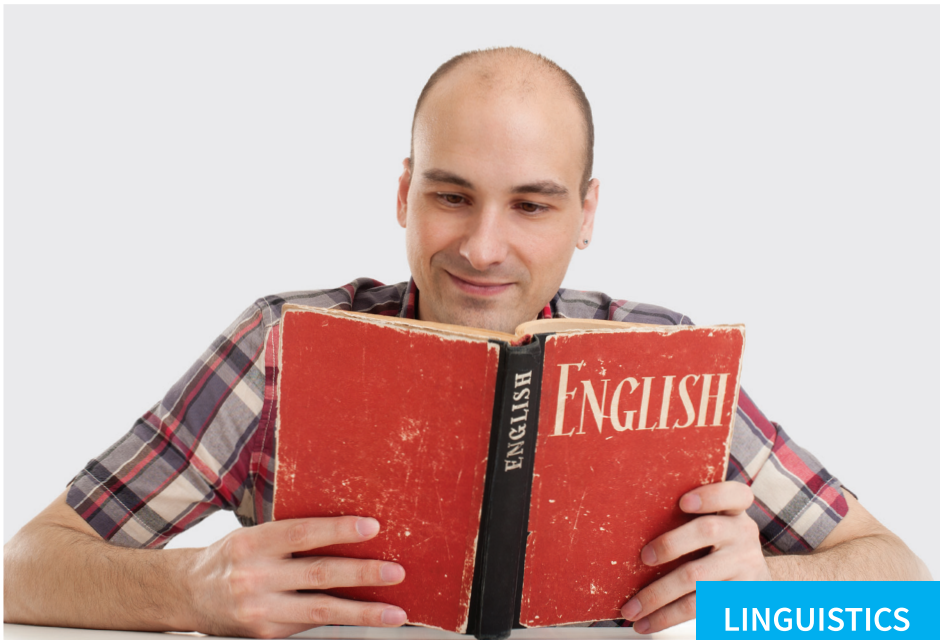


editors

Ewa Waniek-Klimczak
Anna Cichosz

E

Variability in English across time and space



LINGUISTICS

PHONETICS, DIALECTOLOGY, HISTORICAL LINGUISTICS

Variability in L2 English pronunciation examined through the prism of phonetic imitation

<http://dx.doi.org/10.18778/8088-065-8.08>

Magdalena Zając

University of Lodz

Abstract

The paper is concerned with the imitation of vowel duration and quality upon exposure to native and non-native English speech. The participants were Polish learners of English recruited at the University of Lodz. The study aimed to determine whether the extent of phonetic imitation may be influenced by the model talker being a native or a non-native speaker of English and whether different imitation strategies may explain some of the variability in L2 speech. The results of the study suggest that phonetic imitation may account for some of the variability in L2 pronunciation and that the native/non-native status of the model talker may have a bearing on the direction of convergence. It was also found that the magnitude of imitation may depend on the degree to which a given L2 feature functions in the learners' interlanguage.

1. Variability in L2 pronunciation

The fact that there exist considerable distinctions between the L2 pronunciation of speakers with different native languages is well documented in SLA literature and appears to be closely linked to differences in perception. According to Native Language Magnet Model (Kuhl 2000), the representations of native sounds in our brains act like 'perceptual magnets' for L2 phones that bear resemblance to the L1 sounds. Perceptual Assimilation Model (Best 1995) and Speech Learning Model (Flege 1993) propose that the perception of an L2 phone involves comparing the sound with all sounds in the L1 system of the speaker. Indeed, the fact that the perception of a given sound depends on the listener's native language was confirmed in a number of studies, e.g. Brown (2000), Fox et al. (1995), Iverson et

al. (2001), and Rochet (1995). The differences in perception lead to a wide range of variability in the production of a given sound by speakers with different mother tongues. For instance, Davidian and Flege (1984) discovered that the native Polish subjects in their study devoiced word-final plosives in their English productions, whereas native Spanish and native Chinese participants deleted word-final stops. Livbjerg and Mees (1988) state that Danish learners may be disposed to replace English /ʌ/ and /ɒ/ with their native vowel /ɔ/, while Gonet, Szpyra-Kozłowska and Świeciński (2010) show that English /æ/ is often substituted by /a/ or /e/ by native speakers of Polish.

It has also been argued that various cognitive and affective factors contribute to increased accent variability among different L2 speakers. Piske et al. (2001) argue that the degree of foreign accent in one's speech is largely determined by one's ability to mimic unfamiliar speech sounds. Suter (1976), Purcell and Suter (1980) and Elliot (1995) found that the amount of concern for L2 pronunciation accuracy had a considerable bearing on learners' L2 productions, indicating that motivation may play a major role in successful acquisition of L2 phonology. Numerous studies show that the age at which one starts learning a second language has a significant impact on the degree of foreign accent in one's speech and suggest that attaining native-like pronunciation is considerably more difficult for adult learners than for children (e.g. Flege 1988; Moyer 1999; Oyama 1976; Suter 1976; Tahta et al. 1981; Thompson 1991). Another factor which was found to affect non-native pronunciation is L2 input. For instance, Purcell and Suter (1980) provide some evidence that increased contact with native speakers may reduce the degree of foreign accent in learners' speech.

Other findings indicate that variability in L2 pronunciation is also strongly related to a number of social factors. For instance, non-native pronunciation appears to depend on the speaker's gender to some extent. Tahta et al. (1981) and Thompson (1991) discovered that women's L2 pronunciation was rated higher than men's, while Hartford (1978) found that female Mexican-American adolescents used more prestige forms in their English pronunciation than did male Mexican-American adolescents. Thompson (1976) concentrated on Chicano English and found that participants with lower socio-economic status used Spanish-influenced pronunciation features to a greater extent than subjects with higher socio-economic status. Gatbonton (1975) investigated the pronunciation of French-Canadian learners of English and reported that successful acquisition of English dental fricatives was conditioned by the strength

of affiliation with the English community. Similar observations were also made by Zuengler (1982).

