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**Interpreting Accents:
An analysis of the cognitive process of
interpreting the Scottish accent taking a
phonological approach**

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Dades del TFG

Títol:

Interpreting Accents: An analysis of the cognitive process of interpreting the Scottish accent taking a phonological approach

Interpretar acentos: Un análisis del proceso cognitivo al interpretar el acento escocés desde el punto de vista de la fonología

Interpretar accents: Una anàlisi del procés cognitiu en la interpretació de l'accent escocès des d'un punt de vista fonològic

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Resum del TFG

Nowadays, interpreters are educated and trained to interpret speakers who use the standard version of their native language, e.g. British English or French. By doing this, they are excluding those speakers who, because of geographic differences or contact languages, have a different accent when saying the same thing as a native speaker making it difficult to understand them. In this study, we will investigate the methods an interpreter would use and which connections to the RP would they make. A survey will be conducted on undergraduate students of translation and interpreting studies about the cognitive process they would use to translate or interpret. I will try to determine a cognitive process in which to interpret the Scottish accent one first has to distinguish the phonemes in the words and relate or connect them with their own knowledge on the RP, with the purpose of understanding the content and being able to pass it correctly.

Hoy en día, los intérpretes se forman para poder interpretar a oradores que utilizan la versión estándar de su idioma, como el inglés británico o el francés, dejando así de lado a los otros hablantes del mismo idioma que por diferencias geográficas o idiomas en contacto tienen un acento distinto y que, aunque dicen lo mismo que un hablante de la lengua estándar, es más difícil entenderles. En este trabajo se investiga el

método que utilizaría un intérprete y qué conexiones establecería con el idioma estándar. El método de investigación consistirá en una serie de encuestas a estudiantes de traducción e interpretación sobre el proceso cognitivo que utilizarían para traducir o interpretar. Intentare demostrar un proceso cognitivo en el que, para poder interpretar el inglés escocés antes se intentan distinguir los fonemas de las palabras y se relacionan o conectan con su conocimiento de la lengua estándar, el inglés, y de este modo llegar a comprender el contenido y poder transmitirlo correctamente.

Avui dia els intèrprets es formen per interpretar a oradors que utilitzen la versió estàndard del seu idioma, com per exemple l'anglès britànic o el francès, sense tenir en compte els altres parlants del mateix idioma que per diferències geogràfiques o idiomes de contacte tenen un accent diferent i que, tot i dir el mateix que un parlant de la llengua estàndard, són més difícils de comprendre. En aquest treball s'investigarà el mètode que utilitzaria un intèrpret i quines connexions faria amb l'idioma estàndard. El mètode d'investigació consistirà en una sèrie d'enquestes a estudiants de traducció i d'interpretació sobre el procés cognitiu que utilitzarien a l'hora de traduir o interpretar. S'intentarà demostrar un procés cognitiu on, per poder interpretar l'anglès escocès, primer s'intenta distingir els fonemes de les paraules i es relacionen o connecten amb el coneixement de la llengua estàndard, l'anglès, i així s'aconsegueix entendre el contingut i es pot transmetre correctament.

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1. Introduction

My first thoughts when starting this project were about the phonetic relationship between the English language and Spanish or Catalan – both my native languages – and the similarities they share. For the most part, Catalan speakers would find it easier to learn the English pronunciation in the sense that the languages' phonetic system has some phonemes in common otherwise non-existent in Spanish. Later on, I started wondering about the relevance of phonemic similarities and identification in the interpreting field. However, my upmost intention was to focus more on phonetics and phonology and therefore I had to find a language that had a speech closely linked to the written text. Hence, it was necessary to select one related to the English language that gathered those features, and Scottish English seemed like the perfect choice.

During the bachelor's degree in Translation and Interpreting, the language taught is the English Received Pronunciation (hereinafter 'RP') with just a few mentions on the Scottish English – or accent –, mainly focusing translation and interpreting processes on Standard English. More often than not, one cannot help but to notice that in interpreting modules, the most used source language is the standardized one. However, what if a job requires translating or interpreting from a dialect and not from the standardized language?

While I was doing my research, I came across a news report (Jamieson, 2017) about a Scottish member of the Scottish Parliament (Mr Alan Brown) whose accent was so thick the other members of the Parliament had requested a 'translator' to be able to understand him. This material sparked my interest in the cognitive process of an interpreter faced with the challenge to interpret a variation of a language which they have no previous experience with nor prior specialist knowledge. Specifically, I wish to raise the questions of how a Spanish or Catalan interpreter would interpret a speaker of Scottish English.

In this study, I would like to uncover the cognitive process a translator goes through when presented with a variation of a language which they are specialized in but have, otherwise, no experience of that variation. My hypothesis is that when interpreters are presented with a language variation they are unfamiliar with, in this

case Scottish English, the interpreter will first try to map the content they are presented with onto the standard language structure they are specialised in; in order to fully understand the content before translating it back to their native language, in this case Spanish or Catalan, rather than attempting to translate directly from the language variant to their native tongue and risking to lose important content in the leap from the unfamiliar language. I want to find out key points in the pronunciation of the dialect that could serve as benchmarks in the interpreter's process of connecting the dialect to the standard, thus helping the interpreter to identify the words, recognise the meaning and succinctly pass on the correct information.

As I went deeper into my research, I encountered various struggles when selecting texts and audio-visual materials because there was a lack of texts written in Scots as well as the transcriptions in Scots. Most of the audio sources had been transcribed into Standard English and not Scottish. Likewise, it was hard to find texts in Scottish that had their audio equivalent.

Another difficulty was to define which modality of the Scots would be used. There are a wide range of different speeches in Scots depending on its geography and language of contact. In most of the audio-visual resources, the speakers had a Scottish accent and that meant that it wasn't really Scots. However, after reading the following segment the lines between each distinct Scots varieties are a bit clearer:

'Scots' is described as a 'language continuum ranging from Broad Scots to Scottish Standard English'. All Scots speakers are instantly recognizable by their accent, even Scottish Standard English speakers are distinguished from the speakers of other standard varieties of English at the phonological level, not just the phonetic. In other words, the system of pronunciation of Scots and its prosody are distinctive. However while written Broad Scots is easily identifiable by its distinctive vocabulary and grammar, written Scottish Standard English differs less obviously from other standard varieties of English around the world. At the written level, only certain idioms, vocabulary items, grammatical uses and possibly distribution of such linguistic features as modal auxiliary verb uses, distinguish written Scottish Standard English from the written forms of Standard English south of the border across the Atlantic. Some therefore prefer to exclude 'Scottish Standard English' from their definition of Scots, and focus on the more distinctive 'Broad Scots' end of the continuum. (The Edinburgh Companion to Scots, 2003:2)

Nevertheless, it became more difficult to choose among the resources as the spectrum from where to choose broadened.

