Auditory Discrimination of Disyllabic Homographs Based on Stress Placement

Bakalářská práce

Studijní program: B7507 Specializace v pedagogice
Studijní obory: Německý jazyk se zaměřením na vzdělávání
                          Anglický jazyk se zaměřením na vzdělávání

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Zásady pro vypracování:

Cíle: Sestavit vyčerpávající přehled dvojslabičných homografů, jejichž přiřazení ke slovnímu druhu závisí na pozici primárního přízvuku. Zjistit, do jaké míry studenti bakalářského programu tyto homografy znají a zda jsou na základě sluchových podnětů s rozličným umístěním přízvuku schopni mezi nimi rozlišovat**.**

Požadavky: Získání adekvátní skupiny studentů, která bude předmětem výzkumu. Vytvoření zvukových nahrávek všech zkoumaných slov a příkladů jejich použití ve větách. Umístění audio souborů do prostředí výukové platformy Moodle. Tvorba kvízů a dotazníků v téže platformě.

Metody: Využití poznatků získaných z četby odborné literatury. Vymezení překrývajících se pojmů s pomocí Vennova diagramu. Provedení průzkumu pomocí zvukových nahrávek v prostředí online platformy Moodle. Elektronický dotazník pro všechny zapojené studenty. Polostrukturované rozhovory s vybranými respondenty. Analýza a zhodnocení získaných poznatků.

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Cruttenden, Alan. 2014. Gimson's Pronunciation of English. 8th ed. London & New York: Routledge.
Dušková, Libuše. 2012. Mluvnice současné angličtiny na pozadí češtiny. 4. vyd. Praha: Academia.
Martin, Maryanne, Gregory V. Jones, Douglas L. Nelson and Louise Nelson. 1981. ?Heteronyms and Polyphones: Categories of Words with Multiple Phonemic Representations?. Online. *Behavior Research Methods & Instrumentation* 13 (3): 299-307. https://doi.org/10.3758/BF03202018.
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Anotace a Klíčová slova

Tato bakalářská práce pojednává o alternačním přízvukovém schématu, které se vyskytuje u řady dvouslabičných homografních párů, jež tvoří substantiva a verba, jako jsou *abstract – to abstract* či *object – to object*. Zejména pak zkoumá znalost tohoto jevu u českých studentů. Veškeré testování bylo provedeno na vysokoškolských studentech, kteří se mají stát učiteli angličtiny na druhém stupni základních škol nebo na středních školách. Výzkum sestával z pěti fází: (1) sestavení obsáhlého seznamu dvouslabičných homografů a nahrání těchto slovních dvojic jednak izolovaně, jednak v kontextu vět; (2) zjištění, do jaké míry jsou vysokoškolští studenti obeznámeni s významy těchto párových slov; (3) ověření, zda jsou vysokoškolští studenti angličtiny schopni rozlišit přízvuk v rámci příslušné dvojice na základě sluchových podnětů; (4) zjištění, na základě dotazníku, na jakých stupních českého školství se toto téma vyučuje; a konečně (5) vytvoření online aktivity, kterou lze využít v hodinách LI1BE k procvičení pravidla o alternaci přízvuku mezi substantivy a verby. Testy byly vytvořeny a distribuovány pomocí Moodlu, online platformy oficiálně používané na Technické univerzitě v Liberci. K analýze výsledků a tvorbě grafů byl použit tabulkový procesor Microsoft Excel. Praktickému výzkumu předchází teoretická část vysvětlující odlišné přístupy lingvistů k terminologii slovních párů s alternujícím přízvukem.

Klíčová slova: fonologie, akcent, sluchové rozlišování, dvojslabičné homografy, heteronym, čeští studenti anglického jazyka, posun přízvuku, rozlišení slovních druhů alternací přízvuku

Abstract & Keywords

This thesis focuses on Czech undergraduate students' familiarity with the alternating stress pattern exhibited by a set of disyllabic noun-verb homograph pairs such as *abstract – to abstract* or *object – to object*. All testing was conducted on undergraduates who are to become English teachers at lower secondary or secondary schools. The research comprised five phases: (1) compiling a comprehensive list of disyllabic homographs and recording these word pairs both in isolation as well as within a one-sentence context; (2) determining to what extent undergraduate students are familiar with such word pairs; (3) testing whether Czech undergraduates of English are able to distinguish between stress within the respective pair based on auditory prompts; (4) determining, based on a questionnaire, at which levels of Czech education this topic is taught; and lastly, (5) creating an online activity that can be utilised in the LI1BE classes to practise the stress alternation rule between noun and verb homographs. The tests were created and distributed using Moodle; the online platform officially used at the Technical University of Liberec. For analysing the findings and creating graphs, Microsoft Excel software was used. The practical research is preceded by a theoretical part explaining the different approaches of linguists to the terminology of word-class pairs.

Keywords: Phonology, accent, auditory discrimination, disyllabic homographs, heteronym, Czech learners of English, shift in stress, stress-shift, word-class pairs, alternation of word stress as a device of word-class distinction

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EFL – English as a Foreign Language

IPA – the International Phonetic Alphabet

L1 – first language; native language

L2 – second language

LI1BE – a Linguistics I: Phonetics and Morphology course at the TUL in the winter semester of the first year

LI2BE – a Linguistics II: Phonetics and Morphology course at the TUL in the summer semester of the first year

TUL – the Technical University of Liberec

INTRODUCTION

This thesis explores disyllabic homographs that change stress according to word class and the auditory discrimination of these homographs by first-year undergraduate students of the Pedagogical Faculty at the Technical University of Liberec, Czech Republic.

According to Demirezen (2016), "the determination of lexical stress has always been a serious problem in English for non-native teachers and teacher trainees". This is because the stress position in English words is not fixed. There are stress placement rules, but they are rather complex. Therefore, predicting the right stress placement in polysyllabic words is difficult for L2 learners (539). In Czech, on the other hand, stress is always fixed to the first syllable of a word and only indicates boundaries between words. Naturally, these different approaches of both languages to stress placement can easily lead to confusion for Czech native speakers.

It is common for Czech students of English to make mistakes in stress. Words like *hotel* /həʊˈtel/ can be incorrectly stressed as /ˈhəʊtl/[1] or even /ˈhotl/[2]. This error in stress has been observed by many teachers and is said to be one of the most frequent ones among Czech students (Rynt, 2017).

Making such stress errors might even lead to misunderstanding when speaking to a native speaker. According to Katz (2013, 150), "nothing makes a person stand out as a foreign speaker more than placing stress on the wrong syllable." Demirezen (2016, 539) adds that "incorrect stress placement in spoken utterances interferes with L2 intelligibility." Brown (1990) claims that native speakers find it difficult to interpret an utterance in which a word is stressed

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[1] Roman Svozílek, "HOTEL vs. HOSTEL," *Help for English*, June 30, 2009, https://www.helpforenglish.cz/article/2009062905-hotel-vs-hostel

[2] Rynt Pavel, "ENGLISH or CZENGLISH? (3) - Slovní přízvuk (Word stress)," *Easy English*, April 05, 2017, http://e-kurz.easyenglish.cz/newsletter/070-newsletter.html

incorrectly. In such cases, English speakers begin to look for possible words under this wrong stress pattern (51). Kenworthy (1987) similarly describes how the wrong stressing can disrupt the listener's ability to identify the word. One example she gives is when the word *written* was incorrectly pronounced with the stress on the second syllable. The listener thought the speaker had said *retain*. Experiments have even demonstrated that the wrong stress placement interferes with intelligibility more than mispronouncing a phoneme (18). Therefore, learning correct stress placement is essential for students, especially those who want to become teachers.

When learning about stress placement in words, Czech students of English have recourse to many monolingual EFL dictionaries, including online ones, all of which show stress position (see the pink circles in Figure 1). However, a more complicated situation arises when learners have to deal with words that have multiple entries in dictionaries. That is the case in words that share the same spelling but differ in stress and word class.
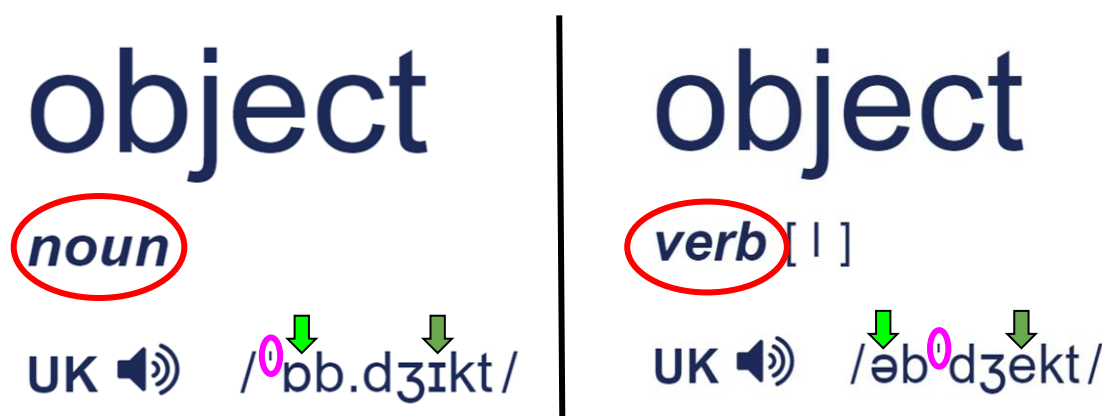
Figure 1 Differences in word stress and phonemes in the homograph "object"
Cambridge Dictionary, s.v. "object," accessed March 27, 2022,
https://dictionary.cambridge.org/dictionary/english/object

See the example in Figure 1, where two dictionary entries for the word *object* are compared. The stress is on the first syllable when the word is a noun. By contrast, the stress is on the second syllable when *object* functions as a verb. Here the stress is indicated by a high primary stress mark (ˈ) preceding the second syllable. This

example shows the main characteristics of the words I address in this thesis. They can be characterised as words that:

- have two syllables (words with more syllables were omitted for simplification) - *ob-ject*
- have the same spelling - *object*

but:

- differ in stress placement - *'object vs ob'ject* (the pink circles in Figure 1)
- can differ in phoneme pronunciation - /ɒ/ vs /ə/, /ɪ/ vs /e/ (the green arrows in Figure 1)
- are of different word classes (nouns or adjectives are stressed on the first syllable, verbs on the second syllable) - *noun* vs *verb* (red circles in Figure 1*)*

The deviation in pronunciation of words that look identical surprised me. I was introduced to these words that alter stress depending on their word class at the TUL for the first time. The issue caught my interest as it was overlooked at state schools prior to beginning my studies at the TUL. Apart from our teacher mentioning it briefly while correcting a student, I cannot recall it being covered either in our primary or secondary school textbooks. A questionnaire (see Chapter 2.7.1.) later proved that this was not only my experience. The exposure to this phenomenon proved to be minimal at all stages of education prior to our university. In my research, only 20 % of all students were found to have been educated about the variable word stress. Likewise, even at the TUL, where students are being prepared for a teaching career, it is not a topic to which much time to practise would be devoted. The questionnaire also revealed that, despite having had direct exposure to this topic at the TUL, 15% of respondents claimed never to have heard that some words alternate stress based on word class.

Apart from being a seldom addressed topic, these homographs are rarely taught in pairs when encountered by learners. The natural order for acquiring

vocabulary is from most to the least commonly used. For example, the verb *to refuse* is unlikely to be ever contrasted with the noun *refuse*. As a result, students are unaware that these words operate in pairs unless it is specifically pointed out to them.

Admittedly, there are course books which deal with word stress variation. However, the word pairs occur at random in them. Roach's *English Phonetics and Phonology* textbook, a prescribed book for the LI1BE and LI2BE courses provides a list of only 18 examples of these so-called word-class pairs (Figure 4). Other Phonetics and Phonology textbooks either do not discuss this issue (Skaličková [1982]) or consider it a fringe topic with even fewer examples (Gut [2009, 93], Knight [2012, 108–109], Ladefoged and Johnson [2015, 120]). Allen (1954, 182–189) specifies 40 "more usual" and 30 "less usual" word pairs in *Living English Speech: Stress and Intonation Practice for the Foreign Student*. Dušková (2012, 33–34) in *Mluvnice současné angličtiny na pozadí češtiny* lists 43 such word pairs. Pavlík (2000, 156–158) provides a list of 68 word-class pairs in *Phonetics and Phonology of English: A Theoretical Introduction*. In general, textbooks only provide few examples. More extensive lists can be found in research papers, which students are unlikely to encounter, unless they are actually researching this feature of English pronunciation. With 227 disyllabic pairs, Hotta's (2012, 82–83) research is the largest I could locate.

I set myself a number of separate but closely related goals. In order to raise awareness of these word-class pairs, I decided to collect as many of them as possible from various sources. After collecting them, all words were compiled into a list (see Appendix A). The list was completed with example sentences providing context. Once the list was organised, it was possible to record audio recordings of all words. Creating such list with audio files allowed me to research these words in greater

detail using the students of the TUL. The main aim was to see whether they can discern between their sound forms. In addition to the testing, an online Moodle activity was created to serve as a training or testing tool in future years. For a detailed overview of the steps taken during research, see Chapter 2.2.

The research is limited to listening, since it is vital to hear the differences in stress prior to production. I believe that the ability to hear is an integral part of pronunciation. Renukadevi (2014, 59) supports this by noting that the "stress of a language can only be perfectly adapted through listening to understand the nuances in a particular language".

