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Hangtani és nem hangtani tényezők szerepe az idegen nyelvi kiejtési jegyek elsajátításában

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Phonological and non-phonological factors in non-native pronunciation acquisition

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Supervisor: Katalin Balogné Bérces PhD, associate professor

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To my supervisor and second mother, BBK
I would have made a terrible theoretical linguist, Mum. Theories would suffer.

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Changes from the first draft to the final version

The list below summarises the most significant changes from the first draft of this dissertation to the final version.

General

- All errors and inaccuracies pointed out by my opponents have been corrected, and parts they said were unclear have been made more reader-friendly.
- Numerous clarifications have been added in footnotes. The number of footnotes has doubled.

Chapter 1

- No major changes.

Chapter 2

- Section 2.3 got expanded.

Chapter 3

- Further examples have been added to most subsections.
- Numerous clarifications have been added to Section 3.2.2.
- Section 3.5.2 is new.

Chapter 4

- The whole chapter got restructured and expanded.

Chapter 5

- No major changes.

Chapter 6

- Section 6.3 got expanded.

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I am grateful to my internal opponent András Cser, not only for his insightful comments on the first draft of this thesis, but also for following my work throughout the past five years and regularly commenting on it at the end-of-semester PhD student conferences of our doctoral school. I cannot thank my external opponent Péter Szigetvári enough for the meticulously detailed review of my first draft he prepared. Although he himself pointed out that he compiled the list of his suggestions "in full-gear nit-picking mode" and left me to decide which of his comments I find applicable, I feel I need to point out that I did my best to deal with all the issues he highlighted, and there were only a few remarks I ignored because I believed they were not relevant in my case.

In addition to the written evaluations I received from my opponents, the issues raised at my first defence by my committee (namely, in addition to my two opponents, Balázs Surányi, László Kristó, Andrea Reményi and Zsuzsa Tóth) have also contributed greatly to the final shape of the manuscript. I collectively thank all members of my committee for pointing out the flaws and deficiencies of my manuscript and clearing up some misconceptions I had. All remaining errors are mine.

I wouldn't have been able to carry out much of my work without the assistance of Katalin Mády, who helped me calculate statistical data, and my two native English "voices", Frank Prescott and Luke Green, who readily lent me their voices whenever I needed recordings of a native speaker reading out the nonsense words I used in my experiments.

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second experiment. I can never thank Réka Hajner enough for her boundless enthusiasm, which reminded me of myself from six years ago and helped me overcome the difficult times towards the end of my PhD studies, when I often felt I was losing interest and motivation.

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Finally, whoever has got to this point in reading this might wonder why my supervisor has not been mentioned yet (and why she was not the first one on the list of the people mentioned here). There are two reasons. One is that from this point on I'll switch to a second person perspective and write the rest of this text to her. The other one will turn out by the end.

So, dear BBK – ever since my having to submit this piece of work appeared on the horizon, I've been wanting to – purely humorously – include an "anti-acknowledgements" section in which I'd write that without you I could have spared myself all the blood, sweat and tears that completing this programme involved, although this would have required me to take the risk of the irony misunderstood by some people reading it. Nevertheless, I thought that if anyone was interested in my work so much so that they'd read the acknowledgements will know the two of us well enough to understand that this is pure irony and just one part of our constantly teasing each other for fun.

I'm not saying I don't still feel the urge to do this – I know that things will seem more positive in retrospect, but now, looking back on the past five years, I cannot prevent some painful memories from flooding back. For example, when I struggled desperately to pass Hungarian syntax (not having studied any before starting the PhD programme), and all I got from you was a telling-off and a command to just deal with the problem. Or when I literally spent the last few years feeling like a fish out of water, being continually tossed between phonologists and applied linguists, with the former group of people (including you) telling me I was too practical and the latter reminding me that what I was doing was phonology. (What hit me the hardest was when the same conference abstract of mine got rejected at LingDok, and I was advised to submit it to AlkNyelvDok instead, and I did so only receive a rejection from

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there too with a comment that the topic would suit LingDok better.) Or when I struggled so many times to live up to the exceptionally high standards you set for yourself and expect from your students. Or when I enviously saw fellow PhD students skip the end-of-semester student conferences of our doctoral school, where participation was supposed to be mandatory for all active students, and I knew I could never even think of not presenting because you would have killed me had I even mentioned the idea, though there were times I wished I'd been able to just do what many others were doing without suffering any type of negative consequence (and I witnessed this unfairness first-hand, being the organiser of the conferences for four years now). Looking back on all this, with the pandemic-related struggles of the past one year on top of everything, I do feel I've got tired for a lifetime, and sometimes even wish I hadn't started this whole thing at all. And had it not been for you, I really would never have done a PhD.

Still, now with the opportunity here to carry out my long-awaited plan of including you in an "anti-acknowledgements" section, I'm not sure I find this funny any longer. In fact, the gratitude I feel is so deep I don't feel like joking any more. For where would I be had you not pushed me into doing a PhD? Probably struggling to find a job after realising I don't take pleasure in teaching English and contemplating leaving the profession. It is just astounding how you patiently waited until I realised what you had known years before I even started my first teaching practice – namely, that teaching English wasn't my cup of tea, and the only job I'd love was being an academic. I understand that everything I thought was unpleasant was actually a part of a conscious plan to make me one, and the way in which you guided me along the path is beyond genius.

I know I didn't particularly make your job easy (I'm sorry for all the pain I've caused resulting from my inability to multitask, which, compared to your awesomeness, may even seem pathetic sometimes), but at least you can say you have a PhD student who (with all her imperfections) is entirely your creation, and whom you made in your image and likeness. The end result may not exactly be what you wanted, but I hope it'll be fine anyway. ;-) Now what you (and me too :-P) have been looking forward to is here: you can finally get rid of me. We may stay friends, though – after all, they say that if a friendship lasts longer than seven years (and you did grow to be my nearest dearest friend in the meantime), it will last for a lifetime. And after all the time (nearly twelve years) that has passed since we got to know each other in the course of an administrative problem with my registration to your "sávos" phonology course, you may still think you will be able to shake me off once I have submitted and defended this, but I guess I will be sticking around.

Thanks for all. <3

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1. Introduction

The Gileadites captured the fords of the Jordan leading to Ephraim, and whenever a survivor of Ephraim said, "Let me cross over," the men of Gilead asked him, "Are you an Ephraimite?" If he replied, "No," they said, "All right, say 'Shibboleth.'" If he said, "Sibboleth," because he could not pronounce the word correctly, they seized him and killed him at the fords of the Jordan.
(Judges 12:4–6)

1.1 Aims and basic concepts

The present dissertation deals with the acquisition of non-native pronunciation patterns, focussing on one specific non-native accent: Hungarian-accented English. The analysis is concerned with how factors of different types (the two main types being phonological and non-phonological) contribute to the degree of an individual's foreign accent, and in so doing it touches upon the topic areas of phonology, phonetics, language acquisition, contactology, as well as a bit of sociolinguistics. The narrowest possible theme of the dissertation could be defined as second language (L2) phonology, or to be more precise, foreign language (FL) phonology (though this latter phrase is much less frequently used in the literature because the term "L2 phonology" is used to refer to both the cases of L2 acquisition and FL learning – the question why it is important to make this difference will be addressed in Section 1.2.2).

Although the development and features of non-native accents of languages (or foreign accent in general) share numerous language-independent similarities,[1] the work will focus on one particular case of foreign accent: the patterns found in Hungarian learners' English pronunciation. Throughout the text whenever referring to Hungarians' pronunciation of English (or Hungarian-accented English, i.e., English spoken with a characteristic Hungarian accent), the term "Hunglish"[2] will be used, disregarding its rather non-professional connotation for the mere sake of brevity.

The aims and objectives of this work are threefold. Firstly, its purpose is to contribute to a better understanding of phonological variation through a detailed examination of the features of Hunglish and how phonological and non-phonological factors differently contribute to the

[1] These similarities will be among the first issues to be discussed following the introductory sections (in Chapter 2).

[2] "Hunglish" is often used in a broader sense to refer to the interlanguage spoken by Hungarian learners, which, in addition to phonology and phonetics, also subsumes aspects of morphology, syntax, semantics as well as the lexicon, but since this work is concerned exclusively with pronunciation, "Hunglish" will refer to the accent of Hungarian learners of English.

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emergence of Hungarian learners' varying degrees of foreign accented English pronunciation. Secondly, the project also aims to show that the high degree of variation found in non-native accents parallels the variation found in native pronunciation varieties, as the majority of the factors that affect non-native contexts operate in native contexts in the same way, and this is what explains that similar patterns can be observed in independently emerging intermediate language systems (e.g., creoles and interlanguages). Thirdly, and finally, it is also the aim of this work to provide a detailed description of Hunglish, first by giving a comprehensive overview of all of its potential features, that is, those Hunglish pronunciation errors which are predictable from the differences between the sound systems of English and Hungarian (see Chapter 3), and later by examining actual Hunglish pronunciations through empirical data (see Chapter 5).

1.2 A few preliminaries

Before setting out, it is important to make a few preliminary remarks, some of which provide background information on the choice of topic (which requires some explanation), while others are needed to elucidate some of the beliefs and principles that will underlie the whole project. Remarks of this latter type are necessary because at some points of the discussion I will deliberately avoid following routines applied in the literature on L2 phonology, and the rationale behind these decisions needs to be perfectly clear. Consequently, the whole of section 1.2 will not be devoid of the first-person singular perspective and personal voice, but the tone of the text will be more objective again from Chapter 2 on. The preliminary issues to clarify are listed in the subsections below.

1.2.1 Why Hunglish?

This might seem obvious and therefore unnecessary to explain in the case of a Hungarian author, but there is more to this than pure personal interest. Namely, two reasons contributed to the choice of Hunglish as the focus (apart from the obvious personal interest stemming from Hungarian being my L1).

Firstly, Hunglish is commonly considered an easy-to-understand foreign accent of English, at least it is not likely to cause as many intelligibility problems as many other accents do. This is mostly due to the fact that English and Hungarian are closer to each other in terms of their phonological systems than English and other L1's heavily represented in the literature on non-native accents of English, and therefore Hunglish might not constitute as much of an

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interesting case of foreign accent as many other interlanguages (especially those where the syllable structure or phoneme inventory of the L1 is so distinct from English that the repair strategies applied by the speakers make their foreign accent of English unintelligible). This work intends to show that despite the smaller chance to be found interesting enough to research, Hunglish has at least as much to offer as any other non-native accent of English.

Secondly, it follows from the previous point that Hunglish is severely underresearched. There are only a handful of studies available which deal exclusively with empirical data on Hunglish (Altenberg & Vago 1983, Bunta & Major 2004, Gósy et al. 2016, Tóth 2011), and some others which only partially focus on Hunglish (Archibald 1998, Bloem et al. 2016, van Heuven 2016) – with this I have provided the full list of the papers I know of which discuss any Hunglish data (not including in my own contributions).

It inevitably follows from the extremely small number of studies on Hunglish that they are so varied in terms of the pronunciation issues examined, the participants involved, as well as the methods applied in the research, that they are hardly comparable to one another. Altenberg & Vago (1983), for example, is one of the most widely cited papers on Hunglish (if not *the* most widely cited paper on Hunglish), but the lack of technical advancements available at the time of writing that paper makes its observations (which even include subtle phonetic details) seem rather impressionistic from today's perspective. Bloem et al. (2016) discusses indirectly obtained data from the well-known website Speech Accent Archive: its conclusions are not drawn based on the recordings available on the website, but the transcriptions done by different judges, and therefore the consistency of the transcriptions (which would ensure the reliability of using them in research) is not necessarily guaranteed. Gósy et al. (2016) is not easy to compare to other studies on Hunglish, either, as it focusses on filled pauses – a feature that does not solely belong to the topic of foreign accent, but it is also related to pragmatics and psycholinguistics.

As for the participants of the studies on Hunglish, Gósy et al. (2016), Tóth (2011) and van Heuven (2011) examined Hungarian learners who learnt English in a classroom setting (the first study involved learners from secondary schools and universities, while the participants of the other two are Hungarian university students of English). The other studies focus on L2 environments, that is, Hungarian participants living in English-speaking countries, but this type of learning setting is not considered a special case in the papers and no research on Hunglish points out that L2 speakers need to be consistently distinguished from those speakers who stay within their home countries and learn the target language in a classroom setting only (this is to be discussed in Section 1.2.2).

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The present work aims to fill all the gaps described above as well as contribute to the small body of research available on Hunglish.

1.2.2 Distinguishing between L2 and FL

In the literature of language acquisition, there are two terms used to refer to a language spoken which is other than one's first language: second language (L2) and foreign language (FL). As the mere existence of the two different terms reflects, originally they used to be distinguished, the former type of non-first language being used in the locale of the community that speaks it (and often even having an official status in the country where it is spoken), while the latter is learnt and used in the classroom only. Nowadays, however, authors often fail to make a distinction between the two terms: some sources prefer using both at the same time ("L2/FL"), pointing out that the difference does not matter, while other ones (which are the majority) use the terms interchangeably, or even more often, they use "L2" to refer to both cases, reflecting that the difference has faded and the two terms have merged, resulting in that "L2" is used simply to mean the target language learnt or acquired, irrespective of the learning setting. The distinction is retained only when specifically dealing with social or political issues where the difference *does* matter (i.e., in sociolinguistics and language policy), but not in the field of language acquisition as it has been proved that both types of acquisition go through similar stages and require the same cognitive and mental phenomena.

The approach adopted here will be based on the claim that overlooking the difference between L2 and FL (at least in the field of pronunciation acquisition) is so detrimental to the conclusions drawn from any analyses that the distinction is crucially important to make right from the start of any research on interlanguage phonology. Even some basic concepts usually discussed in the field of L2 acquisition are linked to one setting or the other only: for example, certain widely researched language-external factors (such as "age of arrival" and "length of residence", commonly abbreviated as AoA and LoR, respectively) are entirely irrelevant in the case of FL learning and are only interpretable in an L2 setting (the effect of these as well as other language-external factors will be discussed in Chapter 4).

In what follows, I will provide a brief overview of the most important differences between L2 acquisition and FL learning, which have an enormous influence on how successful the acquisition of pronunciation can be under the two different circumstances, and which therefore justify the need for making the distinction. The list of differences will follow Szpyra-

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Kozłowska's argumentation (2015: 33–39), and the examples will be described with a typical Hungarian setting in mind.

- The pronunciation model: One of the most salient differences between an ESL and an EFL setting is that in the latter the teacher may be the learners' most important (if not the only) pronunciation model, and the learners' exposure to spoken English might even be limited to their teacher's English speech in lessons plus the recordings listened to in the course of listening activities[3]. As the teacher's L1 is usually the same as that of the learners (native speaker teachers are not common in Hungary), the learners are exposed to a non-native variety of the target language, which (especially in the case of those learners who do not deal with English outside the classroom) means that they are forced to pick up pronunciation features from a (potentially) distorted accent model. None of these "dangers"[4] are relevant in an ESL setting.[5]
- The learning setting and the type of exposure: As FL learning takes place in the classroom only, with no direct contact with speakers with the target language (as opposed to L2 acquisition, which occurs in a naturalistic setting), an FL learner is more exposed to written than to spoken English. As spelling is known to be able to profoundly influence pronunciation,[6] an FL learner's accent is likely to display various spelling pronunciations, which is out of the question in the case of an L2 learner, who has virtually unlimited exposure to spoken English, and limited access to its written form, which is therefore unable to negatively affect their pronunciation.[7]

[3] Recent advancements in technology may suggest the opposite (viz. that the claims mentioned in this bullet point were only true until decades ago), but informal experience shows that (at least in Hungary) the high exposure to native samples through the internet and other media has not necessarily brought about radical improvement Hungarian learners' pronunciation (or language proficiency in general). In addition, what the internet can offer in terms of quality and quantity of exposure still pales in comparison to being immersed in an L2 environment.

[4] It is beyond the scope of the discussion here to take sides in the debates concerning native speakerism and to judge if being exposed to a distorted accent model is to be considered a danger at all. The controversial issue of pronunciation models is elaborated on in Szpyra-Kozłowska (2015: Section A.1.4).

[5] It is possible though to be exposed to a distorted pronunciation of an L2 even in a naturalistic setting: second-generation immigrants may pick up foreign-accented pronunciations in their direct environment (e.g., from first-generation immigrant parents).

[6] See Section 3.6.

[7] It is worthy of note, however, that spelling pronunciations (especially of less frequent words, such as geographical names and other proper nouns) may appear even in native speakers' speech. It is also not uncommon that originally

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- Language use: It is not only the FL learner's exposure to English that is limited to the classroom, but the use of the language as well, which has an even smaller chance of happening outside the classroom. While an L2 learner is forced to use the language in everyday situations, an L1 learner's opportunities to practise speaking English (and thus improve their pronunciation) are limited to classroom activities in lessons, and they might only utter a few sentences per week only.
- Motivation: There are sharp differences in the type of the learners' motivation as well. An FL learner's motivation is predominantly instrumental, therefore the goal of language learning is likely to be limited to passing language exams. This negatively affects pronunciation due to the so-called backwash effect: as pronunciation is not assessed at language exams in Hungary, school work (and thus the learner's attention) focuses on other, (in their opinion) more important aspects of the language. In L2 environments, integrative motivation has at least as much as, if not even more influence, as acquiring a pronunciation close to the target is an important part of immersion.[8]

Studies focussing on L2 settings do not only dominate the literature on non-native accents of English (thus including Hunglish), but also the speech samples available on websites such as the Speech Accents Archive and the International Dialects of English Archive (IDEA), as almost all of the speakers on both sites were either living in an English-speaking country at the time of the recording or have spent considerable time there (except Speakers 8,[9] 12 and 13 on the former site). The participants of the empirical studies to be presented in Chapter 5 are all FL learners of English, who learnt English within Hungary in a classroom setting only, and this will be taken into consideration when interpreting the results of the experiments.

1.2.3 Treating grammatical and non-grammatical factors separately

It is self-evident that foreign accent is influenced both by language-internal and language-external factors (the most influential examples include L1 transfer and a whole set of factors

irregular forms are being taken over by spelling pronunciations (e.g., *nephew* /ˈnevjuː/ → /ˈnefjuː/, *forehead* /ˈfɒrɪd/ → /ˈfɔːhed/, etc.).

[8] Here we disregard the case of those speakers who deliberately retain a thick foreign accent because they believe that an easily recognisable foreign accent is part of keeping their national identities (this issue will be briefly mentioned in Section 4.3, though).

[9] It is a marginally relevant fact, but Speaker 8 should be excluded from any type of research, analysis or statistics, as she is an 86-year old lady who started to learn English on the day the recording was made.

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collectively referred to as individual differences in SLA, respectively). It is less evident though how exactly the various factors co-determine the degree of one's foreign accent. Very often no distinction is made between these two types of determinants, and the role of L1 is treated as having an equal status with such learner-related factors as aptitude and motivation.

The argumentation of the present work will be based on Coetzee's (2016) constraint-based model of phonological variation, according to which grammatical and non-grammatical factors (which correspond to what have been dubbed language-internal and language-external determinants here) differently contribute to variation in that variation is grammar-dominant: grammatical factors are responsible for the formation of the variants (which are incorporated into the constraints), while non-grammatical factors only influence the frequency of the variants, and are not able to create new variants.

The analyses of data throughout the thesis will follow the claim that it is not only necessary to take into account factors of both kinds, but the different types of determinants are also to be treated differently. As reflected in the title, Coetzee's grammatical and non-grammatical factors will be referred to as phonological and non-phonological instead, for the simple reason that the work deals with pronunciation only, and every grammatical factor under discussion will be phonological.[10]

1.2.4 The interpretation of "foreign accentedness"

Perhaps the most important preliminary issue to clarify is how the notion of foreign accentedness will be interpreted throughout the whole dissertation, since this is what deviates the most significantly from how the term is typically used in research on interlanguage phonology.

What is usually measured in almost all foreign accent studies is *global* foreign accentedness, which can be tested with the use of Likert scales, where the smallest number on the scale refers to a very strong foreign accent (or even unintelligible speech), and the largest number is to be chosen if the pronunciation sample to be evaluated sounds like a native speaker. The number of points between the two ends of the scale usually varies, but according to Piske et al.'s review (2001), the 5-point Likert scale is used most often in studies on overall foreign

[10] There are grammatical factors influencing foreign accent that are not (strictly) phonological – as will be seen in Chapter 5, some morphological (or morphophonological) factors may also affect the patterns found in non-native accents.

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accentedness, though both smaller and bigger scales have been used too, as well as continuous scales (moving a lever over a 10-cm-wide area).

The judges rating the recordings are usually native speakers of the target language who, depending on the purposes of the experiments, may or may not be professionally trained in phonetics and phonology. The method of relying on native speakers' judgements of overall foreign accentedness will be treated with doubt throughout the dissertation: I completely avoided this method in my own experiments (to be described in Chapter 5), and whenever data obtained through such a method are discussed throughout the thesis, they will always be viewed with a certain amount of scepticism. The reason for this is that, at least in the way I see it, the benefits of this method lie much more in its practicality than in its reliability.

Its advantage is that it is a quick and relatively easy-to-administer method which easily expresses accentedness in a numerical format, which is ready to use in statistical analyses (e.g., it allows for analyses in which we test how certain pronunciation features correlate with the degree of overall accentedness). However, its drawbacks outweigh its advantages – even Piske et al.'s (2001) review of the elicitation techniques used in foreign accent studies points out that the validity and reliability of the various scales used (which are so numerous as a result of the lack of a standardised means of measuring foreign accentedness) is debatable.

It is perhaps an even more important disadvantage of Likert scales (and measuring global foreign accentedness in general) that it is extremely subjective, especially considering how much depends on whether the native speaker judges are professionally trained or not – untrained judges, for instance, might mistakenly attribute certain non-standard pronunciation features to foreign accentedness (Huszthy 2019a: 143).[11] In addition, research has also shown that this also depends on the level of expertise of the judges, as inexperienced raters have been found to perceive a higher degree of foreign accentedness than experienced ones (Thompson 1991). Concerns like these are likely to have played a role in that it is gaining more and more recognition that hearer perception is not as reliable as its widespread popularity might suggest (cf., e.g., Baese-Berk et al. 2020).

[11] Huszthy (2019a: 143) has found that one third of the raters involved in his experiment judged the accent of Csángó speakers (a dialect of Hungarian spoken by an ethnographic group living in parts of present-day Romania) as being foreign-accented Hungarian. Although this particular misjudgement might be explained by the raters' young age (they were 11-year-old schoolchildren), it often happens in informal contexts that a non-standard dialect of Hungarian is mistaken to be a non-native variety even by adults.

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For the above reasons, foreign accentedness will not be regarded throughout this thesis as an overall characteristic. The basic claim will be that the features of a non-native pronunciation variety of a language are almost entirely predictable (most instances of the few unpredictable characteristics fall under the category of universal unmarkedness, i.e., when the source of a pronunciation feature deviating from the target is not L1 transfer, but the fact that it is universally unmarked – this issue will be elaborated on in Chapter 2), and each potentially problematic pronunciation feature is to be examined separately and evaluated as to how far it is from the native target. This way accentedness is pictured as an extraordinarily complex notion, and the "accentedness profile" of a given speaker is comprised of dozens of components, among which (near-)target variants, hypercorrect variants, forms transferred from the L1 and in-between examples of convergence are mixed.

The framework proposed here will adopt views advocated by Contrastive Analysis (see Section 2.1) and support the claim that the characteristics of a non-native pronunciation variety are not to be described based on actual pronunciations in the first place, partly because if one pronounces a target-like form, it does not mean that it cannot be problematic for other speakers (and thus be a typical feature of the interlanguage), and partly because there might be potential problem points whose environments are simply not encountered in the data examined. Actual pronunciations will be viewed as secondary to expected features, and thus the description of Hunglish will start out from listing all the potential pronunciation errors (which are equivalent to the predictable features of the interlanguage).

The effect of various factors (as will be seen in Chapter 5) will not be examined on overall foreign accentedness, but on certain pronunciation features chosen from the list of potential ones, and linguistic variation will display itself in that the potential features are determined by the phonetic and phonological features of the languages, but the extent to which each is attested in a particular speaker's accent will be dependent on an array of language-external factors (see Chapter 4), which will result in considerable intra- and inter-speaker variability.

1.2.5 "Trust issues"

It particularly requires explanation why certain methods and ideas that are otherwise common practice in L2 research will be noticeably avoided in my research. Two of the most important of these (in addition to measuring overall foreign accentedness with Likert scales, which deserved a separate subsection above) are others' data in general and data obtained through

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self-reported methods, towards which a general feeling of distrust will permeate my whole work.

The reason why I can especially identify myself with the motto "do not trust others' data" (advocated by laboratory phonologists, also adopted and supported by Huszthy 2019b: 19) is rooted in the countless occasions when I or fellow linguists come across incorrect data on our mother tongues in various international sources. Consequently, I have grown to approach language data in any type of linguistics research with scepticism, and now prefer to collect my own data in my experiments whenever possible.[12] This of course does not mean that my data are flawless. As it will be pointed out in Sections 5.1.5 and 5.2.6, my data are not devoid of both actual and potential mistakes, but I prefer to claim all mistakes in my work my own. Though it is unavoidable to draw conclusions even from others' data sometimes (as will happen in this dissertation too), my research will follow the motto of laboratory phonology to the greatest extent possible.

It is not completely unrelated to my suspicions concerning others' data that I also try to avoid working with self-reported data. Though this is impossible to fully follow when reviewing existing literature, the data I collect in my own experiments are as objective as possible, which manifests itself in that self-reports are not found among my research instruments. To illustrate this with an example: in the experiment described in Section 5.2, where the non-phonological factor of musical talent was examined, none of the data collection instruments requested the participants to provide information on how long they had been playing a musical instrument, how musical they considered themselves, and the like. Instead, as will be seen in Section 5.2.4.3, objective tests which numerically test one's actual musical talent will be used for measuring musicality.

I do admit though that this way I may cut myself off from intriguing aspects that could only be examined through self-reports, but I still insist on avoiding them as I am convinced that data obtained in this way are misleading for the following two main reasons: 1. it fails to take into account the possibility of different people having utterly different judgements about the otherwise same degree of a phenomenon (to stick with the example mentioned above, a more

[12] This does not only concern the fact that I listen to and analyse the sound recordings of Hunglish, but that it is also me who makes the recordings. Recordings on websites such as the Speech Accent Archive and the International Dialects of English Archive (IDEA) are not ideal for our purposes, especially the former because the sample read out by the speakers is too short to make generalisations (the text consists of 69 words, and thus the recordings are half a minute long each), but it is a disadvantage of both that almost all speakers are L2 speakers and the FL setting is underrepresented (cf. Section 1.2.2 above).

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talented musician with lower self-esteem and confidence may rate him- or herself as less musical than another with less talent but more confidence); 2. it is impossible to check the influence of other factors in the background (still using the same example, two musicians learning their instruments for the same number of years may have achieved different levels due to differences in their aptitude or motivation, or simply the intensity of the training).

1.3 Outline

The dissertation is structured as follows: After these introductory sections, the main body of the dissertation is divided into four major parts (Chapters 2–5). The first one of these (Chapter 2) is devoted to foreign accent in general: it presents the components and key features of interlanguage (i.e., what language-independent attributes characterise L2 phonological systems) and in what way these contribute to a better understanding of how a non-native pronunciation variety of a given language works.

Chapter 3 is concerned with the most important phonological factor in pronunciation acquisition, namely the role of the L1 (i.e., what features of Hunglish are attributable to L1 transfer). In so doing, it provides a comprehensive account of contrastive English and Hungarian phonetics and phonology, thus listing the features of Hunglish (i.e., all the potential pronunciation errors a Hungarian learner's accent of English might display based on the differences between the sound systems of the two languages).

Compiling such a collection from scratch is necessary because at the time of writing this text in 2020 I am not aware of any work that has set out to provide an (intendedly) exhaustive account of possible pronunciation problems encountered by Hungarian learners of English. The contributions made so far to the discussion of Hunglish have either touched upon a limited number of issues only or provided a description of Hunglish for purposes other than enumerating problem areas. For instance, although Nádasdy (2003), Nádasdy (2006) and Kovács & Siptár (2010) have discussed numerous difficulties faced by Hungarians, these works are concerned with the basics of English pronunciation, therefore the examples of Hunglish features and problems they provide are not part of a systematic comparison but are used mainly to help their readers (Hungarian learners and/or university students of English) better understand English pronunciation as well as improve their pronunciation skills. Another work containing descriptions of Hunglish is Nádasdy's (2000) dictionary for Hungarian learners (accompanied by the principles behind the compilation of the dictionary described in Nádasdy & Szigetvári 1996), but it focuses on segment substitutions as it was intended for pedagogical

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use in that it prescribes "a decent wrong way of pronouncing English" (Nádasdy 2015) for those Hungarian learners who do not aim at a native-like accent, yet wish to avoid being unintelligible when speaking English.

What the framework of this dissertation requires is a complete list of the potential features of a Hunglish accent (i.e., a list of those features of English pronunciation that may cause the Hungarian learner difficulties), provided through a contrastive analysis of the phonetics and phonology of the two languages, and not (yet) that of empirical data. In the whole of Chapter 3, it is only some of the examples that are (partly) empirical, as the illustrations of the more peculiar type are not hypothetical examples, but ones I have actually heard several times during my five-year experience as a university lecturer in English pronunciation and an even longer genuine interest in Hunglish. Chapter 3 thus does not only serve as a basic unit in the framework to be presented, but it may be used independently of this work by future studies as a starting point in what areas of Hunglish may be worth researching (some directions will be given in Section 6.4).

After the phonological factor of L1 transfer has been discussed in Chapter 3,[13] Chapter 4 sheds light on the most important language-external determinants affecting the success of pronunciation acquisition and the degree of foreign accent. Although these factors have been reviewed in a few existing studies (some of the most thorough and elaborate accounts can be found in Flege 1988 and Piske et al. 2001, but Major 2001's overviews are not insignificant either), two decades have passed since the publication of even the more recent ones of those, so they inevitably need revising and updating in certain fields (especially concerning the effect of musical talent). Chapter 4 can basically be regarded as an updated summary of Piske et al.'s (2001) widely cited review. The chapter does not only summarise the most important findings so far concerning the language-external factors that play a role in non-native pronunciation acquisition, but it also gives an overview of the methods for data collection and data analysis that have been used to examine the role of the factors in question, with the greatest emphasis on those determinants which were examined in the empirical studies to be presented in Chapter 5. Some parts of the discussion will therefore be referred back to in certain subsections of Chapter 5, as the choice of what methods to adopt in the experiments was made based on an evaluation of the pros and cons of the methods described in Chapter 4.

[13] Further phonological factors that are specific to the pronunciation feature examined will be discussed when presenting the results of the experiments in Chapter 5.

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The last major chapter (Chapter 5) turns to the analysis of empirical data by presenting the design, the implementation and the findings of two larger research projects. The first one of these is a study on the acquisition of non-rhoticity (i.e., acquiring a pronunciation variety in which the consonant /r/ does not occur in non-prevocalic phonological positions) by speakers in whose L1 all orthographic R's are pronounced. The second project is concerned with the acquisition of word stress patterns in an instance of language contact where the speakers' L1 displays fixed stress (and thus stress is unable to express meaning contrasts), but the target language spoken has variable stress and the rules of stress placement are only partially predictable.

The presentation of each experiment has the following structure: First, the pronunciation problem (i.e., why the phenomenon in question is particularly problematic in the contact of English and Hungarian) is described in slightly more detail than the difference is touched upon in Chapter 3. This is followed by a review of empirical studies that have examined the pronunciation issue in question in the contact of languages other than English and Hungarian. Then comes the presentation of the experiments, ending with interim conclusions and elaborating on the limitations of the studies.

Finally, the conclusions drawn from all the discussions and analyses are summed up in Chapter 6. Following a general summary, theoretical and practical considerations will be discussed in two separate sections, as the conclusions involve fundamental implications for both phonology and phonodidactics. The final section includes directions for further research, since the projects presented in Chapter 5 are two examples only that fit into the system introduced in Chapters 1–4, but this whole framework leaves numerous areas for continuation.

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2. The general characteristics of foreign accent

2.1 The basics: Interlanguage and its components

Non-native speakers of languages (especially if their first exposure to the target language happens beyond what is referred to as a sensitive or critical period[14] in the literature of language acquisition), will inevitably produce errors of various types (i.e., at all levels of grammar) in their L2/FL speech. The intermediate variety spoken by non-native speakers of a given language (i.e., non-native speakers' idiolects that deviate both from the L1 and the L2/FL, and are thus somewhere in between) has been called interlanguage since Selinker (1972) introduced the term. In what follows, we will be concerned with the peculiarities of the pronunciation aspect of interlanguage by casting light on some of those language-independent features of foreign accent that will be the most relevant to our discussion later.

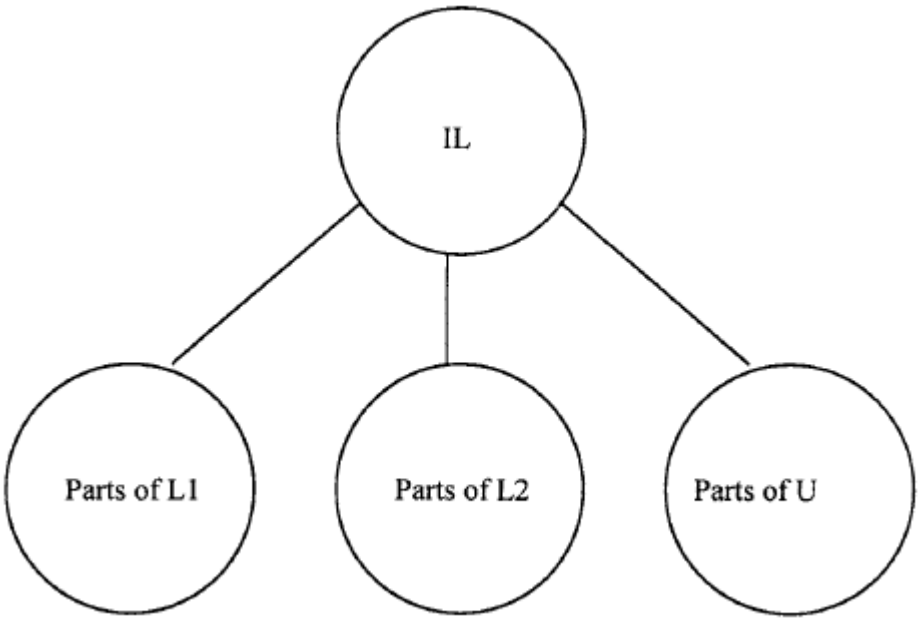

Figure 2.1: Major's (2001: 6) model of the components of interlanguage

According to Major's (2001) famous model (see Figure 2.1), interlanguage (abbreviated to IL in the figure) has the following three[15] components:

[14] See more on the age factor in Section 4.1.

[15] Major's model (and thus the discussion here too) is not concerned with the possibility of further languages (other FL's or an L3, L4, etc.) potentially affecting a particular interlanguage variety. This issue will not be taken into account throughout the thesis either, mainly because an average Hungarian learner rarely speaks multiple foreign

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1. “Parts of L1” can be considered the most important of all the three components: the sum of the features belonging to this category is what makes a particular foreign accent recognisable: for example, a speaker who mixes up /l/ and /r/ and applies extensive vowel epenthesis in their English speech is recognised as being Japanese; pronouncing an epenthetic vowel before word-initial sC clusters is typical of Spanish speakers; gemination of word-final single consonants in monosyllabic English words (accompanied by schwa epenthesis) is a characteristic feature of Italian-accented English; and so on. In other words, this category constitutes those pronunciation errors that are rooted in the phonetic and phonological differences between the L1 and the L2/FL, that is, when a non-native form is pronounced because a particular sound or a phonological rule is transferred from the L1 onto the L2/FL (this is called negative transfer or interference).

