The pure vowels (monophthongs) of Wilamowican – spectral characteristics

1. Existing descriptions

There are no acoustic descriptions of Wilamowican vowels in the literature. The two main sources on the phonetics and phonology of Wilamowican – Kleczkowski (1920) and Ritchie (2012) (which is based on the former) contain impressionistic descriptions (made "by ear") and largely focus on phonology and its relationship with orthography. As a result, this sketch is essentially the first acoustic study.

According to the above-mentioned sources, the Wilamowican vowel system is composed of nine monophthongs (pure vowels) – /i ɨ ʏ e ø a ɑ ɔ u/ – and six diphthongs (vowel glides) – /ɪə yø eɪ øə aɪ ɔy/ (Ritchie 2012: 34). Table 1 (after Ritchie 2012: 34) shows the relationships between pronunciation as shown in an IPA transcription suggested by Ritchie and Król's (2011) spelling. The usage convention for <å> and <a> is worth noting. It can be somewhat misleading for people familiar with Scandinavian languages, since both of the letters denote sounds in the [a] region, but <å> denotes a vowel that is more front. The remaining elements of Król's orthography are a mixture of elements that are Polish (e.g. <y> for /ɨ/) and German (e.g. <ö>, <ü>). Of course, this is not surprising in view of the sociolinguistic situation of Wilamowican.

Table 1. Wilamowican vowels (after Ritchie 2012: 34).

Sound (IPA)	Król's spelling (2011)
i	i
ɨ	y
ʏ	ü
e	e
ø	ö
a	å
ɑ	ɑ
ɔ	o
u	u

Sound (IPA)	Król's spelling (2011)
ɪə	jy
yø	iö
eɪ	ej
øə	öe
aɪ	åj
ɔʏ	oü

Assuming vowel qualities close to the so-called "cardinal vowels", the vowels can be represented on a traditional vowel quadrilateral as shown in Fig. 1. It must be noted that the positioning of the vowel /ɨ/ does not correspond to the quality assigned to the symbol in the "cardinal vowel" system of the International Phonetic Association (IPA), where the symbol is used for a high central vowel. For Polish, /ɨ/ is usually described as front centralized mid-high vowel; this is the quality given in Fig. 1.

2. General characteristics

This relatively rich system has a generally Germanic character, even though – when compared to the system of Modern German – there are fewer monophthongs and more diphthongs; most probably vowel duration (length) is not distinctive (although Kleczkowski [1920] discusses some duration is-

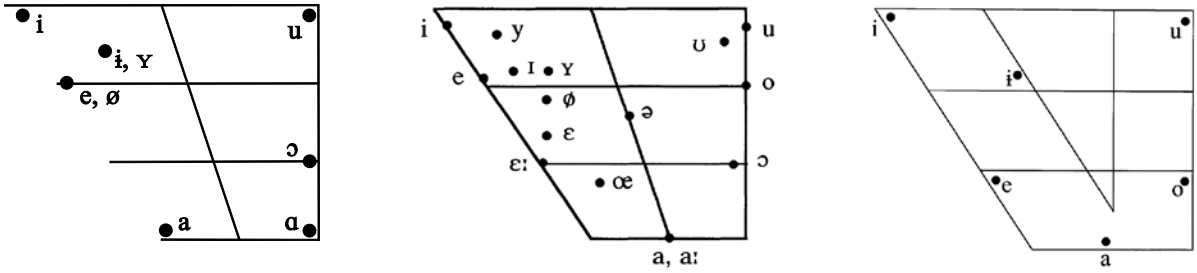

Fig. 1. The vowel quadrilateral for Wilamowicean (left) on the basis of Ritchie's (2012) transcription. For comparison: Standard German (centre, Kohler 1999: 87) and Polish (right, Jassem 2003: 105).

sues). There are front rounded vowels in the system (which is one of the characteristic features of Germanic languages).

The questions of length is particularly interesting. Simplifying slightly, two extreme situations may be identified among Germanic languages as far as modern realization of vowel length is considered. In some languages – e.g. Danish – long and short vowels may form "pairs". For one vowel quality, there may be a long and a short vowel that are very similar in timbre, e.g. long /aː/ in *bane* /baːnə/ and short /a/ in *bande* /banə/. In such cases, the contrast is really based on physical length.

At the other end of the spectrum, length as such is not contrastive, and vowels differ only in quality; Dutch, and in particular Afrikaans are the best examples. For instance, the contrast between Dutch /i/ and /ɪ/ is similar to that between Polish /i/ and /ɨ/ (e.g. in *mi – my*): it is not based on physical length but on quality. The usual situation is for historically long vowels to be more "peripheral", and for historically short vowels to be "centralized" (like in the example above). Another possibility is for the historically long vowel to become diphthongized: for example, the historically long Dutch /eː/ is realized as [ei] in the modern dialects of western Holland, and the Afrikaans reflex is /iə/.