This study will be handled from an L2 learner's point of view from the Scottish Member of the Parliament (MP)'s side. Afterwards, during the interpreting cognitive process, it will be from a bilingual interpreter's point of view. The reason for focusing on the L2ners perspective is related to the way they pronounce words. Normally, second language learners have an accent, and it comes out when these learners try to speak a language that is not their own. Therefore, they end up adapting their L1's phonological rules and sounds when speaking the language they are learning.

This study is only an introduction for further research on accent identification and understanding between standard and accent pronunciations.

The research background surrounding the different branches of linguistic field provided has been segmented with full knowledge that although divided it still belongs to the same field and everything is interconnected.

2. Theory

2.1. What is the 'Scottish accent'?

Nowadays, many people from all over the world speak English or are learning it. However, to what degree? People who are not native speakers and have yet to perfect their pronunciation and grammar can sometimes be identified by their use of the non-standard pronunciation. Usually L2 learners follow their first language's (L1) phonological rules, which might be different from the language they are learning, and that makes their pronunciation susceptible to differentiation from the average native speaker.

An 'accent', in simple words, is the way a person sounds when speaking a language. There are two different types of accents: the foreign accent, which is predominant in second language learners (L2), and the native accent, the way a group of people or community speak their native language, whether it be because of geographic location or social status.

In this study, we will be focusing on one particular type of accent: the ‘foreign accent’. We will be conducting the survey using the discourse of the Scottish MP Alan Brown, who has a strong Scottish accent. Mr Alan Brown is from the city of Glasgow, which is known for the strong accent its inhabitants have.

2.1.1. Scots

Scots is an interlanguage (see 2.2.1.) between English and Scottish Standard English (SSE), oftentimes mistaken as the Scottish accent.

Scots and SSE are difficult varieties to examine. In the book *The Edinburgh Companion to Scots* written by Charles Jones (2003) we can find a chart of the differences and similarities between these two variations. The chart shows that Scots and SSE are not that different, although there are plenty of phonetic varieties. These variations can vary through class, ages and geographic location. For example, the variant from Glasgow will be different than Edinburgh’s considering that it has been influenced by the Irish language at some point in history.

Scots and SSE have a large number of consonants in common such as: /k g f θ v ð s z ʃ ʒ x m h tʃ dʒ r n ŋ w/ to name a few. Despite that, being as they are, in fact, variations, there are some subtle differences between the pronunciation, phonotactics and points of articulation. Some examples are (Jones, 1997:125):

- The consonant /r/: It is used in both Scots and SSE with different place of articulation. Scots produces the sound tapped or trilled (rhotic r) while Scottish Standard English leans more to the usual English pronunciation of the phoneme: /ɹ/.
- The consonant /t/: the glottalization of the “t” in the English language is quite specific of a region and even more of a status, an example is the cockney accent, usually in London and spoken by the working class. In Scots this feature is found among worker class’ phonetics and is a rather common and established feature amongst teenager vocalization. In contrast, the glottalization is optional for middle-classes, which tend to use more the standard /t/ sound.

- One of the stereotypes of Scots are these two phonemes: /x m/. They are considered distinctive characteristics of Scots but they are, in fact, more prominent and heard in middle-class Scottish Standard English rather than in Scots. Of course, these phonemes are not present in the RP of English.

In order to mention the vocalic system of the Scots, let us take a look at the book *The Edinburgh Companion to Scots (2003)*, where Charles Jones outlines the Scottish English vowels used in Glasgow and its differences with the Scottish Standard English and the English RP (Jones, 1997:116).

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Table 6.1 An outline of Scottish English vowels (after Aitken, 1984, Table 1, Macafee Chapter 7, Figure 7.2, Johnston, 1997, 453). ↔ indicates vowel alternation.

keyword	no.	Scots (Glasgow)		SSE	RP
MEET	2	i	i	i	i
BEAT (DEAD)	3	i i	i i ↔ ε	i ε	i ε
MATE (BOTH)	4	e e	e e ↔ o	e o	eɪ əʊ
BAIT PAY	8 8a	e əi	e əi ↔ e	e e	eɪ eɪ
BOOT DO	7	ɪ e	ɪ ↔ ʉ e ↔ ʉ	ʉ ʉ	u u
BIT	15	ɪ	ɪ	ɪ	ɪ
BET	16	ε	ε	ε	ε
OUT	6	ʉ	ʉ ↔ ʌʉ	ʌʉ	əʊ
COAT	5	o	o	o	əʊ
COT OFF	18	ɔ a	ɔ ↔ ɔ a ↔ ɔ	ɔ ɔ	ɒ ɒ
CAT (LONG) (WASH) HAND START	17	a a a ɔ ε	a a ↔ ɔ a ↔ ɔ ɔ ↔ a ε ↔ a	a ɔ ɔ a a	a ɒ ɒ a a
CAUGHT (SNOW)	12	ɔ ɔ	ɔ ɔ ↔ ɒ	ɔ ɒ	ɔ əʊ
CUT (PULL)	19 6a	ʌ ʌ	ʌ ʌ ↔ ʉ	ʌ ʉ	ʌ ʊ
NEW/DEW	14	ju	ju	ju	ju
BITE	1s	əi	əi	əi	aɪ
TRY EYE	1/ 11	ae i	ae i ↔ ae	ae ae	aɪ aɪ
LOIN	10	əi	əi ↔ oe	oe	ɔɪ
VOICE	9	oe	oe	oe	ɔɪ
LOUP 'jump'	13	ʌʉ	ʌʉ	(ʌʉ)	-

Figure 1: An outline of Scottish English vowels

One feature that further differentiates Scots from SSE, is the elongating of vowels. These phenomena occur when a vowel is positioned either before an /r/, voiced fricatives or a boundary.

From this, we can conclude that both variations share common features with the English RP, and so it should be easier to relate the sound sequences.

