

Charles University
Faculty of Education
Department of English Language and Literature

Bachelor Thesis

STRESS SHIFT IN CZECH ENGLISH

Změna slovního přízvuku v české angličtině

Michal Farana

Supervisor of the thesis: Mgr. Kristýna Červinková Poesová, Ph.D.
Study programme: Specialisation in Education
Study subjects: English & Pedagogy

Prague 2016

Author's declaration

I solemnly declare that this bachelor thesis was created completely by myself and no other sources were used than those listed in works cited section.

Prague, December 2016

Signature: _____

Acknowledgements

I would like to thank to Mgr. Kristýna Červinková Poesová, Ph.D. for her supervision, beneficial pieces of advice and first and foremost her kind and supportive approach through the creation of this work. Another thank you belongs to all my respondents for their obliging participation in the research. And finally, to Chris, who willingly helped me to analyse the recordings.

Abstract

The purpose of the bachelor thesis is to explore how Czech speakers of English are able to predict and apply stress shift in their speech. The theoretical part gives a brief description of the English stress system and focuses primarily on a detailed exploration of the stress shift phenomenon and its function in relation to the rhythmic structure of English. The practical part aims at examining the ability of Czech speakers to produce stress shift in selected contexts. The respondents were recorded reading a text with items that typically undergo stress shift. The data obtained from these recordings were perceptually analysed and subsequently used to either prove or disprove the hypotheses formulated at the beginning of the research.

Key Words

lexical stress, sentence stress, rhythm, stress shift, Czech English

Anotace

Účelem této bakalářské práce je zjistit, jak jsou čeští mluvčí anglického jazyka schopni předvídat a používat změnu slovního přízvuku v jejich řeči. Teoretická část ve stručnosti popisuje systém slovního přízvuku a zaměřuje se především na detailní průzkum fenoménu změny slovního přízvuku a její funkci v návaznosti na rytmickou strukturu jazyka. Praktická část poté zkoumá schopnost českých mluvčích produkovat tuto změnu ve vybraném kontextu. Respondenti byli nahráni při čtení textu obsahující charakteristické příklady slov, jejichž přízvuk se vlivem kontextu mění. Data získaná na základě těchto nahrávek byla poslechově analyzována a následně posloužila k potvrzení či vyvrácení hypotéz stanovených na začátku výzkumu.

Klíčová slova

slovní přízvuk, větný přízvuk, rytmus, změna slovního přízvuku, česká angličtina

Table of Contents

1. Introduction	6
2. Theoretical part	7
2.1. Linguistic stress	7
2.1.1. Lexical stress	8
2.1.2. The rules of stress distribution	10
2.2. Sentence stress	12
2.2.1. Rhythm	12
2.3. Stress shift	14
2.3.1. Stress clash and the use of metrical grid	16
2.3.2. Occurrence of stress shift	17
2.3.3. Stress shift and clause boundaries	21
2.3.4. Collision of Czech and English stress patterns	22
3. Practical part	24
3.1. Method and course of the research	25
3.1.1. Research material	26
3.1.2. Respondents	27
3.1.3. Data analysis	28
3.2. Results	30
3.2.1. Results regarding the individual groups of words	34
3.3. Discussion	39
4. Conclusion	41
5. Works Cited	43
6. Appendices	45

1. Introduction

Linguistic stress represents one of the suprasegmental features that in language hierarchy are placed above the basic speech segments, namely vowels and consonants. Its phonetic and phonological features have already been studied and examined by a great number of researchers. Based on the metrical stress theory, which scrutinises how stress patterns in different languages, stress could be regarded as the linguistic manifestation of rhythmic structure. The general tendency in the English language is to distribute stressed syllables equally in time, and therefore the speech maintain certain periodicity. However, when a polysyllabic word with prominence falling on the last syllable is followed by another strong syllable, the process known as stress shift is applied in order to prevent both stresses from clashing and causing a disharmony to otherwise symmetrically distributed utterance.

The aim of this bachelor thesis is to examine the character and occurrence of this phenomenon in the speech of Czech users of English. Based on author's own experience as one of the students, the whole issue of linguistic stress is rather challenging to handle, first and foremost because of its complexity. The first few chapters of the theoretical part focus on the specification of English lexical stress and some of the rules that help to assign it. Then it gradually moves to the relationship of lexical and sentence stress, the rhythmic pattern that is natural for the language, and finally it scrutinises the process of stress shift and the principles of its realisation.

The practical part investigates the occurrence or absence of stress shift in the speech of Czech language users. For this purpose, a research was carried out in order to ascertain whether and to what extent two different groups of the language learners are able to apply the process lest the systematic periodicity of an utterance is disrupted. It provides a thorough description of the method, tailored specifically to the purpose of this work, and introduces the sample of respondents involved in the study. Then it presents the results based on the data analysis and discusses the validity of the predictions formulated at the beginning of the research.

2. Theoretical part

2.1. Linguistic stress

Human speech is not a mere sequence of sounds. Apart from the segments, vowels and consonants, which together create the basic composition of speech, there are other features placed above and accompanying them, generally known as suprasegmental or prosodic features; tone, intonation, and linguistic stress. These are not restricted to single sounds but extend over syllables, words, and phrases, and therefore can be observed primarily in connected speech (Roach 69). As it was noted in the introduction, this thesis does not examine all the suprasegmental features, but focuses on the examination of linguistic stress and the process through which stress is shifted.

Stress, very often referred to as prominence as well, is a prosodic phenomenon which occurs on the syllable level. In a simplified way, some syllables in the spoken form of a language tend to stand out and are more distinct than the surrounding ones (Ashby and Maidment 130). The way how the prominence of a syllable is realised varies across languages, but it is usually based on the combination of several factors, including variations in loudness, length, and pitch of a spoken syllable. Liberman and Prince define this phenomenon as a specific intensity that is given to a syllable by an effort in the utterance, thanks to which the syllable appears louder to the listener (Liberman and Prince 251). Basically, it could be said that the stressed syllable is then much louder and definitely longer than the surrounding unstressed syllables, and, moreover, that it could be signified by the change of tone in comparison to the preceding syllables (Ashby and Maidment 130). Nevertheless, according to Hayes, who builds his conviction on the ground of a careful experimental work, no physical correlate can be used as a direct reflection of linguistic stress (Hayes 6). As far as the definition itself is concerned, he believes that there is no satisfactory physical definition of the phenomenon and that it is often considered as one of the unsolved problems in modern phonetics. Hayes refers chiefly to the work of Fry, who carried out many experiments in the perception of stress. Fry found out that loudness, despite being the most natural physical correlate, has the least effect on its perception. On the contrary, changes in the

length of syllables and alteration of pitch contours seem to be the principal cues for the perception of stress (Fry 766).¹

Hayes further declares that stress is parasitic, since it uses the phonetic resources that otherwise serve different phonological purposes (Hayes 6). For example, variations in pitch function as a phonetic cue for intonation, which has a phonemic status in a group of tone languages. Furthermore, duration usually serves as a representation of vowel length and might be phonemic as well. For those and many other reasons, stress is language-specific, with obvious differences across languages.

2.1.1. Lexical stress

Stress and its phonetic and phonological features have been examined and studied by a great number of researchers for a long period of time. It is important to realise that stress in a language serves multiple purposes. First of all, it creates the phonemic contrasts, in the sense that it helps to discriminate the speech sounds and influences the quality of vowels, marks the syntactic and morphological structure, functions as a contrastive property of words, indicates the focus point of the utterance (Hayes 31), and furthermore represents the linguistic manifestation of rhythmic structure (Hayes 1). As a general consensus, the most fundamental classification according to many of the studies carried out in this field would be the distinction between lexical and sentence stress (Mompeán 1). The term “lexical stress” stands for the prominence that falls on syllables within words, in the sense that every word or phrase consists of at least one stressed syllable. It also refers to the capability of a syllable to carry that prominence. In a variety of literature, lexical stress is often known as word stress, since it operates within word boundaries. Another naming for lexical stress might be encountered in the theory presented by Liberman and Prince and that is relative prominence, regarding the relations defined on the constituent structure (Liberman and Prince 249). It was previously pointed out that there are significant differences between languages in terms of the phonetic

¹ Physical properties of stress are mentioned just through the interest in this area and are not treated here in detail.

characteristics of stress and its phonemic status, which leads us to the fact that stress placement is, naturally, language-specific as well. Before we focus on the rules of stress distribution in English, the distinction between fixed and free stressed languages should be mentioned.

Fixed stress is predictable and may be determined simply by rule. In other words, stressed syllable has in the majority of words of a particular language constant, unchangeable position; stress is usually fixed to the first, last, or penultimate syllable of a word. To give an example, Czech represents a language with stress fixed on the first syllable. If any prefixes are added to words, it moves to the beginning of words so that the position does not change and the stress rule is not violated (Ashby and Maidment 133). In comparison to fixed stress, free stress is less predictable and much more variable. However, being free in this case does not mean that the position of stress is liberal or optional to the speaker. It indicates that there is not a single rule that might be applied to all words of the language (133). For example, the arrangement of stressed and unstressed syllables in English is immensely complicated. Kingdon suggests that the complexity of this issue is grounded primarily in the fact that English vocabulary has been combined from the variety of Germanic and Romanic sources, both having different tendencies for stress placement. Whilst Germanic languages tend to place main stress on the earlier syllables of words, stress in Romanic languages falls mostly on later syllables (Kingdon 12). Furthermore, its placement is also affected by word formation processes; stress behaves differently in newly created words such as in complex words (influenced by the occurrence of various affixes), in compounds, acronyms etc.² Kingdon believes that English stress pattern does not follow any rules whatsoever and advises others to approach this issue by studying each case separately (Kingdon 13). Similarly, Hayes claims that because of this extremely irregular distribution of stressed and unstressed syllables, stress must be listed lexically, typically by placing metrical structure in lexical entries, since it often functions as a contrastive property of words (Hayes 31). Nevertheless, a number of scholars and researchers showed different approaches to the examination of this phenomenon and identified a number of stress rules that to some extent determine

² For the citation form stress pattern of these words see chapter 2.3.3 Occurrence of stress shift.

its distribution, typically grounded in morphology or phonology principles (Mompeán 1).

