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ALAPSZAKOS SZAKDOLGOZAT

Tipikus magyar kiejtési hibák az angol magánhangzókat illetően: a két nyelv eltérő magánhangzókészlete és szabályai miatti hibák

Typical Hungarian mistakes in the pronunciation of English vowels: mispronunciations caused by the different vowel inventories and rules in the two languages

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2011

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ABSTRACT

Although there are some coursebooks and studies briefly discussing typical Hungarian mistakes in the pronunciation of English vowels, little research has been undertaken on mistakes which are due to the different vowel inventories and also the rules concerning vowels in the two languages, accounting for mispronunciations at different levels of proficiency in English. The goal of this study was to examine such mistakes by reviewing the features of the vowel inventories and rules for vowels in both languages, and then conducting a survey. This was done by having Hungarians of different levels of English knowledge read a previously compiled text aloud. The recordings were transcribed and evaluated. Results include mispronunciations at various levels connected to vowel inventory (e.g. dissimilar levels of difficulty in pronouncing diphthongs in different positions, preference for mergers of sounds), as well as those related to certain rules such as opposite tendencies and sporadic words strongly influencing pronunciation, and the transfer of Hungarian postlexical rules to English. These preliminary findings suggest that it is indeed worth comparing the two languages to reveal mispronunciations of various kinds.

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1. Introduction

In the field of phonology, only few contrastive studies have been carried out concerning the typical Hungarian mistakes in pronouncing English vowel sounds. Since Hungarian pronunciation is predictable from the letter-to-sound rules, English pronunciation poses a challenge to Hungarians, as in English the spelling is sometimes unreliable, yet, even when it is regular, its rules are not known by most Hungarian learners (Nádasdy 2006). Apart from the confusing effect of spelling, mispronunciations can be attributed to the fact that we transfer particular features and rules of our mother tongue to the foreign language.

Coursebooks examining the vowel sounds of English one by one and giving a brief account of sources of typical Hungarian mispronunciations are that of András and Stephanides (1978), Szabados (1987), Kovács and Siptár (2006) and Nádasdy (2006). The latter one examines typical Hungarian mistakes thoroughly, while the former ones mostly concentrate on the phonetics of vowels. These books deal with mistakes stemming from the different vowel inventory of the two languages, but little attention has been paid to the fact that the different rules for vowels in the two languages might cause mispronunciations. Experimental studies and surveys on this field are also few in number; the Hungarian-English contrastive linguistics project presented works like that of Nemser (1972), Diósy-Stephanides (1973), Vago and Altenberg (1977), but studies of this kind were only sporadically published in the last decades, and none of them scrutinised English and Hungarian phonological rules for vowels and their possible interaction.

The aim of this study is to examine how the differences between the two languages lead to mistakes in pronouncing vowel sounds. First, mistakes stemming from the different vowel inventory of the two languages will be discussed briefly. Secondly, it will be examined whether Hungarian lexical rules could potentially be transferred to English, and whether English rules nonexistent in Hungarian are applied by learners. The same procedure is to be

done with postlexical rules. Subsequently, the implemented survey is to be introduced and its results concerning the vowel inventory and rules are reviewed.

2. Mistakes caused by the different vowel inventories

This chapter, after introducing some basic concepts connected to pronunciation mistakes, presents potential mispronunciations which can be accounted for by the differences between the vowel inventory of English and Hungarian. This is to be done by reviewing the literature in this area, as some phenomena of this kind are documented in various studies.

First of all, in order to analyse the types of mistakes in pronouncing English vowel sounds, it is essential to differentiate between "two types of pronunciation knowledge: phonetic and nonphonetic" (Nádasdy 2006:24). Phonetic knowledge is essentially a skill, an ability of articulating the particular sound units. Even if one repeats and practices a sound like English /ɒ/ a lot, they may be unable to pronounce it in a correct way. By contrast, nonphonetic knowledge, which is indispensable in order to know the pronunciation, hinges on learning facts and rules. It requires hard work only, as the rules of pronunciation can be acquired by anybody regardless of talent (Nádasdy 2006). In this paper, I will principally deal with nonphonetic types of pronunciation mistakes; discussing mispronunciations from a strictly phonetic and articulatory point of view is out of the scope of the present study.

While accounting for some sound substitutions briefly discussed in this study, a widely presented phenomenon in second language learning (among others: Larsen-Freeman & Long 1991, Kenworthy 1994, Nádasdy 2006), the concept of native language transfer is to be introduced. It stems from the fact that once we have acquired our first language, we have learned what phonemic contrasts to perceive and which ones to ignore. Thus, while learning a foreign language, we perceive its sounds through the "grid" or "sieve" of our mother tongue; in other words, "in terms of the sounds of our native language" (Kenworthy 1994:45). As a

result, through native language transfer the unfamiliar sounds of a foreign language are replaced by those of one's mother tongue (Nádasdy 2006). This phenomenon explains pronunciation mistakes like replacing English /ɔ:/ for Hungarian /o:/; more importantly, it also leads to mistakes which result in mergers of sounds undoubtedly affecting understanding.

Before analysing English vowels, it is essential to note that the variety of English discussed in this study is Received Pronunciation (RP). The reason for this is that the textbooks currently used in Hungary are based on it, and the majority of Hungarian teachers speak British English (and "RP is considered the most polite or educated among British accents") (Nádasdy 2006:34).

2.1 Mergers of sounds

Speakers of Standard Hungarian (which is mainly spoken in Budapest) are accustomed to having one type of *e* sound in their mother tongue. As a consequence of native language transfer, Hungarians are inclined to articulate and treat English /e/ and /æ/ "as subphonemic free variants" (Nádasdy 2006:35). This neutralisation of contrast (pronouncing usually Hungarian /ɛ/ in both cases) is a well-documented phenomenon mentioned in numerous studies and coursebooks (Nemser 1972, Diósy-Stephanides 1973, Vago & Altenberg 1977, András & Stephanides 1978, Szabados 1987, Bunta & Major 2004, Nádasdy 2006).

Another case of merging two distinct sounds includes that of pronouncing both English /ɔ:/ and /oʊ/ in the same way; for instance, with a Hungarian /o:/. Accordingly, the contrast between minimal pairs like *bought* and *boat* is neutralised. Studies like those of Nemser (1972), Bánhegyi and Palojtay (1993), and the coursebooks of András and Stephanides (1978), Szabados (1987) and Nádasdy (2006) also refer to this pronunciation mistake.

2.2 Diphthongs

As stated above, learners of a foreign language are likely to face difficulties when producing sounds which are nonexistent in their mother tongue. Since Standard Hungarian "has no diphthongs, except perhaps in a few words like *augusztus*", they may find it difficult to pronounce them (Nádasdy 2006:107). Nonetheless, some diphthongs like the wide closing ones (/aɪ/, /aʊ/ and /ɔɪ/) appear to be easy to pronounce for Hungarians (Nádasdy 2006).

Conversely, the narrow closing diphthongs /eɪ/ and /oʊ/[1] are much more difficult for Hungarians, maybe because these are quite narrow diphthongs, i.e. having a starting and an end point fairly close to one another (Nádasdy 2006). Therefore, it is probable that learners will replace them with long monophthongs: /e:/ and /o:/ respectively. As for /eɪ/, even if there are same /e:j/ sequences in Hungarian (in spelling written as *éj/ély)*, it seems that the phonotactics of Hungarian do not allow this sound to occur word-medially before a consonant (in sequences like *éj#t* there is a strong morpheme boundary) (based on a searchable Hungarian word database[2]). Consequently, this diphthong is more probable to be pronounced as a long monophthong in these unfamiliar environments than word-finally (e.g. pronouncing /e:/ in the word *hate*, but /eɪ/ in *stay*) (Nádasdy 2006).

Centring diphthongs are also difficult for Hungarian learners due to them being narrow diphthongs, and also because of the difficulty concerning the pronunciation of /ə/. These diphthongs are almost always followed by *r* in spelling; for this reason, Hungarians are inclined to pronounce a long monophthong followed by an /ɾ/ (e.g. /hi:ɾ/ instead of /hɪə/) (Nádasdy 2006).

[1] Even if in Received Pronunciation this sound is transcribed as /əʊ/, in the present study /oʊ/ is used based on Nádasdy (2006).
[2] Retrieved from: [http://budling.hu/~kalman/cgi-bin/search.cgi]

2.3 Length distinction

Some different features in the vowel inventory of two languages can also entail mispronunciation of particular sounds. In Hungarian it is length that distinguishes /i/ from /i:/ and /u/ from /u:/, and there is no quality difference (Siptár & Törkenczy 2000). By contrast, in English the main distinguishing feature of the vowels /ɪ/-/i:/ and /ʊ/-/u:/ is not length (as it is not even a permanent feature of English vowels) but quality (Nádasdy 2006).

As a result of this difference, Hungarian learners of English tend to apply length distinction between /ɪ/ and /i:/, /ʊ/ and /u:/; just as it happens in their mother tongue. This can lead to misunderstandings: upon hearing the English word /lɪv/ pronounced with a Hungarian /i/, the English listener is more likely to perceive the quality of the sound /i/, and identify it with English /i:/, misunderstanding the word as /li:v/ (Kovács & Siptár 2006). Several contrastive studies and coursebooks refer to this phenomenon (Nemser 1972, Diósy-Stephanides 1973, Vago & Altenberg 1977, András & Stephanides 1978, Bánhegyi & Palojtay 1993, Kovács & Siptár 2006, Nádasdy 2006).

