SYNTAGMATIC PATTERNS OF A NATIVE LANGUAGE AS A FACTOR OF PHONETIC INTERFERENCE

PADRÕES SINTAGMÁTICOS DE UMA LÍNGUA NATIVA COMO FATOR DE INTERFERÊNCIA FONÉTICA

PATRONES SINTAGMÁTICOS DE UNA LENGUA NATIVA COMO FACTOR DE INTERFERENCIA FONÉTICA

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ABSTRACT: The article considers a foreign accent in Russian speech and develops methods for its reduction. It is necessary to compare positional patterns in two "contacting" systems. When teaching foreign students the Russian prosody, it is important to take into account that positional patterns in the Russian language are mainly conditioned by the positional change of sounds, and such patterns in the native language of students can be determined by the restriction on their use in specific positions caused by the limited distribution of phonemes. The positional patterns of the Russian language are thoroughly studied in the courses of Russian sounding speech but little attention is paid to the positional patterns of the native language of foreign students in the process of teaching the Russian phonetics. All of the above determines the need to consider the positional analysis of "contacting" phonetic systems when creating nationally oriented courses in practical phonetics.

KEYWORDS: Foreign accent. Phonetic interference. Positional patterns. Teaching Russian as a foreign language.

RESUMO: *O artigo considera o sotaque estrangeiro na fala russa e desenvolve métodos para sua redução. É necessário comparar padrões posicionais em dois sistemas de "contato". Ao ensinar prosódia russa a alunos estrangeiros, é importante levar em conta que os padrões posicionais na língua russa são condicionados principalmente pela mudança posicional dos sons, e esses padrões na língua nativa dos alunos podem ser determinados pela restrição de seu uso em posições específicas causadas pela distribuição limitada de fonemas. Os padrões posicionais da língua russa são minuciosamente estudados nos cursos de fala russa, mas pouca atenção é dada aos padrões posicionais da língua nativa de estudantes estrangeiros no processo de ensino da fonética russa. Todos os itens acima determinam a necessidade de considerar a análise posicional dos sistemas fonéticos de "contato" ao criar cursos de fonética*

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prática de orientação nacional.

PALAVRAS-CHAVE: *Sotaque estrangeiro. Interferência fonética. Padrões posicionais. Ensinar russo como língua estrangeira.*

RESUMEN: *El artículo considera un acento extranjero en el habla rusa y desarrolla métodos para su reducción. Es necesario comparar patrones posicionales en dos sistemas de "contacto". Al enseñar la prosodia rusa a estudiantes extranjeros, es importante tener en cuenta que los patrones posicionales en el idioma ruso están condicionados principalmente por el cambio posicional de los sonidos, y tales patrones en el idioma nativo de los estudiantes pueden estar determinados por la restricción de su uso. en posiciones específicas causadas por la distribución limitada de fonemas. Los patrones posicionales del idioma ruso se estudian a fondo en los cursos de habla con sonido ruso, pero se presta poca atención a los patrones posicionales del idioma nativo de los estudiantes extranjeros en el proceso de enseñanza de la fonética rusa. Todo lo anterior determina la necesidad de considerar el análisis posicional de los sistemas fonéticos de "contacto" a la hora de crear cursos de fonética práctica con orientación nacional.*

PALABRAS CLAVE: *Acento extranjero. Interferencia fonética. Patrones posicionales. Enseñanza del ruso como lengua extranjera.*

Introduction

The comparison of languages lays the basis for both theoretical and applied linguistic research and allows identifying their similarities and differences. The results of comparative and typological studies are of particular importance for developing linguistic foundations for teaching a foreign language and, in particular, Russian as a foreign language. The specifics of any native language contribute to its most effective use in the classroom for speaking with the conscious assimilation of foreign pronunciation. At the same time, "the pronunciation difficulties of any language cannot be comprehended abstractly and absolutely, they are always differential-comparative and identify the relationship between specific two languages" (REFORMATSKY, 1959, p. 155). The differences revealed through a comparative analysis of phonetic systems predict possible areas of phonetic interference. Similarities allow a positive transfer of the patterns of the native language to the studied language, which facilitates work in the field of phonetics (KHROMOV, 2012).

Along with the comparison of "contacting" language systems, the data obtained through the analysis of "negative" language material are also informative for predicting phonetic interference (SHUTOVA; OREKHOVA, 2018). In some cases, the mistakes of foreign students cannot be predicted based on comparison (for example, such deviations can be errors caused by

the transfer of hidden syntagmatic patterns of the native language into the target language, which are the subject of this study).

