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Pronunciation of the GOOSE Vowel by Czech Learners of English

Bachelor Thesis

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Olomouc 2017

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Počet stran: 41

Počet znaků: 60 054

Olomouc 2017

I declare that I have written my bachelor thesis “Pronunciation of the GOOSE Vowel by Czech Learners of English” independently under the guidance of my supervisor and that I used only the sources listed in the bibliography.

Olomouc 2017

I would like to thank my supervisor Mgr. Šárka Šimáčková, Ph.D. for her patience, encouragement and support without which I would not be able to finish this thesis. Also, I would like to thank all the volunteers who took part in the study.

Abstract

Over the last four decades the high back vowel /u/ has undergone the process of fronting in British but also in American English. The goal of the thesis is to find out whether Czech learners of English as a foreign language who have achieved a high degree of proficiency in English also produce the vowel /u/ as fronted or whether their pronunciation reveals transfer of the back quality of Czech /u/ into English. Measurements of the second formant in u-words are used to determine the degree of fronting as fronter realizations of /u/ are known to have higher F2.

Key words: phonetics, English, Czech, /u/-fronting, non-native speakers, foreign language learners, recording, questionnaire, pronunciation

Anotace

Za poslední čtyři dekády se u horní zadní samohlásky ‚GOOSE‘, /u/, změnilo vyslovování na více přední, a to jak ve standardní britské angličtině, tak v americké angličtině. Cílem této bakalářské práce je zjistit, zda čeští studenti anglického jazyka, jakožto cizího jazyka, vyslovují /u/ jako přední samohlásku, nebo zda zadní kvalita českého /u:/ ovlivňuje výslovnost toho anglického a zůstává také zadní. Měření druhého formantu ve slovech obsahující /u/ se využívá k určení míry přední kvality, má-li /u/ přední kvalitu, tím vyšší bude jeho hodnota F2.

Klíčová slova: fonetika, angličtina, čeština, /u/-fronting, nerodilí mluvčí, nahrávání, dotazník, výslovnost nerodilých mluvčí

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INTRODUCTION

The aim of this thesis is to explore the phenomenon of fronting of the English /u/ vowel. Fronting of the tense high back /u/ vowel is a phenomenon that has been happening for several decades in English. Many people, especially the young ones, tend to pronounce /u/ that is more fronted than the one older people pronounce.

As the title of the thesis itself suggests, the vowel /u/ is being addressed as a GOOSE vowel, which is a term first introduced by John C. Wells in his book *Accents of English* (1982). Wells defined a lexical set based on pronunciation of vowels, each vowel phoneme was identified by a specific word in two standard accents of English, i.e. in Received Pronunciation and in General American English.

The main GOAL of this thesis is to find out whether Czech learners of English as a foreign language who have achieved a high degree of proficiency in English produce /u/ as fronted when they speak in English or whether it remains to have back quality as the Czech /u:/. It is well-known that our first language (L1) affects our second language (L2) (Cook, 2003). This is especially evident when a non-native English speaker speaks English; most native speakers are able to recognise that the person is not a native because of the accent from L1. In the Czech language, the vowel /u:/ is not only phonemically described as a back high vowel but it is also pronounced as such. It is possible that Czech learners' pronunciation of the English /u/ is affected by the Czech /u:/ and has a back quality. However, it is also possible that the advanced learners in this study have learned to front their GOOSE vowel. Further, there is also evidence that there are interlingual influences from L2 into L1; there are two language systems in the same mind, and they interact and affect each other and L2 affects L1 (Cook, 2003). The more bilingual users use their L2, the more they are affected by it, and to some extent it then affects the L1 as well (Cook, 2003). Thus, the second aim of this thesis is to find out whether the learners' Czech high back vowels were affected by the fronted pronunciation of GOOSE in their L2 English (provided the learners show fronting).

The thesis is divided into three chapters. The first chapter provides the review of relevant literature. Section 1.1 deals with the changes of the GOOSE vowel in English. It discusses the development of fronting in Standard Southern British English (SSBE) in section 1.1.1 and in General American English (GA) in section 1.1.2. Section 1.2 is dedicated to the Czech high back vowels /u/ and /u:/. Throughout the past centuries there have been changes regarding the pronunciation of vowels in SSBE, GA

and in Czech, and this chapter lists some of them using data from British, American and Czech phoneticians. Changes regarding pronunciation in GA varies across the whole country, therefore in this chapter there are also discussed different varieties of American English. This chapter also addresses the changes of pronunciation of Czech /u/ and /u:/, however, there are not as many studies as there are on the fronting in SSBE or in GA about this topic.

The second chapter describes the methodology of the study. It addresses the participants of the study, deals with the chosen stimuli and procedure of the study.

The last section of the thesis is focused on the results of the study and overall discussion.

1. LITERATURE REVIEW

1.1 Fronting of the GOOSE Vowel in English

English as a language has changed during the last centuries, there have been changes regarding the morphology, syntax, and also pronunciation. Nonetheless, the changes not only of the pronunciation but on all linguistic levels have been ongoing process that has not stopped yet, because the language keeps constantly evolving. The changes regarding pronunciation of vowels have been happening since the Middle Ages, however, English has evolved from Old English through Middle English to Modern English. In general, vowels have changed more than consonants; consonants are more stable. Vowels are also more variable across accents of English as commented on by Gimson: “there are likely to be a number of different, coexistent realizations of vowel phonemes, not only between regions but also between generations and social groups.” (1994: 69)

Many phoneticians have focused their work on vowel changes in English, the list of phoneticians goes from Wells, Gimson, Ladefoged, Deterding, Hillenbrand to more recent Hawkings and Midgley, Koops, Bjelakovic and more. This thesis is, however, focused on fronting of the GOOSE vowel /u/, the tense high back vowel. This chapter discusses the changes of the pronunciation of /u/ in Standard Southern British English and in General American English. The final part of the chapter is dedicated to Czech pronunciation of long /u:/ and short /u/.

In the Handbook of the IPA (1999: 11) the GOOSE vowel is described to be pronounced when “the tongue is raised as close as possible at the back of the mouth, just short of producing a velar consonant, and (as in common languages) the lips are simultaneously rounded and protruded.” In the recent edition of *A Course in Phonetics*, Ladefoged also (2014) describes the GOOSE vowel as a back vowel which is produced when the tongue is at its highest point back in the mouth. However, in the vowel space Ladefoged places /u/ to mid-high rather central position, possibly indicating the ongoing phenomenon of fronting of /u/.

The pronunciation of the GOOSE vowel /u/ is closest to FOOT vowel /ʊ/, however, these two vowels differ both in quality and in quantity. The relationship between vowels /u/ and /ʊ/ is the same as with the front vowels FLEECE /i/ and KIT /ɪ/ (Gimson, 1994).

1.1.1 GOOSE in Standard Southern British English

In general, fronting of the tense high back vowel has been apparent not only in Standard Southern British English, but also in many other varieties of English, including American English (Labov, Ash & Boberg 2006), English spoken in Canada (Boberg 2011), Australia (Cox 2001), in New Zealand (Gordon, et al. 2004), or in South Africa (Mesthrie 2010) English.

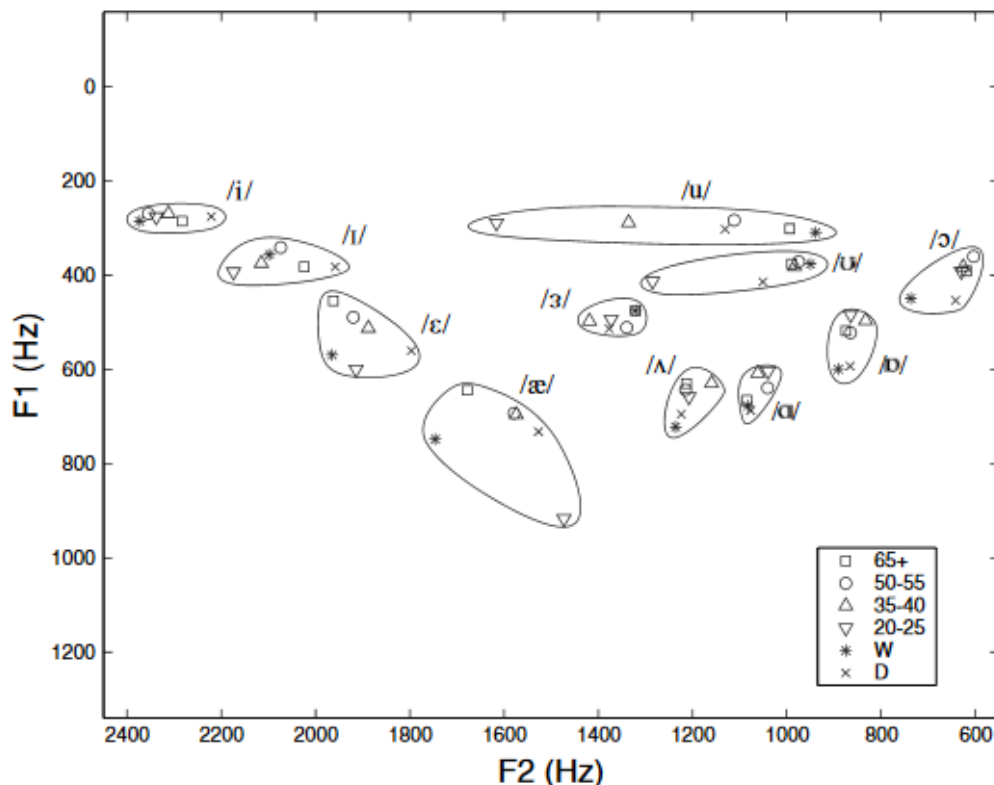
In the recent years there have been numerous studies focusing on the GOOSE vowel fronting, however, the fronting of this vowel has been documented already by Gimson (1966), and also by Roach and Hartman (1997) who describe the /u/-fronting in SSBE as a major shift that had taken place in the last two or three decades. Gimson also argues that increased fronting and diphthongization of /u/ is characteristic for a number of dialects of English (Gimson, 1994). Wells defines /u/ to have “definitely central rather than back quality; most English popular urban speech, that of Scotland and Northern Ireland, that of southern hemisphere and United States” (1982: 148). He also claims that back quality of the GOOSE vowel is perceived as conservative, old fashioned speech habit, more typical for Ireland or West Indies.