2.1.2. The rules of stress distribution

A few words should be mentioned about metrical stress theory, a branch of a theory of generative phonology dealing with stress patterns of languages. Its key claim is that stress is a linguistic demonstration of rhythmic structure (Hayes 1). Based on metrical stress theory, the following stress rules are principal for the later understanding of stress shift; they tell us that stress is culminative, hierarchically organised, and rhythmically distributed.

First of all, one distinctive phonological feature of stress according to Liberman and Prince is that stress is culminative, in the sense that main stress might be assigned to one single syllable in every existing word or phrase (Liberman and Prince 262). Hayes states that in English, stress is culminative on the word level (there is a syllable with the strongest stress in every content word), on the level of intonational phrase (the most dominant word of the phrase), and on other levels, too (Hayes 24). An exception to the rule of culminativity may be found in grammatical words. It is a group of words that function for certain grammatical purposes and are usually phonologically attached to neighbouring content words; for that reason they are also referred to as functional. It is often claimed that even though this class of words belongs primarily to grammar, not to phonetics, they are crucial to the description of English pronunciation. When grammatical words are pronounced separately, they are typically stressed (realised as strong forms); however in other cases when standing in content, they are usually stressless (as weak forms), such as English definite article *the* /ðɪ:/ and its unstressed realisation *the* /ðə/ (Roach 34). It might be concluded that the rule of culminativity is restricted to content words only.

The next very important feature is that stress in languages have multiple levels (or degrees), which create an obvious hierarchy (Liberman and Prince 262). There are languages that manage with two levels only, describing syllables as being either stressed or unstressed. The two-level stress system would not be sufficient for

English though (Roach 81). In the majority of two or three-syllable English words only one stressed syllable occurs. On the other hand, longer words consisting of a greater number of syllables usually contain more than just one prominent syllable. To demonstrate this notion, the word *invisibility* could be used as an example. The fourth syllable represents the most strongly stressed part of the word, but in this case the second one is prominent as well. An observant listener may notice the difference in the degree of prominence between these two syllables, with the second one being less prominent than the fourth one, yet more prominent in comparison to the rest of the neighbouring syllables, which are considered to be the least stressed or unstressed [0 stress]. As a result, we get a structure consisting of three levels of stress within one polysyllabic word /ɪnˌvɪzɪˈbɪlɪti/. Following the most traditional approach to the hierarchy of English stress pattern, this work operates with two values of stress, from 1 to 2 decreasing in strength, plus value 0 denoting the prominence of unstressed syllables (Liberman and Prince 251). The most prominent part of the word is then described as primary stress, which equals [1 stress] value, whilst the second dominant part as secondary stress of [2 stress] value.

Furthermore, stress is rhythmically distributed, meaning that syllables bearing the equal level of stress tend to be arranged on the regular basis, so that it creates an alternating pattern (Hayes 25). There is a clear distinction between languages with bounded and unbounded rhythmic systems. Speaking of the bounded stress system, stress is placed on the syllable within a certain distance of another stressed syllable or a boundary. In English, which represents a bounded system, the distances between syllables with the greatest prominence, in other words between the syllables carrying primary stress, appear to be even. On the contrary, stress in a language with unbounded rhythmic system may fall on the syllable within various, unlimited distance of a boundary (Hayes 32).

2.2. Sentence stress

As the principles of stress on the word level have already been covered in the previous chapters of this work, the author can now gradually move to the characterisation of sentence stress. Whilst lexical stress represents the emphasis that is placed on certain syllables within words and considerably even syllable's capability of receiving the prominence, sentence stress relates to the stress pattern of the whole utterance. In other words, it represents the rhythmic structure that is natural for the language, and for that reason it is often referred to as rhythmic stress as well (Mompeán 149).

As far as the sentence stress distribution is concerned, similarly to lexical stress it is language-specific and varies across languages. In English, it tends to fall on the content words, since the grammatical words are mostly stressless and function merely for the grammatical purposes.

2.2.1. Rhythm

The next chapters of the theoretical part focus chiefly on the use of stress following the rhythmic structure of a language. Speaking of linguistic rhythm, it is often defined as the alternation of stressed and unstressed syllables. In languages such as English, speakers tend to adjust the duration of syllables in the spoken utterance, so that unstressed syllables are reduced in order to be shorter in length. As a result of this procedure, stressed syllables appear to be repeated in equal intervals irrespective of the number of unstressed syllables that stand in between (Ashby and Maidment 136). Let us clarify this on the following simple sentence *You and Jennifer are good friends* in Figure 1.

Figure 1: Illustration of rhythmic structure in a simple sentence.

YOU	and	JEN nifer are	GOOD	FRIENDS
------------	-----	----------------------	-------------	----------------

Looking at the sentence, all four syllables highlighted in bold are stressed. There is only one unstressed syllable between the first and the second stressed syllable, and three between the second and the third one. Although, there is no unstressed syllable between the thirds and the fourth. The stretch of speech from a stressed syllable to the following one excluding it is generally called a foot and represents the basic unit of linguistic rhythm. A person with limited knowledge of English and its prosodic structure would probably presume that the second foot consisting of three unstressed syllables takes naturally three times as much time to pronounce in comparison to the first foot that contains just one stressed syllable. However, in real natural speech the duration of all three feet would be practically identical. It follows that the syllabic rate of the second foot must be logically higher than the rate of the first or the third one, and therefore it is the alteration of syllabic rate that determines the duration of a rhythmic unit. For that reason, languages such as English are called stress-timed or isochronous, in the sense that syllables bearing the strongest prominence tend to occur at equal intervals of time and the speech therefore maintains constant periodicity. Nevertheless, instrumental measurement showed that the duration of feet is far from being identical and stress timing is rather a perceptual phenomenon.³ As Dauer suggest, it is much more sensible to refer to these languages as stress-based instead (Dauer 55). Ladefoged argues that it is not just stress but a whole number of interacting factors that influence the rhythm of the sentence and refers to stress-timing as a mere tendency (Ladefoged and Johnson 259). Furthermore, because of the fact that stress in English serves multiple purposes, as mentioned previously in chapter 2.1.1., it is rarely produced with perfect rhythm. Certain resemblance to the perfect strong-weak alternation may be encountered in art after all, especially in poetry or in music. This tendency is generally called a speech eurythmy; a system referring to something rhythmic, harmonious, and melodic (Steiner 42).

Isochronous languages could be compared to another group of languages with noticeably different rhythmic structure. Based on the mere listening to the spoken form of these languages, it is evident that duration of stressed and unstressed syllables is comparable and each syllable takes approximately the same

³ The accurate duration of rhythmic feet in the speech of Czech users is not examined in this work, but it could serve as an individual subject matter for another research.

time. On that account they are generally known as syllable-timed languages or isosyllabic, with Czech being a fine representative (Palková 157). Variations in the syllabic rate of isosyllabic languages is less striking by far. Similarly to the first group mentioned above, term syllable-timed as well is rather misleading; modern literature describe them preferably as syllable-based (Dauer 56). It is crucial to become aware of the fact that the distinction between languages is never entirely clear-cut, and even though one or another is dominant, both tendencies may most probably occur in any kind of language, including English (Ashby and Maidment 137).

Since the difference between stress-timed and syllable-timed languages has now been explained, it is clear that Czech learners of English are likely to experience certain difficulties in producing unstressed syllables with reduced length. This in fact may unfavourably influence the periodicity of an utterance and also affect the production of stress shift.

2.3. Stress shift

Since the tendencies for lexical stress placement have been outlined in the passage devoted to the typology of stress rules (see chapter 2.1.2) and sentence stress has been covered in the following one (chapter 2.2), this work may finally pay attention to the relationship between lexical and sentence stress. Following the long history of systematic investigation into this subject matter, lexical stress is often regarded as an input for sentence stress. In most cases, rules for lexical and sentence stress placement coincide. However, there is a tendency specific for English (and some other stress languages) to avoid two stresses of the same level placed on adjacent syllables, in other words to avoid primary stress falling on a syllable preceding or following another syllable bearing primary stress (Mompeán 2). This tendency is generally known as stress shift. To put it in a simplified way, primary stress is removed from its universal, canonical position in a particular word and subsequently transferred to a previous syllable that carries secondary stress, for example *New York* /,nju: 'jɔ:k/ and *New York City* /'nju: ,jɔ:k 'sɪti/. The reason for this movement is that two stresses equal of [1 stress] value standing side by side would cause a disharmony in otherwise preferred periodicity of the spoken utterance, often

referred to as stress clash (Lieberman and Prince 311). Looking back at the principles of rhythm, it has already been said that there is a tendency to distribute stressed syllables to alternate in nearly identical sequences. Disruption of this periodicity then sets off processes such as stress shift (Grabe and Warren 96). It could be asserted that the primary motivation for stress shift lies in rhythm, hence researchers often call a “rhythm rule” instead (Vogel et al. 111). Lieberman and Prince further operate with the term “stress-retraction” and describe the phenomenon as a process which alleviates the collision between two adjacent stresses by retracting the relative prominence to another position, so that the strong-weak constituent-structure relationship is preserved (Lieberman and Prince 312). Finally, this tendency is often referred to as Reversal Analysis (RA). The second possible approach to stress shift, Deletion Analysis (DA), describes the process from a different perspective; instead of being transferred to the syllable carrying the secondary stress, primary stress is only reduced. The prominence of both syllables therefore equals [2 stress] level /,nju: ˌjɔ:k 'sti/ (Vogel et al. 112).

