Phonetic Production of Heritage Russian Speakers in Finland: Implications for College Instruction

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Abstract

This chapter examines the “heritage accent” of heritage speakers of Russian in Finland. We present the results of an accent rating study with 41 speakers and ten raters to identify the differences in phonetic production between three groups of heritage speakers: simultaneous bilinguals, sequential bilinguals with an early onset of exposure to Finnish, and sequential bilinguals with a late onset of exposure to Finnish, and two control groups: L1 speakers of Finnish with Russian as an L2 and baseline Russian speakers. The ratings were obtained from the Russian-dominant diaspora speakers in Finland, who evaluated speech samples and judged the accents of the Russian-speaking participants on a numerical scale and described their distinctive features. The results yield evidence of the “heritage” accent in Russian and point to differences in perceived accentedness among the different groups of bilinguals. As a group, simultaneous bilinguals occupy an intermediate position between baseline Russian speakers and late L2 learners of Russian, while sequential bilinguals are perceived to be close to baseline Russian speakers regardless of the age of their Finnish language exposure. The chapter provides an overview of the accent features on the segmental and suprasegmental levels attested for each bilingual group and concludes with the pedagogical implications of the study related to the assessment and teaching of different groups of Russian learners at universities.

Keywords: heritage language speakers, heritage accent, accent rating, Finnish-Russian bilinguals

Аннотация

В данной работе рассматривается «херитажный акцент» у билингвов, носителей унаследованного (херитижного) русского языка в Финляндии. Вниманию читателей представляется оригинальное исследование, в котором участвовали 41 информант и десять рейтеров. Целью исследования было обнаружить различия в фонетическом продуцировании у трех групп херитажных говорящих: симультанных, ранних сукцессивных и поздних финско-русских билингвов по сравнению с двумя контрольными группами: студентами РКИ с финским в качестве родного и информантами с русским в качестве родного языка. Рейтеры-носители русского языка оценивали речевую продукцию информантов, в частности акцент говорящих (по шкале 0–5) и описывали составляющие акцента. В данном исследовании рассматривается «херитажный» акцент в речи на русском языке и сравнивается фонетическая составляющая речевого поведения херитажных говорящих с носителями русского как родного и изучающими РКИ. Результаты исследования свидетельствуют о широкой вариативности в фонетическом продуцировании на индивидуальном уровне, а также о межгрупповых различиях. Группа симультанных билингвов занимает промежуточное положение между носителями русского языка и студентами РКИ, в то время как ранние сукцессивные и поздние билингвы приближаются к носителям русского как родного. В работе предлагается краткий обзор акцентных особенностей на сегментном и супрасегментном уровнях. В заключении мы рассуждаем о возможном применении данного исследования в педагогике для оценивания и преподавания языка в различных группах студентов в университете.

Ключевые слова: херитажные носители языка, херитажный акцент, оценивание акцента, финско-русские билингвы

Phonetic Production of Heritage Russian Speakers in Finland

The presence of heritage language (HL) learners in foreign language classes has become an increasing trend. Consequently, the language proficiency of heritage speakers (HSs), and HL pronunciation in particular, have been of growing interest to language researchers and practitioners over the last two decades. HSs have been reported to demonstrate target-like pronunciation of segmental features and sound much more “native” than advanced second language (L2) learners (Au et al., 2002, 2008; Knightly et al., 2003; Oh et al., 2003; Kupisch et al., 2014, 2020), prompting researchers to suggest that the advantages of L1 acquisition are especially noticeable in phonetics and phonology (Polinsky, 2018, p. 115; Kim, 2016, p. 21). Based on these findings, the domains of phonetics and phonology are often said to be resilient in a HL, especially as compared to morphology, syntax, and lexical knowledge.

Contradicting this trend, HSs are frequently reported to “sound foreign” in their HL from the perspectives of monolingual speakers (Benmamoun et al., 2013; Polinsky & Kagan, 2007; Montrul, 2010; Polinsky, 2018). Moreover, a considerable number of studies have demonstrated both trends in HSs. For example, Au et al. (2002) and Oh et al. (2003) studied the phonetic production and perception in Spanish and Korean HSs by testing pronunciation and voice onset time (VOT) for stops; their results suggest that HSs are significantly more nativelike that L2 controls, but still distinguishable from monolingual native Spanish and Korean speakers.

In recent years, *heritage accent* (the accent of HSs) has been studied from various perspectives. Numerous studies on segmental material (vowels and consonants) have demonstrated the influence of the dominant language on the production of sounds in the HL (see Chang, 2021 and Kim, 2016 for an overview). For example, in research of HLs in

Canada, cross-generational study of HSs' stop production (onset /p, t, k/ of Russian, Italian and Ukrainian) showed the drift from the homeland norms to that of English in successive generations in Russian and Ukrainian, meaning longer, more English-like VOT; in contrast, the Italian group showed stability across generations. According to the authors the lack of dominant language influence in Italian is accounted for the closer association with the country of origin in Generation 2 and Generation 3 Italians if compared to the Russians and Ukrainians. The fact is illustrated by the higher EOQ (Ethnic Orientation Questionnaire) scores and small cross-generational drop in EOQ scores in the Italian group. (Hrycyna et al. 2011). Though studies on HSs' suprasegmental properties are still less common, they provide further evidence of heritage accent in showing that HSs are not "native-like" when the stress and prosody of their speech is observed (e.g. Robles-Puente, 2014; Chang & Yao, 2016; Kim, 2016; Colantoni et al., 2016). Thus, research on Spanish HSs in USA by Kim (2016) revealed that despite similar performance of HSs and monolingual speakers in the perception of lexical stress and nuclear stress, the two groups differed in production.

In this chapter, we investigate the phonetic production of HSs of Russian in Finland. Considering that while a number of HL studies have examined the Russian-Finnish dyad (e.g. Protassova, 2004, 2008, 2018a, 2018b; Leisiö, 2001; Kagan et al., 2021; Silven et al., 2014), there are only few HL studies in the areas of phonetics and phonology(e.g. Ljubimova, 2010, Nenonen, 2020), the data presented here can offer new insights into the development of phonetic and phonological knowledge in HSs while also expanding the cross-linguistic range of current HL research.

The chapter has two goals. First, it explores the degree of accentedness in the oral production of Russian HSs living in Finland as compared to baseline speakers and L2 learners of

Russian. Second, it provides an overview of segmental and suprasegmental features that characterize the phonetic production of Russian bilingual speakers. After a brief review of previous work, we introduce our empirical study and discuss its findings. Finally, we conclude with the pedagogical implications of this research for the assessment and teaching of different groups of Russian learners at the university level.

Background

In this section we discuss the phonetics and phonology of HSs, consider some recent accent studies, and present a comparative analysis of the phonological and phonetic systems of Russian and Finnish in order to make predictions about HSs' possible heritage accent features.

Heritage languages and heritage language speakers

HLs are minority languages acquired naturalistically at home (e.g. Montrul & Polinsky, 2011; Kupisch, 2013). HL speakers (HSs) are commonly described in the literature as simultaneous or sequential bilinguals who have *two L1s*, of which the minority language of their society is usually weaker due to the lack of input from the social environment, while the dominant language of the society is stronger (Valdés, 1999/2001; Valdés, 2001; Polinsky & Kagan, 2007; Benmamoun et al., 2013; Polinsky, 2018). Kisselev et al. (2020) provide a broader definition of HSs as speakers who "became dominant in the language of their new society, which could be either their *other first language* for simultaneous bilinguals or their *second language* (for sequential bilinguals or early L2 learners)" (pp. 1–2). In this paper, we adopt the latter definition of HSs, considering them to be either simultaneous or sequential bilinguals, and expanding the category of sequential bilinguals to include earlier sequential bilinguals (acquisition of the majority language started at pre-pubescent age) and later sequential bilinguals/early L2 learners of the societally dominant language (acquisition of the majority language at pubescent age). We include later sequential bilinguals in HSs because they meet the criteria for HSs proposed by Valdés (Valdés, 1999/2000, p. 375) being raised in homes where other than dominant language was spoken and being "to some degree bilingual" in the dominant and the heritage language. Our decision to encompass these speakers is also motivated by Kagan & Dillon's article (2006), where this population is discussed as HSs.