Nonetheless, the changes in fronting of /u/ in SSBE, which is already understood as well-established phenomenon, regards the young generation on a great scale, the older generation does not show major fronting of the high back vowels. This fact is shown in several recent studies, for example by Hawkins and Midgley (2005)’s study or in Harrington *et al.* (2011)’s study. In the latter study, Harrington *et al.* (2011) documents that /u/-fronting is context sensitive, meaning that it depends on what type of consonant precedes the vowel.

Hawkings and Midgley (2005) in their most cited study *Formant Frequencies of RP Monophthongs in Four Age Groups of Speakers* ran a test including four generation of speakers. Generally, formants are the resonating frequencies of the vocal tract, and they are measured in Hertz (Hz). Formant 1 (F1) is the pharyngeal cavity, whereas formant 2 (F2) is the oral cavity. The second formant is known to be connected with the front-back dimension in the vowel space and so high values of F2 are taken to show front or fronted pronunciation. Hawkings and Midgley compared F2 measurements of their speakers to see the fronting of vowels. Their speakers were divided into four age groups; 20-25, 35-40, 50-55 and 65+ years. The results suggested that the biggest differences in fronting are for /u ʊ/, they showed increased values for the second

formant, F2, than for any other vowels. In Hawkins and Midgley's study, F2 shows evidence of fronting of /u/ for the younger generations, 20-25 and 35-40 years old. Results show that for the oldest group, 65+ years old, the frequency is near 1000 Hz, however, the youngest group, 20-25 years old, the frequency is close to 1800 Hz. Suggesting that the higher the frequency, the fronter the vowel. F1 does not show difference in this case and stays rather unchanged. Results regarding /u/ show F2 to be higher only for the youngest age group 20-25, on contrary from the GOOSE vowel, the FOOT vowel shows also higher F1. Nonetheless, the three remaining groups, 35-40, 50-55, 65+ years, have unchanged data for F1 and F2 for the FOOT vowel. The findings of Hawkins and Midgley show that /u/ fronting is already a well-established phenomenon, but for /o/ it is rather a recent change. According to their other data based on the same four generation group, it is apparent that the GOOSE vowel is evolving and changing its pronunciation, especially among the youngest group, 20-25 years. The speakers in the youngest group differ among themselves the most, the spread of the values is relatively wide, the data show that in this group the F2 values are fronter than for other age groups, as shown in the picture below.

Figure 1. Mean frequencies of the F1 and F2 of all of the eleven monophthongs, for each age group of the study. Reprinted from Hawkins and Midgley, 2005: 186.



In general, according to Hawkings and Midgley (2005)'s data, the frequency of F2 of /u/ is progressively higher from the oldest to the youngest generations, whereas F1 does change only marginally. The FOOT vowel showed that F2 is higher for the younger generation, but on contrary from /u/, F1 changed slightly as well, it is higher. On the whole, /u/ in SSBE sounds more fronted and is unrounded among the young generation, and based on the results, to some extent, this applies for /ʊ/ too.

Another evidence proving evolving pronunciation is that some of the studies focus not only on cross sectional speakers but also on the Queen Elizabeth II herself. Based on a longitudinal study of her annual Christmas broadcasts, linguists analysed that the Queen's /u/ is not fronted as the /u/ of other younger speakers of SSBE (Harrington et al., 2008).

The fact that /u/ is pronounced as fronted vowel makes it closer to /i/. These two vowels are similar now, to the point where some tokens are overlapping. Chládková and Hamman (2011) in their recent study address the fact that since the GOOSE vowel has shifted to the front it became close to the FLEECE vowel and that their F2 values overlap. The result of that might be a merger of the high vowels. Chládková and Hamman, however, also state that the young speakers, who produce fronted GOOSE, are still able to differentiate between the minimal pairs including /i/ and /u/. One of the distinctions between these two vowels is that in SSBE the GOOSE vowel is diphthongal, whereas the FLEECE vowel is diphthongal only in specific geographical areas, such as Norwich, Sheffield, and London. On the whole, phonetically, older speakers differentiate /i/ and /u/ easily, whereas young listeners contrast between /i/ and central /u/ (Harrington *et al.*, 2008).

The GOOSE fronting is context sensitive, the degree of fronting is highest in words which include yod /j/, and vice versa. The degree of fronting, however, depends also on the frequency of the word, words that are used more frequently undergo more fronting than words that are used less. SSBE is known to be a yod-dropping dialect, nonetheless, the deletion of yod varies across dialects in General American English. And in unstressed syllables yod stays retained, there is, for example, difference in pronunciation words *new* and *annual*, in the latter word the yod is retained.

According to Ohala's model "speech production is a basis for diachronic change. But a relationship between diachronic change and synchronic variability shows that the

origin of sound changes is often likely to be in the ear of the listener as in the mouth of the speaker” (Harrington *et al.*, 2011: 138). Some listeners categorize the same tokens differently because of different phonetical influences. Harrington *et al.* argue that “if young listeners are more likely to interpret a fronted production of /u/ as intended, then they should show less evidence of compensation for the coarticulatory effects on fronting compared with older listeners from the same SSBE speaking community” (2008: 2826). This results in that young speakers are expected to show less coarticulation in their speech production, unlike in speech production of older speakers. Older speakers of SSBE are generally influenced by consonantal context to a far greater degree. Older speakers also compensate for coarticulation and produce fronted consonants rather than fronted vowels in terms of production.

There is also difference between the GOOSE vowel /u/ and FOOT vowel /ʊ/ in terms of rounding. For many SSBE speakers /ʊ/ is only slightly rounded as Gimson (1994) suggests. Wells even describes /ʊ/ as completely unrounded and fronted (1982). It is evident that the FOOT vowel is especially fronted in specific phonetic contexts. According to data from Torgersen (2002)’s study, the FOOT vowel is strongly influenced by its following consonants, for example by a following /k/ (71.7%), /t/ (56.5%) and also /d/ (45.8%), on the other hand /l/ absolutely prevents fronting of /ʊ/, mostly because of velarization. The FOOT fronting is not only depended on the following consonant but also on the preceding one, dorsal consonants /k/ and /g/, and an affricate /tʃ/ favour fronting as well. Nonetheless, there is a difference between the speech of young SSBE speakers and old SSBE speakers, as mentioned before, younger SSBE speakers show fronting of /ʊ/ on far a greater scale than the older SSBE speakers. Torgersen (2002) argues that due to these changes /ʊ/ can be perceived as a sound resembling the vowel found in words as *bird*, only shorter.

1.1.2 GOOSE in General American English

Fronting of the GOOSE vowel /u/ and of the GOAT vowel /əʊ/ are an issue in variations of American English pronunciation. There are many varieties and speeches of minorities in the United States, and as Wolfram and Schilling-Estes (2005) suggest GA English is a flexible language sensitive to regional variations. These regional variations of GA have been also documented in Labov *et al.* (2006)’s *Atlas of North American English*. Recently, a sociophonetic research by Jacewicz and colleagues showed that

vowels in American English differ across the whole country due to different dialects (2011). When children are learning their mother tongue they are exposed a dialect spoken in a specific area, and they are going to acquire the dialect of that area (Jacewicz *et al.*, 2011). There have been also numerous studies describing pronunciation of American English (e.g. Hillenbrand *et al.* 1995), pronunciation variation (Thomas 2001), and pronunciation changes Labov (1994).