In the contact of a Hungarian L1 and English L2/FL, word pairs such as *vet* and *wet* or *bed* and *bad* pronounced the same, or *finished* ending in /ʒd/ are examples of a typical Hungarian learner’s interlanguage: the former example illustrates when a target language sound that does not exist in Hungarian is replaced by one that exists in the L1[16] (resulting in the target language minimal pair becoming Hunglish homophones), and the second one exemplifies the case where all segments in question exist in both languages, but it is due to a phonological rule (assimilation) as well as the role of spelling that is responsible for the pronunciation error.[17]

The phenomenon of L1 transfer was in the centre of attention when extensive work on Contrastive Analysis (a study field focussing on comparing and contrasting languages, often abbreviated as CA) was carried out during the 1960s. Advocates of a CA approach (Lado 1957 in particular, but cf. also Weinreich 1953, Haugen 1956, Moulton 1962, Lado 1964, Stockwell & Bowen 1965, Brière 1966, Brière 1968) held the view that all potential learner errors are due to L1 transfer, and thus any error can be predicted as well as explained based on the differences in the sound systems of the languages involved. The view received widespread criticism on

languages (those learners in whose case this aspect is worth considering are a privileged minority), therefore the issue is too special to be worth discussing. (The participants of the case studies presented in Chapter 5 do not speak any other foreign languages – apart from English – which may have influenced their pronunciations of English.)

[16] This claim is not as true of *bed* and *bad* as of *vet* and *wet*, because it is not obvious that the vowel of *bad* does not exist in Hungarian (it is not entirely clear what the vowel of *bad* is in English, or what the vowel of E is in Hungarian), but what is important (and relevant) here is the absence of the contrast between the two sounds in question (and thus word pairs like the ones in question) in Hunglish.

[17] See Chapter 3 for a systematic and thorough overview of the potential Hunglish pronunciation errors stemming from L1 transfer.

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various grounds and got redefined as a consequence of the concerns voiced, but it became evident after a while that there exist learner errors that cannot be attributed to L1 transfer (cf. the discussion on the third component of interlanguage below). With this realisation the fundamental claim of CA was eventually dismissed.

2. "Parts of L2" refer to native-like pronunciation features, which may have two different sources: First, they may be the result of positive transfer, i.e., when a target language form is not different from its equivalent in the L1. In the case of Hungarian learners of English, for example, the pronunciation of the sound [ʃ] is highly unlikely to cause any problems, as neither the articulation nor the distribution of this consonant differs significantly in the two languages (the sound exists in the inventory of both languages; there is no phonetic difference between an English and a Hungarian [ʃ]; the sound has no allophonic variants in either language; and there are no major differences in its distribution[18] in the two languages either that would cause difficulties for a Hungarian speaker of English).

Second, native-like elements may also occur in an individual's accent as a result of successful acquisition of the pronunciation feature: for instance, a Hungarian learner's English accent which features the correct pronunciation of the dental fricatives is only possible if the learner has learnt how to pronounce these sounds[19], as they do not exist in Hungarian.

3. "Parts of U" stand for universals and they refer to examples when a learner's pronunciation error is not an example of L1 transfer, but it is a result of linguistic universals, that is, a part of an innate Universal Grammar (Chomsky 1986). Although it is certainly possible that an error can be considered totally idiosyncratic,[20] many errors unattributable to L1 transfer are explicable (and may even be predictable to some extent) on the grounds that learners with a variety of different L1's make the same types of errors in the same L2/FL and that the same errors are made by children in the course of L1 acquisition (Major 2001: 3). This supports the innateness hypothesis, that is, the idea that children are born with an innate Universal Grammar.

[18] There are differences in the distribution of [ʃ] in English and in Hungarian in terms of its occurrence in consonant clusters: for example, word-initial clusters like [ʃp-], [ʃt-], [ʃk-], [ʃn-], [ʃl-], etc., which are well-formed in Hungarian, are not attested in English (except in a few foreign words such as *spiel* and *schnapps*). Also, English [ʃ] is less common before plosives in general than Hungarian [ʃ]: for instance, a word ending in [ʃt] in English is a past tense verb form, since this cluster is not available morpheme internally, but it is in Hungarian (e.g., *füst* [fyʃt]). However, these differences do not cause difficulties with English pronunciation for a Hungarian learner.

[19] Or if the learner lisps, but this is not strictly relevant here.

[20] Some of Altenberg & Vago's (1983: 437–438) observations of Hunglish are grouped into such a category.

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A notion closely related to universals is markedness – often what is meant by universals is equated solely with markedness-related phenomena (cf. the following section, viz. Section 2.2).[21] In a broader sense of the term (cf., e.g., Major 2001: 41), universals subsume a number of further (mostly non-phonological) issues, such as overgeneralisations and hypercorrections (the two are not unrelated), as well as sociolinguistic issues like intra-speaker variation depending on text category (i.e., the fact that the proportion of pronunciation errors is significantly higher in free conversation than when reading out a word list), to mention just a few examples that will be mentioned later, especially in the discussion of the empirical data presented in Chapter 5.

It is the combination of interlanguage components belonging to these three categories that creates the various idiolects of interlanguage, and it is the extent to which certain error types and native-like forms are represented in a variety that will be different in each individual speaker's foreign accent. The extent depends mostly on language-external factors, which are to be discussed in Chapter 4.

A final remark relevant to the components of interlanguage is that there is a significant overlap between L1 and U as well as L2 and U (as an error or a native-like feature might be universal as well), but the most peculiar case is when a seemingly inexplicable pronunciation feature is found in a learner's accent, that is, one that is part of neither the L1 nor the L2/FL. The next section delves more deeply into how markedness is able to account for such examples.

2.2 The notion of markedness and its role in pronunciation acquisition

The notion of markedness has been defined in a variety of different ways. The three most widely cited definitions of markedness (i.e., the criteria serving as the basis for evaluating a category as more or less marked than another one) are as follows:

- The definition based on implicational relations: In any linguistic system, the presence of a marked[22] category (a sound segment or a structure) implies the presence of less marked categories but not vice versa. (In other words, focussing on how to define

[21] The reason why a separate section is devoted to markedness is that it is not only highly relevant in the field of SLA in general, but it will have a fundamental role in some of the discussions in Chapters 5 and 6.

[22] For the sake of simplicity, the terms "marked" and "unmarked" will sometimes be used in the thesis as if they were discrete categories. In reality, markedness is a scalar property, therefore whenever a category is labelled "marked" throughout the dissertation, it is to be interpreted as "more marked (than another category)", and "unmarked" as "less marked".

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markedness: if the presence of a category implies the presence of another one, it is more marked.)

- The aspect of frequency of occurrence: Marked categories are less common in languages than unmarked ones are (or if a category exists in numerous languages, while another one is rare, the latter is called more marked than the former).
- The aspect of language acquisition and language impairment: Unmarked categories are acquired earlier in the course of L1 acquisition than marked ones (or if a category takes longer to acquire than another one, it is said to be more marked). Similarly, unmarked categories are retained the longest in the case of language impairment (such as aphasia).

The most widely cited examples illustrating the above definitions (which can therefore be regarded as the "classic" examples) are as follows: As for individual sound segments, there are languages which only have three vowels (viz. /i/, /u/ and /a/). More complex vowel systems also include these three; in fact, these three vowels can be found in the vowel inventory of nearly all languages, thus they are the most frequent and least marked vowels of languages. The presence of certain more marked vowels in a system implies the presence of certain less marked ones, but not vice versa – a detailed account is not relevant to us here and is therefore beyond the scope of the discussion, but for example, a language that has /y/ also has /u/ and /i/; one that has /ø/ also has /e/, etc. (though the former example is less interesting because /i/ and /u/ are one of the three vowels mentioned above that can be found in all vowel systems). It inevitably follows from this that the acquisition of a more marked vowel in a language is more likely to cause problems for non-native speakers of the language in question, simply because the vowel inventory of the learner's L1 may be less complex than that of the L2/FL and may not contain the vowel that is to be acquired.

Still with regard to sound segments, there exist languages whose segment inventory does not contain voiced obstruents, only voiceless ones, while no language has voiced obstruents only and no voiceless ones – voiced obstruents are thus more marked than voiceless ones. In a number of languages such as German or Polish, voiced obstruents do exist, but they do not occur in word-final position: a phonological rule systematically changes voiced obstruents into voiceless ones word-finally, this is dubbed final obstruent devoicing or simply final devoicing – the unmarked form displaces the marked one, which does not happen vice versa. The same conclusions can be drawn based on the third definition of markedness: in the course of language acquisition (in both L1 and L2 acquisition), voiced obstruents are acquired earlier/easier word-initially and word-medially than word-finally (it is easier to pronounce a voiceless consonant word-finally than a voiced one).

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Another often-cited example concerns syllable structure. The most unmarked syllable type is CV: there exist languages (such as Hawaiian) in which CV is the only syllable type. In languages allowing more marked syllable structures (CVC, V and VC), the presence of a more marked type implies the presence of the less marked one (though it is again not interesting if the less marked structure implied by a more marked one is CV, since CV is the least marked syllable structure and exists in every language).

Introducing such markedness phenomena into the field of SLA is credited to Eckman's (1977) famous Markedness Differential Hypothesis (MDH), which served as a partial solution to the criticism voiced against CA (cf. the previous section), as one of the arguments against the CA approach was that it is unable to account for the varying degrees of difficulty in terms of the acquisition of different pronunciation features. The MDH filled this gap as its main observation was that unmarked categories are acquired easier (and therefore earlier) than marked ones. Of course, this is far from being this simple – difficulty does not always go hand in hand with markedness, because beside markedness, similarity also plays a role in shaping how difficult a target language category will be. The details of how exactly the four possible permutations of markedness and similarity can predict difficulty is beyond the scope of the present discussion as it is too complex and not even relevant for our purposes.

Apart from accounting for differences in difficulty, markedness grew to be a central issue in at least one more area of SLA: it is able to explain some learner errors that are not part of either the L1 or the L2/FL in the contact situation. Cases where markedness (or rather: unmarkedness) accounts for an error unattributable to L1 transfer has been called "The Emergence of the Unmarked" (TETU, cf. McCarthy & Prince 1994). Such instances have been discussed in the field of Hunglish: Altenberg & Vago (1983: 433) observed final obstruent devoicing and stressed vowel lengthening[23] in their Hungarian participants' accent of English, and grouped these examples under the category "unmarked rule application". Relevant examples of the former include *ban*[t] *increases*, *en*[t] *of* in one of their subjects' accent, and *en*[t] in sentence-final position[24] pronounced by the other subject. No specific examples of the

[23] There is a third example they discuss in their paper, but it has been deliberately omitted from the list. This third example is two words (*sun's* and *difference*) pronounced with a [ts] at the end, described as a "natural assimilation process" (1983: 434). This is not supposed to be unmarked rule application, but successful acquisition of an L2 feature (the homorganic stop insertion rule).

[24] This last one is not even a perfect example, as the plosive at the end of *end* is voiceless in English. Although it is possible that the devoicing of [d] to [t] happened due to universal unmarkedness, it may as well have been an instance of successful acquisition of an L2 feature. These are the examples that illustrate what was discussed at

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latter phenomenon are mentioned in the paper, but stressed vowel lengthening concerns words like *decision* pronounced with a long vowel in the stressed syllable, which is interpreted as an instance of TETU because stress and vowel length often go hand in hand in languages (but not in English or Hungarian).

Here we have only overviewed the most widely cited, therefore "classic" examples of markedness, and those aspects of TETU that have been discussed in the literature on Hunglish – further issues will be examined later when interpreting the data gained in the case studies presented in Chapter 5 and drawing the conclusions in Chapter 6.

2.3 Further issues and closing remarks

There are a number of further (mostly language-external) characteristics of foreign accent that are relevant to the discussion of interlanguage phonology, but are less so in the present work. However, as most of these will be briefly touched upon in various parts of the discussions later, we mention them in a closing subsection. These remaining issues include the following: L2/FL influence on the L1 and first language loss, interlanguage fossilisation, the issue of similarity/dissimilarity and perception, and the pronunciation models debate (including the question of intelligibility and comprehensibility). A separate subsection will be devoted to each of these topics.

2.3.1 L2 influence on L1 and L1 loss

It is well known that it is not only the learner's L1 that may influence an L2/FL, but this may also happen vice versa, especially if the use of the L2/FL considerably outweighs that of the L1. L2 influence on L1 is more likely to be relevant in L2 settings, though it is not unimaginable either to be affected by this phenomenon in an FL environment either, provided that the use of the FL is sufficient enough to affect the learner's L1 (e.g., in late bilingualism, cf. Pavlenko 2000). In more extreme cases, L2/FL influence may even lead to first language loss (also called attrition), which means when learning an L2/FL causes deficiencies in one's L1.

As the present work is concerned with Hungarian learners' English pronunciation, going into more details about how exactly an English L2/FL may influence a Hungarian L1 would not be relevant to our purposes; it suffices to point out that whether a learner is able to resist L1

the end of Section 2.1, namely that there is significant overlap between the three components of interlanguage described by Major (2001).

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loss heavily depends on the same language-external factors as the ones affecting the degree of foreign accent in an L2/FL (cf. Chapter 4).

2.3.2 Interlanguage fossilisation

The term "fossilisation" was introduced into the field of SLA by Selinker (1972). Although several different attempts have been made to define what exactly the term refers to (cf. Fidler 2006), the basic concept of fossilisation (irrespective of the aspects the different definitions seem to disagree about) is that although interlanguage is most often in continual development (gradually getting away from a broadest form and closer to a native-like target), it will inevitably stop improving at a point during the acquisition process. The reasons behind the phenomenon are exceedingly complex and are not to be dealt with here in detail, however, we provide a summary of the key ideas behind fossilisation.

There are two main factors that account for the phenomenon of fossilisation: one is the Critical Period Hypothesis, according to which it is impossible to perfectly acquire a native-like accent of a language beyond a critical (or sometimes called sensitive) period (see Section 4.1). Learners whose first exposure to an L2 does not happen in their childhood or at least within the critical period are therefore doomed to failure, which is the key notion that discussions on interlanguage fossilisation are centred around: from the perspective adopted by descriptions of fossilisation (e.g., Han 2004), individual differences between learners are not to be measured in terms of how successful the learners are, but up to what point they are able to fight against inevitable failure. In other words, there is a point in the stages of each learner's acquisition of the target language beyond which development simply ceases to continue; what is different in individual cases is when exactly fossilisation happens in the acquisition process.

The other factor accounting for fossilisation (which is not completely unrelated to the Critical Period Hypothesis) is the idea that a learner's L1 unavoidably affects the L2/FL, and not even the most successful learners' pronunciation can be left unaffected by L1 transfer.

Although it has been claimed that it is possible to predict whether fossilisation will come into effect relatively early or late in a particular learner's case[25], or even delay its effects, fossilisation has been found to affect learners irrespective of the quality or quantity of exposure to the target language or even affective factors such as motivation – learners who have spent considerable time in an L2 environment and/or who are highly motivated to improve their

[25] Early starters and learners with L1's whose sound system is less distinct from the target language are less likely to experience the effects of fossilisation too early (cf. Han 2004).

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pronunciation skills are not necessarily less prone to being affected by fossilisation (Han 2004). This may have contributed greatly to the fact that conscious efforts have been made to take into account the effects of fossilisation in the field of language teaching methodology when designing language teaching materials (Acton 1984).

2.3.3 The similarity/dissimilarity issue and the role of perception

The issue of similarity/dissimilarity and the role of perception are closely connected: contrary to what might seem more logical at first sight, similar sounds are more difficult to acquire than different ones, because the more subtle the difference is between an L1 and an L2/FL sound, the more likely it is that the learner will not even perceive the difference between them (i.e., the L2/FL sound will be perceived as being the same as an L1 sound).[26]

On the other hand, an L2/FL sound being noticeably different from the L1 equivalent is more likely to be successfully acquired by a learner, for the simple reason that if the target language category is easy to notice, then perception supports acquisition. To give an example in the field of Hunglish, a Hungarian learner is not likely to notice that English [d] is alveolar while Hungarian [d] is dental, however, most learners do notice that English R is phonetically different from Hungarian R[27] and that [t] is aspirated in most environments, as these are the two features of English that most frequently occur in English-accented Hungarian (as a result of L2/FL influence on L1 or first language loss, see Section 2.3.1) or in the pronunciation of Hungarians mocking an English accent.

The similarity/dissimilarity distinction is far from being clear-cut, but a more elaborate discussion on the matter (as already pointed out in the previous section) is beyond the scope of our work.

[26] Intriguingly, this is completely independent of the functional load of the difference: the vowels of *bad* and *bed* are contrastive, but the difference still appears to be difficult to perceive (let alone acquire), while the quality of R in English (to be discussed in more detail in the next paragraph), which does not account for meaning contrasts, is among the features that are the most easily perceived and most quickly acquired by Hungarians.

[27] English R is a postalveolar approximant [ɹ] (or a retroflex approximant [ɻ] in some American varieties), while Hungarian R is an alveolar tap [ɾ] (as in *répa*) or a trill [r:] (as in *berreg*) – see Section 3.2.1.

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2.3.4 The question of intelligibility and the pronunciation models debate

Throughout the whole thesis, the reference accent to which the features of Hunglish will be compared is Received Pronunciation (RP),[28] with General American (GA) also mentioned whenever it differs markedly from RP. (Also, wherever the label "English" is used, it refers to these two standard pronunciation varieties.) However, the fact that the variety serving as the point of reference for a learner should be a standard (or even a native) one is not obvious in the field of language learning in general, but perhaps it is even less so in pronunciation acquisition. This brings our discussion to the question of pronunciation models, which is one of the most controversial issues surrounding non-native accents.

Although the questions related to the goal of pronunciation learning and the entire pronunciation model debate are not relevant to any of the discussions throughout this thesis, we cannot avoid providing a brief account of these issues for at least two reasons. Firstly, the term "intelligible" (or "unintelligible") will quite frequently be (in fact, it has already been) used in various parts of the dissertation, which requires some clarification as to what exactly is meant by intelligible pronunciation, and this is directly linked to the question concerning pronunciation models. Secondly, an overview of all these issues, no matter how short, will contribute to a better understanding of the situation in Hungary with respect to language teaching, and thus the ways in which a Hungarian learner's English pronunciation is shaped throughout the learning process.

The debates surrounding pronunciation models are rooted in the fact that English is spoken all around the world and has a vast number of varieties, native and non-native alike. This has been described by Kachru's (1986) famous model, according to which the global spread of English can be illustrated by three concentric circles: the Inner Circle, the Outer Circle and the Expanding Circle. Areas belonging to the Inner Circle (which, as its name suggests, is the one located in the middle of Kachru's diagram) are the ones where English is spoken as an L1 and from where English has spread around the world – namely the British Isles, the US, Canada, Australia, South Africa and New Zealand. The Outer Circle comprises certain parts of Africa and Asia (such as Nigeria and India), where English has an official status (i.e., it is the language of education, law, etc.), and is thus spoken as an L2. The outermost circle, called The Expanding Circle, is where English is used as an FL (so basically, the third circle represents the rest of the world).

[28] This is true of both the potential features of Hunglish discussed in Chapter 3 and the empirical data to be presented in Chapter 5.

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The question of which variety will be taught as the norm in language education largely depends on which of the three circles a learning situation belongs to: as pointed out by Szpyra-Kozłowska (2015: 9), while in the Outer Circle certain local varieties[29] have become the norm, in the Expanding Circle native varieties, usually one of the British or the American standard, have been used as the variety to be taught to learners. Whether it is British English (and thus RP) or American English (and thus GA) that is to be chosen is (at least partly) influenced by geographical distance from England or the US (Szpyra-Kozłowska (2015: 9) – this is what explains that in Europe (and thus in Hungary too), the book market was flooded by British publishers, and therefore a Hungarian learner's pronunciation is likely to be shaped predominantly by RP. It is of course possible that GA affects a Hungarian learner's accent through films and other forms of media, however, considering all the characteristics of the learning setting (as described in Section 1.2.2), we can still expect RP to be more dominant.

The fact that RP is the norm taught in the EFL classroom in Hungary, however, does not mean that this is the variety the learners are exposed to in the EFL classroom to the largest extent. Firstly, it is the teacher (who has a non-native accent of English) who serves as the primary pronunciation model (cf. Section 1.2.2). Secondly, language course books seem to have adopted the view that the importance of native norms has significantly declined with the global spread of English: the accents featured in listening activities in contemporary course books are not always native models, but various non-standard and even non-native accents are represented in the sound recordings, and standard models are retained only in activities focussing on production.

The fact that non-native users of English have vastly outnumbered native ones, and no native speakers are involved in much of the communication in English today[30] has led to the realisation that instead of aiming to acquire a native-like pronunciation,[31] the goal of pronunciation teaching and learning should be no more than to achieve mutual intelligibility between the speakers. As a consequence, increased attempts have been made to reconsider pronunciation teaching along the new realisations (e.g., Thir 2016).

[29] These local varieties used as the norm in education in the Outer Circle came to be referred to as "New Englishes".

[30] That is, English is used today as a "lingua franca" (i.e., as a means of communication mainly between non-native speakers of the language).

[31] This view is referred to as the "nativeness principle" (cf. Levis 2005).

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Although intelligibility (also referred to as comprehensibility)[32] had been in the centre of attention much earlier than these views on the goals of pronunciation instruction were expressed (cf., e.g., Kenworthy 1987), Jenkins's (2000) description of the pronunciation of English as an international language served as an important milestone in the pronunciation models debate. Jenkins proposed the idea of a "Lingua Franca Core", which comprises those properties of English pronunciation that are important to acquire in order to achieve mutual intelligibility. These properties are therefore to be seen as the priorities in pronunciation teaching and learning, and the features that are outside the core are not important to acquire as they do not hinder intelligibility between the interlocutors. Examples of features belonging to the core are aspirated voiceless stops and pre-fortis clipping, while the correct pronunciation of the interdental fricatives and that of dark-L are outside of the core. A more detailed account of the Lingua Franca Core is not relevant to our purposes, however, it is obvious even from a few examples that the collection of features belonging to the core does not seem to (fully) coincide with the properties which are able to express meaning contrasts. This may have had a role in that Jenkins's idea has received widespread criticism, but it is beyond the scope of the discussion here to delve more deeply into the debates, let alone critically evaluate either the core itself or the criticism voiced against the idea. What is relevant to us is that concerns about native pronunciation models have received increased attention in the past two decades (cf. Kaur 2017, Munro 2008, Thomson 2015, etc.), and they inevitably influenced speakers of English in Hungary too (teachers and learners alike).

This closes the discussion of the basics of foreign accent in the light of Hunglish. In the next chapter, we turn to the features of Hunglish predictable from the phonetic and phonological differences between Hungarian and English, that is, the potential pronunciation errors a Hunglish speaker may make due to L1 transfer.

[32] The terms intelligibility and comprehensibility are often used interchangeably, though a distinction is made sometimes between the two, the former referring to the recognition of individual words, and the latter to understanding the message of the whole utterance.

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3. The predictable features of Hunglish

3.1 Preliminary remarks

This chapter will provide an overview of the predictable features of Hunglish, that is, all the potential pronunciation difficulties that can be anticipated in the case of Hungarian learners of English, based mostly on the differences in the sound systems of English and Hungarian. In addition to problems rooted in L1 transfer, predictable spelling pronunciations will also be considered (as will be seen in Section 3.6), because they do not only significantly contribute to the extent to which the anticipated Hunglish forms based on L1 transfer will appear in a learner's accent, but they are also able to account for mispronunciations that would not occur as a result of L1 interference. Spelling pronunciations are especially (but not exclusively) typical of an EFL setting (cf. Section 1.2.2), but throughout this chapter the difference between ESL and EFL will not be considered, as the problem areas to be listed may equally occur in both settings – it is only the extent to which the pronunciation errors will be attested that will be influenced by factors stemming from the differences in the setting as well as many other language-external factors (cf. Chapter 4).

The contents of this chapter can either be interpreted as a list of potential Hunglish features or as a description of a hypothetical Hungarian learner of English whose pronunciation of English displays all the potential problem points (i.e., whose pronunciation is the broadest possible form of Hunglish).[33] It is to be pointed out though that no such learner exists, as every speaker's (even beginners') pronunciation displays a mixture of target-like elements, forms based on L1 transfer, hypercorrect pronunciations, as well as so-called convergence variants (i.e., forms which are intermediate between the FL target and the corresponding L1 equivalent, cf. Pavlenko 2000).

The main function of the systematic comparison to be presented is that this serves as a basis for accent analyses in the field of Hunglish, since it helps to choose what specific pronunciation characteristics are worth testing when examining the effect of language-external factors on Hunglish.

[33] As pointed out by Nádasdy (2006: 14), similarly to how we can picture an idealised learner (or a native speaker) to describe what counts as "good" pronunciation, the method of taking an imaginary learner who commits *all* potential pronunciation errors can be used to gain an insight into the various types of pronunciation errors, through which the components of pronunciation can be determined. Here, this approach will be adopted in order to provide a description of Hunglish.

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The analysis will be carried out from the point of view of English, the description of which will mostly be based on Balogné Bérces & Szentgyörgyi (2006). In most cases, the label "English" will refer to both standard pronunciation varieties (RP and GA), as in terms of most differences from Hungarian the two standard accents of English do not differ; however, differences between RP and GA will be mentioned whenever a distinction is relevant or necessary.

As for transcriptions used in the chapter, the so-called Gimsonian type of IPA (used in, e.g., Wells 2008) will be used for English, and one of the most widespread IPA versions (used in, e.g., Forró 2018) for Hungarian. The transcriptions used will primarily be of the broad type, occasionally with those subphonemic details only that are relevant to the discussion. For this reason, the traditional distinction between slant brackets (standing for a phonemic or broad transcription) and square brackets (denoting phonetic or narrow transcriptions) will be disregarded – throughout the text, square brackets will be used to indicate IPA transcriptions (mostly due to the fact that some transcriptions might contain certain subphonemic details, as pointed out above), the sole purpose of which will be to separate transcriptions from running text. In some cells of the tables,[34] which contain IPA symbols only and no orthographic forms, brackets may be omitted altogether. When describing target language vowels, especially if they are merged in a Hunglish accent, Wells's (1982) Standard Lexical Sets will also be frequently referred to.

The chapter is structured based on the levels of investigation traditionally applied in the field of Contrastive Analysis (cf., e.g., Weinreich 1953). As for segmental features, Section 3.2 deals with the segment inventories (with consonants and vowels discussed separately in two subsections), 3.3 with aspects of phonotactics, and 3.4 with laryngeal features. Suprasegmental features will be discussed in Section 3.5 (separating stress and intonation in two subsections), which is the last section that presents pronunciation issues based on L1 transfer. Section 3.6 is concerned with what will be referred to as "the odd-factor-out", namely spelling, which exhibits different behaviour in that it does not fit into Coetzee's (2016) model of variation described in Section 1.2.3 – as will be seen, spelling (which is a non-grammatical factor) behaves like grammatical ones as it is able to account for the formation of variants, and does not just determine the frequency of the variants like other non-grammatical factors do.

[34] The tables and figures used were either taken from Balogné Bérces & Szentgyörgyi (2006), or were created by me or Katalin Balogné Bérces (or by the two of us together) as part of the study material for the various courses on English pronunciation we teach.

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3.2 Segment inventories

3.2.1 Consonants

Let us begin the contrastive analysis of English and Hungarian phonetics and phonology by comparing the segment inventories of the two languages. First, we will discuss the consonant phonemes of English and Hungarian.

plosives				affricates				fricatives				nasals		approxi-mants	
voiceless		voiced		voiceless		voiced		voiceless		voiced					
E	H	E	H	E	H	E	H	E	H	E	H	E	H	E	H
[p] pit	[p] pék	[b] bit	[b] bab	–	[ts] cég	–	([dz])[35]	[f] five	[f] fél	[v] vine	[v] vő	[m] me	[m] máj	[l] let	[l] lóg
[t] tip	[t] tál	[d] do	[d] dob	[tʃ] chart	[tʃ] csőd	[dʒ] joy	[dz] dzsip	[θ] thick	–	[ð] this	–	[n] nice	[n] nép	[r] run	[r] rég
–	[c] tyúk	–	[ɟ] gyík					[s] say	[s] szó	[z] zoo	[z] zúg	–	[ɲ] nyúl	[j] yod	[j] jég
[k] key	[k] kör	[g] go	[g] gép					[ʃ] shoe	[ʃ] sőt	[ʒ] beige	[ʒ] zsák	[ŋ] sing	–	[w] we	–
								[h][36] hot	[h] hév						

Table 3.1: Consonant phonemes in English and Hungarian

Table 3.1 shows the consonant phonemes of English and Hungarian, organised according to manners of articulation (mostly because in terms of places of articulation, there are cases where the English and Hungarian variants differ slightly (see below). Gaps (indicated with cell shading) refer to those cases where a consonant phoneme is absent from the inventory of either English or Hungarian – such shaded cells in the English columns (abbreviated to "E" in the table) indicate potential problems for English learners of Hungarian (which is less relevant for the present discussion), while those in the Hungarian columns (marked with "H") are of primary

[35] The monophonemic status of the [dz] sequence in Hungarian is debatable (cf. Forró 2018).

[36] The categorisation of [h] as a fricative is debatable. However, as the manner of articulation of [h] is irrelevant from the point of view of a contrastive analysis of English and Hungarian, the traditional classification is used.

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concern to us here as potential difficulties for Hungarian learners of English. The differences between the two consonant systems are to be discussed below in more detail, partly because there are differences in the distribution of the consonants which are not indicated in the table, and partly because the IPA symbols conventionally used to represent the sounds in question do not necessarily reflect phonetic differences (in many cases, the table shows the same symbol for two sounds which are different in the two languages).

In what follows, the differences will be organised into six subcategories, and they will be presented together with a description of the substitution patterns applied by Hungarian learners. The substitutions in most cases can be regarded as (often obvious) expectations as to how Hungarians will replace the English target consonants with their Hungarian equivalents, but some remarks will be made based on informal observations of Hunglish.

1. The sound segment in question is completely absent from the Hungarian inventory:
   - As in the case of many foreign learners of English, the absence of the interdentals [θ] and [ð] in Hungarian causes difficulties for Hungarian learners, too. As pointed out by Nádasdy (2006), while Hungarians typically perceive [θ] and [ð] as [f] and [v], respectively,[37] they tend to substitute them with [s] and [d] in production. Less frequent misperceptions and mispronunciations are not parallel, either: examples are summarised in Table 3.2, where the frequency of the mistakes proceeds from left to right.

	misperception	mispronunciation
[θ]	[f] > [s] > [t] > [ts]	[s] > [ts] > [t] > [f]
[ð]	[v] > [d] > [z] > [dz]	[d] > [z] > [dz] > [v]

Table 3.2: reproduced from Nádasdy (2006: 71)

   - [w] is also absent from the Hungarian inventory, and is usually substituted with [v] (mostly due to spelling), though convergence variants have been reported (Cruttenden 2014: 198, 234).

[37] Üstöki's (2018) findings have supported this claim.

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2. The consonant phoneme in question has allophonic variants in English, of which (at least) one exists in Hungarian too, but the other (or others) do not:

- The voiceless plosives [p, t, k] exhibit varying degrees of aspiration in English (see more details in Section 3.4), and they are unaspirated only when preceded by [s]. Aspiration is not attested in Hungarian,[38] therefore the voiceless stops may be unaspirated in all positions in Hunglish.
- In many accents of English, a distinction is made between clear [l] and dark [l], while in Hungarian all [l]'s are clear. This causes problems for Hungarians irrespective of whether they are acquiring RP or GA, as the acquisition of the pronunciation of dark [l]'s is inevitable in both cases: in RP, preconsonantal, final and syllabic [l]'s a dark, while in GA, all [l]'s are dark. Instances of dark [l]'s are therefore expected to be substituted by clear [l]'s.

3. The sound segment in question exists in Hungarian too, but there is a phonetic difference between the two sounds (therefore Hungarians are likely to pronounce the Hungarian versions of these sounds in their English speech):

- [t] and [d] are alveolar in English but dental in Hungarian.
- As has been mentioned in Section 2.3.3, English R is a postalveolar approximant [ɹ] (or a retroflex approximant [ɻ] in some American varieties), while Hungarian R is an alveolar tap [ɾ] (as in *répa*) or a trill [r:] (as in *berreg*).

4. The sound segment in question exists in both English and Hungarian, but what leads to a particular substitution pattern is that the two sounds differ in their distribution:

- As the velar nasal only occurs before a pronounced [k] or [g] in Hungarian, the Hungarian learner may pronounce it as a sequence of a [ŋ] and a [g] even where in English it is not followed by [g], such as in *sing* and *singer*.
- In the so-called non-rhotic accents (e.g., RP) [r] alternates with zero, whereas Hungarian is a rhotic language, that is, all orthographic R's are pronounced. (Colloquial R-dropping,

[38] English-type voiceless stops can only occur in Hungarian in clusters (e.g., *laphám*, *rothad*, *pökhendi*, etc.). Although phonetically there might be no difference between an aspirated [p] and a [ph] cluster, from the point of view of a learner of English the difference *does* matter, as spelling in English does not indicate the difference between the [t] in *top* and *stop*, etc.

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such as in *miért* [meː], is ignored here). The broadest form of Hunglish is therefore fully rhotic.

More details about these examples will be provided in Section 3.3, where further distributional issues will also be addressed.

5. The consonant in question has an allophonic variant in Hungarian which is not attested in English:

- [v] in an obstruent (a fricative) in all positions in English. In Hungarian, however, it only occurs when not followed by a vowel or when preceded by [b], [p] or [f]. In other positions, another positional variant, [ʋ] is used. Therefore, the use of [ʋ] for [v] (or [w]) in English before vowels or after consonants other than [b], [p] or [f] is a typical Hunglish feature.

6. Other:

- Voiced (lenis) obstruents in English are fully voiced in limited contexts only (see Section 3.4). In Hunglish, all of them may be fully voiced.
- Certain consonants have major positional variants in English, even in RP and GA: for example, the tap (or flap) [ɾ], the glottal stop [ʔ] or the (pre)glottalised [ˀp], [ˀt] and [ˀk]. The tap and the glottal stop are also attested in Hungarian speech: as mentioned above, the tap is one of the realisations of Hungarian [r], and the glottal stop is also used as an extralinguistic device to express surprise in [oʔˈoː], to optionally break up a hiatus in words like *kiiktat* [ˈkiʔiktɒt], or to highlight the difference between examples like *ezüst* [ˈɛzyʃt] and *ez üst* [ɛzˈʔyʃt]. Experience shows that the existence of these sounds in Hungarian in the above-mentioned special cases does not help the learners much in perceiving them in English speech – the occurrence of these sounds in English (especially that of the glottal stop) counts as just as unfamiliar as that of sounds completely absent from the Hungarian inventory. The lack of familiarity with these sounds in English may therefore cause difficulties in comprehension – a [t] replaced by a glottal stop is particularly problematic in terms of word recognition by non-native speakers.[39]

[39] Many speakers (native and non-native ones alike) mistakenly believe that British speakers often "drop their T's", so the perception of glottal replacement may be problematic for native speakers, too.

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The consonant substitutions mentioned above are summed up in Table 3.3.