2.2. Phonetics

Phonetics is the branch of Linguistics that studies the sounds of human speech. It covers the physiological production of sounds, their acoustic properties, how sounds are perceived in both the auditory field and neurophysiological field. In this study I will be focusing in the acoustic perception and the mental processing for the discrimination of phonemes between a language and its accent. Therefore, we will proceed with a cross-linguistic contrastive analysis to discern and identify the structural and phonetic differences and similarities they share.

We have ample evidence that when learning a foreign language we tend to transfer our entire native language system in the process. We tend to transfer to that language our phonemes and their variants, our stress and rhythm patterns, our transitions, our intonation patterns and their interaction with other phonemes (Lado, 1957:11).

Oftentimes, L2 speakers might experience difficulties when pronouncing sounds that are not present in their L1 phonetic system. Therefore, they try to substitute those phonemes for the ones they know how to articulate. That is why L2 learners sound different from the L2 native speakers. As a matter of fact, in most cases, the English language spoken by an L2 learner will differ in pronunciation from learner to learner if they are not from the same country or from a country that shares the same or quite similar phonetic systems.

Another difficulty L2 learners might come across is the consonant clusters, phonemic sequences of two or more consonants (/st/-star, /rld/-world, /spl/-split, /ksts/-texts, to name a few). Every language has their own determined consonant

clusters with its own phonotactics, i.e. phonological rules determining how to merge these phonemes. Given these facts, it has been proven that more often than not, those clusters might not be compatible in another language's phonological rules and consequently L2 learners tend to add a phoneme to make the sequence possible to articulate within their first language's phonotactics.

One of the main characteristics of the difficulty degree when learning a new language is what it has in common with the language that the learner already knows. For example, if the language has a similar alphabetization system to the learners, it will be easier to start writing and reading, the same thing happens with the phonetic system and so it will be easier to start pronouncing correctly.

2.2.1. Interlinguistic influences

When focusing on the Scottish accent we can say that it has been influenced by Scots and Gaelic and other languages that influenced Northern English by means of invasions throughout history.

Interlinguistics is a branch of the science of language that deals with the structure and basic ideas of all languages with the view to the establishing of a norm for interlanguages, For example, the auxiliary languages destined for oral and written use between people who cannot make themselves understood by means of their mother tongues (Jespersen, 1931:1).

For that reason, an interlanguage is an idiolect that has been developed by an L2 learner keeping some features from their first language which are then used to write and speak. Nevertheless, these interlanguage characteristics can be shaped and polished with further learning and knowledge of the second language; it can also be influenced by the learner's experiences with learning strategies.

For the most part, we will be working with the phonological aspect of the interlanguage.

2.2.2. Comparing sound systems

In this section we will be focusing on the perception of the English language as a second language from the point of view of a bilingual speaker of Spanish and Catalan.

Before starting, I would like to point out that the variety of Spanish we will concentrate on will be the peninsular Spanish, Castilian; however, 'Spanish' will be the term used to refer to this language during this study.

[...] Those elements which are similar to [the learner's] native language will be simple for him, and those elements that are different will be difficult (Lado, 1957:2).

As Robert Lado wrote, having phonological similitudes between languages makes it easier for the learner to acquire its pronunciation. The participants in this study are mainly bilingual of Spanish and Catalan. However, those languages do not share the same phonemic system entirely; each language has a couple of phonemes that are pronounced in a different way and fewer phonemes that do not exist or aren't used as much in the other language. As a matter of fact, Catalan shares more phonemes with English than Spanish does. For example, the phonemes /dʒ ʒ ʃ z/ are included in the Catalan phonetic system whereas in Spanish are non-existent. On the other hand, Spanish does have a phoneme that Catalan does not have, which is the [θ] sound (/th/). However, even though they have a quite a lot of shared phonemes in common there are still a couple which cannot be found in neither Catalan nor Spanish: /h ɹ/. Since some of these sounds do not exist in those languages it may become a problem learners would encounter when trying to pronounce those phonemes, needless to say they would try to find a phoneme in their own phonetic system that its sonority resembles the English phonemes.

Another characteristic worth mentioning is the different phonotactics regarding consonant clusters creation and pronunciation. Consonant clusters such as /rd/ and /st/ oftentimes are hard to pronounce for L2 learners since in Spanish and Catalan both these consonants would be divided into two syllables in order to make them easier to articulate. Thus, we can often hear people adding a neutral vowel, or shwa, at the beginning to break the syllable, e.g. pronouncing 'spiderman' as 'espiderman' or 'star' as 'estar'.

By way of contrast, even though there might have similar phonemes between the languages there might be difficulty in place articulation, considering that sometimes the sound is not produced in the same position or in the same manner of articulation. For example the English phoneme [θ], produced by the graphemes

/th/ —as in *think*—, which might sound similar to the Spanish same phoneme [θ], produced by the letters /c z/ before specific vowels. However, it is not articulated with the same position of the tongue.

To further see the differences between these two languages' phonetic system, let us take a look at the vowels. To begin with, the Catalan language has seven stressed vowel phonemes unlike its neighbouring language Spanish, which only has five. Bilingual people of these two languages are able to distinguish between these two closely articulated phonemes whereas a monolingual Spanish speaker would not be able to distinguish these features.

The aforementioned vowel phonemes that can be found in both the English language and the Catalan language are the following: /ɛ, e/ /ɔ, o/. These phonemes have different written representation in both languages. In Catalan, accents —as in the marking to point out the stress in a word— are used to determine which of those phonemes has to be pronounced.

On a final note, even though the languages have some phonemes in common learners might experience difficulty with long vowels and the distinction between minimal pairs where the vowel is lax or tense. See the following: bit / bit /, beat / bi:d /. If these two words are not correctly pronounced, sometimes the person who pronounced them wrongly can end up in uncomfortable situations and be misunderstood by other speakers of that language.

In conclusion, for a multicompetent person in languages who has knowledge of various phonetic systems and has the advantage of shared phonological features between those languages, learning to pronounce and perceive a new language would be an easy task.

2.3. Acoustic discrimination

To understand the first auditory connection we make when maintaining a conversation with someone else using another language that we share but it is not our mother tongue, we first need to determine which language is being used and then we will proceed to use it. However, if the person with whom you are talking with has not a

standardized pronunciation it might be difficult to make out the words or to separate them.