Stepping back to the beginning of this work where the acoustic correlates of stress in general were discussed, it has been said that syllable duration together with pitch alteration are the most significant cues for both its perception and production. According to the majority of researchers, the same could be applied for the perception and production of stress shift (Mompeán 2). They also claim that not only native speakers, but foreign language learners with higher level of language abilities as well are able to perceive and produce stress shift quite accurately. Furthermore, as Mompeán points out, empirical studies carried out in this field and different theoretical accounts agree in a point that this phenomenon cannot be considered as categorical because of its variability (2). He refers to the studies carried out by Hammond in 1999 who identified some potential factors that somehow determine variation in its use, namely word frequency, speaking rate and number of unstressed syllables placed in between stresses (Hammond 335). This thesis does not aim to examine these factors. Nevertheless, it seems almost impossible to find some more extensive information about the frequency and actual occurrence of this phenomenon in real-life, spontaneous speech, since the data provided through the empirical research are very limited and based practically on reading sentences with

experimental target words (Mompeán 2). Some of Mompeán's contribution into the factors that determine the application of the process are mentioned later in chapter 2.3.2.

2.3.1. Stress clash and the use of metrical grid

Following the metrical stress theory, which introduces stress as a hierarchically organised rhythmic structure, stress clash is a notion that stands for the collision of two adjacent stresses and generates the pressure for change, in other words for stress retraction (Lieberman and Prince 261). Describing it merely as two stresses placed side by side would not be enough, since it appears in certain stress arrangements only. The condition is that both syllables must evince the same level of prominence according to the stress hierarchy - primary stresses (Lieberman and Prince 312). Stress clash is usually described by making use of metrical grid⁴, which was primarily constructed for the purpose of expressing the phenomenon of stress shift (Grabe and Warren 96). According to Hayes, metrical grid functions to draw the temporal structure of the utterance, in other words to indicate stresses within words and feet (Hayes 27). As far as its composition is concerned, all syllables are arranged at the bottom of the grid, equally in time, and every one of them has a matching column above, which in metrical theory are called grid columns. Simply saying, these columns represent a sequence of beats (27). Since syllables in English alternate in prominence, every beat has different strength that is portrayed by the height of the grid column, in other words by the grid marks (the x's above the syllable) on distinctive grid levels (Grabe and Warren 96). Hayes claims that not only the columns but rows as well represent the crucial aspect of a grid, because for every row the reader/speaker can clap in a natural way, one clap per a grid mark (Hayes 27). First of all, Figure 2 demonstrates the use of a metrical grid applied as a representation of stress in a single word.

⁴ Metrical grids are used to demonstrate the application of stress shift.

Figure 2: Illustration of stress hierarchy in the word *oceanography*.

		x		
x		x		
x	x	x	x	x
o	cea	no	gra	phy

In this case, the grid may signify the multiple levels of stress in the word *oceanography* and could therefore be translated into stress hierarchy representation (Hayes 27); the syllable with the highest column above, respectively with the greatest number of corresponding x's, is assigned with [1 stress] value and the syllable with the second highest column [2 stress] value. In other words, the third syllable bears the primary stress, whereas the secondary stress falls on the first one. The rest of the syllables remain unstressed with [0 stress] value.

2.3.2. Occurrence of stress shift

To begin with, there is a large amount of words in English that undergo stress shift, if appear in a convenient stress arrangement. This work operates primarily with compound words, complex words, place names (sometimes referred to as false compounds), and acronyms.

The first potential candidates for stress shift to mention are compound words standing in attributive position. A compound word, shortly a compound, is a fixed expression that was created through one of the major word-formation processes, namely compounding (Booij 76). Speaking of lexicology, compounding represents a fecund process that combines two already existing lexical units in order to produce a completely new, single lexeme, following a number of rules for their realisation; some of them are hyphenated (*big-headed*), other written as two words (*washing machine*) or as a single word (*greenhouse*). Nevertheless, when it comes to the lexical stress placement in compound words, the rules are rather unstable. As a general rule, the majority of polysyllabic compounds have an early stress, in the sense that primary

stress falls on the first element of a compound, such as in *blackbird* /'blækbɜ:d/. The second option is that primary stress falls on the second element with secondary stress placed earlier on the first part of a compound, referred to as late stress. To describe the behaviour of prominence in compounds with late stress, the following few lines are devoted to compound numerals ending in *-teen*, otherwise known as teen numbers. When these particular compounds stand in isolation, they carry the late stress. However, different stress patterns may occur when they are affected by the surrounding context (Celce-Murcia et al. 138). In cases when teen numbers are placed in final position of a phrase, or eventually when the distinction between ten and teen numbers needs to be done, such as *forty* /'fɔ:ti/ and *fourteen* /fɔ:'ti:n/, the rule of late stress is applied. On the other hand, the rule of early stress with primary stress on the first element can be observed mostly when counting /'fɔ:ti:n, 'fɪf.ti:n/ in order to contrast the sequence of numbers, and moreover when teen numbers are used in attributive positions, as in *fourteen cars* /'fɔ:ti:n 'kɑ:z/. Therefore, it could be concluded that compound words bearing late stress functioning as attributes represent the potential items for the application of stress shift (Mompeán 3). A simple example shows the process of stress being shifted in order to avoid the disharmonious clash. Lexical stress in the common compound *afternoon* /ɑ:ftə'nu:n/ requires the primary stress on the third syllable and secondary stress on the first syllable. Completely different situation occurs when the word is a part of another compound/collocation, such as *afternoon tea*.

Figure 3.1: Expression *afternoon tea* before the application of stress shift.

		x	x
x		x	x
x	x	x	x
af	ter	noon	tea

The metrical grid in Figure 3.1 displays the compound before the process of stress shift was applied. Looking at the grid columns, it is clear that the last two

syllables of the newly created compound both bear primary lexical stresses with no stress of different level between them, and therefore, the stresses clash and cause a disruption to the rhythmic structure. However, the preference of strong-weak alteration might now be restored when the first of the adjacent stresses is moved onto the preceding full-vowel syllable, still within the same lexical unit (Grabe and Warren 96). Based on the observations of metrical phonology, the compound employed in the example could be understood as a stress shift word or sequence; the first element *afternoon* which undergoes the prominence movement is generally known as stress shift item, representing a word with certain potential, and the second element *tea* functions as a trigger that causes the clash. Stress clash therefore lies between the stress shift item and the trigger (Grabe and Warren 96). The reversion of the stress distribution in *afternoon tea* is demonstrated in Figure 3.2.

Figure 3.2: The expression *afternoon tea* after the application of stress shift.

x			x
x		x	x
x	x	x	x
af	ter	noon	tea

After the application of stress shift, the newly created compound is pronounced in a natural way /'ɑ:ftə.nu:n 'ti:/ with the primary stresses several syllables apart, rather than /,ɑ:ftə'nɪ:n 'ti:/ before the rhythm rule was applied. It might be said that the canonical distribution of primary and secondary stresses in the compound was reversed through the stress shift process, and the third syllable originally with primary stress is now pronounced with secondary stress or alternatively loses the prominence altogether (Mompeán 2).

It has already been noted that because of the variability in its use, stress shift still cannot be regarded as categorical. However, very significant research carried out by Mompeán proved that in potential cases involving compound numerals as the first constituent of another compound or as an attribute modifying the head noun in a noun phrase, stress shift could be seen as the rule, rather than an exception (Mompeán 4). He claims that usage-based factors such as the frequency of use of certain expressions in English determine the variability in the application of the process. That is because using these expressions practically on a daily basis may cause that stress shift becomes lexicalized. Based on the data obtained through the research, he claims that lexicalization plays a significant role in how often the process of stress shift is being applied. For that reason, stress shift is more frequent in compound words, since its application has already been lexicalized, whilst it is more variable and less predictable in noun phrases (Mompeán 5). The characteristic stress pattern of phrasal collocations then systematically differs from lexical compounds (Lieberman and Prince 251).

The situation is very similar for acronyms, the next potential candidates for the application of stress shift, or at least for some of them. An acronym represents a word formed through one of the minor word-formation processes which consists of initial letters of words in a particular phrase. As far as the pronunciation is concerned, the first type of acronym is pronounced simply as a single word with primary stress falling on the first syllable, such as *AIDS* /'eɪdz/. However, the second type is pronounced as a sequence of separate letters. These acronyms have primary stress falling on the last syllable and when they appear in a sequence followed by another stressed syllable, the rhythm rule should be applied to alleviate the stress clash. To give an example, the acronym *VIP* has primary stress canonically placed on the last syllable /vi:ɹɪ'pi:/, which would be transferred to another position in the expression *VIP section* /'vi:ɹɪpi: 'sekʃ(ə)n/ though.⁵

In English grammar, a complex word is described as made up of two or more morphemes. Basically, it consists of a base (or a root) and one or more derivational affixes (Booij 53). Several scholars consider compounds as one possible category of

⁵ AIDS (Acquired Immune Deficiency Syndrome), VIP (“very important people”)

complex words, since they come into existence by merging two existing lexical units together (Nordquist). Nevertheless, this work treats compounds as a separate group and uses term “complex words” for words created through the process of affixation only. The following example demonstrates the behaviour of stress in the word *Japanese*, which was created by attaching suffix *-ese* in order to form the adjectival derivative of *Japan*. The original word has primary stress falling on the second syllable /dʒə'pæn/. Suffix *-ese* causes specific change to the stress pattern; primary stress is replaced by secondary stress and falls on the suffix itself /dʒæpə'nɪz/. However, in the expression *Japanese culture*, representing a potential stress shift sequence, the word *culture* functions as a trigger and motivates for the retraction of primary stress on the suitable syllable /'dʒæpə,nɪz 'kʌltʃə/.

2.3.3. Stress shift and clause boundaries

Finally, this chapter focuses on how stress shift behaves in sentences in connected speech, and to a very limited extend how it interacts with intonational phrasing. Sentence stress does not refer to rhythm only, it may also represent prosodic stress as well (Mompeán 1). It is natural for people to make pauses when they speak. The whole utterance is therefore divided into meaningful chunks, namely intonational units, that in most cases correspond with phrases. Prosodic stress involves placing the prominence on a syllable within that unit because of its importance for the meaning of the message. In this case, we talk about so-called nuclear stress which most likely falls on the [1 stress] syllable of the last content word in a sentence (Roach 104). The example in Figure 4 contains a pair of sentences with potential stress shift sequence that differ in intonational structure and punctuation in the written form.