Montrul (2010) emphasizes that the HL is not always the weaker language: HSs have typically stronger command in their dominant language, but the proficiency and literacy in the HL *varies* significantly from the advanced or native-like proficiency to mere receptive skills. Along similar lines, Polinsky and Kagan (2007) argue that HSs are a part of "a continuum, from rather fluent speakers, to those who can barely speak the home language," (p. 5) so they comprise a heterogeneous group of speakers demonstrating very different language experiences and practices.

One of the reasons for the observed heterogeneity among HSs is that HSs are coming from different "groups" with their different language backgrounds (age or arrival, age of exposure to the dominant language). The parents of HSs are recent immigrants often referred to as the first-generation immigrants. Correspondingly, 1.5-generation speakers have left their homeland in their late childhood (Kisselev et al., 2020), they have attended school in the former home country for five to seven years and after that experienced language development interruption in L1, they were exposed to the majority language in their new homeland and mastered it in school setting and in the new sociocultural context. These speakers were not bilingual until 12-13 years old and had later exposure to the dominant language. Research on 1.5-generation HSs has shown that they have a robust knowledge of L1 grammatical system, but their range of vocabulary and register differ from that of educated native speakers (e.g. Kagan & Dillon, 2006, p. 87; Polinsky, 2018, p. 23). The second-generation HSs are born in their parents' new homeland either in minority language-speaking or in bilingual families. The children from minority language-speaking families, sequential bilinguals, use only L1 for the first three or four years; AoO (age of onset) in the majority language happens at the age of 3 or 4 (earlier exposure to the dominant language). The children born in bilingual families, simultaneous bilinguals, grow up with two languages at home. Research on simultaneous and earlier sequential bilinguals has shown that they are characterized by divergent attainment, meaning the systematic divergence (e.g innovation, simplification, diachronic language change) in heritage grammar (Polinsky, 2018, pp.24-28; Montrul, 2010, pp. 5). Several studies have reported the distinction between these two groups, namely simultaneous bilinguals show more significant degree of deviation from target-like (native like production) than earlier sequential bilinguals (e.g. Montrul, 2002; Lee, 2013).

Existing findings pertaining to HL phonetics and phonology

Before we proceed, let us present a few notes on the terminology regarding accent. Traditionally, the term 'accent' has come to be associated with 'foreign accent' in the bilingualism literature. Moyer (2013) defines *foreign accent* as the phenomenon of non-native speech, which covers not only the pronunciation of speech sounds, or segments, but also the suprasegmental features, such as intonation, rhythm, pitch, segmental length, speed, and loudness (p.10).

In the studies that examine phonetic production in HSs the terms 'accent', 'foreign accent', 'global foreign accent/global accent' and 'heritage accent' are used to address the specific features of bilingual speech. The term 'foreign accent' is often used interchangeably with the term ‘global accent’. For instance, foreign accent was examined in German-French and German-Italian adult simultaneous bilinguals (Kupisch et al., 2014) and in German-Russian bilingual children (Kupisch et al., 2021). At the same time, in another study Kupisch et al. (2020) avoid the word ‘foreign’ and use the term ‘global accent’ with regard to HSs, arguing that they do not necessarily sound foreign.

Relating to bilingual speech, global [foreign]accent is frequently understood as perceived divergence from a standard variety under the influence of one or several contact languages (crosslinguistic influence, CLI) (Derwing & Munro, 2009; Kupisch et al., 2020, 2021; Ballard & Winke, 2016). The word “global” indicates a complex nature of accent, which is a result of a combination of various segmental and suprasegmental features (Kupisch et al., 2021). Ballard & Winke (2016) argue that *foreign accent* is associated with foreigners, who are having accent influenced by a different L1 (p. 124). Importantly, the evaluation of global accent is typically based on comparison with monolingual speakers’ production. Hence, in their description of the nature of global accent Kupisch et al. pinpointed the role of monolingual speaker both as a rater and a model of target pronunciation: “the foreign accent *perceived by a monolingual speaker* of a language, which results from certain phonetic and/or phonological properties (segmental or suprasegmental), and which deviates from *the accent associated with monolingual speakers*” (Kupisch et al., 2014, p. 127).

In this chapter we investigate heritage accent, and thus it is important to consider whether the findings concerning foreign accent apply to HSs. Polinsky (2018) provides an overview of research aiming to answer the question: Do HSs have a foreign accent in their home language? The results indicate that heritage accent is different from foreign accent and, furthermore, that it is detectable and makes HSs stand out from both L2 learners and native monolinguals (pp. 116–22). As already mentioned, the research into HL phonetics and phonology has pinpointed two observations about HSs: they may have good phonology, but at the same time they tend to show *subtle difference* (Chang, 2021) from L1-dominant native speakers, and can be identified by native speakers as different from native speakers living in the homeland (e.g. Montrul, 2010; Polinsky, 2018; Benmamoun et al., 2013, Kupisch et al., 2014; Chang, 2021). Thus, HSs do not necessary possess foreign accent, however, they have got special phonetic features described as *heritage accent*.

Evidence of the intermediate nature of HSs' accent on the scale between L2 and native speakers (Knightly et al., 2003; Chang, 2021) can be found in several accent rating studies, where native-speaking raters evaluated the bilingual speaker's accent as native or foreign. For example, studies on Spanish HSs in the US (Au et al., 2002; Knightly et al., 2003); Portuguese HSs in Germany (Flores & Rato, 2016); French, German, and Italian HSs in those three countries (Kupisch et al., 2014); and Russian HSs in Germany (Kupisch et al., 2021) reported that the HSs scored global accent ratings somewhere between L2 learners and native speakers.

To understand the nature of heritage accent, it is instructive to investigate its phonetic and phonological properties. As mentioned earlier, linguistic studies often take a holistic approach to accent, pointing out that it involves not only segmental but also suprasegmental features of speech, yielding the composite concept of global accent (e.g. Pinget et al., 2014; Piske et al., 2001; Kupisch et al., 2020, 2021; Colantoni et al., 2016). Segmental accentedness can be phonemic and subphonemic (allophonic variation) (Pinget et al., 2014). Let us illustrate these phenomena with examples from Russian: phonemic accent features are detectable e.g. when the target Russian phoneme /ʂ/ or /ʐ/ is substituted by the phoneme /s/ which is typical for Finnish speakers, correspondingly subphonemic accentedness results from the pronunciation of unvoiced Russian consonants as partly voiced under the influence of Finnish where the consonants are mainly half voiced. Suprasegmental "features of accent" are associated with phenomena such as intonation, loudness, pitch, rhythm, length, juncture, and stress. In what follows, we briefly introduce the previous research on suprasegmental and segmental features of heritage accent.

The heritage accent is particularly noticeable on the suprasegmental level, especially within stress and prosody (Polinsky, 2018, pp. 147–53; Chang, 2021, pp. 593–7, 601; Kim, 2016, p. 24). Studies on the intonational prosody of HSs have demonstrated the transfer of intonational features from the majority language to the HL (e.g. Bullock, 2009) and the bidirectional influence between both languages of the bilingual dyad (Zuban et al., 2020). Zuban et al. (2020) investigated the intonation of yes-no questions in Russian HSs from the USA and Germany in comparison with monolingual Russian speakers and found the HSs of both groups to be distinct from the monolinguals with respect to overall intonation contour and production of prosodic features that are infrequent in the monolingual data. The reported distinctness is apparently due to language contact between the HL and majority language.

On the segmental level, in contrast, HSs often sound native-like in their production of individual phonemes (e.g. Amengual, 2012; Au et al., 2002, 2008; Oh et al., 2003; Knightly et al., 2003; Nagy & Kochetov, 2013). However, researchers have observed two opposite tendencies in this area: HSs may exaggerate the different properties of the two languages of the dyad, but they may also downplay the contrasts, choosing a compromise in the production of a certain segment (see Polinsky, 2018, pp. 116–22, 163).

