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Contrastive analysis of prominence (focus words) in English and Czech

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Tělesná výchova se zaměřením na vzdělávání

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Zadání bakalářské práce

Contrastive analysis of prominence (focus words) in English and Czech

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Zásady pro vypracování:

The paper ”Contrastive analysis of prominence (focus words) in English and Czech” is going to study the patterns of prominence in the speech of Czech university students and identify possible mistakes. Focus words and prominence patterns are studied because the students who participate in our research are going to be future teachers of English and the model of intonation for school students so correct prominence patterns in their speech are important. In the experimental part, we will use the electronic-acoustic (PRAAT) and auditory analyses to highlight the prominence patterns in the students’ reading of informational texts.

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Anotace

Tato bakalářská práce porovnává umístění prominence (větného přízvuku) u dvou britských veřejných řečníků a u osmi českých studentů nebo absolventů Technické Univerzity v Liberci. Nahrávky byly zkoumány pomocí dvou metod, a to sluchovou analýzou a analýzou prostřednictvím programu Praat. Na základě těchto analýz byla data vzájemně porovnávána. Záměrem této práce bylo zjistit, zda čeští studenti anglického jazyka mají problém s umístěním prominence a zda se jejich umístění shoduje s umístěním prominence v kontrolních nahrávkách. Hlavním cílem této práce bylo vytvoření podkladu pro vývoj výukových materiálů pro české studenty anglického jazyka.

Klíčová slova

Prominence, větný přízvuk, suprasegmentální fonologie, jazykový transfer, čeští mluvčí, poslechová analýza, Praat, TEDx Talk

Abstract

This bachelor thesis compares the prominence placement of two British public speakers and eight Czech students or graduates of the Technical University in Liberec. The recordings were examined using two methods: auditory analysis and analysis through the Praat software. According to these analyses, the data were compared with each other. The purpose of this thesis was to discover whether Czech learners of English have problems with prominence placement and whether their prominence placement coincides with prominence placement in the control recordings. Therefore, the main aim of this paper was to prepare the ground for developing instructional materials for Czech learners of English.

Key words

Prominence, sentence stress, suprasegmental phonology, language transfer, Czech speakers, auditory analysis, Praat, TEDx Talk

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Introduction

The bachelor thesis deals with prominence as a part of connected speech, also called sentence-stress. In the area of communication, prominence plays a fundamental role in conveying meaning and enhancing the overall intelligibility of spoken discourse. The theoretical part describes the definition of prominence and clarifies its related concepts. Furthermore, it explores the typical placement of the nucleus in English and the relation between communicative dynamism and prominence. Lastly, it includes a broad area of the contrastive analysis of prominence expression in Czech and English.

The practical part of this thesis examines eight Czech students or recent graduates of the Technical University in Liberec who may be future teachers of English. The research investigates whether Czech learners of English transfer any Czech prominence patterns and whether they may or may not have additional problems imitating prominence in English after completing phonetics and phonology courses.

The research problem is that despite prominence significance, the placement of prominence in Czech-accented speech remains a relatively underexplored area. Therefore, the aim of this thesis is to prepare the ground for developing comprehensive instructional materials specifically for Czech learners of English.

The research questions outlined for this thesis are:

1. What is a common error in prominence patterns of Czech learners when reading informal text?
2. What quantitative differences can be observed between the original sample and recordings?
3. What qualitative distinctions exist between the original sample and recordings?

Theoretical Part

1 Prominence in English

1.1 Definition of Prominence

In English Phonetics, prominence is defined as a feature of words (word-stress or word-accent) and as a feature of connected speech (sentence-stress or sentence-accent), mainly formed by three prosodic features: length, loudness, and pitch. Prominence is frequently linguistically important since it determines different lexical meanings and grammatical classes or makes certain syllables and words prominent in a sentence. The fact that prominence is composed of prominent and non-prominent syllables, which together create patterns and produce a rhythmical effect, is essential for intonation (Cruttenden 1997, 6–7).

The main function of a prominence is its focusing function. The placement of prominence in a sentence marks a word that carries the key information for the speaker. Prominence thus helps to clarify the meaning of a sentence according to the speaker's intention (Wells 2006, 11).

A crucial term that is closely related to prominence is stress. Stress is an abstract concept that is difficult to define precisely. However, stress could be considered a broad area that is often used in various ways. Cruttenden (2014) described that stress is "used as simply equivalent to loudness, sometimes as meaning 'made prominent by means other than pitch (i.e. by loudness or length)', and sometimes as referring just to syllables in words in the lexicon and meaning something like 'having the potential for accent on utterances'" (23). In this paper, the term stress will refer to the placement of stress on a syllable of a word, according to a dictionary.

Another important term that requires an explanation is an accent. The word accent could be understood in two different senses. The first meaning describes the differences in pronunciation within a language. This accent is influenced by social class, educational background, geographical place, or age. The most common accent for British English learners is Received Pronunciation, also called BBC pronunciation (Roach 2010, 3). The second meaning refers to prominence placed on a syllable as a part of the accentual function of intonation, sometimes called sentence stress. In the accentual function of intonation, the placement of an accent expresses linguistic importance (Roach 2010, 153). In this paper, the term accent will be used in the sense defined as the second one, as the synonym for prominence.

1.1.1 Role of Vowel Length in Prominence Perception

Peter Roach (1992) defines length as "the amount of time that a sound lasts" (33). However, setting the boundaries and creating the units of sounds or syllables may be difficult since it is somewhat arbitrary. Even after establishing the boundaries, there is a difference between the measurable duration and the linguistic length. Measurable duration is a term used for the physical, objectively measurable time and is affected by the speed of the utterance, the prominence of the syllable containing a vowel; and differs whether the vowel is followed by a voiced or a voiceless consonant. On the other hand, linguistic length is a term used for the subjective impression, for example, the distinction between short and long vowels made by the perceiver (Cruttenden 1997, 2; Roach 1992, 33, 65).

1.1.2 Role of Loudness in Prominence Perception

Loudness, also called intensity, is determined by the force of the air-stream production from the lungs accompanied by vocal cords vibration. Voice intensity is mainly affected by ambient noise. According to Gerald Knowles (1987), "one has to speak loudly enough to be heard above the surrounding noise" (209). The average voice intensity varies among individuals and may be influenced by one's dialect or language. Controlling the intensity of one's voice is done mainly auditory. However, different loudness levels can be perceived and interpreted only with significant intensity differences (Abercrombie 1982, 95–96; Cruttenden 2014, 23).

1.1.3 Role of Pitch in Prominence Perception

Pitch is generally viewed as the most crucial aspect of intonation and is associated with auditory perception (Collins and Mees 2013, 129, 138). Cruttenden (2014, 22) states that "our perception of the pitch of a speech sound depends directly upon the frequency of vibration of the vocal cords". Therefore, identifying the pitch in voiced sounds is done naturally; nevertheless, identifying pitch in voiceless or whispered sounds is limited, due to their inability to vibrate (Cruttenden 2014, 22).

Frequency is a measurement of the rate of vibration of the vocal cords, defined by Cruttenden (1997, 3) as "the number of repetitions of the regular waveform within one second…" and also as "the number of times that the vocal cords completely open and close in one second…". As a result, the frequency of vibration influences the level of pitch; the higher the frequency is, the higher the pitch is (Collins and Mees 2013, 139).

To compare the pitch between two sounds, a listener uses perceptual expressions 'higher' or 'lower' than the other. Still, for one sound to be considered as twice as high as the other, the frequency has to be more than twice as high. For instance,

the listener considers 1000 Hz twice as high as 400 Hz. However, since the average fundamental frequency in speech is relatively low, for men 180 Hz and for women 220 Hz, the frequency measurement is regarded as identical to the pitch (Cruttenden 1997, 3–4).

For an overview of the differences between prominent and non-prominent syllables, see Table 1.

	Stressed	Unstressed
Length	Vowels have full length	Vowels are considerably shorter
Loudness	Articulation with greater breath/muscular effort Perceived as greater loudness	Less breath/muscular effort Perceived as having less loudness
Pitch	Marked change in pitch	Syllables tend to follow the pitch trend set by previous stressed syllable

Table 1 Characteristics of stressed and unstressed syllables (Collins and Mees 2013, 130)

1.1.4 Definition of Pitch Movement

Changes in a pitch rate cause another prosodic characteristic called tone. The tone is rising when the vocal cords increase their vibration and falling when they decrease their vibration. When the vibration is persistent, the pitch is assumed to be level (Wells 2006, 3).

Some languages, such as Mandarin Chinese, Thai, or Norwegian, use tone for lexical differences. In these languages, the changes in pitch create changes in the individual word meaning. On the other hand, English uses tone mainly for intonation, which has the ability to vary the meaning of the whole sentence (Wells 2006, 4). Wells (2006) summarises that generally, “a fall may indicate definiteness, a rise indicate incompleteness, and a fall-rise may indicate implications” (5).

The highest pitch movement is carried by the stressed syllable of the most prominent word in an intonation group called the nucleus (also called the tonic syllable) (Carr 2020, 109).

1.2 Definition of Intonation Groups

Due to the need to breathe, an utterance is naturally divided, and these sections are called the "intonation groups", also called breath groups (Carr 2020, 110). The term intonation groups, as well as the term utterance, is essential for phonetic analysis.

Intonation groups result from dividing a text into smaller units, which form the basic unit of speed melody (Collins and Mees 2013, 141). This separation frequently correlates with syntactic units, typically with clauses (Cruttenden 1997, 68–69). However, the speaker determines where to create the division. Spits are possible between sentences, clauses, and rarely words (Wells 2006, 187).

The number of divisions is also affected by the speed of an utterance. A slow speed of the utterance raises the number of divisions and, thus, the number of prominent elements. Conversely, the number of splits reduces in rapid or informal speech. (Cruttenden 2014, 271).

According to Celce-Murcia, Brinton, and Goodwin (2010), "… each typical intonation unit

1. is set off by pauses before and after;
2. contains one prominent element;
3. has an intonation contour of its own;
4. usually has a grammatically coherent internal structure" (222).

O'Connor, Arnold (1973, 286–287), and Wells (2006, 8) divided intonation groups into four parts. The first part, where all the unstressed syllables preceding

the stressed syllable of the first accented word, is called the pre-head. The second part, which starts with the stressed syllable of the first accented word and finishes with the syllable before the nucleus, is called the head. The central part of the intonation group that carries the highest degree of prominence is called the nucleus and is placed on the last accented word. The last part, the tail, contains all the unstressed syllables after the nucleus.

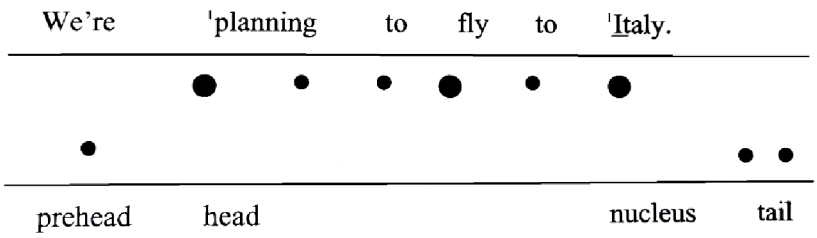


Figure 1 Division of intonation groups (Wells 2006, 9)

1.3 Placement of Nucleus in English

The position of a nucleus is recognized by the highest pitch movement and the highest degree of prominence. The most common placement of a nucleus is on the last lexical word (also called content word) in an intonation group, e.g.

- She bought a new **dress**.
- I would like a **tea**.

Cruttenden (2014, 270) states that lexical words, namely nouns, main verbs, adjectives, and adverbs, "are predisposed by their function in the language to be accented". On the other hand, function words such as pronouns, articles, auxiliary verbs, prepositions, or conjunctions "are more likely to be unaccented" (Cruttenden 2014, 270), e.g.

- What is he '**looking** for?
- I **helped** them.

The placement indicates the essence of the sentence, and any other placement conveys a specific focus (Wells 2006, 93, 95).

Intonation groups are parted according to their focus. Intonation groups where the basic principles are applied are usually in the broad focus. Intonation groups where the placement of a nucleus is modified as required are generally in narrow focus (Cruttenden 1997, 74, 75).

1.3.1 Broad Focus

A broad focus, also known as a neutral focus, is characterised by all the words within the intonation group being in focus. This type of focus is associated with statements that introduce everything as new information (Cruttenden 1997, 74). As mentioned above, a broad focus follows the basic principles except for a few exceptions. According to Cruttenden (1997, 75), these exceptions are 'event' sentences, final adverbials, and adjectival wh objects.

'Event' sentences are short intonation groups commonly containing intransitive verbs that could indicate misfortune or (dis)appearance. In these sentences, the nucleus often falls on a subject that is a non-human agent (Cruttenden 1997, 75), e.g.

- The **vase** fell off the shelf.
- The ˈ**fireworks** erupted in the night sky.

Final Adverbials, typically of time and place, do not bear a nucleus. In these cases, the nucleus is on the preceding item (Wells 2006, 156), e.g.

- She will visit her ˈ**grandparents** tomorrow.
- He placed a ˈ**bandage** on his ankle.

Nevertheless, this rule does not apply if the adverbial is crucial to the meaning of the intonation group (Wells 2006, 157), e.g.

– Put the keys on the ˈ**counter**.

– Write your name on the **form**.

Adjectival wh objects are the last most common exception to the basic rules in broad focus. This exception is valid if an adjectival wh-word functions as the verb's object. The nucleus is set on the object noun succeeding the adjective (Cruttenden 1997, 77), e.g.

– What ˈ**movie** did you recommend?

– Which **book** did you read?

1.3.2 Narrow Focus

A narrow focus is typically characterised by accenting newly added information, and setting out of focus old information mentioned previously in the utterance. The scope of a focus preceding the nucleus is usually clarified by the context (Cruttenden 1997, 80), e.g.