An interesting aspect of L2 pronunciation is that it varies not only between individual speakers but also within one speaker. For instance, a given learner's production of a particular sound may differ depending on the phonetic environment of the sound in question. Anderson (1987) observed that native speakers of Mandarin Chinese omitted /r/ more frequently in post-vocalic positions and deleted word-final /t d/ more frequently in consonant clusters. The results of a study by Bayley (1996) showed that Chinese learners tended to omit English /t/ and /d/ more after liquids than nasals or obstruents. Benson (1988) found that consonant deletion in the productions of Vietnamese learners of English was connected with the preceding vocalic context. Tarone (1982) hypothesised that the production of a given second-language pronunciation feature is also affected by the amount of attention that a learner pays to speech form. She argued that attention to speech form increases when learners are asked to perform elicitation tasks such as reading of word lists and decreases in less formal tasks such as free speech. Tarone's claims were corroborated in a study by Dickerson and Dickerson (1977), who examined Japanese learners' realisations of /r/ in free speech, dialogue reading and word-list reading and found that /r/ was supplied only 50% of the time in the first task and almost 100% correctly in the last task. Similar results were obtained in a study on Thai learners' production of English /r/ (Beebe 1980). Interestingly, it was found that the number of target-like realisations of the investigated sounds depended not only on the amount of attention paid to speech but also on phonetic environment. Dowd (1984) examined L2 pronunciation of Mexican women and detected that the informants' production of certain features was affected by the type of question they were asked and that some of the investigated features shifted in opposite directions. When asked an emotional question, the participants tended to produce final consonant clusters less accurately but, at the same time, increased correct realisations of /r/. The findings of Gonet et al. (2010) suggest that some within-speaker variability may also be brought about by the existence of phonetic false friends in the learners' L1 and L2. It was found that Polish learners of English substituted /æ/ with either /e/ or /a/ and that in the majority of cases, the substitution pattern accorded with the vowels present in the corresponding Polish loanwords from English.

Overall, it appears that variability in L2 pronunciation occurs both between different and within individual speakers. A speaker's L2 phonetic performance

may be affected by certain social factors such as age, gender, personality traits or attitudes, language-related features such as the structure of the speaker's L1 sound system and language universals and, finally, cognitive factors such as the amount of attention paid to speech or language aptitude.

2. Phonetic imitation

The process of changing or adjusting one's speech upon exposure to the speech of others first attracted researchers' attention in the 1970s. Howard Giles and colleagues referred to the phenomenon as convergence or accommodation and developed a framework called Communication Accommodation Theory (CAT) to account for the accent and language shifts that individuals make when interacting with other people. The advocates of CAT were primarily concerned with speech behaviour in conversational interactions and the social-psychological factors that may affect language and accent shifts in socially rich settings (Bourhis and Giles 1977; Coupland 1984; Giles 1973; Giles et al. 1973). Similar studies were also carried out by Gregory and Hoyt (1982), Gregory and Webster (1996), Bilous and Krauss (1988), Natale (1975a, 1975b) and Welkowitz and colleagues (Welkowitz and Feldstein 1969; Welkowitz and Feldstein 1970; Welkowitz et al. 1972). Phonetic convergence in conversational interactions was investigated more recently by Pardo and colleagues (Pardo 2006; Pardo 2010; Pardo et al. 2012; Pardo et al. 2013), Kim et al. (2011), Llamas et al. (2009) and Lewandowski and colleagues (Lewandowski 2012; Schweitzer and Lewandowski 2012).

In the late 1990s the process of adjusting one's speech to the speech of others began to be referred to as phonetic imitation. As opposed to accommodation, phonetic imitation is examined in socially minimal, laboratory settings, where the participants are usually required to repeat pre-recorded single words. The focus in a vast number of phonetic imitation studies is on the mechanisms underlying speech production and perception and the phenomenon itself is often treated as an automatic reflex of the human brain rather than a socially or psychologically motivated process (Brouwer et al. 2010; Delvaux and Soquet 2007; Goldinger 1998; Goldinger and Azuma 2004; Honorof et al. 2011; Kim 2011; Mitterer and Ernestus 2008; Nielsen 2011; Shockley et al. 2004). What seems to be of interest in this particular strand of research is that the results of some of the studies have shown phonetic imitation to be sensitive to language structure. For instance, Mitterer and Ernestus (2008) examined convergence in the pronunciation of native speakers of Dutch and found that it

was only the phonologically relevant pronunciation features that were imitated by the participants. Nielsen (2011) reports that native speakers of American English imitated extended VOT values in word-initial voiceless stops but did not imitate reduced VOT values in the same phonetic context.

A number of studies merge the social-psychological aspects of accommodation in conversational interactions with the laboratory-based methodology used in phonetic imitation research. One of such studies was carried out by Namy et al. (2002), who explored the effect of gender on the magnitude of phonetic imitation and found that the participants converged to male talkers more than to female talkers and that female participants were more likely to converge than male participants. Babel (2009) investigated whether racial biases and perceived attractiveness influence the magnitude of convergence in the pronunciation of American English speakers. The results revealed that participants with a pro-black bias were more likely to imitate a black speaker and that the more attractive a given talker was considered, the more the female subjects tended to converge. It was also found that some of the investigated vowels were imitated to a greater extent than others. Similar results were obtained in Babel's subsequent study (Babel 2010), in which she focused on the imitation of Australian English vowels by speakers of New Zealand English. She observed that subjects who were disposed favourably towards Australia converged more than participants with a New Zealand-bias. Babel et al. (2012) confirmed the finding that voices that are considered attractive may induce more imitation and that different vowels may not be imitated to the same extent. Yu et al. (2013) examined the imitation of extended VOT values by speakers of American English and found that personal characteristics and cognitive abilities such as openness and high attention focus contributed to greater imitation effects. Taken together, the studies on phonetic imitation imply that the phenomenon of adjusting one's speech to the speech of others is conditioned by both linguistic and social-psychological factors.