3. Mistakes caused by the different rules for vowels

This chapter first introduces lexical rules and then turns to Hungarian lexical rules concerning vowels, contemplating whether Hungarian learners are likely to apply these rules in English. Subsequently, English lexical rules and the potential Hungarian difficulties in their application will be discussed. The same procedure is to be done for the postlexical rules of the two languages.

3.1 Lexical rules

Before dealing with lexical rules, it is essential to clarify this term by reviewing some of its features (based on Kenstowicz (1994) and Jensen (1993)). First of all, lexical rules introduce distinctive, phonemic changes (for instance, Trisyllabic laxing entails alternations between distinct phonemes like /aɪ/-/ɪ/). Secondly, the context in which these rules apply cannot be stated in purely phonological terms, the lexical and morphological environment also counts (as in the case of Trisyllabic laxing where a suffix needs to be added, yet only certain suffixes activate the rule). Thirdly, these rules are word bounded; that is, they do not apply across strong word boundaries. In addition, alternative analyses are possible in case of lexical rules, which might have exceptions.

3.1.1 Hungarian lexical rules and their possible interference with English

The first Hungarian lexical rule to be examined from the point of view whether it can be applied in English is Hungarian Vowel harmony. It "requires the vowels within a word to be similar in certain respect" (Nádasdy 1985:231). I shall not go into details concerning this rule, as experimental studies like that of Vago and Altenberg (1977) have already shown that Hungarian subjects never harmonise English vowels.

Secondly, in the course of Hungarian stem vowel shortening rules, "a long vowel (which is not at the last segment of the stem) is replaced by its short counterpart" (Siptár & Törkenczy 2000:58). It has two types, the first of them being Final stem vowel shortening which "applies in final syllables of mono- and bisyllabic stems", mainly in the case of nouns with low vowels (Siptár & Törkenczy 2000:58). (For example, *nyár* 'summer' becomes *nyarak* 'summers' when adding a final stem vowel shortening suffix.)

The second type, Internal stem vowel shortening, is triggered by derivational suffixes and it **"**always applies in the antepenultimate or earlier syllable" (Siptár & Törkenczy

2000:61). (To illustrate, *aktív* 'active' becomes *aktivitás* 'activity'.) It is dubious, however, whether these shortening rules could be applied in English. They are not productive even in Hungarian, as they apply to certain stems and only particular suffixes can trigger them. Consequently, it is highly improbable that Hungarians will transfer these rules to English; furthermore, it is also obscure how this transfer could be tested.

Finally, Hungarian Low vowel lengthening is to be examined. This rule makes short final low vowels long before a suffix, like in the words *fa* 'tree' becoming *fát* 'tree' (acc.) (Siptár & Törkenczy 2000). Its application in English can be excluded as there are no short vowels morpheme finally in English (rule of final vowel length (Nádasdy 2006)).

3.1.2 English lexical rules and their application by Hungarians

Turning to English laxing rules, "Trisyllabic laxing laxes a vowel that is followed by two (or more) syllables in the same domain, as long as the syllable following the vowel in question is not stressed" (Jensen 1993:165). Jensen further adds that Trisyllabic laxing happens in derived environments (like in *divinity* (derived from *divine*) but not in *nightingale*). Another laxing environment is that before consonant clusters, a phenomenon called Pre-cluster laxing which laxes the stressed vowel in words like *deduction*, *kept* (Jensen 1993). **"**A third environment in which vowels are laxed is before certain suffixes, specifically the adjectival suffix *-ic*", a rule known as Laxing by ending, which accounts for the lax stressed vowel in words like *satiric* and *metric* (Jensen 1993:175).

Among tensing rules, CiV tensing makes low vowels tense "when followed by a single consonant, a high vowel or glide and another vowel", like in the words *comedian* and *courageous* (Jensen 1993:170). The inverse process happens if the stress vowel is *i*, when it becomes lax, a rule known as CiV laxing (examples include *vision*, *familiar*) (Nádasdy 2006). The second tensing rule is Prevocalic tenseness, which "tenses a vowel before another vowel"

like in the words *heroic* and *diet* (Jensen 1993:197). These tensing and laxing rules are possibly problematic for Hungarian learners because there are no such rules in Hungarian, and they are unaware of them.

Vowel reduction is a rule of English phonology, which weakens the vowels in unstressed syllables (Nádasdy 2006). According to Nádasdy (2006:123), "since weakening is not natural in Hungarian, they [Hungarian learners] are inclined to pronounce some full vowel (usually that suggested by the spelling) in place of /ə/". He further claims that even if beginners usually pronounce /ə/ as /ø/, it is not its articulation, much rather its use that challenges learners.

Finally, by the rule of Breaking plain tense vowels will be realised as broken tense "before an R which is either static (always pronounced) or alternating (pronounced before a vowel-initial word or silent before a consonant-initial word)" (Starcevic 2010:30). For example, *jury* is pronounced / dʒʊərɪ/, *pure is* is pronounced /pjʊər ɪz/ (Starcevic 2010). It is presumed that since *r* in Hungarian does not have any effect on the preceding vowel (and also because the sounds introduced by this rule are unfamiliar and difficult to pronounce for Hungarians), the application of Breaking will be difficult for Hungarian learners of English.

3.2 Postlexical rules

As opposed to lexical rules discussed above, postlexical rules show different features. First of all, they introduce allophonic changes (e.g. in the course of nasalisation /e/ is pronounced [ẽ], but this is not even indicated in broad transcription because of the allophonic change). Secondly, the context where postlexical rules apply "can be stated in purely phonological terms", and these rules have no exceptions (Kenstowicz 1994:195). For instance, if a vowel is followed by a nasal consonant in English, it is nasalised irrespective of any other factors

(Davenport 2005). Furthermore, postlexical rules are not word bounded; they apply even when interrupted by a morpheme boundary (Kenstowicz 1994).

3.2.1 Hungarian postlexical rules and their possible interference with English

The first Hungarian postlexical rule examined is Nasalisation accompanied by the deletion of nasals. According to Siptár & Törkenczy (2000:282), "vowels followed by a nasal are phonetically always nasalized. If that nasal is deleted (this is practically restricted to /n/), the nasality of the vowel becomes a lot stronger." For example, words like *tanszer* 'teaching aid' and *honvágy* 'homesickness' are usually pronounced as [tɔ̃:sɛr] and [hõ:vaɟ] (Kiss 2002). In English, vowels are also nasalised before nasal stops, but the difference is that the nasal is not lost in the process (Davenport 1998). Thus, the nasality of the vowel in Hungarian is considerably stronger than in English.

The second Hungarian postlexical rule connected to vowels is Hiatus filling. It means that "hiatuses are obligatorily filled if (at least) one of the vowels is high and coronal, i.e. /i/ or /i:/" (Siptár & Törkenczy 2000:283). (In the case of /e:/ hiatus filling is optional.) To illustrate, words like *hiába* 'in vain' and *síel* 'ski' (verb) are pronounced [hiʲa:bɔ] and [ʃi:ʲɛl]. Regarding its potential application in English, it is probable that Hungarians will insert a /j/ in English words where one member of the hiatus is /i:/ or /ɪ/ (like in the words *abbrevi<u>ia</u>te, pr<u>eo</u>rdain* and *milli<u>a</u>rds*.)

3.2.2 English postlexical rules and their application by Hungarians

Only one English postlexical rule for vowels will be analysed, that of Pre-fortis clipping. It means that "All vowels are shortened ("clipped") before a voiceless consonant. This shortening is most clearly observable in long vowels (including diphthongs), and /æ/."

(Nádasdy 2006:60). For example, in words like *see* and *seed*, /i:/ is pronounced fully long [i:], whereas in *seek* it is shortened to [i] (Nádasdy 2006). Since in Hungarian fortis consonants do not affect the preceding vowels, it will be hypothesized that it is very problematic for Hungarians to apply this rule in English.

In summary, it seems that lexical rules of Hungarian phonology are not likely to be applied in English; thus, they cannot really be a source of mistake in the pronunciation of Hungarian learners of English. By contrast, English lexical rules nonexistent in Hungarian are probably more or less problematic to apply for Hungarians. Regarding postlexical rules, as speakers usually do not realise postlexical processes in their mother tongue, it is likely that Hungarian postlexical rules will be transferred to English, and English rules will be indeed very difficult to apply (Kenstowicz 1994). The survey introduced in the following chapter is to justify or reject the hypotheses set up.

4. The survey

This chapter, after briefly outlining the whole process and indicating its limitations, describes in detail each step of the implemented survey: the compilation of the text, the process of having learners read the text, as well as the grouping of the subjects, and finally, the data processing. The evaluation of the results is to be done in later chapters.

4.1 Overview of the process

A study was conducted on Hungarian learners of English to investigate on a small scale to what extent the aforementioned differences between the Hungarian and English vowel inventories and rules cause mispronunciations. The data was taken from twenty Hungarian

learners with different levels of proficiency in English. Each person was given a short text which I compiled beforehand. This text included words which are potential sources of mistakes. Each subject read the text aloud, which was recorded with a dictaphone. Subsequently, on the basis of the recordings I transcribed the examined words and evaluated the frequency of the different mistakes.