The GOOSE vowel in American English is also described as a tense high back vowel (Labov, 2000), similar to the description of the vowel in SSBE, and it follows the similar pronunciation changes as can be found in the changes of SSBE. Peterson & Barney (1952)'s measurements also show the GOOSE to be a stable vowel with a fully back quality, and in the formation of vowels, "for /u/ the tongue hump takes the highest posterior position in the mouth and the lips are more rounded than for any other vowel" (Peterson & Barney, 1952: 121). As a results of this, the vowel is very difficult to displace and it is easily recognized by any listener. Labov *et al.* describes /u/ as "derived from Middle English /o/ and was raised to high position after the Great Vowel Shift and diphthongized in most dialects" (2000: 13-14). Fronting of /u/ in GA was first attested in mid-1800s in the Southern part of the United States, and since then it has spread over majority of the country (Koops, 2010: 113). There are, however, not as many studies on fronting /u/ in GA as there are for SSBE, because the pronunciation of GA varies across different parts of the United States (Clopper *et al.*, 2005).

The traditional way of pronouncing /u/ as a high back rounded vowel may be still realized in some parts of the United States, for example in New England, Minnesota or North Dakota and Wisconsin. In the rest of the states /u/ is shifted towards /i/ (Jacewicz *et al.* 2011). However, this is already documented in older studies of back vowels fronting conducted in Philadelphia (Labov, 1980) and Detroit (Eckert, 1989). Such development in /u/ pronunciation is in line with the general principles regarding shifting of vowels in American English proposed by Labov *et al.* (1972). According to their principles "back vowels move to the front, and lax vowels usually fall in chain shifts" (Labov *et al.*, 1972: 14).

This section discusses the variety of American English spoken in Texas. The southern part of the United States is significantly affected by the GOOSE vowel fronting. Texas, the largest state in the South, faces junction between two vowel fronting processes (Koops, 2010). There is the process of GOOSE fronting within the

traditional Southern American English (SAE) and the more recent fronting of /u/ of advanced Mainstream American English (MAE) as Koops argues (2010). The junction results from ongoing urbanization and ethnic diversification. Since the end of the World War II, the traditional Texas dialect has been slowly replaced by MAE due to the influx of Anglo migrants. The major changes to MAE happened after the 1960s which was the time when many Anglos adopted new phonological features. The GOOSE fronting is one of the features that has been changing the language forward to MAE. Fronting of vowels, in general, is a change that has been undergoing also in other varieties of American English, however, the GOOSE fronting is very specific, especially for the traditional South (Koops, 2010). Koops also suggests that fronting of /u/ is connected with lowering of the nucleus, which can be also seen in Labov *et al.* (1972)'s or Thomas (2004)'s studies.

Koops (2010)'s study on the GOOSE variants, however, revealed other differences between Southern American English and Mainstream American English. In his study, there were twenty speakers of Houston English who showed either dominant SAE or MAE variety of the language, and they were asked to reproduce words containing the GOOSE vowel. The results were that people whose phonological system is predominantly SAE showed that their /u/ is a stable fronted monophthong. Whereas, MAE speakers produced fronted /u/ with a “diphthongal trajectory” (Koops, 2010: 116). On the whole, in the urban South, the traditional Texas English is being abandoned and people are favouring the newer, unmarked type. Koops (2010) also argues that the difference is primarily due to the second formant trajectories, suggesting that F2 contributes mostly to the auditory contrast. It is also known that /l/ in American English inhibits GOOSE fronting, however, Koops (2010: 115) also argues that fronting is “variably present in older Anglos but absent in all others even before /l/” which is typical for non-Southern varieties. Nonetheless, Koops (2010) also claims that some older speakers of SAE, especially farmers and ranchers, have noticeably fronted /u/ than their urban peers of the same age. The area around Texas is known to have distinctively fronted /u/ which comes back to historical influence.

The results of Hinrichs & Bohmann (2013)'s analysis in the study *Real Time Trends in the Texas English Vowel System* showed that women have higher F2 in the GOOSE vowel than men, suggesting they have fronted /u/. This is “consistent with the hypothesis that the MAE fronting variant is in the process of replacing the SAE variant and the well-known tendency of women to lead sound changes in progress” (2013: 9).

The change in pronunciation that is taking place is that MAE /u/ is replacing the traditional SAE /u/ that is being progressively less used. On the whole, as Koops (2010: 115) argues Anglo women in Houston have “the highest normalized F2 values but their lead is not very large.”

Another variety of American English in which the pronunciation of vowels has changed and is now typical for its geographical area is California English. The change of pronunciation was first documented in 1950s, however, the 50s and 60s were also decades when there was a common belief that this part of the United States has no regional speech traits. Nonetheless, in late 60s Preston (1986) claimed that California English is distinctive and its pronunciation is very typical for its area, he also addresses two parodies of the Californian speech of teenagers done by Zappa (1982) and Goldgberg (1985) which show that specific phonological traits have been noticed and are seen now as typical for California English. Among these traits are lowering and backing of /æ/, lowering of /ɛ/ and finally fronting of /o, u/ (Hinton *et al.*, 1987). Hinton *et al.* (1987) also found that young California speakers, mostly urban middle class, produced back vowels as significantly fronted, and raised front vowels in specific phonological environments. According to Hinton *et al.* (1987), the vowels in California English are shifting, nonetheless, the changes in pronunciation are not only on the West Coast and in the South.

Generally speaking, as Hall-Lew (2011, 809) argues, fronting of /u/ in California English was first observed in 1980s. Several studies focusing on this phenomenon considered ethnicity as a factor of fronting. Both Godinez and Maddieson (1985) and Fought (1999) focused on fronting among Mexican Americans. Godinez and Maddieson found that fronting among European Americans is stronger than among Mexican Americans in Southern California. Hall-Lew (2011), however, suggests that neither ethnicity, age, nor gender are significant factors for fronting of back vowels, denying theories about non-white speakers lagging behind white speakers while speaking in GA English. In addition, Hall-Lew’s study also confirmed what has been observed before, for example by Labov *et al.* (2006), that “all speakers regardless of age produce fronted the GOOSE vowel after coronals” (2011: 809).

According to Clopper *et al.* (2005)’s recent study on vowels including also /u/-fronting, the Southern male speakers show significantly fronted /u/ compared to the Northern, New England and Mid-Atlantic male speakers. Fronting of /u/ regarding

female speakers was rather similar to male's patterns, however, /u/ fronting is more advanced for all varieties of American English. Anyhow, the /u/-fronting is still rather limited to Southern and Western part of the United States.

1.2 Czech Language

Vowels in the Czech language are distinct from the ones in English, there are only five short monophthongs, /a e i o u/, and five long monophthongs /a: e: i: o: u:/ (Krčmová 2008). The length of Czech vowel depends on various factors, high vowels are in most cases shorter than low vowels, the length also depends on the position of the vowel in a syllable. If a vowel is the last phoneme of a syllable then it is longer than when its position is in the middle of a syllable (Krčmová 2008).

As already mentioned, the position of vowels in the vowel space has changed over time in different languages and even in different varieties of one language, and the Czech language is no exception. Skarnitzl and Volín (2016) state that there is no major difference in terms of quality distinction between long and short monophthongs in the same pair, e.g. /u/ and /u:/, except for front high vowels; /i/ and /i:/. The vowel /i/ is more centralized, whereas /i:/ is fronter and higher. The high back vowel /u:/ does not show significant fronting in the Czech vocalic system, however, this change might be apparent in few years. Czech speakers have tendency to front /u:/ in Czech and if the fronting and lowering of the vowel will be progressing, the /u/ and /u:/ vowels will be more distinct and therefore there will have to be changes made in terms of transcription. Similar to English, we would have to differentiate between /u/ and /ʊ/ (Skarnitzl & Volín, 2012).

In terms of length distinction of Czech monophthongs, the older data (Hála, 1941) show that the longer monophthongs are twice as long of the shorter ones, however, the newer studies (Skarnitzl, Volín 2016) show different results. Skarnitzl and Volín argue that long vowels /e: a: o:/ are not twice as long as their short counterparts, the values are close to $\frac{3}{4}$ the vowels being longer than the short ones. The smallest difference in length is for /ɪ/ and /i/, the long vowel is only 30% longer than its shorter version. Nonetheless, values for /u/ and /u:/ are the most distinct than for any other vowels, they are somewhere in-between. And as Skarnitzl and Volín (2012) state, if the differentiation of high back vowels on either length or quality level will continue the distinction from other vowels will be even greater.

In general, specific vowels of various languages are shifting its position to the front, and as in SSBE and GA, /u:/ is shifting its position to the front. The movement of back vowels to the front was analysed by Labov *et al.* (1994), who created general principles of chain shifting and divided the changes of vowels into three chain shifts; I. long vowels rise, II. short vowels and nuclei of upgliding diphthongs fall and III. back vowels move to the front. In general, a chain shift is a series of sound changes affecting a set of phonemes. As pronunciation of one phoneme changes, the following one changes as well creating a chain reaction. However, there is no trace of /u:/ vowel shifting its positing in the past. Hála (1960) described /u:/ as a tense high back vowel pronounced with the smallest mouth opening. Producing such vowel takes the tongue far back and up in the mouth. Producing /u/ is almost the same as /u:/, the only difference is that /u/ is slightly further to the front of the mouth (Hála, 1941). The key to acoustic differentiation of vowels are the F1 and F2 values, according to Hála (1941, 1962) for /u/ the values are approximately F1 385 Hz and F2 758 Hz, and for /u:/ F1 350 Hz and F2 680 Hz. Krčmová (1984) also describes the /u/ and /u:/ vowels as phonetically rather stable, there are only apparent differences in pronunciation in specific varieties of the Czech language, such as mid-bohemian variety where the /u/ and /u:/ vowels sound more like /a/.