Many scholars emphasize the impact of phonological structures on the perception and reproduction of language sounds being studied. Even S.I. Bernstein and A.A. Reformatsky highlighted the need to master the specifics of sound variation and "positional conditions" of the language being studied in the course of teaching pronunciation. It was obligatory to overcome the "positional skills" of the native language (BERNSTEIN, 1991; REFORMATSKY, 1959). V.A. Vinogradov argued that "most of the mistakes that create a foreign accent refer to violations of the positional rules for the use of sounds, so positions form a necessary link in the curriculum" (VINOGRADOV, 1971, p. 60).

To analyze a foreign accent in the Russian speech and develop methods for its reduction, it is necessary to compare positional patterns in two "contacting" systems. This topic was addressed by K.V. Gorshkova (1980), M.V. Panov (1967), E.L. Barkhudarova (2011), Fokina (2019) and other scholars. The discrepancy between the positional patterns of sound units in the native and studied languages reveals many features of a foreign accent (BARKHUDAROVA, 2012, p. 66).

The positional patterns of the Russian language are thoroughly studied in the courses of Russian sounding speech but little attention is paid to the positional patterns of the native language of foreign students in the process of teaching the Russian phonetics (BARKHUDAROVA; FOKINA, 2015). This situation hinders the accurate prediction of an accent and the development of an effective technique for its reduction.

The positional patterns of the sound structure of any language can be determined both by a positional change of sound units and by restrictions on their use in specific positions (BARKHUDAROVA, 2011, p. 40).

When teaching foreign students the Russian prosody, it is important to take into account that positional patterns in the Russian language are mainly conditioned by the positional change of sounds, and such patterns in the native language of students can be determined by the restriction on their use in specific positions caused by the limited distribution of phonemes (BARKHUDAROVA, 2011, 2012; KHROMOV, 2012). In this case, phonetic syntagmatics is of great importance, whose area is the laws of combining sound units (PANOV, 1967). Let us consider the role of paradigmatic and syntagmatic patterns in phonetic systems.

The area of phonetic paradigmatics is the alternation of sound units (PANOV, 1967, p. 286). The paradigmatic patterns of the language system are considered by scholars from the

Moscow Phonological School (MPS). Their analysis was reflected in the teachings of R.I. Avanesov about phonetic series, M.V. Panov's concept of a paradigm-phoneme, or K.V. Gorshkov's concept about the paradigmatic structure of Russian phonemes (AVANESOV, 1956; GORSHKOVA, 1980; PANOV, 1967). The paradigmatic structure of Russian phonemes is predetermined by the intersecting type of sound alternations. The typology of sound alternations, which is important for describing the Russian positional patterns, was first developed by R.I. Avanesov. The intersecting rows of alternations have common components in two or more rows: *lu*[k]*a (onion), lu*[g]*a (meadow)*, but *lu*[k] (*luk* and *lug*). Along with the intersecting one, there is a parallel type of sound alternations. Parallel are such series of sound alternations that do not intersect with each other and do not have common components, for example, the alternation of stunned, full-voiced and labialized vibrant allophones [r] in such word forms as *vo*[r̥] – *vo*[r]*a* – *vo*[r˳]*y*. When describing the Russian consonantism in a linguo-didactic aspect, alternations in the native language of students can be organized in a different way, and, accordingly, a phoneme might not have a paradigmatic structure. In this case, restrictions that are imposed on compatibility with other phonemes are crucial for the implementation of phonemes.

The area of phonetic syntagmatics is determined by the combination of sounds. Syntagmatic relations between language units are understood as relations that arise when these units are sequentially arranged in a linear chain (in speech, text) (VASILEVA; VINOGRADOV; SHAKHNAROVICH, 1995).

The ratio of paradigmatic and syntagmatic relations of the language system formed the basis of M.V. Panov's concept about the division of languages into two groups (predominantly paradigmatic and predominantly syntagmatic languages) depending on the predominance of paradigmatic or syntagmatic patterns in their phonetic system, respectively. This concept is useful when comparing the native and studied languages in order to analyze a foreign accent in Russian speech since the compared language systems often belong to different types. The Russian language belongs to paradigmatic phonetic systems, while most foreign language systems belong to systems of a predominantly syntagmatic type.