English	Hunglish
[pʰ] [tʰ] [kʰ]	[p] [t] [k]
[v]	[v] / [ʊ]
[θ]	[s] / [ts] / [t] / [f]
[ð]	[d] / [z] / [dz] / [v]
[d] (alveolar)	[d] (dental)
[ŋ]	[ŋg]
[ɬ]	[l]
[ɹ] (postalveolar approximant) / [ɻ] (retroflex approximant)	[r] (trill) / [ɾ] (tap)
[w]	[v] / [ʊ]

Table 3.3: Hunglish consonant substitutions

In addition to the differences between individual sound segments, the two languages also show significant differences in issues concerning connected speech, particularly in their treatment of hiatuses. In English, (at least) three consonant sounds ([j], [w], and [r]) are used to fill a hiatus, of which Hungarians may only be familiar with the first one, as intrusive [j] is also found in Hungarian in words and phrases such as *dió* [dijoː] and *Évi és Ádám* [eːvijeːʃaːdaːm]. The other two, especially Intrusive-R may cause problems to Hungarian learners of English, though not necessarily in production (which is not particularly important, as Intrusive-R is found in a limited number of varieties anyway, and even in those, the environments in which it may appear rarely occur), but in the comprehension of native English. Since learners often do not even notice the existence of Intrusive-R (unless being explicitly taught the feature), there might be situations in which their lack of familiarity with Intrusive-R may cause misunderstandings: for example, a phrase like *vodka and tonic* might be understood as *water and tonic* (Nádasdy, pers. comm.).

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3.2.2 Vowels

As will be seen in this section, the vowel inventories of English and Hungarian differ to such an extent that there is practically no overlap between the two.

Before setting out to discuss typical Hunglish vowel substitutions, however, it is important to make a preliminary remark about the different functions of vowel length in English and Hungarian. On the one hand, with the exception of [ɒ]–[aː] and [ɛ]–[eː], Hungarian short–long vowel pairs are more of less of the same quality.[40] In English, on the other hand, short–long vowel pairs are like Hungarian [ɒ]–[aː] and [ɛ]–[eː] in that the members of such pairs will also display a quality difference. (It is not even unambiguous in many cases how the short and long vowels of English could be assigned into "pairs"). The only exception to this is [ə]–[ɜː], which are of the same quality, and the use of different IPA symbols is just a peculiarity of the Gimsonian IPA, which wishes to highlight the weak vower – strong vowel distinction, that is, that while [ə] occurs in unstressed syllables only (which is not true of any other vowels of English), [ɜː] is attested in stressed positions. A related issue is the case of the vowel [æ], which is phonetically long but traditionally classified as a short vowel due to its behaviour, as well as that of pre-fortis clipping, whereby the actual phonetic length of English vowels depends on the consonant following the vowel (i.e., before fortis obstruents, vowels undergo phonetic shortening, producing massive short-to-long ratios, which may cause difficulties in the comprehension of native English).

Let us now compare the monophthong inventories of English ("E") and Hungarian ("H"). Similarly to how consonants were displayed in Table 3.1 in the previous section, the shaded cells in Table 3.4 highlight the differences (again what will be of more relevance to our discussion will be difficulties for Hungarian learners of English, i.e., the differences pointed

[40] Actually, this is true for *i–í*, *u–ú* and *ü–ű* only: *o–ó* and *ö–ő* are not the same in quality ([ɔ] vs. [oː] and [œ] vs. [øː]), but in the discussion here we will only treat *a–á* and *e–é* as being different vowel qualities, because the quality difference between *a–á* and *e–é* is more salient than between *o–ó* and *ö–ő*, and is therefore more suitable for comparing English short–long vowel pairs to Hungarian ones. The fact that the distinction between the qualities of *a–á* and *e–é* is more salient than between *o–ó* and *ö–ő* is reflected in the tradition of not indicating the difference in the transcription system used for Hungarian in this chapter (though there are systems which make the difference, e.g., Lass 1984), and that many native speakers of Hungarian fail to notice the difference between *o–ó* and *ö–ő*, which is proved by the existence of jokes like "Sehol nem találok egy tiszta térképet, mindegyiken van egy Fót". *Fót* (the name of the town) and the colloquial pronunciation of *folt* 'stain' (displaying compensatory lengthening because of a dropped [l]) are not homophones (the former is pronounced [foːt], while the latter is [fɔːt]), still there is a tendency to coin such jokes in the language.

out in the columns for Hungarian). In the first part of this section, Hungarian will be compared to RP, since even today the norm taught to most Hungarians in the EFL classroom is British English (cf. Section 2.3.4), but later relevant RP–GA differences will also be touched upon.

<table>
<tr><th></th><th colspan="4">front</th><th colspan="2">central</th><th colspan="4">back</th></tr>
<tr><th></th><th colspan="2">unrounded</th><th colspan="2">rounded</th><th colspan="2">(unrounded)</th><th colspan="2">unrounded</th><th colspan="2">rounded</th></tr>
<tr><th></th><th>E</th><th>H</th><th>E</th><th>H</th><th>E</th><th>H</th><th>E</th><th>H</th><th>E</th><th>H</th></tr>
<tr><td rowspan="2">close</td><td>–</td><td>[i]
ki</td><td>–</td><td>[y]
üt</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>[u]
kulcs</td></tr>
<tr><td colspan="2">[iː]
beat hív</td><td>–</td><td>[yː]
tűz</td><td>–</td><td>–</td><td>–</td><td>–</td><td colspan="2">[uː]
boot út</td></tr>
<tr><td rowspan="2">half-close</td><td rowspan="2">[ɪ]
bit</td><td rowspan="2">[eː]
kér</td><td rowspan="2">–</td><td>[ø]
kör</td><td rowspan="2">[ə]
ago

[ɜː]
burn</td><td rowspan="2">–</td><td rowspan="2">–</td><td rowspan="2">–</td><td rowspan="2">[ʊ]
put</td><td>[o]
hoz</td></tr>
<tr><td>[øː]
nő</td><td>[oː]
tó</td></tr>
<tr><td>half-open</td><td colspan="2">[e] ~ [ɛ]
bet kert</td><td>–</td><td>–</td><td colspan="2">[ɔː]
bought</td><td>–</td></tr>
<tr><td>open</td><td>[æ]
bat</td><td>–</td><td>–</td><td>–</td><td>[ʌ]
but</td><td>[aː]
ház</td><td>[ɑː]
bar</td><td>–</td><td colspan="2">[ɒ]
Bob kar</td></tr>
</table>

Table 3.4: Places of articulation of monophthongs in English (RP) and Hungarian (cf. Balogné Bérces & Szentgyörgyi 2006: 35, 37).

As can be seen in the table, most RP monophthongs are absent from the Hungarian inventory, and what is more, although [iː] and [uː] are indicated with the same symbols in the two languages, even these vowels are not the same. Pronouncing Hungarian *í* and *ú* in words like *beat* and *boot*, respectively, is in fact a recognisable Hunglish feature: the English versions are slightly diphthongal (cf. Nádasdy 2006: 117). The only RP monophthong that is the same as its Hungarian equivalent is the vowel of *bet* (the different symbols used for *bet* and *kert* are notational variants denoting basically the same vowel in this particular case).[41] Substitution patterns will be examined after the case of diphthongs has been discussed.

[41] Due to current changes in RP, some other vowels have become more similar to certain Hungarian ones, too. For example, the LOT-vowel has closed significantly in the last 60 years (since the symbol [ɒ] was chosen for

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Tables 3.5 and 3.6 are reproduced from Balogné Bérces & Szentgyörgyi (2006) and show the diphthongs of RP. The literature on English phonology sometimes sets up the additional category of triphthongs, but as they all can be analysed as diphthong plus schwa sequences (e.g., the vowel of *fire* as [aɪ]+[ə]), they will not be separately discussed here.

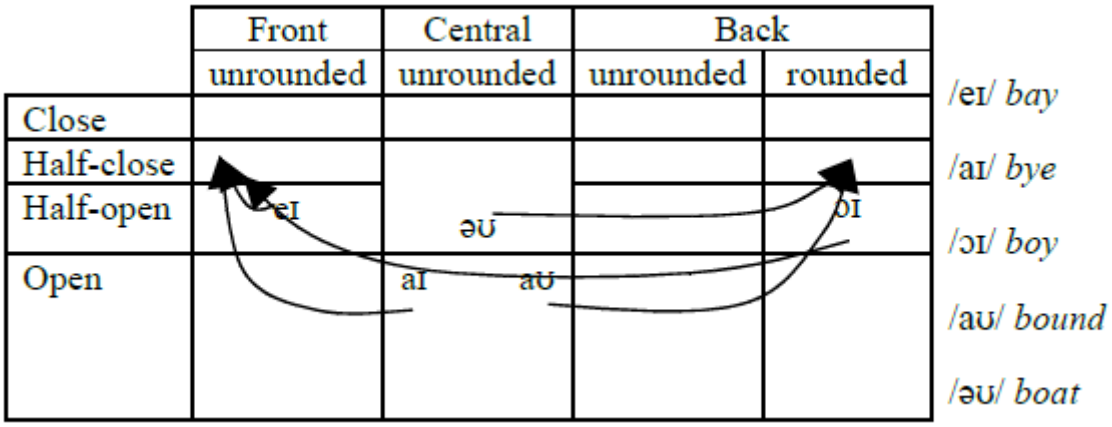

Table 3.5: Places of articulation of the closing diphthongs of RP (Balogné Bérces & Szentgyörgyi 2006: 35).

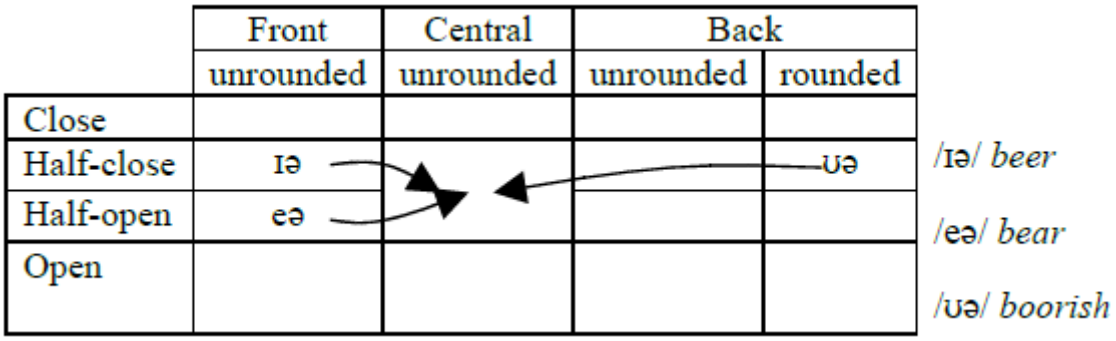

Table 3.6: Places of articulation of the centring diphthongs of RP (Balogné Bérces & Szentgyörgyi 2006: 36).

As Hungarian has no diphthongs,[42] we may expect English diphthongs to be a source of potential difficulties for the Hungarian learner. In reality, however, there are some diphthongs which are not problematic at all: for example, the PRICE-vowel and the CHOICE-vowel are

transcribing it), and for an increasing number of RP speakers, [ɔː] is becoming [oː]. Therefore, the vowel of certain English–Hungarian word pairs have become basically the same (*law=ló*, *port=pót*, *sob=Szob*, *fog=fog*, etc.).

[42] It is worth noting, though, that Nádasdy & Siptár (1994) have found evidence that for some speakers, words such as *autó* and *Európa* start with a diphthong rather than a hiatus.

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not likely to cause problems for any learner (English *buy* is similar to Hungarian *báj*, and *boy*[43] is similar to *boly*). The MOUTH-vowel is only slightly more problematic in that it is often pronounced as a hiatus and not a diphthong, but in general the wide diphthongs do not usually cause difficulties for Hungarians.

The narrow diphthongs, on the other hand, may monophthongise in the accent of Hungarian learners: as will be seen below, the GOAT-vowel is particularly problematic in this respect, and although there are no problems with the FACE-vowel in word-final position, word-medially it is often pronounced [eː] (i.e., English *may* is similar to Hungarian *mély*, but *name* may be [neːm]).[44]

It needs to be noted at this point that the Gimsonian notation does not reflect recent changes in RP, and it is misleading in that the centring diphthongs may only be retained in the accent of older speakers. In younger speakers' pronunciation, the SQUARE-vowel has changed to [ɛː], which is a long version of DRESS, and the NEAR-vowel is also becoming [ɪː], that is, a long version of KIT. The CURE-vowel is undergoing changes, too: today it is pronounced by some speakers as a long FOOT, but even more often it merges with NORTH or NURSE. As a result of these changes, new qualitatively similar/identical short–long vowel pair have appeared in addition to [ə]–[ɜː]. In Hungarian learners' accent, the vowels of NEAR, SQUARE and CURE are mostly pronounced [iːr], [ɛːr] and [uːr], respectively.

The above discussion used the vowel system of RP as the starting point for the comparison. However, we have to mention that the vowels of the other reference accent, GA, differ from those of RP. Even though the relatively high degree of internal variation in GA makes a simple description almost impossible, we may summarise the distinctive features of GA relevant to our present topic as follows:

- The TRAP-vowel may be less open, and before [r] it may even merge with DRESS (this phenomenon is referred to as the "Mary-marry-merry merger").
- STRUT may be a central, schwa-like vowel.
- The vowel of THOUGHT may be [ɑ].

[43] For current RP speakers, the first term of CHOICE is [ɒ], not [ɔ]. In fact, current RP *Joyce* has a closer vowel, [o], than Hungarian *Joyce*, [ɔ].

[44] Interestingly, *paid* and *made* typically do not rhyme in Hunglish, so speakers (although subconsciously) seem to perform a rather elaborate morphological analysis, so in some cases it is worth considering the morphological structure of words.

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- [ɒ] is totally absent from the system; instead, [ɑ] and [ɔ] are used, the choice depending on the following context.
- Since GA is rhotic, the pre-R monophthongs of START, NORTH and NURSE are not necessarily long, and schwa-final diphthongs and triphthongs have no salient final terms (or may not be present in the inventory at all).
- The vowel of GOAT is [oʊ][45] or [oː].

Tables 3.7 and 3.8 display the substitution patterns that may be expected based on the vowel inventories of the two languages.

	monophthongs			diphthongs	
	RP	Hunglish		RP	Hunglish
KIT	[ɪ]	[i]	FACE	[eɪ]	[ej, eː]
TRAP	[æ]	[ɛ]	PRICE	[aɪ]	[aj]
commA	[ə]	[ø]	CHOICE	[ɔɪ]	[oj]
NURSE	[ɜː]	[ør]	MOUTH	[aʊ]	[ɒu, au]
STRUT	[ʌ]	[a, ɒ]	GOAT	[əʊ]	[oː]
FOOT	[ʊ]	[u]	NEAR	[ɪə]	[iːr, (iør)]
THOUGHT/ NORTH	[ɔː]	[oː] [or]	SQUARE	[eə]	[ɛːr, (ɛør)]
			CURE	[ʊə]	[uːr, (uør)]
START	[ɑː]	[ar, ɒr]			
LOT	[ɒ]	[o, ɒ, a]			

Table 3.7: Hunglish vowel substitutions (simplified to RP vowels)

[45] This vowel may also occur in RP before [l].

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	monophthongs			diphthongs			
	English		Hunglish		English		Hunglish
	RP	GA			RP	GA	
KIT	[ɪ]		[i]	FACE	[eɪ]		[ej, eː]
TRAP	[æ]	[ɛ, æ]	[ɛ]	PRICE	[aɪ]		[aj]
commA	[ə]		[ø]	CHOICE	[ɔɪ]		[oj]
NURSE	[ɜː]	[ɜr]	[ør]	MOUTH	[aʊ]		[ɒu, au]
STRUT	[ʌ]	[ʌ, ə]	[a, ɒ]	GOAT	[əʊ]	[oʊ, oː]	[oː]
FOOT	[ʊ]		[u]	NEAR	[ɪə]	[ɪr]	[iːr, (iør)]
THOUGHT	[ɔː]	[ɔː, ɑː]	[oː]	SQUARE	[ɛə]	[ɛr]	[ɛːr, (ɛør)]
NORTH	[ɔː]	[ɔr]	[or]	CURE	[ʊə]	[ʊr]	[uːr, (uør)]
START	[ɑː]	[ɑr]	[ar, ɒr]				
LOT	[ɒ]	[ɑ, ɔ]	[o, ɒ, a]				

Table 3.8: Hunglish vowel substitutions (both RP and GA considered)

To close this section, let us summarise based on Tables 3.7 and 3.8 the mergers that Hunglish may exhibit in terms of vowels:

- The TRAP-DRESS merger: [æ] merges with the DRESS-vowel, which results in Hunglish homophones such as *bat=bet* [ɛ].
- The THOUGHT-GOAT merger: In Hunglish, these two vowels are replaced by [oː], thus making *bought* and *boat* homophones.
- The STRUT and START vowels may both be pronounced [a] or [ɒ] (with the [r] in START-words also pronounced, therefore the case of compensatory lengthening is not discussed here), thus the vowel of words like *cut* and *cart* may be the same.
- The LOT and NORTH vowels may both be pronounced [o] (with the [r] in NORTH-words also pronounced, therefore compensatory lengthening is not considered here, either), thus the vowel of words like *pot* and *port* may be the same.
- The STRUT-LOT merger: If a learner is exposed more intensively to GA than to RP, they will be more prone to merge STRUT and LOT, and pronounce words like *hut* and *hot* the same. Words with misleading spelling (e.g., *done* vs. *gone*) may also contribute to this problem.

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3.3 Aspects of phonotactics

Both English and Hungarian exhibit certain phonotactic constraints, that is, restrictions on what sounds may appear in what order in what position (cf. Balogné Bérces & Szentgyörgyi 2006: Chapter 5), although (as it was mentioned in Section 1.2.1), the differences concerning phonotactics as not as large as between English and many other languages (which lead to serious intelligibility problems in those cases). However, there *are* a number of phonotactic differences between English and Hungarian (albeit really slight ones), which are to be addressed in this section.

Unlike many other languages (cf. Section 2.2), both English and Hungarian allow consonant clusters both syllable-initially and syllable-finally, but there are limitations as to what types of sounds may occur in consonant clusters as well as how many consonants there can be in the sequence. In English, the maximum number of consonants at the beginning of syllable is three (with further restrictions not discussed here), and four at the end, for example, [ksts] or [ksθs] in *texts* or *sixths* (referred to as "monster clusters" by Balogné Bérces & Szentgyörgyi 2006: 69) – such examples sound pretty un-Hungarian. It is to be noted though that the most complex word-final clusters (with more than two consonants) are not monomorphemic but are produced by analytic morphology (cf., e.g., *fixed*, *minds*, *sixths*), which questions their theoretical status as true clusters; nevertheless, they potentially cause difficulty for the language learner, and therefore their morphological structure is ignored here.

Differences in phonotactic constraints between English and Hungarian concerning consonant clusters include examples that would be problematic for English learners of Hungarian rather than Hungarian learners of English, as Hungarian is less strict in terms of what consonants may occur in word-initial clusters. Difficulties affecting Hungarian learners of English are connected to spelling as in English there are a number of words (most of which are loanwords) in which spelling suggests the presence of a word-initial cluster, but which in fact start with silent letters. Examples include the clusters *[pn-], *[ps-], *[gn-] and *[kn-], which are not possible word-initially, thus words like *pneumonia*, *psychology*, *gnu* and *knight* begin with one consonant only in pronunciation. What causes the difficulty is that in Hungarian these clusters are acceptable (cf. the Hungarian equivalents of the first three words plus words like *knédli*), and a learner relying heavily on the spelt forms of such examples will be likely to pronounce clusters at the beginning of the words.

Similarly, other clusters such as *[-mb] are ill-formed at the end of words in English, resulting in words like *climb* or *lamb* ending in a single consonant ([m]), but in Hungarian this

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cluster is also acceptable (cf., e.g., *comb* 'thigh'). There also exist final clusters which are ill-formed in both languages, for example, *[-mn] (as in *autumn*) or *[-gn] (as in *sign*), yet, they are problematic because they potentially generate spelling pronunciations (though the likelihood of their occurrence in learners' accents largely depends on word frequency as well as the learners' proficiency level – examples like *sign* are rarely pronounced by learners with [gn] at the end, apart from real beginners).

Another phonotactic difference between English and Hungarian is that while in Hungarian syllable nuclei can only be vowels, in English there exist syllables without a vowel (which contain syllabic consonants instead). In view of the fact that in Hungarian only vowels can be syllabic, Hungarian learners may have difficulties with the pronunciation of syllabic consonants, though this might only be a minor problem for at least two reasons. One of these is that words with syllabic consonants actually have an alternative pronunciation in native English too, with a vowel inserted before the consonant that could be syllabic – therefore, not pronouncing syllabic consonants in itself is not a non-native feature. The other reason is that Hungarian does have some foreign words (especially proper nouns) that display syllabic consonants: for example, the family name *Ybl*, or the name of the supermarket *Lidl*, which most speakers *are* able to pronounce with a syllabic consonant, and forms like [lidli], which appear in some speakers' pronunciation, are humorous forms (imitating less educated speech) rather than true repair strategies applied due to a lack of ability to pronounce syllabic consonants.

In terms of syllabic consonants, the problematic issues that may appear in Hunglish are restricted to a few special examples:

- Words like *chasm*, *prism*, *rhythm* and all the *-ism*'s (*criticism*, *alcoholism*, etc.) may be pronounced with a consonant cluster at the end;
- In words like *Wimbledon* a vowel may be pronounced *following* the consonant that is supposed to be syllabic (most probably this pattern arises from the Hungarian pronunciation of the word, as is the case with several other examples, such as [bigli] for *Beagle*, [gugli] for *Google*, [bitlis] for *Beatles*, etc.).

Note that in most of these cases spelling also plays a role in the Hunglish pronunciation of the examples (cf. Section 3.6).

Let us now list a few English consonants whose Hungarian equivalents are less limited in their phonotactics.

- [h] in English is ruled out in word-medial zero-stressed syllables, unlike in Hungarian. Hungarian learners may therefore pronounce the [h] in words like *ve<u>h</u>icle*, *shep<u>h</u>erd*, *Gra<u>h</u>am*, etc. as a result of undue reliance on spelling. Pre-consonantal and pre-pausal

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[h] is also dropped, even if present in spelling, which is a process also attested in certain stems in Hungarian (e.g., *cseh*, *düh*, etc.). However, more frequently, Hungarian [h] in such positions strengthens in pronunciation and changes into the voiceless velar fricative [x], for example in *doh*, (*anya*)*méh*, etc. Words like *Bahrein*, *Allah*, *Winnie-the-Pooh*, etc. may be pronounced following that Hungarian regularity.[46]

- In non-rhotic accents of English, R-dropping applies, and as a consequence, [r] is not found pre-consonantally and pre-pausally. As in Hungarian all orthographic <r>'s are pronounced, we expect Hunglish to be rhotic. Nevertheless, Hunglish may display variable rhoticity, as R-dropping may be found in the accent of those (probably higher-level) learners who aim at acquiring a non-rhotic accent, or those ESL learners in whose L2 environment a non-rhotic variety of English is spoken. This pronunciation issue will be addressed in more detail in Section 5.1.

In addition, although word-finally and intervocalically only, in Hungarian all consonants may occur as geminates (cf. *megy* [mɛɟ] vs. *meggy* [mɛɟː], *házal* [haːzɒl] vs. *házzal* [haːzːɒl], etc.). In English, however, double consonants are only possible across word boundaries (e.g., *in Naples*) and at the juncture between so-called productive (analytic) affixes and their bases (e.g., *unnatural*, *greenness*) – morpheme-internally, double consonant letters in spelling always indicate singletons (e.g., *banner* [ˈbænə(r)]). As a result, this difference is able to cause spelling-induced pronunciation errors (cf. Section 3.6).

Finally, we address the case of an English consonant whose Hungarian equivalent is more limited in its phonotactics, namely the the velar nasal (eng – [ŋ]). Problems concerning the velar nasal, which have already been mentioned in Section 3.2, are rooted in the fact that [ŋ] is only found in Hungarian before a pronounced [k] or [g], while in English it is also possible word-finally (e.g., *sing*) and pre-vocalically (*singing*, *hangar*). In these examples, however, spelling always falsely suggests the presence of a [g]. As a consequence, Hungarian learners tend to pronounce the [g] in all these cases.

3.4 Laryngeal features

This section deals with laryngeal features of English that are expected to be problematic for Hungarian learners, that is, the differences between English and Hungarian in terms of voicing and voicelessness, as well as voicing assimilation.

[46] [x] may be pronounced in words like *technique*, too, most probably because of the misleading effect of the Hungarian equivalent of such words.

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The voiced–voiceless distinction is only relevant to obstruents in both English and Hungarian: while vowels and sonorant consonants are all inherently voiced, obstruents typically come in voiced–voiceless pairs (the exception in both languages is [h], which may only get voiced "passively" in the context of sonorants). As we will see, however, voicing exhibits two completely different patterns in the two languages.

In English, instead of the categories voiced and voiceless, the terms lenis and fortis are used, respectively, which expresses the relative instability of voicedness in comparison to voicelessness – what are referred to as voiced obstruents actually have a partially devoiced allophone, and in fact in most contexts this devoiced allophone is what is attested. As Table 3.9 illustrates, lenis obstruents partially devoice utterance-initially (column (a)) and utterance-finally (column (b)) – such a phenomenon is totally unknown in the Hungarian language.[47]

Utterance-initial	Utterance-final	Next to a fortis sound	
(a)	(b)	(c)	(d)
Bravo! [ˈb̥rɑːvəʊ]	*Mad!* [ˈmæd̥]	*obtain* [əb̥ˈtʰeɪn]	*matchbox* [ˈmætʃb̥ɒks]
Good! [ˈgʊd̥]	*Go ahead!* [əˈhed̥]	*cheesecake* [ˈtʃiːz̥kʰeɪk]	*baseball* [ˈb̥eɪsb̥ɔːɬ]
Zany! [ˈz̥eɪnɪ]	*Think big!* [ˈb̥ɪg]	*bigfoot* [ˈb̥ɪgfʊt]	*cookbook* [ˈkʰʊkb̥ʊk]
Damn! [ˈd̥æm]	*Bob!* [ˈb̥ɒb̥]	*eggbead* [ˈegbed̥]	*life gear* [ˈlaɪfgɪə(r)]
Very much! [ˈv̥erɪ]	*Leave!* [ˈliːv̥]	*roadster* [ˈrəʊd̥stə(r)]	*Shoot back!* [ˈʃuːt ˈb̥æk]

Table 3.9: Devoicing of lenis obstruents in English (Balogné Bérces & Szentgyörgyi 2006: 82)

Column (c) is not relevant to the discussion of Hunglish pronunciation problems, because the same phenomenon is attested in English as in Hungarian: a lenis obstruent followed by a fortis one will devoice (though there are differences in this case too, but as a more elaborate discussion is not relevant to us here, the issue will not be discussed in details). What is more interesting though is column (d) – let us have a closer look at those examples in Table 3.10 by comparing what happens in English and in Hungarian or Hunglish in such cases.

[47] However, some studies in phonetics have shown that final (especially utterance-final) obstruents (especially fricatives) also devoice to some extent in Hungarian, though the contrast is rarely lost – just like in English (cf. Mády & Bárkányi 2015).

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English		Hungarian	
(c)	(d)	(e)	(f)
obtain [əb̥ˈtʰeɪn]	*matchbox* [ˈmætʃb̥ɒks]	*rabtól* [ˈrɒptoːl]	*matchbox* [ˈmɛdʒboks]
cheesecake [ˈtʃiːzk̚ʰeɪk]	*baseball* [ˈb̥eɪsb̥ɔːɬ]	*rézkarc* [ˈreːskɒrts]	*baseball* [ˈbeːzboːl]
bigfoot [ˈb̥ɪgfʊt]	*cookbook* [ˈkʰʊkb̥ʊk]	*hangfal* [ˈhɒŋkfɒl]	*tökből* [ˈtøgbøːl]
egghead [ˈegheɖ]	*life gear* [ˈlaɪfgɪə(r)]	*éghez* [ˈeːkhɛz]	*afgán* [ˈɒvgaːn]
roadster [ˈrəʊɖstə(r)]	*Shoot back!* [ˈʃuːt ˈb̥æk]	*roadster* [ˈroːtstɛr]	*kertből* [ˈkɛrdbøːl]

Table 3.10: Devoicing in English and voicing assimilation in Hungarian (Balogné Bérces & Szentgyörgyi 2006: 83)

When a fortis and a lenis obstruent occur one after the other, they will behave differently in English and in Hungarian. The main difference (which leads to a salient typical feature of Hunglish) is that while in Hungarian the voiceless obstruent assimilates to the voiced one (and gets voiced, cf. column (f)), in English the opposite happens: the lenis obstruent assimilates to the fortis one (and gets devoiced, cf. column (d)). Note that the expected Hunglish pronunciations may not only be the result of the different ways assimilation works in the two languages, but spelling also has an influence as it suggests the presence of a voiced sound in words in (d) – see Section 3.6.

There is one more area in addition to what has been discussed so far where a typical Hunglish pronunciation problem is rooted in voice assimilation: the pronunciation of the suffixes *-s* and *-ed*.

Let us first see the case of the suffix *-s* (subsuming the plural and possessive suffixes for nouns, the third person singular suffix for verbs, and the contracted forms of the grammar words *is* and *has*). In pronunciation, this suffix progressively assimilates to the root-final consonant in such a way that it is pronounced [z] after roots ending in voiced non-sibilant sounds, [s] after voiceless non-sibilants, and with a linking vowel after sibilants (cf. Table 3.11).

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/z/	/s/	/ɪz/
legs /ˈlegz/	*kicks* /ˈkɪks/	*churches* /ˈtʃɜːtʃɪz/
tabs /ˈtæbz/	*blokes* /ˈbləʊks/	*judges* /ˈdʒʌdʒɪz/
heads /ˈhedz/	*taps* /ˈtæps/	*bushes* /ˈbʊʃɪz/
means /ˈmiːnz/	*turnips* /ˈtɜːnɪps/	*garages* /gəˈrɑːʒɪz/
girls /ˈgɜːlz/	*hats* /ˈhæts/	*kisses* /ˈkɪsɪz/
ways /ˈweɪz/	*laughs* /ˈlɑːfs/	*buzzes* /ˈbʌzɪz/
shows /ˈʃəʊz/	*baths* /ˈbɑːθs/	*stretches* /ˈstretʃɪz/

Table 3.11: The three forms of *-s* in English (Balogné Bérces & Szentgyörgyi 2006: 84)

The case of the other suffix, *-ed* (marking the past tense and past participle forms of regular verbs as well as participial adjectives) is similar to that of *-s* (cf. Table 3.12): the linking vowel will be used with roots ending in the alveolar stops [t] and [d], and the suffix will be pronounced [d] after voiced root-final consonants (other than [d]), and [t] after voiceless ones (other than [t]).

/d/	/t/	/ɪd/
begged /ˈbegd/	*clicked* /ˈklɪkt/	*wanted* /ˈwɒntɪd/
robbed /ˈrɒbd/	*ripped* /ˈrɪpt/	*mended* /ˈmendɪd/
advised /ədˈvaɪzd/	*laughed* /ˈlɑːft/	*protected* /prəˈtektɪd/
depraved /dɪˈpreɪvd/	*passed* /ˈpɑːst/	*beheaded* /bɪˈhedɪd/
damaged /ˈdæmɪdʒd/	*kissed* /ˈkɪst/	*located* /ləˈkeɪtɪd/
contained /kənˈteɪnd/	*hushed* /ˈhʌʃt/	*paraded* /pəˈreɪdɪd/
filled /ˈfɪld/	*stretched* /ˈstretʃt/	*navigated* /ˈnævɪgeɪtɪd/
followed /ˈfɒləʊd/	*attached* /əˈtætʃt/	*vaccinated* /ˈvæksɪneɪtɪd/

Table 3.12: The three forms of *-ed* in English (Balogné Bérces & Szentgyörgyi 2006: 85)

For Hungarian learners of English, the [z] pronunciation of the *-s* suffix and the [t] pronunciation of the *-ed* can be problematic, as they may apply the Hungarian direction of

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assimilation – which starts out from the fact that (mostly because of the spelt forms of the suffixes) the pronunciations [s] and [d] are assumed for *-s* and *-ed*, respectively. Thus a typical Hunglish pronunciation of some of the words from the tables above include [lɛks], [tɛps], [kligd] and [ribd] for *legs*, *tabs*, *clicked* and *ripped*, respectively, which results in the formation of Hunglish homophones like *dogs* and *docks*, or *pigs* and *picks*. Furthermore, the pronunciation of words ending in the dental fricatives may cause further problems in the case of both suffixes, as the articulation of the clusters formed in this way may be difficult for some learners. Therefore, in words like *births* and *bathes*, learners are likely to unnecessarily pronounce a linking vowel before the suffix, similarly to how the suffix is pronounced after sibilant-final roots.

3.5 Prosody

After the discussion of segmental issues, let us turn our attention to two suprasegmental features that are especially relevant in the discussion of Hunglish: stress (to be presented in Section 3.5.1) and intonation (Section 3.5.2).

3.5.1 Stress

The pronunciation difficulties of Hungarian learners of English related to stress are rooted in a number of salient differences in the stress systems of English and Hungarian. In this section we provide an overview of the most important differences, but we will revisit these issues in Section 5.2, where some of them will be elaborated on in slightly more detail.

Firstly, while main stress is fixed on the first syllable of words in Hungarian, in English stress may fall on practically any syllable of words. The placement of both primary and secondary stress are governed by numerous rules, but as the rules are highly complex at least compared to Hungarian, and the number of exceptions is not insignificant either, English stress rules are characterised by unpredictability to a larger extent than by predictability, especially from the point of view of a learner. To mention a few examples illustrating the complexity of rules of stress placement in English, stress placement is determined by morphosyntactic category (function words behave differently from content words, and different rules of primary stress placement apply to nouns, verbs and adjectives/adverbs), and the morphological structure of words also plays a role in stress placement as there exist certain affix types which are able to change the stress pattern of the stem (stress-fixing affixes cf. *décorate* vs. *decorátion*) besides other types which do not affect the pronunciation of the stem (stress-neutral affixes, cf. *décorate* vs. *décorating*, *décorated*).

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Secondly, English differs from Hungarian in its treatment of stressed and unstressed syllables: in stressed syllables in English, only so-called full (or stressed or strong) vowels occur, while unstressed ones only have reduced (or unstressed or weak) vowels, namely [ə], [ɪ] and [ʊ] – of these three, only [ə] is restricted to unstressed position; the other two may be stressed, too. The distinction of full and reduced vowels does not apply to Hungarian: Hungarian stress is independent of vowels, that is, each vowel may occur both in stressed and unstressed positions.

Thirdly (and not unrelated to the previous two issues), it is possible in English that two words are the same in terms of the segments they are composed of, and they differ only in terms of word stress placement such as *impórt* (verb) and *ímport* (noun) – such pairs of words are referred to as stress minimal pairs. In Hungarian, stressed and unstressed syllables are unable to account for meaning differences within morphemes (cf. Kálmán & Nádasdy 2016); such examples are necessarily morphologically complex in Hungarian, e.g., *ez üst* ('this is a cauldron') vs. *ezüst*. ('silver').