– (Who was nominated for the Best Employee of the Month award?)

I think **Jack** was nominated for the Best Employee of the Month award.

1.3.3 New and Old Information

Wells (2006) states that "the location of the nucleus is strongly affected by whether the words in the utterance contain old or new information. The general rule is that we accent new information, but not old information" (109). Old information (also known as given information) is not emphasised because the listener is already familiar with the information. Hence, the accented part of an intonation

group that is considered as new information results in a narrow focus (Cruttenden 1997, 81).

Linguistically old information may be known by millions of people, such as a fact of common knowledge, or conversely, it may be confidential information between two people (Carr 2020, 113). Information may also become old by using visual support (e.g. showing a real object to the audience before talking about it) (Cruttenden 1997, 82).

The most common case where information becomes old is when items are repeated (Cruttenden 1997, 81), e.g.

– A **black** car and a **red** car

Another case where information becomes old is by using synonyms. Synonyms convey the same meaning only by different words (Wells 2006, 111), e.g.

– (Shall we start preparing dinner?)

  Absolutely, I **love** cooking.

1.3.4 Contrastivity

The main goal of contrastivity is to place a nucleus on a certain item to create a contrast. The nucleus may be positioned on any type of item, including a function word (Wells 2006, 119).

A contrast could be either explicit or implicit. The most straightforward example of an explicit contrast is in binary set, typically pair of opposites (Cruttenden 1997, 82), e.g.

– Olivia found it ˈ**easy** to learn the piano | although Lucas found it ˈ**challenging**.

The example above contains two sets of pairs (*she* and *he*, *easy* and *challenging*), so it is up to the speaker to decide which one of them to highlight. The other

one, which does not get the nucleus, could have an additional pitch accent. If the speaker desires to highlight both pairs, the division of the intonation phrase into several parts is required (Cruttenden 1997, 82–83), e.g.

– **O**ˈ**livia** | found it ˈ**easy** to learn the piano | although ˈ**Lucas** | found it ˈ**challenging**.

An explicit contrast is sometimes explained by the term polarity contrast (Cruttenden 1997, 82). Cruttenden (1997) states that polarity contrast "can take two forms: either a subject is compared to two verbs, or two subjects are compared with respect to plus and minus values of one verb" (82), e.g.

– (Jackson stole my idea.) He ˈ**couldn't** steal your idea!

In the implicit contrast, the listener has to derive the other item from the context (Wells 2006, 120), e.g.

– (The weather was horrible the last few days.) ˈ**Thursday** wasn't that bad.

This example above displays a comparison with the phrase *the last few days*.

Another area to explore is the location of a nucleus in contrastive focus with new and old information. The general rule for new information to be accented remains the same (Cruttenden 1997, 83), e.g.

– Olivia found it ˈ**easy** to learn the piano | although Lucas found it ˈ**challenging**.

On the contrary, old information, which is not usually accented, becomes frequently accented in contrastive focus (Cruttenden 1997, 83–84), e.g.

– Of the group of potential ˈ**candidates**, | only **A**ˈ**melia** was hired.

In the above example, *Amelia* has been old information because she was earlier referred to as the *group*.

Furthermore, old information has two other common exceptions that differ from the general rule. Unlike the general rule that contrasts individual words or phrases, these exceptions, namely echoes and insists, contrast the entire sentence (Cruttenden 1997, 84).

1.3.4.1 Echoes

Echoes in utterances often manifest as questions or exclamations, contrasting with the previous speaker's statement and typically marked by incredulity (Cruttenden 1997, 84), e.g.

- (I was swimming yesterday) You were ˈ**swimming** yesterday?
- (Are you pregnant?) Am I ˈ**pregnant**! Are you serious?

In these examples, the placement of a nucleus on old information indicates the item's significance to the speaker. Questions and exclamations can be identified by each other by their tone. High-rise tone is used for questions, and rise-fall tone is used for exclamations (Cruttenden 1997, 84).

Additionally, requests for repeats with high-rise tones are closely related to echoes (Cruttenden 1997, 84), e.g.

- (I'm getting married.) **What** did you just say?

Finally, the last exception that is related to echoes is wh-questions. Wh-questions are strongly connected to the previous context and usually have a high-fall tone (Cruttenden 1997, 85), e.g.

- (I was visiting my grandparents.) Why you were visiting your ˈ**grandparents**?

1.3.4.2 Insists

Insists, another exception that accentuates the old information, are primarily composed of counterpresuppositionals. In counterpresuppositionals, the speaker denies something presupposed in the previous speaker's statements. The placement of the nucleus cannot be generalised because it can be placed on items not typically accented, for instance, on auxiliary verbs, a negator, and a preposition following the copula 'be' (Cruttenden 1997, 85), e.g.

- (Why did you bribe those officials?) I did **not** bribe those officials.
- (What time did he leave the house yesterday?) He ˈ**wasn't** at home yesterday.

1.4 Role of Prominence in Expression of Communicative Dynamism

Communication dynamism is a term that is an essential part of the theory of functional sentence perspective. Communication dynamism indicates the value of an element for the development of communication (Adam and Kalischová 2017, 18, 19). The components of a sentence represent varying degrees of communicative dynamism, with the most dynamic element being the most significant information. This significance of an element can be expressed by prominence, linear modification (word order), context or semantic structure (Adam and Kalischová 2017, 18).

According to Adam and Kalischová (2017), researches on prosodic features "claim that there is a connection between the theme-rheme articulation (the distribution of the degrees of CD over individual communicative units) and the degrees of so called prosodic prominence (PP)" (33). The connection between communicative dynamism and prosodic prominence can be divided into three categories: perfect correspondence, selective non-reevaluating intensification and re-evaluating intensification (Adam and Kalischová 2017, 33, 34).

1.4.1 Perfect Correspondence

In perfect correspondence, communicative dynamism and prosodic prominence are in perfect harmony, and the intonation reflects the information structure precisely as determined by non-prosodic factors (Adam 2013, 33).

(1) His name	*is*	*\George!*
B	Q	Sp
Th	Tr	**Rh**

Figure 2 Perfect correspondence (Adam 2013, 33)

"In sentence (1), the intonation reflects the distribution of the degrees of CD: *George* is the carrier of the most dynamic piece of information and, at the same time, carries the nuclear stress (symbolised by the prosodic mark \ as a falling tone)" (Adam 2013, 33).

1.4.2 Selective Non-Reevaluating Intensification

Selective non-reevaluating intensification does not represent a perfect harmony as in perfect correspondence, but it does not impact the theme-rheme relationship. In the example below (2), the theme-rheme relationship remains unchanged. However, the Bearer of Quality (he) experiences a prosodic intensification (the nuclear stress, represented by a fall-rise, symbolised by \/) (Adam 2013, 33).

(2) (His wife is OK) but	*\/ he*	*seems to have*	*\troubles!*
	B	Q	Sp
	Th	Tr	**Rh**

Figure 3 Selective non-reevaluating intensification (Adam 2013, 34)

"The personal pronoun *he* is then – due to the contrastive prosodic intensification – more dynamic than the transitional element *seems to have*. The rhematic sec-

tion is occupied by the item troubles carrying the most prominent prosody" (Adam 2013, 34).

1.4.3 Re-Evaluating Intensification

In re-evaluating intensification, the intensification leads to a greater deviation from the perfect correspondence between communicative dynamism and prosodic prominence. In this case, intonation has the ability to re-evaluate the information structure (Adam 2013, 34).

(3) (I think she is wrong.) – Well, but	*\/she*	*doesn't.*
	B	Q
	Rh	Th

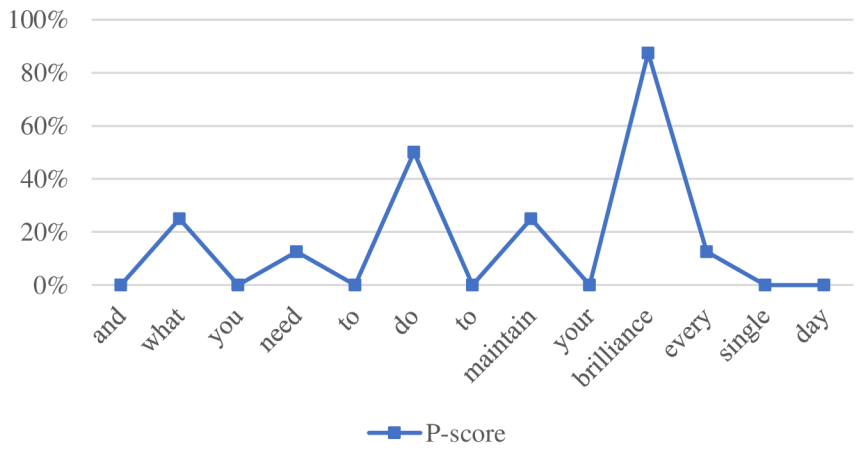
Figure 4 Re-evaluating intensification (Adam 2013, 34)

"In the sentence (3), the element she represents the only nucleus and thus the most prominent prosodic item in the distributional field; it is re-evaluated from a classically thematic unit into a rhematic one. As a result of re-evaluating prosodic intensification, the sentence is emotionally marked" (Adam and Kalischová 2017, 34).

2 Graphical Presentation of Prominence

New prosodic transcription methods are portrayed in a journal article called New Methods for Prosodic Transcription by J. Cole and S. Shattuck-Hufnagel (2016). Rapid Prosodic Transcription is a method that uses a p-score to visualise the number of prominent words. Even though these words are marked as prominent by transcribers who are listening a recording and marking the prominent words into a text that is without any punctuation or capitalization, in this paper, the p-score will represent the number of words that participants read aloud as prominent in a given text (Cole and Shattuck-Hufnagel 2016, 8, 9).

P-score has a scale from 0 to 1. A score of 0 or close to 0 demonstrates that no or few participants read the word as prominent. A score of 1 or close to 1 demonstrates that most participants tents read the word as prominent. A score between 0 and 1 displays less agreement regarding the placement of prominence among participants (Cole and Shattuck-Hufnagel 2016, 9). This scale can be converted into percentages so that a score of 0 would result in 0 % and a score of 1 would be 100 %.



Graph 1 Example of a P-score

3 Contrastive Analysis of Prominence Expression in Czech and English

The definition of prominence in Czech coincides with the definition of prominence in English mentioned above. However, the intensity of the prosodic features, especially the pitch, is less significant than in English. Czech speakers tend to have a narrower pitch range, typically in cases where the nucleus is in a neutral position. Therefore, Czech speakers of English often sound monotonous and could be misunderstood as bored or uninterested (Volín, Poesová, and Weingartová 2015, 109).

The function of prominence is similar to English. The placement of prominence in a sentence emphasises a word essential for the utterance's meaning (Palková 1994, 165). Nonetheless, the whole concept of prominence has some distinctions.

3.1 Definition of Stress Groups

To understand prominence in Czech a brief discussion of stress groups is necessary. Czech emphasises the rhythmicity of an utterance, and as a result, the utterance unit is divided into stress groups (Headlandová-Kalischová 2010, 78). A stress group, "a unit of speech sound constituted by a single primary stress" ('Merriam-Webster Online Dictionary', n.d.), is rarely composed of monosyllabic words. Hence, they are usually attached to the prior/following word according to the context (Headlandová Kalischová 2010, 9, 10), e.g.

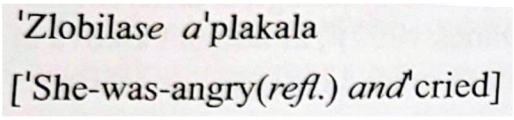


Figure 5 Monosyllabic words (Headlandová Kalischová 2010, 10)

(' indicates word stress)

On the other hand, primary stress can occur on monosyllabic words in cases where several monosyllabic words are combined into a single element at the beginning of a sentence, e.g.

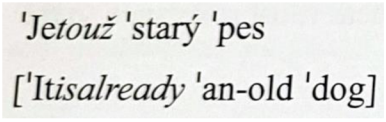


Figure 6 Combined monosyllabic words (Headlandová Kalischová 2010, 10)

Lexical words are more likely to be prosodically independent compared to grammatical words. However, also other factors influence the division into stress groups; for example, meaning, tempo, or idiolect. Monosyllabic words that are attached to the prior/following word are often prepositional phrases (Headlandová Kalischová 2010, 10).

3.2 Structure of Intonation Groups

Another important difference between Czech and English is the structure of intonation groups. In English, the typical internal structure of intonation groups is divided into a pre-head, a head, a nucleus, and a tail. A Pre-head, a head, and a tail are non-compulsory components. On the other hand, the nucleus is the only obligatory component, which is the same in both languages (Headlandová Kalischová 2010, 20). Headlandová Kalischová (2010, 11) describes that the Czech internal structure is not as determined as the English. Nevertheless, the crucial qualities are defined as:

1. an intonation group contains one or more stress groups and is superior to them;
2. a pause establishes the division between intonation groups;
3. a specific tone pattern, referred to as “cadence,” precedes this pause;

4. intonation groups frequently correspond with a clause or a component of a compound sentence, however, harmony with syntactic structure is not compulsory;
5. the speaker and the listener perceive intonation groups as distinct units.

The number of prominent elements possible in an intonation group is not precisely stated. Nevertheless, Palková (1994) states that "often there are sections with more than one peak of prominence" (305), e.g.

– ˈ**První** přijel ˈ**autobusem** | ˈ**druhý** přijel ˈ**taxíkem** | ˈ**třetí** dokonce ˈ**limuzínou**.

The most essential prominence is usually the latest prominence in the intonation group (Headlandová Kalischová 2010, 14).