In predominantly paradigmatic languages, syntagmatic patterns are usually determined by paradigmatic patterns and relate to the compatibility of sounds rather than phonemes. L.L. Kasatkin claimed that in Russian (predominantly paradigmatic language) there are three combinations of sound units:

1) Combinations that really exist in the language, presented in certain words (for

example, [st]);

2) Not lexically represented, but valid from the viewpoint of a particular language system (for example, [pv]);

3) Missing combinations in the language, which are phonetically impossible since they contradict the rules for constructing combinations of the first type (KASATKIN, 2003, p. 117-119).

The latter type includes such combinations as [dt] or [shz], whose absence correlates with the paradigmatic regularity of the Russian language, according to which voiced noisy consonants in front of deaf ones alternate with their deaf correlates, and a deaf noisy consonant standing before a voiced one are changed to voiced correlates. In this case, the corresponding phonemes can be combined in the language. In predominantly paradigmatic languages, syntagmatic regularities are usually derived from paradigmatic ones.

In predominantly syntagmatic languages (for example, German), most of the syntagmatic patterns are "uncompromisingly" forbidding, i.e. determine not only acceptable and unacceptable combinations of sounds but also acceptable and unacceptable combinations of phonemes. These regularities do not correlate with the paradigmatic ones since they are not related to the alternations of sound units (PIROGOVA, 1985).

The sound structure of predominantly paradigmatic languages, including the Russian language, is based on two types of positional exchange of sounds: parallel and intersecting. The parallel type of positional alternations is not associated with neutralization. On the contrary, the intersecting type leads to neutralization (AVANESOV, 1956). The main thing for the analysis of positional patterns in predominantly paradigmatic languages is to consider the specific realization of phonemes in sounds.

In predominantly syntagmatic languages, where the parallel type of positional changes prevails or is the only one, the use of phonemes can be syntagmatically conditioned. Accordingly, the functioning of phonemes cannot be reduced only to their realization in sounds, and it is necessary to take into account the conditions for the use of phonemes in specific positions. This can be illustrated by the functioning of the German phonemes <s> and <z>, which have limited distribution. At the absolute beginning of a word, only the <z> phoneme precedes vowels. On the contrary, only the <s> phoneme is used in the position before consonants or at the absolute beginning of a word. It is important to note that this situation is not associated with the change of sounds [s]//[z] (FOKINA, 2019).

Positional restrictions in the use of phonemes in the native language of students, as well

as sound variations, are reflected in a foreign accent. German students speaking Russian use the voiced alveolar fricative [z] at the absolute beginning of a word before vowels instead of voiceless alveolar fricatives [s] and [s']: *[z]*ahar*, *[z]*eryi.* Accordingly, the words *sobor* (cathedral) and *zabor* (fence) in the German accent can sound like voiced alveolar fricatives at the beginning of a word. In such combinations as "[z] + consonant" at the beginning of a word, the Germans make mistakes and replace voiced alveolar fricatives with voiceless ones: *[sm]*eya* (*zmeya/snake*), *[sl]*oi* (*zloi/evil*).

Due to the influence of the native language of students, this factor of interference is often ignored when teaching the Russian pronunciation to foreign students (SHUTOVA, 2017). One of the reasons is that such restrictions are not obvious, they are hidden in the phonetic system of the students' native language and manifest themselves in their accent upon "contact" with the phonetic system of the language being studied. When conducting a theoretical comparison of the phonetic systems of the studied and native languages, these regularities are often neglected. Moreover, accent-related features determined by syntagmatic regularities of the sound structure of the native language can be identified only in the course of analyzing students' interfered-sounding speech (BARKHUDAROVA, 2011).

All of the above determines the need to take into account the positional analysis of "contacting" phonetic systems when creating nationally oriented courses in practical phonetics.

Materials and methods

The study determines to what extent the syntagmatic patterns of a native language can influence the formation of an accent. We focused on the German accent in the Russian speech. The choice of "contacting" systems is explained by the specifics of phonemes in both languages. While Russian is a language with a paradigmatic structure of the phonological system, German can be attributed to languages with a syntagmatic structure. Thus, this difference should become a serious factor in the formation of phonetic interference.

For the purposes of the research, we compared such phonemes as <s>–<s'> and <z>–<z'> in the Russian speech of native German speakers. Errors in these combinations are one of the most prominent features of the German accent. In German, the use of the <s> voiceless tense phoneme and <z> voiced non-tense correlate is limited to certain positions, in contrast to the Russian language, where analogs are used in all positions.