Hála (1941)'s F1 and F2 measurements of /u:/ and /u/ are different to the ones of Skarnitzl & Volín (2012)'s. Skarnitzl and Volín's measurements are F1 359 Hz and F2 937 for /u/ and F1 304 Hz and F2 769 Hz for /u:/. As Skarnitzl and Volín state the quality of the back vowels was predicted to be more similar, however, the differences suggest further distinction of the back vowels, and thus possible change of the Czech vocalic system.

Skarnitzl and Volín (2012)'s results from a study showed that men and women's pronunciation of non-high long and short vowels does not differ very much. The data provided from their speakers of Czech showed that the F1 and F2 of both long and short /a/, /o/ and /e/ vowels overlapped almost completely, nonetheless, for both /i/ and /i/ there was no overlapping at all. As mentioned above, it is already understood as a well-established phenomenon that high front vowels do not overlap, and same as in English or German: the speakers of Czech differentiate between /i/ and /ɪ/. For /u/ and /u:/, the overlapping was only partial. However, it was apparent that if /u:/ keeps shifting forward (and lowering) it may lead to complete differentiation of high back vowels in vowel quality.

2. RESEARCH QUESTIONS

The purpose of this thesis is to find out whether Czech learners of English produce the tense high back vowel fronted in English words containing the GOOSE vowel, as it is documented as a recent change in English speaking countries, or whether their pronunciation of English /u/ remains to have a back quality, which is typical for the Czech language. The aim is to run a study including 16 participants who will give data whether this change happens or not. The study will be based on eight near-monolingual speakers of Czech and eight bilingual speakers of Czech and English.

It is commonly known that first language (L1) influences the second language (L2). The mother tongue affects learning of the second language, but a lot less is known about the opposite direction and how much L1 and L2 interact. Pavlenko (2003) argues that the second language influences the mother tongue in many areas, in phonology, morphology, semantics, and pragmatics. According to Lord (2008)'s study, in the speech of bilingual speakers' modification of pronunciation of L1 may occur. This thesis, however, explores the influence of L2 on L1 in terms of changes of pronunciation of Czech tense high back vowel /u/.

Long (Flege, 1997) states that the second language learners speak without foreign accent if the acquisition of the L2 starts by the age of 6 years, and learners speak with a foreign accent if the acquisition begin after 12 years. Between the ages 6 and 12 years speaking with foreign accent varies. Long's study is focused on L1 affecting L2. According to the collected data from a questionnaire all of the participants filled, they all started studying English between the age of 7-9, few them were taught by a native speaker for a short period of time, however, none of them lived in an English speaking country, therefore in majority of cases their L2 is strongly affected by their L1 and they speak with a foreign accent. Thus, the question of the study is: *Do Czech learners of English, as a foreign language, produce the GOOSE vowel fronted as it is already well established in English now?*

Based on previous studies it is known that first language (L1) affects the second language (L2) (Flege, 1997). However, there are also studies documenting L2 affecting L1 (Cook 2003, Kesckes 2008). The second research question in this study focuses on L2 affecting L1. Weinreich (1953) was one of the first who claimed that L1 and L2 mutually influence each other. He also states that it is impossible for a bilingual speaker to control two languages on the same level, as monolingual speakers are able to

do. Fledge (1997) also suggests that the inability to control the divergences between the two languages should not be viewed as a disadvantage but rather a “multi-competence”. He argues that bilinguals are hardly able to isolate phonetic systems of L1 and L2, and vice versa (1997) and that the phonetic system might be activated or deactivated which enables the speaker to use different modes of pronunciation in L1 and L2. Fledge also addresses the fact that L1 influences L2, and vice versa, on the phonetic level. “The nature, strength, and directionality of the influence may vary as a function of factors such as the number and nature of categories established for phonic elements of the L1 and L2, the amount and circumstances of L1 and L2 use, language dominance, and so on.” (Fledge, 1997: 173)

Thus, the second question addressed in this study is: *Do Czech learners of English produce the Czech /u:/ fronted due to the influence of L2 on their L1?* To all that is known, the study is expected to show that Czech students of English might have different pronunciation of the /u:/ vowel in Czech due to the changes in pronunciation in English.

3. METHOD

3.1 Subjects

The subjects participating in this study are all native Czechs, who are divided into two groups, into near-monolingual speakers and bilingual speakers. All of the participants are women at the age ranging from 19 to 29 years old (average 24 years old). There are eight near-monolingual speakers and seven bilingual speakers. The aim was to have two groups of eight participants, however, one of the bilingual speakers was excluded, due to Vietnamese origin and her first language being Vietnamese. This study tested only women and formant data reported in the results are not normalized.

The near-monolingual speakers are speakers who have only basic knowledge of English, their level of English is ranging from A1 to B1 level of Common European Framework Reference for Languages in English (Cambridge University, 2017). Seven of the speakers successfully passed the school-leaving exam in English, suggesting their level of language is B1, and according to a questionnaire (see Appendix) they are not in every day contact with English. The remaining speaker has not finished secondary school yet, therefore her level of English is ranging from A2 to B1. None of these

speakers are in contact with native speakers nor have lived in an English speaking country, thus they have not been exposed to changes of pronunciation, such as u-fronting, on a greater scale.

Regarding the bilingual speakers, on the other hand, there are four students of the Department of American and English studies at the Palacký University in Olomouc, Czech Republic. They are students of either English Philology or English for Communicative Interpreting and Translating at the Department of American and English studies. All of these students took a compulsory test in their first year testing their language knowledge and all of them have reached at least B2 level of Common European Framework Reference for Languages in English, suggesting they have achieved a high proficiency level of English. The other three participants are also students of Palacký University who have either attended a language school or English courses at the university, therefore their level of English is also ranging from B2.

The bilingual students from the Department of English and American studies are more likely to be exposed to fronted pronunciation of the GOOSE vowel since they are studying English in English environment.

3.2 Stimuli

This thesis is focused on the GOOSE fronting, thus the experiment is orientated on the /u:/ vowel, however, the study consisted of recording different vowels as well. The list of Czech stimuli contained all of the Czech vowels, both short and long; /a e i o u/ and /a: e: i: o: u:/. The English stimuli contained only specific vowels, such as /i ɪ ɛ æ ʌ ɔ ʊ/. All of the stimuli were monosyllabic or disyllabic words and the original aim was to include only words in the C-V-C (consonant-vowel-consonant) context.

For the English stimuli, there were 37 tokens, and all of them were in the form of C-V-C, beginning either with a labial, coronal or dorsal consonant. The aim for the Czech stimuli was to also choose words in C-V-C, beginning with a labial, coronal or dorsal consonant, nonetheless, a certain number of words begin with vowels.

Labial, coronal and dorsal consonants are consonants divided into groups according to their place of articulation in the mouth and in this study they were chosen to ensure diversity. The aim was to also exclude approximants; however, due to the lack of words containing /u:/ without approximants in Czech, they are included in some

words as well. The total number of Czech stimuli is 103, and the complete list of both Czech and English stimuli can be found in the Appendix.

3.3 Procedure

The chosen target words were previously recorded in Audacity (Mazzoni and Dannenberg, 2016) by using a text to speech synthesiser Acapela group. There were four different voices used for English words (Peter, Harry, Elizabeth and Lucy) and for the Czech stimuli was used a voice Eliska. Using a voice synthesiser and different speakers prevented the participants from imitating the pronunciation patterns, since the aim was to attempt to create natural pronunciation.

The recording sessions consisted of delayed repetition, all of the participants in the study were asked to repeat the target words in full sentences which they heard individually via Praat (Boersma & Weenink 2017) and Sennheiser HD 202 headphones. Near-monolingual participants were played the stimuli only in Czech, bilinguals were played both in Czech and English. The order of Czech and English tasks was balanced across bilingual participants.

After hearing the certain target word, in Czech sittings, the participants also heard a prompt question by a voice synthesiser “*Co jsi slyšel?*” (What did you hear?) and then they were instructed to say a full sentence in a form “*Slyšela jsem slovo ...*” (I heard a word).

(1) *Voice no.1: Pevně*

Voice no.2: Co jsi slyšel?

(2) *Speaker: Slyšela jsem slovo pevně.*

Bilingual speakers were given a sheet of all English stimuli beforehand including distracters, in order to familiarize with the words and eliminate the amount of mispronounced words. Instead of hearing a Czech question after hearing the stimuli, they heard a question “*What should you say?*” The participants were instructed to answer “*I should say ...*” as shown in the following example.

(1) Voice no.1: Head

Voice no.2: What should I say?

(2) Speaker: I should say head.