3.3 Placement of Nucleus in Czech

A nucleus is most usually placed on the last word, more precisely on the last stress group. This nucleus position is considered a neutral position, also called an unmarked position. A nucleus in another position than in the final position is considered marked. (Palková 1994, 165–66, 308).

3.3.1 Basic Principles of Placement of Nucleus in Czech

Palková (1994, 300) distinguishes primarily three types of placements of a nucleus:

1. A nucleus that is a component of the natural modulation of fluent speech, operating somewhat automatically. The nucleus is typically automatized towards the end of an intonation group, and its function is mainly to clarify single intonation groups.

2. A nucleus that is influenced by and derived from the meaning of the stress group. Superlatives, emotive phrases, or similar elements tend to be part of this type.
3. A nucleus is based on the structure of the utterance and the overall context. In this type, a nucleus may be the only instrument that ensures the necessary meaning and its use is obligatory. For this type of a nucleus, the term contextual prominence is commonly used.

3.3.2 Contextual Prominence

According to Palková (1994, 300), contextual prominence is the most extensive type of nucleus placement. A nucleus not situated on the last stress group conveys some emphasised meaning. Moreover, if an utterance contains no other auxiliary expressions of comparison (e.g., *lépe, jiný, nejen – také, více – než*), the nucleus becomes the only instrument expressing prominence, and its shift can have a significant impact on the meaning of the utterance (Palková 1994, 301), e.g.

a) Dnes odpoledne půjdeme "do kina
b) Dnes odpoledne "půjdeme do kina
c) Dnes "odpoledne půjdeme do kina
d) "Dnes odpoledne půjdeme do kina

Figure 7 Contextual prominence (Pálková 1994, 301)

(" indicates prominence)

Example a) is unmarked, the nucleus is in a neutral position. Examples b), c) and, d) are marked. Hence, in example b), the placement of the nucleus disproves the doubt. In example c), the placement of the nucleus specifies the time. In example d), the placement of the nucleus clarifies which day (Palková 1994, 301).

Intonation groups with more than one nucleus are common in utterances expressing comparison or contrast (Palková 1994, 305), e.g.

– ˈ**První** host přijel ˈ**autobusem** | ˈ**druhý** přijel ˈ**taxíkem** | ˈ**třetí** dokonce ˈ**limuzínou**.

3.4 Differences in Prominence in Czech and English

The most significant difference between Czech and English is that in Czech, it is common to emphasise a word with lexical or syntactic means, which are equally essential as prosodic means (Palková 1994, 298), e.g.

a) Pojďte se sem podívat
b) Pojďte se podívat **sem**
c) **Sem** se pojďte podívat
d) Pojďte se *alespoň* **sem** podívat

Figure 8 Basic principle of prominence in Czech (Pálková 1994, 298)

Utterance a) is unmarked; hence, the nucleus is in the neutral position. The second utterance, b), is also unmarked because the nucleus is in the neutral position. Yet, the word that carries the nucleus changed due to a syntactic change in word order. In example c), the change in word order influences the placement of the nucleus, causing a marked position. Lastly, example d) is also marked by the cause of a lexical element *alespoň* that the nucleus must follow (Headlandová Kalischová 2010, 14).

3.4.1 Impact of Functional Sentence Perspective on Prominence

In the example above (Figure 10), there is evidence that Czech tends to place the nucleus at the end of the sentence underneath the influence of the functional sentence perspective. The theory of the functional sentence perspective has been defined

above. However, it is necessary to consider the difference in the relationship between Czech and English in this matter.

As mentioned earlier, functional sentence perspective is affected by three non-prosodic and one prosodic factors. Nevertheless, only one non-prosodic factor makes a major distinction between these languages, and that is the linear modification. The linear modification pertains to word order and the organisation of information, whether the information is familiar or unfamiliar.

In Czech, the guiding principle is the "functional sentence perspective linearity principle," which arranges sentence elements based on a gradual increase in communicative dynamism. Conversely, in English, the primary objective of sentence structure is to fulfil the syntactic roles of individual elements (Headlandová-Kalischová 2010, 79). This issue is represented by following example,

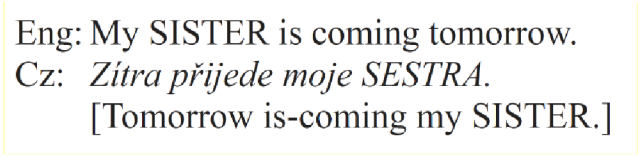


Figure 9 Linearity principle (Headlandová-Kalischová 2010, 85)

In Czech, the linear arrangement aligns with the interpretative arrangement, placing the nucleus on the last item. In English, the nucleus is placed at the beginning of an utterance because of syntactic requirements.

As a result, Czech speakers of English often tend to set the nucleus on the final item of an utterance, regardless of its intention or context. This habit frequently results in an incorrect nucleus placement from a non-final item to a final one. This preference is attributed to the influence of the speaker's native language, where the nucleus is typically in final positions in unmarked utterances (Headlandová-Kalischová 2010, 90).

Comparative table of English and Czech prominence		
	Czech	English
Rhythmicity	Syllable-timed	Stress-timed
Guiding principle in Functional sentence perspective	Linear modification	Semantic structure
Number of prominent elements in an intonation group	Not precisely stated	At least one
Common placement of nucleus	On the last function word	On the last function word
Pitch range	A narrower pitch range	A broader pitch range

Table 2 Comparison of English and Czech prominence

Methodology Part

4 Procedure

In the methodology part of the thesis the voice recordings of participants were analysed. The research group consisted of eight participants who were recorded reading aloud a chosen informal text. The source of the text was a transcript of a public speech in a Standard Southern British English accent from the TEDx Talk platform. A prominence analyses of the transcripts of the original recordings of the British speakers provided a control sample of prominence placement.

Moreover, it should be emphasised that the participants were unaware of the information that the research was concerned about the placement of prominence; the only information provided was that the research was examining intonation from a general perspective.

5 Participants

The research was conducted on eight participants who are currently studying or have recently completed their studies at the Technical University in Liberec and who have completed courses in phonetics and phonology. The Table 3 below lists the participant's gender, age at the time of the research, the Common European Framework of Reference that was self-reportedly determined by the participants themselves, and finally, their current academic status.

	Gender	Age	CEFR	Current academic status
Speaker 1	Female	23	C1	studying
Speaker 2	Male	23	B2	studying
Speaker 3	Female	24	C1	Bachelor's degree
Speaker 4	Male	22	C1	studying
Speaker 5	Male	23	B2/C1	Bachelor's degree
Speaker 6	Female	22	C1	studying
Speaker 7	Male	22	C1	studying
Speaker 8	Female	22	C1	studying

Table 3 Participants

6 Materials

The original material, which was used to compare the student's prominence placement with the British speaker's prominence placement, was composed of transcripts of videos from the TEDx Talks YouTube channel. The videos involved impromptu speeches by two British public speakers, one male and one female.

Speakers' public performances were abbreviated, and only certain sections were used for analyses. The length of all recordings was around 2 min 30 s, with word counts around 455 words. The Tables 4 and 5 below provide general background information about the performances.

Sample 1	
Name of the author	Carrie Green
Name of the performance	Programming your mind for success
URL	https://www.youtube.com/watch?v=MmfikLimeQ8
Selected time period	1:23 – 3:44

Table 4 Material - Sample 1

Sample 2	
Name of the author	Dr. Alan Watkins
Name of the performance	Being Brilliant Every Single Day
URL	https://www.youtube.com/watch?v=q06YIWCR2Js
Selected time period	2:28 – 4:57

Table 5 Material - Sample 2

TEDx Talk is a platform for speakers to present their profound ideas within a concise timeframe of under 18 minutes. This conciseness ensures sustained audience attention and minimises distractions. Speakers can either present an unknown concept that surprises the audience or a fresh perspective on an existing idea supported by arguments and observations. TEDx Talks can be in various forms, including great ideas, technological innovations, artistic expressions, captivating performances, scientific phenomena, or discussions of smaller topics ("What Is a TEDx Talk?").

7 Methods of Analysis

7.1 Auditory Analysis

In the process of analysis, the recordings were initially analysed by auditory perception by the author of the thesis. All recordings were played several times, and the prominent words were noted separately in a document with the transcript for each speaker by colouring the word in dark red. Afterward, the Praat software was used to analyse all recordings at their total length to validate the auditory analysis.

7.2 Electronic Acoustic Analysis

Praat software was used to verify the correctness of the auditory analysis. Praat software visualises voice recordings as waveforms and spectrograms. A waveform illustrates the changes in intensity over time. Intensity, already defined above, is a force of the air-stream production from the lungs perceived as sounds. A spectrogram displays the changes in frequency along with intensity over time and it can also shows the trace of pitch and intensity (blue and green line in Figure 12).

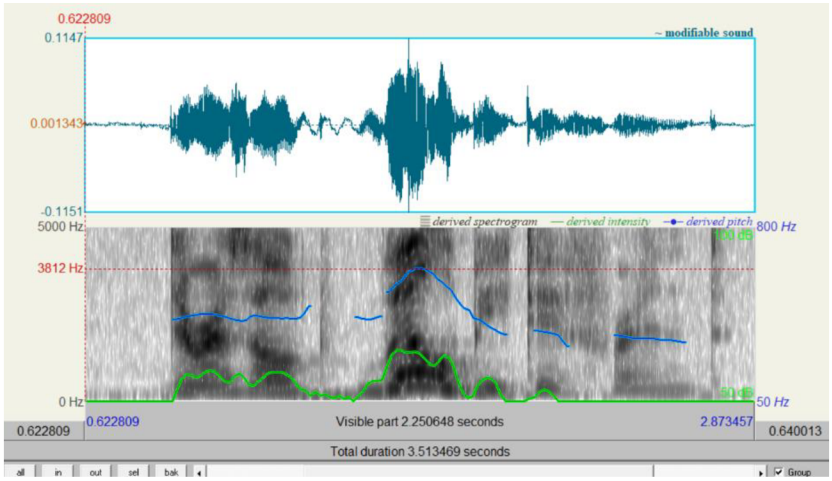


Figure 10 Example of Praat analysis

8 Results

In the following chapters, the placement of prominence of Czech participants and British speakers is compared, and the results are divided into two parts. The first part focuses on analysing the results from a qualitative perspective, and the second part from a qualitative perspective.

8.1 Quantitative Presentation of Results

The Table 8 below illustrates the participants' results regarding the total number of prominent items, the number of correct prominent items, and the number of correct prominent items displayed in percentages.

The number of prominent items ranges from 159 to 204, with speaker number 8 reaching the closest to the original sample with 204 prominent words. The total number of prominent elements in the control sample is 208. The third column, called the number of correct prominent items, expresses the number of prominent items that are similar to the recordings of the British public speakers. Lastly, the numbers of correct prominent items were converted to percentages and rounded to whole numbers for better clarity.

The lower percentage of correct prominent items was retrieved from Speaker 6 and Speaker 1, with correct 42 % of prominent items. However, the highest number of speakers is categorised in a group with remarkably similar results and a percentage of around 45. The only two speakers who crossed the 50 % border with 52 and 53 % was Speaker 8 and Speaker 4.

	Number of prominent items	Number of correct prominent items	Number of correct prominent items in percentage
Speaker 1	168	88/208	42 %
Speaker 2	177	95/208	46 %
Speaker 3	164	91/208	44 %
Speaker 4	184	109/208	52 %
Speaker 5	166	97/208	47 %
Speaker 6	180	87/208	42 %
Speaker 7	159	94/208	45 %
Speaker 8	204	111/208	53 %

Table 6 Quantitative presentation of results

8.2 Qualitative Presentation of Results

In the qualitative analysis of the results, twenty words were selected. The first ten words were prominent in the control sample but were not often prominent by the participants. On the contrary, the other ten words were not prominent in the control sample but were frequently prominent by the participants. All the figures below display the Pratt analysis of British public speakers, and all the graphs show the percentage of prominence placement on specific items among all participants.

8.2.1 Words Prominent in Sample but Not Prominent by Participants

In this section, ten words often pronounced non-prominently by the participants, although prominent in the control sample, have been closely examined. These included: *you, your, started, here, you, what, performance, I, complicated, after.*

YOU

None of the participants placed prominence on a word *you* in an utterance: *Why didn't you volunteer?* In a Figure 13 below, it is possible to see that the prominent words are *why* and *volunteer*.