Undoubtedly, the survey had numerous limitations. As for the subjects, they were relatively few in number, and not entirely randomly selected (e.g. being in the same age group). Secondly, in some cases the words examined might not be representative of a particular rule, but rather they may simply reflect whether the speaker knows them. In addition, it is not sufficient to examine the application of a rule or a pronunciation of a certain phoneme only a few times. The process of reading a text out also entails limitations as the it indeed differs from spontaneous speaking. Moreover, the fact that the text is recorded perhaps implies a stressful situation for some, not performing the way they would otherwise. Lastly, other limitations include the quality of the recordings, and my phonetic transcriptions which might contain mistakes as a result of my limited competence.

4.2 The compilation of the text

As described above, the first step in the survey was to compile a short text with words which are potential sources of various mistakes. Chapter 2 introduced some problematic points where Hungarian learners are inclined to mispronounce English vowel sounds due to the different vowel inventories of the two languages. These were the mergers of phonemes unknown to Hungarians, the simplification of certain diphthongs into long monophthongs and the length distinction of the vowel pairs /i:/-/ɪ/ and /u:/-/ʊ/. Words where such mistakes could be audible were put into a text as shown in Table 1, the numbers indicating their occurrence in

the text. (The words are mostly based on a Searchable English pronunciation dictionary[3] whose source is the Oxford Advanced Learner's Dictionary (3rd ed.).) The text which was given to learners can be found in Appendix A, and the text with the words underlined and provided with footnotes describing the sound or rule examined can be seen in Appendix B.

[3] The dictionary is retrieved from: [http://seas3.elte.hu/epd/index.pl]

Table 1 Inventory

		Vowel sounds		Words
mergers of sounds		/e/-/æ/		*set* (9) – *sat* (11)
		/ɔ:/- /oʊ/		*bought* (5) – *boat* (7)
diphthongs	wide closing diphthongs	/aɪ/		*buy (30), library (32), nearby (54)*
		/aʊ/		*doubted* (19), *out* (24), *found* (37), *town* (49)
		/ɔɪ/		*annoyed* (52)
	narrow closing diphthongs	/eɪ/	word-initial position	*aim* (22)
			word-medial position	*sailing* (6), *favourite* (36), *mistakes* (40), *greatest* (66)
			word-final position	*away* (48), *anyway* (65)
		/oʊ/	word-initial position	*own* (57)
			word-medial position	*boat* (7), *home* (60)
			word-final position	*hero* (56), *go* (59), *although* (61)
	centring diphthongs	/ɪə/	word-initial position	*earache* (55)
			word-medial position	*hero* (56)
			word-final position	*year* (1)
		/ʊə/	word-medial position	*furious* (64)
			word-final position	*sure* (63)
		/eə/	word-initial position	*air* (13)
			word-medial position	*fairly* (62)
			word-final position	*where* (50)
length distinction		/i:/-/ɪ/		*reached* (27) – *rich* (31)
		/ʊ/-/u:/		*full* (15) – *fool* (18)

In Chapter 3 of the present study, various lexical and postlexical rules for vowels in the two languages were introduced. It was argued that Hungarian lexical rules for vowels are not productive enough to transfer to English, or could not even be applied in English because of the lack of the same environment. Accordingly, the potential application of these rules is not tested in the survey. By contrast, it is examined whether Hungarian learners apply a number of English lexical and postlexical rules. Words where such rules should be applied were put into the text. The potential application of Hungarian postlexical rules in English was also examined with words creating an environment where particular Hungarian postlexical rules could be applied. Table 2 demonstrates the rules together with the words in which their application was examined (the examples for English rules are mostly taken from Jensen (1993) and Nádasdy (2006), and the words for application of Hungarian rules are based on the searchable English pronunciation dictionary).

Table 2 Rules

	Rules	**Words**
English lexical rules	Trisyllabic laxing	*extreme* (3) – *extremities* (23)
	Pre-cluster laxing	*wisdom* (43), *kept* (47)
	Laxing by ending	*metrical* (33), *satiric* (34)
	CiV laxing	*decision* (4), *Libya* (10)
	CiV tensing	*courageously* (12), *completion* (20)
	Prevocalic tensing	*anxiety* (16), *poems* (35)
	Vowel reduction	*excitement* (14), *considered* (17), *finally* (58), *surprise* (67)
	Breaking	*(seemed* (51)) – *beer* (53)
Hungarian postlexical rules	Nasalisation of the vowel accompanied by the deletion of the nasal	*Henry* (2), *mainly* (41)
	Hiatus filling	*deviate* (21), *milliards* (38), *radio* (45)
English postlexical rules	Pre-fortis clipping	*wild* (25) – *white* (26), *needed* (28) – *neat* (29)

4.3 The reading out of the text

After having compiled the text, I had Hungarian learners of different levels of proficiency in English read it. In order not to make them pay special attention to the pronunciation, I pretended to conduct a survey on remembering words. According to the instructions, they had to read the text out, and then identify those words overleaf which were included in the text. Altogether twenty learners of English (native speakers of Standard Hungarian) were recorded with a dictaphone after asking their consent. All the recordings can be found on the enclosed CD (the irrelevant parts (the reading of the words on the other side of the sheet) are left off and not included in the CD).

I asked each subject about their English studies (language exams, exposure to English) to be able to divide them into groups. On the basis of their command of English, four groups

were differentiated: pre-intermediate, intermediate, upper-intermediate and advanced. Table 3 summarises some basic data about the subjects.

Table 3 Some background information about the subjects and their grouping

	Pre-intermediate	**Intermediate**	**Upper-intermediate**	**Advanced**
Number of subjects	5 (Subjects A-E)	5 (Subjects F-J)	5 (Subjects K-O)	5 (Subjects P-T)
Years	17-19	18-21	20-24	21-24
Sex	2 males, 3 females	1 male, 4 females	3 males, 2 females	5 females
Language exam	No plan of taking a language exam in a year's time	Intermediate language exam or no language exam but planning it in the near future	Intermediate language exam and preparation for the advanced language exam	Advanced language exam
English studies	Learning only at secondary school	Learning also at private courses or language school	Learning also at private courses or language school or university	English major at university (third-year)

4.4 Data processing

Having recorded all the material needed, I listened to each recording several times to transcribe the words whose pronunciation was examined. Following the phonetic transcription, the potential mistakes (see Table 1 and 2) were considered one after another. In the case of mistakes with regard to the vowel inventory of the two languages, it was inspected whether the right sound was pronounced. As for the application of English and Hungarian rules, I examined whether the subjects applied these rules or not. Appendix C gives the phonetic transcription and evaluation of Subject A. The very same procedure was applied in the case of each subject; the documents in PDF format are only enclosed on the CD due to their length.

While transcribing, contrasts such as /ɛ/-/e/ and /i/-/ɪ/ were not taken into consideration where that would have had no particular importance, and both were transcribed as /ɛ/ and /i/ respectively. Where these sounds were examined (e.g. the contrast between *rich-reach*) I aimed to transcribe the pronounced sound. Stress in the phonetic transcriptions is not indicated if it falls on the first syllable of the word (as this is the case in most of the words owing to the effect of Hungarian), if otherwise, it is indicated with a stress mark.

5. Evaluation of the survey – Inventory

This chapter gives an account of the results of the survey concerning typical Hungarian mistakes caused by the differences between the vowel inventories of English and Hungarian. The mistakes of merging phonemes, mispronouncing diphthongs as long monophthongs and differentiating sounds on the basis of quantity will be examined in turn.

5.1 Mergers of sounds

The first potential merger of sounds examined was that of /e/ and /æ/. Surprisingly, none of the subjects differentiated the vowels in the words *set* and *sat*; that is, the contrast was neutralized in each and every case. However, the fact that the words were close to one another (in order to hear the contrast better while analysing) could have had a negative influence resulting in the merger into /ɛ/. The results still indicate that the differentiation of these sounds is indeed problematic for Hungarian learners of English.

Secondly, the possible merger of /ɔ:/ and /oʊ/ was inspected with the pair of words *bought* and *boat*. Since this case was more complicated, the results are given in Figure 1. Regarding all the diagrams in the present study, the horizontal axis shows the different pronunciations, and the vertical axis indicates the percentage of speakers pronouncing the

sounds. All columns make up 100 percent, and the numbers (denoting percentage) indicated in the parts of the columns amount to the percentage of that particular pronunciation. Thus, one subject adds up to 5 percent, and as there are five individuals in each group (shown with colours), one group runs to 25 percent. Alternatively, in the case of the narrow closing and centring diphthong there is another type of diagram to indicate the positions of the sounds, which will be explained then.