All of the recordings were made individually in a soundproof booth at the Palacký University by using Handy 4next Zoom audio recorder. In both Czech and English sittings the participants could ask for replaying the stimuli if they did not remember it or got distracted. In Czech sittings the participants heard 103 stimuli, which did not repeated itself. In English sittings the participants heard 37 stimuli, however, the stimuli were randomly played twice in different voices.

3.4 Analysis

All of the data from recording sessions were annotated in Praat. Beginning and end of each of the target words and vowels were annotated, and target words and vowels were also named accordingly. The data then were analysed in Statistica program.

Nonetheless, there were also excluded data from the study, which were tokens which the participants did not hear properly or did not recognize. In English the excluded tokens are of total 41 target words, which are approximately six eliminated tokens per speaker. In Czech, however, the number of eliminated tokens was lower due to the fact that the stimuli were probably more familiar to the participants, the number of mispronounced words are 16, which is one eliminated word per speaker.

3.5 Background questionnaire

A short questionnaire (see Appendix) was given to all of the participants after the recording session. The questionnaire was designed to give information about their knowledge of English and other possible outer influences on their L2.

Eleven of the participants are students of the Palacký University, four of them are studying at the Department of English and American studies, the other seven students are students of the Faculty of Arts who all have attended English courses either at the Palacký University or at language schools. The remaining three participants are speakers who have basic knowledge of English and are not studying anymore, however,

they attended classes of English at grammar school. The last speaker is still a student of grammar school with a basic knowledge of English.

The average age of the bilingual speakers is 22 years and on average they started learning English at the age of seven, the age at the beginning of learning ranging from five to eleven.

Responses to the questions are following; four of the seven bilingual speakers answered positive the question *Have you been taught English by a native speaker? If yes, for how long?* Those speakers were taught by a native speaker either at a secondary school or at a grammar school. Speaker one was taught by a native speaker for five years, speaker two was taught for three years, speaker three for one year and the fourth speaker for six months. The fourth question of the questionnaire was: *Did you attend bilingual grammar school?* One of the speakers responded that she attended bilingual grammar school, however, she was not taught by a native speaker. To the question whether they attended a language school or summer language school, two speakers responded positive, the others negative. Apart from students of the Department of English and American studies, two of the bilingual speakers have attended English courses at the university. The seventh question was: *Have you ever spent more than six months in an English speaking country?* The aim of this question was to find out whether the participants have been exposed to native English and whether their stay abroad influenced their knowledge and pronunciation of English, nonetheless, none of the speakers spent such amount of time in an English speaking country.

The penultimate question of the questionnaire: *How often are you in contact with English native speakers?* was variable, the participants were choosing from six optional answers, 1: 'every day', 2: 'almost every day', 3: '1-2 times a week', 4: 'several times a month', 5: 'several times a year', and 6: 'not at all'. Apart from interacting with lecturers at the university, none of the participants responded that they are in every day contact with an English native speaker, one of the participants responded 'almost every day', other speaker responded 'several times a month', other two speakers responded 'several times a year' and the remaining three speakers are no in contact with English native speakers whatsoever. The last question *How often are you currently exposed to English? (newspaper, music, films, radio, others)* was also variable. In this case the participants were choosing from eight optional answers, 1: 'more than 2 hours per day', 2: 'daily – 1-2 hours', 3: 'daily – less than an hour', 4: 'several hours per week', 5: '1-2

hours per week’, 6: ‘several hours per month’, 7: ‘1-2 hours per month’ and 8: ‘hardly never’. Five of the speakers answered that they are exposed to English ‘more than 2 hours per day’, one speaker responded ‘daily – 1-2 hours’ and the last one responded ‘daily – less than an hour’.

The average age of the near-monolingual speakers is 23 years old, and on average they started learning English at the age of nine, the age difference is ranging from five to twenty.

The near-monolinguals responded the questionnaire as such; only one of the speakers answered positive the question *Have you been taught English by a native speaker? If yes, for how long?* The speaker have been taught by a native speaker for six months. Also, none of the near-monolingual speakers have attended bilingual secondary nor grammar school. The question whether the participants have attended language school or summer language school, only two responded positive, the others negative. Both of the speakers have attended language school for six months. Three of the participants have been also attending English courses at the university. Also, none the near-monolingual participants responded positive on the question *Have you ever spent more than six months in an English speaking country?* On the penultimate question of the questionnaire: *How often are you in contact with English native speakers?* the participants were choosing from six optional answers, four of the speakers responded ‘several times a years’, the other half of the speakers responded ‘not at all’.

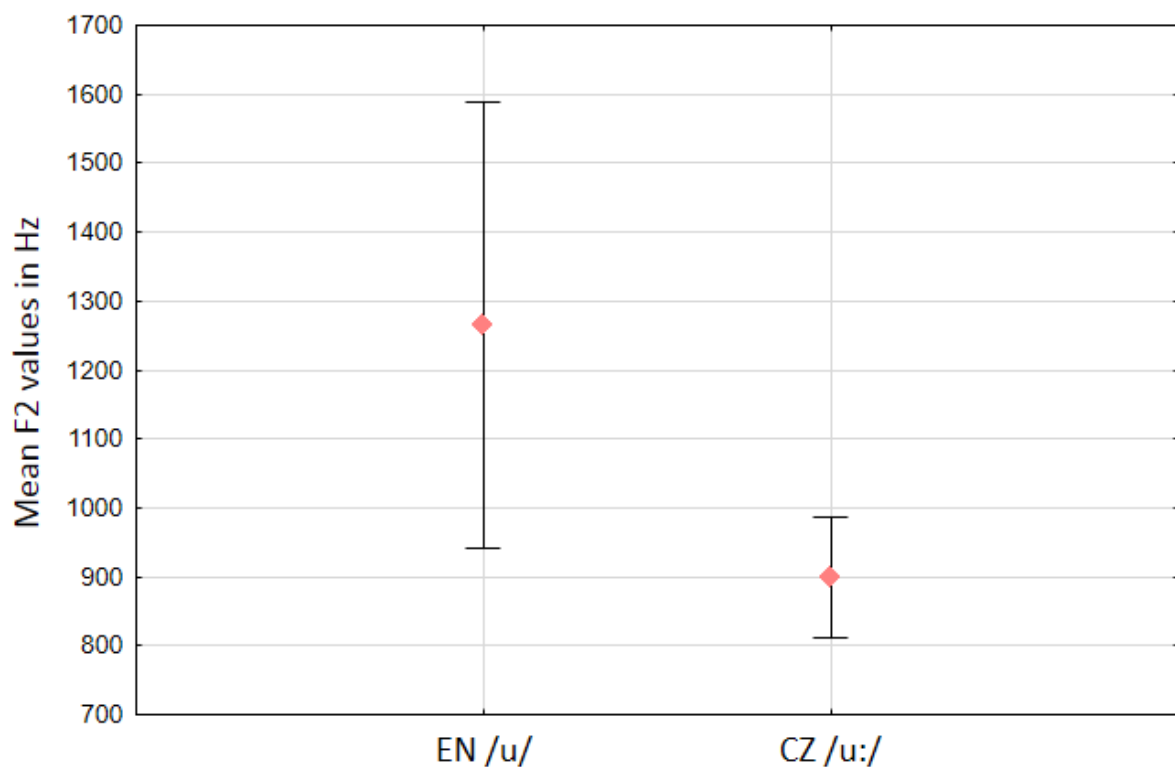
On the last question *How often are you currently exposed to English? (newspaper, music, films, radio, others)* the participants were choosing also from eight optional answers, three of the speakers answered that they are exposed to English ‘more than 2 hours per day’, two speaker responded ‘daily – 1-2 hours’, one speaker responded ‘daily – less than an hour’, other one ‘several hours per week’ and the last speaker responded ‘hardly ever’.

4. RESULTS

The first research question of this thesis was aiming to find out whether Czech bilingual speakers, whose second language is English, produce fronted GOOSE vowel /u/ in English, as it is already a common phenomenon in English speaking countries, or whether their English /u/ has back quality as it has Czech long /u:/.

Mean F2 values of the GOOSE vowel of each bilingual speaker (in Hertz) were submitted to a Repeated Measures Analysis of Variance (ANOVA) with Language as the within-subject factor.

Figure 2. Mean F2 values measured in Hertz of bilingual speakers of the English GOOSE vowel and Czech /u:/.



The result of the RM ANOVA confirmed a significant difference between F2 of the English /u/ and the Czech /u:/, $F(1, 6) = 7.081, p < 0.037$. The Figure 2 shows the dispersion of F2 values of both the English GOOSE vowel and the Czech long /u:/ of the bilingual speakers. The mean F2 values for English GOOSE vowel are 1265 Hz and for Czech long /u:/ they are 899 Hz. In comparison, the mean values of speakers in this study and the mean values of native female speakers from other studies (Deterding,

1997 and Bjelakovic, 2016) show slightly distinct data. Deterding's mean F2 values for female speakers are 1437 Hz, Bjelakovic's mean F2 values, on the other hand, are even higher; 1853 Hz.