The actual research is preceded by a theoretical part that focuses on key terms around lexical stress. These include the differences between stress, accent and prominence. Finally, various terminology perspectives characterising words that vary in stress when their word class changes are explored.

1 DEFINING THE KEY TERMS

1.1 LEXICAL STRESS

At the beginning of this chapter, two types of stress must be distinguished. In this thesis, the emphasis will be solely on **lexical stress**. The use of so-called **focus, sentential, rhythmic** or **contrastive stress** to attract attention to specific words in a sentence will be ignored. According to Crystal (2008, 454), **stress** is "a term used in phonetics to refer to the degree of force used in producing a syllable". The term **lexical stress** refers to the fact that each lexical (content) word has its own stress. Function or grammatical terms, on the other hand, are rarely stressed because they are usually only one syllable long (Gut 2009, 89). The differing views on the use of stress in monosyllabic lexical words are described in Chapter 1.1.3.2.

1.1.1 Correct terminology

It is also vital to determine which terminology will be used in this thesis when referring to the degree of force needed to produce a syllable. This is because the terminology varies widely throughout the linguistic field, as do linguists' perspectives. Cruttenden (2014) uses the term **prominence** throughout his book, as he finds it more precise than **stress**, which is often used ambiguously or confusingly (23). By contrast, Roach (2009, 79) prefers the term **stress** over **accent**. He reasons that the latter may also refer to different varieties of pronunciation (e.g. BBC accent), and this could cause confusion. In his encyclopaedia (2002, 3), he also clarifies that **accent** is typically interpreted as "prominence given to a syllable, usually by the use of pitch", distinguishing it from the more general term **stress** which is commonly used to refer to all types of prominence including loudness, length and sound quality. Gut (2009) approaches the problematic from a completely different point of view. He

believes there should be a clear distinction between mental representation and observable manifestation. As a result, he calls the abstract property **stress**, whereas the measurable phonetic occurrences **accents**. Gut criticises academics who use these terms interchangeably (84). In this research, I will be following Roach's point of view, which is to use "stress" to represent the entire syllable prominence phenomena and "accent" for a pronunciation variety.

1.1.2 The nature of stress

Stress itself can be viewed from two perspectives. From the **production point of view**, it is the air pressure produced by increased muscular effort in the respiratory system and higher pitch produced by tensioning the vocal folds together with higher articulatory movement (Gut 2009, 83). From the **perceptual point of view**, which will be fundamental for the practical part of this thesis that involves listening, the main characteristic of a stressed syllable is **prominence** (Roach 2009, 73). It is this aspect of stress which is the focus on my research, namely to what extent stress and its prominence is perceived. Prominence comprises four suprasegmental factors: **loudness**, **length**, **pitch**, and **quality**. These four elements do not necessarily manifest all at the same time. It is common for the factors to occur together in various combinations, sometimes making the syllable stressed only by means of one or two of them (74). Only by contrasting the degree of these factors in one syllable against their degree in another syllable can we perceive stress (Skaličková 1982, 45).

1.1.3 Placement of stress within the word

As mentioned in Introduction, one of the prerequisites why dealing with stress in this work is that English stress is not fixed. Demirezen (2016, 539) notes

that it is this feature of English which is making it particularly difficult for non-native speakers to stress the correct syllable within a word. That might also be true for Czech students of English. The reason for this is that in Czech, only the first syllables in words are stressed (Roach 2009, 76). The only exceptions are some non-stressed words (Dušková 2012, 16). These are usually clitics such as *se* in a sentence *Vrať se[3]*.

The reason why English, unlike Czech, has such a variety of stress patterns is historical. English language has a richness of loan words in its vocabulary. Germanic words tend to have initial stress, whilst French words tend to have stress on the final syllable (Gut 2009, 89). This is the reason why the originally French word *hotel* /həʊˈtel/ (previously mentioned in Introduction) has the stress on the second syllable. The rules and patterns are overall much more complex than this, even more so since stress can shift over time. The word *etiquette*, previously pronounced /ˌet.ɪˈket/ has shifted stress on the second first syllable /ˈet.ɪ.ket/ (93). More shifts in stress have been observed between accents. The word *cigarette* is originally stressed in RP on the second syllable /ˌsɪɡəˈret/. In GA it is stressed on the first syllable /ˈsɪɡəret/ (94).

What this means for the learners according to Roach (2009, 76) is that they should learn the location of stress for each word when acquiring new vocabulary. This suggestion is further supported by Brown's (1990) claim that even English native speakers memorise and store words based on their stress patterns (51). Brown (1990) then substantiates his claim with evidence.

The first fact he considers is that while attempting to identify a word, English speakers rely heavily on its stress pattern. Even if the words do not match the context, English speakers intuitively lean towards words with the same stress pattern

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[3] Ústav pro jazyk český AV ČR, "Zvukové vlastnosti souvislé řeči" *Internetová jazyková příručka* https://prirucka.ujc.cas.cz/?id=915

when interpreting words. Brown uses the example of a student who mispronounced *animism* /ˈænɪmɪzəm/ as /æˈnɪmɪzəm/. Brown had trouble understanding and instead thought of anaemia-related terms since they shared a similar stress pattern (51).

The second piece of evidence Brown (1990) presents is that the most common "slip of the tongue" occurs when terms with the same stress pattern are used, such as *shopping* vs *shipping* or *illiterate* vs *eliminate*. The third piece of evidence is that toddlers learning English generally start producing stressed syllables first, omitting unstressed ones. For example, *banana* is only /ˈnɑːnə/, where the initial unstressed syllable is not pronounced (52).

Unfortunately, students neglect stress patterns when learning English. This might result in pronunciation difficulties and problems with comprehension, not being able to recognise the words in spoken form (Gilbert 2008, 6). Being able to stress the word properly is not enough. Learners must know how to de-stress words appropriately in order to recognise the contrast between stressed and unstressed syllables (16). The inability to de-stress unstressed syllables is according to Skaličková (1982, 186) one of the most frequent errors in pronunciation made by Czech students.

Although the rules seem unpredictable and there are many exceptions, according to Roach (2009, 76), English speakers can often guess which syllables are stressed even in unfamiliar words. They may be guided by **syllable weight**, the **number of syllables**, **morphological complexity**, or **grammatical category** of the word. The first three factors will be explained in Chapters 1.1.3.1 to 1.1.3.3. The last factor represents the core of this thesis and will be addressed separately in Chapter 1.2.

1.1.3.1 Syllable weight

The first aspect to consider when positioning stress is syllable weight. In English, only **heavy (or strong) syllables** can carry stress. Heavy syllables contain either a long vowel, a diphthong, or a short vowel followed by at least two consonants. However, students of English should not rigorously depend on these rules because not every heavy syllable must be stressed. That happens especially in loan words that kept their original stress pattern (Gut 2009, 90). An example of such would be the word *hotel* /həʊˈtel/, a word of French origin. The diphthong /əʊ/ makes a syllable heavy and is expected to be stressed. However, the stress pattern of French overrides this expectation.

By contrast, **light (or weak) syllables** never carry stress. They contain a short vowel followed by zero to one consonant. Examples are the final syllables in the words *hiccup*, *city* or *water* (Ashby and Maidment 2012, 158). According to Gut (2009, 84), unstressed syllables can only contain the reduced vowels /ə/ and /ɪ/. They are, for many speakers, interchangeable in pre-stress positions. Some may therefore pronounce "*extreme*" either as /əksˈtriːm/ or /ɪksˈtriːm/. O'Connor (1980, 91), however, maintains that weak syllables can contain other vowels than /ə/ or /ɪ/, just not that often. Schwa /ə/ can never occur in a heavy syllable. A weak syllable need not contain a vowel at all. It may contain syllabic consonants such as /l/ (as in *bottle* /ˈbɒt.əl/) or /n/ (as in *button* /ˈbʌt.ən/) (Roach 2002, 86).

An example of a heavy syllable is the first syllable of the word *beater* /ˈbiːtər/ containing a long vowel /i:/ and an example of a light syllable is at the end of the same word containing a short vowel /ə/ (Ashby and Maidment 2012, 158).

1.1.3.2 Number of syllables

Before proceeding to the second aspect that influences stress placement, it is crucial to define certain levels of stress in English. The highest degree of prominence level is called **primary stress** The International Phonetic Alphabet (IPA) allows to transcribe primary stress with a raised vertical line ('). Stress that is weaker than primary stress but stronger than no stress at all is called **secondary stress**. In transcription, it is represented with a low mark (ˌ). The lines occur immediately before the stressed syllable. In the word /ˌfəʊtəˈɡræfɪk/, the syllable /fəʊ/ carries the secondary stress, and the syllable /ɡræ/ carries the primary stress. In longer words such as /ˌɪndɪˌvɪzəˈbɪləti/, it is possible to encounter tertiary stress (Roach 2009, 75). In IPA, it is transcribed the same way as secondary stress. Most dictionaries, including the ones that were used while writing this thesis, follow the convention of IPA. In coursebooks though, the stressed syllable may be capitalised or underlined as the word itself is not transcribed.

Roach and Gut have contradictory views on the use of stress in **monosyllabic words**. Roach (2009, 76) believes that lexical single-syllable words always bear primary stress when uttered in isolation. Meanwhile, Gut (2009, 89) argues that stress is a relative term and cannot be applied meaningfully to monosyllabic words. Pavlík (2000, 142) does not argue for or against the existence of stress in monosyllabic words but claims that the stress is usually not indicated there.

Two-syllable words, as opposed to one-syllable words, are already problematic. At first glance, it is unclear which syllable should be stressed. That is why specifically two-syllable words were chosen as the focus of this study. Nonetheless, only one of the two syllables will be subjected to primary stress at the same time.

Stress in **three or more syllable words** is even harder to predict. The distinction is mainly ridden by syllable weight (Chapter 1.1.3.1). The occurrence of secondary stress is possible (Roach 2009, 78).

1.1.3.3 Morphological complexity

The third factor to consider when deciding on stress position is whether a word is morphologically simple or complex. **Morphologically simple words** consist of only one grammatical unit, usually a stem or root. **Morphologically complex words** can be formed by adding an affix to the stem or combining two or more independent words to create a compound. An example of a morphologically simple word is *atom.* The word *atomic* consisting of a root *atom* and a suffix *–ic* is a morphologically complex word (Gut 2009, 90–91).

In morphologically complex words, stress patterns can be influenced by the type of affix. Affixes are categorised into prefixes, which occur before the stem and suffixes, which occur after the stem (Gut 2009, 90). Prefixes do not affect stress placement, whereas suffixes do (Roach 2009, 82). Nevertheless, Gut (2009) mentions the prefix "semi-", which always attracts stress (90). The effect of a suffix on stress can be illustrated again on the words *atom* and *atomic*. Morphologically simple /ˈætəm/ has stress on the first syllable. In the morphologically complex /əˈtɒmɪk/, the suffix *–ic* shifts stress to the second syllable (91).

1.2 HOMOGRAPHS WITH STRESS SHIFT

In Chapter 1.1.3, it was stated that English speakers consider four factors when deciding which syllable to stress. These factors were syllable weight, number of syllables, morphological complexity and grammatical category. This chapter introduces the last of these factors, specifically the influence of grammatical

categories on the position of stress in a word. In English, there is a general tendency for nouns to be initially-stressed and for verbs to be stressed towards the end (Roach 2009, 77). Many disyllabic or three-syllable words share the same spelling, but their stress location varies depending on the word class. It is important to note that this phonetic aspect is referred to in various styles as far as academic literature is concerned. What follows now is a review of the most commonly used terms for this phenomenon.

1.2.1 Word-class pairs

The first out of the five terms that will be discussed is employed by Roach. Roach (2009) refers to words typical for this aspect as **word-class pairs** (87). The pairs usually consist of two-syllable words. These disyllabic words are spelt identically, but the stress is distributed differently depending on the word class. The word classes these two-syllable words belong to are typically nouns, verbs and adjectives. The usual word pairs are formed by combining a noun plus a verb or an adjective and a verb. When one of these words functions as a verb, the stress is placed on the second syllable, whereas when it functions as a noun or an adjective, the stress is placed on the first syllable. All such words appear to consist of a prefix and a stem. An example is the word *object* consisting of the prefix *ob-* and the stem *-ject*. When used as a noun, meaning a *thing*, the stress is placed on the first syllable, but when functioning as a verb expressing *opposition* or *dislike*, it is placed on the second syllable. According to Roach, there are several dozen such pairs. Unfortunately, Roach only lists 18 of them (see Figure 4) and all of those have only two syllables.

Words in which the stress placement differs according to the word class are also referred to as word-class pairs by Pavlík. Pavlík (2002) defines them as words

with identical spelling but different stress patterns and word classes (155). Unlike Roach, Pavlík does not overlook three-syllable word pairs. Furthermore, Pavlík lists 68 such word-class pairs (156-158). For example, the list contains the three-syllable word *interchange*. When *interchange* functions as a noun, the stress is placed on the first syllable, whereas when it functions as a verb the stress is placed on the third syllable. The same phenomenon is referred to as **stress minimal pairs** by Ashby and Maidment (2012, 160).