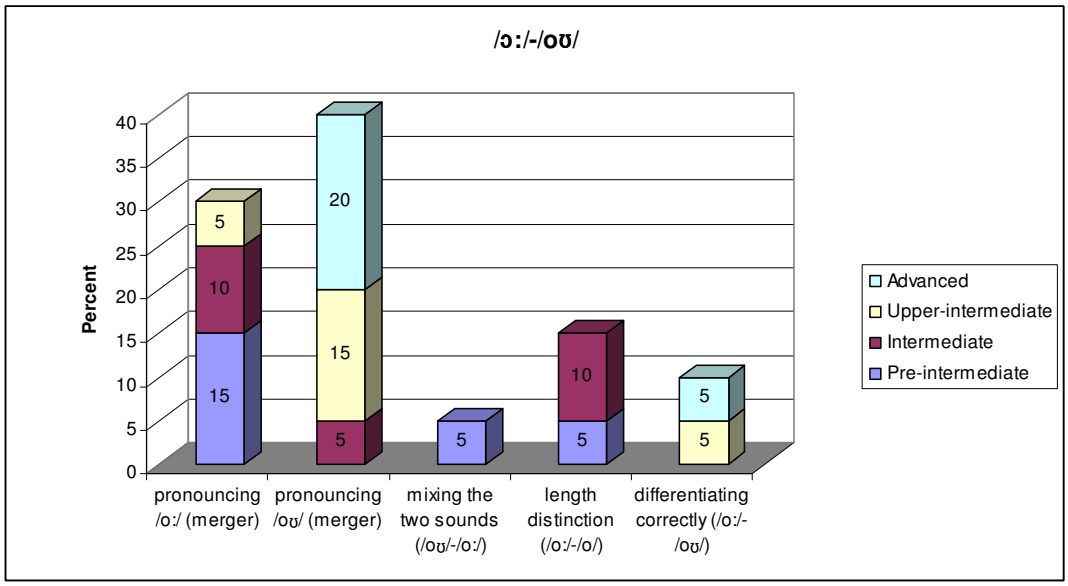

Figure 1 Pronunciation of /ɔ:/ and /oʊ/

It can be seen from Figure 1 that pre-intermediate learners mostly merge the sounds into Hungarian /o:/, while more advanced learners are inclined to merge into /oʊ/. This phenomenon might be attributed to the tendency of pronouncing an unknown sound of a foreign language by replacing it with one known from the mother tongue in the beginner stages, yet when becoming aware of the contrast, pronouncing the unfamiliar sound in all environments. As 70 percent of the subjects merged /ɔ:/ and /oʊ/, and only 10 percent pronounced it correctly, their contrast indeed appears to be problematic for Hungarians.

5.2 Diphthongs

5.2.1 Wide closing diphthongs

Among diphthongs, first, the pronunciation of wide closing diphthongs is examined. It was argued in Chapter 2 that these diphthongs will not present a considerable difficulty to Hungarian learners, and this seemed to be justified. The first wide closing diphthong /aɪ/ proved to be fairly easy to pronounce as illustrated in Figure 2 showing the number of correct pronunciations of /aɪ/ (the words examined were *buy*, *library* and *nearby*).

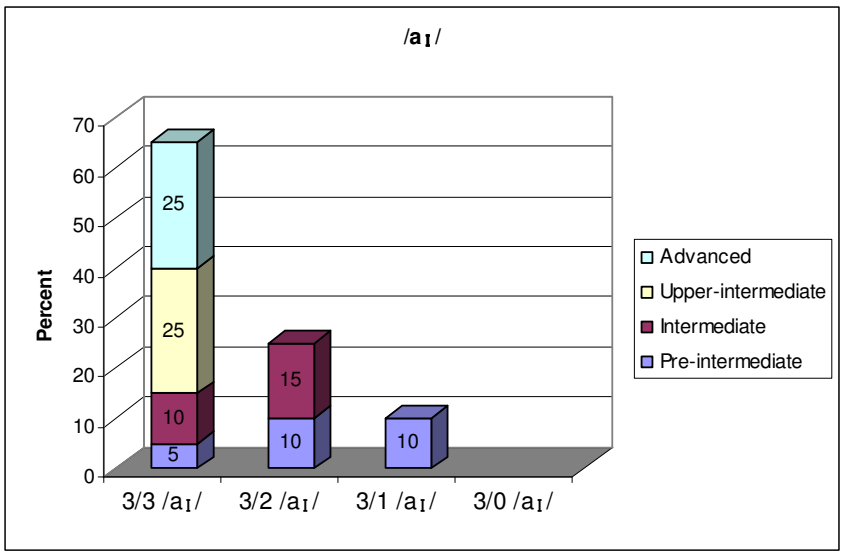

Figure 2 The pronunciation of /aɪ/

What Figure 3 reveals on the pronunciation of /aʊ/ is that slightly more than half of the subjects pronounced it in all the four words (*doubted*, *out*, *found* and *town)*. The marginally smaller percentage is probably the consequence of the word *doubted*, which was unknown for many. As a matter of fact, the majority of the speakers did not have problem with this sound.

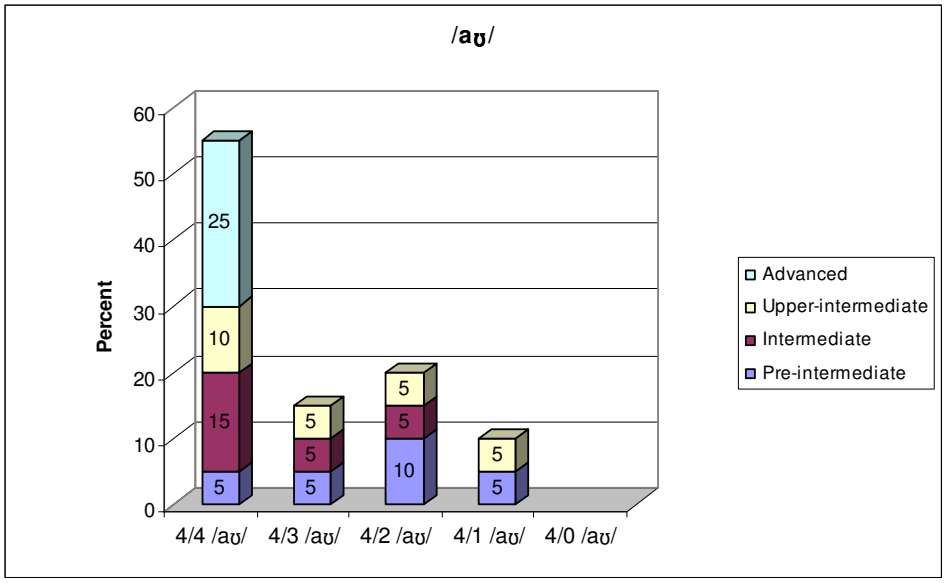

Figure 3 The pronunciation of /aʊ/

In the case of /ɔɪ/ the word *annoyed* was pronounced as /ɔɪ/ in 100 percent. The reason for examining this sound only once is attributable to its easiness, and the fact that its spelling also inclines speakers to pronounce it as a diphthong, being always written as ″oi″ or ″oy″ (Nádasdy 2006).

5.2.2 Narrow closing diphthongs

The first narrow closing diphthong under examination is /eɪ/. It was argued in Chapter 2 that /eɪ/ is much more probable to be replaced with /e:/ word-medially than word-finally. Figure 4 presents the pronunciation of /eɪ/ in word-initial (*aim*), word-medial (*sailing*, *favourite*,

mistakes and *greatest*) and word-final position (*away* and *anyway*). As mentioned before, in the case of narrow closing and centring diphthongs a different kind of diagram is used showing the pronunciation of the sounds in different positions. Here each column runs to 100 percent if the sound in that particular position is pronounced in all cases. Since there might be dissimilar number of words in each position, the words examined in a particular position multiplied with the number of subjects make up 100 percent in a column. Thus, one utterance is 5 percent in the first column, while it is 1,25 percent in the second.

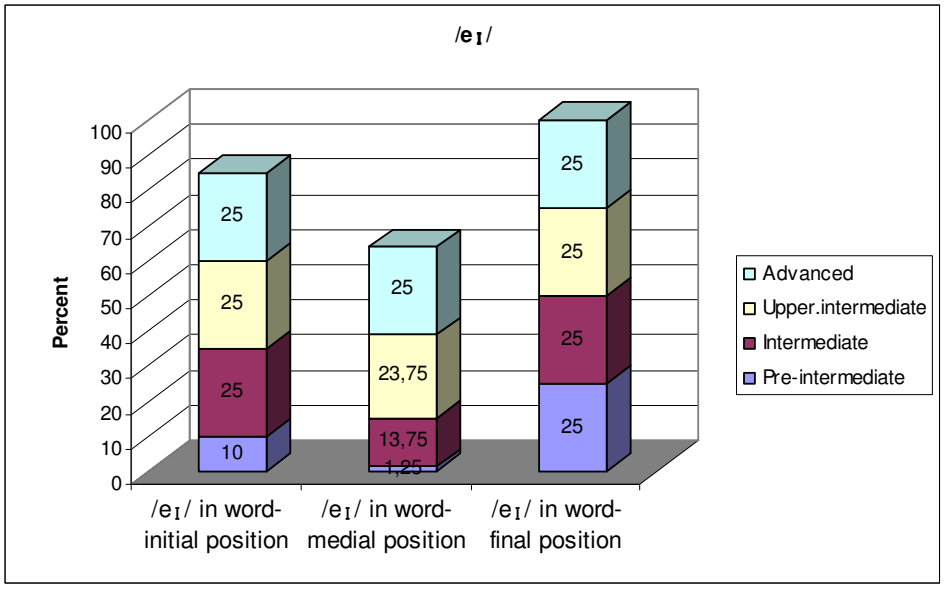

Figure 4 The pronunciation of /eɪ/

The assumption about the word-final /eɪ/ seems to be justified as it was pronounced /eɪ/ in all cases. The word-initial position got the second highest percentage (only with pre-intermediate learners making mistakes). This could stem from the fact that the spelling of the word *aim* suggests the pronunciation of a diphthong, as opposed to *favourite* and *mistake* word-medially. Nonetheless, *sailing* also prompts to pronounce /eɪ/, yet it was pronounced as /e:/ by most of the pre-intermediate learners. Alternatively, learners might tend to pay more attention to the beginning of a word than to its middle. The word-medial position appeared to

be the most problematic, roughly half of the intermediate learners and almost all pre-intermediate learners substituting mainly /e:/ in this position (other one-time substitutions include /i/, /i:/, /ɛj/ and /ɛ/, but /e:/ was substituted in 83 percent).