Table 1 below shows individual data of all seven speakers in the study, their English F2 values of the GOOSE vowel and Czech F2 values of long /u:/ in Hertz. The speakers are arranged according to their F2 in English, from those who produced the smallest F2 to those with the highest F2s. As the F2 values for the English GOOSE vowel suggest the dispersion is wide, and values of Speaker 1 and Speaker 7 differ greatly. F2 values of Speaker 1 are similar to her Czech F2 values of long /u:/, suggesting the Speaker 1 does not front the GOOSE vowel at all. On the other hand, Speaker 7 has significantly higher F2 values for the English GOOSE vowel, even higher than Bjelakovic (2016)'s mean F2 values for females. Speakers 5 and 6 are the closest to the Deterding's mean F2 values.

Table 1. Individual data of all the English speakers and their English and Czech F2 values of English GOOSE vowel and Czech long /u:/.

	EN F2 /u/	CZ F2 /u:/
Speaker 1	928,2463	911,6743
Speaker 2	990,5195	868,4199
Speaker 3	1105,742	837,7214
Speaker 4	1156,777	912,5117
Speaker 5	1346,277	807,3829
Speaker 6	1361,105	1095,266
Speaker 7	1970,002	863,0867

The aim of the second research question was to find out whether Czech bilingual speakers, whose second language is English, produce the Czech long /u:/ fronted due to influence of their knowledge of L2.

A Repeated Measures ANOVA was used to compare the bilinguals' mean F2 values (in Hertz) of their Czech long and short /u/ and /u:/ with the mean F2 values produced by the Czech near-monolingual control group. The RM ANOVA included the

within-subject factor Vowel (/u/, /u:/) and the between-subject factor Speaker Group (Bilingual, Near-monolingual).

Figure 3 below shows mean F2 values of Czech short /u/ and long /u:/ of bilingual and near-monolingual participants. The values are reported in Hertz, the mean F2 values for the Czech short /u/ being 985 Hz, and for Czech long /u:/ 867 Hz. The data from this study are compared in Table 2 below together with Hála (1941)'s data and with more recent data from Skarnitzl & Volín (2012). The data from this study are slightly higher than the data from Skarnitzl & Volín, suggesting the participants in this study front more both their Czech long /u:/ and short /u/.

Table 2. Mean F2 values of Czech /u/ and /u:/ from the data from this study, Hála's study and Skarnitzl and Volín's study.

this study		Hála's values		Skarnitzl & Volín's values	
/u/	/u:/	/u/	/u:/	/u/	/u:/
985 Hz	867 Hz	758 Hz	680 Hz	937 Hz	769 Hz

The statistical analysis showed no significant effect of the Speaker group ($p < .05$); however, it showed a significant effect of Vowel [$F(1, 13) = 38.529, p = .00003$]: Czech /u/ has a significantly higher F2 than Czech /u:/.

Figure 3. Mean F2 values measured in Hertz of the near-monolingual speakers, of Czech long /u:/ and short /u/.

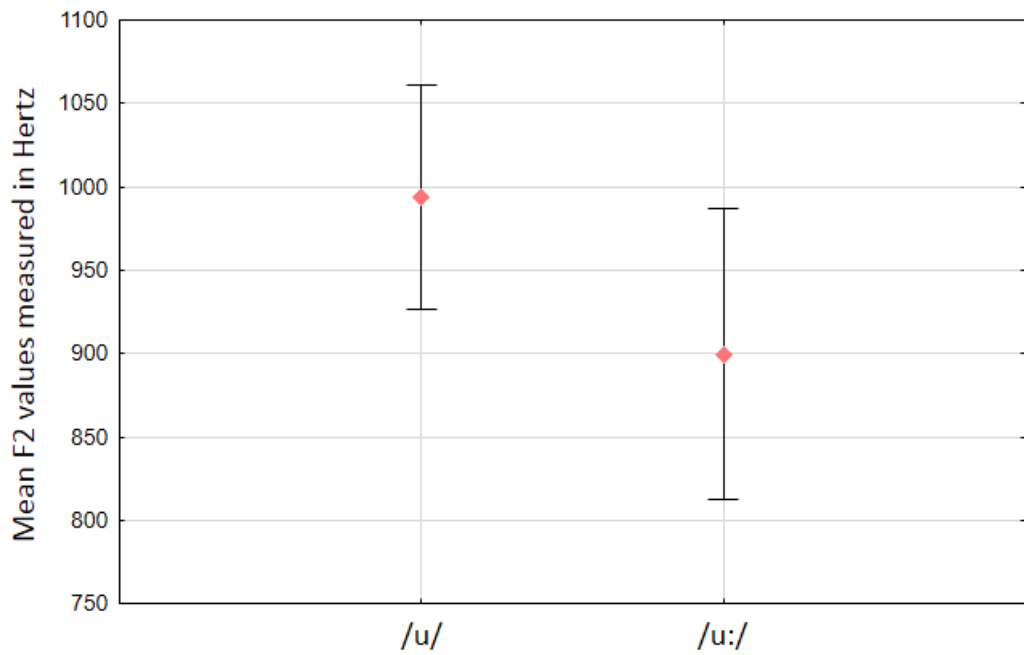
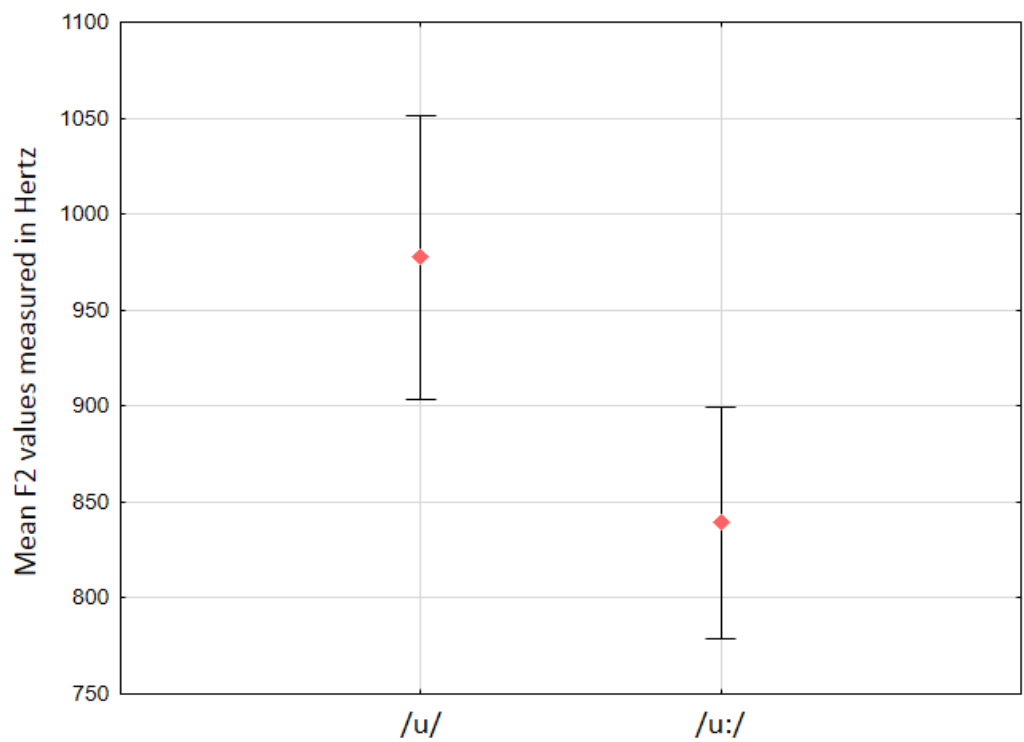


Figure 4. Mean F2 values measured in Hertz of the bilingual speakers, of Czech long /u:/ and short /u/.



Also, there was no significant interaction between Speaker Group and Vowel; mean F2 values of bilingual and near-bilingual speakers for Czech long /u:/ and for short /u/ are rather similar. For Czech short /u/, the mean F2 value of near-monolinguals is 993 Hz, and for bilinguals 977 Hz. For Czech long /u:/, the mean F2 value of near-monolinguals is 839 Hz and for bilinguals it is 899 Hz.

In the Table 3 are F2 values of Czech long /u:/ for individual monolingual and bilingual speakers arranged from the lowest to the highest values within each group. Comparing the data from this study and mean F2 values of /u:/ by Skarnitzl & Volín (2012), some speakers front their Czech /u:/, especially the bilingual Speaker 7 but also the near-monolingual speaker 15, however, rest of the speakers have F2 values typical for /u:/ or only slightly higher. The bilingual speakers, nonetheless, show that they differentiate between the English GOOSE vowel and the Czech long /u:/.

Table 3. F2 values of Czech /u:/ of both bilingual and near-bilingual speakers measured in Hz.

BILINGUAL		NEAR-MONOLINGUAL	
F2 /u:/ values in Hz		F2 /u:/ values in Hz	
Speaker 1	807	Speaker 8	727
Speaker 2	837	Speaker 9	791
Speaker 3	863	Speaker 10	808
Speaker 4	868	Speaker 11	821
Speaker 5	911	Speaker 12	845
Speaker 6	912	Speaker 13	854
Speaker 7	1095	Speaker 14	897
		Speaker 15	968

5. GENERAL DISCUSSION

Based on the literature review in the first part of this thesis, the assumption was that bilingual speakers will front both their GOOSE vowel as well as their Czech /u:/. However, the results from the recording sessions do not show significant values of fronting for both of the research questions.