These so-called word-class pairs do not necessarily have to be paired; a combination of a noun, adjective and verb is also possible. Besides, the stress pattern and word class are not the only aspects that change. It is because the shift in stress is usually accompanied by a phonemic shift. The phonemic shift refers to a reduction of a vowel in an unstressed syllable. It is here where the rule mentioned earlier in Chapter 1.1.3.1. applies. The rule was that unstressed syllables could only contain reduced vowels /ə/ and /ɪ/. Contrastively, in some stressed syllables, the reduced vowel is replaced by a strong one. For example, in the word-class pair of the word *object* the noun is pronounced as /ˈɒbdʒɪkt/ and the verb as /əbˈdʒekt/. In terms of the noun /ˈɒbdʒɪkt/, the initial syllable is stressed as it contains the strong /ɒ/, but the second syllable is not because it contains the weak /ɪ/. In terms of the verb /əbˈdʒekt/, the second syllable is stressed. It is because it contains the strong /e/. In this case, the initial syllable is not stressed since it contains the weak /ə/. In English, these pairs with the phonemic shift are frequent. The number of word-class pairs differentiated only by stress is small, and a partial list is depicted in Figure 2.

Verb	Noun	Adjective
per'fect		'perfect
ab'stract	'abstract	'abstract
sub'ject	'subject	'subject
up'date	'update	
in'sert	'insert	
ob'ject	'object	
per'mit	'permit	
in'crease	'increase	
de'crease	'decrease	
con'duct	'conduct	
ex'port	'export	
in'sult	'insult	
pro'test	'protest	
pro'duce	'produce	
sur'vey	'survey	
re'cord	'record	
con'tract	'contract	

Figure 2 Ulrike Gut, "Some English minimal word pairs that are differentiated by stress only," in *Introduction to English Phonetics and Phonology* (Frankfurt am Main: Peter Lang, 2009), 93, table 3.11.)

1.2.2 Alternation of word stress as a device of word class distinction

Hitherto mentioned linguists (Roach, Pavlik, Ashby and Maidment) use a simple term when referring to the noun-verb stress oppositions discussed so far. Unlike them, other academics use a more complex explanation for this phenomenon. One such is the renowned Czech linguist Libuše Dušková. According to Dušková (2012), word classes in English are distinguished by phoneme alternation, word stress alternation, or both. **Phoneme alternation** can be demonstrated on the shift of /s/ to /z/ in the noun *house* /haʊs/ – "a building" and in the verb house /haʊz/ – "to accommodate" (31). The **word stress alternation**, on the other hand, covers the same issue that the writers in chapter 1.2.1 refer to as word-class pairs. Dušková calls this process **distinction of word class by means of stress alternation**[4]. Dušková also points out pairs with no stress alternation. Most of these pairs are two-syllable words with a Latin prefix and stress placed on the second syllable, like the word

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[4] Translated from Czech original "rozlišení slovních druhů alternací přízvuku"

address /əˈdres/ (34). Floriánová (1994) refers to the same topic and translates it to English as **alternation of word stress as a device of word class distinction**.

Floriánová (1994, 83) expands on Dušková's theory by classifying the words into three categories with an alternating, vacillating, and constant stress pattern. The words with **alternating stress patterns** shift the stress from the second syllable of a verb to the first syllable of a noun. In the case of **vacillating stress**, words can have multiple stress patterns. An example is the verb *prospect*, which can be pronounced as /prəˈspekt/ or /ˈprɒspekt/. Finally, the words with **constant stress patterns** have a fixed stress placement with no alternation. These are usually words without a prefix. An example is the word *challenge* /ˈtʃæl.ɪndʒ/, which has fixed initial stress in both noun and verb forms (86).

Floriánová draws attention to the fact that this phenomenon receives little attention in academic literature (82). Floriánová substantiates her view through a list of 57 words that have end-stress when verbs but initial stress when nouns. This list was provided in *Comprehensive Grammar of the English Language*.[5] Floriánová refers to this list as "fairly full" (83). This list, however, seems too concise in comparison to an earlier study conducted by Sherman (1975). Sherman extracted 220 disyllabic noun-verb homographs with stress alternation from two dictionaries. Such vast differences in number words collected, strongly suggest that despite many authors giving numerous examples, a complete list is nowhere to be found. Moreover, each author mentions different words. Besides, as pronunciation evolves, some lists might be outdated. Sherman also discovered that there were fewer noun-verb pairs with stress alternation in the 17th and 18th centuries than in the 20th century

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[5] Quirk, Randolph, Greenbaum, Sidney, Leech, Geoffrey and Svartvik, Jan. *A Comprehensive Grammar of the English Language*. London: Longman, 1985.

(53). For my attempt to compile a fairly exhaustive list of two-syllable pairs, see Chapter 2.6.

1.2.3 Diatones

Sherman (1975) designed a special term for noun-verb pairs in which stress alternation is present. Sherman refers to them as **noun-verb diatones.** Unlike the other authors (Dušková, Floriánová, Pavlík and Roach), Sherman does not address adjectives throughout his work. For the pairs in which stress alternation is not present, Sherman uses the term **isotones**. These are words like *result* /rɪˈzʌlt/ which are stressed identically regardless of whether they are nouns or verbs.

1.2.4 Homographs

It is not necessary to only address the terminology denoting the differences in stress (word-class pairs, alternation of word stress and diatones). There is also a term used to denote what the words have in common. This is explicitly stated in the name of **homographs**. The Greek prefix "homo-" denotes sameness and the Greek "graph" signifies something written[6]. Those are words that are spelt the same yet have different meanings, sometimes pronunciations. A debate emerges here as to whether pairs of words, such as the noun *export* /ˈekspɔːt/ and the verb *to export* /ɪkˈspɔːt/, have different meanings or if it is merely a change in grammatical criterion while the root remains the same (Hobbs 2006, 7). Drury (1969, 146) refers to this group of words with closely related etymologies as quasi-homographs. Although the following chapter offers a diagram with various possible names, none of them is sufficiently specific in terms of meaning or pronunciation to claim that it perfectly fits.

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[6] *Online Etymology Dictionary*, s.v. "Homograph," accessed February 25, 2022, https://www.etymonline.com/word/homograph#etymonline_v_34244

The surprising differences in pronunciation between words that are spelt the same might be a stumbling block for learners of English. Despite the concerns raised above, this obstacle is the primary reason I adopted the term "homographs" in the title of this thesis and throughout the practical research. It is both simple and transparent. The teacher trainees are already familiar with the term homophones which are extensively taught and practised in the undergraduate phonetics and phonology course. For the learners, it is a short step from homo**phone** (same sound/phonemes) to homo**graph** (same spelling/graphemes).

1.2.5 Heteronyms

Similarly to homographs, heteronym is a term that might be applied in this context. However, according to Drury (1969) it is a term relatively rarely used among linguists. Heteronyms are a type of homograph. They are words that are spelt the same but differ in meaning and pronunciation (147).

The distinctions between homographs, heteronyms, homophones, and other similar-sounding concepts are sometimes misunderstood. This is because their major criteria frequently coincide. The Venn diagram below (Figure 3) helpfully depicts the links between word pronunciation, spelling, and meaning.
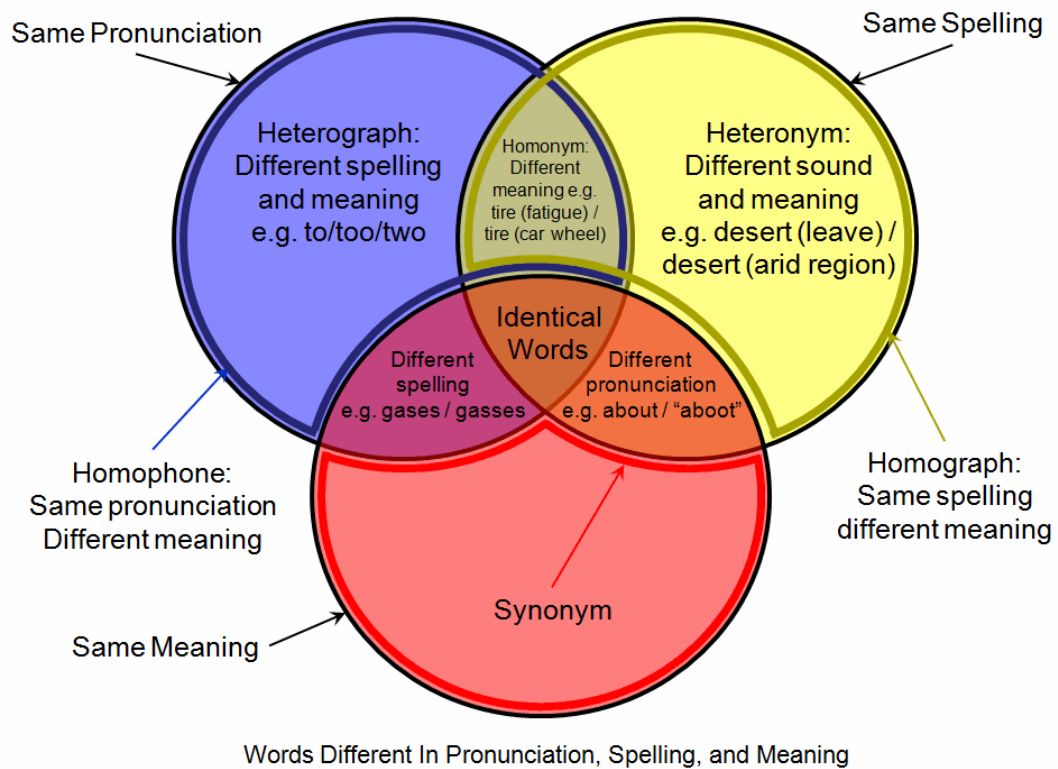
Figure 3 Relationships between homographs (yellow) and related linguistic concepts.
Heltsley, Will. "Venn diagram showing the relationships between pronunciation, spelling, and meaning of words." 28 June 2009. Accessed February 25, 2022.
https://en.wikipedia.org/wiki/File:Homograph_homophone_venn_diagram.png

In Figure 3 it can be seen that **homonyms** share the same pronunciation. **Heteronyms** have different pronunciations and **homographs** do not specify this as they comprise both homonyms and heteronyms. As for the spelling criterion, all three types of words are spelt the same.

2 PRACTICAL RESEARCH

As mentioned in Chapter 1.2.2, the issue of stress alternation between word classes appears to be under-represented in academic literature. Furthermore, no prior study on auditory discrimination by English learners, and especially not by native Czech speakers, has been carried out. The only research I could locate focused on

Finnish students' ability to pronounce noun-verb homographs[7]. The findings contradicted the initial expectation that Finnish native speakers would keep their stress pattern on the first syllable. The students showed a distinct preference for incorrect end-stressing. The same expectation, that students would keep their native stress patterns will also apply to my research (see Chapter 2.6.1).

2.1 Aim and research questions

This thesis aims to determine how familiar a set of Czech undergraduate students were with the alternating stress pattern displayed by various English noun-verb homograph pairs, such as *abstract*, *object*, *import*, and so on. The primary goal was to compile a comprehensive list of these homographs and see how familiar the students are with them and if they can differentiate between them based on listening.

The following are the primary research questions addressed in this thesis:

- Which homographs do students know well and which have they never heard of?

- Do undergraduate students of English who aspire to become English teachers have difficulty discriminating between stress in noun-verb homographs in listening? What are the most challenging words?

- Does the Czech native language influence stress perception in English homographs by causing students to hear the stress on the first syllable more often?

- Have the students been previously exposed to the topic at Czech schools?

- What are the students' thoughts on the necessity of teaching the topic at schools?

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[7] Mikko Pajunen, "Stress Differentiation of Noun-Verb Homographs by Finnish ESL Students" (Bachelor Thesis, Tampere University, 2020), https://trepo.tuni.fi/bitstream/handle/10024/122289/MikkoPajunen.pdf?sequence=2&isAllowed=y.

2.2 Research methods

My research into the field of auditory discrimination had five phases. In the first phase (Chapter 2.4. SET OF DISYLLABIC HOMOGRAPHS), I compiled a list of disyllabic homographs whose assignment to a word class is determined by the position of the primary stress. The list was completed with sample sentences that utilise the words in a typical context. The paired words and sentences were recorded by my supervisor, the LI1BE/LI2BE course lecturer and British English native speaker Nicola S. Karásková, M.A. so that the audio files could be used in the subsequent phases.

The second phase (Chapter 2.5. VOCABULARY KNOWLEDGE TESTS) was conducted online using the Moodle platform. I needed to learn how to use the platform, gain access to it as an editor and become acquainted with its features. I created a databank with 96 questions for the self-assessment quiz (Chapter 2.6.1.1.) and 180 questions for the definition knowledge quiz (Chapter 2.6.1.2.). These tests were designed to determine which homographs the students were initially familiar with, as well as whether they knew them as nouns, verbs or both. I exported all data into an .xlsx file and counted the results using the Microsoft Excel formulas. This data was useful when choosing 20 of the students' least and most known words for the diagnostic test in phase three.

The third phase (Chapter 2.6. DIAGNOSTIC TEST) followed on the same online platform, this time using the pre-recorded audio files from phase one. According to the students' self-assessment test from phase two, I established a list of 20 of the least and most commonly recognised words. It was necessary to do this since testing all of the terms would be highly time consuming. This test is at the heart of this thesis and examines students' ability to discriminate between stress in

homographs in greater detail. It addresses the questions of whether the students can auditorily discriminate between the noun-verb pairs and what are the easiest and most difficult words.

In the fourth phase (Chapter 2.7. QUESTIONNAIRE), I created a questionnaire in the Google Forms platform for all students who had previously participated in testing. The purpose of the questionnaire was to learn about their past education as regards word-class pair homographs, as well as teacher trainees' opinions on teaching this topic at different levels of education. The questionnaire was followed by semi-structured interviews with three of the respondents.