Finally, there is a basic typological difference between English and Hungarian in terms of speech rhythm. On the one hand, Hungarian has syllable-timed rhythm, that is, in Hungarian speech the duration of each syllable is approximately the same (cf. Kovács & Siptár 2010: 2; Siptár & Törkenczy 2000: 13). The speech rhythm of English, on the other hand, is syllable-timed, that is, it is not the duration of syllables that is the same, but the interval between two stresses (regardless of how many unstressed syllables are in between two rhythmic beats). It follows from the syllable-timed rhythm of English that the more unstressed syllables there are between two stressed ones, the more compressed the unstressed syllables will become, which leads to various phenomena such as vowel reduction in general, the weak pronunciations of some short grammar words, and syncope (or weak vowel deletion).

Based on the above discussion of the many differences between the two languages in terms of stress placement, we can conclude that a Hungarian learner's pronunciation of English can be characterised by at least two salient stress-related features: Firstly, they may not pronounce weak forms at all, which is less problematic in terms of being intelligible ("all-strong-form" pronunciations can only lead to misunderstandings concerning unnecessary emphasis, besides being found generally unnatural by native speakers, cf. Balogné Bérces & Szentgyörgyi 2006: 101), but it may cause serious problems in terms of understanding native English speech, as the expectation to hear strong forms may make the weak forms completely unrecognisable.

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Secondly, a Hungarian learner may not recognise the importance of stress at all and apply initial word stress in all English words (e.g., a word like *committee*, if stressed on the first syllable, may be understood as *comedy* – Szpyra-Kozłowska 2015: 72), which may not only cause difficulties for them in making themselves understood by native speakers in general, but this can also lead to problems with word recognition. The existence of a number of Hungarian "false friends" does not make matters easier, as a frequent mispronunciation of a word like *analysis* (with stress on the first syllable, i.e., [ˈɛnølajsis]) may have been influenced by its Hungarian equivalent *analízis*. Nevertheless, stress-related pronunciation errors may not only be rooted in applying the Hungarian regularity. Some learners may produce forms originating from the over-application of English stress rules, and, for instance, stress the penultimate syllable of certain words such as *interesting* or *adjective* (in which initial stress would be correct, but which are frequently mispronounced by Hungarians with stress falling on the second syllable), or transfer the stress-fixing pattern (as in *dècorátion*) to stress-neutral examples, which gives rise to pronunciations like *dècoráting* and *dècoráted*. (Such examples will be considered as cases of hypercorrection later in Section 5.2.)

3.5.2 Intonation

In a final subsection dealing with Hunglish pronunciation errors rooted in L1 transfer, we list the most important differences between English and Hungarian in terms of pitch patterns, that is, intonation.

Perhaps the most salient difference between English and Hungarian intonation is that the pitch range used by the former is approximately twice as wide as the one used by the latter (Kovács & Siptár 2010: 3). What follows from this is that English speech may be (and is very often) perceived by Hungarians as affected – the "singsong" intonation of English is even considered annoying by some, and it makes many learners cringe when they hear demonstrations of English intonation, let alone when they try to imitate it. Similarly, from the point of view of English speakers, Hungarian intonation (and thus Hunglish) is likely to be perceived as monotonous or even cold, giving the impression of boredom or indifference.

Another important difference is that while in English the change from the highest pitch to the lowest or vice versa is concentrated in one particular syllable (usually the primary stressed syllable of the last content word in the sentence, i.e., the syllable that carries sentence stress), in Hungarian the pitch levels may go up and down several times in a sentence (Kovács & Siptár 2010: 4).

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As for difficulties with particular tones, there are numerous ways in which English and Hungarian differ, but since a complete list is beyond our purposes, we only mention two examples which may cause the most serious difficulties for a Hungarian learner of English. The most problematic tone for Hungarian speakers (though not in terms of production, but perception) is the low rising tone (cf. Nádasdy 2006: 285), because this tone is only used for questions in Hungarian, but it is never used for this purpose in English, but for responding to what someone has said (in most cases, the low rising tone expresses certain attitudes such as indifference). Therefore, Hungarians may misinterpret sentences with a low rising tone as questions.

In terms of production, the tone that is problematic for Hungarians is the one used in Yes/No questions, namely the high rising tone. Not producing this tone correctly and applying the characteristic Hungarian rise-fall instead in Yes/No questions may at least express boredom or indifference, but it may even prevent the sentence from being interpreted as a question (Kovács & Siptár 2010: 8–9, Nádasdy 2006: 287). More details and further examples are beyond the scope of the discussion here.

3.6 The odd-factor-out: Spelling

Although the differences between ESL and EFL learning contexts have been discussed in Section 1.2.2, the aspect of spelling will be revisited here, because one of the most crucial differences between FL learning and L2 acquisition is the significant role spelling plays in the former (also emphasised in Szpyra-Kozłowska 2015).

The EFL learner encounters spoken and written English simultaneously; what is more, many times the written form of a word serves as the point of departure for the learner, or it may even remain the only authentic form on the basis of which some tentative pronunciation is attempted, which, due to the large number of English words with counterintuitive pronunciation, often results in spelling-induced pronunciation errors.

In contrast, the ESL learner is exposed to (authentic) spoken English on a daily basis, which constitutes the major source of learning material, and they may not even be confident about the orthography of a whole lot of vocabulary items – similarly to native speakers. To give an example: misled by homophony, even a proficient ESL speaker may misspell *passed* as *past*; an EFL learner, in contrast, is more likely to use proper spelling but distinct pronunciations (with [-zd] for *passed* and [-st] for *past*).

For Hungarian EFL learners, the misleading effect of spelling is present everywhere, simply because the two languages use the same writing system. To give an example, Hungarians

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transfer their short [i] vowel and substitute it for English [ɪ] partly because the same letter is used for the two vowels in the two spelling systems, although English [ɪ] is phonetically closer to [e] (e.g., English *sin* is almost like Hungarian *szén*, cf. Nádasdy 2006: 110). The same is true for [ʊ] – the fact that the letter <u> is used to denote this vowel (at least in some words) contributes to the typical Hungarian substitution of this vowel (viz. [u]), although English *took* is more similar to Hungarian *tok* (cf. Nádasdy 2006: 110). In addition, the two languages differ in the degree of transparency displayed by their orthographies: in Hungarian, letter-to-sound correspondences are closer to one-to-one relations (i.e., spelling is more phonemic) than in English. In particular, silent letters and orthographic double consonants very frequently lead to non-native-like spelling pronunciations.

As we will see below, spelling pronunciations form the core of spelling-induced learner errors. The phenomenon of spelling pronunciation, however, is not uniform but can be classified into two subtypes. One is L1-based spelling pronunciation, when the learner applies a letter-to-sound rule of their L1 to produce a non-native pronunciation – this is the transfer of an L1 orthographic rule. Pronouncing distinct vowels in words like *what* and *Bob* ([ɒ] in the former and [o] in the latter) belongs to this category – these two words actually have the same vowel (in RP at least), but the above-mentioned pronunciations are often found in Hunglish due to the fact that the letter <a> denotes [ɒ] in Hungarian, while <o> signals [o]. (Of course, this only counts as an error in the case of words like *Bob*, but not in that of words like *what* – applying the Hungarian letter-to-sound correspondence in *what* will result in a target-like pronunciation of the word.)

The second subtype of spelling pronunciation is L2-based spelling pronunciation, when the learner extends a letter-to-sound regularity of English to cases in which it does not apply. This is an instance of analogy-driven overgeneralisation. For example, many learners identify the final syllable of *determine* with *mine* and pronounce a PRICE-vowel in it, since they have deduced that the final silent <e> in the spelt forms of words systematically signals the phonological length (or: tenseness) of the preceding stressed vowel. Another example is the pronunciation of *thyme* with [θ] (which stems from the observation that the digraph <th> normally corresponds to an interdental fricative) or that of *butcher* and *cushion* with the STRUT-vowel (in which case the confusion stems from the regularity that a letter <u> in such positions regularly denotes the STRUT-vowel).

As mentioned above, the influence of spelling seems to be omnipresent in all aspects of the accent of Hungarian learners of English: it affects all the areas discussed above. Therefore, the examples will be presented according to the topics discussed above in separate sections. In

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most cases, we revisit the problem areas mentioned above from the perspective of spelling, but we will also mention error types stemming purely from the spelling of words. The list is not intended to be exhaustive, as it would be impossible to list all the potential spelling-induced pronunciation difficulties – the aim is solely to call attention to the various error types.

1. Segment inventories:

- The major source of learner errors is the fact that the same graphic characters are applied to phonetically different segments.
- As for consonants, the most spectacular examples are the cases of <r> and of the plosives: <p t k> denote aspirated plosives in English but unaspirated voiceless plosives in Hungarian; <b d g> stand for unaspirated lenis plosives in English but fully voiced plosives in Hungarian.
- As for vowels, the most spectacular examples are the cases of <i>=[ɪ] and <u>=[ʊ], but other untypical letter-to-sound correspondences are attested, too, for instance *London* and *Bob* with [o].
- Pre-R Broadening may be missing especially in less frequent words (e.g., *serpent*), and the plain counterparts of broad vowels may be pronounced, supported by the spelt forms of the words.
- The digraphs <ou> and <ow> regularly represent the MOUTH-vowel in English, though there are some irregular examples such as *show*, in which <ow> denotes the GOAT-vowel. This may cause a different type of difficulty for English and Hungarian speakers: many native speakers of English pronounce the MOUTH-vowel in less frequent words (especially proper nouns) such as *Rowling* (which happens to be pronounced [ˈrəʊlɪŋ]), while the reverse can be observed in many Hungarian learners' English accent: even frequent words like *how* tend to be pronounced as if they were GOAT-words, mostly due to the presence of the letter <o> in the digraph.
- The digraphs <au> and <aw> regularly represent the THOUGHT-vowel, but relying on the two terms of the digraph (<a> and <u/w>), learners often pronounce such words with the MOUTH-vowel, thus making word pairs like *dawn* and *down* homophones.

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2. Phonotactics:

A number of phonotactic differences between the two languages reduce to issues of spelling:

- As for consonants with more limited phonotactics in English than in Hungarian, the consonant letter <h> present in the orthography falsely suggests the presence of a consonant sound in examples like *Grah**h**am* and *Allah*.
- As for consonants with more limited phonotactics in Hungarian than in English, the consonant letter <g> present in the orthography falsely suggests the presence of a consonant sound in examples like *sing*.
- Silent letters may be pronounced in orthographic consonant clusters: *pn-*, *ps-*, *pt-*, *gn-*, *kn-*, *wr-*, *-mb*, *-ng*, *-mn*, *-bt*, *-gn*. Certain words of foreign origin (e.g., *psychology*, *gnu*, etc.) also have misleading Hungarian equivalents.
- Word frequency may influence the pronunciation of silent consonant letters: English words beginning with <kn> and <wr> are not as problematic as the other letter combinations since many examples are high-frequency words (*knife, knee*; *write, wrong*; etc.). Of these two letter combinations, however, the former seems less problematic, because in spite of the fact that *write* and *wrong* are highly frequent words, Hungarians (even higher-level learners) actually very often pronounce [vr] at the beginning of such words.

3. Laryngeal features:

- As mentioned above, the letters used to indicate plosives is misleading: <p t k> denote aspirated plosives in English but unaspirated voiceless plosives in Hungarian; <b d g> stand for unaspirated lenis plosives in English but fully voiced plosives in Hungarian.
- In the case of the *-s*/*-ed* suffixes: the principle of morpheme identity in English spelling leads to no orthographic marking of the pronunciation variants. As a result, learners generalise that they have uniform pronunciation: <ed> will be pronounced [d], which automatically triggers Hungarian regressive voice assimilation in words like *tapped*, *ripped*, *faced*, which will be homophonous to *tabbed*, *ribbed*, *phased*, respectively. Beginners may even pronounce a linking vowel in most *-ed* forms due to the presence of the letter <e> in the written form of the suffix. This is especially problematic when the suffix attaches to interdental-final stems (producing consonant clusters unusual for Hungarians) – even higher-level learners often insert a helping vowel sound to break up the cluster, for example in *bathed*.

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- As for the suffix *-s*: for some reason, learners associate letter <s> with the sound [s] (perhaps because that pronunciation, rather than [z], is the more frequent in other foreign languages, too; supported by the name of the letter in the English alphabet), which starts the same process as with *-ed* in words like *dogs* (=*docks*), *pigs* (=*picks*), *backs* (=*bags*), etc. For beginners, forms like *times*, *phones*, etc. may cause difficulties in that the learners may pronounce the silent <e>. As for interdental-final stems, the reason why learners may insert a linking vowel in words like *births* is not only that the cluster is difficult to pronounce for a non-native speaker, but the substitution of the interdental with other sounds (cf. Section 3.2.1) will result in a sibilant-final stem, which *would* require the linking vowel.
- The letter <s> generally causes many problems for Hungarians in terms of when it is to be pronounced [s] and when [z]. We may expect that incorrectly pronouncing [s] instead of [z] happens most often, but the reverse also happens sometimes: <s> between two vowel letters (*case*, *base*, *basic*, etc.) is often pronounced [z] in Hunglish, though this may also be attributed to misleading Hungarian equivalents such as *bázis*.

4. Prosody:
   - Though to a smaller extent, prosody may also be involved in spelling pronunciations. For example, if the learner assumes based on spelling that a word like *determine* has a diphthong in the last syllable, then that syllable (and consequently, the first one too) will be stressed, so we end up with the 103 pattern instead of 010.

3.7 Summary

This chapter has provided a collection of potential features of Hunglish, mostly based on L1 transfer (Sections 3.2–5), but predictable spelling pronunciations were also discussed (Section 3.6). The descriptions above are to be regarded as predictions (though some examples came from informal observations of Hunglish), therefore the extent to which these potential problems actually appear in Hungarian learners' pronunciation of English needs to be researched in empirical studies. The next chapter introduces some language-external factors that may influence the proportion of the features "Hunglish" listed here appearing in individual speakers' accents (in comparison to that of target-language variants), and the chapter following that presents two case studies that illustrate how the effect of certain factors chosen from Chapter 4 can be examined on a pronunciation issue taken from Chapter 3.

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4. Non-phonological factors in pronunciation acquisition

A learners' native language is a strong predictor of how successful the learner will be in the acquisition of target language pronunciation patterns – it is obvious that the more distinct the L1 and the L2/FL are in terms of their phonetics and phonology, the more problems the learner is likely to have with target language pronunciation features (Kenworthy 1987: 4). The previous chapter has overviewed in what areas of English pronunciation a Hungarian learner will be faced with difficulties, that is, what typical Hunglish pronunciation errors are attributed to the most important phonological factor determining foreign accent: the effect of L1 transfer. The goal of this chapter is to discuss the various language-external (or as they are referred to as throughout the dissertation, non-phonological) factors that may influence a learner's pronunciation of a foreign language.

In so doing, the chapter provides a review of existing literature in the field of pronunciation acquisition and attempts to categorise the factors that are the most strongly represented in the literature. As there is an abundance of papers which set out to examine the effect of language-external determinants on non-native pronunciation skills, it is practically impossible to go into details about all factors. Therefore, the emphasis will be placed on the ones which were tested in the experiments to be presented in Chapter 5, and only a brief overview will be provided of the rest.

4.1 Biological/neurological constraints: Age and the Critical Period Hypothesis

The idea that age heavily determines the success of language acquisition and that a critical or sensitive[48] period exists after which (L1) acquisition becomes difficult or even impossible (this is called the Critical Period Hypothesis, abbreviated to CPH) was first expressed by Lenneberg (1967).[49] The claims put forward by Lenneberg were later extended to SLA as well, though there have been debates around the role of age in language acquisition in general ever since (cf. Piske et al. 2001): researchers seem to disagree on how many critical or sensitive periods exist (as it has been proposed that different periods affect different aspects of language) as well as

[48] Researchers referring to the period as "critical" argue that perfect acquisition is unattainable beyond the period, while those who use the term "sensitive" believe that what happens is that language acquisition becomes exceedingly difficult, but not impossible.

[49] Lenneberg has found that the end of the critical period is marked by the completion of lateralisation of brain functions (which happens after puberty).

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when the period ends, and, what is more, it is also debated whether such a period exists at all in the field of SLA, therefore the whole issue is surrounded by considerable scepticism.

Nevertheless, in the field of pronunciation acquisition, the existence of such a period is debated to a much smaller extent than in terms of other aspects of language (grammar in particular),[50] as an abundance of research has proved that age of learning plays a decisive role in pronunciation acquisition (for a detailed overview, see, e.g., Ioup 2008, Keeley 2016, Piske et al. 2001, etc.).

Age of learning (often abbreviated to AOL) is also referred to as age of arrival (AOA) in the literature, as the majority of studies on the factor of age describe ESL settings, where the learners' age of learning is equivalent to their age of arrival in the English-speaking country. However, there is little research on the effect of age specifically in EFL contexts. To what extent early starters in EFL contexts are expected to be more successful than those who begin learning the language (or working on their pronunciation) in their late teens or as adults is still unclear and this question has much room for investigation.

4.2 Cognitive constraints: Language learning aptitude

4.2.1 Aptitude in general

Language learning aptitude refers to a set of cognitive skills possessed by language learners which may enable them to acquire a foreign language at a faster rate than other learners who otherwise learnt the language under the same conditions. In other words, language learning aptitude is an "inborn" talent for learning languages in general.

The most influential scholar who contributed to research in the field of aptitude is John B. Carroll, who determined the components of language learning aptitude (cf., e.g., Carroll 1981) and put together the Modern Language Aptitude Test (MLAT, cf. Carroll & Sapon 1959), which served as the basis for most of the aptitude tests that were devised later, including the aptitude test tailored specifically to Hungarian learners.[51]

[50] Although to a smaller extent than in the case of other aspects of language, scepticism concerning the CPH has been expressed in the field of pronunciation acquisition too; see, e.g., Celce-Murcia et al. (2010).

[51] The development of an aptitude test for Hungarian learners is credited to István Ottó, who was the creator of what he named "Magyar Egységes Nyelvérzékmérõ Teszt [Uniform Hungarian Aptitude Test]" (abbreviated to "MENYÉT") – see Ottó (1996) as well as Nikolov & Ottó (2003) and Hild (2007). The test was put together with Carroll's findings taken into account, therefore it consists of four components like Caroll's MLAT.

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The list below summarises the four components of language learning aptitude based on Carroll (1981):

- phonetic coding ability (or simply phonetic ability, also called "aptitude for oral mimicry" or "auditory discrimination ability", cf. Kenworthy 1987: 6): the ability to recognise the sounds of foreign languages and perceive sound contrasts not found in the learners' native language;
- grammatical sensitivity: the ability to recognise the grammatical role of words within a sentence;
- rote learning ability (or associative memory): the ability to associate vocabulary items with their meaning as well as store this knowledge;
- inductive language learning abilities: the ability to infer the morphological and syntactic rules of the target language (without being explicitly taught them).

As it is the phonetic component of aptitude that is the most relevant to the discussion of foreign accent,[52] we discuss a specific skill belonging to this component (namely mimicry ability) in a separate subsection (4.2.2).

4.2.2 Mimicry ability

Mimicry ability refers to a learner's ability to copy the way in which someone speaks (including imitating the pronunciation features of a foreign language). It is important to highlight though that mimicry ability does not only involve production, but perception[53] too – that is, whenever someone is said to have "a good ear for languages", such a remark also refers to the learner's mimicry ability (cf. Kenworthy 1987: 6).

A number of studies (e.g., Tahta et al. 1981, Thompson 1991, Suter 1976, Purcell & Suter 1980, Flege et al. 1999) have examined this variable and found that mimicry ability was correlated with L2/FL pronunciation skills, but the results vary as to whether mimicry ability was found to affect pronunciation skills significantly. A detailed account of the findings of these studies is beyond the scope of the discussion here, however, we will devote special attention to a factor often discussed together with mimicry ability (cf. Piske et al. 2001): musicality or

[52] This of course does not mean, however, that there cannot be a connection between pronunciation skills and the other three components of aptitude. We only limit the scope of the discussion to the phonetic component, as it is the most closely connected to the foreign accent.

[53] See Section 2.3.3.

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musical talent. This factor also deserves a separate subsection (4.2.3), especially because it will be in the centre of attention in Experiment 2 (to be presented in Section 5.2).

4.2.3 Musical talent

Musical talent is not one single concept, but it is composed of several subcomponents, which are to be treated (in research: tested) separately. Based on the collection provided by Nardo & Reiterer (2009), musicality has the following components:

- tonal abilities: pitch perception, sense of tonality, harmony-polyphony;
- rhythmic abilities: metre abstraction, perception of rhythmic structures, rhythmic anticipation, the practo-rhythmic factor, tempo-tapping;
- kinaesthetic abilities: music performance, the ability to improvise, expressivity of the performer, auditory perception;
- aesthetic abilities: expression, appreciation, emotion.

The lack of musical talent is equivalent to the condition called tone deafness (referred to as "congenital amusia" in the scientific literature). Congenital amusia is to be distinguished from acquired amusia: in our discussion, we will only be concerned with amusia as a defect existing since birth, and the case of tone deafness developing as a result of brain damage will be disregarded.

Amusia has been defined is various ways: some definitions focus primarily on perception and define amusia as "a lifelong impairment of music perception" (Peretz et al. 2007), that is, a pitch perception deficit. According to an extended version of the definition (cf., e.g., Pearce 2005), amusia also subsumes a defect in musical memory and recognition, singing (i.e., difficulty singing in tune, or even a total lack of ability to do so) and timing of music (i.e., rhythm).

As for the relationship between musicality and foreign language skills, although it is common belief that musical talent enhances language learning, the effect of musicality on L2/FL pronunciation skills (or L2/FL skills in general) was not proved by research for many years and thus did not receive recognition in the literature on factors influencing foreign accentedness. For example, Tahta et al. (1981), Thompson (1991) and Flege et al. (1995) have all addressed the issue, but could not prove that musical ability and pronunciation skills were correlated, and Piske et al.'s (2001) widely cited overview of factors affecting degree of foreign accent does not list musicality as a predictor of success in non-native pronunciation acquisition.

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In later studies, however, the positive effect of musical talent on pronunciation skills was proved. For example, Milovanov et al. (2004) examined a musical class and an ordinary class of Finnish secondary school students of English (71 participants altogether) and found that the students in the music class performed better both in a production and a perception task (the former involved reading out a passage containing sounds problematic for Finnish learners, and the latter was a sound discrimination test whereby the participants had to choose the one out of three words which was pronounced differently from the other two, e.g., *ship–sheep–ship*). Milovanov et al. (2008) provided further proof that musicality and pronunciation skills were correlated: the participants of the study (40 Finnish pupils, aged 10–12) took part in various tests: a musicality test both before and after an 8-week-long English pronunciation training they completed; and perception (discrimination) tests as well as production tests based on English sounds problematic for Finnish learners. The main findings of the study were that the results of the music tests and the pronunciation tests were positively correlated.

Dolman & Spring (2014) was among the first studies on the connection between musicality and pronunciation skills that did not measure musicality as a whole but certain components of musicality only: the results of this study, which focussed on Japanese participants' pronunciation of English consonants problematic for Japanese speakers, have shown that musical timing ability (but no other components, viz., pitch, loudness, rhythm or tone) and the pronunciation of [r] and [l] were positively correlated.

It is not among the aims of this section to provide a thorough overview of the results of previous research on musicality and pronunciation; the sole purpose here was to highlight that although at first the connection between musicality and pronunciation skills was not recognised, nowadays more and more studies confirm the correlation between them.

Let us now provide a brief account of how exactly musicality has been measured in research on musical talent, because it is based on this overview that the data collection instruments of Experiment 2 were chosen (cf. Section 5.2.4.3). Musicality tests relying on self-reported information will be deliberately ignored (cf. Section 1.2.5), so the discussion below will only be concerned with tools which are able to test the degree of one's musical talent objectively. The discussion will draw heavily on Rybińska & Gralińska-Brawata's (2018) collection and review.

Each task type featured in the musicality tests recur in more than one musicality test: for example, typical music perception tasks include noticing deviations in melody and rhythm ("same or different" tasks, i.e., ones where the task is to listen to two musical or rhythmical phrases and decide whether they are the same or they are different), determining the number of

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sounds in a chord, identifying whether a chord is major or minor, finding the highest and/or the lowest tone in a sequence, and deciding whether a scale is going up or down. Production tests usually involve imitation tasks (repeating either individual tones or series of tones, and clapping out rhythmic sequences), finishing melodic phrases, or free performance (i.e., singing a song).

The most famous and/or most frequently used musicality tests are as follows:

1. Seashore Measures of Musical Talent (Seashore 1919):

The Seashore Measures of Musical Talent, also called the Seashore Tests of Musical Ability, is the oldest and most widely known standardised musicality test, developed by Carl Emil Seashore in 1919. The tests (which Seashore preferred calling "measures") include pitch, loudness, tempo, timbre and rhythm discrimination tasks. The advantage of the tests is that they are highly elaborate, which means however that the tests take quite long to do. The tests have not been adapted for online use either, therefore they can only be taken in a traditional pen-and-paper format. The Seashore test served as the basis for all the other musicality tests that were developed later.

2. Montreal Battery of Evaluation of Amusia (cf. Peretz et al. 2003):

Another widely used musicality test is the Montreal Battery of Evaluation of Amusia (MBEA). The test consists of six components, of which five are "same or different" tasks testing the participants' perception of contour, scale, interval, rhythm and metrics. The sixth component is a test on musical memory. The full test takes approximately 90 minutes to complete.

3. The Bentley Test (Bentley 1966):

The Bentley Test (also called the Musical Aptitude Test) was developed in 1966 and the tasks were designed to target younger participants (elementary school children). It is no longer used widely, but it was immensely popular in England at the time, especially because it was the first set of standardised tests aimed at children.

4. The Musical Ear Test (Wallentin et al. 2010):

The Musical Ear Test (MET) was developed with the aim of creating a relatively short musicality test (can be completed in approximately 20 minutes). The test thus focusses on two musicality components only (melody and rhythm), and contains tasks of the "same of different" type.

5. Profile of Music Perception Skills (PROMS):

The advantage of the Profile of Music Perception Skills test is that it contains a variety of different tasks (just like the Seashore test and the Bentley Test, but in contrast to these two, the PROMS test is fully available online). Furthermore, the PROMS test has multiple versions,

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each of which takes a different amount of time to complete (from 3 to 60 minutes), therefore the version to be used can be chosen based on the purpose the test is needed for.

6. Mandell's music tests (http://jakemandell.com/):

These include four musicality tests designed by radiologist Jacob C. Mandell, who, before starting medical school, pursued a brief career as a composer of electronic music, releasing three full-length albums between 1999 and 2001. What led to his creation of the four musicality tests was that he was a member of a research team working at the Music And Neuroimaging Laboratory at Beth Israel Deaconess Medical Center in Boston (a teaching hospital of Harvard Medical School), and they conducted experiments which were designed to examine neuro-anatomical correlates of congenital amusia. The musicality tests were created as part of the research project, because they needed a relatively quick way to test tone deafness, and existing musicality tests were not suitable in this respect.

Mandell's four musicality tests (a tone-deaf test, a rhythm test, a pitch test and an associative musical visual intelligence test) are available freely online on his website. The results submitted are evaluated automatically. The sound files featured in the tests are all Mandell's own copyright, and the complexity of the musical phrases contributes significantly to the fact that his tests are more difficult than other tests of the same kind (Mandell himself points out that the tests were made extraordinarily difficult on purpose, and even professionally trained musicians rarely score above 80% in his tone-deaf test, for example). It follows from this that while other tests are able to screen for tone deafness, they are most probably unable to reveal differences between an average and an exceptional performance, which Mandell's tests are able to do.

Until 2021 spring, Mandell's tests have not been used in research on language apart from a series of experiments conducted in Poland (Jekiel & Malarski 2017, Jekiel & Malarski 2021, Malarski & Jekiel 2016). The experiment to be introduced in Section 5.2 contributes to the limited use of Mandell's tests in language-related studies as three of the four tests were used as data collection instruments in the experiment. The three tests in question will therefore be described in even further detail in Section 5.2.4.3.

7. Some further tests:

Some further musicality tests that are not as influential as the ones described above but which are also worth mentioning are The Tone-deaf Test (http://tone-deaftest.com/), which is a much shorter (but thus also less meticulous) test for measuring tone deafness than Mandell's; and the Distorted Tunes Test (https://www.nidcd.nih.gov/tunestest/take-distorted-tunes-test), which is unique in the task type used (the task is to decide whether some well-known tunes were played

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correctly or incorrectly), but a disadvantage of which is that it requires the participants' familiarity with each of the tunes used.

This completes the discussion of musical talent, but this variable will be addressed again in Section 5.2.

4.3 Attitudinal factors: motivation and identity

There are two important determinants that are connected to a learner's attitudes towards language learning: one is motivation (i.e., concern for good pronunciation), the other is identity, although the two are not unrelated.

Some aspects of motivation have already been discussed in Section 1.2.2, where it was pointed out that the ESL and the EFL contexts differ crucially in the type of motivation the learner has. Here we need to revisit the distinction between integrative and instrumental motivation, because a learner's concern for good pronunciation is very often rooted in integrative motivation, that is, his/her desire to blend in with the community speaking the foreign language in question. In fact, this has been found one of the factors accounting for exceptional success in achieving a native-like pronunciation (Moyer 2014).

For all these reasons, pronunciation has been claimed to be "bound up with identity" (Setter & Jenkins 2005: 5), as a native-like accent of an L2/FL reflects the speaker's willingness or desire to identify him- or herself with the L2/FL community and/or culture.[54] It follows from this that the opposite may be true as well: there exist learners who stubbornly refuse to even attempt to sound like a native speaker, because they feel that retaining a foreign accent is an important part of keeping their L1 identities (though it is possible that what is behind such reluctance is the learners' lack of ability to produce native-like pronunciation features, and with the arguments concerning their identities they only wish to conceal or rationalise their lack of success).

Similarly to age and aptitude, countless studies are available which have examined the connection between motivation and pronunciation skills, but a discussion of the findings of

[54] Arguments against the nativeness principle therefore do not only include the ones concerning the attainability issue and the spread of English as a lingua franca (cf. Section 2.3.4) – Ur (1996) has argued that learners' wish to express their national identities through their accents in a foreign language should be respected, and learners should not be forced in any way to attempt to sound like a native speaker (e.g., by having to perform pronunciation tasks, or having their pronunciation assessed).

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those is not relevant for our purposes here – for a detailed review, see for example Keeley (2016) and Piske et al. (2001).

4.4 Further factors and closing remarks

There are a number of further language-external factors that research on foreign accent has focussed on, but as these are less relevant to our discussion, they will only be briefly mentioned in a closing section here.

L2/FL pronunciation has been found to be affected by practically all the factors that are collectively referred to as "individual differences in SLA" – of these, age, aptitude and motivation were discussed in separate sections above, but it has also been proved that anxiety (Szyszka 2017) and learning strategies (Rokoszewska 2012, Szyszka 2017) are also connected to learners' success in terms of pronunciation, as well as social factors such as gender and language use (Hansen Edwards 2008, Piske et al. 2001).

The amount and type (i.e., quantity and quality) of exposure may also be decisive in the acquisition of non-native pronunciation: as for quality, the difference between ESL and EFL settings was discussed in Section 1.2.2; and as for quantity, the effect the length of residence in the English-speaking country (i.e., the number of years spent in the L2 environment) has also been studied (Piske et al. 2001). The influence of length of language learning in EFL settings is much less represented in the literature, but this is due to the fact that (as pointed out in Section 1.2.2) ESL settings dominate the field of L2 phonology research.

The effect of formal instruction has not gained appropriate recognition, either – for example, reviews such as Piske et al.'s (2001) have not listed this variable among the reliable predictors of success in pronunciation. This may partly be connected to the dominance of L2 environments in the literature (since formal instruction is more common in EFL contexts), and partly to the fact that pronunciation is a neglected aspect of language teaching[55] in general, therefore an average learner is not likely to be exposed to explicit pronunciation teaching – in Hungary, for instance, explicit instruction in the pronunciation of English is restricted to university courses (BA programmes in English Studies).

Nonetheless, the effect of formal instruction on pronunciation skills has been proved even though review articles do not usually list this variable among the predictors of a good pronunciation. Following the spread of online dictionaries, a number of studies addressed the

[55] For this reason, pronunciation is often called "the Cinderella of ELT" (cf. Celce-Murcia et al. 1996, Kelly 2000, etc.).

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question whether IPA transcriptions should be taught to students of English, and supporters of retaining the use of phonetic notation in the classroom have collected various advantages of the IPA, one of which is the fact that awareness of the sounds of a foreign language (supported by the familiarity with IPA symbols) facilitates pronunciation. Lintunen (2005), for example, examined 34 Finnish university students of English, who took part in a training in which they were taught IPA transcription and practical pronunciation simultaneously. The main finding of the study was that those participants of the study who performed well in the transcription tests were the ones whose pronunciation skills also improved to the greatest extent. Lu's (2002) study focussed on how IPA transcription resolved the intelligibility problems faced by Cantonese speakers of English in Hong Kong, the cause of which was that the participants had developed a strong foreign accent mainly because they had been taking notes of English pronunciation using Chinese orthography. After being taught the sounds of English through IPA notation, the informants improved their English pronunciation significantly. Similar conclusions were drawn by Safari et al. (2013), who found that using IPA transcriptions in footnotes to the learning materials significantly improved Iranian EFL learners' English pronunciation skills.

This closes our discussion of language-external factors influencing foreign accent. The next chapter presents two empirical studies on Hunglish, both of which set out to examine how different types of factors contribute to the extent to which the predictable features of Hunglish will appear in a learner's accent.

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5. Experiments on Hunglish

This chapter presents two empirical studies on Hungarian learners' pronunciation of English, with the aim of gaining a deeper understanding of how different factors (phonological and non-phonological ones) contribute to the extent to which certain typical Hunglish pronunciation features will be found in an individual speaker's accent. Chapter 3 has provided an overview of what potential errors can be expected to appear in Hunglish based on L1 transfer (and spelling, especially in the case of EFL learners), of which the ones chosen to be analysed here are variable rhoticity in the first experiment, and errors in word stress placement in the second. In other words, the first study deals with Hungarian learners' acquisition of lenition (that of non-rhoticity in particular), and the second one takes a closer look at their acquisition of a suprasegmental feature (viz., English rules for word stress placement). Both studies were extensive research programmes lasting for more than a year each; the first one between 2016 and 2017, and the second one between 2018 and 2019.[56]

The presentation of each experiment will have the following internal structure: First, some introduction to the topic will be provided to describe the background to the discussion. Second, the pronunciation issue under scrutiny will be briefly revisited (though it was already touched upon in Chapter 3, it will be presented from the point of view of the experiment) and some further literature specific to the pronunciation problem will be discussed. After the introductory sections, the presentation of the experiments will follow the traditions of applied linguistics

[56] Both research studies that are to be presented in this chapter were joint projects to some extent as I did not work completely on my own in all phases of the two research programmes. I hereby thank Katalin Balogné Bérces, with whom we worked together in some parts of the first experiment as co-authors (the results of our projects were published as Balogné Bérces 2017, Piukovics 2018, Piukovics & Balogné Bérces 2019 and Balogné Bérces & Piukovics 2019), and Klaudia Üstöki, an MA student of mine who got me involved in the topic of the second experiment when she asked me to supervise her MA thesis on the effect of musicality on foreign language pronunciation skills. Of the three groups of participants examined in the second study, two were Klaudia's students she was teaching at the time at a secondary school as a part of her compulsory teaching practice, and I owe her gratitude for enabling me to involve her students in the experiment in addition to my university student participants (the students belonging to Group 3, cf. Section 5.2.4.2). The outcomes of our joint work are Klaudia's MA thesis (Üstöki 2018) and a co-authored paper (Piukovics & Üstöki 2019). For the reasons described above, some parts of the discussion will be presented from a first-person-plural point of view. Whenever an idea or claim is credited to my co-authors to at least the same extent as to me, it will be indicated with citations to our joint papers. I apologise to my two co-authors if I failed to do this precisely in some cases – I realised that sometimes it was not even possible to tell which of us had come up with a particular idea originally.