Figure 4: A pair of sentences demonstrating stress shift sequence affected by a clause boundary.

- | |
|---|
| a) When we visited the UK factories, they were exceptionally big. |
| b) When we visited the UK, factories were exceptionally big. |

Both sentences appear nearly identical until after the trigger the word *factories* appears. In sentence (a) the clause boundary comes after the trigger, so the sequence of stress shift item, in this case the two-syllable acronym *UK* with the following trigger is called a “-CB sequence”, because it does not contain the clause boundary (abbreviation CB stands for the clause boundary). In sentence (b) the clause boundary is inserted right between the stress shift item and the trigger; therefore it is referred to as “+CB sequence” (Grabe and Warren 97). It might be said that clauses in both example sentences represent intonation phrases in their spoken form. Looking at the first sentence (a), the stress shift item is followed by the word with strong syllable in initial position carrying primary stress, and is therefore unlikely to carry nuclear stress. For that reason, the process of stress shift may be applied in order to avoid two primary stresses fall on adjacent syllables. However, the environment for stress shift is not satisfied in sentence (b), since the stress shift item is not followed by the stressable syllable within the same clause, and moreover because the item is most likely designated for the nucleus placement (Grabe and Warren 98). In this case, the word *factories* does not function as the trigger and stands in post-nuclear position, in the sense that its prominence is noticeably reduced. It leads to the weak-strong-weak sequence, and therefore no stress clash takes place. Stress shift and intonation both represent rather difficult and complex issues even for learners with higher level of language abilities, and for that reason the theoretical part does not examine +CB sequences at all.

2.3.4. Collision of Czech and English stress patterns

It is crucial to realise that English stress system greatly differs from the Czech one. As discussed previously, Czech is classified as a fixed stress language and the distribution of stressed and unstressed syllables is quite straightforward. Apart from words that do not carry stress, such as conjunctions, prepositions etc., stress is fixed on the first syllable of words (Palková 157). Furthermore, Czech represents a syllable-based language, in the sense that stressed syllables do not create an alternating pattern and the unstressed syllables between them are hardly ever reduced in length. It is a well-known fact that person's knowledge of native language

frequently influences the process of learning another language. Therefore, the differences between Czech and English stress pattern might cause significant difficulties in the correct distribution of stressed syllables in the speech of Czech learners. In this case, the tendency to place stress on the initial syllable of words is very likely to be transferred to English and consequently lead to the problematical understandability. Cutler claims that if stresses in the utterance of a non-native speaker are placed incorrectly, the intelligibility might be diminished or even lost completely, and a native speaker could then misinterpret the message and process it as something quite dissimilar (Cutler 79). Since the English stress pattern is rather confusing for non-native speakers, stress placement and rhythmic structure might often be neglected during the language learning. On the contrary, Marks argues that using rhythmic structures during classes would provide a convenient framework for accurate stressing and for other features of English pronunciation that are regarded as troublesome for non-native or L2 English learners⁶ (Marks 198). In spite of the fact that stress placement in the speech of Czech learners have been investigated by a number of scholars, very little attention was paid to whether Czech speakers are able to predict and apply stress shift in order to prevent two adjacent stresses in speech rhythm.

⁶ L2 refers to person's second language that is not native and is learned in addition to their first language L1 (native or mother tongue).

3. Practical part

The practical part focuses on the examination of how Czech users of English are able to shift stresses in cases when two adjacent stresses clash and cause the disruption to the otherwise preferred speech periodicity. The main aim of this part was to carry out a research which would observe the occurrence and character of this phenomenon in the speech of Czech speakers with different levels of language abilities. First of all, two hypotheses are introduced at the beginning of this part, reflecting the complex knowledge of the language. Furthermore, it provides a thorough description of the method that was chosen and tailored to the needs of the research, together with the way it was accomplished. Finally, the last part presents the perceptual analysis of the acquired data and demonstrates the results followed by a discussion in order to prove or disprove the following hypotheses:

1. The ability to predict and subsequently apply stress shift will grow in direct proportion with the level of language abilities.
2. Speakers who are exposed to the language in a face-to-face contact with a native English speaker, through the media or during the time spent in an English speaking country will shift stresses more often than the rest of the speakers.

The first hypothesis works on the presumption that English teaching on primary and even secondary schools does not pay much attention to the distribution of stressed and unstressed syllables, since the English stress pattern is somewhat confusing and difficult to understand for someone who has limited knowledge of the language in general. This fact leads directly to the second hypothesis. It is often claimed that listening to the spoken form of the language significantly helps to improve speech rhythm, which might subsequently positively influence the occurrence of stress shift in one's speech.

3.1. Method and course of the research

The goal of the research was to discover whether the two hypotheses mentioned above are valid or not. It consisted of two parts; a reading assignment followed by a short questionnaire. Each of the respondents was given an individual identification code composed of a letter (students of secondary school were marked as S, university students as U) and a number (from 1 to 10) that was assigned to them in both the reading assignment and the questionnaire through the whole research.

Participants were instructed to read aloud the text consisting of target sentences that was created and tailored specifically to the purpose of this work. They were briefly informed that the research was a part of author's bachelor thesis and assured that both tools used for collecting the data were anonymous and no personal information was needed. At first, all respondents were encouraged to take some time and read the text silently before they started reading it out loud, just to make them more confident and relaxed. They had enough time to ask if anything in the text was not clear as well. Sentences in which the participants stammered or paused for a longer period of time during the recording were repeated once more at the end of the session.

The recordings were made in an environment with the minimal amount of disturbing elements, since the sound treated room was not in author's disposition. All students were recorded individually using the *Voice Memos* app, a native application for *iOS 10* platform on *Apple iPhone 7*, except for one that was recorded on *Samsung Galaxy A5*. The reason for choosing this specific device is grounded above all in its progressive technology; it is capable of recording a highly accurate sound with excellent clarity, as it operates with a wide-range microphone accompanied by a second one that is designed for the noise reduction. The average duration of the recordings was 2:32, ranging from 2:04 to 2:58.

After the recording part was successfully finished, the participants were asked to complete a short questionnaire consisting of six questions aimed at the factors that might have affected their ability to distribute stresses accurately. Last of all, they were individually thanked for their obliging cooperation.

3.1.1. Research material

As pointed out previously, the research material included a text for the reading assignment and a short questionnaire, both created entirely by the author of this work. The text for reading was composed of thirty two sentences altogether. Twenty four of them contained potential stress shift sequences - a stress shift item followed by a trigger that sets off the process of stress retraction. Speaking of the selection, four groups of words were chosen to simulate different cases of the potential stress shift items; namely compound words, place names (often regarded as false compounds), acronyms, and complex words. Each group was represented by an equal amount of examples that were all inspired by the research material created by Grabe and Warren in 1995 and in which the process is surely to be applied. Due to the fact that Czech speakers are likely to deviate from the citation form stress placement, as mentioned before, it was necessary to add a few more examples in which the stress shift item was not followed by the trigger, in order to find out whether the occurrence of stress shift is not just a matter of coincidence.

Table 1: The list of all stress shift items used in the text for reading. Items appearing in stress shift sequences and in non-clash sequences are displayed separately.

	compound words	place names	acronyms	complex words
Stress shift sequence	home-made	Hyde Park	UK	insane
	afternoon	Village Green	US	unfair
	first-class	Kew Garden	DIY	infirm
	apple pie	North Pole	RIP	unknown
	seventeen	New York	WHO	Japanese
	navy-blue	Tower Bridge	EU	Chinese
Non-clash sequence	eighteen	Central Park	KFC	Portuguese
	afternoon	New York	EU	unfair

The first part of Table 1 shows the final set of twenty four stress shift sequences that were put each into one sentence. Subsequently, the second part shows those eight additional stress shift items embedded in the sentences without the stress shift environment, two for each group of words mentioned above. All sentences were presented in random order and in the form of a plain text with no division into lines, so that the respondents would not find any logical connection between them. In order to keep the text shorter in length, no fillers were included. The text itself is enclosed in *Appendix 1*.

The main purpose of the questionnaire was to investigate some of the possible factors that might have positively affected the respondents' stress distribution and the level of their language skills in general. Apart from their gender and age, four simple questions were aimed to discover the overall length of their studies, the exposure to the language through the media, their contact with a native speaker of any nature, and also the time spent in an English speaking country. All questions were identical for both groups of respondents. The questionnaire is enclosed in *Appendix 2*.

3.1.2. Respondents

As far as the respondents are concerned, they were divided into two groups; university students and students attending the final grade of the higher secondary school. Needless to say that for the purpose of this work all respondents were of Czech nationality only. Each group was represented by an equal number of participants with total number of twenty speakers, and all of them were at the age ranging from 18 to 26, both men and women. The students from the first group all studied the B.A. programme focused on the in-depth knowledge of English, specifically in the *Department of English Language and Literature* at the *Faculty of Education, Charles University*. They all have already successfully passed two courses of English phonetics and phonology, which was beside many other things devoted to correct stress placement, including stress shift. Respondents from the second group were all attending *Gymnázium dr. A. Hrdličky* in Humpolec at the time of the research and were supposed to pass the school leaving exams at the end of

the current academic year. Since they needed to prepare themselves for the English language exam corresponding to CEFR B1/B2 level⁷, they used English practically on a daily basis during classes. The level of their estimated language abilities should be somewhere between intermediate and upper-intermediate. Speaking of the teaching materials, they worked with the course book *Matrix Intermediate* together with different kinds of authentic material as well. Apart from the respondents, a native English speaker was recorded as well. This recording was not used for the overall assessment, but it only served as a final check of the reading material to make sure it is fully intelligible and does not contain any errors.