In the fifth and final phase, I created a Moodle activity that incorporated previously recorded words and allows students to practice them in context. This activity is discussed as a part of CONCLUSION. The objective was to use the supplied homograph to complete the example sentence. Students had to listen to identify whether the first or second syllable in the homograph is stressed. Depending on the context of the example sentence, they then selected the correct audio file. (This activity is still stored online with the aim of using it as a future teaching or assessment tool).

In order to gather as many replies as possible, the students were rewarded with extra points that would help them improve their final credit test results. I looked at the time the students spent on the tests to eliminate random replies that would consist of students merely skimming through the tests. However, all students took the testing responsibly, and no irregularities in time were observed. To further prevent guessing and to ensure that the results were as accurate as possible, students were strongly urged not to guess the answers but to select the option "I am not sure. " A few students completed only half of the test or skipped some of the questions. Such

responses were discarded. All these tests have been saved in the Moodle platform's online database, and the individual questions may be extracted at any time to be used with future course participants for teaching, practice or assessment purposes.

2.3 Participants

The three diagnostic tests and a follow-up questionnaire were completed by students of a Bachelor's Degree programme "English for Education" at the Technical University of Liberec. These participants were students enrolled in LI1BE and LI2BE classes during the first year's winter and summer semesters. These linguistic courses focus on Phonetics and Morphology. Upon entering the university, students are expected to have achieved at least a B2 level of English according to the Common European Framework of Reference for Languages. The tests were conducted across two academic years, 2020/2021 and 2021/2022. Because not every student was able or willing to complete every part of the study, the number of respondents differs for each test, regardless of the fact that extra points toward their final evaluation in the courses pushed them to do so.

Despite the fact that the TUL is a Czech university, some of the students are not native Czech speakers and have a different mother tongue influence.

The fact that the students are being trained to become future teachers through the "English for Education" programme emphasises the importance of the student's ability to assign stress to nouns and verbs correctly. That is because incorrect use of stress could result in not only communicative misunderstandings but also the transmission of bad habits to future students.

2.4 LIST OF DISYLLABIC HOMOGRAPHS

The first phase of the research is described below, namely an exhaustive list of two-syllable homographs, whose assignment to word class is determined by the

position of stress. Such a list was required since it is these pairs that would serve as the basis for further research on the Moodle platform.

I began by reading through Roach's *English Phonetics and Phonology* textbook, a prescribed book for the LI1BE and LI2BE courses. Roach, however, provides a list of only 18 examples of these so-called word-class pairs (Figure 4).

abstract	'æbstrækt (A)	æb'strækt (V)
conduct	'kɒndʌkt (N)	kən'dʌkt (V)
contract	'kɒntrækt (N)	kən'trækt (V)
contrast	'kɒntrɑːst (N)	kən'trɑːst (V)
desert	'dezət (N)	dɪ'zɜːt (V)
escort	'eskɔːt (N)	ɪ'skɔːt (V)
export	'ekspɔːt (N)	ɪk'spɔːt (V)
import	'ɪmpɔːt (N)	ɪm'pɔːt (V)
insult	'ɪnsʌlt (N)	ɪn'sʌlt (V)
object	'ɒbdʒekt (N)	əb'dʒekt (V)
perfect	'pɜːfɪkt (A)	pə'fekt (V)
permit	'pɜːmɪt (N)	pə'mɪt (V)
present	'prezn̩t (N, A)	prɪ'zent (V)
produce	'prɒdjuːs (N)	prə'djuːs (V)
protest	'prəʊtest (N)	prə'test (V)
rebel	'rebl̩ (N)	rɪ'bel (V)
record	'rekɔːd (N, A)	rɪ'kɔːd (V)
subject	'sʌbdʒekt (N)	səb'dʒekt (V)

Figure 4 Peter Roach, "Some common examples of word-class pairs" in *English Phonetics and Phonology: A practical course* (Cambridge: Cambridge University Press, 2009, 87.)

Assuming there had to be more; I searched through other phonetics and phonology textbooks. They either do not discuss this topic (Skaličková [1982]) or regard it as a fringe topic with even fewer examples (Gut [2009, 93], Knight [2012, 108–109], Ladefoged and Johnson [2015, 120]). It took a great deal of time to collect all the words from various sources and websites. The vast majority of the words was extracted from Pavlík (2002), who provides a list of 68 word-class pairs (156–158).

Other words were added from Rick Sutcliffe's website called "Opundo's homographs"[8]. Both Sutcliffe and Pavlík admit that their lists are incomplete. For the purpose of my list, I decided only to include word pairs that:

a) have two syllables

b) consist of nouns and verbs only

c) have contrasting stress placement in British English, not American

d) have no other stress placement alternatives

e) are commonly used (their entries had to exist in both Cambridge and Oxford online dictionaries)

All of the terms were checked in online Cambridge Dictionary and Oxford Learner's dictionaries to confirm the contrasting placement of stress in them and the different pronunciations in British and American English. More-syllabic words and adjectives were omitted for simplification purposes of the testing.

Although not normatively prescribed, British English is significantly more prevalent in the Czech education system[9]. Therefore, only British pronunciation was included. One such word that had to be excluded was *address*.

Figure 5 Differences in British and American pronunciation of the homograph "address", *Cambridge Dictionary*, s.v. "address," accessed March 27, 2022, https://dictionary.cambridge.org/dictionary/english/address

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8 Rick Sutcliffe, "Homographs," Opundo (blog), Arjay Enterprises, December 28, 2005. http://www.opundo.com/homographs.htm (accessed Mar. 16, 2022).
9 Marek Vít, "Britská a americká angličtina: Úvod," *Help for English*, May 05, 2008, https://www.helpforenglish.cz/article/2008051302-britska-a-americka-anglictina-uvod

When used as a verb, the second syllable is stressed in both varieties (red arrows in Figure 5). However, when used as a noun, only American English stresses the first syllable (marked with a green arrow).

The inconsistencies between dictionary entries (Figure 6) suggest that the verb *combat* is used with both stress patterns. Such words were excluded from the list since pronouncing them whichever way should not affect comprehension.

Figure 6 Differences between dictionary entries for the verb "combat," *Cambridge Dictionary and Oxford Learner's dictionaries*, s.v. "combat," accessed March 27, 2022, https://dictionary.cambridge.org/dictionary/english/address
https://www.oxfordlearnersdictionaries.com/definition/english/combat_2

The final list of disyllabic homographs which I compiled contains 96 words. Example sentences have been supplied for both nouns and verbs. The sentences were collected from the Cambridge or Oxford dictionaries and, if necessary, changed after consulting with this thesis supervisor. Table 1 depicts an excerpt from the complete list. The .xlsx file with all 96 homographs is included in the appendices of this thesis (Appendix A).

Homograph	Accent on 1st syllable (nouns)	Accent on 2nd syllable (verbs)
alloy	Brass is an **ALLOY** of copper and zinc.	You can **ALLOY** copper with tin to make bronze.
ally	During the First World War, Turkey was an **ALLY** of Germany.	We were forced to **ALLY** with our former enemy.

combat	He was killed in **COMBAT**.	I have to **COMBAT** this constant desire to eat chocolate.
combine	A **COMBINE** is a machine designed to efficiently harvest crops.	**COMBINE** the eggs with a little flour.

Table 1 List of disyllabic homographs with a shift in stress (an excerpt)

Only after having created the list and prepared the tests did I discover a study by Hotta (2012), who expanded Sherman's (1975) list of 220 words. Even though Hotta's collection of 227 disyllabic words is the largest I could find, my original plan of compiling an "exhaustive" list proved impossible. Even Sherman states that the exact number of homographs that exhibit stress alternation has not been empirically studied (48), and the entries found across different dictionaries can be contradictory (57). Hotta (2012, 81) similarly states that such a list would always vary in its contents according to which dictionaries and how many of them were used and whether the stress patterns were consulted only in standard varieties of English.

Even though the list I created can never be complete, it is more than sufficient for the purpose of this research. Since the stress in the pairs collected has been verified in two reliable dictionaries (Cambridge Dictionary and Oxford Learner's dictionaries), this list can be used for teaching purposes.

2.4.1. Recordings

For the purpose of the second test, examining student's familiarity with homograph definitions (Chapter 2.6.1.2) and the subsequent discriminatory test (Chapter 2.7.), it was necessary to convert all of the 96 words with example sentences from Appendix A to audio files. Every word had to be recorded twice, once with stress on the first syllable and once with stress on the second syllable. For each version of a word, a unique sentence example was recorded. Mrs Nicola Karásková, being a native speaker, undertook this task and recorded all of the words

and sentences using the free, open source, cross-platform audio software Audacity. The final recording of all 96 words recorded individually as well as in the context of a sentence was about 20 minutes long. I used the same program to cut this one soundfile into individual words and sentences. In total, I created and exported 384 .mp3 audio files. These 384 audio files include 192 words and 192 sentences, all of which are in both stress variants. The cutting was necessary since each word had to be uploaded to Moodle separately for each question. All audio files are attached to this thesis in appendices (Appendix G).

2.5 TESTING KNOWLEDGE OF HOMOGRAPHS

After compiling the homograph table (Appendix A), it was possible to progress to the second part of the research. This part aimed at determining the answer to the research question: "Which homographs do students know well and which have they never heard of?" Two tests were employed to answer this question. The first test was executed via a self-assessment method. The students were given a written homograph and were asked to select whether they recognised the word as a noun or verb or did not know it. The second test was created to evaluate students' ability to choose from multiple definitions while listening to an audio recording of the term.

The students of the LI1BE course were asked to complete these tests in the winter semester of 2020/2021 during their free time. To collect as much data as possible, they were incentivised by being able to gain extra points towards the final overall assessment. By taking part in my research, students were thus able to achieve a better grade in the course's final evaluation. They were also reassured that the tests serve only diagnostic purposes and will not be part of their assessment. At the same time, the very testing that they were doing was helping them practise distinguishing word stress and thereby prepare for the final exam.

The 20 most commonly known and least commonly known words (Tables 2 and 3) from the self-assessment test were chosen for the student's discriminatory test in Chapter 2.7. The second test was not considered when selecting the words because it did not include all 96 of them.

2.5.1. Test creation

The two tests examining student's familiarity with homographs (Chapters 2.6.1.1 and 2.6.1.2) and the diagnostic test (Chapter 2.7.) were all created using Moodle, the University's e-learning platform. This platform can be obtained by any school and allows teachers to create private customised courses through structured lessons, vocabulary or quizzes. The tests, together with their questions, are stored in a question bank and may be exported and imported into any other Moodle course when needed.

I had never worked with the Moodle platform as a teacher, only as a student. So after obtaining editing rights, I needed first to familiarise myself with the software and all its features. I developed the tests in a mock course, and only after testing the functionality was it possible to move these tests to the official course for students.

2.5.1.1 Questions for knowledge test 1

For the creation of the first test, all of the 96 words from the Appendix A were used: *alloy, ally, combat, combine, commune, compound, compress, concert, conduct, conflict, conscript, console, consort, construct, contest, contract, contrast, converse, convert, convict, curate, decrease, defect, desert, digest, discard, discount, discharge, entrance, escort, exploit, export, extract, ferment, forearm, fragment, impact, implant, import, imprint, incense, incline, increase, inlay, insert, inset, insult, intern, intrigue, invite, mismatch, object, permit, pervert, present, produce, progress, project, prospect, protest, purport, rebel, rebound, recall, recoil, record, recount,*

refill, refund, refuse, rehash, reject, relapse, relay, remake, replay, reprint, rerun, retake, retard, retread, rewind, rewrite, segment, subject, survey, suspect, torment, transect, transfer, transplant, transport, update, upgrade, uplift, upset. All these words were gradually shown to students as part of 96 questions. There were 12 questions per page. Their task was to choose whether they knew the words' meanings or not. They had three options to choose from: 1) I know the word as a noun, 2) I know the word as a verb, and 3) I don't know the word. Students were allowed to select answers 1) and 2) simultaneously but were not allowed to choose all three responses as those would contradict each other. Figure 7 depicts an example question for the word *alloy*. There were 96 of these questions, each with identical answer options. Only the target word changed each time.
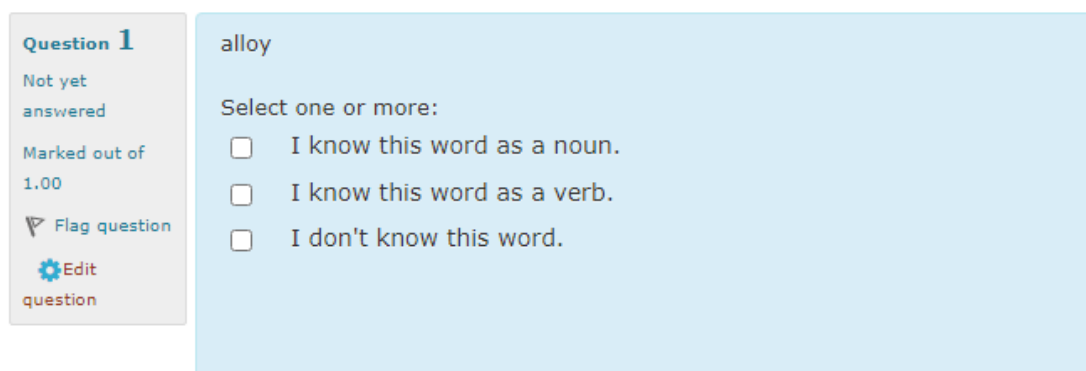