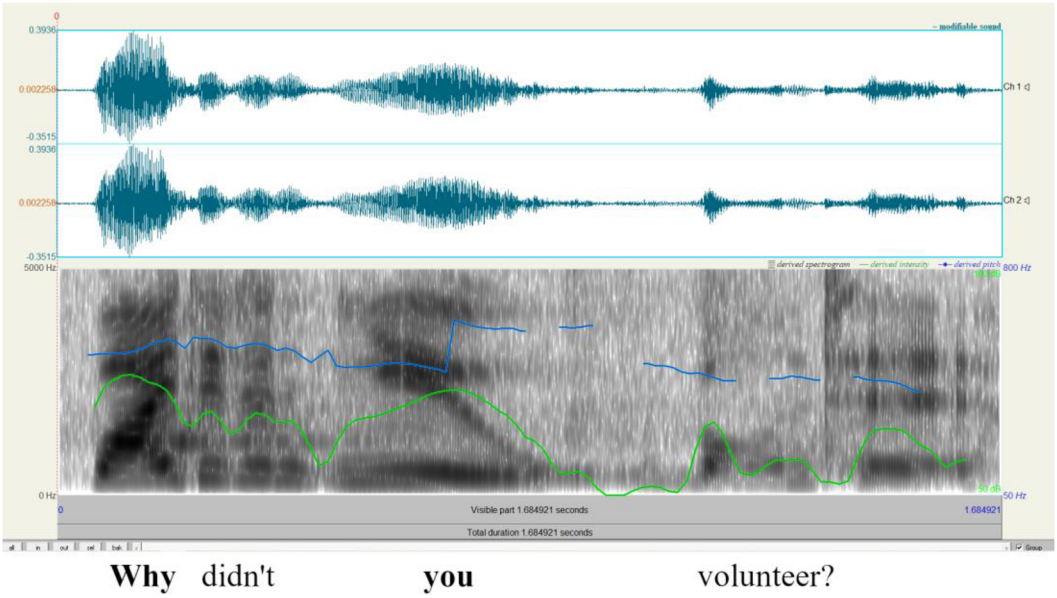
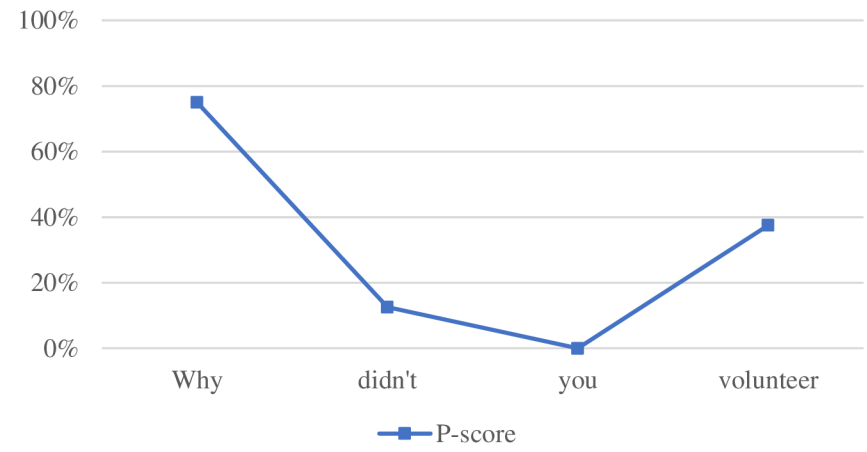


Figure 11 Praat analysis of an item you

The Graph 2 below displays the support for the statement mentioned above that neither of the participants placed prominence on the word *you* as in the control sample. In this utterance, the British public speaker emphasised *why* in the meaning of what the reasons are, and *you* in the meaning of why, particularly you, as a specific person, do not want to volunteer.

Six of the participants positioned prominence correctly on the item *Why*. However, three participants positioned prominence on the item *volunteer*, and one on the item *didn't*. The placement of prominence on the item *didn't* may be because of its negative form, which is often emphasised. As for the placement of prominence on the word *volunteer*, this placement can be due to either its position at the end of the sentence or the rising tone as in a question.



Graph 2 P-score of an utterance: Why didn't you volunteer

YOUR, STARTED, HERE

Your, *started* and *here* are part of one utterance: *your decision started up here*. In this utterance no prominence was placed on any of them by any of the participants, even though the British speaker has them as prominent.

In a Figure 14 below, it is possible to see that the prominent words are *your, started* and *here*.

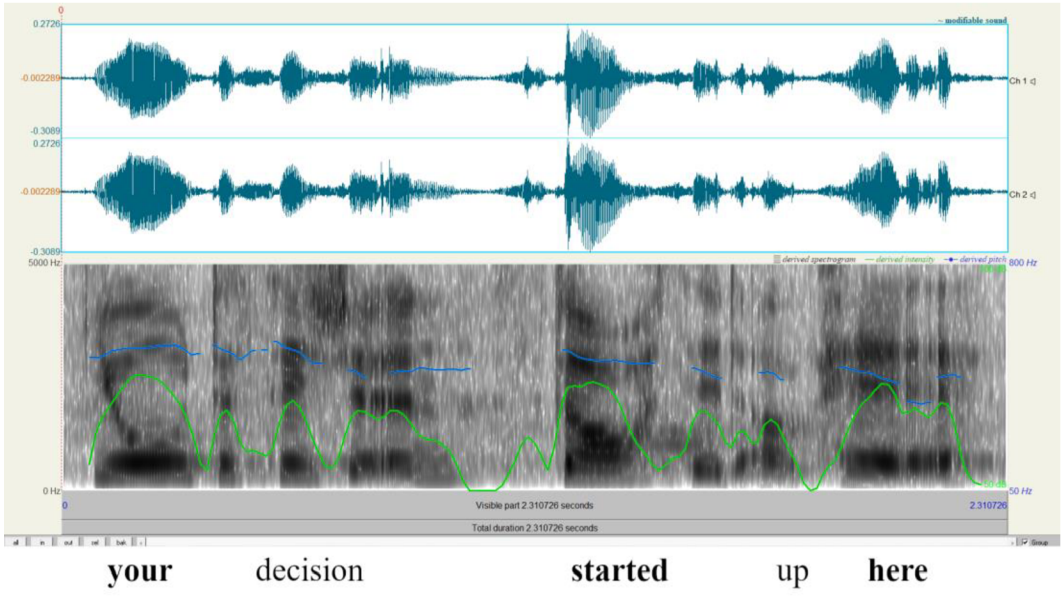
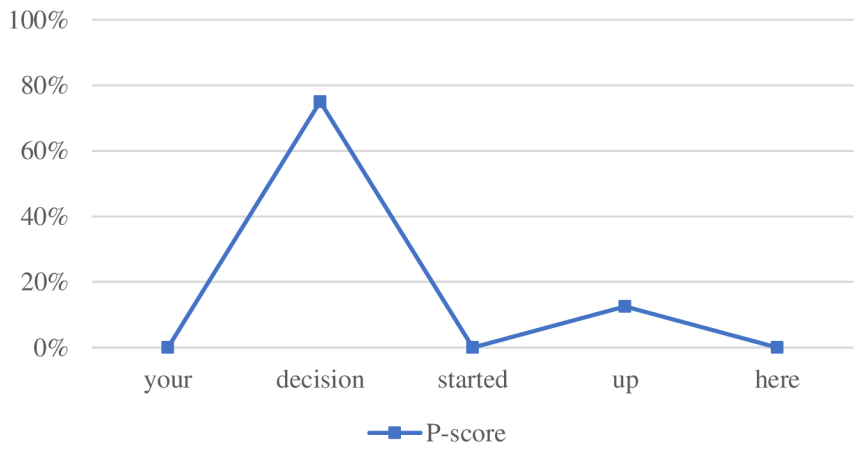


Figure 12 Praat analysis of items your, started, here

The Graph 3 below shows that the majority of examined speakers placed prominence on the word *decision*, and not a single one of them positioned prominence on any of the other items except Speaker 6, who also placed prominence on a word *up*. The word *decision* should not be emphasised due to the fact that according to the context, the word *decision* is old information.



Graph 3 P-score of an utterance: your decision started up here

YOU

You is the last word in a list of items that no one from participants made prominent. *You* is a part of an utterance: *You were thinking things maybe like*.

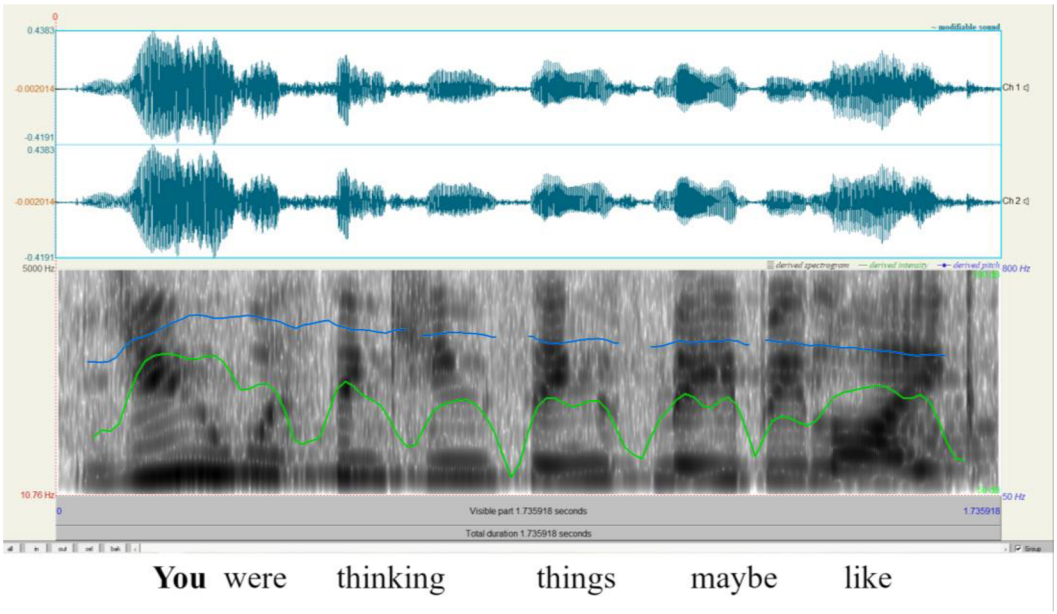
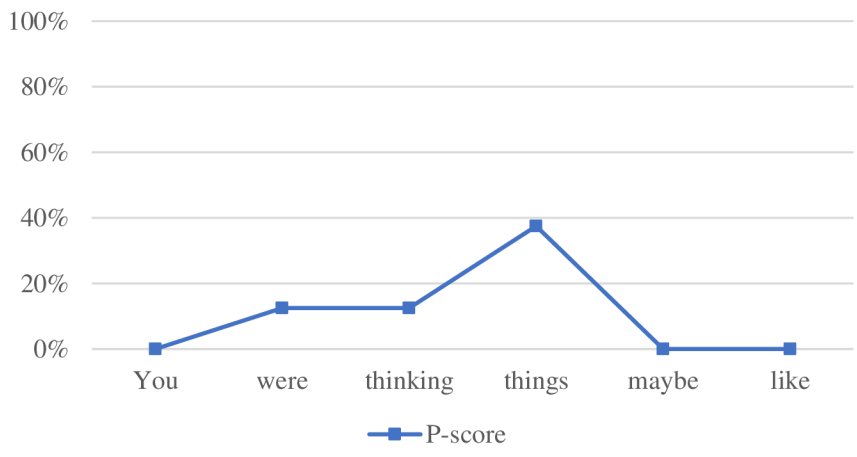


Figure 13 Praat analysis of an item you

As shown in The Graph 4 most of the speakers, namely three, set prominence on the word *thing*, and none of them set prominence on the word *You* as in the control sample. For Speaker 2, Speaker 5 and Speaker 7, prominence was not recognized for any of the items.



Graph 4 P-score of an utterance: You were thinking things maybe like

WHAT

A word *What* was made prominent by two speakers, Speaker 5 and Speaker 8, and is part of utterance: *and what you need to do*.

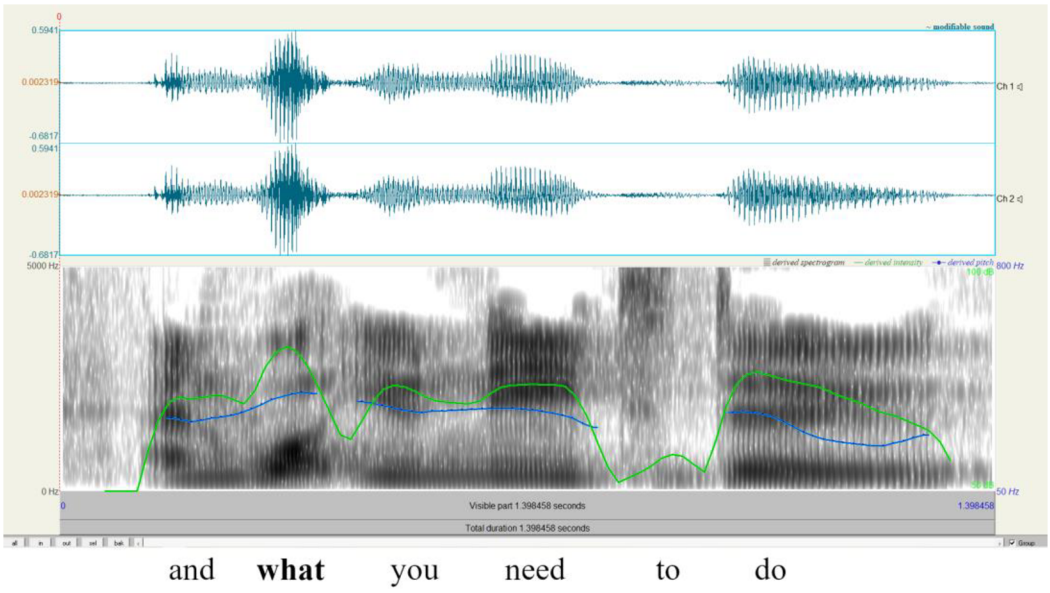
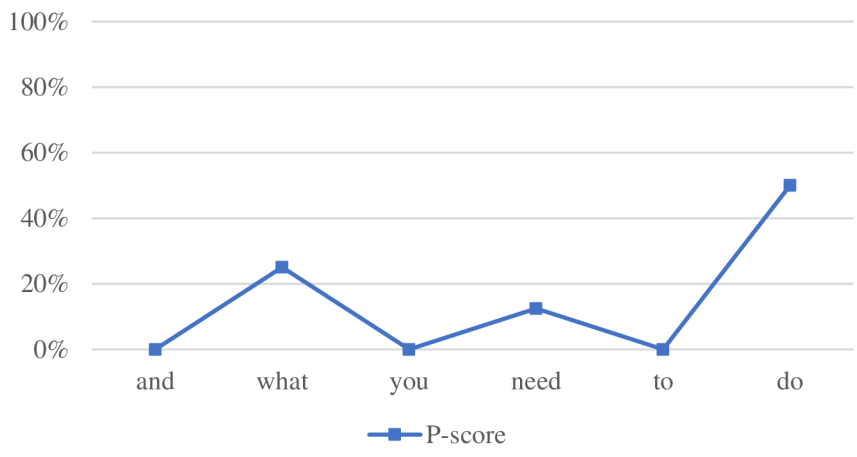


Figure 14 Praat analysis of an item what

In the Graph 5, it can be observed that the majority of the speakers decided to place prominence on the word *do*, and the minority on the word *what*. Only one speaker set prominence on the word *need*. For Speaker 1, no words were found to be prominent. The tendency to place prominence on the word *do* could be because *do* is the last lexical word, often marked as prominent.