Although the majority of accommodation and imitation studies are concerned with speech adjustments made by native speakers of a given language, several researchers set out to examine speech convergence in L2 speech. Earlier such studies were conducted within Communication Accommodation Theory and examined accent shifts in conversational interactions between native and non-native speakers. The participants in Beebe's (1981) study were Chinese-Thai bilingual children (brought up in Thailand by Chinese parents) who were interviewed in Thai by two female interlocutors, one Thai and one Chinese. The phonetic variables under investigation were 6 Thai vowels. The results of the

study revealed that the subjects converged towards the Chinese interlocutor by making some of the investigated vowels more Chinese-like. Zuengler (1982) investigated the English pronunciation of native speakers of Spanish and Greek, who were interviewed by a native American English interlocutor. It transpired that participants both converged and diverged from the native interviewer and that the direction of accommodation was a function of the strength of ethnic affiliation. More recently, Lewandowski (2012) found that German learners of English converged their pronunciation towards native English interlocutors in conversational interactions. Zając (2013a) sought to determine whether Polish learners of English accommodate their pronunciation to different accents of English. The results suggested that some of the participants converged towards their interlocutors' speech (Canadian English and Standard Southern British English speakers). Kim et al. (2011) studied phonetic convergence in conversations between subjects who had either the same or different regional dialects, and between native and non-native speakers of English. As opposed to the data obtained by Beebe (1981), Zuengler (1982), Lewandowski (2012) and Zając (2013a), Kim et al.'s results revealed that it was only the participants who shared the same language and dialect that were likely to converge.

Several studies on phonetic imitation in non-native speech were carried out recently by Rojczyk and colleagues. Rojczyk (2012a) found that Polish learners imitated a native English talker's realisation of /æ/, while Rojczyk (2012b) observed that native Polish participants imitated English VOT values. Rojczyk et al. (2013) examined immediate and distracted imitation of English unreleased plosives by native Polish speakers. Statistical analysis of the results showed that the participants imitated the phonetic feature under investigation and that distracting the informants impeded convergence to some extent.

3. Aims

The current study follows the experimental procedures used in imitation studies (i.e. eliciting and examining speech adjustments in a socially minimal setting) to investigate phonetic convergence in the pronunciation of Polish learners of English. The general aim of the study is to determine whether the phonetic imitation framework may be used to account for some of the variation present in L2 pronunciation.

Another goal is to examine whether imitation is influenced by the model talker being a native or a non-native speaker of English. On the one hand, foreign-ac-

cented speech is often viewed unfavourably by native and non-native speakers alike (e.g. Chiba et al. 1995; Dalton-Puffer et al. 1997; Gill 1994; Lippi-Green 1997). This could lead to divergence from L2 pronunciation and convergence towards native speech. On the other hand, several accommodation studies show that individuals might be more inclined to converge towards speakers with whom they share a sense of solidarity and that they may tend to accommodate more towards speakers that appear similar to them in some respects (Gregory and Hoyt 1982; Welkowitz and Feldstein 1969; Welkowitz and Feldstein 1970; Welkowitz et al. 1972). A strong sense of identification with a fellow non-native speaker could lead to greater phonetic alignment with foreign-accented speech and might induce the learner to diverge from the native speaker.

The present paper refers to a study whose results were partly discussed in an earlier article (Zajac 2013b). The final aim of the current study is to expand on the findings of Zajac (2013b) by examining and interpreting the previously obtained results together with the data that was not analysed in the earlier paper.

4. Variables

The phonetic variables under investigation were the duration and quality of four English front vowels (/æ e ɪ i:/), which were examined in two phonetic environments, followed by a voiced alveolar stop and a voiceless alveolar stop. In English (as in many other languages), vocalic elements tend to be considerably shorter before voiceless obstruents than before voiced obstruents (Hogan and Rozsypal 1980; Peterson and Lehiste 1960). Vowel duration in English is also one of the cues for the voicing of the following consonant (Hogan and Rozsypal 1980; Raphael 1972). In contrast, Jassem and Richter (1989) found no significant length differences between vowels preceding underlyingly voiced final obstruents and vowels preceding underlyingly voiceless final obstruents in Polish. One could therefore assume that maintaining a large enough length contrast between vowels followed by voiced consonants and vowels followed by voiceless consonants may prove problematic for Polish learners of English.

The front vowels were selected since Polish learners of English are frequently reported to struggle with their realisation. The low vowel /æ/ is often replaced by Polish speakers either with /a/ or /e/ (e.g. Gonet et al. 2010; Nowacka 2010; Sobkowiak 2001; Weckwerth 2011), which could result in the eradication of the TRAP/DRESS or the TRAP/STRUT contrast in the learner's interlanguage.

With regard to the current study, the tendency could result in the the participants merging /æ/ and /e/ into one category. The high vowel /i/ is often assimilated by Polish speakers with native /i/ (e.g. Nowacka 2010; Sobkowiak 2001), which can make it difficult for Poles to maintain the KIT/FLEECE contrast in English.