Figure 7 Example question for "alloy"
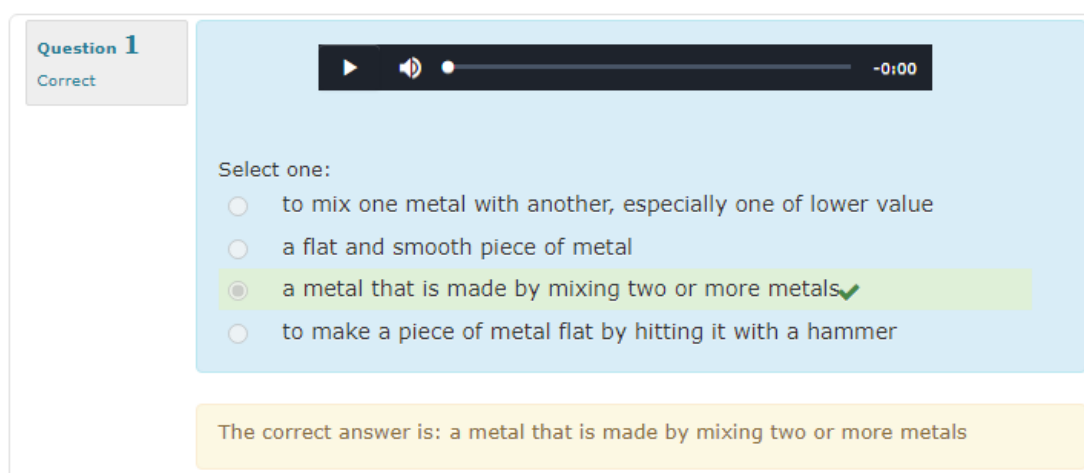
2.5.1.2 Questions for knowledge test 2

The second test was created differently from the first one. This time, students had to press the play button, then recognise the word based on the audio prompt only, and finally choose one from the four definitions that were provided (see Figure 8). Both correct and incorrect definitions were taken from Cambridge Dictionary or Oxford Learner's Dictionaries. To avoid random guessing, students were asked to leave the option blank if they did not know the answer. To avoid encountering

questions in alphabetical order, I used an in-built randomising tool to create a unique set of questions for every attempt.

Unlike in the first test, here I was unable to test all of the 96 words. I decided to omit words such as *conduct* because the number of definitions I would have to provide for each question was too long. For example, Cambridge Dictionary mentions 5 different definitions for the verb "to conduct"[10] and I did not want to discriminate against students that would know one definition but not the other. For this reason, I decided to omit 6 words (*conduct, contract, entrance, project, record*) and was thus left with 90 homographs in total.

Figure 8 shows example questions for the word *alloy*. There were always two identical looking questions for each word. The only difference was in the audio file. One contained a recording with stress on the first syllable; the second contained a recording with stress on the second syllable. Students were asked to choose from two noun definitions and two verb definitions. The full list of questions is available in Appendix B.
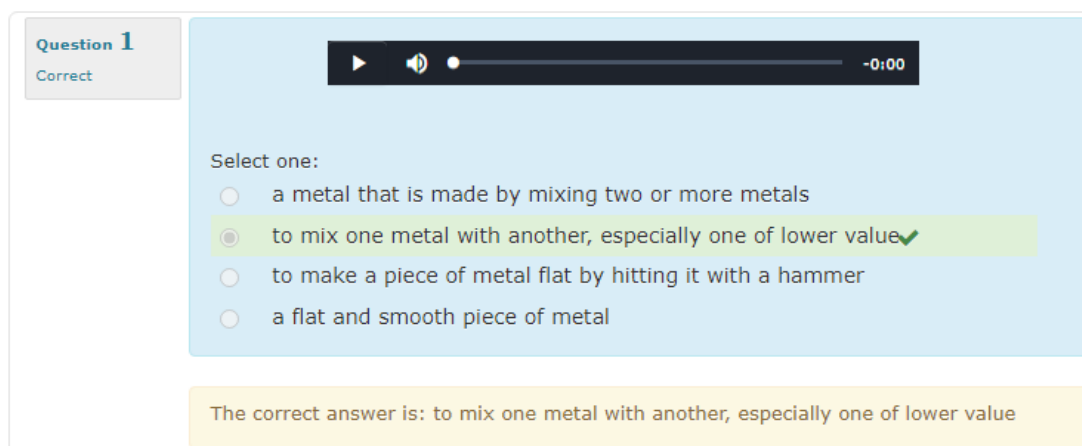

Preview question: alloy 1

Question 1
Correct

Select one:
- to mix one metal with another, especially one of lower value
- a flat and smooth piece of metal
- a metal that is made by mixing two or more metals ✔
- to make a piece of metal flat by hitting it with a hammer

The correct answer is: a metal that is made by mixing two or more metals

---

Figure 8 Two example questions for one word "alloy"

2.5.2. Results

In the following chapters the results of both tests will be discussed, first separately for each test, and then compared.

2.5.2.1 Test 1 results

The first test was completed by 120 students. I was able to export the data to an .xlsx file (Appendix C) and count the results using formulas offered by Microsoft Excel. The obtained table (an excerpt is shown in Figure 9) shows how each student responded in relation to each word. The abbreviations "N" for noun and "V" for verb were used. Figure 9 reveals that only one of the five students recognised the homograph *alloy*, and that only as a noun. In the case of the word combine, however, it was observed that all 5 students had encountered the word as a verb. Only one of them (student 3) was familiar with the word as a noun. Due to GDPR, the students' names have been deleted.

Student	alloy	ally	combat	combine
1			N	V
2		N	N	V
3		V		N; V
4	N	N; V	N; V	V
5			N; V	V

Figure 9 An excerpt from the sheet with students' answers - test 1

Using the data from this large table (Appendix C), I calculated which homographs were the most and least known among the students. The 20 words in order from most to least known are shown in Table 2. In reverse order, the 20 words from least familiar to most familiar are shown in Table 3. Two different tables were created because they are based on different data. Table 2 summarises what percentage of students knew each word in both versions (noun and verb). Table 3 summarises what percentage of students did not know the words in any version. Both tables with all words can be found in Appendix C.

Homographs	The number of students who knew the homograph as both a noun and a verb	Percentage from total (120 students)
protest	98	81,67%
record	98	81,67%
update	92	76,67%
transport	91	75,83%
upgrade	90	75,00%
present	86	71,67%
export	85	70,83%
remake	83	69,17%
import	81	67,50%
suspect	73	60,83%
transfer	73	60,83%

escort	71	59,17%
project	69	57,50%
progress	68	56,67%
refund	68	56,67%
extract	63	52,50%
insult	61	50,83%
increase	60	50,00%
permit	58	48,33%
rebel	58	48,33%

Table 2 Twenty most known homographs - student's self assessment in test 1

Homograph	The number of students who didn't know the homograph as neither a noun nor a verb	Percentage from total (120 students)
purport	107	89,17%
rehash	103	85,83%
transect	95	79,17%
inlay	93	77,50%
retread	84	70,00%
incense	83	69,17%
consort	81	67,50%
recoil	79	65,83%
conscript	77	64,17%
curate	76	63,33%
inset	76	63,33%
alloy	75	62,50%
relapse	65	54,17%
torment	61	50,83%
rebound	45	37,50%
relay	45	37,50%

incline	43	35,83%
uplift	39	32,50%
ferment	38	31,67%
rerun	36	30,00%

Table 3 Twenty least known homographs - student's self assessment in test 1

The homographs that students were most familiar with are *protest* and *record*. Both of their versions (noun and verb) were known by 98 students, which correspond to 81,67% of the total number of students. Contrastingly, the least recognised homograph among students was *purport*. In this case, 107 students out of 120 (89,17%) selected the answer "I don't know this word."

When students labelled a word as known, it did not necessarily imply that they would be able to use it correctly in speech. Rather, it indicated whether or not they had encountered these words before.

The last point examined was whether students knew the words as nouns or verbs. Students have mostly known the homographs as verbs. They marked the word as a verb in 6550 cases, while as a noun in only 6341 cases.

2.5.2.2. Test 2 results

The second test, checking the ability to choose the correct definition, was completed by 83 students. The process of data collection and extraction was the same as in the previous test. This time I was only able to extract the correct answers. If the Moodle system evaluated the answer as incorrect, the extracted .xlsx table did not specify which definition it was. Figure 10 depicts only a fraction of the full table with results (see Appendix D). The symbol I used to identify the right answer is "✔". Each homograph appears in the columns twice, once as a noun and once as a verb.

✔ = the student selected the correct definition				
Student	alloy (noun)	alloy (verb)	ally (noun)	ally (verb)
1			✔	
2				
3		✔		
4				
5				
6				
7			✔	✔

Figure 10 An excerpt from the sheet with students' answers - test 2

After completing the calculations, I was able to determine which homographs the students had the greatest difficulty choosing definitions for. Table 4 shows the 20 words with the lowest error rate, and Table 5 shows the 20 words with the highest error rate. Full tables can be found in Appendix D.

Homograph	The number of students who selected the correct definition for both nouns and verbs	Percentage of total (83 students)
present	50	60,24%
rebel	38	45,78%
suspect	37	44,58%
contrast	34	40,96%
object	34	40,96%
permit	34	40,96%
transport	34	40,96%
refund	32	38,55%
combine	31	37,35%
upgrade	31	37,35%
escort	30	36,14%
impact	29	34,94%
remake	29	34,94%

increase	28	33,73%
protest	27	32,53%
replay	27	32,53%
decrease	26	31,33%
extract	26	31,33%
retake	26	31,33%
segment	26	31,33%

Table 4 Twenty most known homographs in test 2

Homograph	The number of students that selected a wrong definition for both nouns and verbs	Percentage from total (83 students)
purport	74	89,16%
retread	72	86,75%
transect	69	83,13%
rehash	65	78,31%
ferment	62	74,70%
incense	61	73,49%
discharge	60	72,29%
consort	59	71,08%
inlay	58	69,88%
alloy	57	68,67%
conscript	56	67,47%
prospect	55	66,27%
recoil	54	65,06%
relay	53	63,86%
curate	51	61,45%
inset	46	55,42%
uplift	44	53,01%
digest	43	51,81%

intrigue	43	51,81%
console	42	50,60%

Table 5 Twenty least known homographs in test 2

The homograph *present* proved to be the easiest for students. The correct definition for both the noun and verb version was chosen by 50 out of 83 students (60,24%). The highest rate of errors was made in the homograph *purport*. 74 out of 83 students (89,16%) selected the wrong definition for both noun and verb.

2.5.2.2 Comparison of both tests' results

Although it is hard to thoroughly compare the two tests because the second one lacks six words and fewer students participated in it, it is evident at first glance that the percentage of students who recognised the words in the first test was significantly higher than in the second one. In the first test, for example, 81,67 % of students recognised the homograph protest as known (see Table 2). However, in the actual knowledge assessment, only 32,53 % of students were able to correctly define this word (see Table 4). A contributing factor to this was the fact that in the second test, the students were required to recognise the word solely based on its sound as well as hear the stress on the correct syllable.

As a next step, I compared the 20 most and least recognised homographs from both tests (Tables 2–5) to see where they overlapped (indicated in red in Figure 11). Figure 11 shows that 11 out of 20 most known homographs (60%) overlapped: *protest, transport, upgrade, present, remake, suspect, escort, refund, extract, increase, permit* and *rebel*. Unfortunately, it is impossible to compare the words *record* and *project* (highlighted in orange), which were only tested in the first test and not the second. The overlapping rate is slightly higher for the least known homographs. 15 out of 20 homographs (75%) ended up being among the 20 least recognised homographs by students: *purport, rehash, transect, inlay, retread,*

incense, consort, recoil, conscript, curate, inset, alloy, relay, uplift and *fermen*t. As a result, we can most likely assume that the homographs with which students are least or most familiar are those for which overlap was confirmed.

20 most known words			20 least known words	
test 1	test 2		test 1	test 2
protest	present		purport	purport
record	rebel		rehash	retread
update	suspect		transect	transect
transport	contrast		inlay	rehash
upgrade	object		retread	ferment
present	permit		incense	incense
export	transport		consort	discharge
remake	refund		recoil	consort
import	combine		conscript	inlay
suspect	upgrade		curate	alloy
transfer	escort		inset	conscript
escort	impact		alloy	prospect
project	remake		relapse	recoil
progress	increase		torment	relay
refund	protest		rebound	curate
extract	replay		relay	inset
insult	decrease		incline	uplift
increase	extract		uplift	digest
permit	retake		ferment	intrigue
rebel	segment		rerun	console
overlaps: (60%)	not tested in test 2		overlaps: (75%)	
protest	record		purport	
transport	project		rehash	
upgrade			transect	
present			inlay	
remake			retread	
suspect			incense	
escort			consort	
refund			recoil	
extract			conscript	
increase			curate	
permit			inset	
rebel			alloy	
			relay	
			uplift	
			ferment	

Figure 11 Comparison of the most and least known words from both tests

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2.6 DIAGNOSTIC TEST (IDENTIFYING STRESS)

This chapter describes the third phase of the research. The aim of this diagnostic test was to find out whether undergraduate students would be able to recognise which syllable in a particular disyllabic homograph was stressed. Another aim was to establish which words were the most challenging. Students' ability to identify stress placement was compared on isolated homographs and homographs used in sentences. This test's results allow me to confirm or refute the three assumptions I make in Chapter 2.6.1.