While discussing the heritage accent it is important to point out the major factors affecting phonetic production in HL. The speaker's *age of first exposure* to the second/societally dominant language (Age of Onset [of bilingualism]/AoO), appears to be the most significant predictor of the degree of the accent. The main tendency described in the research is stated as it follows: early learners demonstrate more authentic pronunciation than late learners (e.g. Flege et al., 1999; Piske et al., 2001; Wesche, 2002; Kupisch et al., 2021; Chang, 2021). However, extensive research shows that the speech in early learners is not automatically accent-free (e.g. Flege et al., 2006; Fowler et al., 2008; Kupisch et al., 2014, 2021; Nenonen, 2020), and late learners' speech do not always have a foreign accent (Bongaerts, 1999; Birdsong, 2007), which indicates that early AoO does not guarantee a stable native-like accent over their lifespan. The amount of experience in a language is often pinpointed as the *length of residence* (LOR) in the homeland country. There is evidence showing that extensive exposure to the language in the early stages of learning would reduce the foreign accent (Piske et al., 2001, p. 211). Similar results have been reported in the study by Kupisch et al. (2014) – a native accent is related to the LOR during childhood, but not during adulthood.

Previous research indicates the major importance of age of exposure and the amount of experience in a language starting from the early childhood. Thus, the *type of bilingual language development* seems to affect phonetic production in adulthood. In one of the first studies of how the type of early bilingualism impacts bilingual phonetic performance in adulthood, y Amengual (2019) examined the acoustic realization of voiced stops and spirants in Spanish by simultaneous and early sequential Spanish-English bilinguals and late L2 Spanish learners. The findings demonstrated that simultaneous bilinguals and L2 learners who had acquired English since birth diverged from early sequential bilinguals who were exposed only to Spanish for the first years of their life; the latter group showed a significantly stronger tendency to produce language-specific phonological processes.

To sum up, HSs encompass a vast scope of speakers with different language proficiencies and experiences. They may belong to one of the following groups: 1) simultaneous bilinguals, 2) early sequential bilinguals (2-generation speakers), and 3) late sequential bilinguals (1.5-generation speakers). In spite of a large number of individual differences, HSs have common linguistic properties – their phonetic production is native-like, in HL they are significantly better than L2 learners, but still different from homeland (the country of origin) and baseline (first-generation immigrants) speakers. This divergence is described in literature e.g. in terms of heritage accent, which can be understood globally as it combines segmental and suprasegmental features. There is evidence implying that the type of bilingualism may affect the phonetic production in HSs, suggesting that early exposure may result in more native-like accent.

The current chapter seeks to further explore phonetic production in heritage bilinguals of different backgrounds, bringing together data from simultaneous bilinguals and sequential bilinguals differing on the onset of dominant language exposure.

The phonological and phonetic systems of Russian and Finnish

Below, we present a brief comparison of Finnish and Russian phonology on the segmental and prosodic levels, focusing on the key differences between the two languages, in order to formulate predictions about which HL features could be vulnerable in terms of accent. The phonological system of Russian contains from five to six vocalic phonemes (Avanesov, 1972; Bondarko, 1998; Bulanin, 2009; De Silva, 1999), while Finnish has eight monophthongs (with short and long varieties) and 18 diphthongs (Iivonen, 2009; Suomi et al., 2008). In Russian, unstressed vowels are the subject of *qualitative* and *quantitative reduction*, while in Finnish only quantitative reduction occurs in unstressed vowels (for a more detailed overview, see Nenonen, 2020, pp. 86–8). Thus, we assume that Russian language-specific vowel reduction as well as the typologically less common language-specific vowels [i], [ɨ] (Bondarko, 2009, p. 35) could be vulnerable features in terms of accent in bilingual Russian speakers.

The Russian consonantal inventory contains 34–37 consonants depending on classification (Avanesov, 1972; Bondarko, 1998; Bulanin, 2009). The Finnish consonant paradigm has only 17 consonants (Karlsson, 1983; Suomi et al., 2008). The most important characteristics of Russian consonants which stand in contrast with the Finnish consonant system include the phonemic oppositions of hard–soft (unpalatalized–palatalized) and voiceless–voiced consonants; additionally, there are a number of language-specific consonants: the sibilants /z, t͡s, ʂ, ʐ, tɕ and ɕː/. These features are often problematic for Finnish speakers (Ljubimova, 2010) and could, ostensibly, also be challenging for HSs.

On the suprasegmental level, Russian sentence intonation plays a decisive role in differentiating various communicative types of utterances. The intonation of declarative, imperative, interrogative, and exclamatory sentences is framed by various sequences of pitch rises and falls and may combine falling, falling-rising, low-rising or high-rising, and continued high tone (Bryzgunova, 1977; Svetozarova, 1998). In contrast, typical Finnish intonation is described as relatively low, with a narrow variation range and relatively small pitch intervals (Hakulinen, 1979, p. 33). Prosodically, the basic intonation pattern has a descending curve with rising-falling peaks in both statements and questions; a final rising tone is rare (Iivonen, 1998, p. 320). The functions of intonation in Russian and Finnish are different: Russian intonation is distinctive, conversely, Finnish is not. This can be illustrated by an example with yes/no questions. In Russian these questions are produced prosodically by means of intonation pattern 3, IK-3 in Bryzgunova's (1977) classification, with a pitch pattern characterized by a sharp rise usually on the nuclear syllable (Svetozarova, 1998). In Finnish, yes/no questions are created morphologically by means of an interrogative particle -ko/kö, and have a usual fall or rise-fall contour (Ullakonoja, 2011). Bearing in mind that prosodic features are vulnerable in terms of accent (Polinsky, 2018; Chang, 2021; Kim, 2016), we predict that crosslinguistic influence (CLI) from Finnish to Russian could be observable in HL intonation patterns.

Finally, there are major differences between Russian and Finnish in terms of word-level prosody. In Russian, the syllabic stress of a word is free and unfixed; it may be fixed or mobile within the inflectional paradigm of the word (Svetozarova, 1998). In Finnish, the primary stress is fixed on the first syllable of a word (Iivonen, 1998, p. 318). Due to these contrasts, HSs could experience difficulties related to word stress in Russian words.

In summary, Russian and Finnish represent typologically different phonological systems that differ along several crucial dimensions. First, Russian vowel inventory is rather modest in comparison to Finnish, but the Russian vocalic phonemes can have a large number of allophones. Second, Russian consonantal inventory is much larger than that of Finnish. Finally, the languages are distinct in terms of suprasegmental properties, especially with respect to their intonational patterns and word stress. Considering that the phonetic and phonological systems of HSs could be subject to CLI, we may expect that the specific features of heritage Russian accent in Finland may follow from the cross-linguistic differences outlined above. In the following section, we describe our study on the phonetic production of Russian HSs in Finland, in which we test this prediction.

The Study

This accent rating study was designed to identify differences in production among three groups of Russian HSs in Finland: (1) simultaneous bilinguals (age 22-31), (2) sequential bilinguals with an early onset of dominant language exposure (age 20-35), and (3) sequential bilinguals with a late onset of dominant language (age 20-35), as compared to L1 Finnish speakers who are late L2 learners of Russian and baseline Russian native speakers. The following research questions formed the basis of the study.

Research Questions

RQ1. Do HL speakers have a perceived accent (to which we refer as *heritage accent*)?

RQ2. Is the heritage accent comparable with the accent in baseline Russian speakers (henceforth, native accent) or the accent of Finnish-dominant L2 learners of Russian (henceforth, foreign accent)?

RQ3. Are there any perceivable intergroup differences among the three groups of HSs in terms of accent? Specifically, do simultaneous bilinguals, sequential bilinguals with an early onset of dominant language exposure, and sequential bilinguals with a late onset of dominant language exposure differ in their phonetic production?