Graph 5 P-score of an utterance: and what you need to do

AFTER, PERFORMANCE

The correct prominence placement in utterance: *we're after improving our performance in some way*, was on words *after* and *performance*. However, only Speaker 1 and Speaker 7 placed prominence on a word *after*, and only Speaker 1 placed prominence on word *performance*.

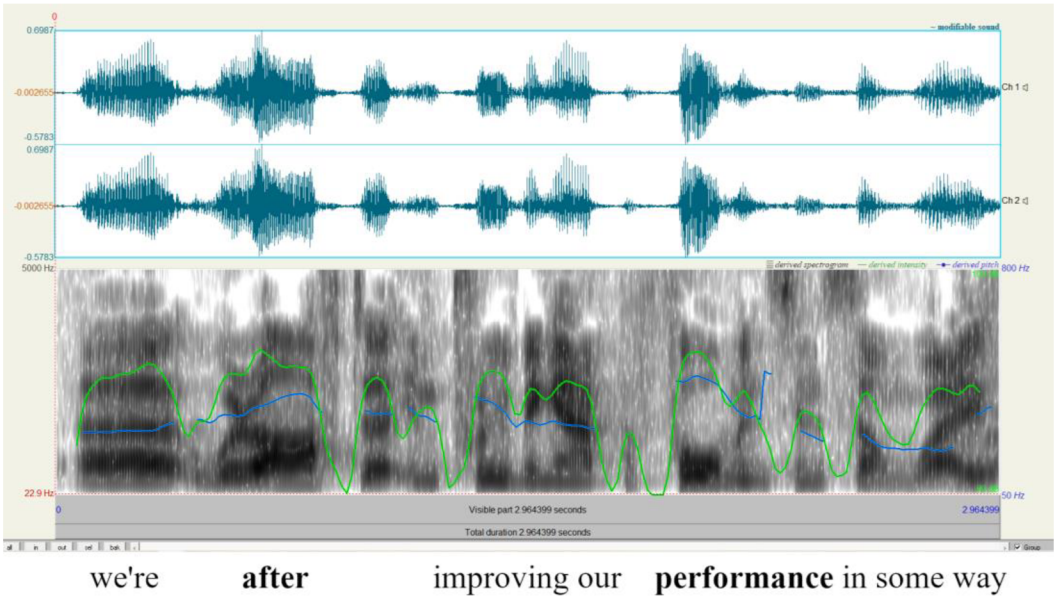
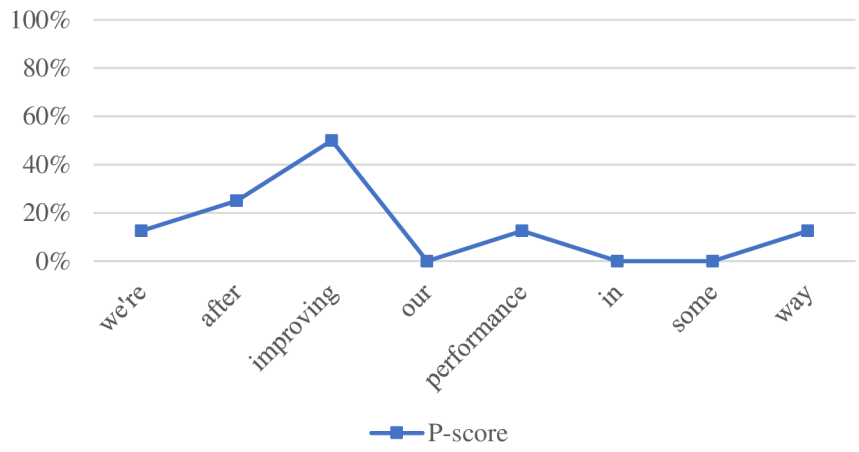


Figure 15 Praat analysis of items after, performance

The Graph 6 presented the statement above that only the minority of speakers emphasised the words *after* and *performance*. Most participants highlighted the word *improving*, perhaps for its slightly positive connotation. Items *we're*, and *way* were incorrectly emphasised each by one speaker. For Speaker 3, no words were found to be prominent.



Graph 6 P-score of an utterance: we're after improving our performance in some way

I

In the utterance: *he's not going to do what I say*, only Speaker 6 placed prominence correctly on the word *I* compared to the British speaker.

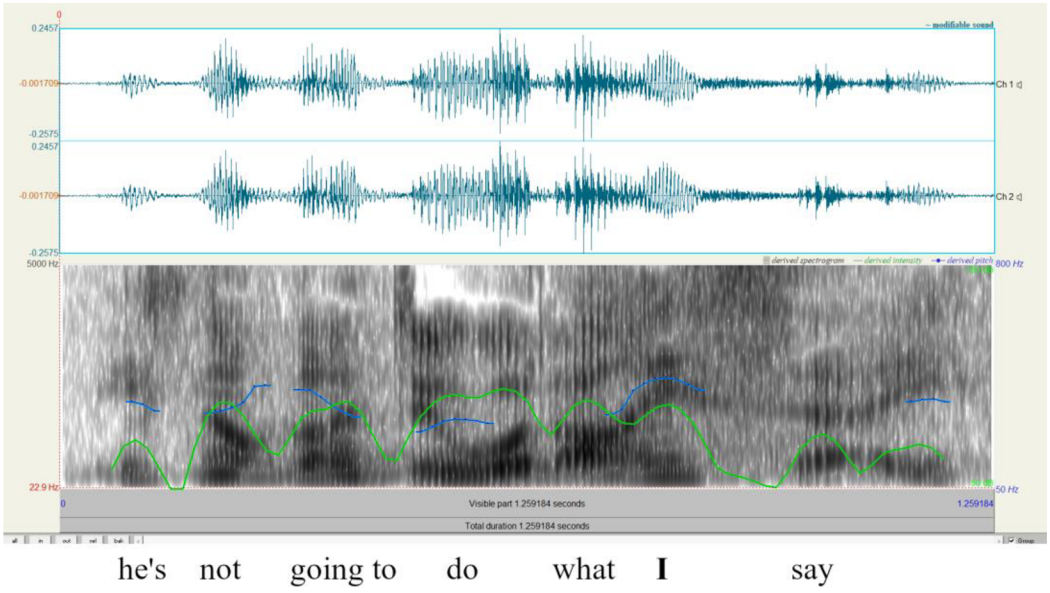
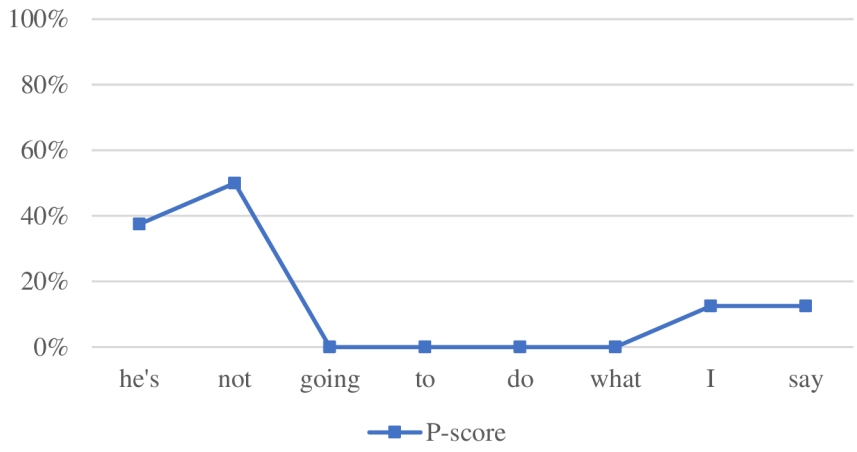


Figure 16 Praat analysis of an item I

In the Graph 7, the fewest participants highlighted the words *I* and *say*, more highlighted word is *he's*, and the most highlighted word is *not*. The word *not* has the highest percentage of placement frequency, probably because negations are typically emphasised items in an utterance.



Graph 7 P-score of an utterance: he's not going to do what I say

COMPLICATED

Lastly, the word *complicated* in an utterance: *which is a lot more complicated than just observing the behaviour*, is one time correctly prominent by Speaker 3.

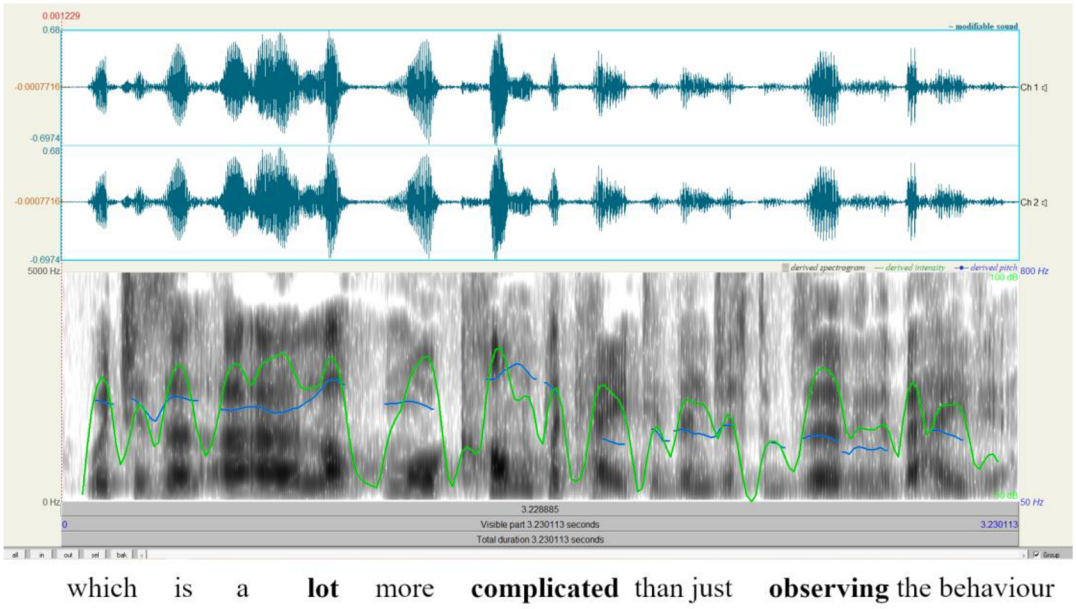
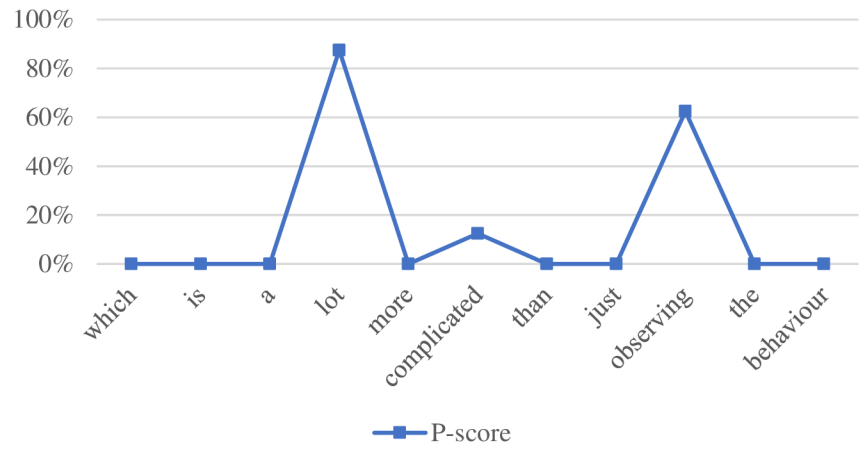


Figure 17 Praat analysis of an item complicated

As displayed in the Graph 8, the majority of the speaker's set prominence on the word *lot*, and fewer speakers on word *observing*. Only Speaker 3 decided to set prominence on the word complicated.



Graph 8 P-score of an utterance: which is a lot more complicated than just observing the behaviour

8.2.2 Words Not Prominent in Sample but Prominent by Participants

In this section, ten words repeatedly pronounced as prominent by the participants, although non-prominent in the control sample, have been closely studied. These included: *brilliance, decision, I, that, idiot, question, guess, one, kind, why.*

BRILLIANCE

A high number of speakers, namely seven, emphasised the word *brilliance* instead of the word *what* in an utterance: *and what you need to do to maintain your brilliance every single day*.