The different pronunciations of the second narrow closing diphthong /oʊ/ are given in Figure 5, where the word-final (*hero*, *go*, *although*) and word-medial (*boat*, *home*) positions proved to be more problematic than the word-initial position (*own*). For pre-intermediate speakers, this sound was proven to be especially problematic (none of them pronounced /oʊ/ in word-medial position, while only one occurrence was correct in word-final position), and it also proved to be a challenge for intermediate learners. It is hardly surprising that the substitution for this sound was almost always /o:/.

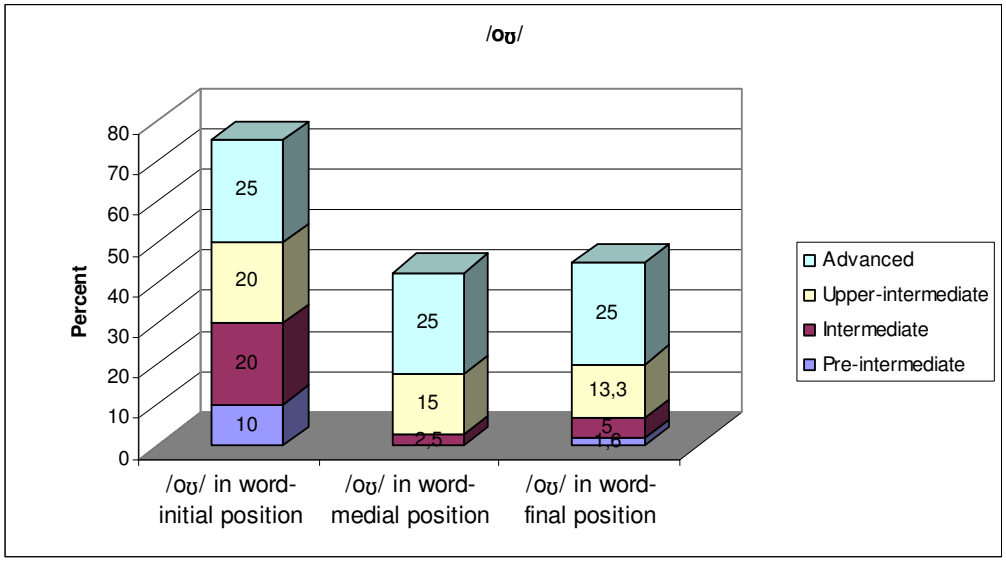

Figure 5 The pronunciation of /oʊ/

5.2.3 Centring diphthongs

Interestingly, in the case of centring diphthongs there was a striking difference in the pronunciation of the sounds in different positions. It is important to note that /r/ was inserted

in many cases where there is no /r/ pronounced in RP, but only the pronunciation of vowels will be examined.

What Figure 6 reveals about the pronunciation of /ɪə/ is that it seems to be more difficult to pronounce it in word-medial position (*hero*), where subjects pronounced /i:/ (in 65 percent) or /i/ (in 35 percent). In word-initial position, however, nearly half of the subjects pronounced /ɪə/ in *earache*, while word-finally the percentage was significantly higher for *year* /ɪə/[4].

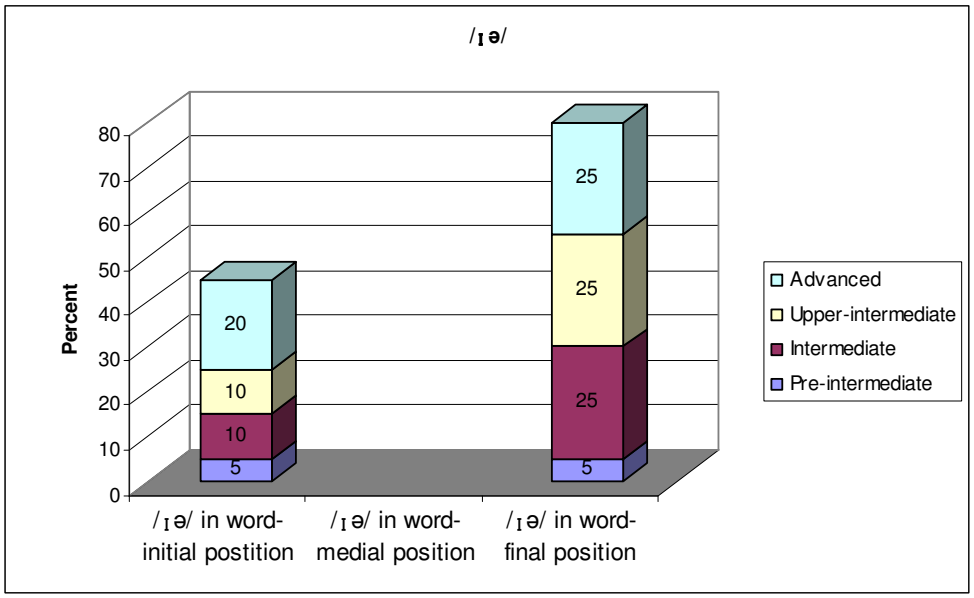

Figure 6 The pronunciation of /ɪə/

[4] In one case, the first word *year* is missing from the recording; accordingly, only 19 occurrences were counted and analysed (the percentage of correct occurrences was taken into account in each group not to lead to the under-representation of the intermediate group where this word was not recorded).

As for the pronunciation of /ʊə/, Figure 7 indicates a marked difference in the two positions in terms of difficulty, only the more advanced groups pronounced it in word-final position (*sure*)[5], while no one in word-medial position (*furious*). (The word-initial position was not examined as according to the searchable English pronouncing dictionary, /ʊə/ does not occur in that position.)

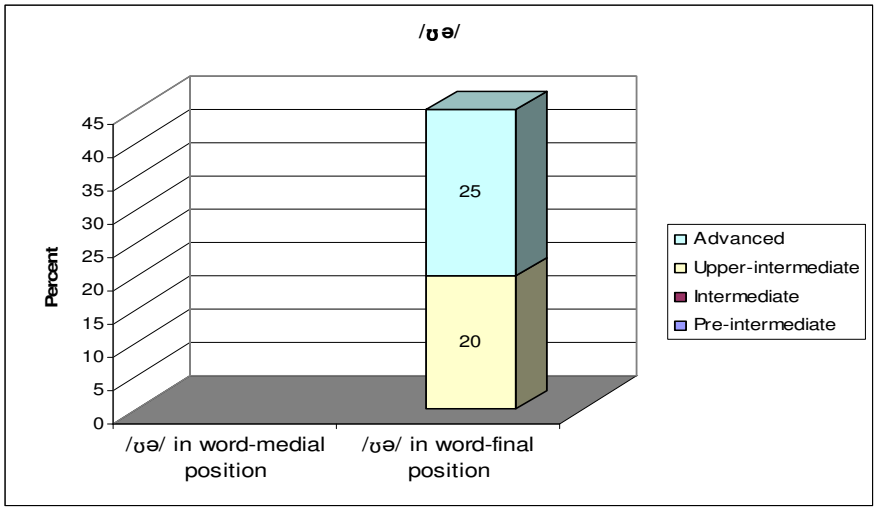

Figure 7 The pronunciation of /ʊə/

[5] One subject in the advanced group pronounced *sure* with an /ɔ:/ which is also a possible pronunciation in the case of this word. This utterance was not taken into account as it does not show the pronunciation of /ʊə/, yet it was not a mistake. Consequently, only four subjects make up 100 percent in this group.

The last centring diphthong, /eə/ proved to be the most problematic of all the diphthongs, as it is illustrated in Figure 8. In word-initial (*air*) and word-final position (*where*) all subjects pronounced either /ɛ/ or /ɛ:/, and in word-medial position (*fairly*) only 10 percent pronounced /eə/. This strikingly small percentage can probably be accounted for by the very small difference in the articulation of the two sounds of the diphthong.

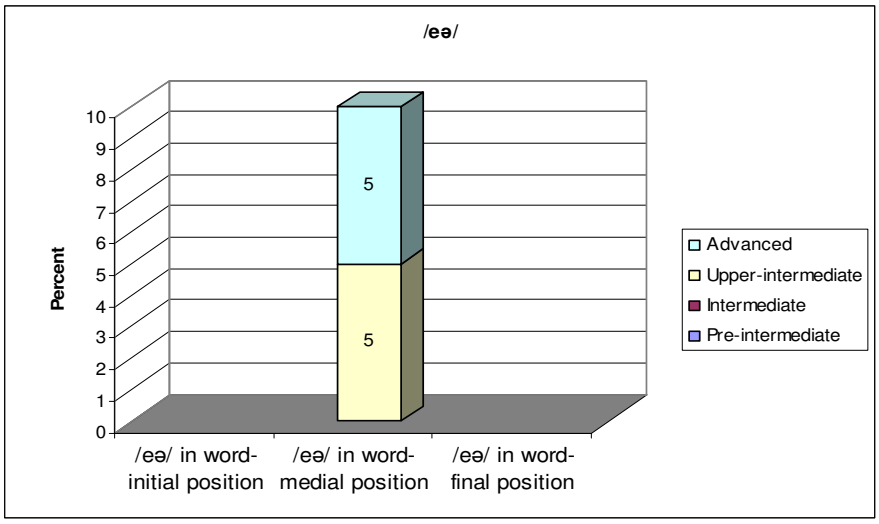

Figure 8 The pronunciation of /eə/

5.3 Length distinction

Regarding the distinction between /i:/–/ɪ/ and /u:/–/ʊ/, it was hypothesized that learners would distinguish these sounds on the basis of length rather than quality. As it can be seen in Figure 9 displaying the various pronunciations of /i:/ and /ɪ/ (*reach – rich*), one third of the subjects merged them into /i/. Although it was not always unambiguous what sound the subjects uttered, in my judgement roughly half of the learners distinguished /i:/ and /ɪ/ on the basis of length, while quality distinction was far less common.