The results described above regarding the first research question show significant values for F2 of fronting of the GOOSE vowel for the bilingual speakers. The study shows that bilingual speakers have different F2 values of the English GOOSE vowel and Czech long /u:/, meaning that they are able to differentiate pronunciation of the high back vowel between the two languages. Six of the participants showed fronting of the GOOSE vowel, however, there were two completely distinct results of the F2 values. In one case one of the speakers has roughly the same F2 values for the English /u/ and for the Czech /u:/, on the other hand, the other speaker has significantly higher F2 values of the GOOSE vowel than any other participant. The other two of the remaining five speakers have F2 values close to Deterding (1997)'s mean F2 values of the GOOSE vowel. Nonetheless, the rest have lower F2 values, suggesting they front the English GOOSE vowel, but not as much as the three speakers who have the F2 values higher than 1300 Hz.

The second research question was focusing on the fronting of the Czech long /u:/. It was hypothesized that the bilingual speakers will front the Czech long /u:/ due to having a high proficiency level of English, however, the mean F2 values say otherwise. The mean F2 values of the seven bilingual speakers are rather similar to the ones of the near-monolingual speakers. There are, nonetheless, few exceptions regarding the group of bilinguals, the overall F2 values are not significant, but the F2 values of individuals are different. One speaker has considerably fronted the Czech /u:/ than the other participants. Nonetheless, one of the near-monolingual speakers has also higher F2 values for the Czech long /u:/. The overall mean F2 values of /u/ and /u:/ from this study are higher than the ones Skarnitzl & Volín (2012) have, suggesting the participants in this study front both short /u/ and long /u:/ more than the participants in the other study.

Along with the recording sessions, the participants were given a questionnaire which was designed to find out about their knowledge of English language and possible influences on their L2. Since none of the participants spent more than six months in an

English country and majority of them are not in contact with any native speakers of English frequently, besides lecturers at the university, therefore the possible outer influences are limited. All in all, the questionnaire did not reveal any surprising data, most of the possible influence comes from being exposed to English via music, films, newspaper and so on. As the results from the first research question shows not all of the bilingual speakers front the GOOSE vowel, even though they have been either studying at the Department of English and American studies or have attended several English courses or language schools, which is rather surprising.

Despite the presumptions the results from the study showed mixed data, the mean F2 values of the first part of the study showed significant difference between the English GOOSE vowel /u/ and the Czech long /u:/, meaning that Czech bilinguals speakers front the GOOSE vowel, possibly because of being exposed to English in various ways, however, mostly because of studying English as their major, or attending courses at the university, or language schools. Nonetheless, the results from the second part of the study did not show any significant value for fronting Czech /u:/ when comparing the data between bilinguals and near-monolinguals.

6. CONCLUSION

This thesis focuses on the pronunciation of the GOOSE vowel by Czech speakers of English who have a high proficiency level. The thesis is divided into two main parts, the first part discusses the relevant literature and the second part is dedicated to the study. The literature review focuses on fronting of the GOOSE vowel in both Southern Standard British English and General American English, and also on fronting of the long /u:/ in the Czech language. In general, fronting of the high back vowel has been a change that has been happening for several decades in English speaking countries, and has been a recent change in Czech language as well.

In the second part of the thesis there was an experiment conducted to test fifteen speakers aiming to show whether Czech bilingual speakers front the GOOSE vowel, and whether the same bilingual speakers front the Czech long /u:/. The results from the bilinguals were then compared with the F2 values near-monolingual speakers provided. As mentioned in previous chapters, our first language influences our second language, and vice versa, thus, the presumption was that the bilingual speakers will front the GOOSE vowel and Czech /u:/. The results from the first research question shows that according to the mean F2 values the Czech bilingual speakers front the GOOSE vowel. The mean F2 values regarding the second research question shows no significant difference in pronunciation of /u:/ between the bilingual and near-monolingual speakers.

7. RESUMÉ

Tématem této bakalářské práce je vyslovování anglické samohlásky ‚GOOSE‘ neboli anglické horní zadní samohlásky /u/ u českých mluvčích, jejichž znalost anglického jazyka je na vysoké úrovni. Hlavním cílem práce je zjistit, zda u bilingvních studentů, kteří mají jako druhý jazyk angličtinu, dochází ke změně výslovnosti této samohlásky a je tak vyslovována jako přední, nebo zda má stejné vlastnosti jako české dlouhé /u:/ a je tak zadní. Dalším cílem práce je zjistit, jestli jsou bilingvní studenti ovlivněni anglickým jazykem natolik, aby jejich české dlouhé /u:/ bylo vyslovováno jako přední.

Změna vyslovování samohlásky ‚GOOSE‘ je v anglicky mluvících zemích fenomén, který probíhá již několik desetiletí. V anglickém jazyce u starších jedinců k posunu ve výslovnosti nedochází v takové míře jako u mladší generace, nicméně tato změna začíná být patrná i českém jazyce (Skarnitzl & Volín 2012).

Tato bakalářská práce je rozdělena na dvě části, první část se zabývá relevantní literaturou na toto téma, hlavní důraz je kladem zejména na změny ve výslovnosti ve standardní britské angličtině a americké angličtině, část první kapitoly se pak věnuje výslovnosti českého /u/ a /u:/ a možným budoucím změnám.

Praktická část bakalářské práce je věnována experimentu, kterého se účastnilo patnáct mluvčích, osm českých monolingvních mluvčích a sedm bilingvních mluvčích, u nichž prvním jazykem je čeština a druhým angličtina. Výzkum spočíval v nahrávání slov v českém jazyce, u bilingvních mluvčích i v anglickém jazyce. Slova byla poté analyzována a průměrné hodnoty F2 dokazují, že u bilingvních mluvčích dochází ke změně výslovnosti na přední samohlásku. Někteří mluvčí mají velmi podobné hodnoty jako mluvčí účastníci se studií Deterdinga (1997) a Bjelakovice (2016). Ve druhé části výzkumu proběhla analýza pouze českých slov, a to od bilingvních a monolingvních mluvčích. Průměrné hodnoty F2 byly posléze porovnány a výsledky ukázaly, že v českém jazyce u bilingvních mluvčích nedochází k výraznému posunu ve výslovnosti u českého /u:/, a že hodnoty mezi monolingvními a bilingvními mluvčími jsou téměř totožné.

WORKS CITED

- Acapella Group. 2015. "Acapella Text to Speech Demo." Accessed February 15.
<http://www.acapela-group.com/>.
- Bjelakovic, Andrej. 2016. "The vowels of contemporary RP: vowel formant measurements for BBC newsreaders." *English Language and Linguistics*, page 1 of 32.
doi:10.1017/S1360674316000253
- Boberg, Charles. 2011. "Reshaping the Vowel System: An Index of Phonetic Innovation in Canadian English." *U. Penn Working Papers in Linguistics*, Volume 17.2, 21-29.
- Boersma, Paul, & David Weenink. 2017. Praat, vers.6.028, a system for doing phonetics by computer.
- Cambridge English. 2017. "International Language Standards." Accessed April 3.
<http://www.cambridgeenglish.org/exams/cefr/>.
- Clopper et al. 2005. "Acoustic characteristics of the vowel systems of six regional varieties of American English." *The Journal of the Acoustical Society of America*, 118(3 Pt 1), 1661–1676.
- Cook, Vivian. 2003. "The Changing L1 in the L2 User's Mind." In *Effects of the Second Language on the First*, edited by Vivian Cook, 1-18. London: Cromwell Press Ltd.
- Cox, Felicity, and Sallyanne Palethroe. 2001. "The changing face of Australian English vowels." In *Varieties of English Around the World: English in Australia*, 17-44. Amsterdam: John Benjamins Publishing.
- Dell, Inc. 2014. Statistica, vers.13, statistical program.
- Deterding, David. 1997. "The Formants of Monophthong Vowels in Standard Southern British English Pronunciation." *Journal of the International Phonetic Association*, 27(1-2):47 – 55.
doi:10.1017/S0025100300005417.
- Dewaele, J. and Pavlenko, A. 2003. "Productivity and lexical diversity in native and non-native speech: A study of cross-cultural effects." In *Effects of the Second Language on the First*, ed. Vivian Cook, 120-141. London: Cromwell Press Ltd.
- Eckert, Penelope. 1989. "The whole woman: Sex and gender differences in variation." *Language Variation and Change*, 1(3), 245-267. doi:10.1017/S095439450000017X.
- Flege, James E. 1997. "Amount of native-language (L1) use affects the pronunciation of an L2." *Journal of Phonetics*, Vol. 25(2), 169-186.
- Fought, Carmen. 1999. "A Majority Sound Change in a Minority Community: /u/-fronting in Chicano English." *Journal of Sociolinguistics*, 3(1), 5–23.
- Gimson, A. C. 1994. "The English Vowels." In *Gimson's Pronunciation of English* 5th edition, edited by Alan Cruttenden. London: Routledge.