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research (i.e., a separate subsection will be devoted to the presentation of the participants of the studies, the data collection instruments used, the results of the experiments and the discussion thereof). Finally, the conclusions drawn from the analyses will be discussed in two parts: those specific to each experiment will be presented at the end of Sections 5.1 and 5.2, respectively, and the ones the two experiments have in common will be discussed separately at the very end of the dissertation (in Chapter 6).

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EXPERIMENT 1

5.1 The acquisition of non-rhoticity

5.1.1 Introduction

The experiment presented in this section aims to illustrate that the various forms of language contact display parallel features. The claims to be put forward have their roots in Plag's (2009) interlanguage hypothesis, according to which different types of intermediate language systems such as creoles and interlanguages exhibit similar characteristics. More specifically, the interlanguage drawing on the L1 and L2 under second language acquisition and foreign language learning, and the creole arising from a substrate and a superstrate language both represent mixed and/or intermediate systems, whose properties are in turn governed by general principles of linguistic organisation.

The phenomenon to be brought under examination is a well-known phonological phenomenon in varieties of English: (non-)rhoticity, that is, the pronunciation (more precisely, the presence or absence) of the rhotic consonant /r/. In addition to the two main types of R-systems in English (rhotic accents, in which all historical or orthographic R's are pronounced, and non-rhotic ones, in which only prevocalic R's are pronounced), intermediate forms of rhoticity are also attested, in which historical R is consistently pronounced in certain non-prevocalic environments but not in others. Such varieties have been referred to since Wells (1982: 76 & 221) as semi-rhotic. For example, as Wells explains, forms of Jamaican Creole are semi-rhotic in that /r/'s are not only pronounced prevocalically but also word-finally in stressed syllables. Intriguingly, as will be seen in the results of the experiment, the patterns characteristic of such varieties can be observed in the case of certain Hungarian learners of English (with a rhotic L1) whose target accent is non-rhotic.

Through an examination of examples like the one mentioned above, the analyses will:

- present the rhoticity patterns of Hungarian learners' pronunciation of English;
- provide further evidence for Plag's interlanguage hypothesis by showing that non-native pronunciation varieties of English (i.e., English-based interlanguages, in this particular case Hunglish) display similar systematic semi-rhotic patterns to those found in native ones (albeit with considerable intra- and inter-speaker variation); and
- argue that the identical patterns in independently emerging intermediate systems arise due to a preference of the preservation of the /r/ in perceptually salient/prominent and universally stronger phonological positions (i.e., stressed and/or word-final ones) under

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the influence of rhotic native varieties (in the case of, e.g., Jamaican Creole) or spelling (in the case of foreign language acquisition).

The section is structured as follows: After this introductory part, Sections 5.1.2 and 5.1.3 provide an overview of rhotic, non-rhotic and semi-rhotic varieties of English in more detail, placing the greatest emphasis on the last category by introducing some native accents of English of the semi-rhotic type and elaborating on the factors that have an effect on R-realisation in those accents. Section 5.1.4 takes a look at empirical data by presenting an experiment involving Hungarian speakers of English whose English pronunciation displays semi-rhotic features. Based on the way in which native semi-rhotic accents are determined by a set of factors, Section 5.1.4.1 presents our hypotheses as to which of the determinants listed in Section 5.1.3.2 might also affect a non-native variety, and thus describes the variables that were tested in the experiment to be presented in Sections 5.1.4.2–7. Finally, Section 5.1.5 sums up the conclusions drawn from the analysis (some of which will be discussed in further detail in Section 6.2) and elaborates on the limitations of the study.

5.1.2 Rhotic and non-rhotic accents of English

Based on the behaviour of R, pronunciation varieties of English can be divided into the two major categories of rhotic and non-rhotic. The basis of the division is traditionally interpreted as a consonant deletion rule (viz., R-dropping), by which in rhotic (i.e., R-ful) accents like the standard American pronunciation (General American, GA) or Scottish Standard English[57] all historical or orthographic R's appear in pronunciation, while in non-rhotic (i.e., R-less) ones like the standard British accent (Received Pronunciation, RP) only prevocalic (i.e., non-coda) R's are pronounced. In accents of this latter type no /r/ will appear in the citation form pronunciations of words like *nurse*, *car*, *market* or *letter*. In connected speech, however, word-final R's (as in *car* or *letter*) are normally retrieved in prevocalic position in standard forms of non-rhotic English like RP,[58] which gives rise to R-liaison (also called R-sandhi) comprising

[57] Although less known, the latter is a better example of a rhotic accent, because the non-prevocalic R's of GA are rather vowel-like (cf. Harris 1994).

[58] There exist non-rhotic varieties which do not display Linking-R (and thus Intrusive-R, either) – see Harris (1994) and Wells (1982).

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what has been dubbed Linking-R (e.g., *car is*) as well as, for some[59] speakers, the so-called Intrusive-R (e.g., *law*(r)*and order*).

It is important to note that, exactly because of the emergence of R-liaison in non-rhotic systems, this behaviour of R is not analysed by some more contemporary phonological theories as an R-dropping rule, but as a rule of R-insertion (cf., e.g., Broadbent 1991). Such theories focus on the case of native speakers and regard non-rhoticity as a phonotactic restriction according to which R's may only appear in syllable onsets or in syllable nuclei as syllabic R's (e.g., Harris 1994). From this perspective, non-rhoticity cannot be considered a deletion rule, since R's are not present in underlying representations, therefore the appearance of R's on morpheme boundaries is analysed as consonant insertion in all cases – not only when the R in question is a non-etymological Intrusive-R, but also when it is a Linking-R (cf., e.g., Nespor & Vogel 1986), which even makes the distinction between these two types of R unnecessary.

However, for the present purposes, such contemporary analyses of the phenomenon will need to be disregarded. In the example under scrutiny, only the classical interpretation is relevant, as the study examines non-native speakers of English (with a rhotic L1 plus heavily influenced by spelling – see more details about the participants in Section 5.1.4.2). Unlike during L1 acquisition, in the course of second language acquisition and foreign language learning (a lot more intensively in the latter), spelling is present and has a profound effect on pronunciation from the beginning of the learning process (cf. Sections 1.2.2 and 3.6), therefore in the case of a rhotic L1 like Hungarian the initial stage of the interlanguage is expected to be either fully or at least heavily rhotic. The appearance of non-rhoticity at higher proficiency levels will therefore involve the learners having to depart from R-ful forms, and the acquisition of non-rhoticity (i.e., achieving a non-rhotic target accent) will mean R-suppression. For the above reasons, the phenomenon will be considered a rule of deletion throughout the discussion.

It is also worthy of note that the experiment to be presented (and thus the whole of Section 5.1) is restricted to the examination of the presence or absence of non-prevocalic /r/'s, and it is therefore not concerned with other aspects such as the effect of pronounced /r/'s on neighbouring sounds or R quality. As for the former issue, it is characteristic of Germanic languages in general that R-like sounds (also referred to as "rhotic consonants") are able to change the quality of the sounds adjacent to them (especially that of vowels) – this is how R-

[59] There exist speakers whose pronunciation displays Linking-R, but not Intrusive-R: speakers of conservative RP artificially suppress Intrusive-R – therefore, Broadbent (1991) claims that there are no native speakers of this variety.

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coloured or "rhotic" sounds are formed. This interpretation of "rhoticity", however, is irrelevant to the discussion of the phenomenon under investigation, therefore any instances of R-coloured vowels emerging as a result of non-prevocalic R's will be regarded as pronounced /r/'s.

We will not be concerned with the quality of pronounced R's, either – although the issue might be intriguing due to the phonetic differences between English and Hungarian R's (cf. Section 3.2.1), this was not among the aims of this study; moreover, in the course of the experiment it even became apparent that this might not be even worth examining, as all of the participants of the research pronounced near-native R-qualities, which supports the remark on this issue in Section 2.3.3 (see more details in Section 5.1.4.5).

5.1.3 Variably rhotic and semi-rhotic accents of English

5.1.3.1 The emergence of intermediate R-systems

It has been known since at least the 1960s that varieties with intermediate rhoticity (i.e., with some, but definitely not all non-prevocalic R's pronounced in addition to prevocalic ones) also exist beside categorically rhotic and non-rhotic accents. One of the earliest documented cases of such a variety (which is also perhaps the most famous of all) is New York City English described in Labov's (1966) classic department store study, in which he examined the social stratification of R in NYC department stores.

The background of Labov's experiment is that while a traditional New York accent is non-rhotic, having a non-rhotic accent was becoming socially less accepted around that time. As a consequence, New Yorkers' accent started shifting towards rhoticity, that is, non-prevocalic R's began to be reintroduced, which resulted in considerable variability (of both the intra-speaker and the inter-speaker types). Labov set out to examine the extent to which socio-economic status was a predictor of the degree of R-realisation by conducting an experiment in three department stores: Saks Fifth Avenue (the highest ranking and most expensive store targeting upper middle-class New Yorkers), Macy's (a moderately expensive, middle-ranking store, whose regular customers are middle-class people) and S. Klein (the lowest ranking, cheapest store, visited mainly by working-class people). Data from the participants were collected through a series of short informal interviews focussing on the elicitation of the phrase *fourth floor* twice: informants were first asked where a particular department can be found (the answer to the question was "fourth floor"), then they were requested to repeat the information. Each participant thus potentially pronounced four non-prevocalic R's (a preconsonantal and a word-final one, first pronounced in casual style, then repeated emphatically). The results of the

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experiment (as illustrated in Figure 5.1) have shown that the accent of those with a higher social class featured higher degrees of R-realisation (i.e., the percentage of pronounced non-prevocalic /r/'s), and that R-realisation was higher in the emphatic forms.

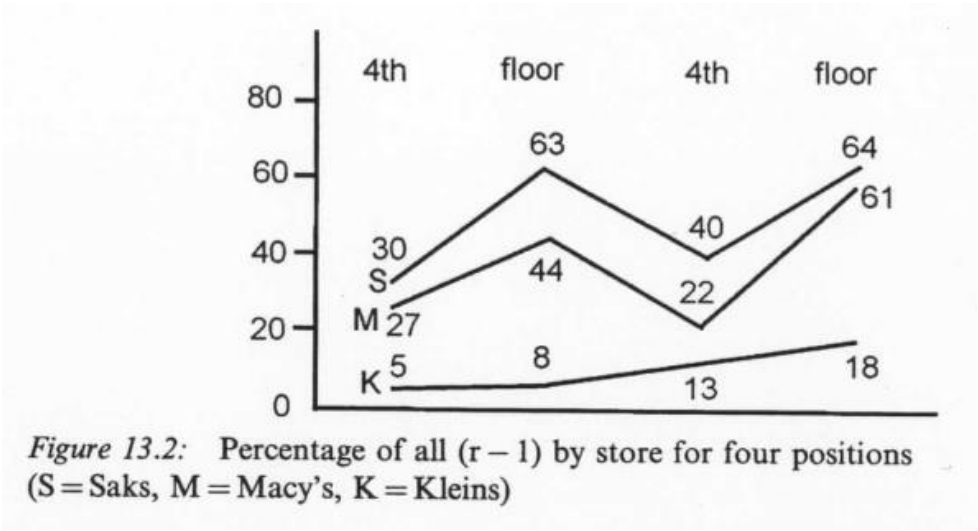

Figure 13.2: Percentage of all (r – 1) by store for four positions (S = Saks, M = Macy's, K = Kleins)

Figure 5.1: The results of the department store study (Labov 1966: 175)

Although the utterance of four words does not necessarily reflect the overall degree of rhoticity in one's accent adequately, Labov's example clearly shows how pronunciation varieties with intermediate rhoticity are formed: the original accent starts to change in terms of rhoticity (in this particular case, a traditionally non-rhotic accent begins shifting towards rhoticity, but this may also happen vice versa), and the degree of rhoticity in individual speakers is determined by language-external factors such as socio-economic status or style of speech. The change is brought about by dialect contact due to the influence of a more prestigious variant, and the resulting system will not coincide with that of either the substrate or the superstrate.

Those pronunciation varieties in which the intermediate type of R-system displays consistency (i.e., R's are systematically kept in certain non-prevocalic positions and systematically lost in others) later came to be called semi-rhotic (Wells 1982: 221). The term semi-rhoticity needs to be distinguished from the case of variable rhoticity, where no consistency can be found in the patterns (in other words, in variably rhotic accents the pronunciation of non-prevocalic R's is optional). A widely cited example of a semi-rhotic accent is Jamaican English, while the above-mentioned example of New York City English is one that is classified as variably rhotic. In what follows, we will provide an overview of some semi-rhotic and variably rhotic accents of English and the factors determining the degree of R-realisation in them.

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5.1.3.2 Factors influencing rhoticity in native varieties

Documented cases of the type of semi-rhotic accent in whose case a non-rhotic substrate clashes with a rhotic superstrate include the Jamaican basilect (cf. Wells 1982: 76 & 221 & 570 & 576–577) and Boston English (cf. Irwin & Nagy 2007): both in Jamaica and the North-East of the USA, the historical influence of the non-rhotic British norm originally determining the emergence of the variety is now overridden by the rhoticity dominating both North American society and US media (cf. Labov 1966).

On the other hand, Southland New Zealand English (cf. Bartlett 2002) and North Yorkshire English (cf. Wells 1982: 221) exemplify the case when a traditionally rhotic accent shifts towards non-rhoticity. For instance, Southland in the South Island of New Zealand was originally settled by people arriving from Scotland, and many Scottish features still form part of the linguistic heritage of speakers of English there. One of these features is (variable) rhoticity, while the majority accent of both the North Island and the rest of the South Island is non-rhotic.

The overall degree of rhoticity in these native semi-rhotic accents is between 20 and 40% – e.g., 21.7% in a survey on Jamaican Creole (Rosenfelder 2009: 68), and 38% in a survey on Boston English (Irwin & Nagy 2007: 140). This means that in these varieties 20–40% of all potential non-prevocalic R's are realised.

Within the category of semi-rhotic accents, several different subtypes have been documented. Although the documentations are often incomplete, a number of determinants have been found to support the realisation R in non-prevocalic environments. The determinants described in the sources cited above are summarised in Table 5.1, which also specifies the possible values of each determinant to clarify what exactly they mean.

As shown in the table, three variables (namely preceding vowel, stress and position) are marked in bold. These are the ones that will be referred to as major factors influencing rhoticity, as the overwhelming majority of descriptions of semi-rhotic varieties of English document semi-rhotic accents that are determined by one or more of these three determinants. In contrast, all the other factors will be regarded as secondary or minor ones.

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language-external / sociolinguistic factors	individual differences between speakers	speaker sex	male vs. female
		speaker age	categorised into age groups
	other	text category	from casual speech through interviews to formal reading
language-internal / mostly (morpho-) phonological factors	melodic conditions	**preceding vowel**	NURSE, NORTH, START, lettER, etc.
		following consonant	various categories based on place and manner of articulation
	prosodic conditions	**stress**	stressed vs. unstressed
		position	word-final vs. preconsonantal
		following pause	utterance-final position (i.e., a following absolute word boundary) vs. no such pause following
		syllable boundary	tautosyllabic vs. heterosyllabic following consonant
		morpheme boundary	tautomorphemic vs. heteromorphemic following consonant
	other	text frequency of token	grouped by 1000 words

Table 5.1: Factors influencing rhoticity in native varieties

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The major division between the various factors discussed is that between language-external and language-internal variables. The former mostly includes sociolinguistic determinants that are also commonly referred to as individual differences in second language acquisition (such as speaker sex and speaker age), and also text category, which refers to the "genre" of the elicitation tasks used in the experiment (referred to by Labov 1972 as "contextual styles", which may range from free conversations or casual speech to reading out word lists or even minimal pairs).

The variables belonging to the latter category, i.e., language-internal factors, are mostly (morpho-)phonological. Based on Balogné Bérces & Piukovics's (2019) categorisation, among them some are determined by melodic conditions (these include the vowel preceding the R, and the consonant following it), and some by prosodic conditions (like stress, the position of the R, syllable and morpheme boundary, etc.). In addition to the (morpho-)phonological variables, the text frequency of the tokens is also a factor to be considered among the language-internal ones.

The way in which the major factors determine R-realisation is that in most semi-rhotic accents the variables supporting the realisation of R include a preceding NURSE and/or lettER vowel, and a word-final and/or stressed phonological position (although it is not unambiguous whether in the case of the lettER vowel the realisation of R is conditioned by the word-final position or the quality of the vowel preceding the R). Let us overview the melodic and prosodic effects in more detail.

What the melodic effect precisely means is that a preceding NURSE and/or lettER vowel supports the realisation of R: according to Wells's (1982) Standard Lexical Sets, these two key words denote the vowel of words like *first*, *nurse*, *merge*, etc. (/ɜː/ in RP), and Pre-R schwas, respectively. Based on this, in some semi-rhotic accents the realisation of R will be higher in NURSE-type and/or lettER-type words than in the case of other vowels.

An example of such a variety is Southland English (Bartlett 2002) and Boston English (Irwin & Nagy 2007). In the latter, for example, more than 80% of non-prevocalic R's following a NURSE vowel appear in pronunciation, as opposed to other vowels (CURE, START, NEAR, SQUARE and NORTH/FORCE), in the case of which the degree of R-realisation is only half as high (see the third bar in Figure 5.2). The effect of the lettER vowel in this variety cannot be demonstrated (see the fourth bar in Figure 5.2).

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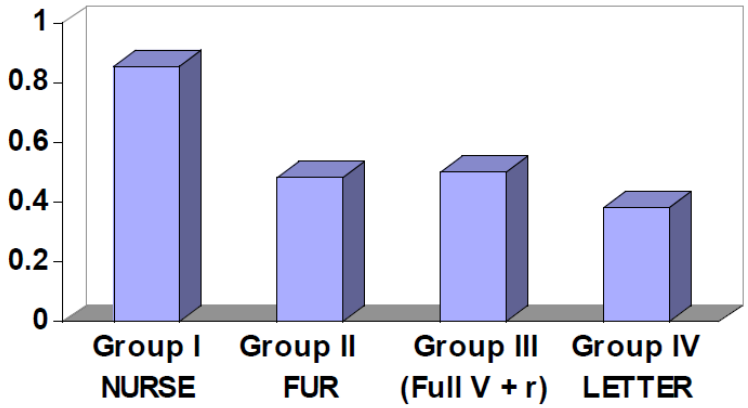

Figure 5.2: R-realisation in Boston English (Irwin & Nagy 2007: 141)

A possible explanation of the melodic effect is that NURSE- and lettER-type words contain an R-coloured vowel (i.e., /ɝ/ or /ɚ/) or a syllabic /r/. The R in such cases is in the nucleus, not the coda, which justifies its realisation. In fact, even if the vowel in question is not R-coloured, the link between schwa-like vowels and English /r/ is well-known and has been accounted for in numerous studies with reference to their phonetic similarity, especially their common articulatory gestures (cf., e.g., McMahon et al. 1994, Gick 1999 & 2002a). Besides, a number of forms of the phonological manifestation of this link are also attested, the most widely discussed being the historical fact that Intrusive-R appeared soon after the establishment of R-dropping in English varieties during the 18th century, but it was used after schwa-final stems first, followed by a process of gradual extension of its scope, eventually covering all the non-high vowels (cf. Wells 1982: 222ff; also Gick 2002b). Therefore, the melodic effect seems to be justified, supported by various types of evidence.

The other effect influencing the appearance of R can be called the prosodic effect. This means that the proportion of retained R's will be higher in word-final and stressed positions than before a consonant or in unstressed positions (see e.g., Figure 5.3). In varieties to which the prosodic effect applies, it is words like *car* and *letter* in which the degree of R-realisation will be high, although in the latter case (as already mentioned above) the melodic effect may also have a role. Examples include the variety spoken in the Malton district of Yorkshire and Aboriginal Adelaide: in the former, it is the word-final position where non-prevocalic R's are realised; in the latter it is the preconsonantal one (French et al. 1986, Sutton 1989). As far as stress is concerned, it is usually the combination of stress and position that supports R-realisation in certain varieties, for instance, in Jamaican English, in which R's are kept in word-final stressed syllables (Rosenfelder 2009, Wells 1982: 76 & 221).

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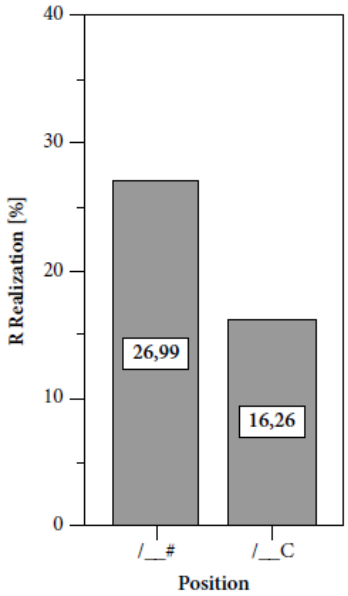

Figure 5.3: R-realisation in Jamaican English (Rosenfelder 2009: 79)

The prosodic effect can mostly be explained by the observation that universally the phonological strength of a position inhibits the lenition (weakening) or deletion of the segment in that position. Although the exact definition of lenition is debated (cf., e.g., Balogné Bérces & Honeybone 2012, Bauer 1988, Cser 2003, Honeybone 2008), R-dropping straightforwardly qualifies as a deletion process governed by syllabic (i.e., suprasegmental) position. Therefore, R-dropping presents a clear case of consonant weakening affecting coda R's, while R-realisation means non-dropping, that is, inhibition of lenition in strong(er) phonological positions. (This issue will be discussed in further detail in Section 6.2.)

In the specific case of R-dropping, the word-final position can be further stabilised by the fact that there is variation in that position with regard to the R. Recall from our introductory description of non-rhotic accents that they are characterised by R-liaison: a so-called Linking-R may appear on morpheme boundaries if the next word or suffix begins with a vowel. To give an example, while there is no /r/ in *bore* and *bored*, in other forms of the same word a Linking-R is pronounced, e.g., *boring* in the middle of a word, and *bore us* across words. Therefore, it can be presumed that the higher degree of word-final R's in words like *bore* is also contributed to by the fact that these words sometimes appear in a form containing an R (as opposed to words like *market*, in which due to the preconsonantal position there will be no variation).

Let us now briefly mention what we called "minor factors" at the beginning of this section. The effect of such factors is documented in a very limited number of papers: for an account of some examples, see Rosenfelder (2009), where it is shown among other issues that

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rhoticity is disfavoured before sonorants in Jamaican English,[60] and that the presence of a following pause supports rhoticity in the same variety.

This closes our discussion of native semi-rhotic and variably rhotic accents of English. As for non-native varieties of English with intermediate rhoticity (i.e., semi-rhotic or variably rhotic interlanguages), at the time of writing this text in 2020, only limited accounts of such accents are available, for example, Zając (2016), who examined rhoticity in the accent of Polish learners of English. The experiment to be presented in the next section will contribute to the limited data available by examining the case of Hungarian learners of English whose English pronunciation displays characteristics of the semi-rhotic pattern.

5.1.4 The study

5.1.4.1 The factors to be tested

In what follows, we will consider the determinants listed in Section 5.1.3.2 above from the viewpoint of non-native varieties, and present our expectations as to which of them may influence rhoticity in interlanguages.

One possible way of reproducing in the non-native context the contact situation resulting in native semi-rhotic varieties is finding learners of English who aim to achieve a non-rhotic accent but have not yet reached full non-rhoticity. The contact of a Hungarian L1 and English as a foreign language is ideal in this respect as most beginner Hungarian learners speak a heavily (if not fully) rhotic variety of Hunglish under the influence of spelling and a first language lacking the rule of R-dropping (and generally exhibiting a more limited array of deletion rules, as well as having a much more phonemic spelling system than English), and, as mentioned in Section 5.1.2, non-rhoticity is expected to appear at higher proficiency levels only, resulting in a semi-rhotic interlanguage during the acquisition process.

Our analysis of the learners' Hunglish pronunciation focussed on how the factors influencing the rhoticity of native varieties affect the realisation of R in the non-native variety under examination. Not all factors listed in Section 5.1.3.2 were tested in the study, though. For example, we completely disregarded the two variables that exemplify individual differences in SLA (viz., speaker sex and speaker age) because we assumed these are specifically affecting native contexts, where the shift in rhoticity is a phenomenon that is almost purely sociolinguistic

[60] This is not surprising though, since any language that has clusters like [rl], [rn], [rm] and [rt] is expected to have more instances of [rt] than of the other three.

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in nature, and therefore we did not expect them to be able to affect interlanguages. Of the language-external factors, however, we *did* look at text category, as all our participants have a specifiable non-rhotic target accent (which they have not yet achieved), so we can reasonably expect task formality to affect the learners' pronunciation in that the more formal the elicitation task is, the closer the pronounced forms will be to the target (cf., e.g., Tarone 1979 & 1982).

The language-internal factors we looked at include the three major ones described above, and one of the minor ones, namely text frequency of token. As for the vowel preceding the R, we had neutral expectations (i.e., there may or may not be an influence; the question was left open for investigation); however, as for stress and position, we expected a positive impact there as that would mean the influence of universal principles on the learners' pronunciation (the stressed position being a universally stronger phonological position than unstressed, and word-final position being stronger than preconsonantal, and therefore less prone to weakening or deletion).

As far as text frequency is concerned, we predicted that the degree of rhoticity would be lower in the case of more frequent words for at least two reasons: first, because a higher degree of familiarity with the word would contribute to the learners' confidence in pronouncing an R-less form (and eliminate the fear of not being understood, for example), and second, because higher word frequency suggests more exposure to the word in question, which the learner might have more easily memorised in its R-less form.

Finally, our study was concerned with one more variable, viz., word length, which was not originally going to be tested (i.e., when designing the data collection instrument and making sure that the target words are varied enough to examine all of the factors chosen, the length of the words was not taken into account, but fortunately the target words enabled the analysis of this factor, too). The reason why this variable was added to our collection later is that some of the language teacher participants of the study (see Section 5.1.4.2) called our attention to the possible effect of word length when in the course of our informal follow-up discussion of the experiment they realised that in shorter words they maintain non-prevocalic R's to a much greater extent for fear of their students experiencing difficulty understanding the R-less pronunciation of words (i.e., recognising the words). The effect of word length on R-realisation apparently has not yet been studied either in native or non-native varieties, with the exception of Durand et al. (2014), but that study is not relevant to our discussion as it examined the realisation of Linking-R's, and not that of non-prevocalic R's, which we are concerned with.

Table 5.2 summarises the factors to be examined and our expectations. The variables were tested on Hungarian learners' accent of English in an empirical study, which is to be described

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in the next sections. The question the experiment aimed to find an answer to is to what extent Hunglish can be called semi-rhotic – that is, whether we can find consistencies in Hunglish with regard to R's retained in non-prevocalic positions. In a more general sense, the question was whether the "imperfect" acquisition of non-rhoticity can result in semi-rhotic interlanguages.

Variables	**Expectations**
text category	increased task formality means decreased R-realisation
preceding vowel	neutral expectations
stress	greater degree of R-realisation in stressed syllables
position	greater degree of R-realisation in word-final position
text frequency of token	greater degree of R-realisation in less frequent words
length of word	negative correlation between word length and R-realisation

Table 5.2: The variables to be tested and our expectations concerning them

5.1.4.2 Participants

The participants of the study were 13 learners of English. All of them were native speakers of Hungarian (that is, their L1 is a rhotic language), and they were highly proficient learners as they were either BA students of English Studies or language teachers. The two most important criteria when selecting the participants were that (1) their target accent (i.e., the pronunciation variety of the target language that the learners wish to acquire) should be non-rhotic, but they should not have yet reached full non-rhoticity, and that (2) they learnt English as a foreign language, so that we could assume a heavy influence of spelling on their pronunciation.

At the time of the experiment, the student participants had all already passed at least one course in the pronunciation of English, in which they explicitly studied the pronunciation features of English (the issue of (non-)rhoticity included). Although the focus of that course is on RP, GA is mentioned wherever a comparison is relevant, so even if some of them had not yet completed a more advanced course which teaches them the features of GA in more detail, they were familiar with the major differences between the two standard pronunciation varieties of English and were therefore expected to able to make a conscious decision on what type of accent they aim to acquire.

To be able to select participants suitable for our aims, a short informal follow-up interview was conducted with each of them, in the course of which they were asked about how they learnt English (in order to obtain information on whether English is a second or a foreign language

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for them) and also to specify what their target accent is, in other words, whether they prefer to reach a standard British or American accent (or neither). The interviews were conducted *after* the experiment so that the questions would not influence the informants by making them realise what aspect of their pronunciation was going to be examined. Only those participants were included in the study who specified (in any way) that their target accent was non-rhotic and who had never resided in an English-speaking country.

5.1.4.3 Data collection instruments

The participants took part in a recording session involving three elicitation tasks of different levels of formality.

1. The first one was a free speech task using picture stimulus, in the course of which the informants were asked to deliver a monologue on what happened to them the day before the recording. They were instructed to present a hypothetical daily routine illustrated by 13 pictures (see Appendix A1). Although the primary aim of the pictures was to provide a topic to talk freely about, the task did elicit a few target words, which are listed in Table 5.3, organised according to the major factors (cf. Section 5.1.3.2) examined.

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		rC	r#
stressed	NURSE	*bird* *chirp* *work* *burger* *cursed*	–
	START	*alarm* *started*	*car* *bar*
	NORTH	*morning* *keyboard*	*four* *bookstore*
	NEAR/ SQUARE/ CURE[61]	–	*beer*
unstressed	lettER	*yesterday*	*computer* *paper* *burger* *Potter* *dinner* *flower*

Table 5.3: Task 1, target words

2. The second one was a guided speech task: the participants were asked to place a set of cards (see Appendix A2) with pictures of various objects on them (e.g., air conditioner, guitar, scarf, etc.) on the numbered places in a larger picture of a living room (see Appendix A3) according to the following rules:

a) Each card needed to be placed somewhere.
b) It was allowed to place multiple objects in the same numbered place in the picture of the living room, but at least one object needed to be put in each numbered place.
c) Multiple objects of the same kind (which differed for example in colour) could not go in the same place.
d) The objects needed to be named; the places had to be specified as accurately as possible; and the number of the place also needed to be said out loud. (E.g., "I would put this here" did not qualify as an acceptable answer, but "I would put the teddy bear on spot

[61] Although there were no SQUARE and CURE words among the words elicited, the learners did pronounce words belonging to these lexical sets while performing the tasks, which were also taken into consideration in certain phases of the data analyses, therefore all of these three key words are indicated in tables and figures.

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number two, that is, on the armchair"[62] and "As for the dark blue star, I would put it on the door, which is number eight…" did.)

The rules made sure that each target word (cf. Table 5.4) would be uttered by the participants at least once.

		rC	**r#**
stressed	NURSE	*curtains* *purple* *hamburger* *bird*	–
	START	*armchair* *carpet* *scarf* *dark*	*toy car* *star* *guitar*
	NORTH	*corner*	*door* *floor* *four*
	NEAR/ SQUARE/ CURE	*hairdrier* *air conditioner*	*armchair* *teddy bear* *beer*
unstressed	lettER	*trousers* *scissors* *binoculars* *spiderweb* *caterpillar* *butterfly* *fireplace*	*number* *air conditioner* *hamburger* *hairdrier* *caterpillar* *flower* *vacuum cleaner* *corner* *picture* *mirror* *computer*

Table 5.4: Task 2, target words

3. Finally, in the third and last task, the informants were asked to read out a short passage – see Appendix A4 for the text and Table 5.5 for the target words it elicited.

[62] It might seem that utterances like this are not suitable for testing the presence of absence of non-prevocalic R's because the word-final R in *bear* would be pronounced in this particular sentence (since the next word begins with a vowel), but in the experiment the majority of such examples were word-final R's as the participants paused before deciding on where to place he object.

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		rC	r#
stressed	NURSE	*first* *burst* *weren't*	*purr* *were* *fur*
	START	*part* *started* *charge*	*car* *far* *bar*
	NORTH	*unfortunately* *fourth* *torn*	*before* *bookstore* *more*
	NEAR/ SQUARE/ CURE	*nearly* *tears* *barely*	*nightmare* *clear* *beer*
unstressed	lettER	*wizard* *brothers* *trousers*	*Potter* *chapter* *never*

Table 5.5: Task 3, target words

This way a 20-30-minute-long recording was made of each participant's pronunciation.

5.1.4.4 Data analysis

The target words (cf. the three tables above) were entered into a Microsoft Excel spreadsheet, and the database was set to filter for the variables tested – see Table 5.6 for a summary. For the various statistical analyses (t-tests, chi-sq tests and calculations of correlation) the software R was used.

The recordings were listened to by two reviewers independently of each other to determine which non-prevocalic R's were realised in the accent of the informants, and the participants' realisations (and non-realisations) of the R's in all occurrences of the tokens were added to the database after the two independent reviewers agreed on all cases where their perceptions differed based on the first listening (which happened in no more than about 10–20% of the total number of tokens).

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Variables	**Values**
text category	• task 1: free speech • task 2: guided speech • task 3: reading out
preceding vowel	• NURSE • NORTH • START • lettER • CURE • NEAR • SQUARE
stress	• stressed • unstressed
position	• preconsonantal • word-final
text frequency of token	by 1000 words
length of word	counted in syllables

Table 5.6: The variables tested and their values

When constructing the database, not all potential words containing non-prevocalic R's were entered into the spreadsheet. The examples excluded from the database are the ones where it was not obvious whether the participant pronounced an R or not (even after both reviewers repeatedly re-listened to the word in question), and where the informant made a pronunciation error which prevented the word in question from being able to be analysed. Examples for the latter include the case of the contracted forms *aren't* or *weren't*, which in several participants' pronunciation consistently appeared as consisting of two syllables (with the intrusion of a vowel sound between the /r/ and the /nt/, resulting in the word no longer containing a preconsonantal R and no longer being relevant to the experiment) or that of the word *purr*, which some speakers had difficulties pronouncing, not knowing what vowel the word had.

Data analysis was carried out in two separate phases, because based on a first look at the results (see Section 5.1.4.5) it was necessary to make a few changes in the database of target words. In the first phase, about 1300 pronunciations of words containing non-prevocalic R's were entered into the database.

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The reason why it was necessary to take another look at the recordings and introduce a second phase in the data analysis was that based on the conclusions of a first look at the results (in the course of which we only looked at the effects of the major factors) a number of problems were detected which needed to be solved before going on with the analysis of the rest of the determinants. The following two changes were made in the database:

- In the first elicitation task, in which the participants were speaking relatively freely (guided only by a few pictures), *all* tokens containing potential non-prevocalic were considered, and not just the ones elicited by the pictures. This means that some more words were added to the database, which improved the reliability of the data as this task was the least formal one in which the learners were the least likely to pay too much attention to their speech. The database summarising the learners' pronunciation of non-prevocalic R's was thus increased from about 1300 tokens to 2200.
- Although there were not too many of them, the issue of compound words also had to be reconsidered, as the question arose among other issues how many syllables compound words such as *air conditioner*, *hairdryer* and *hamburger* consist of, or whether the R at the end of the first term of the first three was word-final or preconsonantal. In some cases it is not unambiguous either whether a string is a compound or not – for example, the compoundness of *hamburger* is not obvious. The final decision about this issue was that in the second and final phase of the experiment we treated compounds written as separate words as two individual words and those written without a space as one word. This is because we assumed a heavy influence of spelling in general, plus the participants were exposed to the written form of the words except for the first task, which included the fewest such examples anyway.