Oftentimes we can perceive some similarities to the original words by decoding and recoding the sounds we hear. Decoding refers to how quickly and accurately one dissects speech, especially at the phonemic level. That is to say, we decompose the sounds we hear to create a word that sounds familiar to us so that it is easier to understand.

There is a mental method to process those sounds. First, we discriminate the sounds, i.e. we try to make out of which vowels and consonants the sound is composed of. Then, we reach into our unconscious knowledge about the language to determine which aggrupation of phonemes would make sense in that context, with those phonetical characteristics. From that point, the process of word identification begins (Lieberman, et al., 1988:152).

Now, if a linguist were doing the comparison and the discrimination, they would follow a structured research method. A linguist would first isolate the sounds, then study its differences in the intensity and frequency ranges, its formants, etc. and compare the results to find which sounds were similar in order to identify them –using a speech analysis software such as Praat or Audacity.

However, in this research we are focusing on how interpreters use their own knowledge of the language and experience with different varieties of it and if previous phonetic knowledge would help in dealing with these situations?

2.3.1. Phonological awareness

To understand what phonological awareness is, we first need to look into what phonology and phonemes are.

Phonology is a branch of Linguistics that studies speech sounds (phonemes) including the history and theory of sound changes in a language or in two or more related languages. Phonemes are small sound units in a language that when combined form a sound sequence equivalent to a word. By combining different phonemes, we create different words. Here is where phonemic awareness skills come into place. This

skill enables the speaker to differentiate the sounds and isolate them in a word, e.g. cart → /k/-/a/-/r/-/t/ → [kɑ:t].

To put it in another way, phonemic awareness is based on the identification of the onset-rhyme in a word or syllable, i.e. initial and final sounds, vowels and consonants. In addition to that, these skills allow the speaker to lump together single sounds into words, this process is called segmenting. Moreover, another key point to mention is the involvement of the ability to add, subtract or substitute new sounds in words, also referred as blending.

2.4. Interpreting

Interpreting is a form of translating in which one produces a one-time only translation in oral format. Let us focus in two types of interpreting: consecutive and simultaneous. Consecutive interpreting deals with the retention of information, memory, and capturing the most important information to be transmitted; and last in order but just as important, the carrying of such information into another language. The difference with simultaneous interpreting is that the latter does all those processes at the same time, plus the difficulty of listening, processing and speaking in another language in concurrence. It does not leave too much time to decipher or ponder about translation solutions so interpreters have to go by topic knowledge, experience and intuition.

2.4.1. Interpreting and Cognition

Interpreting can be approached from two different points, the conscious and the unconscious procedures (A study of interpreting skills from the perspective of interpreting process, 2013). The conscious actions when interpreting are:

- **Perception** of the information the speaker is transmitting. External sounds and the speaker's speech conditions may hinder the process of not only extracting as much information as possible in a short period of time but also discerning the most important parts of the speech.

- **Recording** the information the speaker transmitted. In consecutive interpreting, the speeches needed of interpreting might be a few minutes long. That is why an interpreter must remember the information during and at the end of the discourse with the aid of their notes. It is not an easy job, which is why it is crucial for them to work on their memory and cognitive ability.
- **Expressing** and the reformulating of the given message and information. It is the last procedure but not for that the less important. It is when the message is correctly translated and delivered and we see the results of a good interpreting process.

The unconscious procedures are made, redundantly, unconsciously and as such, they are automatic.

- **Decoding** the information. After receiving the information, interpreters need to process it and extract the linguistic and non-linguistic codes needed. The correct decoding will be influenced by the interpreter's linguistic and overall knowledge surrounding the subject under discussion.
- **Encoding** the information. In this procedure, the interpreter puts to work all his linguistic knowledge about the target language. In addition, they reorganize the ideas following the syntactic and grammatical rules of the target language, i.e. paraphrasing. Furthermore, is in this procedure when the interpreter really shows their proficiency of both of the languages.

During the decoding procedure, interpreters assimilate the content of the message in the original language. However, if, as we pointed out at the beginning, the speaker's language of speech is not their L1, the interpreter would have to grasp bits of said speech in which they could relate the words to the standard language, from which they are actually interpreting (Susagna Guardiola, UAB interpreting lecturer). For this study, the speaker's speech would have a strong Scottish accent and be fast, so an interpreter, whose proficiency language is RP English, would try to relate as much of the heard phonemes in order to distinguish the words and identify them for correct interpreting.

To be able to proceed correctly, an interpreter must have highly developed cognition skills.

Cognition is the faculty of a human being to process information based on perception, the knowledge acquired from experience and the subjective characteristics that enable us to assess that information.

For interpreters cognition is very important, in fact, it is the main unconscious skill they must have developed. The ability to distinguish, process, decode and solve problems with high speed is the most important trait of an interpreter.

Through cognition, we mentally classify information (grouping similar objects, people, ideas or events) into concepts. At the same time, each concept is organized in prototypes, which are the mental image or pinnacle example of a certain 'thing'. For example, a 'tree' as a prototype would become an 'image of a figure with certain characteristics' that we name 'tree' or 'árbol' in Spanish or 'arbre' in Catalan. For each prototype, we have different names in different languages; that is why, for multilingual people, an 'object' can have many different names at the same time.

To solve translation or comprehension problems we either use algorithms, which are logical, methodical procedures that eventually guarantees a solution but may be slow to work through; or heuristics, simple strategies that allows us to solve problems faster, although more error-prone than an algorithm.

2.4.2. Multilingualism in interpreting

Many researchers and studies have validated that, for a person who can speak more than one language, i.e. a bilingual or a multilingual (if more than two), learning a new language should be easier. Due to the ability to easily switch between the languages and by doing so sometimes changing the grammatical structure when needed, bilinguals have a deeper understanding of language that in return helps them when learning new languages. In addition, the knowledge of multiple languages broadens the mind with multiple different possibilities, be it cultural or behaviour wise, being able to perceive most of the things from different perspectives.

There is an implemented model for bilingual word recognition: the *Bilingual Interactive Activation Plus model (BIA+ model)* (Dijkstra & Van Heuven, 1998, 2002; Van Heuven, Dijkstra & Grainger, 1998) which states that word recognition is usually made in steps.