- Gimson, A. C. 1996. *An Introduction to the Pronunciation of English*. Bristol: Bookbarn International.
- Godinez, M.Jr., and Maddieson M. 1985. "Vowel Differences between Chicago and General Californian English." *International Journal of Society and Language*, 43-58.
- Goldberg, Whoopi. 1985. "Surfer Chick." *Original Broadway Show Recording*. Geffen Records.
- Gordon, Elizabeth, et al. 2004. *New Zealand English: Its origins and evolution*. Cambridge: Cambridge University Press.
- Hála, Bohuslav. 1941. "Akustické složení samohlásek českých." In *Akustická podstata samohlásek*. Praha: Nákladem České akademie věd a umění.
- Hála, Bohuslav. 1960. "Samohlásky." In *Fonetické obrazy hlásek*. Praha: Státní pedagogické nakladatelství.
- Hall-Lew, Lauren. 2011. "The Completion of a Sound Change in California English." In Proceedings of ICPHS XVII. The International Congress of Phonetic Sciences, Hong Kong, 807-810.
- Harrington et al. 2008. "Compensation for coarticulation, /u/-fronting, and sound change in standard southern British: An acoustic and perceptual study." *The Journal of the Acoustical Society of America* 123, 2825-2035. doi:<http://dx.doi.org/10.1121/1.2897042>.
- Harrington et al. 2011. "The Contributions of the Lips and the Tongue to the Diachronic Fronting of high Back Vowels in Standard Southern British English." *Journal of the International Phonetic Association*, 2011, 41/2. doi:10.1017/S002510031000026.
- Hinton et al. 1987. "It's Not Just the Valley Girls: A Study of California English." *Annual Meeting of the Berkeley Linguistics Society*, 13: 117-128.
- Hinrichs et al. 2013. "Real-Time Trends in the Texas English Vowel System: F2 Trajectory in GOOSE as an Index of a Variety's Ongoing Delocalization." *Rice Working Papers in Linguistics*, vol. 4.
- Hawkings, Sarah, and Jonathan Midgley. 2005. "Formant frequencies of RP monophthongs in four age groups of speakers." *Journal of the International Phonetic Association* (2005) 35/2. doi:10.1017/S0025100305002124.
- Hillenbrand et al. 1995. "Acoustic characteristics of American English vowels." *The Journal of the Acoustical Society of America*, 3099-3111. doi:<http://dx.doi.org/10.1121/1.409456>
- Chládková, Kateřina, and Silke Hamann. 2011. "High Vowels in Southern British English: /u/-Fronting does not Result in Merger." In Regular Session of ICPHS XVII. The International Congress of Phonetic Sciences, Hong Kong, 476-479.
- Jacowitz et al. 2011. "Regional Dialect Variation in the Vowel Systems of Typically Developing Children." *Journal of speech, language, and hearing research*, Vol. 54, 448-470. doi:10.1044/1092-4388(2010/10-0161).

- Koops, Christian. 2010. "/u/-Fronting is not Monolithic: Two Types of Fronted /u/ in Houston Anglos." *U. Penn Working Papers in Linguistics*, Vol. 1, 112-122.
- Krčmová, Marie. 1984. *Fonetika a fonologie českého jazyka*. Praha: Státní pedagogické nakladatelství.
- Krčmová, Marie. 2008. *Fonetika a fonologie*. Brno: Masarykova Univerzita.
- Labov, William, et al. 1972. *A quantitative study of sound change in progress: Volume 1*. Philadelphia, PA: University of Pennsylvania.
- Labov, William. 1994. *Principles of linguistic change. Volume I: Internal Factors*. Oxford: Basil Blackwell.
- Labov, William. 2000. *Principles of Linguistic Change. Volume 2: Social factors*. Oxford: Blackwell
- Labov, William, et al. 2006. "The North American English Vowel System." In *The Atlas of North American English: Phonetics & Phonology*. Berlin: Mouton de Gruyter.
- Ladefoged, Peter, and Keith Johnson. 2014. *A Course in Phonetics* 7th edition. Boston: Wadsworth Publishing.
- Lord, Gillian. 2008. "Second Language Acquisition and First Language Phonological Modification." *Selected Proceedings of the 10th Hispanic Linguistics Symposium*, ed. Joyce Kecskes, Istvan. 2008. "The effect of the second language on the first language." *Babylonia*, 2/08, 31-34.
- Mazzoni, Dominic, and Roger Dannenberg. 2016. Audacity, vers.2.1.2, an audio software for multi-track recording and editing.
- Mesthrie, Rajend. 2010. "Socio-phonetics and social change: Deracialisation of the GOOSE vowel in South African English." *Journal of Sociolinguistics*, Volume 14, Issue 1, February 2010, 3–33. doi:10.1111/j.1467-9841.2009.00433.x.
- Peterson, Gordon E., Harold L. Barney. 1952. "Control Methods Used in a Study of the Vowels." *The Journal of the Acoustical Society of America*, Vol. 24, No. 2, 175-184.
- Roach, Peter J. and Hartman J. 1997. *English Pronouncing Dictionary* 15th edition. Cambridge: Cambridge University Press.
- Skarnitzl, Radek., and J. Volín. "Referenční hodnoty vokálních formantů pro mladé dospělé mluvčí standardní češtiny." *Akustické listy* 18 (2012): 7-11.
- Skarnitzl, Radek et al. 2016. "Vokály." In *Zvuková báze řečové komunikace*, 47-53. Praha: Univerzita Karlova v Praze, nakladatelství Karolinum.
- The International Phonetics Association. 1999. "Vowels." In *The Handbook of the International Phonetics Association*, 10-13. Cambridge: Cambridge University Press.
- Thomas, Erik R. 2001. *An Acoustic Analysis of Vowel Variation in New World English*. Durham: Duke University Press.

Thomas, Erik R. 2004. "Rural Southern white accents." In *A Handbook of Varieties of English, Vol. 1: Phonology*, ed. E. Schneider et al., 300-324. New York: Mouton de Gruyter.

Torgersen, Eivind N. 2002. "Phonological distribution of the FOOT vowel in young people's speech in south-eastern British English." *Reading Working Papers in Linguistics* 6. 25-38.

Weinreich, Uriel. 1953. *Languages in Contact: Findings and Problems*. New York: Linguistic Circle of New York.

Wells, John C. 1982. "Standard Lexical Set." In *Accents of English*, 127-162. Cambridge: Cambridge University Press.

Wolfram, Walt and Natalie Schilling-Estes. 2006. *American English: Dialects and Variation* 2nd edition. New Jersey: John Wiley & Sons.

Zappa, Frank. 1982. "Valley Girl." *Ship Arriving Too Late It Save a Drowning Witch*. Barking Pumpkin Records.

APPENDIX

Questionnaire

Name:

Age:

Are you a university student?

If yes, in what year?

At what age did you start studying English?

Have you been taught English by a native speaker?

If yes, for how long?

Did you attend bilingual grammar school?

Apart from elementary/grammar school, have you attended language school or summer language school?

Have you attended English courses at the university?

Have you ever spent more than six months in an English speaking country?

How often are you in contact with English native speakers?

- every day
- almost every day
- 1-2 times a week
- several times a month
- several times a year
- not at all

How often are you currently exposed to English? (newspaper, music, films, radio, others)

- more than 2 hours per day
- daily – 1-2 hours
- daily – less than an hour
- several hours per week
- 1-2 hours per week
- several hours per month
- 1-2 hours per month
- hardly never

Stimuli

English stimuli

i	ɪ	ɛ	æ	a	ʌ	o	ɔ	u	ʊ
heed	hid	head	had	half	hud	hod	hawk	dude	hood
beast	fist	best	bad	bath	bus	boss	bought	boost	book
these	did	dead	dash	gasp	dust	dog	jaws	goose	good
								boot	foot
								Luke	look
								hoof	hook

Czech stimuli

a	á	e	é	i	í	o	ó	u	ú
mapa	láska	vepř	péče	biftek	lízat	odnos	chór	bublat	kůzle
papež	páv	vepře	géčko	lidem	pípa	opak	chóry	buben	úder
kachna	páva	chechot	béčko	sysel	zítra	kochat	dóza	pupen	google
sada	kára	cesta	génius	žito	kýta	kokos	gól	uvař	vůbec
taška	záda	teda	čěška	vyber	chýška	sosna	góly	ubal	zůstat
pavlač	cháska	deset	vést	pivo	sídla	poplach	móda	dusno	úpal
data	chátra	keks	sépie	kytka	kýchat	okov	óda	dudek	úkol
kasa	sázka	pevně	kěž	gigant		bobek	sóla	dusat	původ
	vápno	pepa	sérum	chytal		otok	kód	udat	úsek
	bába	hekat					póza	tucet	útok
								chuchle	úkaz
								ukaž	úchop
								kukla	důtka
								ucho	půvab
								ukroj	úbor