5.1.4.5 A first look at the results

In the first phase of the data analysis, we focussed on the major factors only – the full list of determinants was considered in the second phase (to be presented in Section 5.1.4.6), after some changes had been carried in the database (cf. the previous section), which were necessary mostly due to the fact that the number of target words was not enough for the effects of the various factors to manifest themselves significantly. In what follows, the first round of the presentation of the results will rather focus on general tendencies and frequency distributions, because more advanced analyses required the above-mentioned modifications in the database.

As has been pointed out above, by testing rhoticity in the learners' pronunciation, the experiment looked at nothing more or less than the presence or absence of non-prevocalic R's.

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A general remark is in order on R quality, though: by listening to the recordings made of the learners' pronunciations we observed that all our participants pronounced target-like forms, i.e., they pronounced their R's as postalveolar approximants (or at least departed from Hungarian R's and were closer to English ones), and there were no traces of Hungarian-sounding taps or trills. This suggests that the articulation of /r/ happens significantly sooner in the acquisition process than a systematic dropping of non-prevocalic /r/'s – Zając & Rojczyk's (2017) experiment on Polish learners of English confirms this assumption, as they observed that R quality causes no difficulties for Polish learners to acquire, and apparently this applies to Hungarian learners as well.

Let us turn to the realisation of non-prevocalic R's in the participants' accent. The overall degree of R-realisation or rhoticity in the pronunciation of the thirteen participants was 26%, which on the one hand corresponds to the average native speaker degree (20–40%, cf. Section 5.1.3.2), and on the other hand shows that non-rhotic-targeting learners perform reasonably well but not without "errors".

It is important to note that the participants' pronunciations displayed considerable inter- and intra-speaker variation (cf. Figure 5.4): while the pronunciation of Speakers 5 and 9 exhibits a high degree of rhoticity, Speakers 1, 2 and 7 realised a very low proportion of non-prevocalic R's, therefore their pronunciation is close to categorical non-rhoticity. The rhoticity of the other speakers corresponds to the native averages.

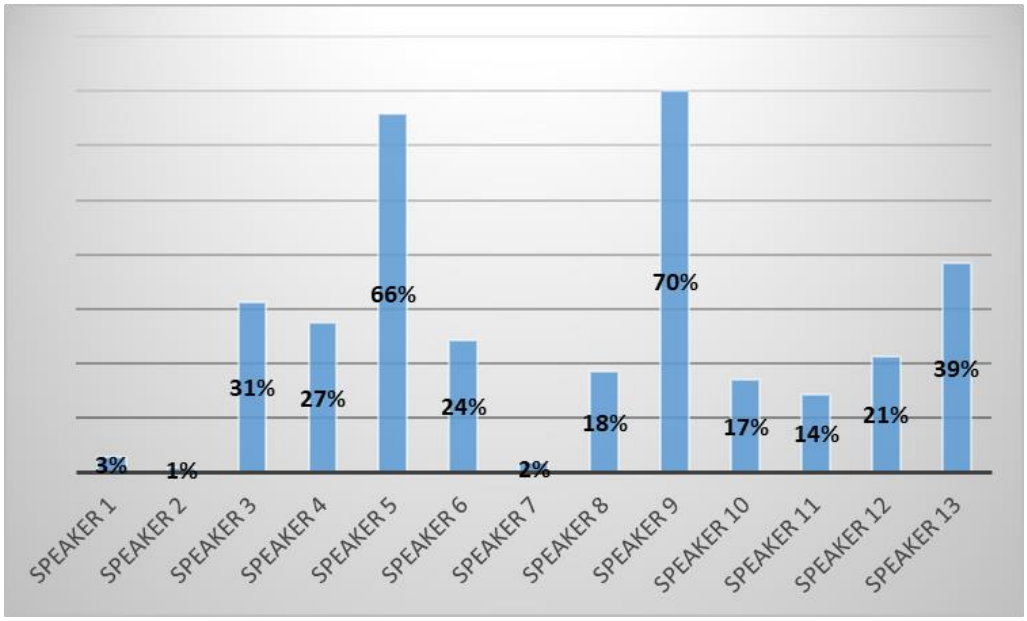

Figure 5.4: Inter- and intra-speaker variation

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Let us now take a look at the two main effects influencing the presence or absence of R's. As far as the melodic effect (cf. Section 5.1.3.2) is concerned, R's after NURSE vowels do not seem to appear in pronunciation to a greater extent than after other vowels (which could have been expected as a result of the melodic effect); moreover, the vowel preceding the R does not seem to have an influence on R-realisation at all (cf. Figure 5.5 below). The melodic effect is thus not attested in our sample. A possible explanation of this is that being non-native speakers of the language, Hungarian learners of English do not merge the vowel with the /r/ in V+/r/ sequences, that is, they do not produce R-coloured vowels or syllabic /r/'s. As a result, all V+/r/ sequences are treated in a uniform fashion, irrespective of the quality of the V. This is contrary to what might have happened considering the fact that (as pointed out at the beginning of this section) phonetically the R's pronounced by our informants were English-type R's, therefore the phonetic similarity between the schwa and R (discussed above) should have activated the NURSE-effect.

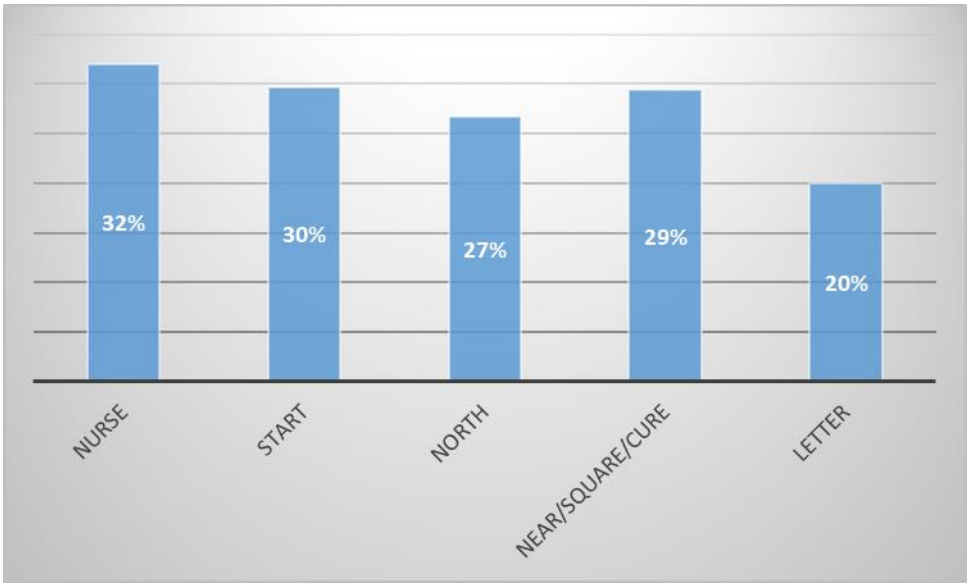

Figure 5.5: The melodic effect in the pronunciation of the participants

The prosodic effect *is* attested in our sample, however: it can be seen that both the word-final (cf. Figure 5.6) and the stressed (cf. Figure 5.7) phonological positions support the realisation of R to some extent as more R's were realised in word-final positions than in preconsonantal ones, and more in stressed syllables than in unstressed ones. Of the two factors, stress seems to be the major factor, as final R is only slightly more stable than preconsonantal R.

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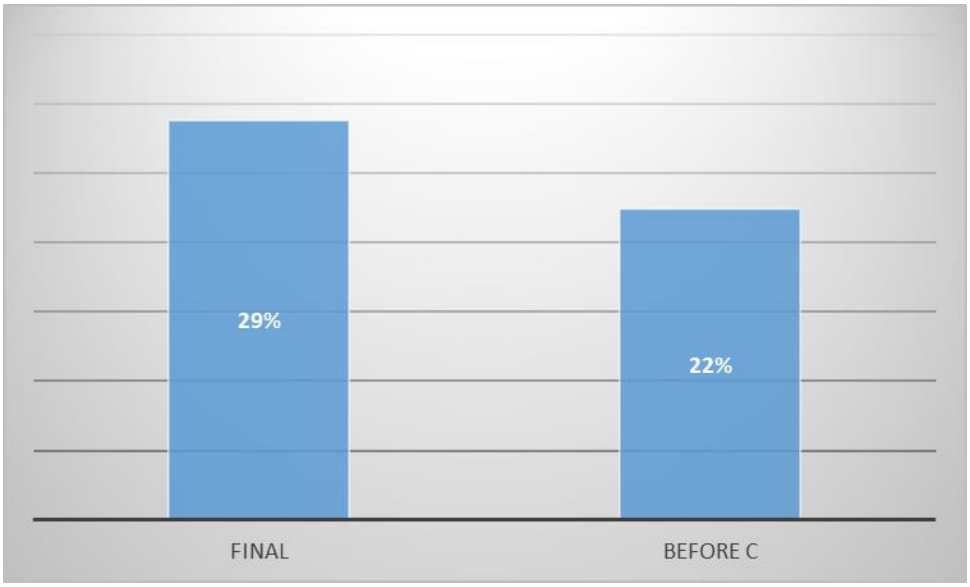

Figure 5.6: R-realisation in word-final and preconsonantal positions

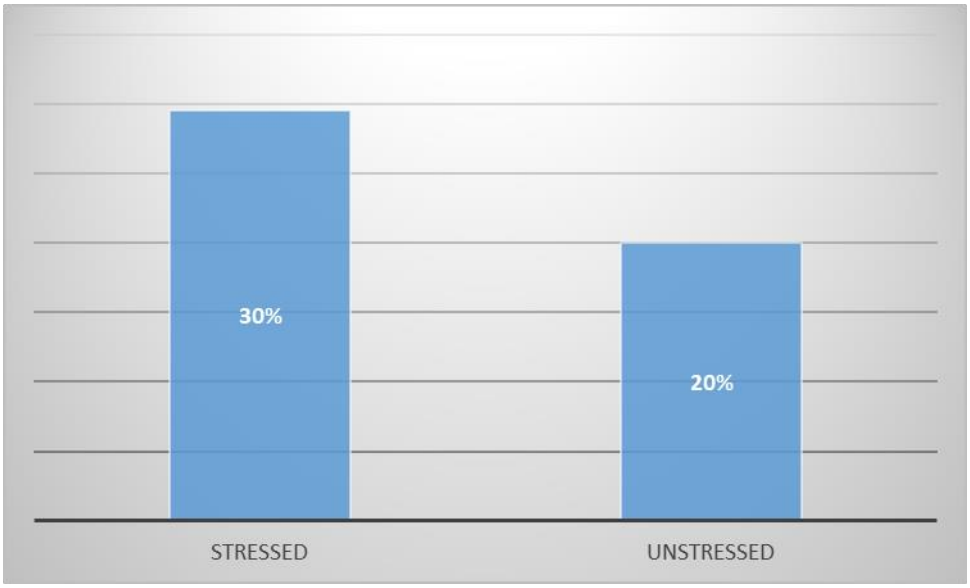

Figure 5.7: R-realisation in stressed and unstressed positions

Having a look at the four possible combinations of the two factors in question (cf. Figure 5.8), we may notice that R's in word-final stressed positions are maintained to a much greater degree than in the other three combinations of stress and position; and it is visible here too that stress is a more decisive factor than the position of the R.

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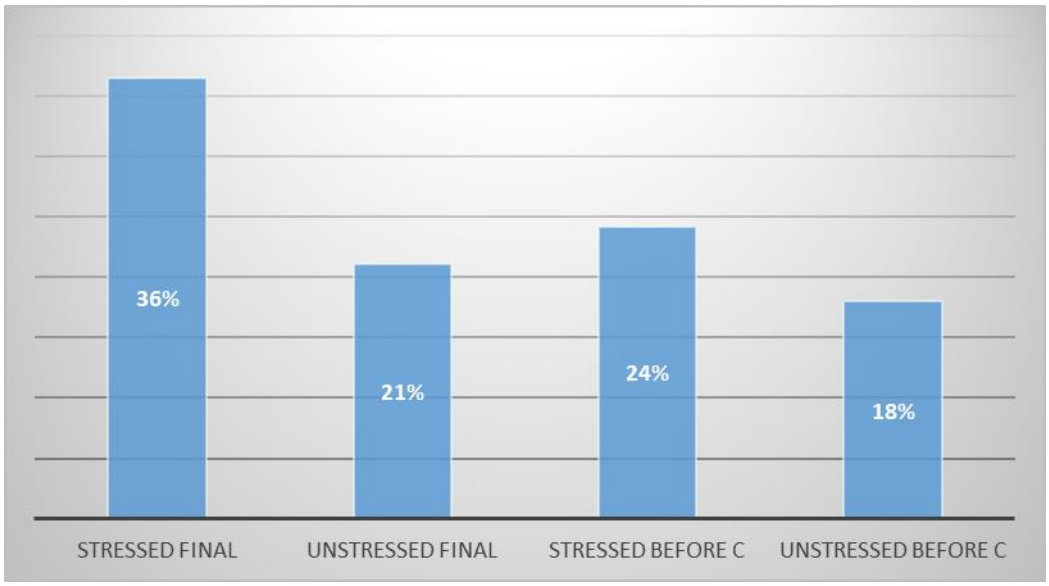

Figure 5.8: R-realisation in the combination of word-final and preconsonantal positions

In presenting the results so far, we have considered the thirteen participants collectively. Let us now look at some of them in smaller groups and even individually. If we exclude the five outliers (i.e., the two heavily rhotic and the three almost fully non-rhotic speakers) from the analysis, the proportion of pronounced non-prevocalic R's shows the most noticeable changes in the melodic effect (cf. Figure 5.9): although the difference between the NURSE vowel and other vowels is still far from being as salient as in the case of native varieties, we may say that the learners merge a greater proportion of their non-prevocalic R's with a preceding NURSE vowel than what could be observed by looking at the results collectively. Although the experiment did not examine the effect of /r/ on vowels, a second listening to the recordings confirms this assumption: a high proportion of R-coloured vowels was attested in the accent of a few of the participants, while not at all in the accent of others – this is what contributes to overall results that are rather difficult to interpret. In order to get a more accurate picture of the informants' pronunciations in this respect, each participant would need to be analysed separately, for which much longer recordings would be necessary in order to have enough data.

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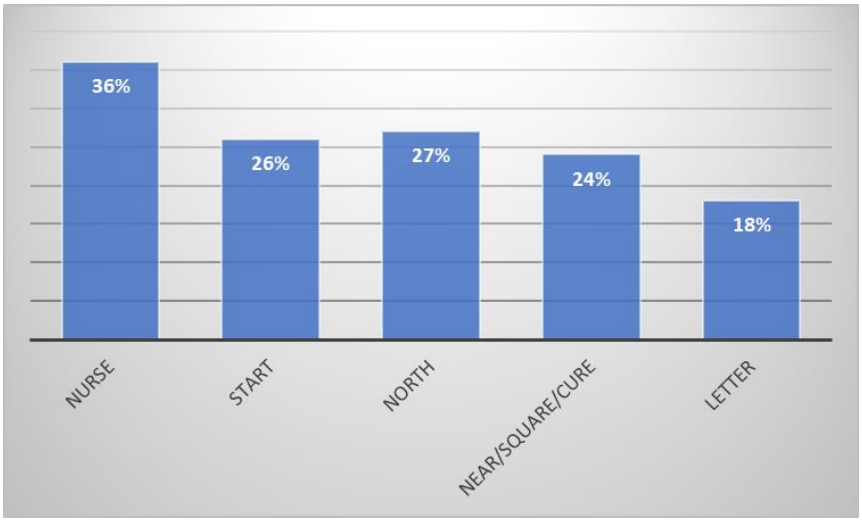

Figure 5.9: The melodic effect when excluding the outliers from the analysis

Examining the pronunciation of the participants individually, we may make some further interesting observations. We have already mentioned that native semi-rhotic varieties can be classified into various subtypes based on the extent to which the melodic and/or the prosodic effects influence the realisation of R (cf. Section 5.1.3.2). It seems probable that the patterns emerging in certain participants' interlanguage correspond to the subtypes of native semi-rhotic varieties, as the pronunciation of some of the speakers appears to show a preference for maintaining non-prevocalic R's in certain word types (due to the effect of either melody or prosody). However, in order to demonstrate and prove this, more participants and longer recordings are needed, because in the database used in this study the amount of data provided by each participant is not enough to draw reliable conclusions about the individuals.

Another observation concerning the pronunciation of the participants is that their accents barely displayed R-liaison (Linking-R or Intrusive-R), not even in the case of those three learners whose accents were the closest to categorical non-rhoticity, though R-liaison would be an important part of speaking a non-rhotic accent of English. Although word-final R's immediately followed by a vowel-initial word were mostly disregarded in the data analyses because it is not possible to tell whether an R pronounced in such an environment is a Linking-R or an instance of rhoticity, we observed that the speakers tended to drop such R's and fill the hiatuses with glottal stops (to list a few examples: *after I (finished that)* – Speaker 1; *(the) car at (the bookstore)* – Speaker 2; *later at (night)* – Speaker 4; *(we drank) beer and (we got drunk)* – Speaker 8; etc.). Intrusive-R's were not attested in our sample, either (though they are rather difficult to test as they are so extremely rare that in our data there were hardly any environments for them anyway). All we can conclude about Intrusive-R's comes from one participant

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(Speaker 1), who stated in the follow-up interview that despite all his efforts, he is just unable to pay attention to when to pronounce Intrusive-R's. Notice that Speaker 1 belongs to those three participants whose pronunciation are the closest to categorical non-rhoticity, so this may mean that R-liaison appears much later in the acquisition process than getting rid of R's in one's pronunciation.

In order to explain this phenomenon, further research is needed, but it can be presumed that liaison phenomena appear at a later phase of the acquisition of non-rhoticity. This may further prove that in the case of learners of English as a foreign language the phenomenon under examination really cannot be analysed as R-insertion, as the underlying forms in the learners' mental representations are the R-ful pronunciations (most probably due to the effect of spelling), from which R-less forms are produced by R suppression. Reintroducing R's at morpheme boundaries is likely to happen at a later stage.

The low representation of Linking-R and Intrusive-R in our data may also be accounted for as the result of more general tendencies in language contact situations. Concerning R-liaison (as part of a complex cross-word hiatus-filling system) in English varieties, Britain & Fox (2009) has found that traditional linking processes are maintained in rural, ethnically rather homogeneous speech areas like the Fens, whereas in multicultural urban communities like London or Bedford, language and sociocultural contact is driving the system towards a regularised, "levelled" system, with the glottal stop predominantly replacing other consonants including Linking- and Intrusive-R. As the accent of a multicultural community stems from the contact among (several) substrates and a superstrate, the accent of an interlanguage stems from the contact between L1 (the substrate) and the target language (the superstrate). This may also contribute to the pattern we witness in our study.

5.1.4.6 A second look at the results

Once the changes described in Section 5.1.4.4 were carried out, we took a second look at and did a reanalysis of the data. In what follows, we will consider each variable separately and see how they affected the realisation of R.

1. Text category

Although the overall degree of rhoticity in the participants' pronunciation *did* decrease with higher task formality (as it could be expected based on Tarone 1979 & 1982, cf. Figure 5.10), the effect of text category did not prove to be significant.

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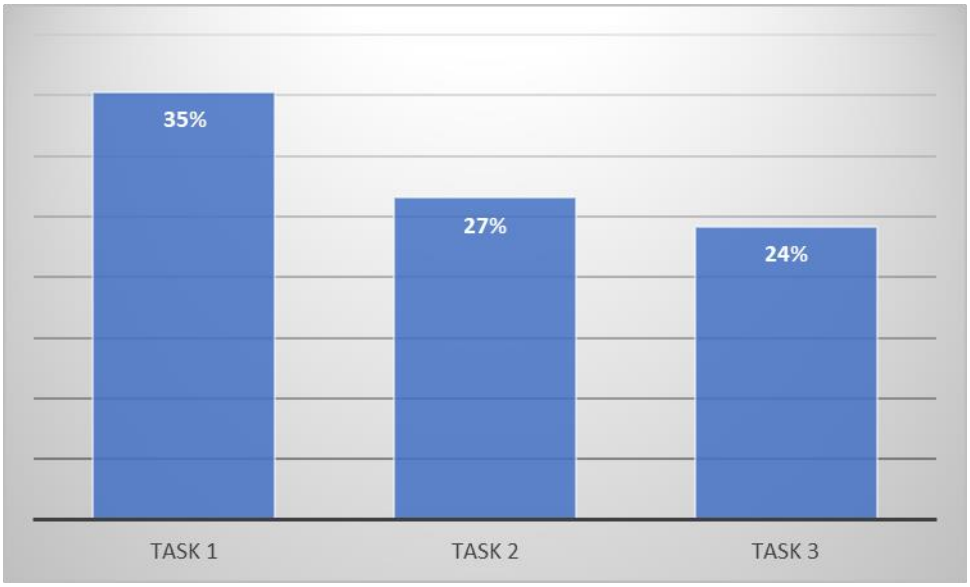

Figure 5.10: R-realisation (in %) according to text category

This may be explained by at least two reasons. First, the recording of each individual might not have been long enough for the participants' increased self-consciousness to wear off, which may therefore have influenced their performance throughout the whole experiment regardless of task formality.[63] For more reliable results it would be necessary to make longer recordings and also to disregard the first few minutes of the recording. Second, the formality of the tasks may not have been varied enough either, especially considering the fact that from the second task on the participants were exposed to the written forms of the elicited words, which may explain the similarity between the second and the third task.

In order to test the effect of text category, it seems that a longer experiment is needed which includes more tasks with more salient differences in formality. Nevertheless, it may not be worth going into more detail about this variable. Instead, more valid conclusions could be drawn about interlanguage non-rhoticity by looking at recordings of free speech only. This is because three of the participants (Speakers 1, 2 and 7), who were the closest to categorical non-rhoticity, pronounced non-prevocalic R's almost in the first task only, which means that in the case of even a little more formal elicitation tasks they pay so careful attention to their speech that they are able to speak fully non-rhotic English. This was further proved by Speaker 10, who realised 0% of the R's in the last task and in the last few minutes of the second one, which is most probably attributed to the fact that she noticed at one point in the middle of the experiment what linguistic phenomenon the tasks tested and was able to consciously switch to

[63] This phenomenon is referred to by Labov (1972) as "the observer's paradox".

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a non-rhotic accent, which she retained until the end (this participant was therefore excluded from some of the analyses).

2: The major factors: preceding vowel, stress and position

The effect of the vowel preceding non-prevocalic R's was not found to be significant. Figure 5.11 shows slightly higher degree of R-realisation after the NEAR vowel, however, this does not allow for drawing far-reaching conclusions as this vowel appeared the least frequently in the recordings (as well as the other diphthongs – note that there were no examples for the CURE vowel at all). For an elaboration on why preceding vowels may have no effect on interlanguage, see the previous section.

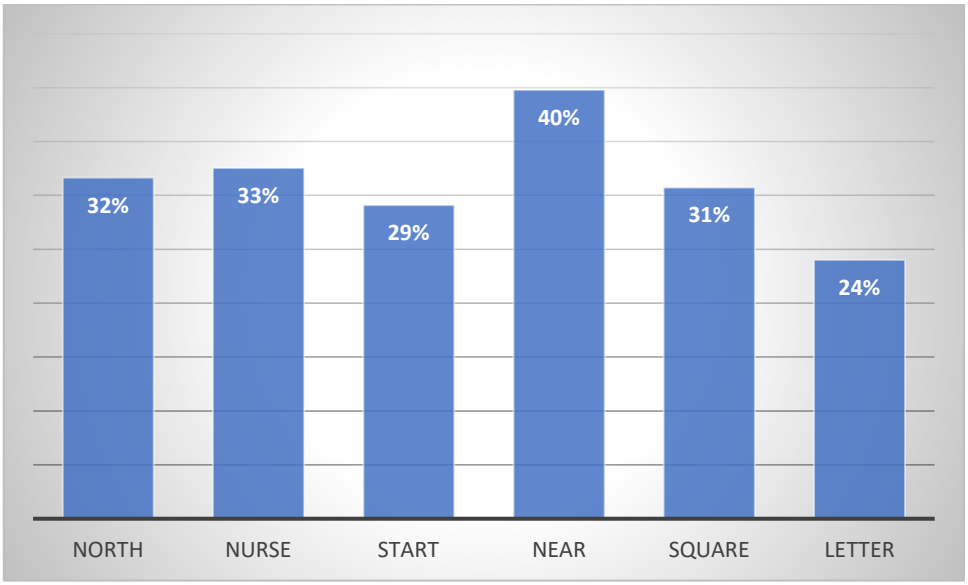

Figure 5.11: R-realisation (in %) according to preceding vowel

The position of the R, on the other hand, was found to affect rhoticity in that a significantly higher proportion of R's were retained in word-final than in preconsonantal position (p=0.01). This resulted in the fact that many participants retained the word-final R in words like *caterpillar*, *corner*, *hamburger*, *order*, etc., but dropped the one in the middle of the word, thus treating the two R's differently within the same word.[64]

Like in the case of native semi-rhotic varieties, stress was not found to have an influence on its own; however, in combination with position, it was the word-final stressed position (cf.

[64] This effect is also observable in rhotic accents. Namely, the (first) letter <r> often fails to be articulated in non-final syllables adjacent to /r/ in another syllable, e.g., in *surprise, governor, caterpillar*, etc. (Wells 1982).

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Figure 5.12) that influenced rhoticity significantly (p=0.02) – i.e., it was in words like *beer*, *before*, *car*, etc. that non-prevocalic R's were kept to a significantly greater extent.

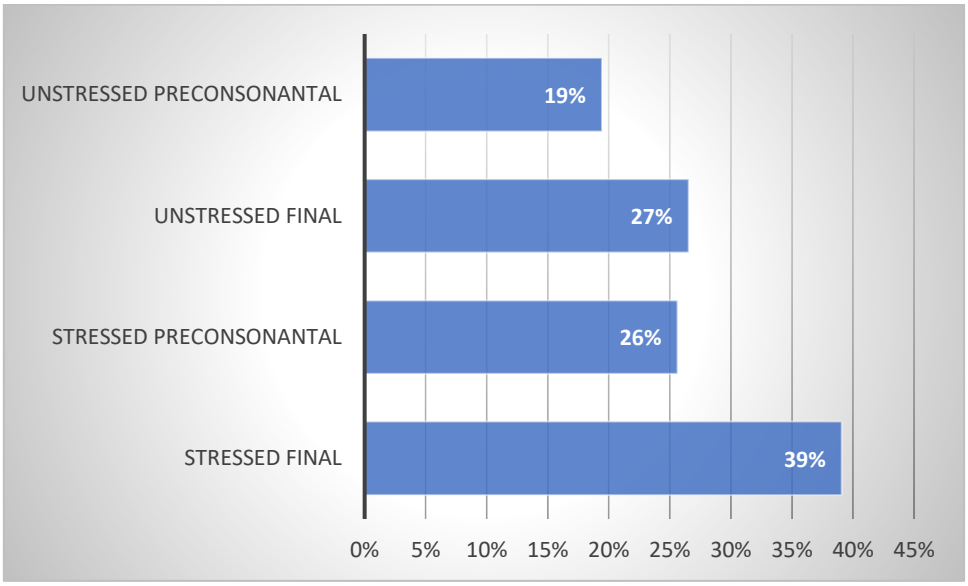

Figure 5.12: R-realisation (in %) according to stress and position

What this means is that Hunglish semi-rhoticity displays similarities to the (north) Yorkshire and the Jamaican types of semi-rhotic systems, presumably due to the effect of universal principles.

3: Text frequency of token

This database did not prove to be quite suitable for testing the effect of the frequency of words, as the substantial majority of words appearing in the recordings belong to the 1000 most frequent English words, with only a few belonging to the second 1000 (based on the profile provided by the Compleat [sic] Lexical Tutor). Even by looking at the words individually and assigning each a frequency value (taken from http://www.wordfrequency.info), there is no correlation whatsoever between word frequency and R-realisation (r_s = –0.08). Nevertheless, the especially low overall degree of R-realisation in some words such as *before* (19%) may be accounted for by its high frequency as opposed to other words (e.g., *door* 54%), which share most of the features of *before* in terms of other variables examined (e.g., position, stress and preceding vowel). However, we must bear in mind that other factors may play an important role in the difference (word length in this particular case, which is the determinant to be discussed next).

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Although the effect of word frequency was not attested in our sample, it still needs to be considered in analyses of semi-rhotic interlanguages, especially when semi-rhoticity results from an incomplete acquisition of a particular pronunciation target. Rosenfelder (2009: 79) has examined a very similar setting and has found that R-realisation increased with decreasing frequency of words. Christie (2003: 19) has pointed out that in addition to the reasons mentioned above, this may also be explained by the effect of spelling in that an attempt at pronouncing a lesser-known word will necessarily require a heavier reliance on its orthographic form.

4: Word length

Based on the follow-up discussions with the participants, we included this variable as an additional one to the original research design. Our expectation as to the relationship between word length and R-realisation (i.e., the longer the word, the smaller the degree of R-realisation) was proved as we found significant negative correlation between these two factors ($r_s = –0.31$).

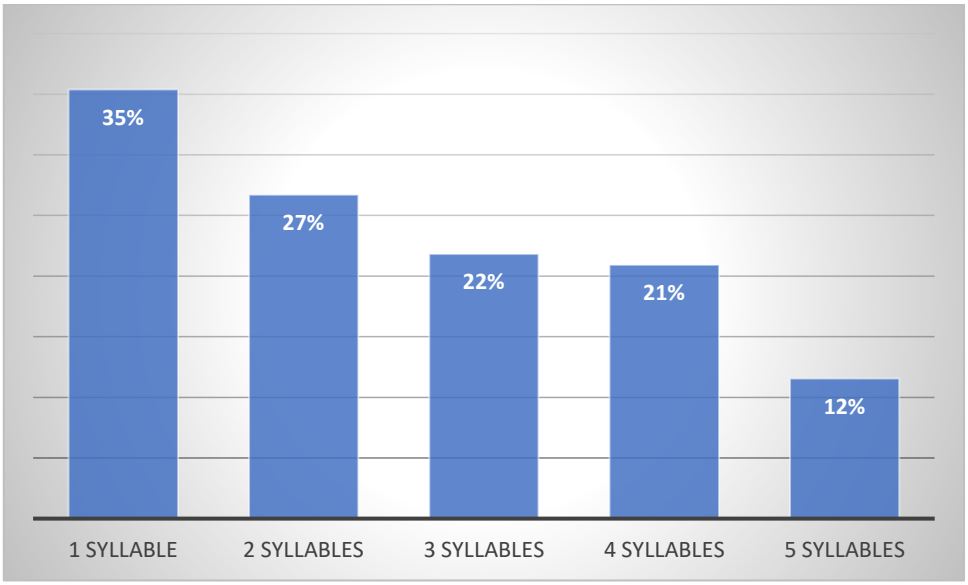

Figure 5.13: R-realisation (in %) according to word length

As seen in Figure 5.13 above, the degree of R-realisation was especially high in the case of monosyllabic words such as *bar*, *car*, *door*, etc., and exceptionally low in words of 5 syllables such as *anniversary* or *university*. Monosyllabicity as opposed to polysyllabicity was found to affect rhoticity significantly (p=0.04), while the difference between shorter and longer (i.e., consisting of at least 3 syllables) words was even more significant (p=0.002).

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These observations may have a number of possible explanations. *First*, as pointed out by some of the participants themselves, retaining R's in shorter words may be for facilitating parsing or word recognition (which is an additional motivation for the language teacher participants, but the problem may be experienced by the university students, too). *Second*, the greater degree of R-realisation in monosyllabic words like *car* may be connected to phonotactic constraints. While both English and Hungarian are characterised by the same bimoraic stem minimality constraint (strings like /kɑ/ are subminimal, and ones like /kɑr/ and /kɑː/ as non-function words are relatively rare in both languages), Hungarian is a bit more restricted: open monosyllables are infrequent, especially with non-mid vowels, therefore some of our "unexpected" cases of R-realisation may be due to a substrate effect. *Finally*, but not unrelated to the previous issue, the tendency observed in monosyllabic words with word-final R confirms Huszthy's (2017) findings, who examined speakers of Hungarian pronouncing loanwords in Hungarian and found a general preference for heavy closed syllables over heavy open ones even in polysyllables.

Table 5.7 summarises our findings in comparison to our expectations.

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Variables	**Values**	**Expectations**	**Findings**
text category	free speech guided speech reading out	increased task formality means decreased R-realisation	**X** (not significant)
preceding vowel	NURSE NORTH START lettER CURE NEAR SQUARE	neutral expectations	**X** (not significant)
stress	stressed unstressed	greater degree of R-realisation in stressed syllables	✓ (word-final, especially word-final stressed position supports the realisation of R – p_1=0.01; p_2=0.02)
position	preconsonantal word-final	greater degree of R-realisation in word-final position	
text frequency of token	by 1000 words	greater degree of R-realisation in less frequent words	**X** (not enough data available)
length of word	counted in syllables	negative correlation between word length and R-realisation	✓ (r_s = –0.31)

Table 5.7: Summary of findings

5.1.4.7 Some further issues to consider

A few general remarks and some further issues are to be noted here. In general, it needs to be pointed out that the participants' pronunciation did not only display a high degree of inter-speaker variation (cf. Section 5.1.4.5), but the sample was characterised by considerable intra-speaker variation, too. This means that the individuals' pronunciation of certain lexical items was far from being consistent as we found examples in each participant's pronunciation for both R-ful and R-less forms of the same lexical item. It was only in two words (viz., *yesterday* and *butterfly*) that rhoticity was consistent in that none of the occurrences of the words

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contained an /r/ in any participant's pronunciation, not even when a learner otherwise realised quite high proportions of non-prevocalic R's. This (in addition to the effect of word length and the non-final phonological position) may also be explained by the fact that the learners memorised a non-rhotic pronunciation of the words from a strong non-rhotic model (e.g., from the well-known Beatles hit in the case of the former word), and the pronunciation of the word was fossilised[65] in this form in the learners' mental representations. That is, these are examples where the R-dropping/R-suppressing mechanism we assume (cf. Section 5.1.2) does not apply: such items have already got memorised by the learner in an R-less form. In fact, this may affect learners irrespective of the target accent, and it is possible that such words contain no /r/ even in the pronunciation of many learners who otherwise speak rhotic English.

A final remark to make is that if certain lexical items may have fossilised pronunciations, the factor of morpheme boundary also needs to be taken into consideration. To give an example, this experiment analysed the R in words such as *papers* as being in preconsonantal position, but in such words the effect of the morpheme boundary may influence the realisation of R: a fossilised pronunciation of the stem *paper* might make the R in forms like *papers* behave like a word-final R rather than a preconsonantal one (which, in the case of semi-rhoticity, makes an important difference). In our database examples like this were too few to be able to affect the outcomes of the experiment, however, the analysis of larger samples should take this factor into account.

5.1.5 Limitations and interim conclusions

In this chapter we have examined the various factors that play a role in the realisation of non-prevocalic R's in a semi-rhotic interlanguage, namely Hungarian-accented English (Hunglish). We have illustrated that systematic patterns may arise in independently emerging intermediate phonological systems (in the case under examination, in creoles and interlanguages). The results of the empirical study presented here have shown that there exists an intermediate stage in the acquisition of non-rhoticity, which displays parallel characteristics with the patterns observed in native semi-rhotic pronunciation varieties.