RQ4. What are the features of the perceived accent in HSs of Russian in Finland on the segmental and suprasegmental levels?

Based on previous studies, we predicted that a heritage accent would be perceived in HSs participants, and that its degree would be on the spectrum between the accent of monolingually-raised Russian speakers and the accent of late L2 learners of Russian. Additionally, we predicted intergroup differences in HSs corresponding to the type of bilingualism and the timing of exposure to the societally dominant language. In particular, we expected that simultaneous Russian-Finnish bilinguals would exhibit a stronger accent in Russian than sequential bilinguals, and that sequential bilinguals with an early onset of exposure to Finnish would exhibit a stronger accent in their L1 Russian than those with a later onset of dominant language exposure, i.e., L1 Russian speakers exposed to L2 Finnish as adolescents.

Methodology

Participants

The participants included 41 subjects: 31 Russian-Finnish heritage bilinguals and ten controls. The HSs were the children of recent immigrants from Russia and belonged to one of three groups. (1) *sequential 1.5-generation speakers*, successive bilinguals with a late (11-13 years old) onset of exposure to the socially dominant language; (2) *sequential 2-generation speakers* successive bilinguals with an early (3-4 years old) onset of exposure to Finnish, born in Finland in a Russian-speaking family; (3) *simultaneous bilinguals*, second-generation HL speakers born in Finland in a Russian-Finnish family where they acquired two languages simultaneously from birth.

The control groups included L1 Finnish speakers who were late L2 learners of Russian and Russian native speakers, among them three recent immigrants with less than one year of residence in Finland, and two homeland speakers from Russia. The subjects within each group were matched for their age, age of onset to majority language Finnish, and length of residence in Finland. The demographics are summarized in Table 1.

Table 1

Participants

Speakers	Group	Number	Age range / Mean age	AoO of Russian/ AoO of Finnish	Language preference – Number of participants
HSs	SM.2gen	15	22–31 25	0–3 yr. 0–3 yr.	Rus – 1 Fin – 10 Rus&Fin - 4
	SQ.2gen	8	20–35 24	0– yr. 3–4 yr.	Rus – 4 Fin – 2 Rus&Fin – 2
	SQ.1.5gen	8	20–35 27	0– yr. 11–13 yr.	Rus – 5 Fin – 0 Rus&Fin – 3
Controls	L2	5	24–25 24	13–16 yr. 0– yr.	Fin – 5
	L1	5	22–40 31	0– yr. 0–1 yr.	Rus – 5

A group of ten raters (R1–R10) judged the participants' accents and described perceived non-native features of HSs' production. The study was originally designed to recruit homeland Russian speakers as raters; however, due to the Coronavirus pandemic, the Russian raters were recruited in Finland. All the raters were native speakers of Russian, i.e., first-generation immigrants or diaspora baseline speakers (Polinsky, 2018, p. 11; Polinsky & Scontras, 2020, p.7). They lived in Finland for the average of 14 years (from 10 to 30) and reported communicating both in Russian and in Finnish. Most of the raters held an advanced degree (doctoral (n = 5) or master's (n = 4)) and were university lecturers or graduate students in linguistics.

Materials

The data were collected through a production task in Zoom. Speech samples were elicited from spontaneous monologues during a conversation about the speakers' hobbies. One sample of approximately 30–50 seconds without grammatical errors, hesitations and long pauses was selected per speaker. The samples were drawn from the monologues using the Audacity audio editor. Prior to the production task, an online background questionnaire was used to ask the participants about their bilingual history, administered in Russian.

Procedure

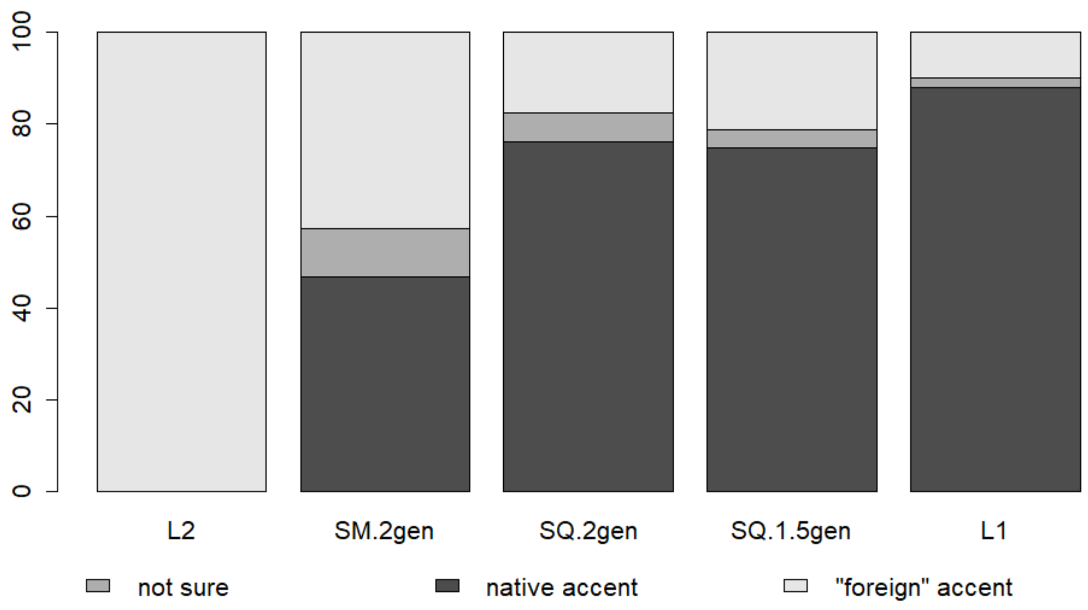
The method was originally developed by Kupisch et al. (2014), and we used it with some adjustments. All 41 speech samples were presented to the raters in person in a random order. The raters judged each accent in three steps. After the first listen, they answered the first question: whether the speaker sounded native, non-native, or if it was unclear. After the second listen, the raters evaluated the perceived accent on a 0–5 scale (0 – no accent; 5 – strong accent). In the third step, the raters were asked to describe the phonetic or phonological features of the accent, if any. This question was formulated as follows: *Where did you notice the accent, e.g. in sound production, word stress, intonation, etc.? You may also write down the word where you noticed accent and underline the accented segment.* There was no assumption that the raters would know the terminology to talk about phonetic or phonological features. The raters did not have to go through all three stages if they were sure about the answers. In several cases, the first step was enough for judgment and the raters answered all three questions but after only one listen.

Results

In the first part of the experiment, the raters judged the accents of the study's participants as "native," "foreign," or "not sure." The results are presented in Figure 1.

Figure 1

Proportion of times (%) judged as being uncertain, having a native accent, or having a foreign accent in all groups



Note. This figure demonstrates the results for all participant groups: Finnish controls (L2 learners of Russian), simultaneous bilinguals (SM.2gen), sequential 2-generation bilinguals (SQ.2gen), sequential 1.5-generation bilinguals (SQ.1.5gen), and Russian controls (L1).