5. Participants and procedure

The participants were 20 native speakers of Polish (12 females and 8 males) studying at the Institute of English Studies, University of Lodz. All of the subjects were first-year students with upper intermediate proficiency in English (approximately). The subjects participated in three experimental tasks: a written matching exercise, an auditory naming task, and a shadowing task, which was further subdivided into two phases. In the first task, the participants matched English words (the analysed tokens) to photos that represented their meanings. The purpose of this exercise was to familiarise the informants with the analysed words. In the second task, the participants saw the photos again on the computer screen and were instructed to identify them by using the words from the matching exercise and saying them out loud. The final stage of the experiment (the shadowing task) involved presenting the photos used in the earlier tasks together with a model talker's voice (a native model talker in the first section of the task and a non-native model talker in the second section). The participants' task was to listen to the voice and then identify the word represented in the photo by saying it out loud. The model talkers were two men in their mid-twenties. One of them was a native speaker of Southern British English, while the other was a native speaker of Polish, who spoke with a relatively heavy foreign accent.

6. Stimulus

The stimuli used in the shadowing task were pre-recorded monosyllabic words. The words contained the analysed front vowels flanked by /b/ and /t/ or /d/ (*bad, bat, bed, bet, bead, beat, bid, bit*). The participants could hear each of the investigated words twice, once pronounced by the native model talker and once realised by the non-native model talker.

The vowel durations used by the model talkers are presented in Table 1. The abbreviations NM and NNM stand for the native model talker and the non-native

model talker respectively. The data show that the British model talker used noticeably longer vowels before a voiced obstruent in each of the analysed pairs of words. The Polish model talker's usage of vowel duration was variable, his /æ/ and /e/ were longer when followed by the voiced obstruent, and his /ɪ/ and /i:/ were shorter when followed by the voiced obstruent.

Table 1. Vowel durations in the model talkers' productions (Zajac, 2013b)

vowel	NM		NNM	
	b_d	b_t	b_d	b_t
æ	140	98	145	128
e	127	77	138	94
i:	167	145	114	118
ɪ	103	81	81	105

Figures 1 and 2 illustrate the way vowel quality was realised by the model talkers. It can be seen that the British model talker has separate categories for all four vowels. In the case of the Polish model talker, the distributions of /ɪ/ and /i:/ overlap and a similar pattern is also visible with /æ/ and /e/. This indicates that the non-native speaker merged the KIT category with the FLEECE category and the TRAP category with the DRESS category.

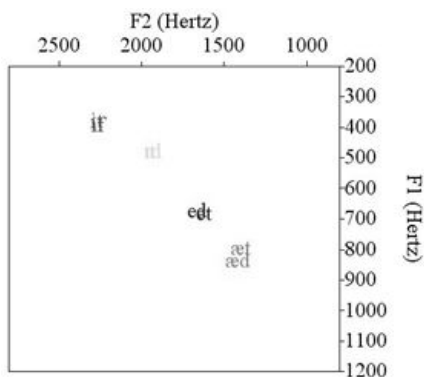


Fig. 1. Formant plot of the native model talker's vowels

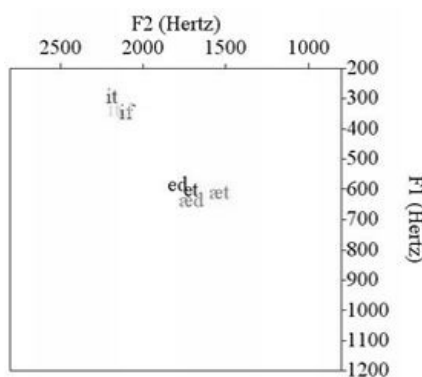


Fig. 2. Formant plot of the non-native model talker's vowels

7. Results and analysis

Table 2 presents mean durations of each of the investigated vowels in two contexts, followed by a voiced stop (b_d) and followed by a voiceless stop (b_t), and under three conditions, prior to exposure to the model talkers' speech (baseline) and following exposure to the model talkers' speech (shadowing NM and shadowing NNM). The values are given in milliseconds, standard deviation is given in brackets. The probability levels for a non-chance difference between the values were calculated with the use of one-tailed paired-samples t-tests. The results indicate that, prior to exposure to the modelled speech, the participants already shortened three out of the four investigated vowels in the context of a following voiceless obstruent. After exposure to the model talkers' pronunciation, the subjects shortened all of the investigated vowels in the context of a following voiceless stop. Interestingly, the participants shortened the vowel in *bit* after listening to the non-native model talker even though he adopted an opposite strategy (Table 1).

Table 2. Participants' mean vowel durations under three conditions (Zajac, 2013b)

vowel	baseline			shadowing NM			shadowing NNM		
	b_d N=20	b_t N=20	p	b_d N=20	b_t N=20	p	b_d N=20	b_t N=20	p
æ	202 (46)	162 (38)	0.000**	160 (31)	143 (25)	0.001**	170 (33)	136 (23)	0.000**
e	194 (44)	143 (25)	0.000**	160 (40)	111 (26)	0.000**	164 (29)	119 (19)	0.000**
i:	205 (45)	148 (36)	0.000**	184 (33)	141 (28)	0.000**	162 (34)	132 (30)	0.000**
ɪ	140 (32)	138 (42)	0.423	131 (29)	106 (21)	0.000**	125 (22)	111 (26)	0.031*

Table 3 shows the number of participants who exhibited a given vowel contrast under three conditions, prior to exposure to the model talkers' speech (baseline) and following exposure to the model talkers' speech (shadowing NM and shadowing NNM). Whether a particular subject maintained a given contrast or not was determined by examining the participants' vowel plots. The first and the second formants were measured at the midpoint of the vowel and a Praat (Boersma and Weenik 2014) script was subsequently used to compute the vowel plots. The results indicate that the majority of the participants failed to realise the four vowels as separate categories before listening to the modelled speech. After exposure to

the British talker's speech, the number of participants who maintained the KIT – FLEECE contrast increased slightly. However, over half of the subjects still failed to differentiate between /ɪ/ and /i:/. On the other hand, after exposure to the British model talker's speech, the majority of the informants were able to distinguish between /æ/ and /e/ and the number of participants who maintained this contrast became over three times greater than in the baseline productions. Following exposure to the Polish model talker, the number of participants who distinguished between the four vowel categories decreased slightly as compared with the baseline productions. Generally, the vast majority of the subjects failed to realise /ɪ/ and /i:/ and /æ/ and /e/ as separate categories upon exposure to the non-native talker's pronunciation. Overall, it appears that /æ/ and /e/ were differentiated by a greater number of informants than /ɪ/ and /i:/.