The results of our study have shown that rhoticity in this variety is influenced by a number of variables, including both phonological and non-phonological ones. As one of our most important observations, we have found similarities between Hunglish semi-rhoticity and the

[65] We are aware that the term fossilisation usually refers to persistent pronunciation errors (cf. Section 2.3.2); however, in this section we also apply it to certain correct forms that are not prone to change.

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(north) Yorkshire and the Jamaican types in that our participants' pronunciation showed a preference for maintaining R's in word-final, especially word-final stressed syllables. This means that the intermediate stage in the learners' interlanguage is governed by universal phonological principles. In addition to the determinants that influence both native and non-native semi-rhotic varieties such as stress and position, a factor apparently peculiar to the non-native context was also found to have an effect on the rhoticity of Hunglish: word length.

In spite of the fact that other variables were either not examined or were not found to influence the variety under scrutiny, we conclude that the following factors are necessary to take into account when analysing semi-rhoticity in Hunglish (at least in the performance of proficient speakers): stress, position, text frequency of token, word length and morpheme boundary. Of these we assume there may be interaction between stress and position (with higher rhoticity levels in word-final stressed syllables), and position and word length (with a greater degree of R-realisation in non-final position in longer words).

To sum up, we may conclude that non-rhotic-targeting learners of English speak a variably semi-rhotic variety of Hunglish, that is, with considerable inter- and intra-speaker variation. Before they reach full non-rhoticity, the intermediate stage in their interlanguage is governed by general principles of linguistic organisation (cf. Plag 2009), especially by universal phonological principles of prosodic strength.

Our research is not devoid of limitations, though, most of which were discussed simultaneously with the results, but we revisit two general limitations. The first one of these is the observer's paradox (cf. Labov 1972), which affected the performance of all our participants significantly. The fact that the participants of the study are all consciously following a pronunciation norm (viz., a non-rhotic accent) results in increased attention to their own pronunciation under artificial circumstances such as experiments like the one presented here. In order to gain a deeper understanding of interlanguage non-rhoticity than what the present study was able to provide, rhoticity might only need to be examined in free speech, as even the three almost fully non-rhotic speakers are expected to realise more non-prevocalic R's in longer recordings of more spontaneous speech.

The other general limitation of the study that R realisation may be influenced by a number of factors which were not taken into consideration in this study, but which may have affected the results. Examples include the consonants following the R, or sociolinguistic factors such as gender or age, which have been found to also affect rhoticity (cf., e.g., Rosenfelder 2009).

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All things considered, it is to be concluded that interlanguage semi-rhoticity is a rather complex phenomenon affected by a large array of variables, and there is still much room for further investigations.

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EXPERIMENT 2

5.2 The acquisition of non-native word stress patterns

5.2.1 Introduction

Of the many difficulties with English pronunciation faced by Hungarian learners, the issue of stress is one of the most serious ones, as the incorrect perception or production of stress is able to cause grave problems both in terms of being understood by others (especially native speakers of English), and in understanding spoken English. This section focusses on stress-related pronunciation difficulties stemming from the contact between the target language of English and a Hungarian L1, which differ significantly in terms of the rules of stress placement and the role of stress in general.

Characteristic features of Hunglish related to stress (cf. Section 3.5.1) include stressing words consistently on the first syllable, as well as a number of other problems rooted in the lack of realisation of the importance of stress, such as pronouncing most or all short grammar words in their strong form or not applying vowel reduction in unstressed syllables. As mentioned in Section 3.5.1 already, unnecessary stresses and "all-strong-form" pronunciations do not only sound foreign and unnatural for a native listener, which may be the source of misunderstandings (Balogné Bérces & Szentgyörgyi 2006: 101), but difficulties with recognising reduced forms may cause serious problems in understanding native accents of English. The aim of this section is to gain a deeper insight into such issues by examining Hungarian learners' perception and production of English word stress patterns in an empirical study.

The presentation of this study is structured as follows: In Section 5.2.2, we revisit the question why stress is highly problematic in the contact of a Hungarian substrate and an English superstrate – though a contrastive analysis of the stress systems of the two languages was provided in Chapter 2, here we highlight in slightly more detail why the acquisition of English word stress patterns causes problems for Hungarian learners. Section 5.2.3 deals with the notion of "stress deafness" from a language-independent point of view, and sheds more light on the acquisition of languages with distinctive stress by speakers of languages without. In Section 5.2.4, we present an empirical study, the aim of which was to find out what factors influence word stress placement in non-native accents of English (in this particular case Hunglish). The question the experiment sets out to find an answer to is how phonological factors stemming from the contact situation (the differences between the stress systems of English and Hungarian) and other, non-phonological factors (in our case language proficiency and the degree of musical

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talent) codetermine the stress patterns found in Hunglish. More precisely, we aim to find out how the factors mentioned above determine the extent to which Hungarian learners of English will be able to perceive and produce different degrees of stress in the target language. Finally, the conclusions drawn from the analyses and the limitations of the study are summed up in Sections 5.2.5 and 5.2.6, respectively.

5.2.2 Stress-related pronunciation issues in Hunglish

The acquisition of English stress patterns causes many difficulties for Hungarian speakers (cf. Nádasdy 2006, Varga 1980), which are rooted in a number of salient differences in the stress systems of the two languages (cf. Section 3.5.1). In this subsection we will discuss how the differences affect the acquisition of stress in terms of both perception and production, but first we make a few preliminary remarks.

As for the typological difference between English and Hungarian speech rhythm (English having stress-timed, while Hungarian having syllable-timed rhythm, cf. Section 3.5.1), it needs to be mentioned at this point that there exist a number of studies that refute this classic model of isochrony (e.g., Barrera-Pardo 2008, Marks 1999, Roach 1982, etc.), but the debates about the model are not relevant to our discussion. It is important to retain the distinction between stress-timed and syllable-timed rhythm for many reasons, the most important being that English vowel reduction (which is a phenomenon stemming from the stress-timed rhythm of English) is so intense compared to what is attested in Hungarian in this respect[66] that this is what most problems concerning English stress are rooted in. Since vowel reduction in English entails unstressed syllables being "squeezed" (accompanied by phenomena affecting reduced syllables such as syncope, by which whole syllables may be lost), understanding a language with stress-timed rhythm is likely to cause serious intelligibility problems (especially in terms of word recognition) for a speaker of an L1 with syllable-timed rhythm.

As far as the differences in word stress placement between English and Hungarian are concerned, we are aware that what was stated about Hungarian in Section 3.5.1 (viz., that Hungarian has fixed stress on the first syllable of words) it is not perfectly accurate, since not all words receive stress separately in Hungarian. What really happens is that multiple words are joined with one stress, but this fact is irrelevant from the point of view of the phenomenon under examination, because the pronunciation problem being discussed in this chapter is caused by

[66] Hungarian is known to exhibit a phonetically reduced vowel (cf., e.g., Auszmann 2016, Gósy 2007), but its existence is not helpful in the acquisition of English patterns.

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the fact that (contrary to what is attested in Hungarian) word stress in English may fall on practically any syllable of words, and although there are a number of rules for stress assignment, the placement of word stresses is highly unpredictable from the point of view of a learner. Some examples of rule types that learners of English would have to learn if they wished to acquire a conscious knowledge of English rules include the following:

- The English stress system is quantity-sensitive, that is, the placement of (primary) stress is dependent on syllable weight in that heavy syllables attract stress.
- Morphosyntactic category is also a factor playing a role in stress placement: different rules apply to nouns, verbs and adjectives/adverbs.
- Morphological structure also affects stress placement: certain types of affixes are able to change the stress pattern of the stem.

Not only are these rules exceedingly complex (at least for a learner), but they have a large number of exceptions as well. For all of these reasons, and for the sake of simplicity, we will regard English stress placement as highly unpredictable, and we will refer to Hungarian as a language having fixed stress on the first syllable of words.

Let us turn to one last aspect of stress causing problems for Hungarians. The difficulties with the perception of stress are not only serious in terms of recognising reduced forms, but also in terms of perceiving different degrees of stress in general: it may happen that a learner does not perceive different degrees of stress in English words at all, and is therefore unable to distinguish members of stress minimal pairs (i.e., words that differ only in stress placement, such as *impórt* (verb) and *ímport* (noun), cf. Section 3.5.1). This phenomenon has been referred to since Dupoux et al. (1997) as “stress deafness”, which is especially problematic in the contact of a Hungarian substrate and an English superstrate due to all of the reasons that have been listed in this subsection. As stress deafness is what contributes most significantly to the fact that Hungarians may fail to realise the role and importance of stress in general (which leads to their general difficulties with the pronunciation of words with stress falling on a syllable other than the first one), the issue will be discussed in slightly more detail in a separate subsection.

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5.2.3 Stress deafness

The phenomenon whereby certain learners are insensitive to differences in stress degrees and are unable to distinguish stress minimal pairs was discovered by Dupoux et al. (1997). As one of the most ground-breaking discoveries of the study that led to the authors' coining the term "stress deafness", it was found that the Spanish informants involved in their experiment performed significantly better on a stress discrimination task than the French participants of their study. This observation was attributed to the fact that while stress is distinctive and is able to account for meaning differences in Spanish, this is not true of French, and thus a French speaker's sensitivity to stress and ability to distinguish differences in stress degrees fails to develop during L1 acquisition.

Research on stress deafness continued with two further projects carried out by the same group of researchers: based on the findings of the 1997 study, Dupoux et al. (2001) proposed a systematic way of measuring the degree of stress deafness in individual participants: the findings of the four experiments that were part of their project confirmed that their method is able to assess stress deafness in a reliable way. Dupoux et al. (2008) further contributed to a better understanding of stress deafness: they examined three groups of speakers (a monolingual French group, a Spanish group and a group of French learners of Spanish) and found that French speakers, irrespective of whether they were learning Spanish or not, achieved significantly poorer results in a stress perception task, so the two groups of French speakers did not differ in terms of their degree of stress deafness.

Csépe (2010) suggested that the results of the studies on French speakers should be generalised, and claimed that native speakers of languages that do not have distinctive stress will be "deaf" to stress contrasts (i.e., word pairs consisting of the same segments and differing only in the placement of stress will be perceived by such speakers as being the same), similarly to how L2/FL sound contrasts not found in one's L1 are not perceived by speakers. Based on this claim, it is expected that Hungarian learners will be greatly affected by the issue of stress deafness.

Research into stress deafness continued even after the ground-breaking discoveries of the above-mentioned studies (cf., e.g., Vogel 2020), but since the findings of these are less relevant to the experiment to be introduced in the next section, they will not be discussed here in more detail.

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5.2.4 The experiment

5.2.4.1 The factors examined

In the empirical study to be presented in this section, we examined the factors determining the acquisition of English stress patterns by Hungarian learners, from the perspective of both perception and production. Coetzee's (2016) view of linguistic variation (cf. Section 1.2.3), served as the basis for this study too, therefore language-internal (phonological) and language-external (non-phonological) determinants were both considered. In the experiment, of the factors potentially playing a role in the acquisition of non-native stress patterns, two phonological and two non-phonological ones were chosen to be examined. Factors belonging to the former category are L1 transfer or interference (according to which we expected word-initial stresses to be pronounced by our participants), and syllable weight, which, as mentioned in Section 5.2.2, plays an important role in English stress rules. As for syllable weight, we expected that some non-initial unstressed heavy syllables might be pronounced stressed in the accent of advanced learners, who may have subconsciously acquired some aspects of the weight-sensitive stress system of English (as it happens in the case of words like *interesting* and *adjective*, cf. Section 3.5.1) – we will treat such examples are hypercorrections. Of the many possible non-phonological factors that could be examined in this case, we have chosen proficiency level, and one more factor which belongs to individual differences in SLA: musicality or musical talent.

Proficiency level was chosen to be examined because our assumption was that at the lower levels of proficiency (beginner/elementary) the effect of L1 transfer would be dominant (i.e., learners are expected to consistently place stress on the first syllable of all English words), and that as proficiency improves, this tendency decreases and hypercorrect forms also appear more frequently.

The connection between musicality and foreign language skills has been proved in a number of studies on the contact of various language pairs (a couple of examples on the contact between English and another language: Japanese: Dolman & Spring 2014, Polish: Gralińska-Brawata & Rybińska 2017, Finnish: Milovanov et al. 2010, 2004, 2008, etc. – some of these were discussed in Section 4.2.3); however, the question has not yet been examined on Hunglish. In the field of stress placement, we believed that the role of musicality is especially decisive, and we assumed that the degree of one's musical talent and stress perception/production would be correlated. The most important reason why this was expected to be so is that the various degrees of stress in English do not only differ in terms of loudness, but there is significant

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difference in pitch between the degrees, and pitch perception happens to be one of the components of musicality (among other components such as tone deafness and a sense of rhythm, cf. Section 4.2.3).

Based on all of the above claims, the following three hypotheses are going to be tested in the experiment:

1. At beginner/elementary level the perception and production of English word stress patterns are mostly determined by L1 transfer.
2. At more advanced levels the effect of syllable weight gains ground, which may even lead to hypercorrections.
3. Irrespective of proficiency level, the degree of musicality positively correlates with the degree of the correct perception and production of stress.

5.2.4.2 Participants

The participants of the study can be grouped into three categories based on their level of proficiency:

1. 10 beginner/elementary learners (level A1 according to the Common European Framework of Reference for Languages), who at the time of the experiment (November 2018) had been learning English for a couple of months only (9th graders);
2. 11 pre-intermediate (A2-B1) learners (7th graders);[67]
3. 7 upper-intermediate/pre-advanced (B2+) learners, who were first-year BA students of English.

In figures and tables in the upcoming sections, the three groups will be referred to as elementary, intermediate and advanced, respectively, for the sake of simplicity.

When designing the experiment, we aimed to have a (roughly) equal number of participants in the three groups, but we did not keep to this due to two practical reasons: firstly, some of the participants had to be excluded from the analysis (we had more participants than the ones counted above), most often because repeating non-existent words (see Section 5.2.4.3 below) proved to be so difficult for some of them that their pronunciations of the nonce words

[67] The reason why the beginner learners were older is that they started learning English from scratch when they began secondary school (i.e., 9th grade). They may have learnt English at primary school, but even if this was the case, their proficiency in the language was not high enough for them to be placed in a more advanced group. Although the other group of students were younger, they had already been learning English for a few years at the time of the experiment.

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became impossible to analyse. Secondly, even during the early phases of the data collection process we could foresee the most important conclusions (both in terms of the error types the learners made and the limitations of the study), therefore at one point it became unnecessary to collect any further data. During all phases of the experiment, the participants' rights and their anonymity were fully respected: underage participants took part in the research with the consent of their parents; and all informants were identified with codes, which were only used to separate the three groups and so that later the results in the different parts of the experiment belonging to the same participant could be compared.

5.2.4.3 Instruments and procedures

The experiment involved three data collection instruments: the participants took part in a stress perception test, a stress production test and a complex musicality test (consisting of three components).

The first two of these tests were entirely my copyright. The tests involved a sound bank of nonsense words (in similar research studies also often referred to as nonce words, nonwords or wugs) pronounced by a native speaker of English. The nonsense words used (all of which were coined by me) conformed fully to English phonotactic rules, and they were read out by the native speaker in the carrier sentence "I said _____ again". Most of the words contained the vowel [ɪ] in most syllables (the KIT-vowel) – the only exceptions were those words which contained a long vowel so that the effect of syllable weight could be examined both in closed syllables and in syllables containing a long vowel. With the exception of this specific case, the potential effect of vowel quality was eliminated so that we could focus on the perception and production of differences in stress only, therefore the words needed to contain a vowel that may occur in both stressed and unstressed syllables. In English this is true for [ɪ] and [ʊ] (the FOOT-vowel), but the latter is not suitable for experiments involving nonsense words like this one, because (apart from being extremely rare) according to English letter-to-sound correspondences it has no regular representation in spelling, therefore it is impossible to coin a nonce word in which we can denote an [ʊ] using spelling only (and with no specific explanations or instructions as to how the word is to be pronounced). Thus it was obvious that the vowel of the nonwords must be [ɪ].

The nonsense words from the sound bank which ended up being used in the experiment (the list of words can be found in Appendix B1) have varied stress patterns, but the longest word is four syllables long, otherwise it would have been too difficult to read them out, and the participants' attention on the stress pattern would have shifted to just getting the sound segments

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of words right. This consideration inevitably reduced the number of stress pattern types to be included in the word list, but fortunately it caused no disadvantage in the examination of stress perception and production. The sound recordings thus contained sentences like the ones below:

"I said ÍNNICK again."

"I said IRRÍMITIVE again."

"I said MÌFFIRÍPSIVE again." etc.

These sound recordings were used first in the stress perception test, which was conducted in a computer room. The participants listened to the sentences on loudspeakers, and their task was to decide which syllable or syllables of the nonsense words they perceived as stressed and mark their answers on an online platform. In order that they would have no difficulty finding syllable boundaries, instead of using the instructions typically found in language course books ("Underline the stressed syllable"), the participants were offered answer options of the "multiple choice" type – with this we hoped to make the task more achievable. In words containing one stressed syllable only, every syllable was offered as an option, while in the case of words with two stresses, every possible placement of non-adjacent stresses was included among the possible answers. Using the method of underlining syllables would not have worked perfectly with adjacent stresses (some participants may not have found it unambiguous that two stresses are marked in such cases), but in nonsense words with fully regular pronunciations this would not even have been an option since English generally disfavours stress clashes (cf. the so-called stress clash avoidance rule).[68]

The experiment did not differentiate between primary and secondary stresses – although secondary stresses did appear in words longer than three syllables, we simply underlined two syllables in each of such words, not making a difference between the two different degrees of stress. In addition to the answer options presented above, there was one extra answer as the last option, which said "I hear all syllables equally stressed". This last answer was included in order to rule out the possibility of the participants' guessing the correct answer purely by chance if they were unable to decide otherwise (this was especially important because the chance of guessing the answer correctly was extremely high – in the case of two-syllable words it was 50%).

[68] We are aware that stress clashes are actually not as uncommon as some descriptions might suggest, but since the nonsense words used in the experiment fully conformed to the stress clash avoidance rule and we did not wish to confuse the participants with adjacent stresses marked in the words (which would even have substantially increased the answer options to choose from), we decided to disregard the possibility of adjacent stresses.

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In this way, the task sheet the participants were required to fill in online contained 16 questions, each looking like the example below:

Which syllable(s) do you hear stressed?

I said ***irrimitive*** again.

A: irrimitive

B: irrimitive

C: irrimitive

D: irrimitive

E: I hear all syllables equally stressed

They entered their answers into a programme called Testmoz Test Generator, which is a free online test generator offering a variety of features for evaluating the results.

The second data collection instrument was a stress production test, which the participants took one by one. They were asked to perform a classic "Listen and repeat" task (frequently used in EFL lessons at schools): they listened to 16 examples from the sound bank described above and repeated each sentence, and their pronunciations of the sentences were recorded. As this part of the experiment was in no way intended to focus on memorising the nonsense words, the sentences appeared on the computer screen while the recordings were played.

Finally, the participants did three of Mandell's four musicality tests (cf. Section 4.2.3). There are at least two reasons why it was Mandell's tests that were chosen to be used in the experiment out of the many musicality tests that were presented in Section 4.2.3. Firstly, we needed a test that can be filled in relatively quickly due to feasibility issues (because limited time was available when testing the participants who were schoolchildren). Secondly, our experiment required a musicality test which is able to reveal even subtle differences between participants in terms of their musical talent. The test therefore needed to be difficult enough to ensure varied results, which excluded many of the options overviewed in Section 4.2.3.[69] Mandell's tests were suitable in both of these two respects and were therefore optimal for our purposes.

[69] I personally tried out most of the tests presented in Section 4.2.3, and scored 100% on almost all of them, although I do not consider myself as having an exceptional musical talent. Mandell's tests, however, rated my performance as "normal", which is more likely to accurately reflect the reality.

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Of the four musicality tests designed by Mandell, the participants did the tone-deaf test, the rhythm test and the adaptive pitch test. In what follows, we describe each of these in detail.

1. The tone-deaf test (http://jakemandell.com/tone-deaf/):

The tone-deaf test measures overall pitch perception ability, and can be used to screen for amusia (tone deafness). During the test the participant listens to two times 36 musical phrases, each of them 2 to 4 seconds long, and the task is to decide about each pair whether they were the same or they were different. The informants need to indicate their choices by clicking on a green "same" button or a red "different" button. The musical phrases used in the test were created by Mandell himself (recall from Section 4.2.3 that he is a composer of electronic music), which does not only make this test unique compared to other tone-deaf tests, but this is what also ensures that the test is able to reveal subtle differences in the degree of tone deafness, as the musical phrases are rather complex compared to the ones used in other tone-deaf tests, and the differences between the pairs of phrases are barely noticeable. Even Mandell admits that he made this test difficult on purpose, and states that highly skilled musicians rarely score above 80%.[70]

It needs to be mentioned that, as Mandell points out, due to the complexity of the musical phrases, this test does not only measure tone deafness, but inevitably tests musical memory abilities as well. He adds, however, that this is not likely to affect the results as tone deafness does not go hand in hand with poor musical memory (he states that tone-deaf people tend to have normal musical memories).

At the end of the test the participants receive their result in % (and how many of the 36 test items they got right). According to what the test displays upon submitting the last answer, the results are to be interpreted in the following way:

above 90%: exceptional performance

above 80%: very good performance

above 70%: normal performance

above 60%: low-normal performance

below 55%: possible pitch perception or memory deficit

[70] I hereby would like to thank Bálint Huszthy and a friend of his as well (both of whom are highly skilled musicians) for trying out Mandell's tone-deaf test and informally confirming its reliability. The two of them reported scoring results only slightly above the average at the first attempt (when they took the test individually), but they redid the test together with the aim of scoring 100%, and they succeeded. This proves that the test is truly difficult even for skilled musicians, though definitely not impossible.

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As these ratings are not only less helpful visually than marking scales, but they do not even seem to be perfectly accurate (notice for example that the range between 55–60% is missing),[71] let us transform the guide to a marking scale (cf. Table 5.8).

91–100%	exceptional performance
81–90%	very good performance
71–80%	normal performance
61–70%	low-normal performance
55–60%	low performance (?)
0–54%[72]	possible pitch perception or memory deficit

Table 5.8: The interpretation of results in the tone-deaf test

2. The rhythm test (http://jakemandell.com/rhythmdeaf/):

The aim of this test is to measure one's sense of rhythm, that is, to what extent one is able to perceive minor differences in rhythm. The task here is the same as in the tone-deaf test: the participant is required to decide whether pairs of rhythmical phrases (with a two-second pause between the members of each pair) are the same or different, and this test was admittedly made difficult too. In this case 25 pairs of rhythmical phrases are to be judged, and the results are given in percentages. What the rhythm test differs in from the tone-deaf test is that here the two phrases differ rhythmically only, and that in this test the participant is given 10 possibilities for replay (though our participants were encouraged not to use this function). Just like in the case of the tone-deaf test, we transformed the original guide to interpret the results into the marking scale displayed in Table 5.9.

[71] In fact, as will be seen, in each of the three musicality tests used, there is a missing range between the last two ranges. We added these to the tables and marked the rows in question in grey highlight.

[72] The fact that we transformed the original guide used in the test into these marking scales resulted in rather unorthodox ranges – e.g., the range referring to amusia would most probably be determined as 0–55%, but as the aim was to keep to the original guide as much as possible, we decided not to modify the original ratings.

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91–100%	world-class performance
81–90%	outstanding performance
71–80%	very good performance
61–70%	normal performance
56–60%	low-normal/low performance (?)
0–55%	possible rhythm perception or memory deficit

Table 5.9: The interpretation of results in the rhythm test

3. The adaptive pitch test (http://jakemandell.com/adaptivepitch/):

The third and last musicality test used in the experiment was a pitch test (i.e., its aim is to measure pitch perception abilities), whose structure differs significantly from that of the other two tests. The task in this test is to decide which one of a pair of tones is higher (more precisely, whether the second tone is higher or lower than the first one). A crucial difference from the previous two tests is that the number of pairs of tones to be judged is not fixed, as the test automatically adapts to the responses given by the informants – this is what is meant by the test's being "adaptive". As the informant proceeds in the test, the two tones to be judged will get closer and closer, and at one point they will sound as if they were the same (which is never the case though). The point where the informant starts to make mistakes more frequently will help the programme calculate what is the smallest difference between two tones that the informant can still perceive reliably. This test offers unlimited possibilities for replay, but we asked the participants to refrain from using this option unless it was absolutely necessary. The interpretation of results is summed up in Table 5.10.[73]

[73] To help readers not knowledgeable enough in this field to interpret the numbers: the frequency of the musical note of Middle C (also referred to as one-lined C or C_4, which is the fourth C key from the left on a standard piano keyboard) is around 261.63 Hz, while that of $C\#_4$ (one semitone higher, i.e., the black key adjacent to Middle C on the right) is around 277.18 Hz – these two specific notes are thus approximately 15.56 Hz apart. An octave higher, the difference between C_5 and $C\#_5$ is about 31.11 Hz, and an octave lower, between C_3 and $C\#_3$, it is 7.78 Hz.

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0–0.74 Hz	exceptional ear
0.75–1.4 Hz	very good
1.5–5.9 Hz	normal
6–11.9 Hz	low-normal
12–15.9 Hz	low(?)
above 16 Hz	possible pitch perception deficit

Table 5.10: The interpretation of results in the pitch test

When doing this test, it is possible that the informant has so serious difficulties in perceiving pitch that the case is beyond the capacity of the programme (60 Hz is the maximum frequency difference that the test is able to reliably measure). For such informants the programme displays an error message which says "[i]t seems as if you had some difficulty with this test, or your pitch perception abilities are outside the range of this test. […] Please try to take this test again if you feel this message is in error". Those participants who received this message were regarded as if their result was 60 Hz.

The results of all three tests described in this section were entered into a MS Excel spreadsheet. The musicality tests were evaluated automatically; the participants' results in the first two components were given in %, and the ones in the third component in Hz. The results of the stress perception test were also evaluated automatically by the test generator programme, here the results were entered into the spreadsheet in points. The stress production test was evaluated by two reviewers independently of each other; in the case of each disagreement (which only happened in the case of a few words altogether) the raters could reach an agreement upon a second listening. The syllables of each word were also entered into the spreadsheet separately, so that the two phonological factors (L1 transfer and syllable weight) could easily be examined.

5.2.4.4 Results and discussion

We will begin the presentation of the results of our experiment with an evaluation of the stress perception and production tests, and the musicality test results will be presented afterwards.

In the stress perception test, the participants scored a weaker overall result (especially when compared to the results of the stress production test – see below). The average point they

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scored is 9.4 points out of the maximum of 16, which is a result below 60% (see the distribution of the results in Figure 5.14).

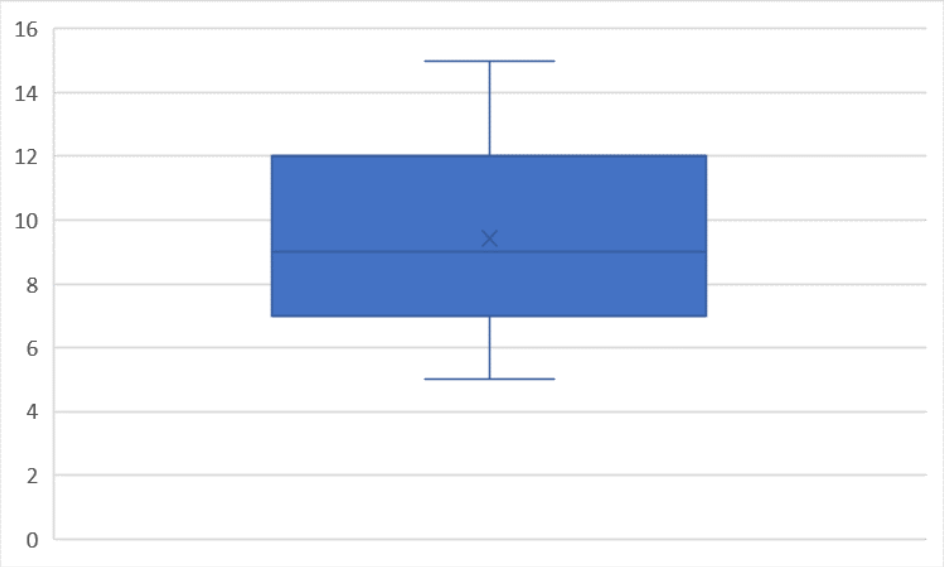

Figure 5.14: The distribution of the results of the stress perception test (max. 16 points)

What will require some explanation is that there is no consistency whatsoever in the errors the learners made: there were not any participants who marked word-initial stresses in the majority of the words (which could have been expected in at least some learners' case, given Hungarians' high chance of suffering from stress deafness), nor was it found that they would mark non-word-initial stresses in heavy syllables in otherwise initial-stressed words. It is a further observation that the participants generally did not make use of the last answer option (the one saying "I hear all syllables equally stressed"), which suggests that even if they did not hear a difference in the stress degrees in the words, they resorted to guessing the answer rather than choosing the last option, which they may have suspected that was not the "correct answer". The lack of consistency in their answers confirms the assumption that in many cases the learners *did* guess the answers.

On the other hand, learners did exceptionally well in the stress production test: in 78% of cases the learners pronounced the stress patterns of the nonsense words correctly (cf. Figure 5.15).

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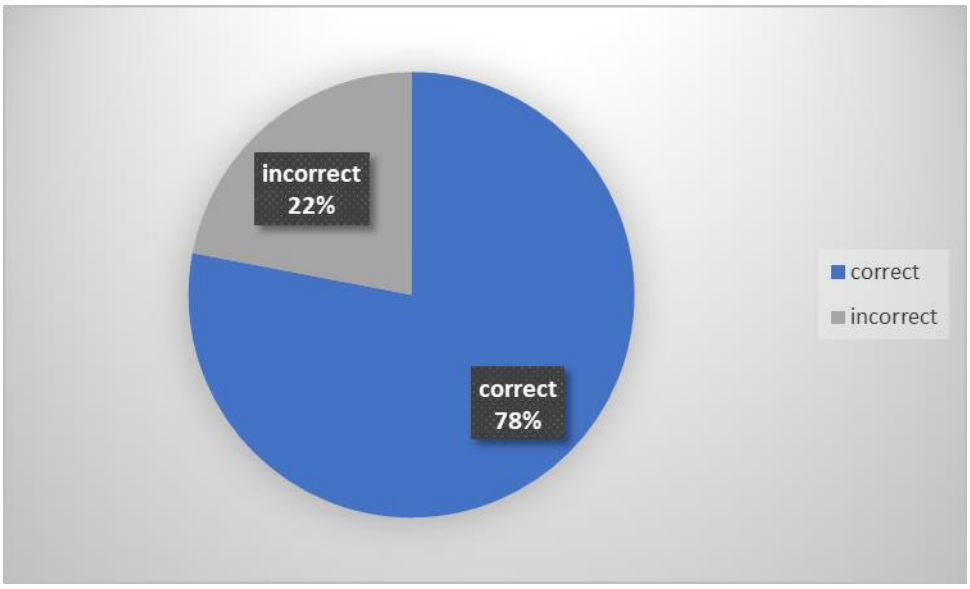

Figure 5.15: The proportion of correct and incorrect answers given in the stress production test

If we take a closer look at the 22% of words that were pronounced incorrectly, we may observe that contrary to our expectations, the majority of the errors (76% of them to be precise, cf. Figure 5.16) were hypercorrections: with the exception of one single participant (whom we will discuss later), incorrect pronunciations occurred in words in which stress happened to fall on the first syllable, but the learners placed stress somewhere else in their pronunciations.

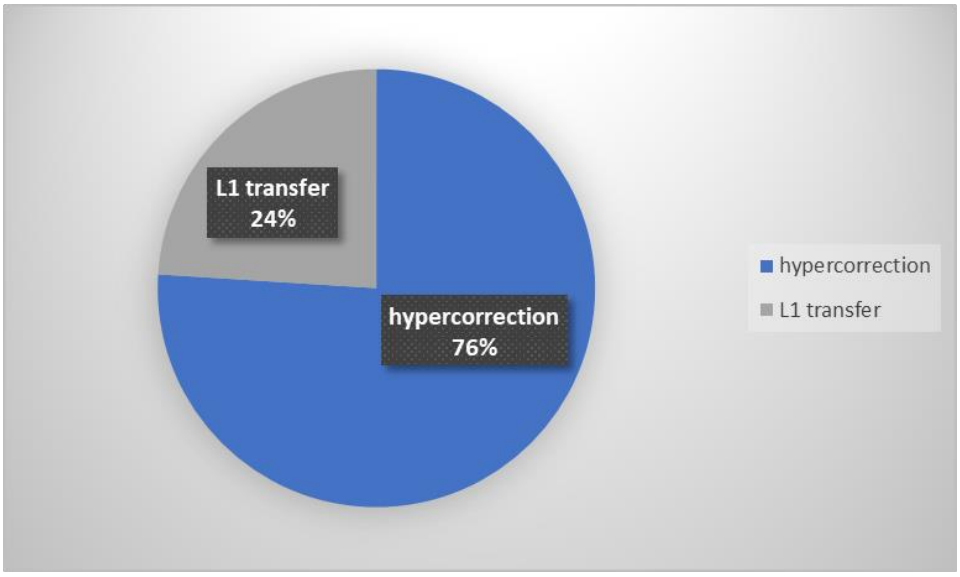

Figure 5.16: The proportion of the sources of incorrect answers given in the stress production test

Such occurrences happened in heavy syllables, especially in syllables containing long vowels: e.g., many participants pronounced the words *ínnace* and *íffating* with stress falling on the second syllable (even though these two words were stressed on the first syllable in the sound

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bank), most probably because of the diphthong /eɪ/ in the second syllable. In contrast, the stress pattern of words where a stressed syllable did contain a long vowel (e.g., *enígn* and *innícing*) were copied correctly by almost all participants.

Though to a smaller extent, the tendency to pronounce non-initial unstressed syllables as stressed was also observed in closed syllables (e.g., in words like *ímmincing*, which half of the informants pronounced incorrectly with stress on the 2nd syllable) and even word-final (C)VC syllables (e.g., in *ínnick*), which – in English – do not happen to count as closed (and thus heavy).

To gain a deeper understanding of such hypercorrect forms, let us look more closely at and compare the pronunciations of the example words *ínnace* (cf. Figure 5.17) and *ínnick* (cf. Figure 5.18).