3.1.3. Data analysis

This part of the research describes the analysis of the acquired data. The procedure involved two separate stages; auditory analysis of the recorded material and the evaluation of the questionnaires. For the occurrence or absence of stress shift in the potential cases, each of the individual recordings was carefully analysed by the author of this work. Moreover, since perception is a human ability that is rather subjective, all of the recordings were subsequently analysed for the second time by a native speaker, in order to avoid any inaccuracies. The cases that were marked differently were analysed a few more times and discussed to reach an agreement. In the first place, two tables were created for marking the occurrence of stress shift application, one specified for the university students and the second for the secondary school students. Both tables consisted of ten separate columns and twenty four rows for marking the occurrence of the process in all twenty four potential cases in the speech of every participant. In most cases, it could be effortlessly identified whether the rhythm rule was applied and primary stress was retracted to another position (following the Reversal Analysis). However, there were also cases in which the prominence of the clashing syllable was reduced to the level corresponding to secondary stress [2 stress] value (Deletion Analysis). No distinction was made between which of the two possible treatments of stress shift was followed. Several respondents made some pronunciation mistakes, occasionally even within

⁷ The Common European Framework of Reference for Languages operates with six levels (A1 - C2).

the stress shift sequences. Most of these mistakes did not affect the distribution of stresses, apart from three cases in which the speakers altered the words completely. For that reason, these cases were not taken into consideration and marked as inapplicable. The way the occurrence/absence of stress shift was marked is demonstrated in Table 2.

Table 2: Marking the occurrence or absence of stress shift in stress shift sequences.

✓	stresses shifted
✗	stresses unshifted
–	inapplicable

Furthermore, it was necessary to create two more separate tables for marking the distribution of stresses in cases where the stress shift item was not followed by the trigger; again, one for each group of respondents. The system for marking the stress distribution was similar to that used for the identification of stress shift, as showed in Table 3.

Table 3: Marking the correctness of stress placement in non-clash sequences

✓	correct
✗	incorrect

All tables with complete data filled in are attached in *Appendixes*: the table for marking the occurrence of stress shift in the speech of university students in *Appendix 3* and secondary school students in *Appendix 4*, whereas the table for marking the distribution of stresses in non-clash sequences for university students in *Appendix 5* and for secondary school students in *Appendix 6*.

Focusing now on the second stage of the data analysis, two tables were created for the evaluation of the questionnaires. As it was noted before, the questionnaire was identical for both groups of respondents. Similarly to the previous cases, both tables were practically identical, consisting of five separate columns. The first column was intended for the age of the respondents followed by their gender; men marked as M (male), women as F (female). The next four columns each represented one of the following categories:

- number of years devoted to the study of the language (including primary school, secondary school, language school, university or another kind of educational institution)
- exposure to the language through the media (including television series, films, YouTube channels, talkshows, news, and similar; in case of a positive answer, mention how often and at least one concrete example)
- being in face-to-face contact with a native English speaker (in case of a positive answer mention how often and what is the nature of their relationship)
- the time spent in an English speaking country (in case of positive a answer mention for how long and where exactly)

The tables for the questionnaire analysis of both groups of respondents are also included in *Appendixes*; university students in *Appendix 7* and secondary school students in *Appendix 8*.

3.2. Results

The first part of the results section provides a thorough investigation of the data obtained through the auditory analysis of the recordings. As it was stated in the description of the research method, four different kinds of language material were chosen to represent the potential stress shift items; compound words, place names, acronyms, and complex words. Firstly, the overall results for the university students and for the students of higher secondary school are presented separately, similarly

to the data analysis. Secondly, more detailed description focuses on the occurrence and character of stress shift in each group of words mentioned above, again for both groups of respondents. The second part presents the results based on the data obtained from the questionnaires and examines some of the possible factors that might have influenced the respondents' distribution of stresses.

Speaking of the overall results for the university students, the analysis shows that out of all 240 potential cases of stress shift, respondents shifted stresses in 207 cases (87%), whilst the remaining 30 cases were produced with stresses rather clashing (13%). There were three cases in which the respondents made a mistake and pronounced the stress shift items in the way that made the prominence impossible to analyse, specifically speakers U5, U7, and U10. Therefore, these examples were not taken into account. The overall division between cases with stresses shifted and unshifted is demonstrated in Chart 1, excluding the inapplicable examples.

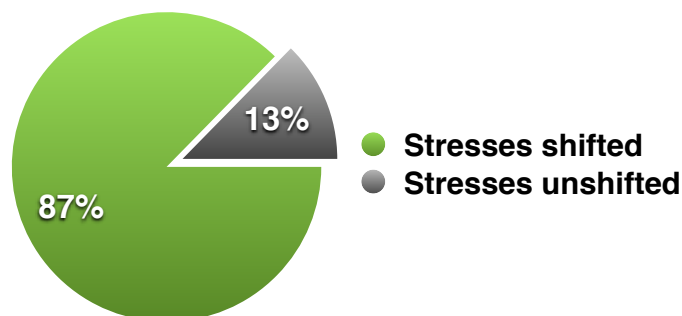


Chart 1: The overall occurrence or absence of stress shift in the speech of the university students, including all applicable potential cases (n = 237).

Focusing now on the results regarding the various groups of words, several differences might be observed. Chart 2 shows how the respondents applied the rule in expressions where compound words, place names, acronyms, and complex words were followed by the trigger. Moreover, Chart 3 demonstrates the correctness of stress placement in non-clash sequences.

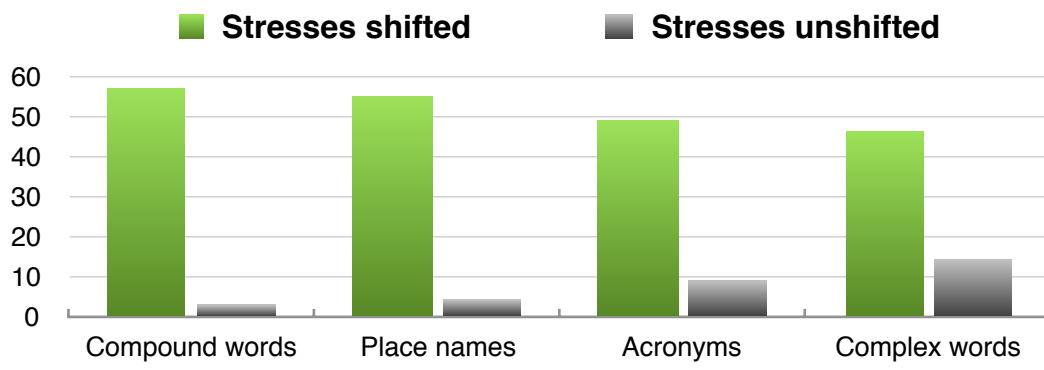


Chart 2: Occurrence or absence of stress shift in the speech of the university students, regarding the different groups of words.

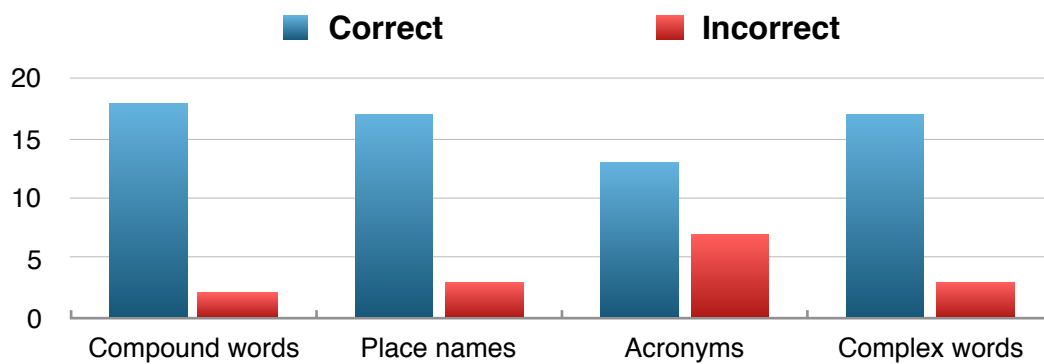


Chart 3: Stress placement in non-clash sequences in the speech of the university students, regarding different groups of words.

In comparison to the pronunciation of the university students, the occurrence of stress shift in the speech of secondary school students was a little less frequent. They shifted stresses correctly in 194 cases out of 240 potential stress shift items (81%) and pronounced 45 of them with stresses unshifted (19%). Once again, one of the cases was not used for the assessment, since its pronunciation could not serve properly for the purpose of this research, specifically in the speech of speaker S5. Chart 4 shows the overall occurrence of the process, excluding the inapplicable example.

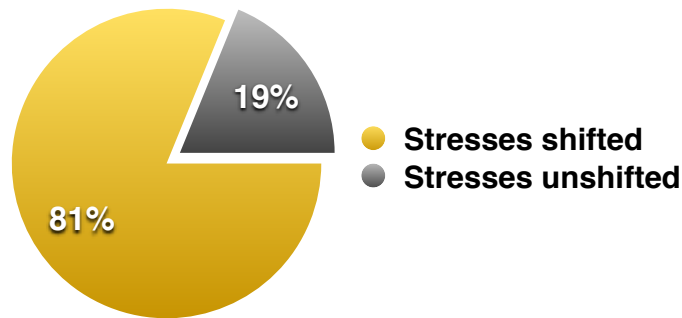


Chart 4: The overall occurrence or absence of stress shift in the speech of the secondary school students, including all applicable potential cases (n = 239).

Similarly to the university speakers, Chart 5 demonstrates the occurrence of stress shift regarding the individual groups of words and Chart 6 the correctness of stress placement in non-clash sequences.