Table 3. The number of participants who maintained a given vowel contrast under three conditions

vowel contrast	baseline	shadowing NM	shadowing NNM
KIT – FLEECE	6	9	5
TRAP – DRESS	5	16	2

8. Discussion

The results of the study indicate that the participants adjusted vowel length in their productions after exposure to the model talkers' speech. The subjects shortened all of the investigated vowels in the context of a following voiceless obstruent in the imitation (shadowing) task, which can be interpreted as convergence towards the native English speaker and divergence from the native Polish speaker. As argued in Zajac (2013b), it is possible that the participants failed to accommodate towards the non-native model talker out of a desire to sound more native-like. This interpretation seems plausible in view of the finding that some L2 speakers tend to favour native pronunciation over foreign-accented speech (Chiba et al. 1995; Dalton-Puffer et al. 1997; Forde 1995). Additionally, the informants were accompanied by the author of the study throughout the whole experimental procedure. The subjects, first-year students of English studies, most probably believed the author to be a member of the university staff. This, coupled with the formal context of the experiment, could mean that the subjects felt they should try to

diverge from the non-native model talker to create a favourable impression. Such a view is corroborated by Bell's (1984) theory of audience design, according to which speakers may sometimes accommodate to persons in their surroundings with whom they are not in direct interaction at a particular moment.

An important observation is that the subjects in the current study were found to differentiate vowel length in most of the investigated word pairs even before exposure to the native model talker's speech, which implies that this particular feature of English phonology may not be as difficult to acquire for Polish learners as previously expected. Indeed, Slowiaczek and Dinnsen (1985) observed that some vowel length differences before voiced and voiceless obstruents may also exist in Polish, which could facilitate the acquisition of this feature in English.

As regards vowel quality, the results of the current study indicate that exposure to the model talkers' speech caused some subjects to modify the spectral characteristics of their vowels, although it needs to be emphasised that the participants exhibited considerable variability in their accommodation strategies. The majority of the participants converged to the native Polish speaker by merging the two vowel contrasts after exposure to his speech. Over half of the participants diverged from the native English speaker by failing to produce a contrast between /ɪ/ and /i:/ when imitating his speech. At the same time, the majority of the subjects accommodated towards the native model talker by differentiating the TRAP and DRESS vowels. Overall, it would appear that the number of participants who accommodated towards the native Polish speaker was greater than the number of participants who imitated the native English speaker, especially in the case of the KIT/FLEECE contrast.

Taken together, the results of the current study suggest that using vowel duration as a cue for the voicing of the following consonant was a more stable element in the participants' interlanguage than differentiating between the four investigated vowels (the participants used contrasting vowel durations but mostly failed to maintain vowel quality contrasts in their baseline productions). It was also found that the participants diverged from the non-native model talker on vowel duration but mostly converged towards him on vowel quality. This could mean that the magnitude of imitation in L2 speech is more sensitive to affective factors (e.g. attitude towards foreign-accented speech) when the imitated pronunciation feature begins to function as a stable element in the speaker's interlanguage. If the imitated pronunciation feature is not yet a stable element of the interlanguage, it seems that the speaker's convergence strategies are more permeable to transfer from the L1 sound system.

9. Caveats

As referred to in the Results section, the assessment of whether a given informant distinguished between the four front vowels was made by analysing formant plots. In some cases, the selected method proved insufficiently straightforward and objective. For instance, one could interpret the vowel plot in Figure 3 to mean that speaker 13 maintained contrasts between the two vowel pairs since their distributions do not clearly overlap. On the other hand, some of the vowels appear to be very close to each other, which could be taken to mean that the speaker did not distinguish between FLEECE and KIT and TRAP and DRESS. A possible solution to this problem could be to have phonetically trained and/or native English raters listen to the participants' realisations of the word pairs (e.g. *bad* and *bed*) and ask them to decide whether the words are the same or different.

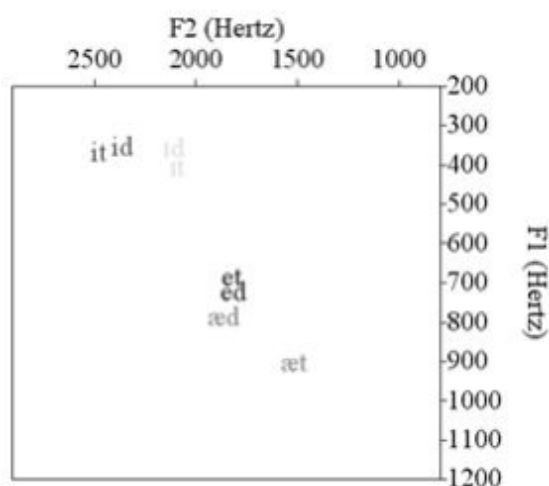


Figure 3. Formant plot of speaker 13's vowels

10. Conclusions

The results of the study indicate that exposure to the speech of different talkers may bring about variability in L2 pronunciation. The participants were found to imitate the duration and quality of four English front vowels when presented with

pre-recorded productions of single words by a native and a non-native speaker of English. The findings of the study suggest that, depending on whether or not the pronunciation feature under investigation functions as a stable element in the learner's interlanguage, the magnitude of imitation in L2 speech may be more susceptible to either the L1 sound system or affective factors such as attitude towards foreign-accented speech.