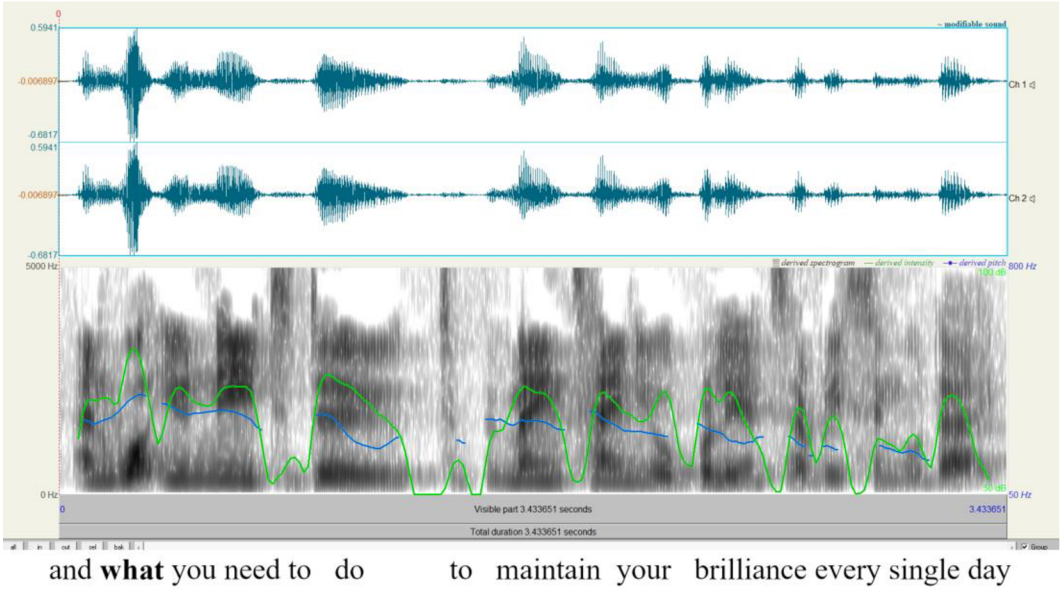
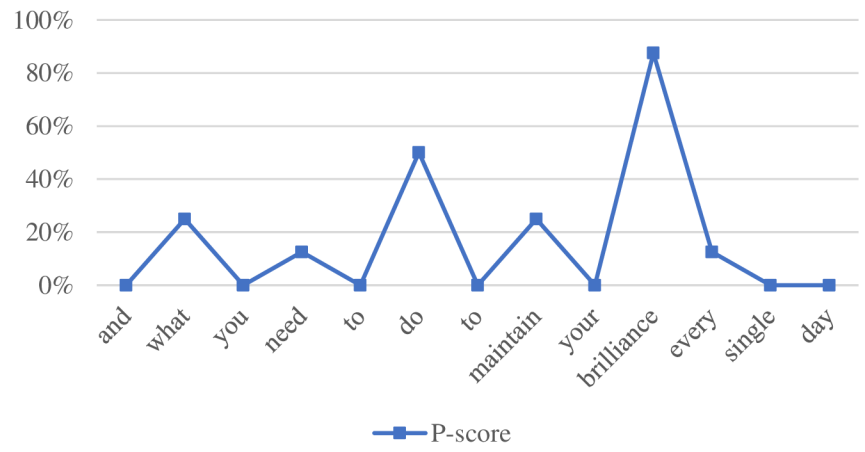


Figure 18 Praat analysis of an item brilliance

The British public speaker said this utterance more rapidly than the examined participants, and the rapid tempo caused a smaller number of prominent words, in this case, only the word *what*. However, as demonstrated by the Graph 9, all participants except Speaker 3 divided this utterance into two intonation groups and thus firstly placed prominence on the word *do*, as the last item of the intonation group. In the second intonation group, seven participants set the prominence of the word *brilliance*, a dynamic element carrying significant information. Finally, two participants emphasised the words *what* and *maintain*, and one participant each emphasised words *need* and *every*.



Graph 9 P-score of an utterance: and what you need to do to maintain your brilliance every single day

DECISION

The prominence was wrongly placed on the word *decision* by six speakers. In an utterance: *your decision started up here*; are prominent elements *your*, *started* and *here*.

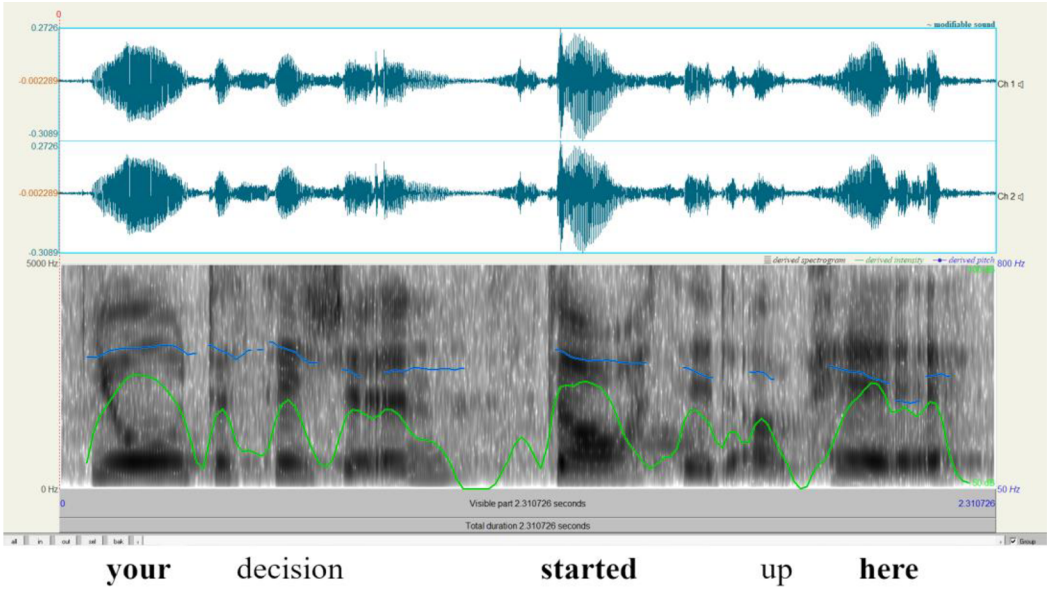
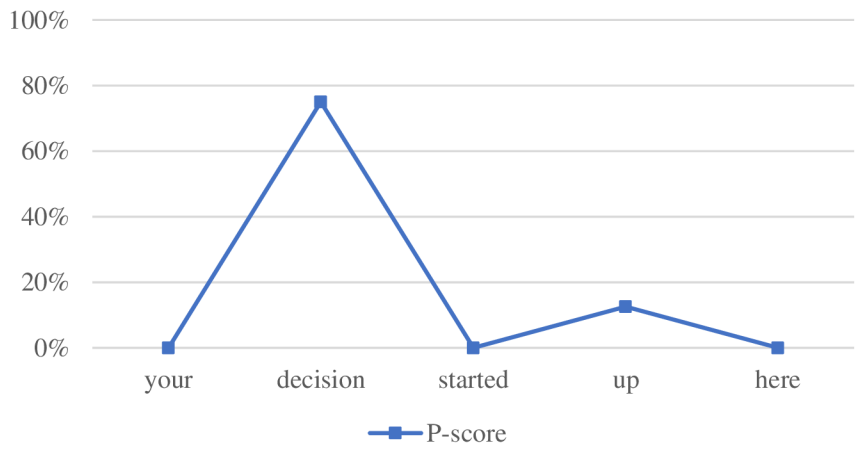


Figure 19 Praat analysis of an item decision

In this example, the British speaker mentioned the concept of decision in the previous sentences without pronouncing this precise word. Therefore, the word *decision* has become old information, which is not usually emphasized. However, according to the Graph 10, most participants did not realise this fact and set prominence incorrectly on the word *decision*.



Graph 10 P-score of an utterance: your decision started up here

I

In the utterance: *I don't want to go up there*, the British speaker made the word *there* prominent by extending its length. Yet, six speakers from this research placed prominence on word *I*.

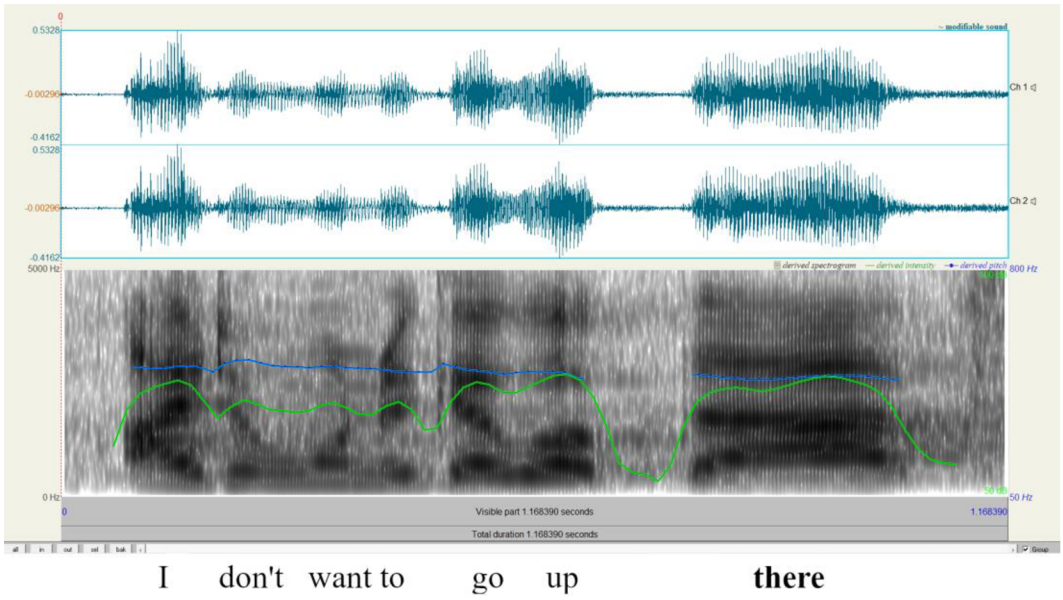
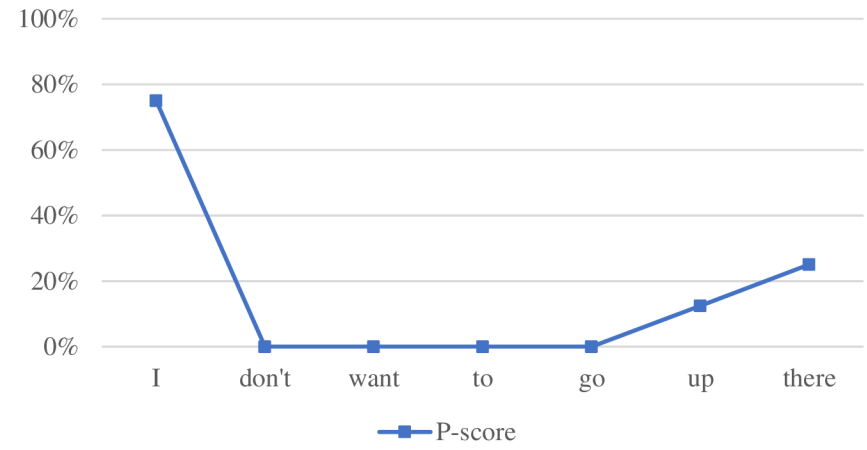


Figure 20 Praat analysis of an item I

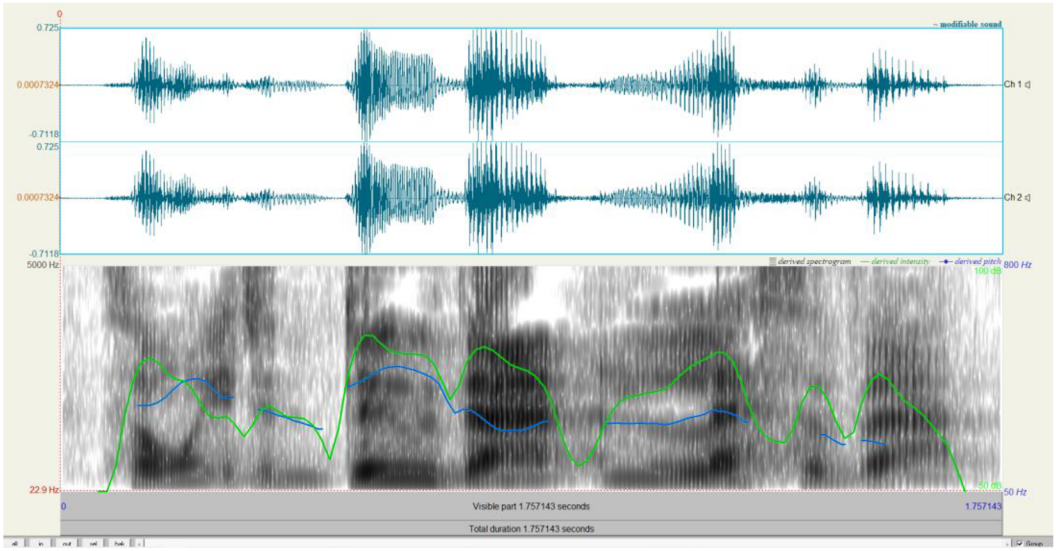
As mentioned above and as can be seen in the Graph 11, the majority of speakers positioned prominence on the word *I*, even though in the previous utterance: *what is this girl going to get us to do*, the word *us* represents a group of people, including me as a person (*I*), so the word *I* in the following sentence becomes old information.



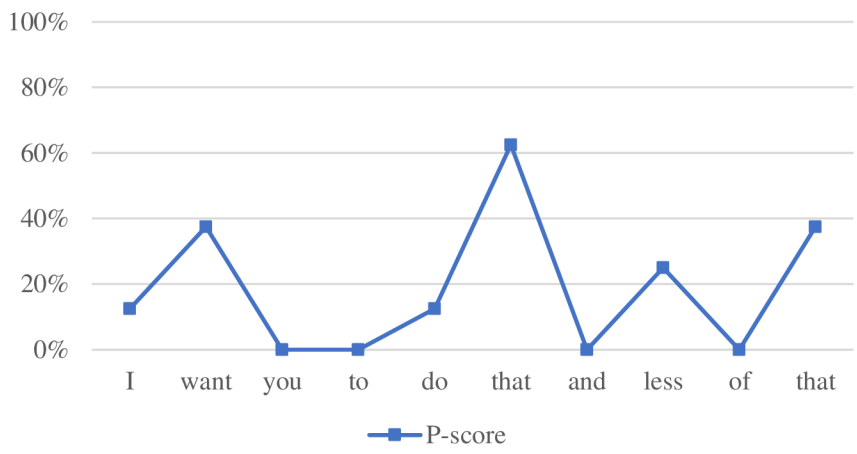
Graph 11 P-score of an utterance: I don't want to go up there

THAT

Another six speakers made different word prominent in comparison with the control sample. Instead of making prominent *do* and *less*, they emphasised the formerly placed word *that* in an utterance: *I want you to do that and less of that*.