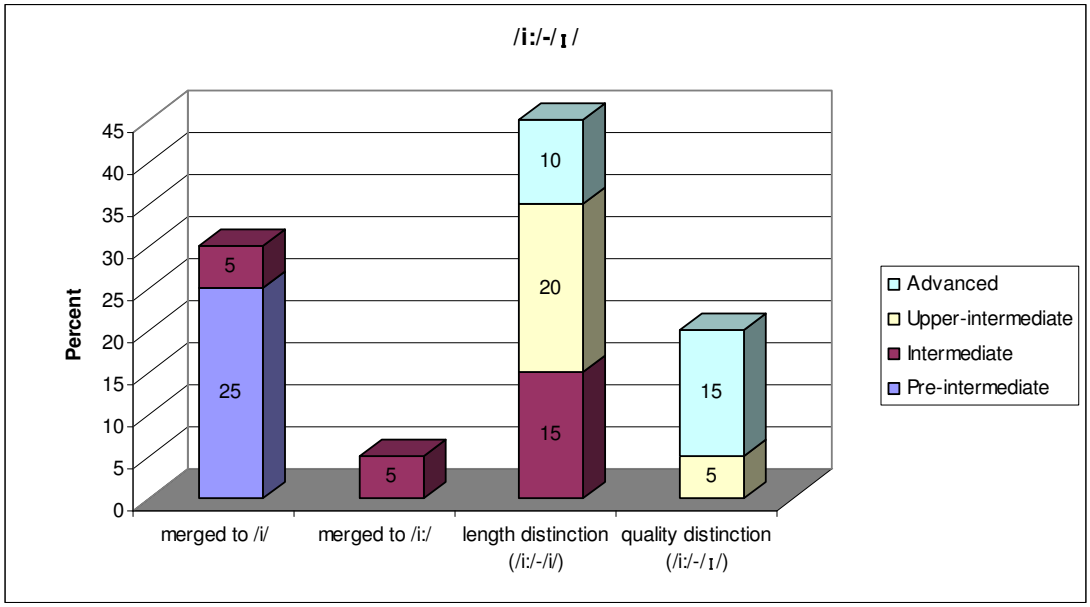

Figure 9 The pronunciation of /i:/ and /ɪ/

Figure 10 illustrating the contrast between /ʊ/ and /u:/ (*full* – *fool*) reveals that it was only in few cases that quality distinction was audible. Interestingly, 50 percent of the subjects preferred to merge them into the long variant, as opposed to the merging to the short vowel in the previous case. This phenomenon could be due to the lexical property of these words, being a mere coincidence. Alternatively, it might be caused by the environment in which these minimal pairs occur. The words *reach* and *rich* are followed by /tʃ/, a fortis consonant, while it is /l/, a lenis consonant that follows the vowel in *full* and *fool*. The former pair of words clearly has an environment where Pre-fortis clipping could be applied, and this can be the reason for the preference of the shorter variant in this environment, and the longer in the latter case. Nevertheless, it is unlikely if we take into consideration that Pre-fortis clipping is indeed very difficult for Hungarian learners to apply (the results of the survey on this are to be introduced later). Admittedly, further research is needed to answer this question.

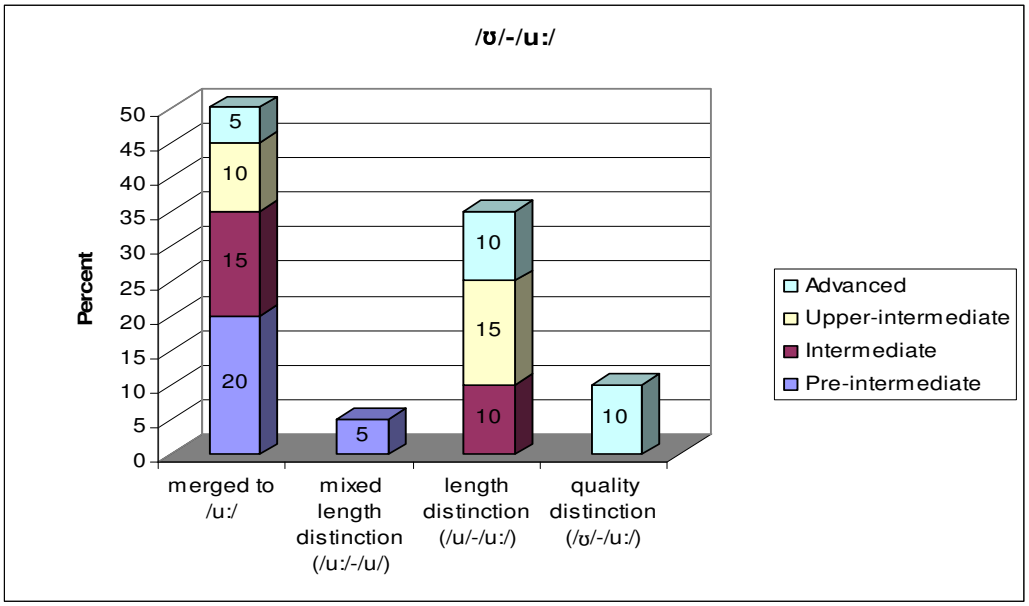

Figure 10 The pronunciation of /ʊ/ and /u:/

6. Evaluation of the survey – Rules

This chapter analyses the results of the survey concerning various rules in the two languages. Firstly, the application of English lexical rules will be examined, trying to account for the dissimilar percentages in their application. Subsequently, the application of Hungarian postlexical rules will be reviewed, followed by the English postlexical rule for vowels.

6.1 English lexical rules

Regarding English laxing and tensing rules, there was a substantial difference in the percentages showing the application of some rules. It will be argued that since no such rules exist in Hungarian, there are no particularly difficult or easy ones among these rules as the dissimilar percentages might suggest, but the main influencing factors are much rather the Hungarian words and tendencies. Table 4 summarises the data on the application of the various rules, as well as the potential influence of Hungarian words.

Table 4 The application of English laxing and tensing rules

Rules	Words	All words are pronounced with the right phoneme	One of the words is pronounced with the right phoneme	Corresponding Hungarian words	Their potential influence
Trisyllabic laxing	*extreme – extremities*	0%[6]		*extrém, extrémitás*[7]	Negative
Pre-cluster laxing	*wisdom*, *kept*	100%			
Laxing by ending	*metrical*, *satiric*	70%	30%	*metrikus, szatirikus*	Positive, Positive
CiV laxing	*decision*, *Libya*	5%	50%	*Líbia*	Negative
CiV tensing	*courageously*, *completion*	10%	30%		
Prevocalic tenseness	*anxiety*, *poems*	25%	20%		

In the case of Trisyllabic laxing no one pronounced both *extreme* with an /i:/ and *extremity* with an /e/ (or /ɛ/), probably because the similar Hungarian words incline the speakers to pronounce a long vowel also in the case of *extremity*. In the pre-intermediate stage /e:/ was common, and keeping the vowel /i:/ from the base word was frequent in the more advanced stages.[8] The low percentage in the case of CiV laxing is due to the effect of the Hungarian word *Líbia*. Nonetheless, the other word examined also proved to be problematic (mispronounced by roughly half of the subjects), which is probably the consequence of having a tendency in Hungarian to use /i:/ when it is followed by a consonant, an /i/ and a vowel (e.g. *vanília* 'vanilla', *kompozíció* 'composition', *Brazília* 'Brazil'), i.e. in the same environment where CiV laxing shortens a vowel (based on the aforementioned searchable

[6] Two subjects pronounced /ɛ/ in *extremity*, but /e:/ in *extreme*; therefore, both members of the pair were not pronounced with the right phoneme.
[7] Although the word *extremitás* is also possible in Hungarian, it was hypothesized that *extrémitás* is more widely used based on the fact that the Google search engine has much more results for this word.
[8] Another pair of words was examined (*style-stylistic*) where Trisyllabic laxing does not apply because of the different stress pattern, but these words might seem similar to *extreme-extremity* for learners. It was hypothesized that one either pronounces both of the pairs with the same vowels (/i:/ and /aɪ/ respectively) not being aware of the rules, or one pronounces both with vowel alternations (/i:/ and /e/, /aɪ/ and /ɪ/). However, this did not prove to be so.

Hungarian word database). Therefore, this opposite tendency appears to influence Hungarian learners, making the English rule problematic to apply.

Regarding CiV tensing and Prevocalic tenseness, the words examined here are rare and only part of a more advanced vocabulary (based on the fact that pre-intermediate and intermediate learners were considerably confused upon pronouncing these words). Therefore, the pronunciation of these words might simply reflect whether the subject knows them and does not really give information on the application of the rule.