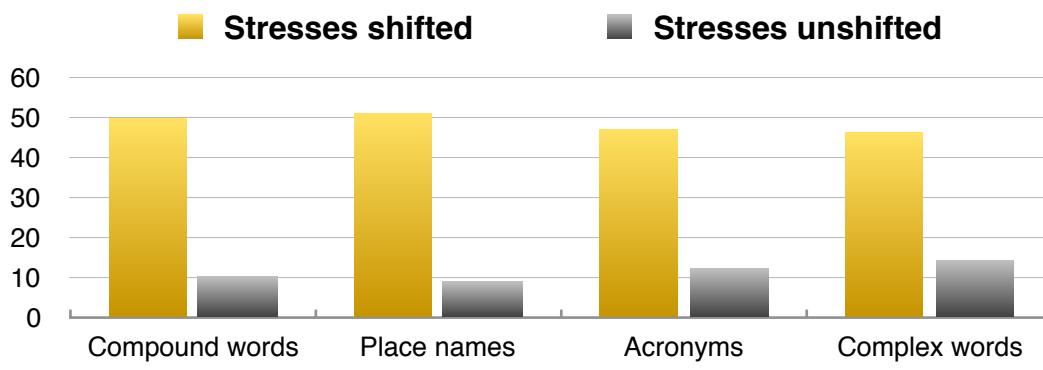


Chart 5: Occurrence or absence of stress shift in the speech of the secondary school students, regarding different groups of words.

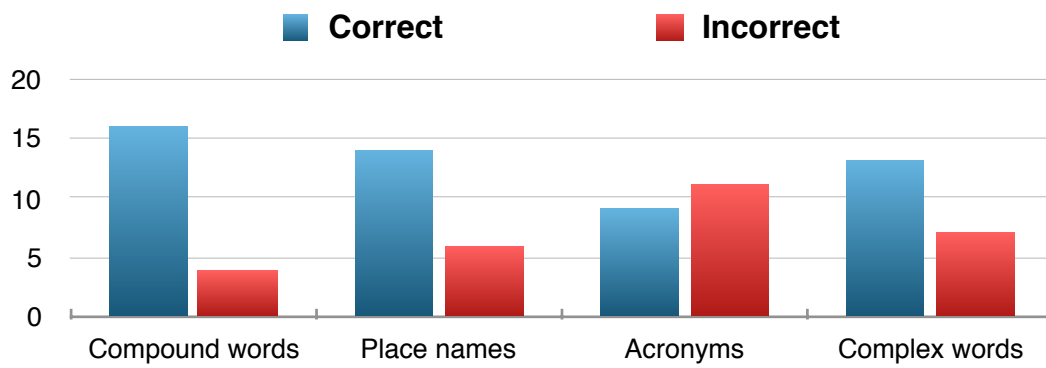


Chart 6: Stress placement in non-clash sequences in the speech of the secondary school students, regarding different groups of words.

3.2.1. Results regarding the individual groups of words

As far as acronyms are concerned, six expressions with acronyms in attributive positions were included in the text, which equals 60 cases of potential stress shift applications altogether. Three of the items were the two-syllable acronyms, standing for states or economic and political associations, which are used quite often in common speech and appear frequently in the media; *UK*, *US*, and *EU*. Apart from those, the next three consisted of three elements; *WHO*, *DIY*, which is relatively popular among bloggers and internet users nowadays, and finally *RIP* that is used in epitaphs. Furthermore, *EU* appeared in the text once more together with *KFC* excised from the stress shift contexts.⁸ The university students shifted stress in 49 cases (82%). For example, they all successfully shifted stresses in sequence *WHO's primary role*. Speaking of the canonical distribution of stresses in non-clash sequences, all of them also pronounced *KFC* correctly with primary stress falling on the last syllable. It might be deduced that those speakers who managed to place stress correctly in non-clash sequences and changed the position of primary stress in potential stress shift items were probably doing it consciously for the sake of rhythmic structure of the sentence. However, several speakers pronounced sequences *DIY furniture* and *RIP sign* with rather clashing stresses (e.g. speakers U6 and U7). Both acronyms are quite difficult to pronounce, which might have caused that they focused more on the correct pronunciation of the acronym instead of focusing on the stress pattern. The university students evinced problems first and foremost with the acronym *EU* in non-clash sequence, in which seven respondents placed primary stress incorrectly on the first syllable. On the contrary, the majority of them switched stresses in all two-syllable stress shift items. One possible explanation proposes that in case of two-syllable acronyms they did not switch stresses consciously and that the incorrect position of primary stress in non-clash sequence consequently became correct in stress shift sequences. It was presumed that this fact might have been caused by the stress placement tendency transferred from respondents' native language. However, according to Helcl, the situation with

⁸ Explanation of the acronyms used in the text: UK (United Kingdom), US (United States), EU (European Union), WHO (World Health Organisation), DIY ("Do it yourself"), RIP ("Rest in peace"), KFC (Kentucky Friend Chicken).

Czech acronyms is relatively vague. He claims that the majority of acronyms has prominence falling on the last syllable, for example in *ODS* /ɔːdex'es/ or in two-syllable acronym *TV* /te:'ve:/ (Helcl 165), which in Czech is undoubtedly regarded as quite a unique phenomenon.⁹ This fact would therefore support the previous assumption that respondents applied stress shift in three-syllable acronyms consciously, but undermine the second assumption that they shifted stresses in two-syllable acronyms only as a result of L1 transfer. However, slightly different observation introduces Romportl, who relativizes Helcl's claim and believes that apart from the last syllable even the first one carries prominence, yet a bit weaker, and moreover that the second syllable might lose the prominence under the influence of the neighbouring context (Romportl 48).

In comparison, the secondary school students shifted stress in 47 cases (78%), with most mistakes having been made in sequences *DIY furniture* and *RIP sign*, probably caused by an intricate pronunciation as well. Focusing on the stress placement in non-clash sequences, they pronounced correctly only 9 cases (45%) and similarly to the first group of respondents placed stress incorrectly mostly in the acronym *EU*. Looking at the charts, it is obvious that the difference in the occurrence of stress shift between the university and the secondary school students is almost negligible. To sum up, whether the respondents in case of two-syllable acronyms consciously applied the process or merely placed stress following the transferred tendency is hard to say.

Speaking of compound words, the whole text contained six expressions in which compounds with primary stress on the last syllable represented potential cases for the application of the rule, all functioning as attributes. In this respect, one compound was a numeral ending in *-teen* (*seventeen*), one was a name of food (*apple pie*), three were common hyphenated adjectives (*navy-blue*, *home-made*, *first-class*), and the last one was the part of a day (*afternoon*). University students were able to alleviate the clash in the majority of cases, exactly in 57 out of all 60 cases (95%). In non-clash sequences, they placed stresses correctly in 18 examples (90%). Therefore, it appears that they predicted and consequently applied the process in sequences with compound words with the highest success rate of all word groups. A case that is worth mentioning is expression *afternoon tea*, in which the

⁹ Explanation of Czech acronyms: TV (televize), ODS (Občanská demokratická strana).

compound *afternoon* becomes a part of another compound. It might be claimed that stress shift in these types of expressions is more frequent, in comparison to noun phrases (*seventeen people*), since it became lexicalized. The secondary school students shifted stress in 50 potential stress shift items (83%) and placed stress correctly in 16 examples of non-clash sequences (80%). They mostly made mistakes in *apple-pie*, *first-class*, and *home-made*. A lot of secondary school students tended to pronounce these expressions as two separate monosyllabic words with prominence falling on each syllable, and paused for a while before they continued speaking. This is most likely another example of negative transfer from their mother tongue.

Similar results were shown in case of place names. The whole text contained six names that were all composed of two elements (*Hyde Park*, *North Pole*, *Kew Garden*, *Tower Bridge*, *Village Green*, *New York*) and carried primary stress on the second one. University students reversed stress in 55 cases (92%) and placed stress correctly in 17 non-clash sequences (85%), whilst the respondents from the second group altered 51 stress shift items (78%) and pronounced non-clash sequences accurately with late stress in 14 examples (70%). Students who placed stress correctly in non-clash sequences and shifted stress in stress shift items then most likely applied the rule consciously for the sake of rhythmic structure (e.g. speakers U1 and U4); apparently, university students did so more often compared to secondary school students. Of all the stress shift items used in the text, *Kew Garden gallery* was the only expression in which the prominence is not placed on adjacent syllables. *Kew Garden* has stress on the initial syllable of the second element, which, however, consists of two syllables /kju: 'gɑ:dən/. It was selected intentionally, since as Liberman and Prince point out, stress is largely retracted even in cases when two stresses are perniciously close to each other (Liberman and Prince 312). Surprisingly, stresses in *Kew Garden* were shifted in the speech of all respondents, except for one secondary school student. Apart from the noun phrases with place names in attributive positions, *Hyde Park Station* together with *New York City* are often treated as false compounds. Being frequently used in the language, stress shift in these expressions has become lexicalized, similarly to compound words. Because of the fact that all respondents stressed *New York City* correctly and pronounced *New York* in non-clash sequence with late stress, apart from four secondary school

students, it is clear that lexicalization might play a significant role in the frequency of stress shift application in compound words and false compounds. It is therefore interesting that *Hyde Park Station* was often stressed incorrectly with *Park* being the most prominent element. It should not be neglected that several speakers did not retract the prominence, for they placed nuclear stress wrongly on the potential stress shift item. As noted previously, an item which is designated for the nucleus placement does not undergo this change and stresses are placed as if no trigger followed. Such as in this case when several speakers accented element *Park*, which would be sensible only in context to put it in contrast with another statement (e.g. *The tourists were supposed to get to the Hyde Park Station, but they accidentally got to the Baker Street Station.*).