The test was created once more using the online Moodle platform. It was filled in online by students of the LI2BE course during the summer semester of 2022 in their free time. They were awarded an extra point for the final exam to motivate them.

2.6.1. Assumptions

Before conducting the third part of the research, a few assumptions had to be made. The first assumption was similar to the Finnish research mentioned in Chapter 2. It was that Czech native speakers retain their L1 stress patterns to a noticeable degree and that students would have a tendency to hear stress on the first syllable more often.

The second assumption was that certain homographs would be more difficult to distinguish stress in than others. It might be words that students are unfamiliar with, i.e. do not understand their meanings or words that undergo a phonemic shift. This would imply that students would make more errors when auditorily differentiating between words such as *import* that do not experience a change in vowel quality, only a shift in stress. Equally, there should be fewer errors in words like *curate* that change vowels - from /ə/ to /eɪ/ (/ˈkjʊə.rət/ to /kjʊəˈreɪt/).

I decided to examine students' auditory identification abilities for homographs in isolation as well as for homographs used in context phrases. The third assumption was that students would perform better at identifying stress in full sentences than in single words. This is because I had advised the students in the test's instructions to pay attention to the rule of changes in stress between noun and verb homograph pairs. When listening to an audio recording with the whole sentence "We have to remake the old version," it should have been easier to identify the right stress position for the verb *remake* than when listening to the word "remake" alone. That is because it could have been deduced from the context whether it was a verb, since homograph verbs tend to have stress on the second syllable.

2.6.2. Questions

The creation of the test in the Moodle platform was similar to the previous testing of homograph knowledge (Chapter 2.5.1). Once more, the audio recordings of words and sentences (Chapter 2.4.1.) were used. The creation of the test was very time consuming as the test consisted of a total of 160 questions and each audio file had to be uploaded separately. This testing covered the 20 most and least recognised words from the self-assessment homograph knowledge test (Table 2–3). Thus, in total, 40 words were tested in both stress variants, both individually and in sentences. These are the same example sentences from the list of disyllabic homographs in Appendix A.

The difference between the two types of questions testing the ability to hear the stress in disyllabic noun-verb homographs will now be illustrated. The first half of the questions focused on stress in isolated homographs (see example question in Figure 12). As can be seen, all 80 questions for individual words differ only in the used audio file. The second half of the questions focused on stress in full sentences

(see example question for either the noun or verb *alloy* used in a sentence in Figure 13). This time, not only the audio file but also the target word in quotation marks, had to be altered for all 80 questions.

Figure 12 Example question - choosing the correct stress placement in individual homographs

Figure 13 Example question - choosing the homographs' correct stress placement in context

The students were asked to listen to recordings and choose whether they heard the stress in a particular homograph on the first or the second syllable. To prevent testees from guessing responses, a third option "I'm not sure" was provided. The original set of questions was created in alphabetic order, having the words with stress on the first syllable directly followed by words with contrasting stress. Therefore, I selected an option to randomise the display of questions for each attempt.

2.6.3. Results

The results of the diagnostic test are described in this chapter. As with the earlier tests, the results were taken from Moodle and imported into Microsoft Excel. This software allowed me to perform calculations and generate charts. The spreadsheet data may be found in the appendices (Appendix E). Figure 14 is a chart that was automatically generated from the Moodle platform. As the chart was too large, I modified it in Microsoft Excel and condensed the success rate between 0 and 45% into a single column. Overall, the student's results are satisfactory. Out of the total number of 102 respondents, no student achieved a rating below 45% (marked in red). On the contrary, most students (20,5%) achieved a 95–100% success rate.
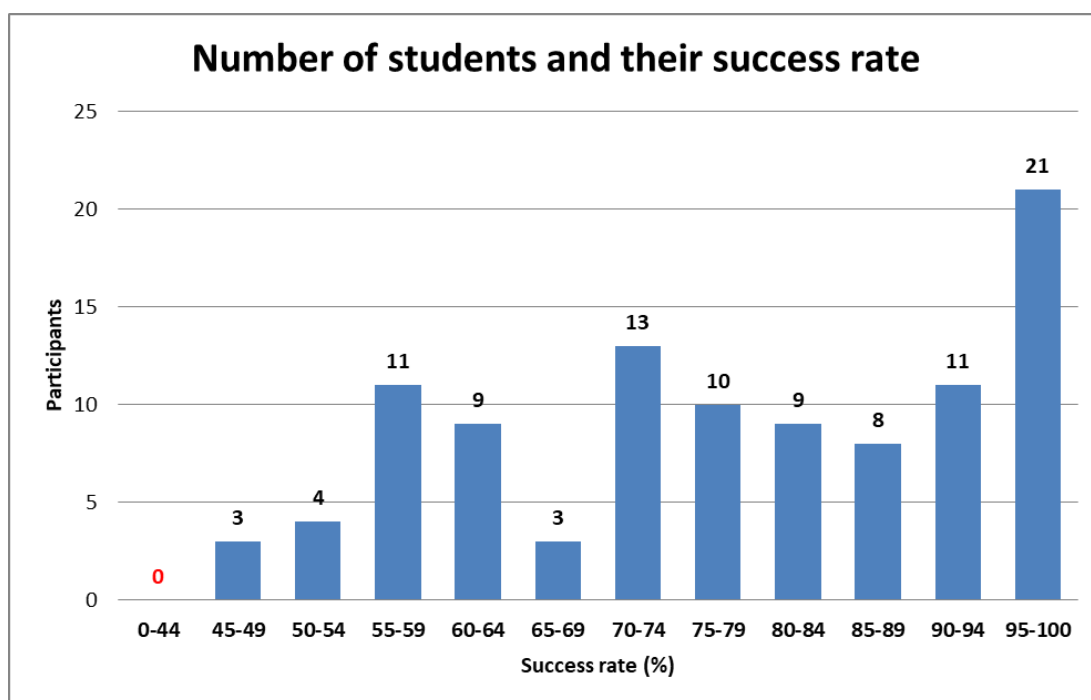

Figure 14 Chart of the relation between the number of students and their success rate

The first assumption was that Czech students will be influenced by L1 stress pattern and will hear the stress on the first syllable more often than on the second. This assumption has been proved wrong. After calculating all entries from all students, it became clear that the students heard stress on the second syllable more frequently. They heard stress on the first syllable in 15347 cases, whereas on the

second syllable in 15449 cases. While the deviation between these two values is not enormous, it is possible that the assumption would turn valid if the student's pronunciation rather than their auditory perception was examined. Another possible explanation for the unexpected findings is that Czechs are not used to hearing stress on the second syllable and hence are more likely to notice it because it deviates from their perception of what is normal. But more research would be required to determine whether these hypotheses are correct or whether the obtained values were coincidental.

The second assumption was that some words will be more difficult to identify stress in than others. After calculating the average results between nouns and verbs used both individually and in sentences, I created a graph (Figure 15) in which I ranked the homographs based on how many errors students made in them from lowest to highest. The easiest homograph was the word *rebound*, to which 85,29% of students correctly assigned the accent. *Consort* was the most difficult homograph to determine the stress in, with only 69,61% of the students succeeding.
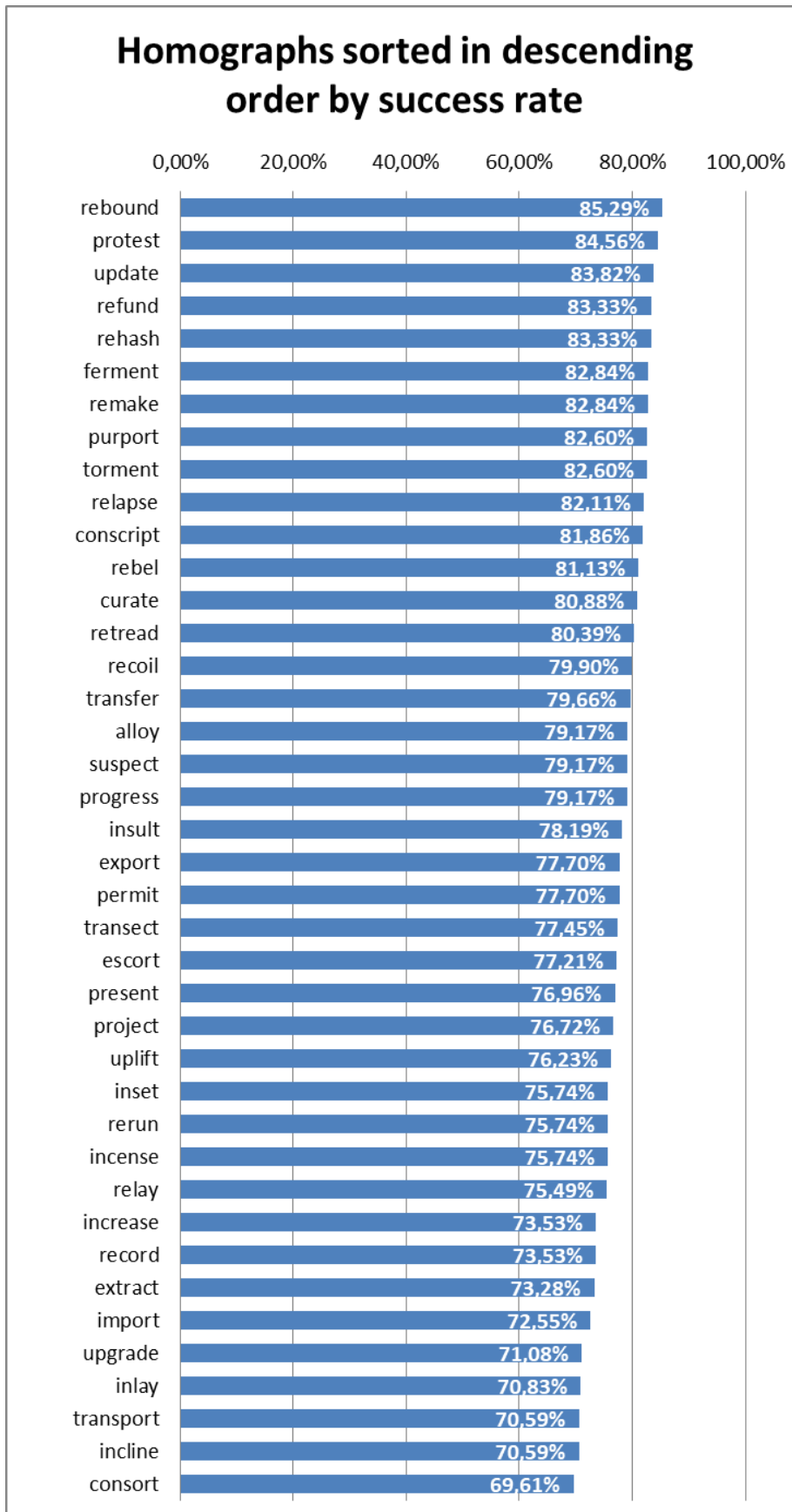
Figure 15 Homographs sorted in descending order by success rate

Further inspection was made to find out whether students' previous knowledge of homographs influenced their success rate. I assumed that students would make fewer mistakes in homographs they had already known than in homographs they were unfamiliar with. I compared the students' performances in homographs that they were most and least familiar with according to the test's results in chapter 2.5.2.1. It comprises the 20 words from Table 2 and 20 words from Table 3. This assumption was incorrect. From Table 6 it can be seen that the average success rate between most known and least known words was nearly the same.

most known	success rate	least known	success rate
protest	84,56%	purport	82,60%
record	73,53%	rehash	83,33%
update	83,82%	transect	77,45%
transport	70,59%	inlay	70,83%
upgrade	71,08%	retread	80,39%
present	76,96%	incense	75,74%
export	77,70%	consort	69,61%
remake	82,84%	recoil	79,90%
import	72,55%	conscript	81,86%
suspect	79,17%	curate	80,88%
transfer	79,66%	inset	75,74%
escort	77,21%	alloy	79,17%
project	76,72%	relapse	82,11%
progress	79,17%	torment	82,60%
refund	83,33%	rebound	85,29%
extract	73,28%	relay	75,49%
insult	78,19%	incline	70,59%
increase	73,53%	uplift	76,23%

permit	77,70%	ferment	82,84%
rebel	81,13%	rerun	75,74%
overall average	**77,64%**		**78,42%**

Table 6 Comparison between success rate of the most and least known words

The average success rate among the most known words is 77,64% and even 78,42% among the least known ones. In addition, the homograph *rebound* in Figure 15 had the highest success rate of all homographs (85,29%). Yet, in Table 6 can be observed that *rebound* belongs to the category of the least known words among the students (in yellow column). Therefore, previous knowledge of homographs did not affect students' ability to aurally differentiate between their noun and verb versions i.e. hear stress on the correct syllable.