A high percentage of subjects applied Laxing by ending, which could stem from the fact that the Hungarian equivalent of both words suggest the right phoneme in English. In the case of Pre-cluster laxing the right phonemes were pronounced in all cases, probably because the words were relatively known and no Hungarian equivalent affected their pronunciation negatively.

In conclusion, it seems that the differences between the applications of the rules discussed do not stem from their particular difficulty, but are the result of sporadic lexical items present in both languages where the Hungarian word suggests the wrong pronunciation. Alternatively, a systematic tendency of Hungarian opposite to that of English is also likely to influence the pronunciation of an English word.

Having examined the English laxing and tensing rules, the next English lexical rule considered is Vowel reduction. Figure 13 shows its application, revealing that it proved to be relatively easy to reduce the vowel in *finally* and *surprise*. All subjects who did not reduce any of the vowels pronounced these two words with a Hungarian /ø/, and did not pronounce the phoneme prompted by the spelling of the word. Nevertheless, in the case of *excitement* each and every subject pronounced the phoneme suggested by the spelling (/ɛ/ or /e/), and 90 percent pronounced /o/ in *considered*. The fact that the latter one was nearly always pronounced with an /o/ is attributable to it being in the first syllable, as Hungarians tend to stress the first syllable of a word, but the same is not true for *excitement*. As no satisfying answer could be found on the basis of the present survey, the reason for the preference of /ə/ or Hungarian /ø/ in some words and the phoneme suggested by the spelling in others should be examined on a larger scale.

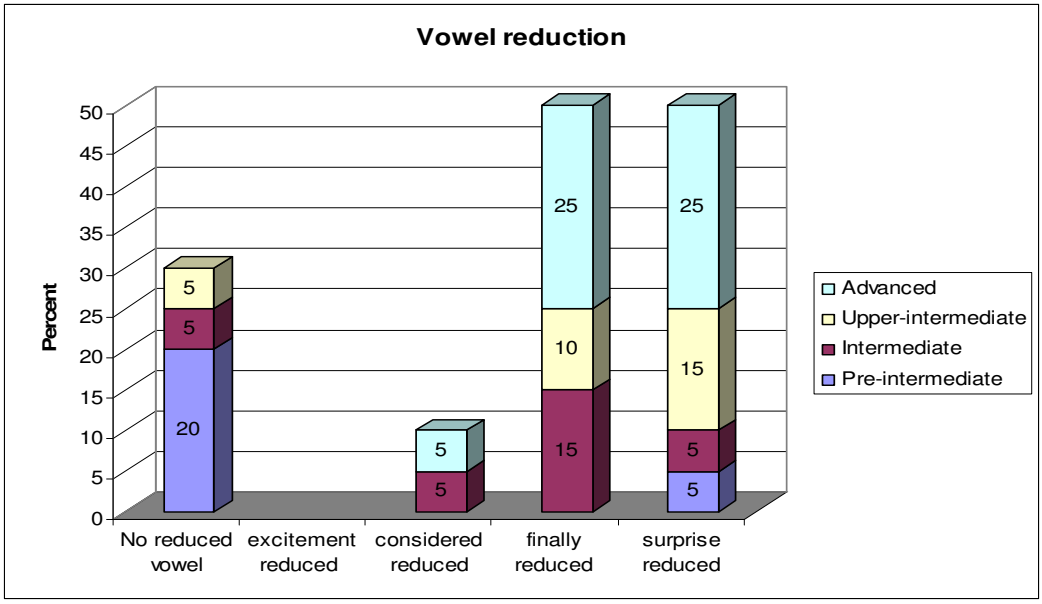

Figure 13 Application of Vowel reduction

The rule of Breaking was examined with the pair of words *seem-beer*, whether the subjects pronounce both with /i:/, or apply Breaking in the case of *beer*. 45 percent of the subjects (prominently upper-intermediate and advanced learners) pronounced /ɪə/ in the word

beer. Despite the relatively high percentage, it cannot be stated that Hungarians easily apply Breaking, considering the low percentages given in the previous chapter for pronouncing the centring diphthongs. The fact that the examined word was quite common and the sound /ɪə/ might be relatively easy compared to other centring diphthongs may have contributed to this percentage.

6.2 Hungarian postlexical rules

The first Hungarian postlexical rule examined is the Nasalisation of the vowel accompanied by the deletion of the nasal. [9] In the words *Henry* and *mainly*, the deletion of the nasal was examined, as it gives a stronger nasality for the vowel than it is in English where the nasal is not deleted. Twenty percent deleted the nasal in both words, and 75 percent only in the word Henry. This difference can be accounted for by the strong word boundary in #*main*#*ly*#, which may prevent some from deleting the phoneme before the morpheme-boundary. Alternatively, it is possible that learners tend to delete the nasal after a short vowel rather than a diphthong.

Turning to the Hungarian Hiatus filling rule, it is important to note that the incorrect application of this rule is dubious and difficult to assess because of the close nature of /i/ and /j/. In my judgement, all subjects inserted a /j/ in the words *milliards* and *radio*. In *deviate* a /j/ was inserted only if learners pronounced a hiatus (and not a single phoneme instead, where there was no environment for the rule to be applied). Moreover, 15 percent of the subjects

[9] It was also examined in the survey as a sidetrack (as it does not affect vowel quality, but is similar to the above-mentioned rule) whether Hungarians delete the liquid followed by a consonant while speaking English, as it can happen in Hungarian (e.g. *balra* 'to the left' is usually pronounced as [bɔ:rɔ]) (Siptár & Törkenczy 2000). The results indicate so, as in the words *childish* and *railroad* /l/ was deleted in both words in 50 percent, and in 30 percent only the /l/ of *childish* was deleted. Apart from these words, the /l/ in *wild* was also deleted in 70 percent of the cases, neutralising the contrast with *white,* where /t/ was pronounced /d/ as a result of the application of the Hungarian regressive voice-assimilation rule.

clearly pronounced a /j/ in *poems*, filling the hiatus before an /ɛ/ as it can optionally happen in Hungarian.

6.3 English postlexical rules

As for the only English postlexical rule for vowels, Pre-fortis clipping, it was difficult to ascertain whether the subjects applied this rule, as the duration of the vowels should have been measured in order to come up with exact and reliable results. However, such measurements were out of the scope of the present study. The words *wild-white* and *needed-neat* were close enough to one another to hear whether the one followed by fortis consonant is shortened, but audible shortening could never be heard (in some cases, different phonemes were uttered (/i/-/aɪ/, /i:/- /ɛ/), not having an environment for applying the rule). Despite the limitations, the application of this rule appeared to be problematic indeed.

7. Conclusion

The objective of the present paper was to discuss and test on a small scale the extent to which the differences between the English and Hungarian vowel inventory and rules for vowels lead to mispronunciations. As for the vowel inventory, the results in general prove some mergers of distinct phonemes, show different levels of difficulty in the pronunciation of diphthongs in various positions, and demonstrate the problematic nature of distinguishing vowels on the basis of quality. Concerning the rules, the overall results indicate that while Hungarian lexical rules seem to resist being transferred to English, lexical rules of English phonology are problematic for Hungarians to apply. Sporadic words and tendencies opposite in the two languages in fact have a considerable effect on mispronouncing words. Hungarian postlexical

rules are largely transferred to English, and the application of an English postlexical rule is indeed very difficult for Hungarians.

The survey has also revealed some interesting findings, such as those relating to the mergers into different phonemes in various levels of English, and the strikingly dissimilar levels of difficulty in pronouncing centring diphthongs in different positions. Some questions remain unsolved, like that of the preference for a shorter or longer version while merging vowels, and the reason for reducing vowels in certain positions, but never in others.

The results of this study, however, cannot be taken as evidence for the level of difficulty of particular phonemes and the applications of the rules respectively. The small number of subjects and the other aforementioned limitations suggest that these results should be tested on a larger scale. While the data is likely to be indicative of possible trends, further research in this area is necessary.

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APPENDICES

Appendix A: The text given to the subjects

Read out the text loudly and then try to find out whether the words on the other side of the sheet were included in the text.

Olvasd fel a szöveget, majd próbáld meg megállapítani, hogy a lap túloldalán lévő szavak benne voltak-e a szövegben.

Last year, Henry made an extreme decision. He bought a sailing boat to fulfil his childish dream to set off for Libya. He sat in his boat courageously and with an air of excitement. He was full of anxiety because his friends considered him a fool and doubted the completion of his journey, but he didn't deviate from his aim because of the extremities. He set out for the wild sea on his white boat and sailed for a week, when he reached a port. He needed a neat shop to buy some food. He wasn't rich enough to buy books, so he went to a library where he read a book on metrical verse, some satiric poems and his favourite book. He found milliards of stylistic mistakes in the first book, but he liked it mainly because of its style and the wisdom in it. Later, he heard on the radio that the railroad in his country was blocked, and thousands were kept away from travelling to the town where he lived. He seemed to be annoyed by this fact and drank a beer in a nearby pub. He had a terrible earache and he no more felt like a hero, having an own boat but nothing else. Finally, he decided to go home although he was fairly sure that his friends would be furious. Anyway, he sailed home and to his greatest surprise, his friends were happy when he arrived.

mainly	stylistic
metric	headache
courageously	railroad
bookshop	deviate
completion	radio
favourite	bought
however	Africa
greatest	aim
near	television
millions	analysis
historic	hero
extremity	family

Appendix B: The text with footnotes describing the sound or rule examined

Last year[1], Henry[2] made an extreme[3] decision[4]. He bought[5] a sailing[6] boat[7] to fulfil his childish[8] dream to set[9] off for Libya[10]. He sat[11] in his boat courageously[12] and with an air[13] of excitement[14]. He was full[15] of anxiety[16] because his friends considered[17] him a fool[18] and doubted[19] the completion[20] of his journey, but he didn't deviate[21] from his aim[22] because of the extremities[23]. He set out[24] for the wild[25] sea on his white[26] boat and sailed for a week, when he reached[27] a port. He needed[28] a neat[29] shop to buy[30] some food. He wasn't rich[31] enough to buy books, so he went to a library[32] where he read a book on metrical[33] verse, some satiric[34] poems[35] and his favourite[36] book. He found[37] milliards[38] of stylistic[39] mistakes[40] in the first book, but he liked it mainly[41] because of its style[42] and the wisdom[43] in it. Later[44], he heard on the radio[45] that the railroad[46] in his country was blocked, and thousands were kept[47] away[48] from travelling to the town[49] where[50] he lived. He seemed[51] to be annoyed[52] by this fact and drank a beer[53] in a nearby[54] pub. He had a terrible earache[55] and he no more felt like a hero[56], having an own[57] boat but nothing else. Finally[58], he decided to go[59] home[60] although[61] he was fairly[62] sure[63] that his friends would be furious[64]. Anyway[65], he sailed home and to his greatest[66] surprise[67], his friends were happy when he arrived.