Table 2

Relative frequencies of judgement on accent

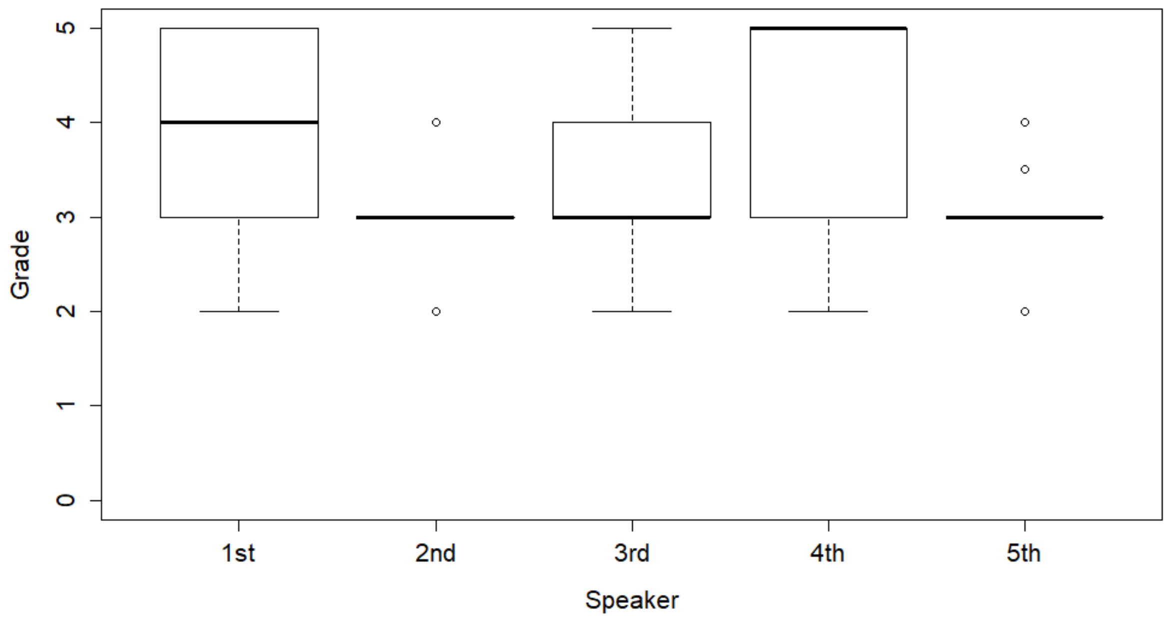
		Accent		
		Not sure	**Native accent**	**Foreign accent**
Group	L2	0.0 %	0.0 %	100.0 %
	SM.2gen	10.7 %	46.6 %	42.7 %
	SQ.2gen	6.3 %	76.2 %	17.5 %
	SQ.1.5gen	3.8 %	75.0 %	21.2 %
	L1	2.0 %	88.0 %	10.0 %

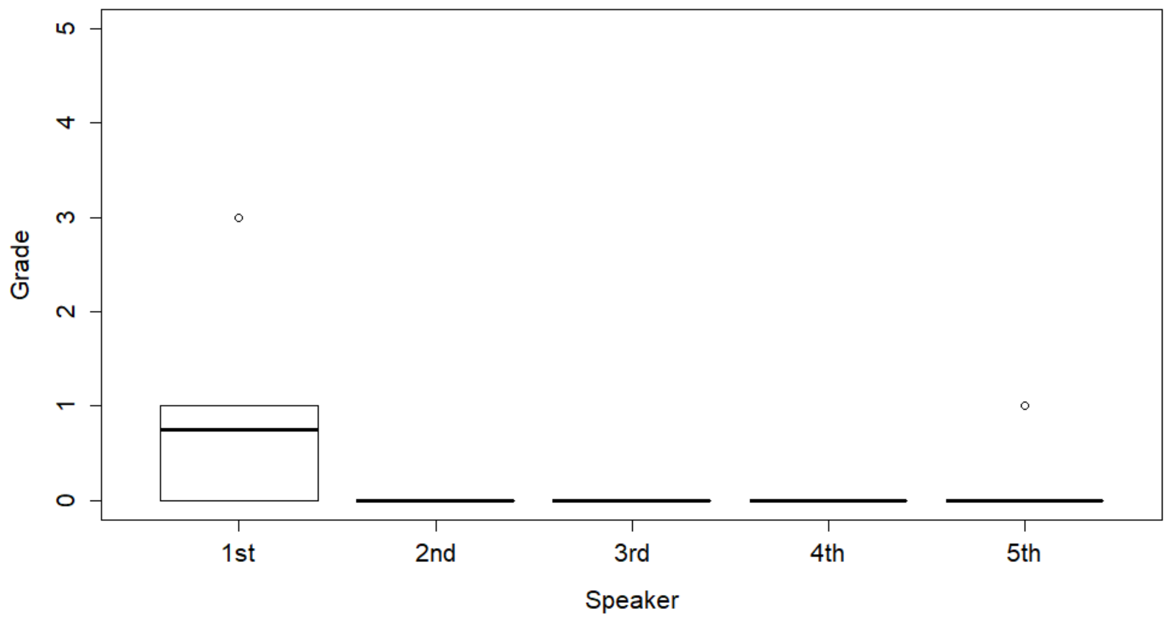
All raters were 100% sure about the accentedness of late L2 learners of Russian. Conversely, baseline Russian controls were predominantly classified as having a native accent. Sequential bilinguals of the 1.5 and 2 generation (SQ.1.5gen and SQ.2gen) resembled the baseline Russian controls, while simultaneous bilinguals were between late L2 learners and sequential bilinguals. The data from simultaneous bilinguals were characterized by considerable individual differences in phonetic production, which can be observed in Figure 4.

In the next stage of the experiment, the raters evaluated the participants' perceived accents on a 0–5 scale (0 corresponding to "no accent"; 5 for "a strong accent"). First, in Figure 2, we show the results obtained in the two control groups.

Figure 2

Accent ratings in the control groups of L2 learners of Russian and baseline Russian speakers



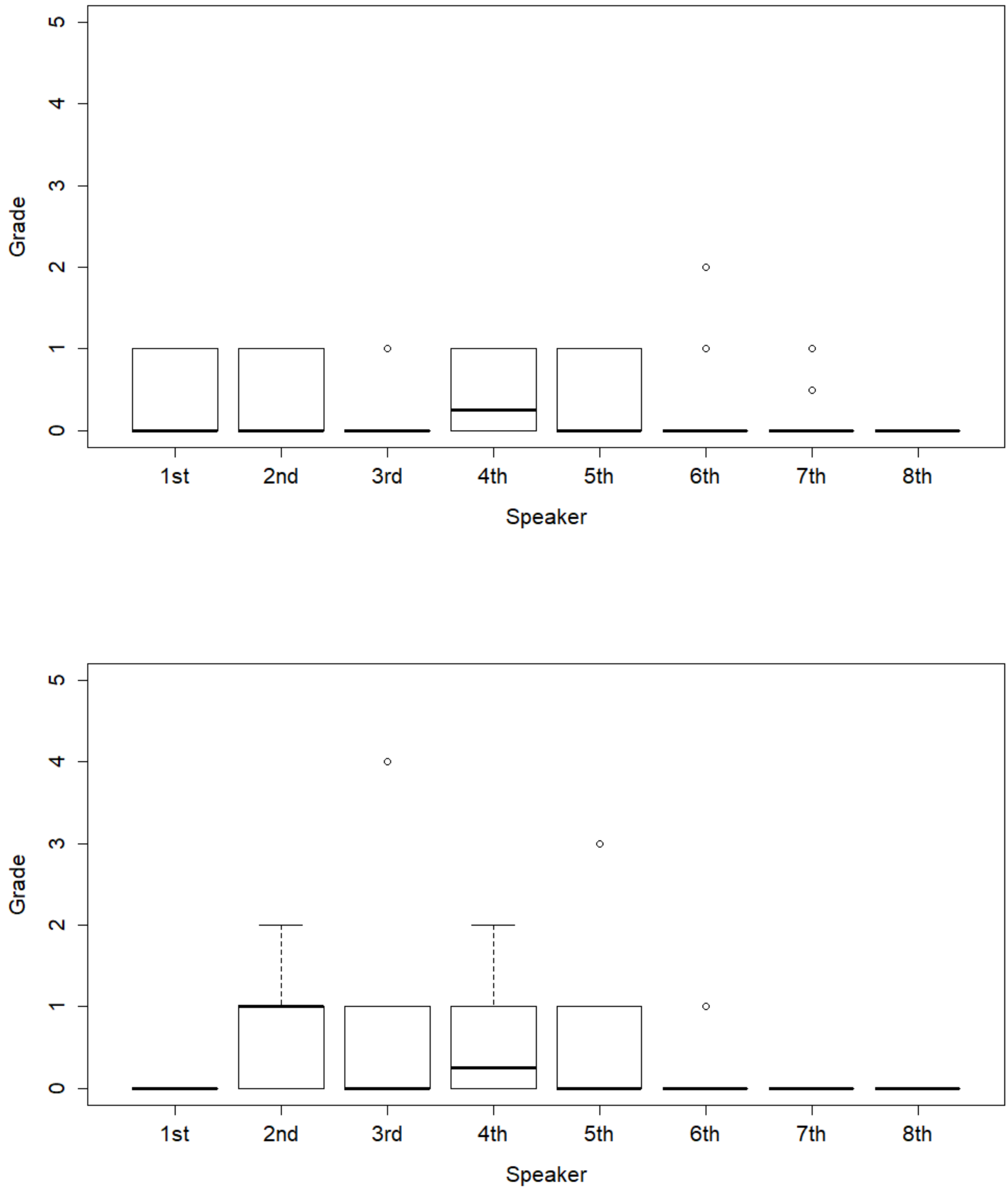


Note. This figure compares accent ratings in the control groups L2 ("Finnish control group") and L1 ("Russian control group"), considering every speaker's individual performance.