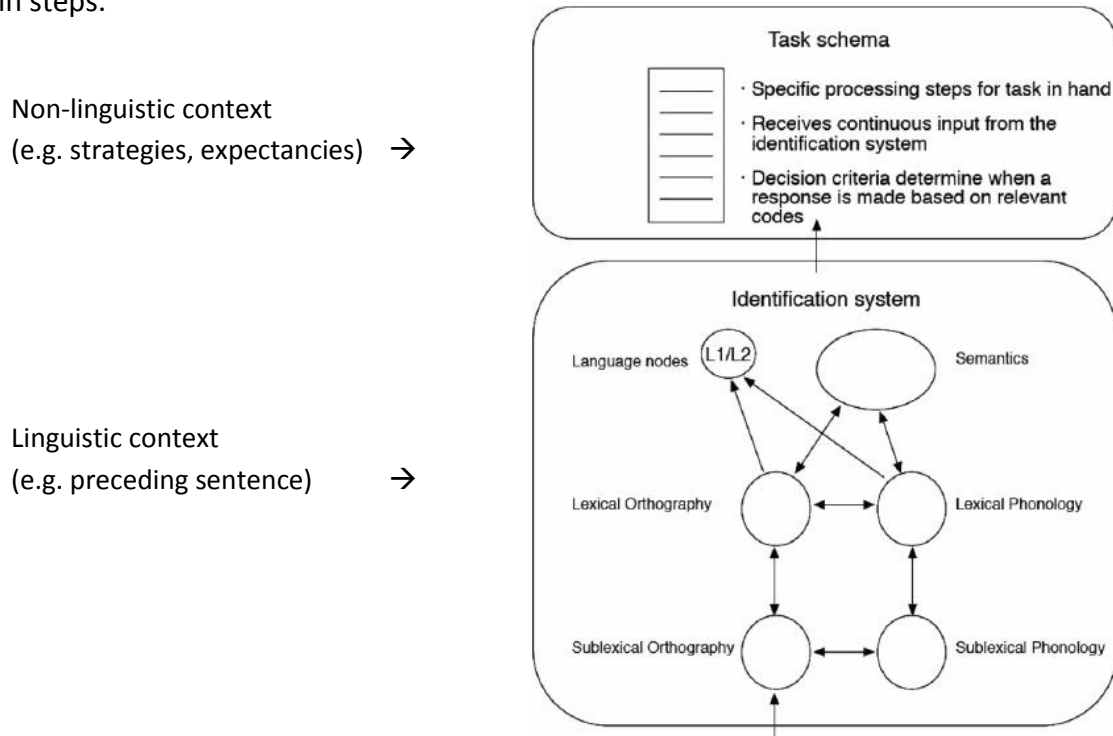


Figure 2. The Bilingual Interactive Activation + (BIA+) model for bilingual word recognition.

In Figure 2 we can see the different steps. When reading a word or combination of letters on a paper, the first things that come to mind are multiple minimal pairs (pairs of words or sentences that differ in only one phonological element and have different meaning) and afterwards the mind starts a gradual process of elimination. However, during this process, for a bilingual person, who has more than one phonetic system in their brain, the minimal pair will not be only of one language. The minimal pairs of one language will be mixed with others from the other language. Consequently, this word classification will be gradually processed until there is one possible word that fit in that specific context.

The degree of conceptual dependency on one's specific language is determined by several variables, including the nature of multilingual development, age, environment, distance languages, and the way the languages were acquired (Kecskes; Papp, 2000:44).

Nevertheless, even though a person can have a good knowledge of multiple phonetic systems and the ability to put them to good use, the environment in which these systems were learnt also influences the way we make choices. For example, it might be difficult to pronounce correctly a word that you have never heard, or cared enough to store it in your corpora. By contrast, if it were a word that you have heard many times, even pronounced differently, a connection would immediately be made and result in the correct pronunciation of said word.

3. Methodology

In order to fulfil the aim of the study and allow a meaningful analysis of the cognitive process of analysis recognition and decoding, a survey was conducted. The respondents of the survey were 60 Translation and Interpreting bachelor's students, half of which had previous knowledge of the Scottish accent while the other half did not.

3.1. Process

The survey has been divided into three parts to help us understand or pick up part of the students' cognitive process. The results should show what their reaction is when they hear the accent. Results should also clarify whether there is any evident difference between those students who had previous knowledge on the International Phonetic Alphabet (IPA), or not and those familiar with the Scottish accent, indicating a superiority of the respondents' phonological awareness skills.

3.1.1. Reasons

The structure of this survey was designed to reflect three different aspects of the cognitive process.

In the first part there are multiple questions focussing on general information about the respondent in order to perceive what their conscious cognitive method is when presented with a way of pronouncing a language differently from what they are

used to, i.e. the standardized pronunciation (also called RP), and how they react to it. This part of the questionnaire is also designed to prepare participants for the later stages of the survey.

Part two of the survey consists of listening to an audio recording of a speech in a Scottish accent to analyse the speech sounds and then writing down any words they were able to discriminate. In this part, participants had to make use of unconscious cognitive methods in order to be able to decipher the speaker's utterances. Moreover, their phonological awareness skills would be put to test, and I would be able to evaluate if they could connect the accent to the standard language they know.

Lastly, in part three, the participants had to simultaneously listen and read the transcript from a fragment/sequence to test their phonic awareness skills – the ability to understand the utterances better when presented with the standardized written format of what they are hearing. This process can also be perceived as decoding, which happens when a person has the ability to relate the letters, or graphemes, to the sounds they hear, phonemes. Additionally, the participants had to mark the words that were easier to understand through decoding the speech sounds.