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1. /ɪə/ - word final position
2. potential application of Hungarian Compensatory lengthening accompanied by deletion of nasals
3. base of *extremity* (23)
4. CiV Laxing
5. contrast of /ɔ:/ and /əʊ/, together with *boat* (7)
6. /eɪ/ in word-medial position
7. contrast of /ɔ:/ and /əʊ/, together with *bought* (5); /əʊ/ in word-medial position
8. potential application of Hungarian Compensatory lengthening accompanied by deletion of liquids
9. contrast of /e/ and /æ/, together with *air* (11)
10. CiV Laxing
11. contrast of /e/ and /æ/, together with *set* (9)
12. CiV Tensing
13. /eə/ word-initial position
14. Vowel reduction
15. distinction of /ʊ/ and /u:/, together with *fool* (18)
16. Prevocalic tensing
17. Vowel reduction
18. distinction between /ʊ/ and /u:/, together with *full* (15)
19. /aʊ/
20. CiV tensing

21. potential application of Hungarian Hiatus filling rule
22. /eɪ/ in word-initial position
23. Trisyllabic laxing, its base *extreme* is in (3)
24. /aʊ/
25. Pre-fortis clipping, together with *white* (26)
26. Pre-fortis clipping, together with *wild* (25)
27. distinction of /i:/ and /ɪ/, together with *rich* (31)
28. Pre-fortis clipping, together with *neat* (29)
29. Pre-fortis clipping, together with *needed* (28)
30. /aɪ/
31. distinction of /i:/ and /ɪ/, together with *reached* (27)
32. /aɪ/
33. Laxing by ending
34. Laxing by ending
35. Prevocalic tensing
36. /eɪ/ in word-medial position
37. /aʊ/
38. potential application of Hungarian Hiatus filling rule
39. No Trisyllabic laxing
40. /eɪ/ in word-medial position
41. potential application of Hungarian Compensatory lengthening accompanied by deletion of nasals
42. base of *stylistic* (40)
43. Pre-cluster laxing
44. /eɪ/ in word-medial position
45. potential application of Hungarian Hiatus filling rule
46. potential application of Hungarian Compensatory lengthening accompanied by deletion of liquids
47. Pre-cluster laxing
48. /eɪ/ in word-final position
49. /aʊ/
50. /eə/ in word-final position
51. /i:/, no Breaking (as opposed to *beer* in (53) where breaking happens)
52. /ɔɪ/
53. Breaking (/ɪə/) (as opposed to the vowel of *seem* in(51), where no breaking happens)
54. /aɪ/
55. /ɪə/ in word-initial position
56. /ɪə/ in word-medial and /əʊ/ in word-final position
57. /əʊ/ in word-initial position
58. Vowel reduction
59. /əʊ/ in word-final position
60. /əʊ/ in word-medial position
61. /əʊ/ in word-final position
62. /eə/ in word-medial position
63. /ʊə/ in word-final position
64. /ʊə/ in word-medial position
65. /eɪ/ in word-final position
66. /eɪ/ in word-medial position
67. Vowel reduction

Appendix C: Phonetic transcription and evaluation of Subject A

1. /ji:r/
2. /hɛri/
3. /ɛkstre:mɛ/
4. /dɛkision/
5. /boʊt/
6. /sɛjliŋg/
7. /bo:t/
8. /tʃildiʃ/
9. /sɛt/
10. /libiɔ/
11. /sɛt/
12. /kourɔˈgɛsli/
13. /ɛ:r/
14. /ɛksimɛnt/
15. /fu:l/
16. /ɛŋksiti/
17. /konsida:rd/
18. /fu:l/
19. /daʊbtid/
20. /kompleɪʃøn/
21. /dive:t/
22. /aɪm/
23. /ɛkstre:mitiz/
24. /aʊt/
25. /vild/
26. /waɪt/
27. /ritʃd/
28. /ni:did/
29. /ni:t/
30. /baɪ/
31. /ritʃ/
32. /libre:ri/
33. /mɛtrika:l/
34. /sɛtrik/
35. /poɛmz/
36. /fɛvørit/
37. /faʊnd/
38. /milijɛrdz/
39. /staɪlistic/
40. /miste:ks/
41. /meɪnli/
42. /staɪl/
43. /vizda:m/
44. /lɛdør/
45. /redijo:/
46. /reɪlro:d/
47. /kɛpt/
48. /øˈweɪ/
49. /taʊn/
50. /wɛr/
51. /si:mid/
52. /øʼnɔɪd/
53. /bi:r/
54. /nɛrbi/
55. /ørʃi/
56. /hiro:/
57. /on/
58. /faɪnøli/
59. /go:/
60. /ho:m/
61. /a:lthoh/
62. /fi:rli/
63. /ʃø:r/
64. /furio:s/
65. /ɛniweɪ/
66. /gre:tist/
67. /sørpraɪz/

INVENTORY

MERGERS OF SOUNDS

- **/e/ and /æ/** (9)-(11) /ɛ/	**Merged to /ɛ/**
- **/ɔ:/ and /oʊ/** (5) /oʊ/, (7) /o:/	**Sounds mixed**

DIPHTHONGS

- wide closing diphthongs

- **/aɪ/** (30) /aɪ/, (32)-(54) /i/	**3/1 /aɪ/**
- **/aʊ/** (19)-(24)-(37)-(49) /aʊ/	**4/4 /aʊ/**
- **/ɔɪ/** (52) /ɔɪ/	**1/1 /ɔɪ/**

- narrow closing diphthongs

- **/eɪ/**	- word-initial position (22) /aɪ/	**1/0 /eɪ/**
	- word-medial position (6) /ɛj/, (36) /ɛ/, (40)-(66) /e:/	**4/0 /eɪ/**
	- word-final position (48)-(65) /eɪ/	**2/2 /eɪ/**
- **/oʊ/**	- word-initial position (57) /o/	**1/0 /oʊ/**
	- word-medial position (7)-(60) /o:/	**2/0 /oʊ/**
	- word-final position (56)-(59) /o:/, (61) /o/	**3/0 /oʊ/**

- centring diphthongs

- **/ɪə/**	- word-initial position (55) /i/	**1/0 /ɪə/**
	- word-medial position (56) /i/	**1/0 /ɪə/**
	- word-final position (1) /i:/	**1/0 /ɪə/**
- **/ʊə/**	- word-medial position (64) /o:/	**1/0 /ʊə/**
	- word-final position (63) /ø:/	**1/0 /ʊə/**
- **/eə/**	- word-initial position (13) /ɛ:/	**1/0 /eə/**
	- word-medial position (62) /i:/	**1/0 /eə/**
	- word-final position (50) /ɛ/	**1/0 /eə/**

LENGTH DISTINCTION

- **/i:/-/ɪ/** (27)-(31) /i/	**Merged to /i/**
- **/ʊ/-/u:/** (15)-(18) /u:/	**Merged to /u:/**

RULES

ENGLISH LEXICAL RULES

- **Trisyllabic laxing** (3)-(23) /e:/, ((39)-(42) /aɪ/)	**1/0**
- **Pre-cluster laxing** (43) /i/, (47) /ɛ/	**2/2**
- **Laxing by ending** (33) /ɛ/, (34) sound not pronounced	**2/1**
- **CiV laxing** (4)-(10) /i/	**2/2**
- **CiV tensing** (12) /ɔ/, (20) /eɪ/	**2/0**
- **Prevocalic tensing** (16) /i/, (35) /oɛ/	**2/0**
- **Vowel reduction** (14) /ɛ/, (17) /o/, (58)-(67) /ø/	**4/0**
- **Breaking** (51)-(53) /i:/	**1/0**

HUNGARIAN POSTLEXICAL RULES

- **Nasalisation** of the vowel and deletion of the nasal
  (2) nasal loss (41) no nasal loss **2/1**
(- Deletion of the liquid (8)-(46) no liquid loss 2/0)
- **Hiatus filling** (21) no /j/, (38)-(45) /j/ **3/2**

ENGLISH POSTLEXICAL RULES

- **Pre-fortis clipping** (25)-(26) different phonemes, (28)-(29) No **2/0**