References

- Anderson, J. 1987. The Markedness Differential Hypothesis and Syllable Structure Difficulty. In *Interlanguage Phonology: The Acquisition of a Second Language Sound System*. eds. G. Ioup and, S. Weinberger, 279–291. New York: Newbury House/ Harper & Row.
- Babel, M. 2009. Phonetic and Social Selectivity in Speech Accommodation. Unpublished PhD dissertation.
- Babel, M. 2010. Dialect divergence and convergence in New Zealand English. *Language in Society* 39: 437–456.
- Babel, M., G. McGuire, A. Nicholls, and S. Walters. 2012. Variability in imitation based on voice profile. Presentation at the 2nd Annual Workshop on Sound Change. Seon-Seebruck, Germany.
- Bayley, R. 1996. Competing Constraints on Variation in the Speech of Adult Chinese Learners of English. In *Second Language Acquisition and Linguistic Variation*, eds. R. Bayley, and R. Preston, 75–96. Amsterdam: John Benjamin Publishing Company.
- Beebe, L. 1980. Sociolinguistic Variation and Style Shifting in Second Language Acquisition. *Language Learning* 30: 433–448.
- Beebe, L. 1981. Social and Situational Factors Affecting the Communicative Strategy of Dialect Code-Switching. *International Journal of the Sociology of Language* 32: 139–149.
- Bell, A. 1984. Language style as audience design. *Language in Society* 13: 145–204.
- Benson, B. 1988. Universal Preference for the Open Syllables as an Independent Process in Interlanguage Phonology. *Language Learning* 38: 221–235.
- Best, C. 1995. A Direct Realist Perspective on Cross-Language Speech Perception. In *Speech Perception and Linguistic Experience: Theoretical and Methodological Issues*, ed. W. Strange, 167–200. Timonium, MD: York Press.
- Bilous, F., and R. Krauss. 1988. Dominance and accommodation in the conversational behaviours of same- or mixed-gender dyads. *Language & Communication* 8: 183–194.
- Boersma, P., and D. Weenink. 2014. Praat: doing phonetics by computer [Computer program]. Version 5.3.80. <http://www.praat.org/>. Accessed July 2014.

- Bourhis, R., and H. Giles. 1977. The language of intergroup distinctiveness. In *Language, ethnicity, and intergroup relations*, ed. H. Giles, 119–136. Waltham: Academic Press.
- Brouwer, S., H. Mitterer, and F. Huettig. 2010. Shadowing reduced speech and alignment. *The Journal of the Acoustical Society of America* 128: EL32-EL37.
- Brown, C. 2000. The Interaction Between Speech Perception and Phonological Acquisition from Infant to Adult. In *Second Language Acquisition and Linguistic Theory*. ed. J. Archibald, 4–63. Oxford: Blackwell.
- Chiba, R., H. Matsuura, and A. Yamamoto. 1995. Japanese attitudes towards English accents. *World Englishes* 14: 77–86.
- Coupland, N. 1984. Accommodation at work: Some phonological data and their implications. *International Journal of the Sociology of Language* 46: 49–70.
- Dalton-Puffer, C., G. Kaltenboeck, and U. Smit. 1997. Learner attitudes and L2 pronunciation in Austria. *World Englishes* 16:, 115–128.
- Davidian, D., and J.E. Flege. 1984. Transfer and Developmental Processes in Adult Foreign Language Speech Production. *Applied Psycholinguistics* 5: 323–347.
- Delvaux, V., and A. Soquet. 2007. The influence of ambient speech on adult speech productions through unintentional imitation. *Phonetica* 64: 145–73.
- Dickerson, L., and W. Dickerson. 1977. Interlanguage phonology: current research and future directions. *The Notions of Simplification. Interlanguage and Pidgins: Actes du 5ème Colloque de Linguistique Applique de Neufchatel*: 18–30.
- Dowd, J. 1984. Phonological Variation in L2 Speech: The Effects of Emotional Questions and Field-dependence/Field-independence on Second Language Performance. Unpublished doctoral dissertation.
- Elliott, R. 1995. Field Independence/Dependence, Hemispheric Specialization, and Attitude in Relation to Pronunciation Accuracy in Spanish as a Foreign Language. *The Modern Language Journal* 79: 356–371.
- Flege, J.E. 1988. Factors Affecting Degree of Perceived Foreign Accent in English Sentences. *Journal of the Acoustical Society of America* 84: 70–79.
- Flege, J.E. 1993. Production and perception of novel, second-language phonetic contrast. *Journal of the Acoustical Society of America* 93: 1589–1608.
- Forde, K. 1995. A study of learner attitudes towards accents of English. *Hong-Kong Polytechnic University Working Papers in ELT & Applied Linguistics* 1: 59–76.
- Fox, R., J.E. Flege, and M. Munro. 1995. The Perception of English and Spanish Vowels by Native English and Spanish Listeners: A Multidimensional Scaling Analysis. *Journal of the Acoustical Society of America* 97: 2540–2551.