We continue by presenting the accent ratings in two groups of sequential bilinguals: 2-generation HSs (SQ.2gen) and 1.5 generation HSs (SQ.1.5gen); these groups again demonstrated resemblance, as shown in Figure 3.

Figure 3

Accent ratings in sequential 2-generation bilinguals and sequential 1.5-generation bilinguals



Note. This figure compares accent ratings in sequential 2-generation bilinguals (SQ.2gen) and sequential 1.5-generation bilinguals (SQ.1.5gen), considering every speaker's individual performance.

There is significantly more variation in the perceived accent range among simultaneous bilinguals (SM.2gen), as presented in Figure 4.

Figure 4

Accent ratings in simultaneous bilinguals on the individual level

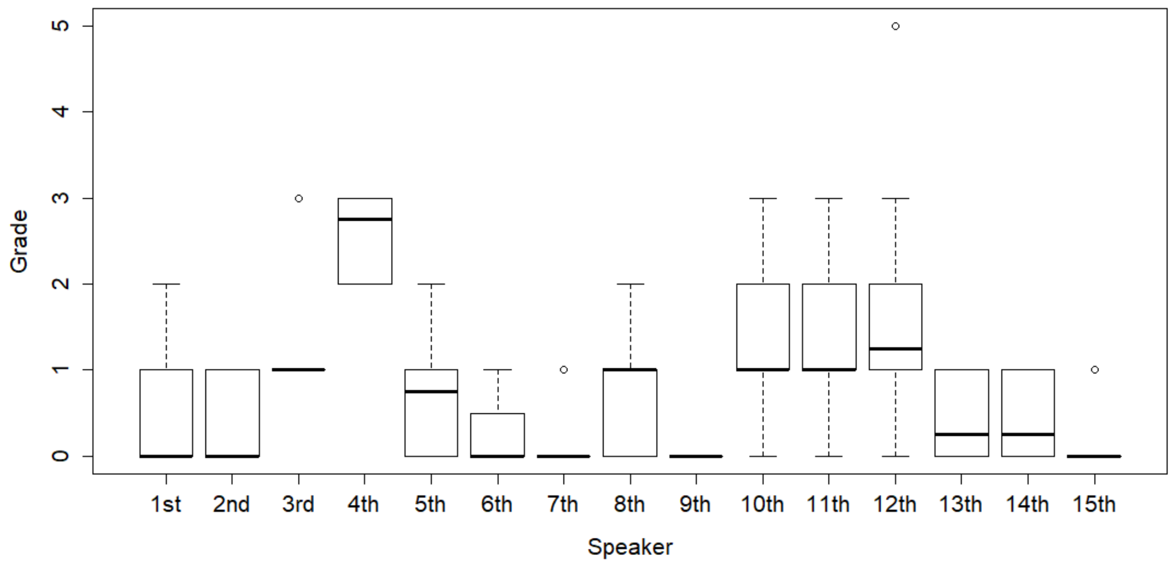
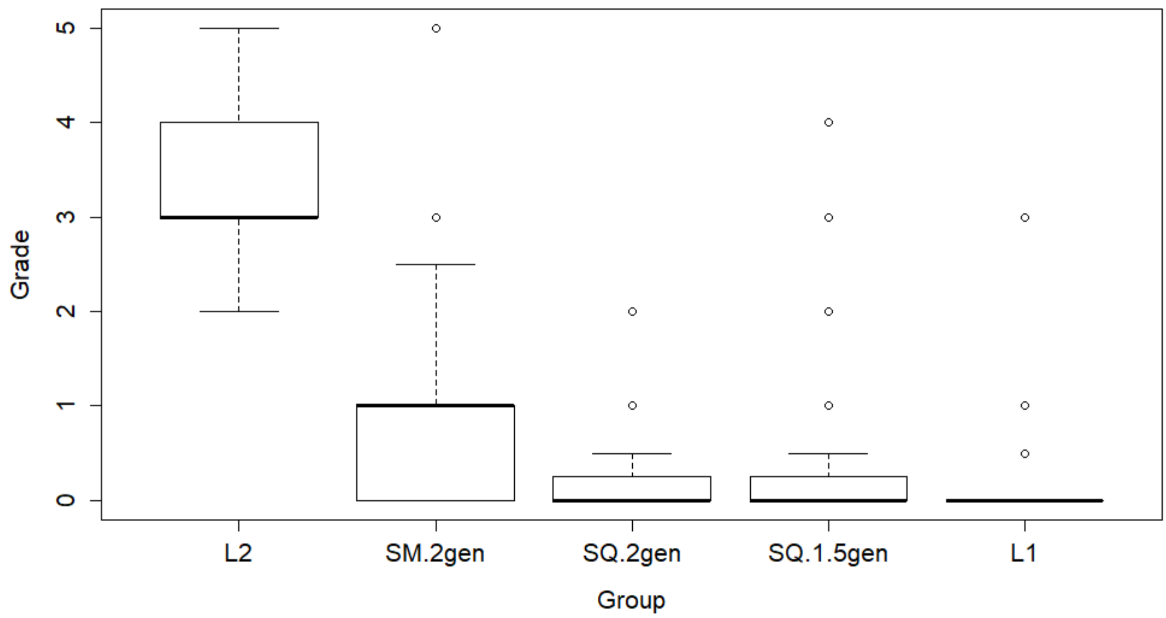


Figure 5 presents the accent ratings (median values) for all five groups of participants on the group level.

Figure 5

Accent rating (0–5) in all groups, median values



The effect of group on the accent ratings was investigated with a linear mixed-effects model fit by maximum likelihood in R, where accent rating (numeric variable taking values from 0 to 5) was predicted from a group, and "rater" (R1 to R10) was included as a random normally distributed intercept term.

Table 3

Mixed-effects model for accent ratings: random-effects factor

Groups	Name	Variance	Standard Deviation
Rater	(Intercept)	0.0732	0.2705

Table 4

*Mixed-effects model for accent ratings: fixed-effects factors (*** highly significant)*

	Estimate	Std. Error	t-value	p-value	
Intercept	0.1700	0.1356	1.2639	0.2106	
Group(SQ.1.5gen)	0.1738	0.1335	1.3011	0.1940	
Group(SQ.2gen)	0.0800	0.1335	0.5991	0.5495	
Group(SM.2gen)	0.6067	0.1210	5.0154	8.0044×10^{-7}	***

Group(L2)	3.2400	0.1482	21.8702	4.2384×10^{-70}	***

Based on the results of the analysis presented in Table 4, the model's intercept, corresponding to Group = L1, is at 0.1700 (95% CI [-0.09, 0.43], t-value = 1.2639, p = 0.2106). Within the fitted model and the results shown in Table 3, we conclude that the effect of both the 1.5-generation sequential bilinguals group (t-value = 1.3011, p = 0.1940) and the 2-generation sequential bilinguals group (t-value = 0.5991, p = 0.5495) is statistically non-significant. In contrast, when the effect of both the simultaneous bilinguals group (t-value = 5.0154, p = 8.0044×10^{-7}) and L2 group (t-value = 21.8702, p = 4.2384×10^{-70}) is investigated, the results are highly significant.