As previously discussed in Chapter 1.2.1, shift in stress is usually accompanied by a phonemic shift, namely a reduction of the vowel in the unstressed syllable. In some words, however, this phoneme shift does not occur. I split the homographs into two groups depending on whether they only differ in stress (/ˈɪm.pɔːt/–/ɪmˈpɔːt/) or also in vowel quality (/ˈprez.ənt/–/prɪˈzent/). Both groups are shown in Table 7. The changes in vowel quality are marked in red.

homographs with change in vowel quality			homographs that differ in stress only		
alloy	/ˈæl.ɔɪ/ /əˈlɔɪ/	79,17%	**import**	/ˈɪm.pɔːt/ /ɪmˈpɔːt/	72,55%
conscript	/ˈkɒn.skrɪpt/ /kənˈskrɪpt/	81,86%	**incense**	/ˈɪn.sens/ /ɪnˈsens/	75,74%
consort	/ˈkɒn.sɔːt/ /kənˈsɔːt/	69,61%	**incline**	/ˈɪn.klaɪn/ /ɪnˈklaɪn/	70,59%
curate	/ˈkjʊə.rət/ /kjʊəˈreɪt/	80,88%	**increase**	/ˈɪn.kriːs/ /ɪnˈkriːs/	73,53%

escort	/ˈes.kɔːt/ /ɪˈskɔːt/	77,21%	**inlay**	/ˈɪn.leɪ/ /.ɪnˈleɪ/	70,83%
export	/ˈek.spɔːt/ /ɪkˈspɔːt/	77,70%	**inset**	/ˈɪn.set/ /ɪnˈset/	75,74%
extract	/ˈek.strækt/ /ɪkˈstrækt/	73,28%	**insult**	/ˈɪn.sʌlt/ /ɪnˈsʌlt/	78,19%
ferment	/ˈfɜː.ment/ /fəˈment/	82,84%	**rehash**	/ˈriː.hæʃ/ /ˌriːˈhæʃ/	83,33%
permit	/ˈpɜː.mɪt/ /pəˈmɪt/	77,70%	**remake**	/ˈriː.meɪk/ /ˌriːˈmeɪk/	82,84%
present	/ˈprez.ənt/ /prɪˈzent/	76,96%	**rerun**	/ˈriː.rʌn/ /ˌriːˈrʌn/	75,74%
progress	/ˈprəʊ.gres/ /prəˈgres/	79,17%	**retread**	/ˈriː.tred/ /ˌriːˈtred/	80,39%
project	/ˈprɒdʒ.ekt/ /prəˈdʒekt/	76,72%	**torment**	/ˈtɔː.ment/ /tɔːˈment/	82,60%
protest	/ˈprəʊ.test/ /prəˈtest/	84,56%	**transect**	/ˈtræn.sekt/ /trænˈsekt/	77,45%
purport	/ˈpɜː.pɔːt/ /pəˈpɔːt/	82,60%	**transfer**	/ˈtræns.fɜːr/ /trænsˈfɜːr/	79,66%
rebel	/ˈreb.əl/ /rɪˈbel/	81,13%	**transport**	/ˈtræn.spɔːt/ /trænˈspɔːt/	70,59%
rebound	/ˈriːbaʊnd/ /rɪˈbaʊnd/	85,29%	**update**	/ˈʌp.deɪt/ /ʌpˈdeɪt/	83,82%
recoil	/ˈriː.kɔɪl/ /rɪˈkɔɪl/	79,90%	**upgrade**	/ˈʌp.greɪd/ /ʌpˈgreɪd/	71,08%
record	/ˈrek.ɔːd/ /rɪˈkɔːd/	73,53%	**uplift**	/ˈʌp.lɪft/ /ʌpˈlɪft/	76,23%
refund	/ˈriːfʌnd/ /rɪˈfʌnd/	83,33%			
relapse	/ˈriː.læps/ /rɪˈlæps/	82,11%			

relay	/ˈriː.leɪ/ /ˌrɪˈleɪ/	75,49%	
suspect	/ˈsʌs.pekt/ /səˈspekt/	79,17%	
overall average success rate		**79,10%**	**76,72%**

Table 7 Homographs that differ in vowel quality and stress vs. those that differ in stress only

The hypothesis was that it is easier for Czechs to aurally distinguish stress in words that differ in vowel quality than in stress alone. In the case of my research project, this assumption proved to be correct. However, the deviation between 79,10% for the words that change vowels and 76,72% for those that do not is not high enough to ultimately prove that change in vowel quality serves as a clue when aurally distinguishing stress placement.

The third and final assumption was that students would perform better at identifying stress in full sentences providing context than in single words. This is because I advised the students in the test's instructions to pay attention to the rule of change in stress pattern between noun and verb homograph pairs. It should have been unlikely to expect a noun in place of a verb and vice versa. The average success rate for homographs in isolation was 76,85%, for homographs in context 79,20%. Therefore the third assumption was correct. Context did help when identifying stress placement. Nevertheless, the difference between the two success rates was not vast. Another reason for better results when determining stress position in sentences might have been that the students were provided with a visual clue in form of the written word (see *alloy* in quotation marks in Figure 13).

2.6.4. Conclusion of the test

The test was designed to assess the aural discriminatory skills of the students in homographs stress placement. The majority of students achieved 70–100% correct

answers. I managed to order the homographs from the least to the most problematic ones but to see what influences the difficulty, I decided to analyse the results further. The findings were the following:

- Czech native speakers did not have a tendency to hear stress on the first syllable more often than on the second one.

- The success rate for the individual homographs did not differ enough to deduce universal statements. (The range was from 69,61% to 85,29%)

- Previous familiarity with or exposure to homographs did not influence the students' ability to hear stress on the correct syllable.

- Change in vowel quality in specific homographs could have served as a clue when aurally distinguishing between their noun and verb variants.

- Students did perform better at identifying stress in full sentences providing context than in isolated words. This implies that aurally discerning whether a word is a noun or a verb based on context influenced students' ability to detect correct stress placement.

2.7 QUESTIONNAIRE

The following chapter describes the fourth phase of the research. It involves an online questionnaire that was created via Google Forms, free form creator software. The students were asked to complete the form in their free time after all previous tests had been completed. The main aim was to find out whether the students had been exposed to the topic of noun-verb stress alternation prior to my series of tests. And if so, at what level of education in the Czech Republic did it happen. A secondary aim was to identify how students who study to become teachers

perceive the importance of teaching this aspect of English at Czech schools. The questionnaire was filled in by students of LI1BE and LI2BE courses in school years 2020/2021 and 2021/2022. The questionnaire was followed by semi-structured interviews with some of the respondents (see Chapter 2.7.2.) The questionnaire consists of four questions. They are depicted in Figures 16–19 (for the full questionnaire in PDF see Appendix F).

Have you ever been taught about the stress alternation between nouns and verbs which have *
the same spelling? (e.g. an object - stress on the 1st syllable X to object - stress on the 2nd
syllable)

○ Yes, at school.

○ Yes, outisde the school system.

○ No, I have never heard of it.

○ No, but I became aware of this phenomenon.

○ I don't remember.

Figure 16 Questionnaire - question 1

If yes, where? (check all that apply or write your own answer)

☐ Elementary school (First stage 6-10 y.o.)

☐ Elementary school (Second stage 10-15 y.o.)

☐ Secondary school

☐ TUL (Bachelor study programme)

☐ Jiná…

Figure 17 Questionnaire - question 2

Do you think it is important to teach this at schools? *

	1	2	3	4	5	6	
No, it is useless.	○	○	○	○	○	○	Yes, it is very important.

Figure 18 Questionnaire - question 3

At what level of education do you think this should be taught? (Check all that apply) *

☐ Elementary school (First stage 6-10 y.o.)

☐ Elementary school (Second stage 11-15 y.o.)

☐ Secondary school

☐ University

☐ None of the above

Figure 19 Questionnaire - question 4

2.7.1. Questionnaire results

This chapter comprises the chart visualisation and analysis of the questionnaire's findings. The Google Forms platform allows creators to export responses to a Microsoft Excel spreadsheet. All of the charts below were generated using the Microsoft Excel programme. The total number of students who submitted their responses is 187.

The first pie chart (Figure 20) illustrates how many students had learned about stress shifts between nouns and verbs at school.
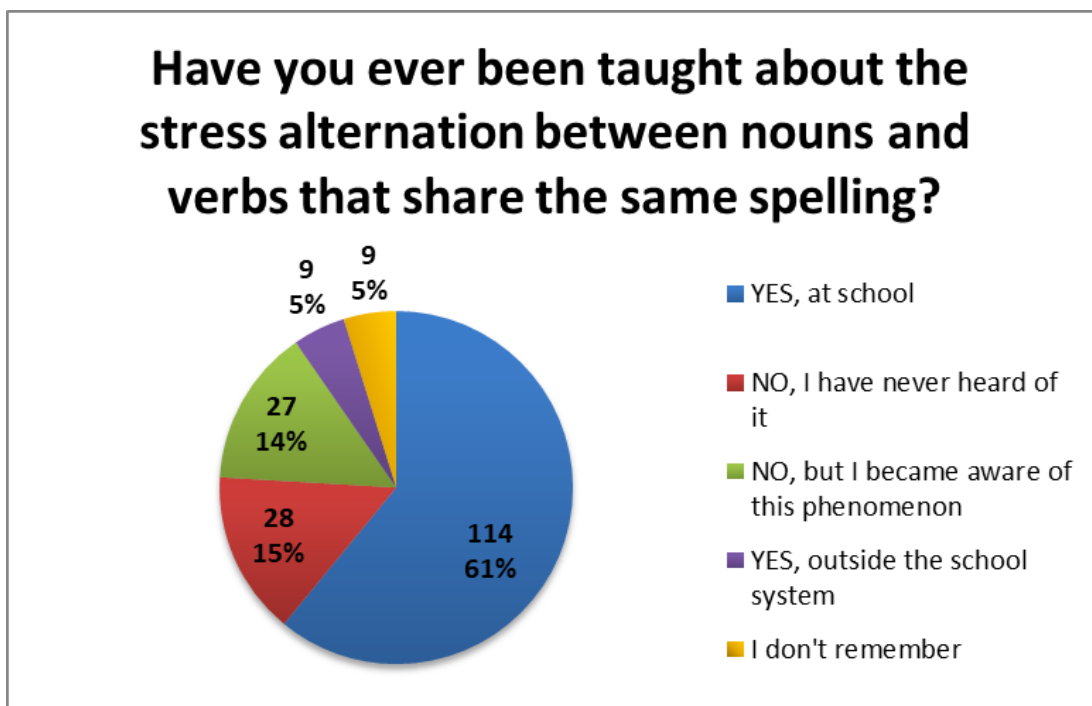
Figure 20 Questionnaire - question 1 responses

The majority of students (61%) claimed to have learnt about this topic at school. It is important to note that among these 114 students were many who encountered the topic for the first time at the Technical University of Liberec (see Figure 21). Another 9 students (5%) claimed they had been taught about the issue, but not as part of their regular school education. This may refer, for example, to private language schools or language courses abroad. 27 students (14%) claimed that despite not having been taught about the topic at school, they learnt about it in a different way. Although this topic is taught at the TUL and all students should be familiar with it, 28 students (15%) stated to have never heard of the stress alternation phenomenon. It can be speculated that students in such cases either did not pay enough attention or that the topic was not given sufficient importance and there was no opportunity to practise it in class. The replies of students who selected "YES" as an answer are represented in greater detail in the graph below.
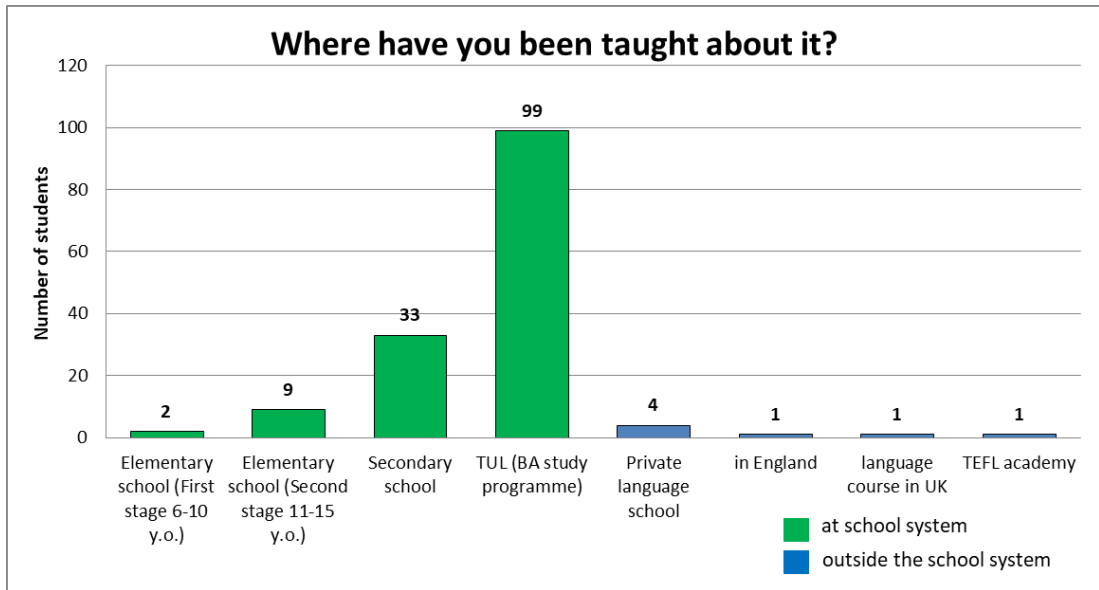
Figure 21 Questionnaire - question 2 responses