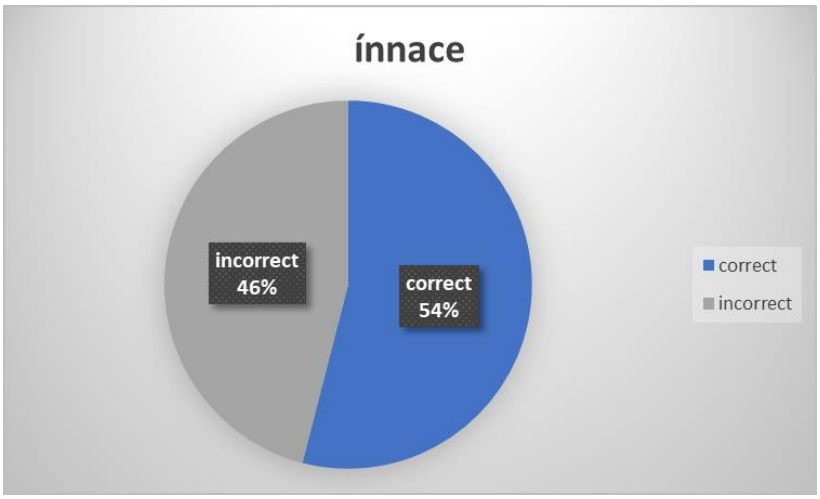

Figure 5.17: The proportion of correct and incorrect placements of stress in the word *ínnace*

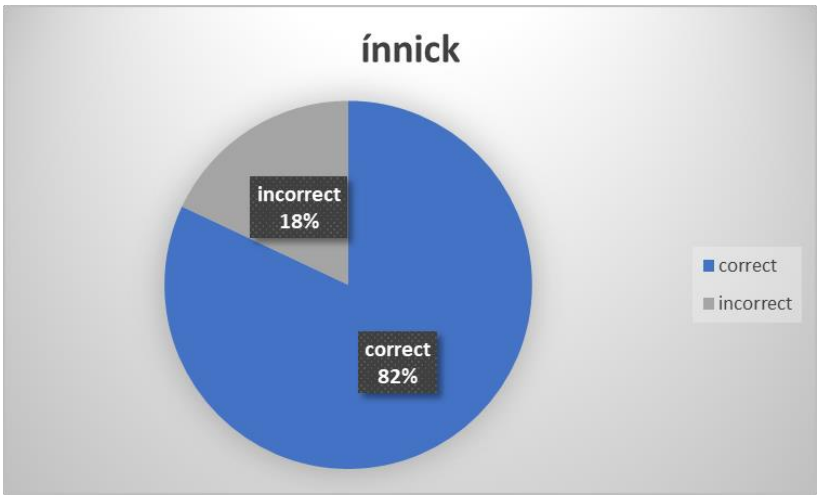

Figure 5.18: The proportion of correct and incorrect placements of stress in the word *ínnick*

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As the figures show, the word *ínnace* (stressed on the first syllable, but having a diphthong in the second) was only pronounced correctly by 54% of the participants – the remaining 46% of them stressed the word on the second syllable, mostly due to the fact that they mistook stress for vowel length. In contrast, the word *enígn* (which was stressed on the second syllable) was pronounced correctly by *all* of the participants, which further supports the claim that the learners associated stress with vowel length: they could easily assign stress to syllables containing a long vowel, and many of them had difficulty pronouncing initial stress if there was a long vowel in a syllable not carrying major stress.

Interestingly, the other word in question (*ínnick*, stressed on the first syllable) was also mispronounced by some of the participants. This suggests that the learners may have subconsciously acquired some parts of the weight-sensitive stress rules of English, namely that (C)VC syllables often count as heavy and attract stress, but they overgeneralised the rule and applied it in cases where a syllable-final consonant is extrametrical and does not make the syllable heavy. However, more data would be necessary to support this claim.

As for the participant who systematically pronounced the nonsense words with stress falling on the first syllable, this informant was in the group of beginners and he was the only one in whose pronunciation the effect of L1 transfer manifested itself. The other participants (even the beginners) performed so well that the case requires some explanation. The reason behind the exceptionally good results may lie in the use of nonsense words: in the case of non-existent (or unknown) words one is expected to pay more careful attention to their pronunciation and has a better chance of repeating the word correctly. This phenomenon is known as the "lexical bias effect" (often abbreviated to LBE), which is mostly discussed in the field of sound substitutions (i.e., when target language sound segments not found in the inventory of the L1 are substituted by an L1 sound): what has been observed (cf., e.g., Costa et al. 2006) is that in non-existent words speakers produce fewer sound substitutions and more sounds that are target-like or at least close to the target. This is the effect that apparently operates in other fields similarly (in our case in the field of non-native word stress production), and this is what is likely to have caused the unexpectedly high results.

In terms of musicality, let us first see how our participants can be assigned into the categories determined by the creator of the musicality tests. In the three tables to be presented (Tables 5.11–13), the three groups of learners are considered separately in three different columns. Let us see the results of the tone deafness test:

		1.	2.	3.
91–100%	exceptional	–	–	–
81–90%	very good performance	1	1	1
71–80%	normal performance	1	1	4
61–70%	low-normal performance	6	7	2
55–60%	low performance(?)	1	–	–
0–54%	possible pitch perception or memory deficit	1	2	–

Table 5.11: The results of the tone deafness test

The results of the rhythm test are as follows:

		1.	2.	3.
91–100%	world-class performance	–	–	–
81–90%	outstanding performance	1	1	1
71–80%	very good performance	5	1	2
61–70%	low-normal performance	3	8	3
56–60%	low performance(?)	–	–	–
0–55%	possible rhythm perception or memory deficit	1	1	1

Table 5.12: The results of the rhythm test

Finally, the results of the pitch test:

		1.	2.	3.
0–0.74 Hz	exceptional ear	–	–	–
0.75–1.4 Hz	very good	–	–	–
1.5–5.9 Hz	normal	2	6	2
6–11.9 Hz	low-normal	6	1	3
12–15.9 Hz	low(?)	–	–	–
above 16 Hz	possible pitch perception deficit	2	4	2

Table 5.13: The results of the pitch test

As for the three components of musicality examined, the results show that none of the participants produced a result belonging to the topmost category in any of the three tests; the majority delivered a “low-normal” performance, although there were a few good or even

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outstanding results especially in the tone deafness test and in the rhythm test. Relatively few learners scored a result belonging to the lowest category, and it is worth noting that the few instances of the lowest scores in the three test components do not belong to the same participants – if one of them was categorised as potentially having amusia in the first test, the same person did reasonably well in the other two tests, and this is true for the lowest scorers in the other two tests, too. This observation clearly supports the idea that the different components of musical talent do need to be differentiated and separately considered.

As no connection was found between the results of the stress perception test and the musicality tests, these results will not be presented. It is a lot more intriguing to compare the results of the stress production tests and the musicality tests. We calculated the degree of correlation between the results of the stress perception test and each of the three musicality tests; the results are summarised in Table 5.14:

	correlation coefficient (Pearson's *r*)
stress production – tone deafness	0.03
stress production – sense of rhythm	0.41
stress production – pitch perception	0.09[74]

Table 5.14: Correlation between stress production and the components of musicality

As the coefficients show, tone deafness and pitch perception are not correlated with stress production, however, there is moderate correlation between the rhythm component of musicality and stress production. If we look at the correlation between sense of rhythm and stress production separately in the three groups of learners, we can notice that correlation is higher in the case of the elementary group, and it even counts as strong correlation.

[74] While in the pitch and tone tests higher numbers indicate a better performance, in the rhythm test a lower number is better (i.e., the lower the result of the test is in Hz, the more sensitive is the participant's ear to pitch). Therefore, results scored in the pitch test were multiplied with –1 when calculating the correlation coefficients so that positive or negative correlation will be displayed consistently in all rows of the table summarising correlation coefficients.

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	the degree of correlation between stress production and sense of rhythm (Pearson's *r*)
Group 1 (elementary)	0.61
Group 2 (intermediate)	0.48
Group 3 (advanced)	0.33

Table 5.15: Correlation between stress production and sense of rhythm in the three groups

What this means is that although in English there are significant differences in pitch between different stress degrees, it is not pitch by which learners (at least the ones participating in this study) identify the degrees of stress in English, but they rather perceive the characteristic rhythm of the language.

5.2.5 Summary and interim conclusions

Based on the results of this study, we can draw the following conclusions:

We could not confirm the hypothesis that at the elementary level the perception and production of English word stress patterns are mostly determined by L1 transfer – this was true of one participant's stress production, but not in general. No consistency was attested in the participants' responses given in the stress perception test, so it is not only L1 transfer whose effect was not observed, but no other factor seemed to affect the outcomes, either. The reasons behind this can be attributed to the nature of the data collection instruments – some if its limitations will be discussed in the next section.

The production of word stress patterns was a lot more successful than perception; with the exception of the one learner mentioned above, the expected L1 transfer-based stress placement was not attested in the participants' pronunciation. On the contrary, most learners managed to repeat the sentences perfectly. This might be because although the perception of English stress patterns is problematic at all proficiency levels, production does not cause difficulties – however, as this is not what everyday experience suggests, it is more likely that it was the use of nonsense words in the data collection instrument that caused the participants' great success in the stress production test. The results of the experiment indicate that the lexical bias effect (discussed in detail in the previous section) is so strong that it is able to override the effect of other factors (presumably language-internal and language-external ones alike) in the case of most speakers, though further research is needed to clarify this. This means that Hunglish word-initial stress placement (which is expected due to L1 transfer and can be

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informally observed) is a kind of phenomenon whose operation is influenced by the lexical bias effect to such an extent that non-existent (or unknown) words override the effects of both L1 transfer and language proficiency. To sum up, it can be concluded that when analysing intermediate language systems, language-internal and language-external factors need to be considered in combination, as some of them can (partly or fully) override the effect of others.

Similar conclusions can be drawn about the second hypothesis: we expected hypercorrect forms to appear at advanced levels, but they were attested in the pronunciation of elementary learners; moreover, the majority of incorrect pronunciations were hypercorrections (i.e., words with initial stress were pronounced by the participants with stress falling on a syllable other than the first one based on (supposed) syllable weight, which happened the most often in syllables containing long vowels, but also in closed syllables and word-final (C)VC syllables). The lexical bias effect may have played a role in this observation too.

The third and last hypothesis – albeit only partly – was confirmed. It proved to be true that the degree of musicality positively correlates with pronunciation skills irrespective of proficiency level, but in this experiment this manifested itself between the rhythm component of musicality and stress production only, and not in the case of the other two components of musicality (tone deafness and pitch perception) or stress perception (though with stress perception it is possible that it was the lexical bias effect again that disturbed the operation of other factors). Such limitations of the experiment are to be summed up in the next section.

5.2.6 The limitations of the study

Although the experiment did provide useful insights into the phenomenon examined, it suffers from a number of limitations, which are to be listed here.

Firstly, it is perhaps the stress perception test that has the most serious deficiency, since it has been mentioned above that most probably the data collection instrument is to blame for the fact that not all the hypotheses could be confirmed in full. However, no matter how hard we would refine the stress perception test, we cannot avoid a serious problem, namely the fact that solving tasks on stress perception requires a completely different thinking mechanism than repeating words/sentences that one hears. If participants can correctly imitate the stress pattern of a word by listening to it, we can say that in practice they perceived the stress pattern of the word properly because otherwise they would not be able to repeat the word with the correct stress.

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Conversely, marking stresses in writing (even in the form of a multiple choice test) requires another thinking mechanism and does not necessarily reflect perception in a precise and reliable way. According to Epstein's (2003) cognitive-experiential self-theory (a theory well-known in the field of cognitive psychology, abbreviated as CEST), this contradiction is based on the fact that the human mind uses two markedly different types of thinking (which also operate completely independently of each other) when processing information: these two types of thinking are called intuitive-experiential (which, as its name suggests, is a method of thinking that is fast and automatic, and it is controlled by emotions and intuitions) and analytical-rational (which is a much slower, conscious and logical type of thinking by its nature). Repeating words or sentences after listening to them uses the former system, while underlining stressed syllables (or marking them in any other way) in the spelt form of the words uses the latter. It follows from this that in any type of task that requires the participants to consciously indicate their perception of stress, the learners will experience the same difficulties as the ones in our experiment, as it probably takes a lot more time until the thinking mechanisms necessary for the task are developed. This problem is seemingly unavoidable, and will always influence the results in any such type of experiments.

Secondly, another limitation of the study is that when determining the degree of the participants' musical talent we used tests solely based on perception, although the degree of one's musicality is also to be measured in production. This aspect was ignored mostly due to feasibility concerns – as I am not competent in evaluating musical productions (be it singing, humming, clapping or any such task type frequently used at entrance exams to music schools), examining musical production beside using perception-based musicality tests would have required professional help. Not resorting to this is not supposed to be a major disadvantage though, as in many research studies on the connection between musicality and pronunciation features (or other language skills) only perception tests were used (see some examples in Section 4.2.3), and their reliability has not been questioned, and the results obtained through such tests in various experiments are comparable.

Thirdly, and finally, it is also to be considered a limitation of the study that the answer option "I hear all syllables equally stressed" is likely to have influenced the participants negatively by suggesting that it cannot be the "correct answer", and discouraged them (especially the younger learners, who might not have fully understood the nature of research in comparison to assessed school tests, although it was explained to them in detail) from choosing this option.

A number of ideas to solve the issues listed here will be offered in Section 6.4.

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6. Conclusion

6.1 Summary and general remarks

The present dissertation has brought under examination the accent of Hungarian learners of English (referred to throughout the thesis as "Hunglish") and explored how two main types of factors (phonological and non-phonological ones) determine the degree of foreign accentedness in Hunglish. However, the effect of the determinants examined was not tested on *global* foreign accentedness – it was proposed that in non-native pronunciation varieties, and thus in Hunglish too, the potential features of the accent are to be predicted based on a contrastive analysis of the phonetics and phonology of the target language and the L1, and instead of overall foreign accentedness, it is the potential features that are to be tested in empirical studies. Such an approach, in addition to supporting with facts the claims made based on a contrastive analysis, can also reveal how non-phonological (language-external) factors contribute to the extent to which each potential pronunciation problem will be attested in actual idiolects of Hunglish.

After carrying out a contrastive analysis of English and Hungarian phonetics and phonology, the dissertation also discussed the effect of some of the most widely researched language-external factors, and then presented two empirical studies that fit into the framework proposed in Chapters 1–4.

The first experiment has shed light on Hungarian learners' acquisition of lenition, and illustrated that different types of intermediate language systems (in this case creoles and interlanguages) exhibit similar characteristics. The study investigated the phenomenon of non-rhoticity in varieties of English (semi-rhoticity in particular, which represents an intermediate system on the rhotic–non-rhotic continuum), and proved that non-native pronunciation varieties of English display similar systematic semi-rhotic patterns to those found in native ones (such as in Jamaican English, in which non-prevocalic R's are maintained in word-final stressed syllables).

The experiment examined the degree and manner of rhoticity of 13 Hungarian advanced speakers of English (BA students of English studies and language teachers), all of whose target accent was non-rhotic, but who had not yet reached full non-rhoticity at the time of the experiment and whose English pronunciation therefore displayed semi-rhotic patterns. The participants took part in a recording session involving three elicitation tasks of different levels of formality, all of them focussing on words containing non-prevocalic R's. The analysis of the learners' pronunciation was concerned with how the factors influencing the rhoticity of native

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varieties (phonological variables such as the vowel preceding the R, the position of the R, etc., as well as non-phonological ones like text category) affect the realisation of R in a non-native variety.

The results have shown that in general it is the word-final (especially the word-final stressed) position that contributes to the realisation of the R, which means that the intermediate stage in the learners' interlanguage is mostly governed by universal phonological principles. This makes Hunglish similar to the Yorkshire and the Jamaican types of native semi-rhotic systems. In addition to the factors influencing native semi-rhotic varieties, a number of determinants peculiar to the non-native context (the length of a word and the source the speaker learnt a particular vocabulary item from) were also found to have an effect on the rhoticity of Hunglish.

The second experiment delved into the acquisition of a suprasegmental feature, namely word stress. Based on the differences between the stress systems of English and Hungarian, and previous research on the phenomenon of stress deafness (whereby native speakers of languages with no distinctive stress will be insensitive to stress contrasts in a foreign language), it was hypothesised that beginner learners' perception and production of English word stress would be primarily determined by L1 transfer (i.e., they would both perceive and pronounce stresses on the first syllable of words) and that at higher levels of proficiency hypercorrect forms would appear in the learners' pronunciation. The experiment also examined to what extent musical talent was a predictor of stress perception and production as musicality was expected to be positively correlated with pronunciation skills.

The hypotheses were tested on altogether 28 Hungarian learners of English grouped into three levels of proficiency, who took part in a stress perception test, a stress production test and a three-part musicality test. The findings did not confirm the first two hypotheses, as the answers the learners provided in the stress perception test showed no consistency, and in the stress production test the majority of the learners managed to pronounce target-like forms. The few errors they made in the latter task were almost all hypercorrections – it was found that learners had a tendency to pronounce non-initial stresses in words that were stressed on the first syllable (which had not been expected to cause problems). This happened in heavy syllables, especially ones containing a long vowel. As for musical talent, of the three components of musicality tested (tone deafness, sense of rhythm and pitch perception), it was only sense of rhythm that was found to be positively correlated with stress production, and this correlation was the strongest in the group of the beginner learners.

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The findings of the two experiments have a number of phonological and phonodidactic implications, which are discussed in two separate sections below.

6.2 Phonological implications

This section will highlight how the findings of the two experiments have contributed to the understanding of linguistic universals in L2 acquisition.

Phenomena related to the notion of markedness were discussed in Section 2.2, where it was mentioned that markedness may account for certain features of interlanguage not found in either the L1 or the L2/FL (cf. Eckman 2008). Examples of such phenomena have been found by Altenberg & Vago (1983), who examined two Hungarian ESL learners of English and found that the learners exhibited final obstruent devoicing (FOD) in their English speech. This observation has been widely cited in the literature to illustrate the phenomenon of "The Emergence of the Unmarked" (TETU, cf. Section 2.2), because neither English nor Hungarian has final devoicing in their phonological systems.

However, there are at least two reasons why this might not be the best example to support TETU. Firstly, as pointed out in Section 2.2 (in footnote 24), some instances of devoicing observed in the subjects' pronunciation may be a result of successful acquisition of a target language feature, because utterance-final obstruents are indeed voiceless in English (cf. Section 3.4). Secondly, Mády & Bárkányi's (2015) experiment has shown that FOD can be attested in Hungarian too, although FOD in Hungarian is a phonetic detail and not a neutralising process, so the contrast between words like *mész* and *méz* is not lost (just like in the case of English). For these reasons, although at the phonetic level both English and Hungarian may feature FOD to some extent, it is not the type of final devoicing that characterises languages such as German, in which word-final devoiced lenis obstruents become equivalent to fortis ones, and as a result the contrast between, for example, [t] and [d] is neutralised in word pairs like *bunt* 'colourful' and *Bund* 'federation'. Altenberg & Vago's (1983) observation of FOD might therefore not necessarily be a perfect example of TETU.

Nevertheless, one particular finding in each of the experiments presented in Chapter 5 of this thesis can be considered an instance of TETU. The first one of these is the observation that certain Hungarian learners acquiring a non-rhotic accent of English systematically drop the [r] before consonants (e.g., in words like *mar̲ket*), but variably drop it in word-final position (e.g., in words like *car̲*). This indicates that apparently the suppression of the [r] is "easier" pre-consonantally than word-finally, which leads to an intermediate stage in the acquisition of R-dropping. Intriguingly, it is well-known that universally, processes that delete consonants or

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vocalise them (replace them with vowels) apply word-finally only if they also apply before consonants – that is, such processes are more marked in the former position than in the latter. It can be illustrated by a number of examples taken from various languages that a word-final coda position is stronger than a preconsonantal (word-medial) one (cf. Balogné Bérces & Honeybone 2012, Ségéral & Scheer 2008), which can explain why word-final R's are less prone to lenition (deletion in this particular case) than preconsonantal ones.

For example, as demonstrated in, for example, Scheer (2004: 629, cf. Table 6.1), the diachronic process of Old French L-vocalisation, leniting /l/'s into vowels, left unaffected non-coda L's (e.g., *luna* > *lune* 'moon'; *flore* > *fleur* 'flower'; *vela* > *voile* 'sail, veil') as well as those in final codas (e.g., *sal* > *sel* 'salt', *caball* > *cheval* 'horse'), whereas it systematically weakened preconsonantal L's (e.g., *alba* > *aube* 'dawn', *talpa* > *taupe* 'mole').

Old French l-vocalisation

a. Onset

#__		C__		V__V	
lamina	lame	plaga	plaie	vela	voile
levare	lever	flore	fleur	mula	mule
luna	lune	fab(u)la	fable	dolore	douleur
lepore	lièvre	C.__		valere	valoir
		mer(u)lu	merle		

b. Coda

__#__		__C__	
sal	sel	alba	aube
mel	miel	talpa	taupe
caball(u)	cheval	sol(i)dare	souder
fil(u)	fil	poll(i)ce	pouce

Table 6.1: Old French l-vocalisation, Scheer (2004: 629)

A similar example is Harris & Kaisse's (1999: 158) account of s-debuccalisation (referred to by the authors as "aspiration") in two varieties of Argentinian Spanish (the porteño dialect of Buenos Aires and in the dialect of Rio Negro, abbreviated as PO and RN, respectively, cf. Table 6.2). In PO, /s/ is aspirated preconsonantally, irrespective of whether the *s*C string falls within a morpheme (*ca*[h]*pa*), within a word across a morpheme boundary (*de*[h]-*cargar*), or across a word boundary (*ve*[h] *do*[s]). However, this phenomenon is not attested prevocalically (e.g., *ca*[s]*a*, *de*[s]-*armar*, *ve*[s] *uno*) or before a pause (e.g., *ve*[s]...*do*[s], even if the pause is a word-medial one (*ca*[s]...*pa*). (Pauses are indicated by "…" in the table).

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	/s/ = [s]/[h]	PO	RN	
	a. ca.s̲a	[s]	[s]	'house'
	b. cas̲.pa	[h]	[h]	'dandruff'
⇒	c. cas̲ … pa	[s]	[h]	'dan … druff'
	d. de.s̲-ar.mar	[s]	[s]	'to disarm'
	e. des̲.-car.gar	[h]	[h]	'to discharge'
⇒	f. ve.s̲ u.no	[s]	[h]	'you see one'
	g. ves̲. dos	[h]	[h]	'you see two'
⇒	h. ves̲ … dos	[s]	[h]	'you see … two'
⇒	i. ¡ves̲!	[s]	[h]	'you see!'

Table 6.2: Harris & Kaisse (1999: 158)

Such universal tendencies in consonant lenition may also apply to produce the semi-rhoticity patterns found in Jamaican-type varieties of English as well as Hunglish, and preconsonantal-only deletion is an instance of TETU.

The other instance of TETU (the one found among the observations of Experiment 2) is Hungarian learners' tendency to pronounce otherwise unstressed (C)VV and (C)VC syllables as stressed, of which the former was more frequent. Let us see why stress assignment to (C)VV syllables is less marked than to (C)VC.

In languages with weight-sensitive stress systems, stress assignment is dependent on syllable weight in that heavy syllables attract stress. In some languages, heavy syllables are determined qualitatively (i.e., it is the quality of the segments in the syllable that account for syllable weight), while in others syllable weight is quantitative, which means that in order for a syllable to be heavy (and thus stressable), it needs to contain two moras (cf. Gordon 2004b). The fact the bimoraic syllables attract stress is so frequent a characteristic of weight-sensitive stress systems that the principle expressing this regularity in metrical phonology (the so-called Weight-to-Stress Principle)[75] has also been formalised as a markedness constraint in Optimality Theory (cf. Gordon 2004a, Prince & Smolensky 2004). In this respect, stress assignment to bimoraic syllables can be considered an unmarked property of weight-sensitive systems.

In such systems, (C)V syllables are light (which means they are unable to attract stress); however, what counts as a heavy syllable varies greatly (cf., e.g., Gordon 2004b): while there are languages in which only (C)VV syllables are heavy (i.e. syllables containing a long vowel, including diphthongs), in others both (C)VV and (C)VC syllables are heavy (cf. Gordon 2006). In other words, if a stress system treats (C)VC syllables as heavy, it also treats (C)VV syllables

[75] Despite its misleading name, the WSP expresses that if a syllable is heavy, then it is stressed – cf. Chomsky & Halle (1968), Prince (1990), etc.

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as heavy, but not vice versa. (Similar implicational relations were discussed in Section 2.2.) This means that in a quantity-sensitive stress system, it is less marked for the WSP to assign primary stress to (C)VV than to (C)VC. Since Hungarian is not weight-sensitive, the participants' tendency to stress (C)VV syllables to a greater extent than (C)VC can be regarded as another instance of TETU.

What the above examples illustrate is that learners possess an innate knowledge of what is universally less marked (even if the feature in question is not part of their L1), and what makes this case special is that these instances were found in purely EFL settings (i.e., with learners' exposure to the target language limited to the classroom) in the pronunciation of learners who are well beyond the critical or sensitive period in FL language learning. It can thus be concluded that these universal strategies are available to learners totally irrespective of such crucial differences as learning setting and age.

6.3 Phonodidactic implications

The findings of the empirical studies have some phonodidactic implications, too.

As for the first experiment, it shed light on an important aspect of the acquisition of non-rhoticity by providing a description of the transition period between a non-rhotic target and an initial accent that is (presumably) fully or heavily rhotic. As the accents of the participants displayed consistent patterns in the intermediate stage of rhoticity (which suggests that it is easier for learners to drop the R's in certain environments than in others), the findings of the study can be used to support learners who wish to acquire full non-rhoticity by highlighting what types of words they need to pay special attention to when practising non-rhotic pronunciation. This may be relevant only to highly advanced and/or extremely motivated learners, though.

Nonetheless, other conclusions of the first experiment are more broadly applicable. The observation that the participants' accents barely displayed R-liaison is not unknown – it is impossible not to notice that many learners trying to imitate a British accent suppress R's in word-final position even if the next word begins with a vowel,[76] and fill the hiatuses with glottal stops instead.[77] In addition to the fact that contact varieties very often lack liaison (cf. Britain &

[76] There is a popular misconception among foreign speakers that "British speakers do not pronounce R's", which may also contribute to the suppression of Linking-R's.

[77] What is more, they do so even in examples like "Westminster Abbey", which could be considered as if it was not two separate words but one lexicalised form.

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Fox 2009), this may also be attributed to the way learners of foreign languages learn vocabulary in general: it seems that despite all the efforts of modern language teaching to encourage students to memorise chunks of the language rather than words in isolation, learners' vocabulary learning mechanism still appears to be primarily word-based, that is, what they store in their memory is the citation form of words. Cebrian (2000), as cited in Simon (2010: 64), arrived at similar conclusions and claimed that there exists "a general [interlanguage] constraint against the application of rules above the level of the prosodic word". This highlights that focussing on chunks instead of isolated words would not only be important in making the acquisition of the grammar and the vocabulary of the target language effective, but also in learning pronunciation, therefore connected speech phenomena would need more attention in pronunciation teaching.

The conclusions of the second experiment can also be used in phonodidactics. As especially the stress perception test used in the study (but the stress production test too) was designed so that it would be familiar to the schoolchildren participants (i.e., their English course book contained pronunciation exercises of the same kind), the problems encountered concerning the data collection instruments also apply to the textbook activities. There are English language course books (e.g., the *English File* series), which are full of listening activities where the learners need to underline the stressed syllables of words. Based on the results of Experiment 2, such activities may be insolvable for some learners even after months or years of practice, which can be rooted either in the learners' suffering from stress deafness or the fact that the thinking mechanism necessary for this task type takes much longer to develop. This experience, especially if repeated, may lead to serious frustration and anxiety.

For these reasons, if a language teacher insists on activities where the task is to underline stressed syllables, it would be beneficial to hold an ear training session prior to the first such activity type – the training should focus on developing the learners' ability to perceive stress degrees as well as making them realise what stress is at all, because, as we have seen, they are likely to equate stress with vowel length. Describing the exact methodology with which this can be achieved is beyond the scope of the discussion.

However, taking into consideration our participants' remarkable ability to copy the stress patterns of words correctly, ear training sessions might not even be worth the nuisance, and the "underline the stressed syllables" tasks could as well be left out – after all, from the learners' point of view, actual pronunciation would be more important than marking stresses correctly in writing. The classic "listen and repeat" task seems to be highly effective, and it has a good

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chance of making the learners acquire the stress patterns of English words, even without doing the written tasks.

Lastly, the fact that stress production is correlated with sense of rhythm implies that learners may develop their sensitivity to stress by improving their rhythmic skills. Therefore, the solution to stress-related problems may not only be looked for in the EFL classroom, but also in the music lesson.

6.4 Directions for further research

The present work has left numerous areas open for further research. Let us first see how the two experiments presented in Chapter 5 could be re-done based on the conclusions and the limitations of the studies.

As for the experiment on the acquisition of non-rhoticity, it was mentioned among the conclusions of the study that many of the non-phonological factors such as text category might not need any further testing, and the way in which it is worth continuing the study would be to conduct a larger-scale study on interlanguage non-rhoticity involving more participants and/or longer speech recordings of free speech only, which would allow for a more thorough analysis of the phenomenon, using a mixed effect statistical model. Apart from the determinants tested in the experiments, it may also be worth considering three further variables (as random factors in a mixed methods model): the effect of subject (due to the high degree of inter-speaker variation), that of word (due to the potential fossilised pronunciations of certain lexical items) and that of spelling.

In future experiments similar to the one on the acquisition of stress described in Section 5.2, it is the data collection instruments that need to be revised. When testing stress perception, instead of the method of underlining syllables it might be more suitable to use a method which does not require the example words to be syllabified, because this may have been a source of confusion for our participants. Since the subjects did not need to underline syllables themselves but were offered answer options in the form of a multiple choice test, it was us who underlined syllables, so we sticked to one consistent way of syllabification (the tradition applied in the course book the learners used). In this way we ended up with syllables in the case of which the underlining was barely visible in the multiple choice test: for example, words like *innick* from the sound bank were syllabified as *i.nnick*, which may have biased the participants in that they may have marked the second syllable as stressed because it looked more substantial than the first one (which was actually the stressed syllable of this word). In this particular word it may

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have caused further confusion for the Hungarian informants that we marked the double <nn> appearing in the spelling (which denotes a short consonant) as belonging to the second syllable (*i**n**nick* and *i**nn**ick*) – informants expecting such examples to contain geminates and being syllabified as *in.nick* accordingly may have found our syllabification surprising, and we may never know how this influenced their performance. Our sound bank was unfortunately full of such examples where this issue may have confused the learners, because according to the letter-to-sound rules of English the doubling of consonant letters after stressed vowels plays a crucial role in indicating the stressed vowel; in this particular case it shows that the stressed vowel is /ɪ/, not /aɪ/. A stressed /ɪ/ (which was the vowel that was used in the nonwords in Experiment 2) appearing in an open syllable could only be marked unambiguously in such a way in nonsense words.

An alternative method for marking stresses in similar experiments would be to use geometric figures (e.g., circles or squares) of different sizes above the letters denoting vowels in stressed syllables, which would not only solve the problems concerning syllabification,[78] but would also enable the examination of primary and secondary stresses separately, as well as solve the problem concerning the answer option "I hear all syllables equally stressed": with the help of figures it would be possible to offer the participants an answer option in which the figures above all letters denoting stressed vowels would be of the same size. This would not differ visually from the other option as much as our example did with a relatively long answer option following the words with the underlined parts. It is apparent that no matter how hard we tried to explain to the participants that there are no correct or incorrect answers in the test, and that we were interested in their honest answers, it is not easy to avoid the learners' (probably subconscious) endeavour to perform well (given that they were students).

It would also be useful to improve the sound bank used in the experiment, as the remarkable success the learners achieved in the stress production test might be attributed to the use of nonsense words. It would therefore be worth testing the effect of lexical bias as one of the independent variables of the experiment, so an improved version of the experiment would involve existent and nonsense words alike.

As for directions for further research that could be a continuation of the whole framework presented in this dissertation, basically the effect of any non-phonological factor on any Hunglish problem area could be the next step in a series of following experiments; nevertheless, the ones that are of particular interest are factors specific to an EFL setting such as formal

[78] It would even be more accurate to mark the vowels only, because where the consonants go is debatable.

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instruction, which is severely underresearched because (as pointed out in Section 1.2.2) the great majority of studies on non-native accents have been conducted in ESL environments.

I am hopeful that with these observations and remarks I have provided useful advice for any future experimental research conducted on linguistic variation.

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Appendices

Appendix A1

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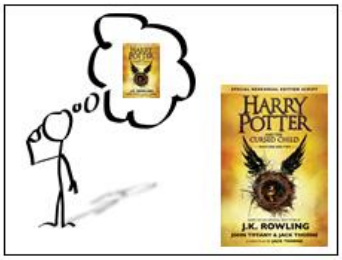

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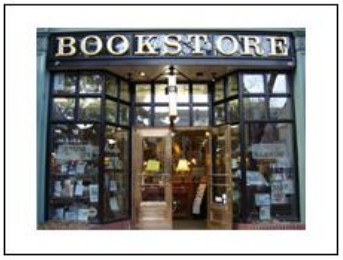

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Appendix A2

[see the next page]

Appendix A3[79]

Appendix A4

When I was a child, my favourite book was Harry Potter. Unfortunately, I didn't have my own copies of the books, so one day I got into my car, went to the city, and bought the first book. When I got home, I wanted to read my favourite part in the fourth chapter, when Hagrid tells Harry that he is a wizard, but I noticed that page was torn out from the book. I hadn't felt so upset before. Really, never. I nearly burst into tears, it was like a nightmare! At least in the meantime my cat sat on my lap and started to purr. It calmed me down a bit. I began thinking about what to do. The bookstore was too far, so I phoned them and made it clear: unless they sent me a new copy free of charge, I would not go there any more. I had barely put down the phone when it rang again. My brothers suggested going for a beer. I thought they weren't free that evening, but apparently they were. So I changed my trousers because they were full of cat fur, and went to the bar.

[79] The picture of was created with a free web-based programme called RoomStyler (https://roomstyler.com/). (Its features have improved significantly since the picture was created in 2016; this is why the picture looks rudimentary compared to what the programme offers today.)

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 		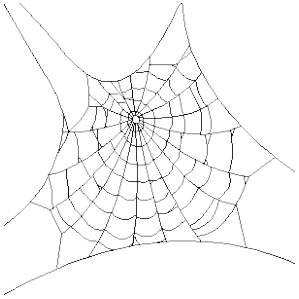		
				
				

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Appendix B1

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Abstract

This dissertation contributes to research on phonological variation in the field of L2/FL pronunciation acquisition through an analysis of Hungarian-accented English (referred to as "Hunglish" throughout the thesis). In so doing, it provides a contrastive analysis of English and Hungarian phonetics and phonology as well as some aspects of spelling, which are responsible for the potential difficulties with English pronunciation faced by Hungarians. It also sheds light on some language-external factors that determine to what extent the expected pronunciation problems will characterise individual Hungarian speakers' accent of English. The main part of the dissertation presents two empirical studies on Hunglish and examines how factors of two major types (phonological and non-phonological) codetermine the patterns found in Hungarian learners' accent of English.

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Összefoglaló

A disszertáció a fonológiai variációra irányuló kutatásokhoz járul hozzá a második nyelvi, pontosabban idegen nyelvi kiejtési jegyek elsajátításának témakörében. Az értekezés fókusza a tipikusan magyar akcentussal beszélt angol (melyre a dolgozat “Hunglish” kiejtésként utal). A disszertáció egy kontrasztív elemzést ad a magyar és az angol fonetikájáról és fonológiáról, melynek segítségével a magyar nyelvtanulók angol kiejtési hibái nagy részben megjósolhatóak, de megemlíti a helyesírás különbözőségeiből adódó nehézségeket is, amelyek szintén kiszámítható kiejtésbeli hibákat tudnak okozni. Ezután megvizsgál néhány fontos nyelven kívüli tényezőt, amelyek meghatározzák, hogy a megjósolható kiejtésbeli hibák milyen arányban fognak megjelenni az egyéni beszélők angol kiejtésében. Az értekezés fő része két empirikus kutatást mutat be, amelyek annak megvizsgálására irányulnak, hogy két fő tényezőtípus (fonológiai és nem fonológiai tényezők) hogyan határozza meg együttesen a magyar nyelvtanulók angol kiejtésében található mintázatokat.