Finally, there were six examples of complex words in the text representing stress shift items. Four of them were originally created by attaching negative prefixes, which are unstressed when standing immediately before the main stress (*infirm, unfair, insane, unknown*), and two by suffixes that themselves carry the stress (*Japanese, Chinese*); it means that primary stress in all these words falls on the last syllable. Surprisingly, complex words embody the word group in which the rule was least frequently applied, in case of both groups of respondents. The university students shifted stress in mere 46 cases (77%), but, on the contrary, they placed stress correctly in 17 cases of non-clash sequences (85%). It might be presumed that students who placed stress correctly in these sequences and then changed the position of primary stress in stress shift sequences applied the process consciously (again such as speakers U1 and U4). Let us take a closer look at examples *insane* and *infirm*. Both words were systematically embedded into the environment with evident strong-weak stress pattern ('weak and 'infirm 'people) and ('old and 'insane 'patients). However, several speakers pronounced these with stresses rather clashing instead (speakers U6 and U8). The results of the secondary school students were nearly identical, with 46 cases in which the stress pattern was reversed (77%). Nevertheless, differences might be observed when it comes to the citation form stress pattern of these words. Stress was placed correctly in 13 cases only (65%); respondents encountered problems especially with *Portuguese* and stressed the initial syllable instead of the second one. This implies that several speakers shifted stresses in *Chinese* and *Japanese* just by coincidence, except for

speakers such as S1 and S6, who happened to distribute stress correctly in non-clash sequences.

Comparing the results based on the analysis of the recordings with those obtained from the questionnaires, certain connection could be found between respondents' ability to maintain rhythmic structure and the factors mentioned in the description of the research method. Respondents who lived for a longer period of time in an English speaking country mostly managed to apply the rule more often and produced stresses with higher accuracy than other speakers, for example speakers U1 and U3, but first and foremost speaker U4. These three applied the process in all cases of potential stress shift items; speaker U4, on top of that, placed stress correctly in all non-clash sequences as well, in the sense that stress shift was most likely placed consciously. On the other hand, this factor did not seem to influence speaker S6, who had spent nine months in the US and still often produced clashing stresses. Another factor that appears worthy of attention is a face-to-face contact with a native English speaker. All university students and some of the secondary school students admitted that they are in touch with native speakers, mainly with teachers in school. However, respondents who declared to have native speakers in family (such as speakers U4 and S9) and as friends (speakers U3 and S1) showed better results than other speakers from the corresponding group. It seems that the nature of the relationship together with the frequency of the contact might be somewhat relevant, not as a factor that directly influences the occurrence of the process, but as a factor that improves the language skills in general. Speaking of media, the respondents watch mostly TV series and films, but also several YouTube channels, BBC News, and talkshows. In fact, YouTube is a source of a variety of video material interlaid with numerous commercials, which are usually based on rhythm, whilst acronyms such as *UK* or *EU* very often emerge in BBC News etc. Whether this factor have an influence on the occurrence of stress shift in speech is virtually impossible to state, due to the fact that all respondents claimed to watch media quite frequently, but in contrast, not all of them were able to consciously apply the process and place stresses correctly. Even though that age and gender were also mentioned in the questionnaires, these two factors were not included in the final evaluation.

To sum up, it implies that to some extent this ability might be influenced by the combination of a large number of extra-linguistic factors, in the sense that it helps to improve the level of language proficiency. For the concrete results see the tables in *Appendix 7 and 8*.

3.3. Discussion

The first hypothesis suggested that Czech speakers with higher level of language skills will be able to apply stress shift in English more frequently, in other words that this ability will grow in direct proportion with the level of their language level. Since the overall difference in the occurrence of stress shift in the speech of university students and students of higher secondary school is only marginal, this prediction cannot be claimed as entirely valid. University students retracted stress in 87% of all cases of potential stress shift items, whilst the second group of respondents in 81% of cases. The reason for this surprisingly successful outcome may be grounded in the fact that Czech speakers generally tend to transfer habits of stress placement from their native language. On that account, instead of speaking about the correct application of the process, it would be regarded as a transfer from respondents' L1 which in case of stress shift has a positive influence. Presumably, the difference might have been considerably more striking if the distinction in the language level between the two groups of respondents was wider. Still, it is evident that the majority of university students showed generally less deviations in citation form stress placement, which would mean that the process in their speech could be more or less considered as consciously applied. It should not be neglected that they all have at least basic knowledge of English phonetics and phonology and the familiarity with the phenomenon of stress shift might have contributed to its realisation.

As far as the second hypothesis is concerned, it was predicted that the exposure to the spoken form of the language through the variety of media, a face-to-face contact with a native English speaker, or during the time spent in an English speaking country would positively influence the rhythmic structure of the respondents' speech and thereafter the occurrence of stress shift. This claim was

confirmed only partially. As mentioned in the previous chapter, speakers in whose speech the process occurred more often in comparison to other speakers of the corresponding group were in frequent contact with native speakers; family members and close friends in the first place. Furthermore, the majority of those few who spent a certain amount of time abroad also showed notably better results, except for one who seemed not to be influenced as much. However, to prove whether watching films and TV series in the original English audio represents a relevant factor could not be claimed, as mentioned in the previous chapter. After all, it seems that all these factors are interconnected and all together help to improve the overall language skills, rhythmic structure included, and that it to a large extent depends on the speaker's attitude towards the language.

4. Conclusion

The main goal of this bachelor thesis was to explore the occurrence and character of stress shift phenomenon in the speech of Czech users of English. In this respect, an investigation was carried out in order to ascertain whether and to what extent two different groups of language learners are able to apply the process lest the rhythmic structure of an utterance is disrupted. Furthermore, another goal was to compose a work that would serve useful to all language learners with no profound knowledge of metrical stress theory.

The respondents were represented by two groups of students, divided according to the level of their education; university students and higher secondary school students. Based on the results obtained through the perceptual analysis of the recordings and the evaluation of the questionnaires, it might be summarised that Czech learners of English shift stresses quite frequently, despite being non-native speakers. Even though that the difference between the two mentioned groups of respondents was merely marginal, the results propose that whilst the university students applied the process more consciously, the secondary school students shifted stresses more likely as a result of negative transfer from their native language, which in case of stress shift has a positive effect. Additionally, this ability appears to be connected to some of the extra-linguistic factors, such as contact with and the positive attitude towards the tested language.

However, the research carried out within this bachelor thesis has a number of limitations that must be taken into consideration. Firstly, it operates with restricted amount of respondents only, and the distinction between the respondents regarding their language level was not wide enough to wholly satisfy the purpose of the work. More complex results would be achieved if the research sample was larger and more diverse. Nonetheless, since it was intended to focus primarily on the language learners, university students and students of higher secondary school seemed both as the most logical choice; the former being fully devoted to the language, the later attending supposedly the lowest possible grade of secondary school learning suitable for the investigation of such phenomenon. Secondly, it did not take sociolinguistic factors such as age, gender differences, degree of formality etc. into account. Another limitation is that the reading activity was based entirely on reading

prefabricated target sentences in formal, mostly declarative style, with speakers being speech-conscious. Thus the results cannot provide complex image of the occurrence of stress shift in the spontaneous, informal speech. Such limitations propose for another research that would address these and several other questions. For example, it could scrutinise the occurrence of stress shift in potential cases other than words functioning as attributes in noun phrases and compounds, or investigate whether the respondents are familiar with the existence of this phenomenon. Similarly, the research sample could be more diverse with greater differences in the language level.

5. Works Cited

1. ASHBY, Michael & John MAIDMENT. *Úvod do obecné fonetiky*. 1st ed. Praha: Nakladatelství Karolinum, 2015. ISBN: 978-80-246-2322-1.
2. BOOIJ, Geert. *The Grammar of Words : An Introduction to Linguistic Morphology*. 3rd ed. Oxford: Oxford University Press, 2012. ISBN: 978-0-199-69183-8.
3. CELCE-MURCIA, Marianne et al. *Teaching Pronunciation : A Reference for Teachers of English to Speakers of Other Languages*. Cambridge: Cambridge University Press, 1996. ISBN: 978-0-521-40694-3.
4. CUTLER, Anne. 'Stress and accent in language production and understanding.' In D. Gibbon and H. Richter (eds.), *Intonation, Accent and Rhythm : Studies in Discourse Phonology*. Berlin: Walter de Gruyter, 1984. ISBN: 978-3-110-09832-7.
5. NORDQUIST, Richard. "Complex Word." Glossary of Grammatical and Rhetorical Terms. Grammar.about.com [online]. 13 Nov. 2016 <<http://grammar.about.com/od/c/g/complexwordterm.htm>>
6. DAUER, R.M. 'Stress-timing and syllable-timing reanalyzed.' In *Journal of Phonetics*, Volume 11. Amsterdam: Elsevier, 1983. ISSN: 0095-4470.
7. FRY, Dennis Butler. 'Duration and Intensity as Physical Correlates of Linguistic Stress.' *Journal of the Acoustical Society of America*, Volume 27. 1955.
8. GRABE, Esther & Paul WARREN. 'Stress shift: do speakers do it or listeners hear it?' In *Phonology and phonetic evidence*. Cambridge: Cambridge University Press, 1995. ISBN: 978-0-521-48259-3.
9. HAMMOND, Michael. 'Lexical Frequency and Rhythm.' In *Functionalism and Formalism in Linguistics*, Volume 1. 1999.
10. HAYES, Bruce. *Metrical stress theory : principles and case studies*. Chicago: The University of Chicago Press, 1995. ISBN: 978-0-226-32103-5.
11. HELCL, Miloš. 'Zkratková slova.' In *Naše řeč*, Volume 33. 1949. ISSN: 0027-8203.
12. KINGDON, Roger. *The groundwork of English Stress*. London: Longmans Green and Co, 1958.

13. LADEFOGED, Peter & Keith JOHNSON. *A Course in Phonetics*. 7th ed. Stamford: Cengage Learning, 2015. ISBN: 978-1-285-46340-7.
14. LIBERMAN, Mark & Allan PRINCE. 'On Stress and Linguistic Rhythm.' In *Linguistic Inquiry*, Volume 8 Number 2. The MIT Press, 1977.
15. MARKS, Jonathan. 'Is stress-timing real?' In *ETL Journal*, Volume 53 Number 3. Oxford: Oxford University Press, 1999. ISSN: 0951-0893.
16. MOMPEÁN, Jose A. 'Stress shift in English : The case of teen numbers.' In *Readings in English Phonetics and Phonology*. Valencia: IULMA, 2014. ISBN: 978-84-370-9455-7.
17. PALKOVÁ, Zdena. *Fonetika a fonologie češtiny*. Praha: Karolinum, 1994. ISBN: 978-80-7066-843-1.
18. ROACH, Peter. *English Phonetics and Phonology : Glossary*. 4th ed. Cambridge: Cambridge University Press, 2009. ISBN: 978-0-521-71740-3.
19. ROMPORTL, Milan. 'Výslovnost zkratkových slov.' In *Naše řeč*, Volume 35. 1951. ISSN: 0027-8203.
20. STEINER, Rudolf. *Eurythmy as Visible Speech*. 4th ed. Leominster (UK): Anastasi, 2015. ISBN: 978-0-954-10488-7.
21. VOGEL, Irene et al. 'The Phonology and phonetics of the Rhythm Rule.' In *Phonology and phonetic evidence*. Cambridge: Cambridge University Press, 1995. ISBN: 978-0-521-48259-3.