Within this study, the first step was to summarize information on the distribution of

these phonemes presented in the works on theoretical phonetics of the German language and to compare these positions with the ones comprising Russian sibilants. When considering the German consonantism, we relied on (RAEVSKII, 1997; ZINDER, 2003). The table below demonstrates the distribution of the German consonant phonemes <s> and <z> in different positions. The "▬" sign indicates the impossibility of using each phoneme in this position.

Table 1 – Distribution of the German consonant phonemes <s> and <z> in different positions.

Position in a word	**<s>**	**<z>**
The beginning of a word before a vowel	▬	*Sonne 'sun'.*
Intervocal	At the end of a morpheme – *ausatmen 'to exhale'*, instead of the "ss" grapheme – *Kissen 'pillow'.*	At the beginning of a morpheme – *gesagt 'told'*, in the middle of a morpheme – *lesen 'to read'.*
The end of a word	Often instead of "ß" – *groß 'big'.*	Instead of the 's' morpheme – *Haus 'house'* (sound like [s]).
Before a consonant	At the beginning of a word – *Skizze 'sketch'*, in the middle of a word – *Raspel 'rasper',* at the end of a word – *Brust 'bust'.*	▬
After a consonant	At the beginning of a word – in rare cases (*Psychjologie 'psychology'*), in the middle of a word – *Kapsel 'casing'*, in the end of a word – *Tags 'of a day'.* Present in consonant groups in the middle of a word – *Hamster 'hamster'*, and at the end of a word – *Obst 'fruit'.*	At the beginning of a word ▬. In the middle of a word after sonorants – *Pinsel 'brush',* and after fricatives – *ratsam 'reasonable'* (the [z] sound). At the end of a word after sonorants – *Hals 'throat',* and after fricatives – *Gans 'goose'* (the [s] sound).

Source: Prepared by the authors

The next step of our research was to determine the positions of Russian sibilants that are potentially difficult for German speakers. Based on the analyzed data, we identified positions in which either the <s> phoneme or the <z> phoneme, or both phonemes, do not occur. Such positions pose a potential difficulty for students since similar phonemes and sounds are used in these positions in Russian. These positions are as follows:

1) **The beginning of a word before vowels**. In German, the <s> phoneme cannot be used in this position, therefore difficulties are expected when pronouncing such Russian

sounds as [s]–[s'][4], for example, in the words *сахар/sakhar* (sugar) and *серый/seryi* (gray).

2) **Intervocalic position**. The German language also has the <s> phoneme and the <z> phoneme but the voiceless tense one can be positioned at the end of a morpheme or in the middle of a morpheme instead of the "ss" double grapheme, and the voiced non-tense one can be used at the beginning and in the middle of a morpheme. In Russian, all sibilants can be used in these positions.

3) **Before consonants.** In this position, the <z> non-tense voiced phoneme cannot be the first component of consonant combinations in German. Combinations with the <s> non-tense voiceless phoneme followed by consonants are found primarily in borrowed words or rare words, for example, the combination of <sm> in *Smolny* (ZINDER, 2003, p. 126-127). In Russian, there are many sibilants, for example, in such words as *стакан/stakan* (glass), *змей/zmei* (snake), *казна/kazna* (treasury), *распить/raspit* (to drink), *смысл/smysl* (meaning), *боязнь/boyazn* (fear). Preceding a voiceless consonant in Russian, voiced phonemes are replaced with a voiceless variant. Before a voiced consonant, voiceless phonemes are represented by a voiced variant, for example, *сдать/sdat* [зд]*ать*/[zd]*at*.

4) **After consonants.** In German, the <z> phoneme is absent at the beginning of a word, and the <s> phoneme is present in separate rare words (most words begin with <ps>). In the middle of a word following consonants, paired phonemes are present in the respondents' native language but not in combination with all consonants. In German, both phonemes are possible at the end of a word after consonants, but the voiced non-tense phoneme is represented by the [s] voiceless phoneme, which coincides with the Russian voiced phoneme in this position. In the Russian consonantism, sibilants are found in the indicated position without any restrictions, for example, *всегда/vsegda* (always), *взорван/vzorvan* (exploded), *мопсик/mopsik* (a small pug), *вонзать/vonzat* (to stab), *линз/linz* (lens).