3.2. Results and Analysis

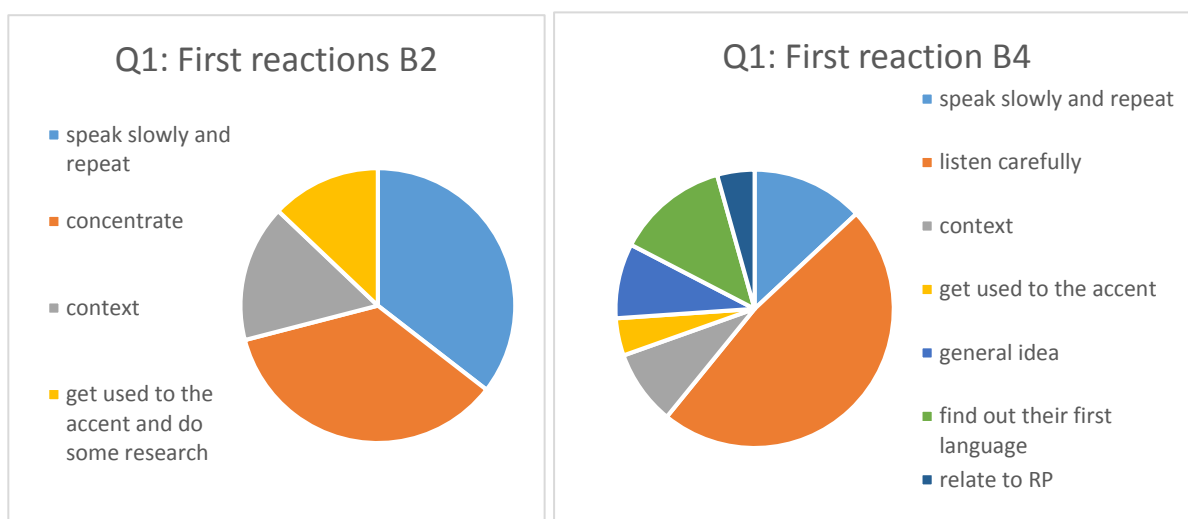
The results of this survey will be analysed in two different ways. Both groups will be compared and the similarities and differences between their results will be pointed out. The comparisons will be then analysed in order to get a substantial conclusion.

The results of the first part of the questionnaire from both groups of participants are quite similar.

Q1: Do you think you could understand a person with a strong foreign accent? In this situation, what would be your first reaction/instinct to improve your understanding?

Both groups have a similar way of reacting towards accents when heard for the first time. Most of the respondents agreed that their first reaction would be to listen carefully and concentrate to catch anything they can understand and sometimes,

inevitably, that leads to have to ask the speaker to repeat what they had said but slower, in order to be able to understand them better.

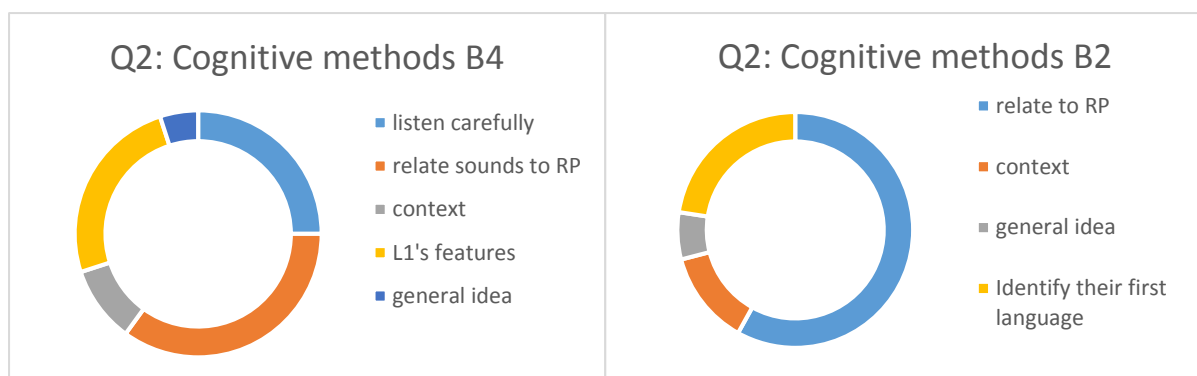


Graph 1. Question 1 of the survey group B2

Graph 2. Question 1 of the survey group B4

Q2: When you hear an accent for the first time, what cognitive methods do you use to understand it? Do you think they are unconscious?

The difference between the two groups was the methods used by the participants. Let us call the first group, with close to no knowledge of the Scottish accent, B2. This group stated they would use more conventional methods without putting too much effort into deciphering what they hear, they rather listen carefully. For example, one of the main answers was to listen for a period of time the accent so as to get used to it and then the respondents thought it would be easier to understand it. In contrast, the second group –with knowledge of the Scottish accent-, which will be referred as B4, dove a bit deeper into the process of understanding the accent. The respondents clarified that they would try and decipher the accent based on what they hear, i.e. putting to work their phonological awareness skills. The participants of the B4 would either relate the sounds they hear to the language they already know, in this case the English RP; or try to guess or find out their first language in order to pick up any features of that language in the way they speak and use that knowledge to decipher the content of the conversation. With these facts we can conclude that the participants of B4 are more aware of their cognitive processes.



Graph 3. Question 2 of survey for group B2

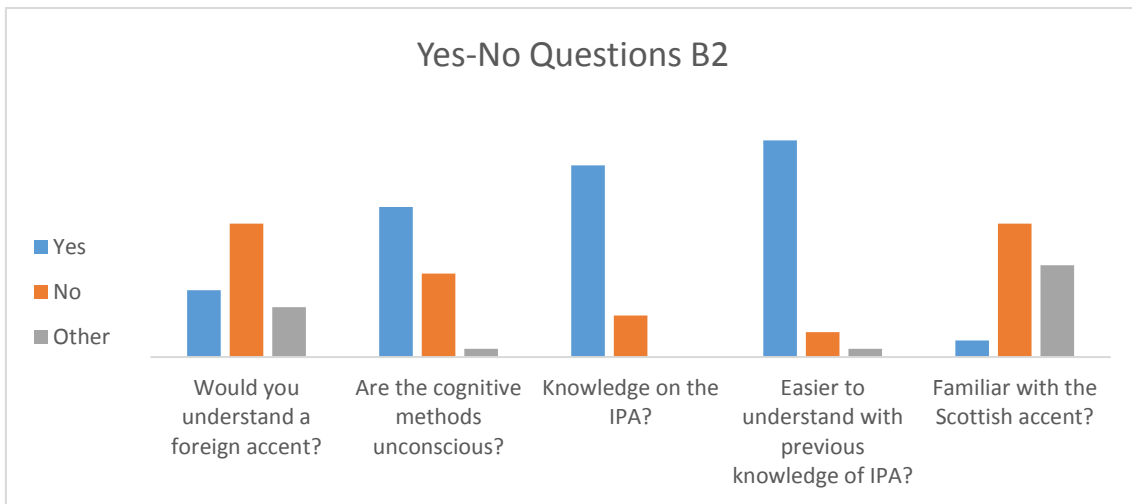
Graph 4. Question 2 of survey for group B4

Q4: Do you think it would be easier to decipher what you hear having previous knowledge about acoustic sounds and phonology? And why?