The analysis confirmed the trends suggested by Figure 5. The L2 learner group's accent ratings differ significantly from those of the baseline Russian speakers, while the 2-generation and the-1.5 generation sequential bilingual groups' accent ratings are adjacent to the baseline ratings.

In Figure 5, the simultaneous bilingual group appears to be closer to the baseline Russian group than to the L2 group, but the statistical analysis shows that the simultaneous bilingual group's accent ratings differ significantly from the ratings of baseline speakers. To compare simultaneous bilinguals with late L2 learners, 2-generation sequential bilinguals, and 1.5-generation sequential bilinguals, we applied fixed-effects testing using an ANOVA function in R within the constructed linear mixed effects model. The analysis showed the simultaneous bilingual group's accent ratings to differ significantly from the other three groups' accent ratings: L2 learners (F-value = 473.9348, p = 1.1457×10^{-69}), 2-generation sequential bilingual (F-value = 26.3755, p = 4.4187×10^{-7}), and 1.5-generation sequential bilinguals

(F-value = 5.0154, $p = 3.0125 \times 10^{-5}$) groups. The factors above show that we could identify simultaneous bilinguals as a separate group, distinct from all remaining groups.

Unfortunately, our data are not continuous and not normally distributed. However, we believe that our method approximates the situation quite well. We also tested our results with simulation experiments (i.e., computer-based experimentation with random sampling), and the conclusions remained the same.

Lastly, to investigate the specific features of perceived accents in HSs of Russian in Finland, the observations reported by the raters were investigated. Since most of the raters volunteered to provide descriptive details about the perceived accent in all the speakers' groups, we present an overview of the features mentioned on the segmental and suprasegmental levels in Table 5.

Table 5

Accent features on the segmental and suprasegmental levels an average number of features per speaker in a given group

	Accent feature	**L2**	**SM.2gen**	**SQ.2gen**	**SQ.1.5gen**	**L1**
Segmental features	soft/hard palatalization	7,5	1,4	0,1	0,1	
	voiced/ voiceless	1	0,6		0,3	
	j	0,4	0,7			
	sibilants and affricates	3,5	0,6	0,4	0,1	
	r like Finnish	0,4	0,2			
	h like Finnish	0,2	0,1			
	[ɨ] ([ɨ] - [i])	3,6	0,5			
	vowel reduction	2,6	0,7	0,3	0,1	0,2

Suprasegmental features	intonation	3	3	1,5	1,8	0,8
	word stress	7,2	0,1	0,1	0,1	

The table indicates an effect of the speaker's group on accentedness: it shows the highest number of accent features in the late L2 group. Most importantly, simultaneous bilinguals partly show the same type of accent features as speakers in the L2 group, although in lesser quantities (simultaneous bilinguals demonstrate up to 73% higher performance in terms of combined accent features if compared to L2 Russian learners). The number of reported accent features is notably smaller in the two groups of sequential bilinguals. The groups are also easily comparable to each other because of the equal numbers of participants. Interestingly, one subject from the baseline Russian group, a recent immigrant, was reported to demonstrate accent features, mostly in intonation patterns and because of a rather slow speech rate. As shown in Table 5, the most frequently reported segmental features of the accent in Russian concern the palatalization of consonants, sibilants and affricates, [ɨ] – [i] vowels, and vowel reduction. Among the suprasegmental features of the accent, intonation seems to be the most vulnerable area for both HSs and L2 learners. HSs outperformed L2 learners in the realization of word stress; in fact, the realization of this feature was predominantly target-like in all heritage bilingual groups. Finally, all the raters reported CLI in L2 participants especially in production of soft/hard, voiced consonants, sibilants, [ɨ], [i] vowels as well as in realization of word stress and intonational patterns. Among HSs CLI has been occasionally noticed in segmental production mostly in the simultaneous group (voiced consonants, [r] and vowel reduction); as for suprasegmental features, the raters perceived a large amount of "Finnish intonation patterns" in all three groups of HSs.

Discussion

The current study aimed to explore whether and to what degree heritage Russian speakers in Finland have a heritage accent in comparison to baseline speakers and L2 learners. Based on the previous research, we predicted that the HSs' speech would be rated as accented. The rating results demonstrated that, on the group level, HSs were perceived to have a subtle accent in their HL. These findings support the general concept of a "heritage accent" (see e.g. Polinsky, 2018, pp. 116–22).

Our next prediction was motivated by the reported intermediate nature of HSs' production in their HL: they have been found to perform better than L2 learners but not exactly as homeland speakers (e.g. Au et al., 2002; Knightly et al., 2003; Kupisch et al., 2014, 2021; Flores & Rato, 2016; Chang, 2021). Our study provides similar findings: as a group, HSs were deemed more accented than baseline Russian speakers but significantly less so than L2 learners.

With respect to the three different populations of HSs examined, the study revealed certain patterns in the perceived accentedness of 1.5-generation sequential bilinguals and 2-generation sequential bilinguals, in comparison with baseline speakers of Russian. The accentedness ratings for simultaneous bilinguals fall between those of sequential bilinguals and Russian L2 learners. Thus, when compared with Russian L2 learners, the simultaneous bilinguals show a lower degree of accent, and their phonetics overall remains superior. The phonetic production in simultaneous bilinguals was evaluated by the raters as "close to the target without reaching it", not necessarily native-like, but still "rather good" or "good enough for comprehension" (as per some of the raters' comments), which is congruent with what Polinsky (2018) refers to as a “good enough” or “best-case scenario” strategy of phonetic and phonological knowledge”. (p. 141).

We further predicted additional intergroup differences among the HSs in terms of accent: we anticipated that simultaneous bilinguals would have a stronger accent than sequential 2-generation bilinguals, while these 2-generation sequential bilinguals, who grew up in Finland, would have a stronger accent than 1.5-generation bilinguals, who were not exposed to Finnish until adolescence. The results of our study supported our predictions. With respect to the degree of accent, simultaneous bilinguals were notably distinct from the two other HS groups. On the group level, their accent was more perceptible to the raters (degree of accent in the group 0–2.55; average 1). The sequential 2-generation and 1.5-generation bilingual groups demonstrated rather similar results when compared to each other; the majority of the speakers from these two groups were rated as having a slight accent (degree of accent in the group 0–0.25; average 0), and their accent was described by the raters as “light” or native-like. Thus, our hypotheses can be partially confirmed: simultaneous bilinguals differ from the sequential bilinguals, who have been exposed exclusively to the HL in the first years of life. Our results show that the amount of language exposure in the early stages of language development can influence the speaker’s phonetic production in adulthood. These findings are in line with the previous research, providing evidence that the formative first years of life could significantly impact the speaker’s phonetic behavior (Au et al., 2002; Knightly et al., 2003; Oh et al., 2003; Amengual 2019).

The analyses also revealed considerable individual variation, which was an expected result. Previous research has highlighted the importance of individual factors in the acquisition of phonology, as well as in other domains of language acquisition, during naturalistic learning (in the case of bilinguals) and in classroom situations (in the case of L2 learners) (see more in Mora & Darcy, 2017, p. 96).

Based on a brief comparison of Finnish and Russian phonology, we formulated predictions as to which HL features would be vulnerable in terms of accent. As shown in the results section, the raters' judgments reflected those predictions: accented features were detected in language-specific characteristics on the segmental level. As predicted, the accent was especially noticeable on the suprasegmental level, with many cases of CLI from Finnish to Russian observed in HL intonation patterns.