- Gatbonton, E. 1975. Systematic Variations in Second Language Speech: A Sociolinguistic Study. Unpublished doctoral dissertation.
- Giles, H. 1973. Accent mobility: a model and some data. *Anthropological Linguistics* 15: 87–105.
- Giles, H., M. Taylor, and R. Bourhis. 1973. Towards a theory of interpersonal accommodation through language: some Canadian data. *Language in Society* 2: 177–192.
- Gill, M.M. 1994. Accent and stereotypes: Their effect on perceptions of teachers and lecture comprehension. *Journal of Applied Communication Research* 22: 349–361.
- Goldinger, S. 1998. Echoes of Echoes? An Episodic Theory of Lexical Access. *Psychological Review* 105: 251–279.
- Goldinger, S., and T. Azuma. 2004. Episodic memory in printed word naming. *Psychonomic Bulletin & Review* 11: 716–722.
- Gonet, W., J. Szpyra-Kozłowska, and R. Święciński. 2010. Clashes with ashes. In *Issues in Accents of English 2: Variability and Norm*, ed. E. Waniek-Klimczak, 213–230. Newcastle upon Tyne: Cambridge Scholars Publishing.
- Gregory, S., and B. Hoyt. 1982. Conversation Partner Mutual Adaptation as Demonstrated by Fourier Series Analysis. *Journal of Psycholinguistic Research* 11: 35–46.
- Gregory, S., and S. Webster. 1996. A Nonverbal Signal in Voices of Interview Partners Effectively Predicts Communication Accommodation and Social Status Perceptions. *Journal of Personality and Social Psychology* 70: 1231–1240.
- Hartford, B. 1978. Phonological Differences in the English of Adolescent Female and Male Mexican-Americans. *International Journal of the Sociology of Language* 17: 55–64.
- Hogan, J.T., and A.J. Rozsypal. 1980. Evaluation of vowel duration as a cue for the voicing distinction in the following word-final consonant. *Journal of the Acoustical Society of America* 67: 1764–1771.
- Honorof, D., J. Weihing, and C. Fowler. 2011. Articulatory events are imitated under rapid shadowing. *Journal of Phonetics* 39: 18–38.
- Iverson, P., P. Kuhl, R. Yamada, E. Diesch, Y. Tohkura, A. Ketterman, and C. Siebert. 2001. A Perceptual Interference Account of Acquisition Difficulties for Non-Native Phonemes. *Speech, Hearing and Language: Work in Progress* 13: 106–118.
- Jassem, W., and L. Richter. 1989. Neutralization of voicing in Polish obstruents. *Journal of Phonetics* 17: 205–212.
- Kim, M. 2011. Phonetic convergence after perceptual exposure to native and non-native speech: preliminary findings based on fine-grained acoustic-phonetic measurement. *Proceedings of the 17th International Congress of Phonetic Sciences*: 1074–1077.

- Kim, M., W.S. Horton, and A.R. Bradlow. 2011. Phonetic convergence in spontaneous conversations as a function of interlocutor language distance. *Journal of Laboratory Phonology* 2: 125–156.
- Kuhl, P. 2000. A New View of Language Acquisition. *Proceedings of the National Academy of Science* 97: 11850–11857.
- Lewandowski, N. 2012. Talent in nonnative phonetic convergence. Unpublished PhD dissertation.
- Livbjerg, I., and I. Mees. 1988. *Practical English Phonetics. Ny Kontrastiv Fonetik*. Copenhagen: Schonberg.
- Lippi-Green, R. 1997. *English with an accent: Language, ideology, and discrimination in the United States*. New York: Routledge.
- Llamas, C., D. Watt, and D.E. Johnson. 2009. Linguistic Accommodation and the Salience of National Identity Markers in a Border Town. *Journal of Language and Social Psychology* 28: 381–407.
- Mitterer, H., and M. Ernestus. 2008. The link between speech perception and production is phonological and abstract: Evidence from the shadowing task. *Cognition* 109: 168–173.
- Moyer, A. 1999. Ultimate Attainment in L2 Phonology. *Studies in Second Language Acquisition* 21: 81–108.
- Namy, L., L. Nygaard, and D. Sauerweig. 2002. Gender differences in vocal accommodation: The role of perception. *Journal of Language and Social Psychology* 21: 422–432.
- Natale, M. 1975a. Convergence of Mean Vocal Intensity in Dyadic Communication as a Function of Social Desirability. *Journal of Personality and Social Psychology* 32: 790–804.
- Natale, M. 1975b. Social desirability as related to convergence of temporal speech patterns. *Perceptual and Motor Skills* 40: 827–830.
- Nielsen, K. 2011. Specificity and abstractness of VOT imitation. *Journal of Phonetics* 39: 132–142.
- Nowacka, M. 2010. The ultimate attainment of English pronunciation by Polish College Students: a longitudinal study. In *Issues in Accents of English 2. Variability and Norm*, ed. E. Waniek-Klimczak, 233–260. Newcastle upon Tyne: Cambridge Scholars Publishing.
- Oyama, S. 1976. A Sensitive Period for the Acquisition of a Nonnative Phonological System. *Journal of Psycholinguistic Research* 5: 261–283.
- Pardo, J. 2006. On phonetic convergence during conversational interaction. *The Journal of the Acoustical Society of America* 119: 2382–2393.