Most Germanic languages are somewhere in the middle of this continuum, i.e. vowel contrasts use both quality and length. Length may also be employed allophonically (i.e. not to realize phonemic contrasts). Modern German is one example here.

Wilamowicean seems to be quite firmly placed among those Germanic languages that base vowel contrasts on quality; for this reason, knowing the spectral characteristics of its vowels is very important. It must be noticed that Wilamowicean pure vowels (monophthongs) mainly correspond to "short" vowels in cognate languages. Whether this should be understood as a simplification of a German-like system remains an open question. If so, it is also unclear whether one of the factors leading to such a simplification has been the continuous and extensive contact with Polish (a language lacking length distinctions) and the widespread bilingualism of Wilamowice natives. The diphthong system is quite complex, and their relationships with the vowels of cognate languages are rather complicated.

3. Methods

Two recordings were selected from among the materials gathered for the present project. One of the speakers was female, and the other – male. Based on transcripts of the contents using Król's (2011) spelling, all analysable pure vowels in stressed syllables located no closer than two syllables from the end of the intonational phrase were marked in Praat. Next, measurements of the first two formants were taken from each vowel. The resulting measurements, expressed in Hz (without normalization)

are plotted below on standard charts showing the relationship between the first and second formant (F1 and F2). The charts are oriented so as to match the standard vowel quadrilateral (system origin at upper right, F1 on the Y axis). Thus, the charts can be interpreted (with some reservations) to show close vowels at the top and open vowels at the bottom; and front vowels on the left with back vowels on the right. You can find an introduction to acoustic description of vowels in a separate file available from the project's website.

4. Results

Speaker RH is a woman aged 82. The recording used for the analysis contained spontaneous speech – a description of Wilamowice. In general, the vowel system corresponds well to the existing descriptions. There is clear separation between /i/ and /ɨ/ (the latter is shown using the symbol <y> on the chart, similar to Król's [2011] spelling). In turn, /e/ is slightly closer than mid. The front rounded vowels /ʏ ø/, marked as /ue oe/ in the chart, show the typical apparent centralization which is an effect of lip rounding. For this speaker, there is probably very little difference in the quality of the vowels /ɑ ɔ/ (shown as /ao o/ in the chart) – most probably, the contrast is based on a slightly stronger lip rounding in /ɔ/ (although informally, on the basis of the auditory impression, one could say that /ɑ/ is also rounded). Both vowels are mid back. /u/ is in a typical high back position, while /a/ is central (neither front nor back).

Speaker JG is a man aged 83. The recording used for the analysis contained spontaneous speech – informal comments on various topics. Here, too, /ɨ/ does not show too much centralization. The vowel /e/ is relatively more open than for speaker RH, resulting in a rather large area between /e/ and /a/ that is phonetically "barren"; this can be seen even in the chart showing individual measurements. The vowel /ʏ ø/ show typical apparent centralization. The most significant difference between JG and RH is the preservation of the contrast between /ɑ/ and /ɔ/ in JG. For JG, /ɑ/ is relatively high (mid) and slightly rounded while /ɔ/ is noticeably higher (mid close). His /u/ is high back, and /a/ – central or slightly behind central.

In both cases, one could venture minor corrections to the phonetic transcription suggested by Ritchie. Firstly, the vowel /ɨ/ for both speakers is more or less on the line from /i/ to /a/ which also passes through /e/. If one wished to apply the conventions of the International Phonetic Association (IPA) strictly, the symbol /ɪ/ would probably be better; it is used in similar configurations in the phonemic transcriptions of e.g. German, Dutch and English. The symbol /ɨ/ suggests a high central vowel; even its use for the Polish vowel represented as <y> in regular Polish spelling is debatable.

Secondly, both speakers demonstrate some lip rounding for /ɑ/ which is not fully open. In this case, the argument is stronger than for /ɨ/. In an IPA-based transcription, at least /ɒ/ should be used – a symbol denoting a rounded open back vowel. Notably, it is used in the transcription of many varieties of English (in particular British English) for vowels that are not fully open. One could even imagine an argument in favour of /ɔ/, but that would require the symbol /o/ for the vowel shown as <o> in regular spelling.