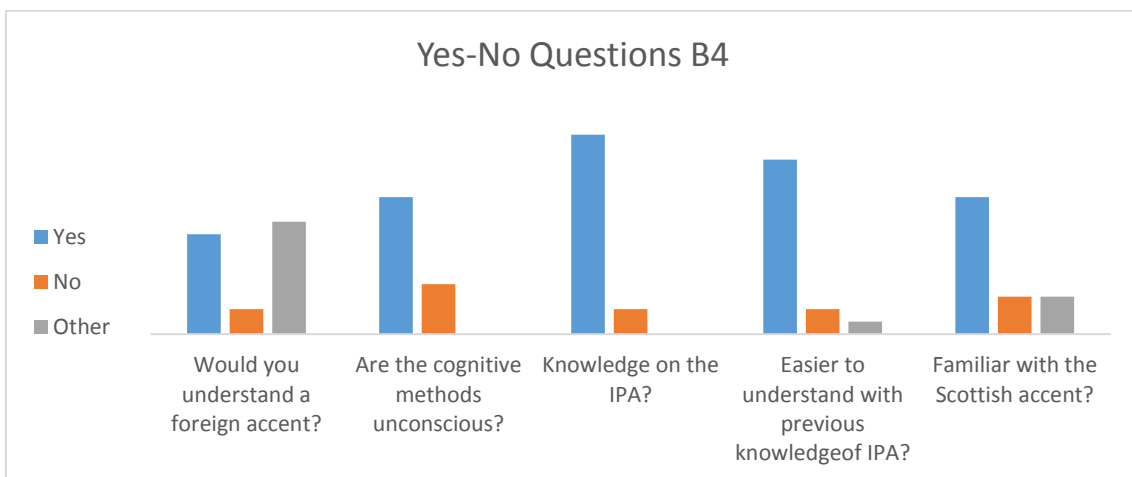
When asked to think more accurately of which cognitive methods they would use to decipher what is being said, both groups agreed that they would try and relate the sounds to those they know. The participants would take the sound sequences and transfer them into the standard pronunciation that they know. Another method they would use, would be identifying the speaker’s native language to perceive its features and be able to transform and reconnect the sound sequences to the RP of the L2 language.

In the following graphs (graph 5-6) we can see that most of the respondents agreed that previous knowledge on the IPA helps understanding new sounds. As the results show, there were few participants from B2 that had come into contact with the Scottish accent; however there is a considerable amount of participants that admits to having heard the accent somewhere and said that they had yet to understand anything from the accent. In the case of group B4, there was a considerable amount of participants that had come into contact with the accent; this fact can be perceived in B4’s word identification results with a substantial amount of complex words deciphered.

Group B4 shows a higher level of complexity when exposing their cognitive processes and, by doing so, their perception of them. B4 deems their cognitive processes mainly unconscious. By contrast B2 is divided in two fronts. Those participants who chose ‘No’ explained that they are aware of the way they perceive words and by doing so, these processes would not be unconscious but rather done consciously.



Graph 5. Yes-No questions of the survey for group B2



Graph 6. Yes-No question of the survey group B4

In part two, the participants who expressed their familiarity to the accent were more successful when identifying words than those who did not have any interaction with the accent. B4 were able to decipher more complex words than B2 and in a bigger amount. B2, in contrast, identified mostly monosyllabic words and commonly used words, such as numbers or determiners.

To identify the meaning and RP of the utterance, 70% of the participants, (between both groups) chose 'sound', whereas 30% chose 'context'. These numbers suggest that the majority of their cognitive processes are closely linked to acoustic discrimination to make out the words.

To examine the degree of difficulty of deciphering the sounds, the participants were asked to rate from 1 to 5, one being really easy. The average answer was of 2

points out of 5. Participants from both groups also clarified that after writing down what they heard, phonetically correct or not, it was easier to identify the RP word.

Finally, after listening and identifying the words, participants were asked to briefly summarise the content of the segment. Taking into consideration the fact that they had not been warned about the content or vocabulary of the segment, the results were quite surprising but, at the same time, predictive. B4 had a bigger amount of participants who could grasp some of the content, as predicted. However, the surprising fact was what the participants were able to pick up. As the results showed in the first part of the survey, one of their methods to understand the speaker would be by trying to get the general idea or the context of what is being said. Consequently, most participants of B4 were able to grasp a general idea of the content or a specific information from the audio. In contrast, B2 respondents could identify the topic field of the audio, i.e. economics, construction, etc.

Last but not least, part three of the survey shows the veracity of the phonic awareness skills needed to make out the sounds we hear. Both groups of participants coincide and agree that it was easier to understand the segment when listening and reading the transcript simultaneously. I should mention that the segments used for part two and part three are different sequences from the same clip, hence participants hear the same accent and the same speaker.

Some respondents concede that the speech was easier to understand because the written text was in the standard script, commenting that it would have been harder if the transcriptions had been phonetically written instead of the normal Latin alphabet. If the script had been phonetically written, they would have had to focus even more when relating the sounds to what is written, which is something I would take into consideration to undertake further investigation.

Some of the hardest words to identify just by sound but, otherwise, easy when read and heard are: 'this issue', 'productivity', 'mass survey', 'retentions', 'guarantees', 'abolition', 'missing', 'withheld', 'jeopardise'. For the most part, these words have a similar equivalent in the first language of the respondents.

4. Conclusions

Communication between cultures, communities, and people is key for understanding each other in today's society. Nowadays, people are starting to learn more languages for the pure pleasure of it, to be able to communicate with people from another country who speak a different language, etc. Others, who are not so adventurous, need someone to be the spokesperson, the mediator between both cultures and languages. Here is where the role of a translator and an interpreter is born. These mediators, so to speak, need to acquire the necessary skills for a better communication, one of which is having the ability to understand the person speaking the different language and its variants.

During the study we have been able to confirm the necessity and the utilities of having previous phonological knowledge for certain circumstances. Having this knowledge helps to comprehend sounds that should mean something although pronounced differently. Additionally, this knowledge helps interpreters tremendously when the speech sounds are not what they are used to and, consequently have to improvise and be quick to react identifying, discriminating and decoding those sounds to form comprehensible words.

