivated by the general trend exhibited by Wymysorys, namely the simultaneous maintenance of the Germanic foundation and its enhancement by Polish elements – a trend that goes beyond accidental complexity fluctuations (Andrason 2021). However, since in any given language, the complexities of different modules generally need not coincide, this hypothesis must be verified.

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