In this utterance, the British speaker's intention was to make a contrast between doing and doing less. Nevertheless, according to the Graph 12, none of the participants set prominence correctly on both words; only Speaker 3 set prominence on the item *do*, and Speakers 1 and 2 set prominence on the item *less*. Another interesting phenomenon was the contrast between the first and second *that,* made by Speakers 4 and 7, which might be possible if the British speaker had intended to compare the elements represented by the words *that*.



Graph 12 P-score of an utterance: I want you to do that and less of that

IDIOT

Six of the participants placed prominence on the word *idiot* as a part of an utterance: *if he thinks I'm an idiot*. In this example, the British speaker emphasised the word *thinks*.

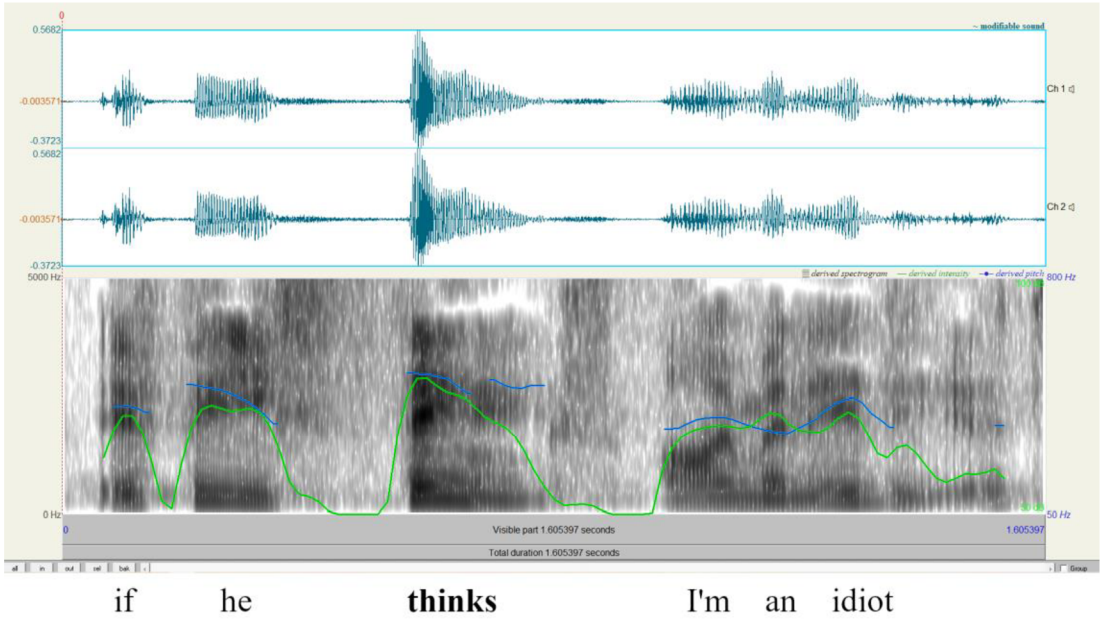
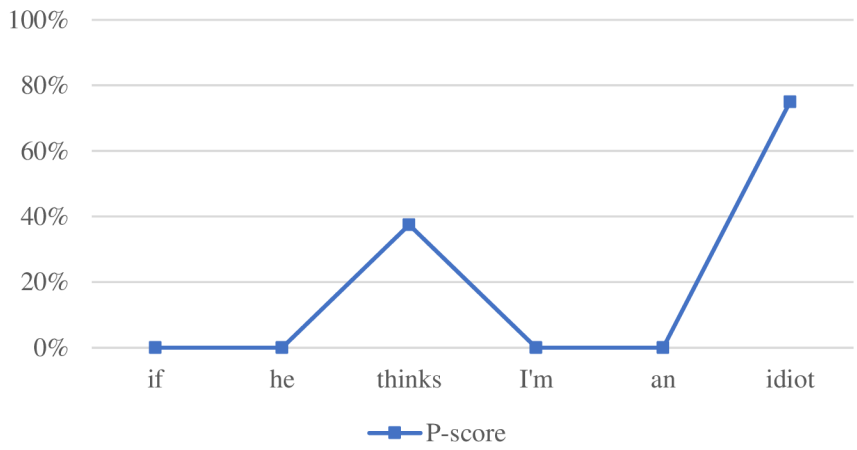


Figure 21 Praat analysis of an item idiot

As mentioned previously and shown in the Graph 13, the majority of participants highlighted the word *idiot*. Although the British speaker did not emphasise the word *idiot*, emotionally toned words are common placement of prominence. Three of the eight speakers even correctly placed prominence on the word *thinks*.



Graph 13 P-score of an utterance: if he thinks I'm an idiot

QUESTION

Slightly over half of the participants, five to be exact, said the word *question* as prominent instead of the word *my* in an utterance: *my question to you*.

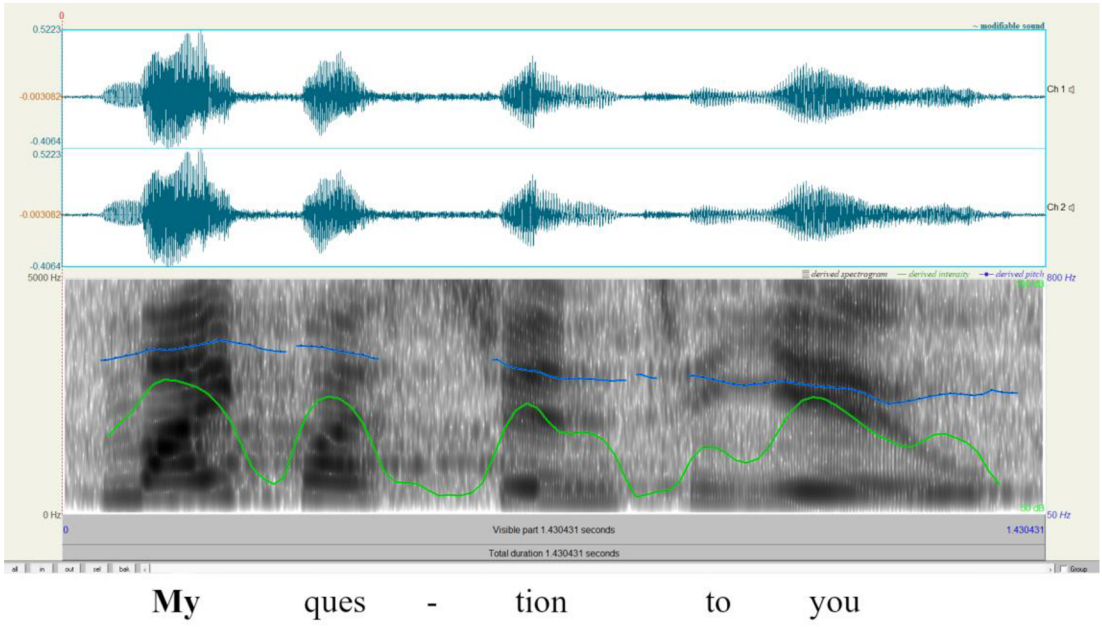
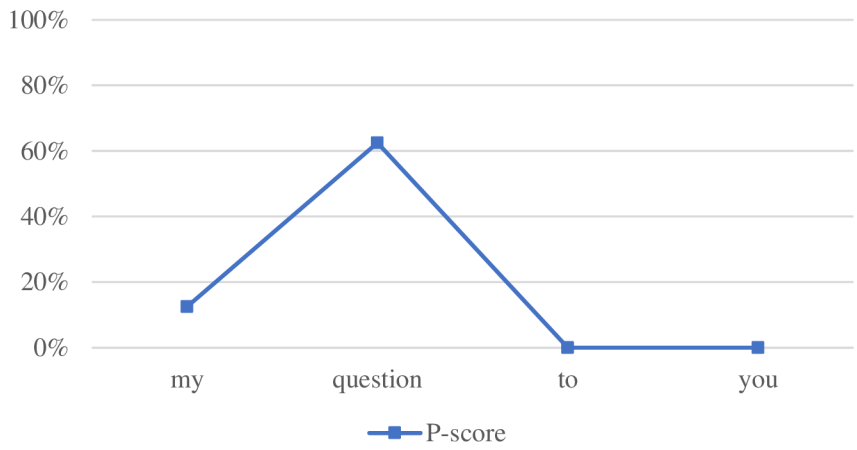


Figure 22 Praat analysis of an item question

The Graph 14 below shows that most participants positioned prominence on the word *question* probably because of its speech dynamic value. Nevertheless, one speaker, Speaker 4, emphasised the word *my* as the British speaker. Speaker 6 and Speaker 7 did not emphasise any of the words in this utterance.



Graph 14 P-score of an utterance: my question to you

GUESS, ONE

In the utterance: *My guess is that was probably for one of these reasons*, five speakers incorrectly highlighted words *guess* and *one*, instead of the word *my* in the comparison with the British speaker.

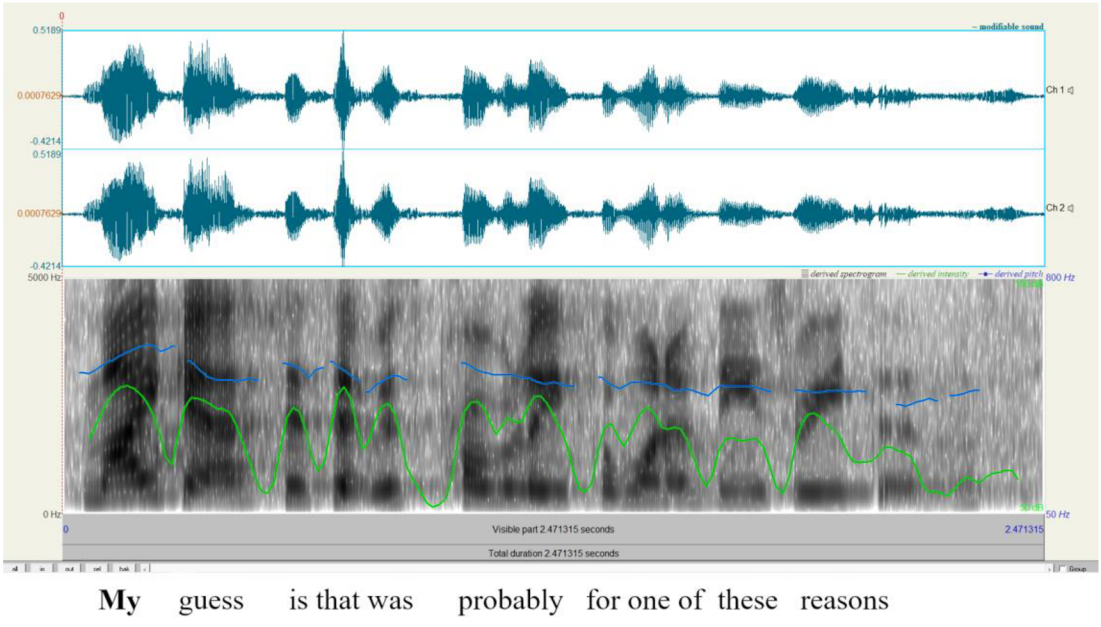
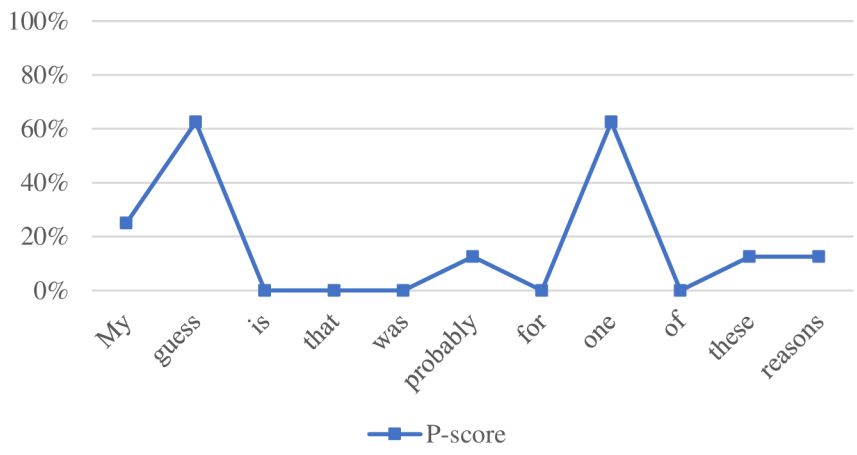


Figure 23 Praat analysis of items guess, one

The rapid tempo by the British speaker omitted the number of prominent elements in this utterance. Hence, in the original sample, the only prominent word is *my*. As displayed in the Graph 15, *guess* and *one* are the mainly prominent items

made by the participants. This recurring placement suggests a high dynamic value of these words in this utterance.



Graph 15 P-score of an utterance: my guess is that was probably for one of these reasons

KIND

In the utterance: *what kind of results we're talking about*, the word *kind* was emphasised by five speakers instead of words *what* and *results*.