The bar graph in Figure 21 examines the responses of students who selected in the first question the options "YES, at school" and "YES, outside the school system" in greater detail. The responses of students who learnt about stress in homographs at school are displayed in green. The remaining responses of students who learnt about the topic outside the school system are indicated in blue. Since this was a multiple-choice question, the sum of the number of students in each column is not equal to the total number of students. The chart shows that this topic is hardly taught at the elementary level. In secondary schools, the incidence of teaching the topic has already been recorded in 33 students. At the TUL, 99 students were aware of being taught about the topic, which is 52.9% from the total number of students. Considering again the fact that this topic is officially taught at the TUL, the number is rather low. The results may be partly influenced by the fact that all courses in the 2020/2021 school year were held online due to the COVID-19 pandemic. After performing more detailed calculations (also found in Appendix F), an interesting fact

emerged. The number of students that have been taught about this topic at schools prior to university is only 38, which is 20,3% from the total.
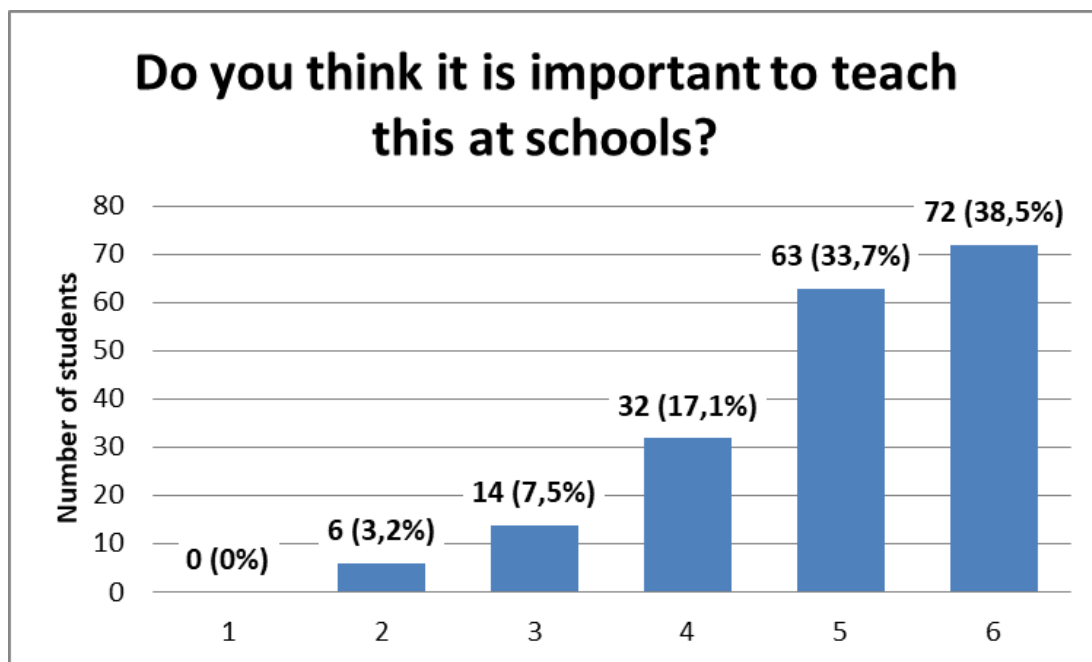

Figure 22 Questionnaire - question 3 responses

The third question was designed to ascertain students' opinions on the importance of teaching this aspect of the English language in schools. Students were asked to indicate on a scale from 1 to 6 how important they thought teaching this topic was. Number 1 means that it is absolutely unnecessary; whereas number 6 means that it is very important. The graph (Figure 22) illustrates that as the number from 1 to 6 increases, so does the number of respondents. No students believed it was unimportant to teach this topic at schools. On the contrary, the majority of students (72,2% in total) picked the number 5 or 6 on the scale.
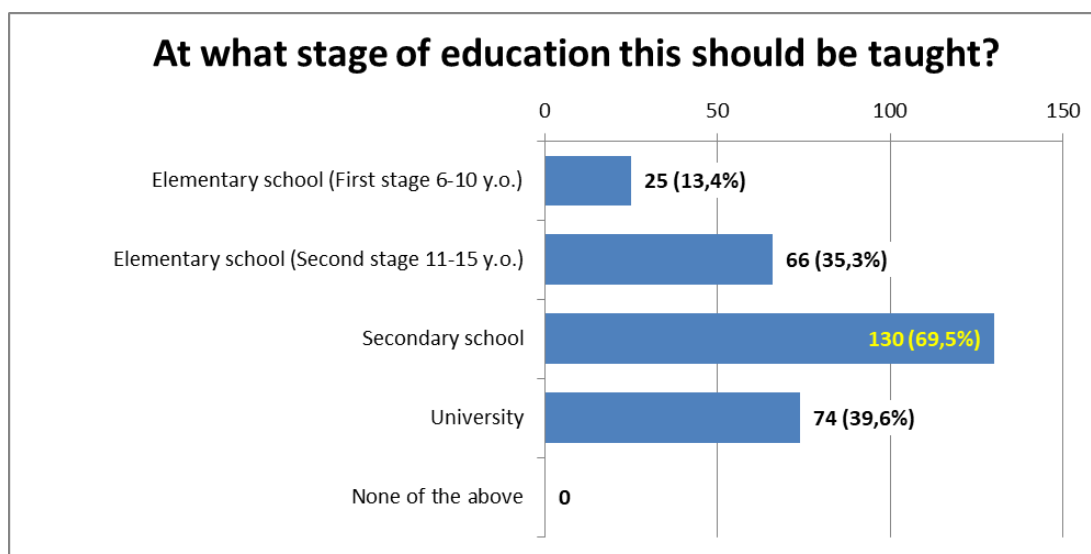
Figure 23 Questionnaire - question 4 responses

The last question related to the previous one. It investigated students' perspectives on the appropriate level of such teaching in the Czech educational system. The education levels are listed from top to bottom, from lowest to highest, on the horizontal axis. Students were allowed to select multiple options. According to the bar graph above (Figure 23), the majority of students (69.5%) believed that secondary school is the most appropriate level for teaching this topic. This, however, contradicts with the reality of the Czech educational system, where (as mentioned in the previous paragraph) only 20.32% of students have been taught this topic at pre-university levels.

2.7.2. Follow-up interviews

I interviewed three randomly chosen students in order to get a glimpse of how the concept of stress alternation between parts of speech is taught at Czech schools. All three students, according to the questionnaire's results, belong to the group of 20,3% who have experienced being taught about the stress shift between noun and verb homographs before joining university. Their statements are described below.

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The first student encountered the teaching of the difference in accent between nouns and verbs for the first time in secondary school, more specifically in grammar school. This topic was introduced to the student as part of a unit in the *New English File* course textbook. The completion of the textbook exercises was preceded by a brief explanation of the topic by the teacher. The student claims to have spent a minimum of two lessons on the subject. The teacher even created several online exercises for the students to complete on the school's Moodle platform. After that, the students were instructed to complete the exercises as homework.

The second student has also heard about this topic at a grammar school. This time, the coursebook used in class was *Longman Maturita Activator*. However, the topic was not part of the book and the only time it was discussed was when a student would mispronounce a word. The teacher never gave any further explanation and only corrected the stress placement.

The third student did not recollect the subject having been taught systematically. During one lesson at secondary school, the teacher noticed that a student placed the stress on a wrong syllable. The teacher corrected the mispronounced word and wrote a few more examples on the blackboard. The teacher then proceeded to briefly explain the rule of stress placement between nouns and verbs. The student does not recall the exact example words, but claims that there were no adjectives included, only nouns and verbs. The students were then asked to practice pronunciation and repeat both versions of homographs after the teacher. The class was using the *Maturita Solutions* textbooks and no exercises concerning this topic were ever introduced.

The results of this short survey show that the importance given to the topic varies greatly between schools. Whether a teacher decides to incorporate this topic

into the classroom may be influenced by many factors that cannot be extracted from such a short survey. However, it can be assumed that factors such as the choice of textbook, the teacher's knowledge, or the prestige of the school contribute.

3 CONCLUSION

This bachelor's thesis was divided into two main sections: theoretical and practical. The theoretical section discussed the various approaches adopted by different linguists when addressing words that alter stress based on the word class. In the practical section, Czech students were tested on their ability to discern stress in these word-class pairs. The testing was followed by a questionnaire examining students' previous exposure to the topic at schools as well as their opinions on teaching it.

The findings of the diagnostic test suggest that most students do not struggle to recognise stress in noun-verb homographs. In fact, the majority of students achieved 70–100% correct answers. Admittedly, this could have been because students of the TUL have already been introduced to the topic of stress alternation as a part of the LI1BE course. In spite of these positive results, however, 15% of respondents claimed in the questionnaire never to have heard of stress alternation between word classes. It should be pointed out that the test which was administered to the students focused on aural recognition alone. The findings might be significantly different if students' ability to stress homographs in speech was examined. In other words, students' perception of and production of stressed syllables may well differ. The latter would be a valuable topic for further research.

Based on the above test findings, some inferences can be made. The first assumption was that students would make fewer mistakes in homographs they had already known than in those they were unfamiliar with. Surprisingly, it was slightly

easier than anticipated for students to recognise the stress placement in unfamiliar words. Therefore, the previous familiarity with or exposure to homographs does not appear to influence the students' ability to hear stress on the correct syllable. Additionally, Czech native speakers do not tend to hear stress on the first syllable more often than on the second one. Although focusing on listening, not pronunciation, the results of this test correspond to the results of the Finnish research mentioned in Chapter 2. Similarly to the Czech, Finnish language generally places the primary word stress on first syllables. The study initially expected the transfer of the L1 stress pattern into L2. Surprisingly, the Finnish students showed a distinct preference for incorrect end-stressing. Similarly to Finnish students, Czech students heard stress on the second syllable more frequently. In other words, native Czech stress placement does not determine aural recognition of stress patterns in English noun-verb homographs.

The findings of the questionnaire revealed that the majority of students first learnt about the stress alternation between word classes at the TUL. At lower education levels, teaching of this feature of English pronunciation is still overlooked. At the TUL, 52.9% of students were aware of having been taught about the topic in their linguistic course. Considering the fact that this topic is taught in the first semester at the TUL, and the testees were only in their second semester, this number is rather low. The results strongly indicate that students want this topic to be present in classroom teaching. Most of these future teachers (72,2%) believe that the topic is an indispensable part of teaching pronunciation. Interestingly, most of them wish that the topic had been introduced in earlier stages of education. The majority (69.5%) agreed that secondary schools were the most appropriate level of education for this. Such results are inconsistent with the current state of the Czech educational system,

where, in reality, only 17,6% of students encounter this topic at secondary schools. Ideally, if more effort were put into educating the teacher trainees about this aspect of English phonology, these would then give greater importance to this topic when teaching at secondary schools.

The research was beneficial not only for the purpose of gathering and analysing data but also for the future teachers. Since no textbooks provide a comprehensive list of noun-verb homographs in context, a list of 96 noun-verb homograph pairs (Appendix A) was compiled and completed by example sentences. Since the stress in these words has been verified by two credible dictionaries, (namely Cambridge Dictionary and Oxford Learner's Dictionaries), this list can be used for teaching purposes. All the words and sentences were also transformed into audio files. Thus they can be used or for a variety of purposes: both teaching and testing, as well as for further research.

By testing the students as part of this research, they were also given an opportunity to practise this feature of English. The research has shown that the problem of stress alternation is a neglected topic. The 187 students asked during the questionnaire are likely enough to represent all Czech students. So based on my findings and the materials created during this research project, I created a follow-up practice activity on homographs. Its purpose was to to train the students' auditory skills.

The activity is stored online on the LI1BE Moodle course for future students to complete. This exercise can be included for diagnostic purposes or follow-up practice after the course teacher introduces the topic of stress alternation between noun and verb homographs. The test consists of 80 questions. They include the same 40 homographs with corresponding example sentences examined in the diagnostic

test in Chapter 2.6. The purpose of the exercise is for students to practise the stress shift rule in context. Students should become aware of and internalise this rule. Based on the context, they need to recognise which form of a homograph verb-noun pair is suitable for completing the sentences. They have to choose from 2 audio files with contrasting stress placement. Figure 24 shows a preview of the quiz instructions.

Figure 24 Instructions for the practice activity

One of the major outcomes of my research project is that the course teacher then decided to include homographs in the final credit test and use my materials for

the final assessment. Word stress in homographs had not previously been assessed aurally in the final end of semester credit test at all. Some of the practice activity questions which I had created were then randomly selected from the Moodle question bank for the credit test. While this would have been of interest and value, these credit test results were not analysed since this is beyond the scope of this research paper. Nevertheless this is certainly something that could be done to compare to what extent the previous practice influences their test results. . The final outcome, then, of my extensive but well-defined research project is practical. The TUL now has now a vast question bank of useful audio files and test questions for future students. It can be assumed that future teachers of English, coming from our faculty and entering the Czech classroom, will be far more aware, better informed and more equipped to teach this aspect of pronunciation.

Lastly, future research should focus not only on reception but also on the production of homographs. In such a case, students could be tested on whether they can produce the stress on the correct syllable and use it in context appropriately. It could also involve adjective-noun pairs, which are somewhat omitted in academic literature and textbooks. Another related research project, which could build upon the solid foundations laid in this thesis, could examine the textbooks commonly used in secondary schools to see whether they mention the topic or give an opportunity to practise the alternating stress in exercises. It is to be hoped that in the long term, this topic might also be found in coursebooks for Czech pupils learning English at school.

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Appendices

All the appendices are enclosed to the thesis in .zip folder.

- Appendix A: The list of 96 disyllabic homographs with example sentences
- Appendix B: A complete list of questions for the second knowledge test
- Appendix C: The results of the first knowledge test
- Appendix D: The results of the second knowledge test
- Appendix E: The results of the diagnostic test
- Appendix F: The results of the questionnaire
- Appendix G: Audio files recorded for Moodle tests
    a. Individual words
    b. Sentences