The utility of phonic and phonetic awareness skills, the need of acoustic discrimination in the process of identifying words was reaffirmed. If we correlate and make the right use of these abilities identifying and deciphering words that do not present the standardized pronunciation of a language, whichever it may be, will be easier.

In terms of some observations regarding the results of the survey, I think this study illustrates that there is a necessity of further research into this subject. As there are many variables that may be different in other situations, it would have certainly been more convenient if the survey had been conducted on a wider range of groups and with more specific criteria, such as:

- a) Have never learnt or been exposed to other languages,
- b) Been exposed to languages,
- c) Are able to speak an L2 or more (developed phonetic awareness skills),
- d) Have been exposed to other languages including Scots,

e) Were presented with a morpho-phonemically written transcript.

These observations of the results clearly imply that even though most of the results came out as expected, others did not quite fit with the rest of the group, meaning that some of the respondents did not qualify for the task or were overqualified. Nonetheless, the results proved that there are, in fact, many other factors that come into consideration when we hear a word, a sound, pronounced differently from what we are used to.

In the following section I will break down a few recommendations to allow a better interpretation based off the observations made throughout the study.

As stated during the research process, an interpreter's cognitive skills must be ingrained and developed fully. Normally, when interpreters accept a job, they are given some information relating to what is going to be said, sometimes it comes with technical terms and sometimes with background information of the topic as well. In some cases, interpreters don't have much time to prepare and so are required to improvise on what knowledge they have from experience on the topic that is going to be articulated.

One of the main recommendations would be to get accustomed to the accent or at least have heard it before. Of course, the knowledge of various phonetic systems, as any interpreter should have at least two different systems, will come in handy when deciphering the discourse. Which is why prior to the first auditory connection with the speech, previous background research on the accent is advised. If the accent is heard for longer periods of time it will be easier to understand and for the brain to get familiar with the phonemes and sound patterns of said accent and consequently make the right connections to the standardized pronunciation.

However, more often than not, as stated above, interpreters don't have enough time to get used to the new accent. In such cases, the recommendation would be to listen intently and focus more on the global content rather than to close in to the really specific details of the discourse. Then again, we also need to take into consideration the speed in which is being spoken. If the discourse were rather slow, there would be more time to discriminate each sound and so all the effort and concentration would be put into decoding the sounds.

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6. Appendices

6.1. Text

A.

**Construction Industry (Protection of Cash Retentions)
26 April 2017
Volume 624**

Time sequence - 2:54-5:24

[...]

The loss of cash retentions comes with a human loss. According to a mass survey of SMEs, 25% of them state a debt of “£20,000 or less is enough to jeopardise their business prospects.” But yet retention losses, I’ve already highlighted, quite often are much higher than £20,000, such means: thousands of jobs are either lost or facing an uncertain future; fewer opportunities to recruit new apprentices and fewer opportunities for the companies to invest in training; individual bankruptcies are always at risk following calls by banks to call on their experts for guarantees to pay off these loans.

This is a Government that continually acknowledges a productivity problem in the UK, and yet here we have smaller companies struggling with cash flow, stressed and having to pay extra man hours into chasing up these cash retentions. So surely resolving this issue can only improve productivity, not just of the man hours saved in terms of not having to chase up the retentions, but in terms of the money that’s released and feed up for investment in either new equipment or job creation, which will further improve productivity. This issue in terms of late payments has been understood by this Government, and have took action on the payments, but yet, release of retentions is the missing link in this payment chain and action has yet to be taken on it. To further illustrate the seriousness of this, in 2015 small firms across the UK lost almost £50 million-worth of retentions because of insolvencies up the supply chain. That’s money that could have been re-invested, and a client somewhere along the line has to pay for the lost revenue. Approximately £3 billion-worth of retention moneys are withheld at any one time. So again, I repeat that this can affect productivity, cash flow and profits.

Also, the uncertainty of retention release means that banks do not allow borrowing against sums due to companies. The thing is, this is not a new issue; it has been known about for a long period of time. The Banwell report, prepared for a Government 53 years ago, recommended the abolition of retentions, and 23 years ago the Latham report, a joint construction industry and government report, recommended that cash retentions should at least be protected in a trust account. We operate a tenancy deposit scheme to protect individuals in the private renting sector, yet for some reason, there has still been no will by Governments to do something with these construction “deposits”.

[...]

6.2. Questionnaire

B. QUESTIONNAIRE

PART I

Question 1. Do you think you could understand a person with a strong foreign accent? In this situation, what would be your first reaction/instinct to improve your understanding?

Question 2. When you hear an accent for the first time, what cognitive methods do you use to understand it? Do you think they are unconscious?

Question 3. Do you have (or remember) any knowledge on the IPA (International Phonetic Alphabet)?

- a) Yes
- b) No

Question 4. Do you think it would be easier to decipher what you hear having previous knowledge about acoustic sounds and phonology? And why?

Question 5. Are you familiar with the Scottish accent?

PART II

Pay close attention to the audio and answer the questions.

Question 6. Please answer the following questions in the table:

1-Listen and note down in the table any difficult word you are able to distinguish and the Standard English word you think it corresponds.

2- In which way do you identify the Standard English equivalent of those words?

- A) by sound B) from context C) other (specify)

3- To what degree did you find it difficult to understand and distinguish the words?

On a scale 1-5, with 1 being really easy and 5 really hard, rate the difficulty in which you could understand and distinguish the words.

1		2	3
Perceived speaker's utterance	Corresponding standard English word	Way of identifying the meaning of the utterance (see abc options above)	Rate
			1 - 2 - 3 - 4 - 5
			1 - 2 - 3 - 4 - 5
			1 - 2 - 3 - 4 - 5
			1 - 2 - 3 - 4 - 5
			1 - 2 - 3 - 4 - 5
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			1 - 2 - 3 - 4 - 5
			1 - 2 - 3 - 4 - 5
			1 - 2 - 3 - 4 - 5

Question 7. Could you briefly summarise the content of the audio? Please do so.

PART III

Question 8. Was it easier to understand the speaker when listening and reading at the same time? Rate from 1 to 5.

1 - 2 - 3 - 4 - 5

Question 9. Was it easier to relate the pronunciation to the written transcription? Why do you think so?