- Pardo, J. 2010. Expressing oneself in conversational interaction. In *Expressing Oneself/Expressing One's Self. Communication, Cognition, Language, and Identity*, ed. E. Morsella, 183–196. New York: Psychology Press.
- Pardo, J., R. Gibbons, A. Suppes, and R. Krauss. 2012. Phonetic convergence in college roommates. *Journal of Phonetics* 40: 190–197.
- Pardo, J., I.C. Jay, R. Hoshino, S. Hasbun, C. Sowemimo-Coker, and R. Krauss. 2013. The Influence of Role-Switching on Phonetic Convergence in Conversation. *Discourse Processes* 50: 276–300.
- Peterson, G.E., and I. Lehiste. 1960. Duration of syllabic nuclei in English. *Journal of the Acoustical Society of America* 32: 693–703.
- Piske, T., I. MacKay, and J.E. Flege. 2001. Factors affecting degree of foreign accent in an L2: A review. *Journal of Phonetics* 29: 191–215.
- Purcell, E., and R. Suter. 1980. Predictors of Pronunciation Accuracy: A Reexamination. *Language Learning* 30: 271–287.
- Raphael, L.J. 1972. Preceding vowel duration as a cue to the perception of voicing of word-final consonants in American English. *Journal of the Acoustical Society of America* 51: 1296–1303.
- Rochet, B. 1995. Perception and Production of L2 Speech Sounds by Adults. In *Speech Perception and Linguistic Experience: Theoretical and Methodological Issues*, ed. W. Strange, 379–410. Timonium, MD: York Press.
- Rojczyk, A. 2012a. Spontaneous phonetic imitation of L2 vowels in a rapid shadowing task. Poster presented at PSLLT 2012 – Pronunciation in Second Language Learning and Teaching Conference, Vancouver, Canada, 24–25 August.
- Rojczyk, A. 2012b. Phonetic and phonological mode in second-language speech: VOT imitation. Paper presented at EuroSLA22 – 22nd Annual Conference of the European Second Language Association, Poznań, Poland, 5–8 September.
- Rojczyk, A., A. Porzuczek, and M. Bergier. 2013. Immediate and distracted imitation in second-language speech: Unreleased plosives in English. *Research in Language* 11: 3–18.
- Schweitzer, A., and N. Lewandowski. 2012. Accommodation of Backchannels in Spontaneous Speech. In the booklet of the International Symposium on Imitation and Convergence in Speech.
- Shockley, K., L. Sabadini, and C.A. Fowler. 2004. Imitation in shadowing words. *Perception & Psychophysics* 66: 422–429.
- Slowiaczek, L., and D. Dinnsen. 1985. On the neutralizing status of Polish word-final devoicing. *Journal of Phonetics* 13: 325–341.

- Sobkowiak, W. 2001. *English Phonetics for Poles*. Poznań: Wydawnictwo Poznańskie.
- Suter, R. 1976. Predictors of Pronunciation Accuracy in Second Language Learning. *Language Learning* 26: 233–253.
- Tahta, S., M. Wood, and K. Loewenthal. 1981. Foreign Accents: Factors Relating to Transfer of Accent from the First Language to a Second Language. *Language & Speech* 24: 265–272.
- Tarone, E. 1982. Systematicity and attention in interlanguage. *Language Learning* 32: 69–84.
- Thompson, I. 1991. Foreign Accents Revisited: The English Pronunciation of Russian Immigrants. *Language Learning* 41: 177–204.
- Thompson, R. 1976. Mexican-American English: Social Correlates of Regional Pronunciation. *American Speech* 50: 18–24.
- Weckwerth, J. 2011. English TRAP Vowel in Advanced Polish Learners: Variation and System Typology. City University of Hong Kong, Volume Proceedings of the 17th International Congress of Phonetic Sciences. 17–21 August 2011. Hong Kong. CD-ROM, Hong Kong, p.2110–2113 (2011)
- Welkowitz, J., and S. Feldstein. 1969. Dyadic interaction and induced differences in perceived similarity. *Proceedings of the 77th Annual Convention of the American Psychological Association* 4: 343–344.
- Welkowitz, J., and S. Feldstein. 1970. The relation of experimentally manipulated interpersonal perception and psychological differentiation to the temporal patterning of conversation. *Proceedings of the 78th Annual Convention of the American Psychological Association* 5: 387–388.
- Welkowitz, J., M. Finklestein, S. Feldstein, and L. Aylesworth. 1972. Changes in vocal intensity as a function of interspeaker influence. *Perceptual and Motor Skills* 35: 715–718.
- Yu, A.C., C. Abrego-Collier, and M. Sonderegger. 2013. Phonetic Imitation from an Individual-Difference Perspective: Subjective Attitude, Personality and “Autistic” Traits. *PLoS ONE* 8: 1–13.
- Zajac, M. 2013a. [ˈberɔ] or [ˈbetɔ]? Do Polish Learners of English Accommodate their Pronunciation? A Pilot Study. In *Teaching and Researching English Accents in Native and Non-native Speakers*, eds. E. Waniek-Klimczak, and L.R. Shockey, 229–239. Heidelberg: Springer.
- Zajac, M. 2013b. Phonetic imitation of vowel duration in L2 speech. *Research in Language* 11: 19–29.
- Zuengler, J. 1982. Applying Accommodation Theory to Variable Performance Data in L2. *Studies in Second Language Acquisition* 4(2): 181–192.

LINGUISTICS

PHONETICS, DIALECTOLOGY, HISTORICAL LINGUISTICS

Synchronic variability in the area of phonetics, phonology, vocabulary, morphology and syntax is a natural feature of any language, including English. The existence of competing variants is in itself a fascinating phenomenon, but it is also a prerequisite for diachronic changes. This volume is a collection of studies which investigate variability from a contemporary and historical perspective, in both native and non-native varieties of English. The topics include Middle English spelling variation, lexical differences between Middle English dialects, Late Middle and Early Modern English forms of address, Middle English negation patterns, the English used by Polish immigrants living in London, lexical fixedness in native and non-native English used by Polish learners, and the phenomenon of phonetic imitation in Polish learners of English. The book should be of interest to anyone interested in English linguistics, especially English phonetics and phonology as well as history of English, historical dialectology and pragmatics.

The book is also available
as an e-book



WYDAWNICTWO
UNIwersytetu
ŁÓDZKIEGO

ul. Williama Lindleya 8
90-131 Łódź

tel.: 42 66 55 863
e-mail: ksiegarnia@uni.lodz.pl

ISBN 978-83-8088-065-8



9 788380 880658