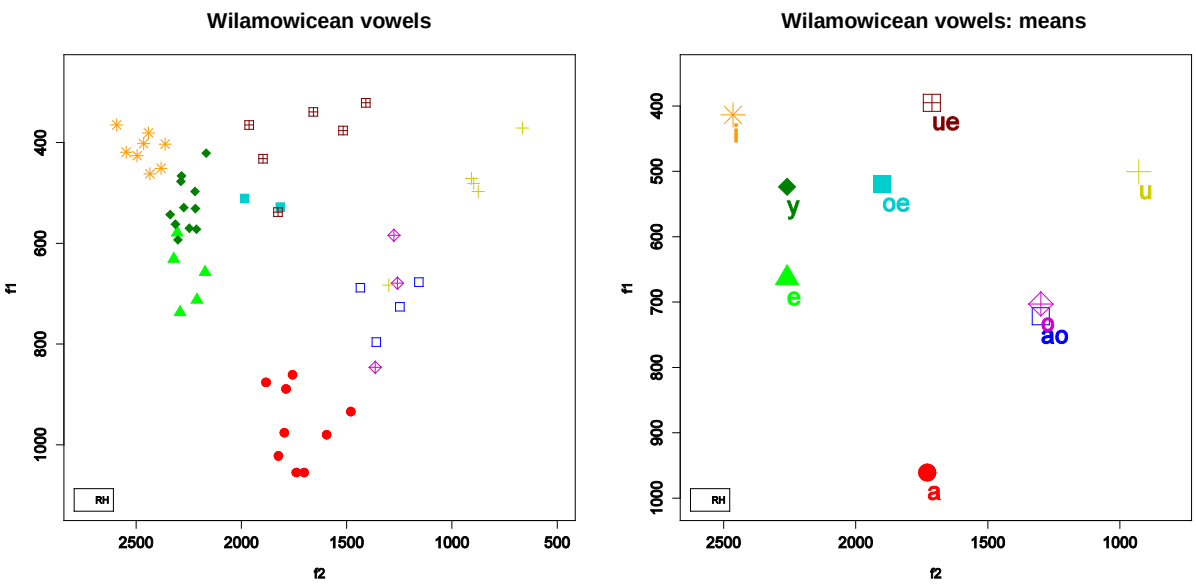

Fig. 2. Wilamowican vowels in speaker RH. Left: individual measurements, right: means for each vowel. Transcription conventions: /ɨ/ = y; /ʏ/ = ue; /ø/ = oe; /ɑ/ = ao.

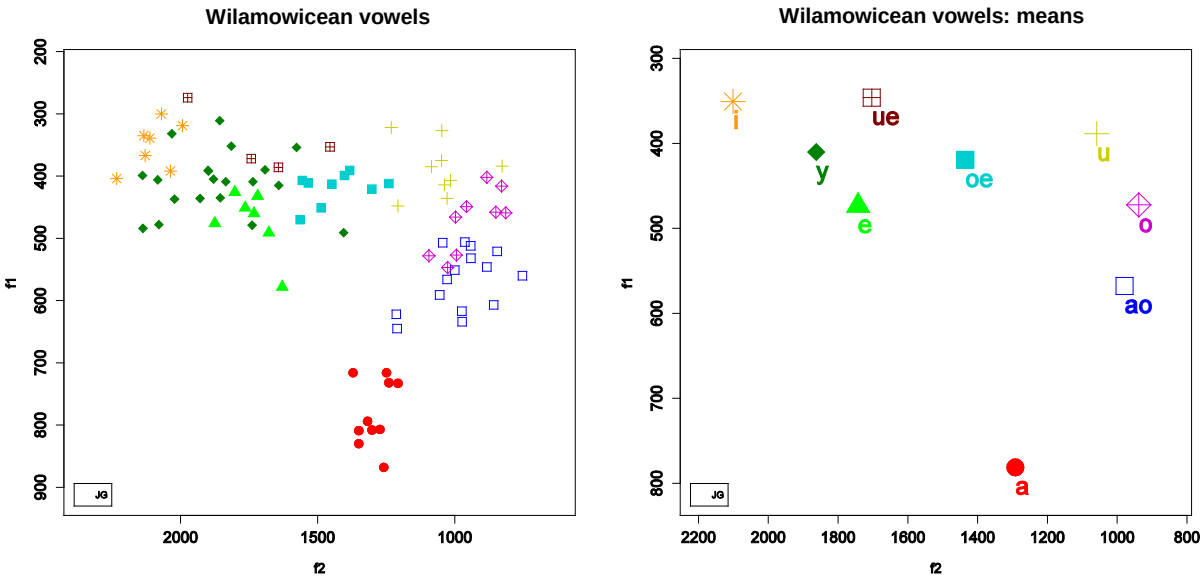

Fig. 3. Wilamowican vowels in speaker JG. Left: individual measurements, right: means for each vowel. Transcription conventions: /ɨ/ = y; /ʏ/ = ue; /ø/ = oe; /ɑ/ = ao.

5. Examples

Sound (IPA)	Spelling	Gloss	Audio
i	kl**i**ny	'small'	
ɨ	h**y**ta	'house, cottage'	
e	śt**e**kikjy	'multi-storey'	
ʏ	b**ü**wa	'boys'	
ø	śtr**ö**sa	'streets'	
a	gym**å**n	'commune'	
ɑ	g**a**tła	'garden'	
ɔ	Z**o**wyś	'Jawiszowice'	
u	n**u**na	'nuns'	

6. Sources

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