6. Appendices

Appendix 1

Text for reading

As you know, my boss despises weak and infirm people. When we visited the UK factories, they were exceptionally big. The tourists were supposed to get to Hyde Park Station, but they got lost. They hardly ever eat in KFC. Robin used to lead explorations into unknown territories. Scientists were trying to stop the North Pole controversy. Some of the Jelly Beans have the apple pie flavour, my favourite. People still treated me as a child when I was eighteen. The sickness has already appeared in all US cities. The old woman drank her afternoon tea, then she left the house. WHO's primary role is to direct international health. Doctors must have cared for all these old and insane patients. We can eat our lunch in Central Park and then move back to Queens. Marry wants some DIY furniture in her new house. Although I love my navy-blue shirt, I didn't want to wear it today. The new Kew Garden's gallery soon became a sensation. That place is my favourite Chinese restaurant. Unfortunately, I have never been to New York. More than seventeen people were killed by the explosion. They moved to New York City and soon after bought a new apartment. I don't want to be a part of this unfair system. Somebody drew the RIP sign on her window. My parents gave me first-class tickets, but they expired soon. We spoke to the Tower Bridge manager, who showed us the inside. They are meeting at the EU summit this Friday. My parents like my girlfriend; she's Portuguese. I wanted to eat something simple, so I took a home-made sandwich. The Czech Republic is a proud member of the EU. Because of all the Japanese dialects, the language is extremely difficult. When you want to sit on the Village Green benches, you never find a clean one. Don't you think that your judgement is rather unfair? My friends come to our house every afternoon.

Appendix 2

Questionnaire

Identification code	
---------------------	--

You are:

- male
 female

Your age:

For how long have you been studying English?

Do you watch films, TV series, news, talkshows etc. in English?

- NO
 YES : How often?
Anything particular? (at least one)

Are you in face-to-face contact with a native English speaker?

- NO
 YES : How often?
Nature of your relationship?

Have you ever lived (at least for a while) in an English speaking country?

- NO
 YES : For how long?
Where exactly?

Appendix 3

Occurrence of stress shift in the speech of university students

	U1	U2	U3	U4	U5	U6	U7	U8	U9	U10
infirm people	✓	✓	✓	✓	×	×	✓	×	✓	×
UK factories	✓	✓	✓	✓	✓	✓	✓	✓	✓	×
Hyde Park station	✓	×	✓	✓	✓	✓	✓	×	✓	×
unknown territories	✓	✓	✓	✓	✓	×	✓	×	✓	✓
North Pole controversy	✓	✓	✓	✓	✓	×	✓	✓	✓	✓
apple pie flavour	✓	✓	✓	✓	✓	✓	✓	×	✓	✓
US cities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
afternoon tea	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WHO's primary role	✓	✓	✓	✓	✓	✓	✓	✓	✓	—
insane patients	✓	×	✓	✓	✓	×	×	×	✓	✓
DIY furniture	✓	✓	✓	✓	—	✓	×	×	×	✓
navy-blue shirt	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kew Garden's gallery	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chinese restaurant	✓	×	✓	✓	✓	✓	✓	✓	✓	×
seventeen people	✓	✓	✓	✓	✓	×	✓	✓	✓	×
New York City	✓	✓	✓	✓	✓	✓	—	✓	✓	✓
unfair system	✓	✓	✓	✓	✓	✓	✓	✓	✓	×
RIP sign	✓	×	✓	✓	✓	✓	×	×	✓	✓
first-class tickets	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tower Bridge manager	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EU summit	✓	✓	✓	✓	✓	✓	×	×	✓	✓
home-made sandwich	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Japanese dialects	✓	✓	✓	✓	✓	✓	×	✓	✓	✓
Village Green benches	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Appendix 4

Occurrence of stress shift in the speech of secondary school students

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
infirm people	×	✓	✓	✓	×	×	✓	✓	✓	✓
UK factories	✓	✓	×	✓	✓	✓	×	✓	✓	✓
Hyde Park station	✓	×	✓	×	×	×	×	✓	✓	✓
unknown territories	✓	✓	✓	×	×	✓	×	✓	✓	✓
North Pole controversy	✓	✓	✓	✓	✓	✓	×	✓	✓	✓
apple pie flavour	✓	×	✓	×	×	✓	✓	✓	✓	✓
US cities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
afternoon tea	✓	✓	✓	✓	✓	✓	×	✓	✓	✓
WHO's primary role	✓	✓	✓	×	—	✓	✓	✓	✓	×
insane patients	✓	✓	✓	✓	×	✓	✓	✓	×	✓
DIY furniture	✓	✓	×	×	×	×	×	×	✓	×
navy-blue shirt	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kew Garden's gallery	✓	✓	✓	×	✓	✓	✓	✓	✓	✓
Chinese restaurant	✓	×	✓	✓	✓	✓	✓	✓	✓	✓
seventeen people	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
New York City	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
unfair system	✓	×	✓	×	×	✓	✓	✓	✓	✓
RIP sign	×	×	×	×	×	×	×	×	✓	×
first-class tickets	✓	×	×	✓	✓	✓	✓	✓	✓	×
Tower Bridge manager	✓	✓	✓	×	✓	✓	✓	✓	✓	✓
EU summit	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
home-made sandwich	✓	✓	✓	×	×	×	✓	✓	✓	✓
Japanese dialects	✓	✓	×	✓	×	✓	✓	✓	✓	✓
Village Green benches	✓	×	✓	✓	✓	✓	✓	✓	✓	✓

Appendix 5

Stress placement in non-clash sequences (university students)

	U1	U2	U3	U4	U5	U6	U7	U8	U9	U10
KFC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
eighteen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Central Park	✓	✓	✓	✓	×	✓	✓	✓	×	×
New York	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Portuguese	✓	✓	×	✓	✓	✓	✓	✓	×	×
the EU	×	×	×	✓	×	✓	✓	×	×	×
unfair	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
afternoon	✓	✓	✓	✓	×	✓	✓	✓	✓	×

Appendix 6

Stress placement in non-clash sequences (secondary school students)

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
KFC	✓	✓	✓	✓	✓	✓	×	✓	✓	×
eighteen	✓	✓	✓	✓	✓	✓	✓	×	✓	✓
Central Park	✓	✓	✓	✓	✓	✓	✓	×	×	✓
New York	×	✓	×	✓	×	✓	✓	✓	✓	×
Portuguese	✓	✓	✓	×	✓	✓	×	×	×	×
the EU	×	×	×	×	✓	×	×	×	×	×
unfair	✓	✓	✓	✓	✓	✓	✓	×	✓	×
afternoon	✓	×	✓	✓	✓	✓	×	×	✓	✓

Appendix 7

Questionnaire analysis of the university students

	Age and gender	Number of years devoted to the study of English	Exposure to English through media (YES: frequency + example)	Face-to-face contact with a native English speaker (YES: frequency + nature)	Living in an English speaking country (YES: duration + where)
U1	22 (F)	15	yes (every day - TV series)	yes (occasionally - teacher)	yes (9 months - New York, US)
U2	24 (F)	13	yes (occasionally - TV series)	yes (often - teachers)	yes (8 months - Wyoming, US)
U3	22 (F)	18	yes (few times a week - TV series)	yes (often - friends)	yes (9 months - Wisconsin, US)
U4	25 (M)	16	yes (every day - YouTube, TV series)	yes (often - family member)	yes (1 year - London, UK)
U5	24 (F)	14	yes (occasionally - TV series)	yes (often - teachers)	no
U6	24 (F)	15	yes (every day - TV series, YouTube)	yes (often - teachers)	no
U7	26 (M)	17	yes (every day - TV series, talkshows)	yes (occasionally - friends)	yes (4 months - Wyoming, US)
U8	23 (F)	14	yes (often - BBC News, Talk shows)	yes (often - friends, teachers)	no
U9	22 (F)	15	yes (few times a week - TV series, YouTube)	yes (occasionally - teachers)	no
U10	22 (F)	9	yes (once a week - TV series Mad Man)	yes (once a week - teacher)	no

Appendix 8

Questionnaire analysis of the students of secondary school

	Age and gender	Number of years devoted to the study of English	Exposure to English through media (YES: frequency + example)	Face-to-face contact with a native English speaker (YES: frequency + nature)	Living in an English speaking country (YES: duration + where)
S1	19 (F)	10	yes (every day - YouTube channels, TV series)	yes (every day - best friend)	no
S2	18 (F)	9	yes (almost daily - TV series)	no	no
S3	19 (M)	10	yes (almost daily - BBC News, talkshows)	yes (sometimes - friends)	no
S4	20 (M)	10	yes (occasionally - TV)	no	no
S5	18 (F)	10	yes (few times a week - TV series)	no	no
S6	19 (F)	10	yes (once a week - TV series)	no	yes (9 months - Indiana, US)
S7	18 (F)	10	yes (few times a week - BBC News, TV series)	yes (once a week - teacher)	no
S8	20 (M)	10	yes (occasionally - YouTube channels)	no	no
S9	19 (M)	14	yes (almost daily - TV series, talkshows)	yes (often - family member)	no
S10	18 (F)	9	yes (occasionally - TV series)	no	no

Appendix 9

Compact disc with the recordings