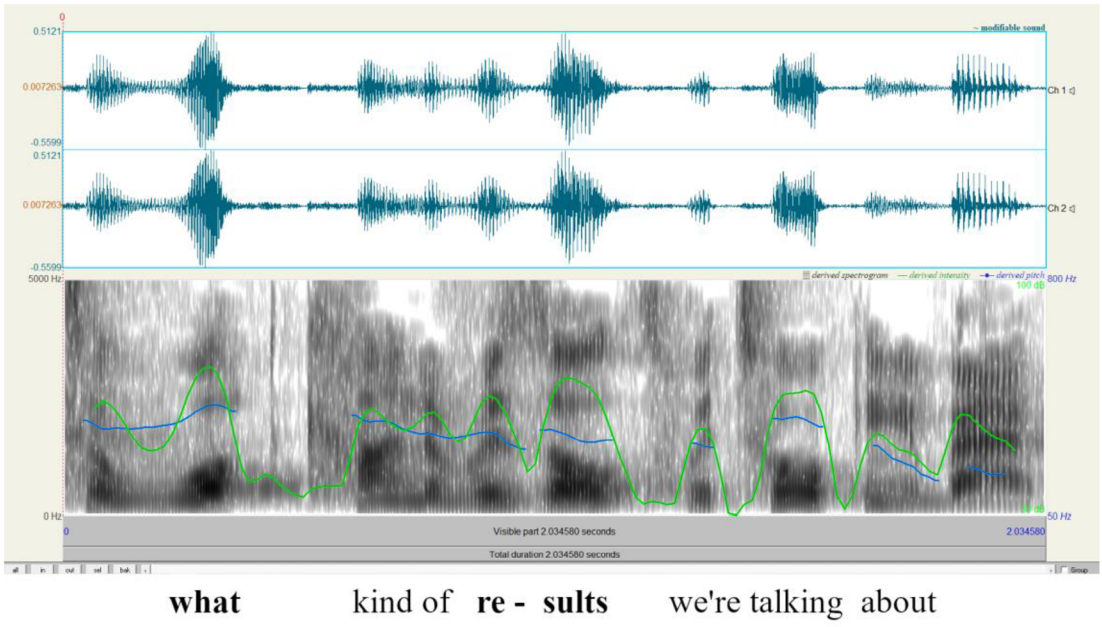
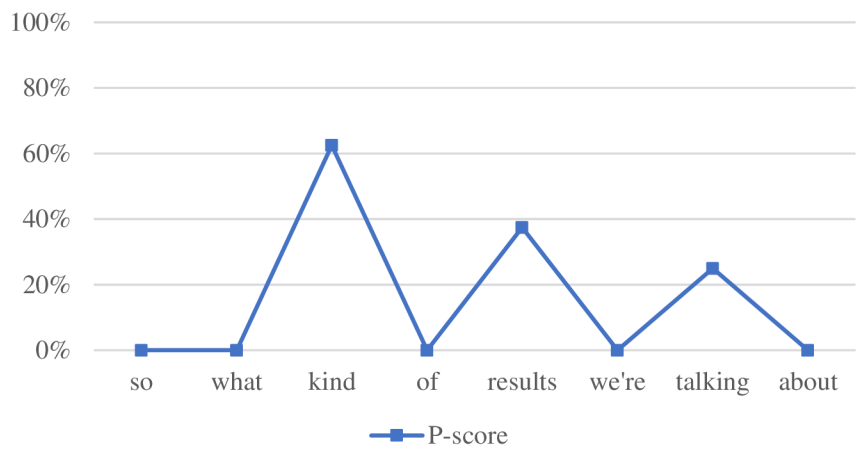


Figure 24 Praat analysis of an item kind

In this utterance, it is fair to admit that although the British speaker emphasised the word *results*, emphasising the word *kind* is not incorrect, and both these

options are acceptable. The Graph 16 illustrates that most of the participants highlighted the word *kind*, fewer word *result*, and the least word *talking*.



Graph 16 P-score of an utterance: so what kind of results we're talking about

WHY

Lastly, the word *why* was frequently emphasised by Czech speakers in comparison with British speaker who emphasised words *would* and *he* in an utterance: *Why would he?*

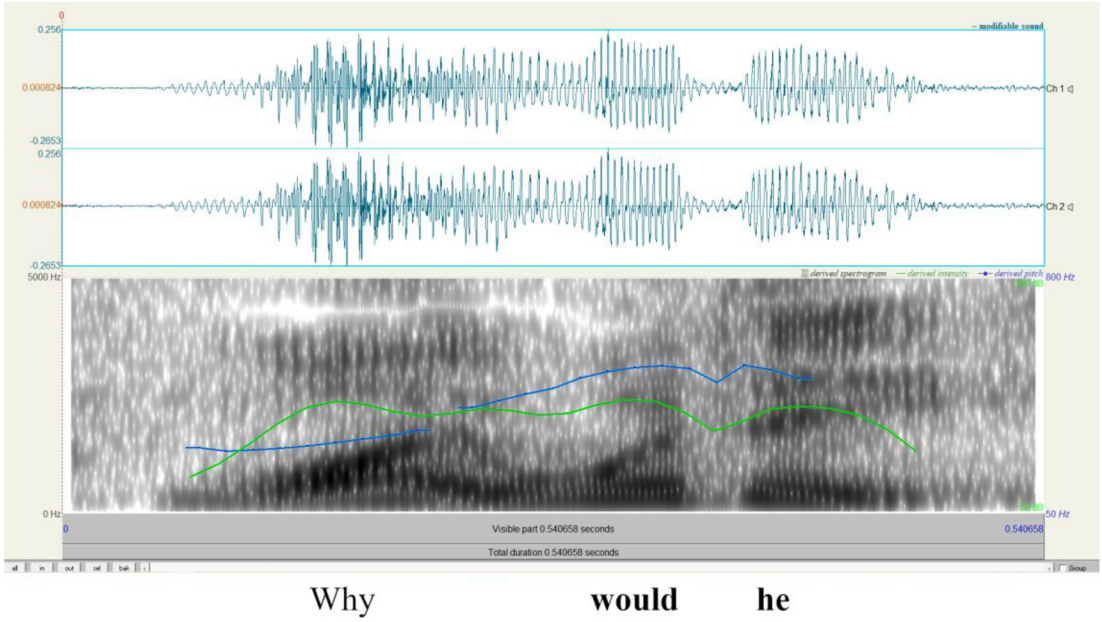
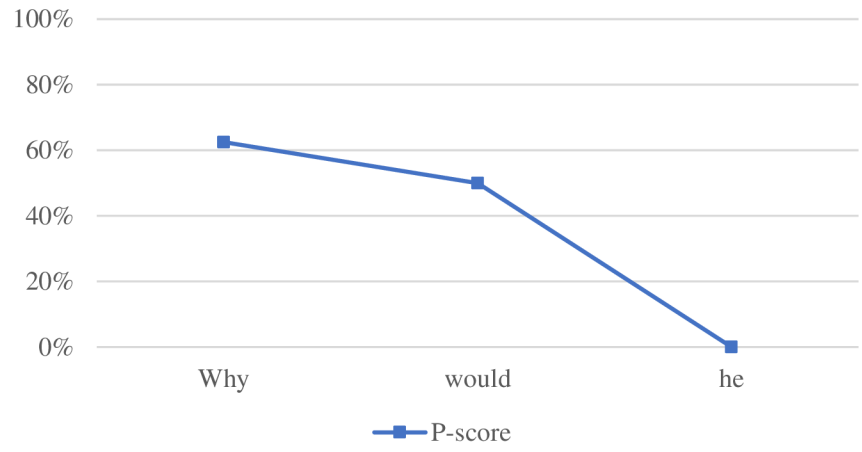


Figure 25 Praat analysis of an item why

As shown in the Graph 17, slightly over half of the participants placed prominence on the item *why*, and half placed prominence on the item *would*. Nevertheless, it is necessary to mention that setting prominence on the item why is not incorrect, and this decision is primarily up to the speaker's intent.



Graph 17 P-score of an utterance: why would he

9 Discussion

The research has been completed, so it's time focus on discussing the findings and the related research questions. The first research question addresses a common error observed among Czech learners when reading informal text. The findings reveal that participants frequently set prominence on items that have already been introduced. However, previously mentioned information becomes old information that is rarely emphasised. Furthermore, another common mistake in prominence placement is emphasising negators such as *not* or *no*, as well as modal verbs in negative form like *don't*. Participants also sometimes incorrectly emphasised positive or negative tone words, such as *idiot* or *brilliance*.

The second research question examines the quantitative differences between the original text and recordings of Czech participants. The analysis indicates that recordings display a notable reduction in the number of prominent elements. The total number of prominent elements in the original sample is 208. In contrast, in the participants' recordings, the number of prominent words ranges between 159 and 204, with an average percentage of around 46 % of correct prominent items.

Lastly, the third research question focuses on the qualitative distinctions between the original text and recordings. The examination reveals that recordings tend to feature a much narrower pitch range and reduced emphasis on prominent items compared to the original sample. Moreover, it was observed that Czech speakers occasionally omit prominence items when they accelerate their reading tempo.

Conclusion

The research results are considered to be successful as they have identified some areas where Czech students may have a potential problem. On the other hand, the research did not confirm the initial expectation that the most common placement of prominence among Czech participants would be on the last lexical item. It is believed that this hypothesis could be verified in research involving participants with lower levels of English.

From the point of view of theoretical values, the study has briefly elaborated on the topic of prominence in English and prominence in relation to the Czech language. However, the primary value of this thesis lies in confirmation that even students with advanced English proficiency may encounter difficulties expressing prominence or identifying the correct prominence patterns. Therefore, increased attention to this topic in classroom teaching or self-study education is advocated, as it could significantly benefit learners' overall language proficiency.

At the end of this thesis, it is necessary to acknowledge its limitations. Firstly, the gender factor was not implemented in the study, thereby overlooking potential differences in prominence patterns between male and female participants. Additionally, due to the time-consuming character of the data analysis, the sample size of only eight students may restrict the generalizability of the findings, as well as the limited number of original recordings, comprising only two samples with word counts of approximately 455 words each. These limitations suggest opportunities for further research, including the need for more extensive and more diverse participant samples and consideration of gender influences on prominence patterns.

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Appendix

Appendix 1: the transcripts of original speeches

Text 1

So, my question to you is this: Why didn't you volunteer? What stopped you from coming up here? My guess is that was probably for one of these reasons; Fear. Fear of coming up here in front of nearly 1000 people. It's pretty damn scary. Or maybe it was fear of the unknown, because you had no idea what I was going to get you to do. Maybe you thought, "God, she is gonna ask me to do something I'm not able to do, and I'll look like a complete prat." Or maybe it was because of obstacles. There are quite a lot of obstacles in this room. Maybe you're so far at the back, and you just thought "Oh my Goodness, I'm so far away, it's dark, there're a lot of tables in my way, I'll probably fall over some of them like a fool, and I just can't do it, it's too difficult, someone else will have to volunteer for me." Or maybe it was just lack of motivation. Maybe you just couldn't be bothered to move and come up here. But no matter what your reason was, your decision started up here; in your mind. Because the moment I said, "Please, can I have a volunteer?" Thoughts will have started flooding into your mind. That little voice inside your head would have started talking to you, and maybe for some of you, it was saying, "Oh god, what is this girl going to get us to do? I don't want to go up there, please, don't make us do anything really stupid." And then, maybe for some other people, you were thinking, maybe down at the front you were like, "Oh gosh, I don't want to do this, look away, avoid eye contact, avoid eye contact, then she won't pick me!" And then maybe for some of you the moment I said, "Please, can I have a volunteer?" Maybe, fear, doubts, and worry just flooded through you at the prospect of actually coming up here, of coming up here in front of so many people. And then, for those of you that did volunteer, you were thinking something entirely different. You were thinking things maybe like, "Oh, she wants a volunteer, I wonder what she's going to get us to do, how exciting, I'm gonna do it" Or maybe some of you thought, "Oh my gosh this is really awkward, no one is volunteering, so I'm gonna have to step up and do it" But for those of you that didn't volunteer, you missed out on the chance to win £20. But this experiment isn't about the money. This experiment demonstrates the power of your mind.

Text 2

But I want to just give you a model that we work to that starts to explain why Sergio or anybody may lose performance or why you may lose performance, and what you need to do to maintain your brilliance every single day. If we're all after the same goal, we're after improving our performance in some way, or the results in some way. It doesn't really matter what kind of results we're talking about. Whether they were talking about sporting results, whether we're talking about business results, you know, academic performance, relationship performance, sexual performance. Don't know why I'm looking at Simon when I say that! But whatever we're talking about ... What is going to improve our performance? First and foremost, in order to change the result, you've got to focus on people's behaviour. So, we've got to do things differently in order to get a different result. So, most performance appraisals in industry focus on what you've been doing. So, you going to see your boss, and he said, "Oh, I've got some 360 data. You've been doing these kinds of things, that's really good; these other things; not so good. So, a bit less of that please, and a bit more of that. I want you to do that and less of that." Sometimes that actually works, and you get a different result. But an awful lot of times, it doesn't make much difference. Or it will only make a difference if the leaders stood over that employee cracking the whip and making sure they do this. So, it's necessary but insufficient. And the reason being is that even when people know what to do,

sometimes they just don't do it. I know I ought to make another thousand calls to a thousand customers, but do you know what? It's Friday afternoon. Mmm, I'm not gonna do that. So, it's not enough just to focus on what you can see on the surface, on the behaviors. You've got to really get to grips with what's on the inside of individuals. Why do people do what they do. If you really want to change performance permanently, and be brilliant every single day, you've got to get to grips with the inside. First and foremost, what's actually driving behaviour? It’s how people think. So, how you think determines what you do. So, When I'm coaching a CEO, if he thinks I'm an idiot, he's not going to do what I say. Why would he? Or if he thinks what I'm saying is rubbish, he won't do it. So I've got to get a grip of what he thinks about, in fact, that requires me to ask him some questions, which is a lot more complicated than just observing the behaviour.