The accent features on the segmental level were identified almost exclusively in the groups of simultaneous bilinguals and late Russian L2 learners; however, the degree and nature of the accent in these groups were different. The degree of the accent was low in simultaneous bilinguals and high in Russian L2 speakers. As for the nature of the accent, CLI was clearly observed in the L2 group. In simultaneous bilinguals, the role of CLI was not as distinct: certain segments were reported by raters as not quite native-like, but without an apparent transfer from Finnish. The accent features identified on the segmental level pertained mostly to binary oppositions: hard – soft, voiced – voiceless, and the vowels [ɨ] – [i]. Simultaneous bilinguals tended to level these contrasts: the raters observed that soft sounds are not soft enough, hard sounds are not hard enough, voiced sounds are pronounced with too little vibration in the vocal cords and become close to devoiced, and [ɨ] and [i] merge into an intermediate variant. These findings on "softening contrasts" align with the previous research reported by Polinsky (2018, pp. 125, 141).

The other group of consonant “deviations” concerned the production of Russian sibilants and affricates. These language-specific consonants were sometimes reported in HSs as “not clear enough” or “a bit strange,” but not in the same way as in the Russian L2 group, where these consonants were often interchangeable, meaning the cases of phonemic substitutions when the target sibilant or affricate was substituted by another sibilant or affricate. Surprisingly, simultaneous bilinguals also frequently demonstrated an unclear, “weak” [j], or a complete loss of this approximant. Another vulnerable domain was vowel reduction: some unstressed vowels were pronounced as stressed. A few cases of phonetic transfer were observed, e.g. the Russian trill [r] being pronounced “in an exaggerated way” – like the Finnish trill with much more vibration and intensity, and the Russian velar fricative [h] being pronounced as the corresponding Finnish glottal fricative consonant. These segmental deviations suggest the influence of the dominant Finnish on the Russian language in simultaneous bilinguals.

Beyond segmentals, the accent was strongly related to suprasegmental features. In fact, intonation was the only accent feature that united all three groups of HSs (see Table 5). The raters frequently reported perceived atypical intonation, “Finnish intonation patterns,” or “monotonous intonation,” which could indicate the transfer of the Finnish intonational structure into Russian. Word stress errors mainly appeared in the phonetic production of the L2 group; this could be a characteristic that separates L2 learners and HSs.

Confirming expectations during the rating procedure, the accent was related to the pronunciation accuracy on both the segmental and suprasegmental levels. The current study has shown that HSs’ phonetic production can be perceived as native-like, but it may slightly diverge from that of monolingual native speakers. It offers further evidence that early learners achieve more accurate pronunciation than late learners. However, simultaneous bilinguals with the age of onset of exposure to the dominant language from birth have a stronger accent than their peers from the two other HSs groups. This in turn shows that early exposure to the HL does not guarantee a native-like accent in it, especially if the other language in the bilingual dyad is constantly present. The length of residence in the monolingual environment does not seem to be an important factor either, at least for the participants of this research: speakers who had spent more than the first ten years of their life in Russia did not differ markedly from sequential bilinguals born in Finland.

Our study presents evidence from a new bilingual dyad (Russian-Finnish) and thereby adds to a growing body of research in HL phonology. It also moves toward a deeper understanding of how language competence develops in different circumstances of bilingualism. The study provides more evidence that HSs have a unique language competence that is distinct from monolinguals because of the realities of their environment (Cabo & Rothman, 2012).

Pedagogical implications for the assessment and teaching of Russian learners at universities

The growing number of HSs in mixed classroom adds a unique dynamic to language courses. At Finnish universities, HSs of Russian are usually enrolled in the same classes as L2 learners and L1 Russian speakers. This creates a challenge for instructors attempting to design lessons that benefit all students. There is still a lack of research investigating pedagogical practices around pronunciation in HL instruction: the few studies focused on the topic (Barrera Pardo, 2004; Boomershine & Ronquest, 2019) suggest that the role of pronunciation remains undervalued in language classes in general.

In addressing the pedagogical implications of our research, we depart from the viewpoint that HSs develop their "particular variety of language" (Polinsky & Kagan, 2007). We advocate for the idea that the unique characteristics of HSs speech (Chang, 2021) should be discussed and elaborated in the class so that HSs could better understand the nature of their HL variety and find more confidence in using it. Thus, HSs can understand that their phonetic production differs from that of baseline speakers and could be described by the term "heritage accent". Moreover, while this has not been tested in our study, bilinguals may have perceivable accent not only in the minority but also in the majority language, to cite Grosjean (2021) "having an accent in one or more languages is the norm for bilinguals; not having one is the exception" (p. 19). Based on the previous research, the findings of this study, and our observations in the classroom, we can highlight several implications for pronunciation instruction that teachers of heritage Russian should be aware of.

First of all, pronunciation instruction should not be neglected (see the overview by Barrera Pardo (2004) on a positive effect of instruction on learners' pronunciation based on 25 original studies). The instruction could be conducted *explicitly and implicitly*. Explicit phonetics training for both HSs and L2s could be based on contrastive analysis between the bilinguals' languages and take into account language-specific phonetic features (both segmental and suprasegmental) (e.g. de Silva et al., 2010 for Russian-Finnish contrasting analysis in the teaching of phonetics). The results of our study indicate certain segmental phonetic features that should be incorporated into the Russian language lessons not only for L2 learners but for simultaneous Russian-Finnish bilinguals as well: language-specific vowels ([ɨ] – [i] pair and reduced vowels), the phonemic consonant oppositions of hard–soft and voiceless–voiced), phonetically similar consonants that have different articulations in Russian and Finnish (/r/ and /h/). Additionally, L2 Russian learners often need extra training in sibilants and affricates. The abovementioned aspects could be taught theoretically and practically e.g. by teaching students about articulatory apparatus, providing explicit instruction on articulation, practicing speech sounds in class using teacher directed vocabulary drills, tongue twisters and reading aloud practice. The students' independent work could consist of self-study sessions with listening and imitating patterns, self-recordings accompanied by the feedback from the instructors. Intensive training should comprise both production and perception of the speech sounds which includes listening, speech patterns analyses and phoneme identification tasks. In the situation when HSs and L2 learners could not be placed on different tracks in the classroom, HSs could act as teaching assistants providing valuable input to their L2 classmates. Such training would enhance the students' phonetic awareness and the ability to self-correct one's pronunciation.

Intonation is found to be a strong marker of accent. This is one of the reasons why training on suprasegmental features is crucially important for all the students in the classroom. In addition, "prosody-centered" phonetic training has proven to be more effective for developing overall phonetic skills than focusing only on segmental features, like individual sounds or sound combinations (e.g. Derwing & Rossiter, 2003; Missaglia, 1999; Barrera Pardo, 2004). Intonation and fluency training also result in better overall learner performance and improves learners' motivation. To reach this goal we would suggest providing explicit instruction on intonational contours of the Russian language and practicing them in various speech scenarios, listening to a native speaker/monolingual and imitating his/her intonation, reading and memorizing poetry, singing songs and engaging in drama-activities in class and in specially organized projects. We believe that the prosody orientated pedagogical techniques work well for both HSs and L2 learners.

Implicit phonetic instruction for L2 learners could embrace teaching methods, classroom activities, and student projects that provide extensive exposure to input-rich contexts, students could be provided with opportunities for immersion and communication with various native speakers in natural conditions. As for HSs who are already exposed to immersion and rich input by virtue of the fact that they acquire the language naturalistically, simple exposure may not be sufficient to pick up on the subtle nuances that the speakers are struggling with. Other pedagogical techniques are better suited for this population. HSs could be provided with a great amount of language input from homeland language variety, (e.g. videos, films, audio books, etc.) giving the examples of highly expressive intonation patterns. The techniques with global focus, “fluency-oriented training” (Barrera Pardo, 2004; p.32) could serve better to develop HSs’ prosodic skills, fluency, speech rate and improves their phonetic production and learner performance.

Finally, it is important that the teaching meets the needs of the students, who often aim to improve the accuracy of their pronunciation in the HL and L2. Teachers should remind students that successful phonetic production is linked to better language proficiency (Barrera Pardo, 2004) and encourage them to develop their pronunciation skills.

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