We should emphasize **the end of a word** for voiced and voiceless sibilant consonants. In this position, we predicted a positive transfer of the respondents' native language to the studied language. In German, both the <s> phoneme and the <z> phoneme are used in this position but are neutralized in the [s] consonant. This pattern coincides with the implementation of Russian sibilants, where only a voiceless consonant can be used at the end of a word, for

[4] When predicting accent deviations and analyzing the experiment results, we did not describe difficulties with the pronunciation of soft consonants, which were expected to some extent and were recorded for all respondents. The hardness/softness contrast is absent in the German consonantism and is extremely difficult for native German speakers. However, our objective was to study the transfer of native positional regularities to the language under study.

example, *воз/voz* [vos].

Experiment 1

To find out what accent deviations are present in the Russian speech of Germans, we conducted the first experiment comprising 58 people. The respondents included 12 men and 46 women. Fourteen people spoke elementary Russian; 25 people mastered this language at an intermediate level; 18 people were fluent in Russian. Data on the level of proficiency were obtained after the respondents passed tests in the Russian language according to the TORFL system.

Initially, our questionnaires fixed information about the home region and age of the respondents. When processing the experiment results, we did not reveal a clear relationship of accent deviations in the study area, the native dialect, and the age of the respondents. Thus, this information is not indicated in the article.

All the participants were provided materials in Russian and were asked to read them aloud. The process of reading aloud was recorded on a digital voice recorder. The materials contained words in which deviations in pronunciation were expected, as well as phrases and sentences comprising these words. The recordings were subject to auditory analysis performed by four native Russian speakers: two philologists, one engineer, and one lawyer.

Our hypothesis was as follows. The syntagmatic restrictions of the native language of the respondents, regardless of their proficiency in Russian, should be consistently transferred to Russian under appropriate conditions and create accent deviations in the pronunciation of Russian sibilant [s]-[s'], [z]-[z'] in those positions that are untypical of German. If the German language has a limited number of words with sibilant phonemes in a certain position, this can minimize the errors made by the respondents in this section. Within the framework of our experiment, we used the deductive research method consisting of two stages: "predicting potential interference based on a comparison of language systems" and "testing the predictions made by observing actual interferences" in the course of several linguistic experiments (HAUGEN, 1972, p. 72).

Experiment 2

The full-fledged formation of phonetic competence is based on auditory and pronunciation skills. Indeed, the development of phonological hearing underlies not only the perception of foreign speech but also the development of foreign pronunciation. Therefore, we decided to find out how syntagmatic restrictions in the native language affect the oral comprehension of speech in the target language. To attain this end, we conducted the second experiment.

The experiment aims at testing the perception of [s]-[s'] and [z]-[z'] in different positions by native German speakers: both in those positions that initially present difficulty for them and in those where a positive transfer can be expected. The list of such positions was compiled at the previous stage of the experiment based on a comparison of the German and Russian languages. In the course of the second experiment, the respondents who had previously participated in the first experiment listened to words containing sibilant consonants and entered [s] or [z] in square brackets (we did not ask to note the softness of a consonant since this was not the purpose of our study) in the appropriate position of a word. Our objective was to find out, firstly, whether it is difficult to identify paired Russian sibilants in various positions, and secondly, whether these positions with deviations in the pronunciation of paired sibilants coincide with the positions where Germans have difficulty in perceiving these sounds by ear.

According to our initial hypothesis, Germans should not have difficulties in distinguishing between [s]-[s'] and [z]-[z'] by ear even in those positions where they are hard to catch since positional errors are not associated with phonological problems of hearing. For example, we assumed that the respondents should define the initial consonants in such words as *суд/sud – зуд/zud*, despite the fact that voiced [z] is regularly positioned at the beginning of a word before vowels, including in the indicated words. However, there can be deviations related to the perception of the Russian voiceless [s] as voiced [z] in certain positions. Voiceless consonants are often perceived as insufficiently voiceless and tense due to the difficulties of German speakers associated with the opposition of voiceless and voiced consonants in Russian speech.

Results and discussion

Experiment 1 results

After the auditory analysis and generalization of the experimental data, we obtained the following results. Let us present them in accordance with the previously identified positions of such Russian phonemes as <s>–<s'>, <z>–<z'> in the German accent.

1. The beginning of a word before a vowel. Our hypothesis was confirmed for this position. Deviations were observed in the speech of the respondents: due to the transfer of a positional opposition from their native language, the [z] consonant was pronounced in the Russian words with initial [s]-[s'], for example, *[z]*ahar*, *[z]*erui*. First of all, such an error was typical of the speech of the respondents with elementary language proficiency. However, this mistake was also common to the respondents who speak the language at an intermediate and high level and try to pronounce unfamiliar words. Along with these errors, deviations were recorded in the pronunciation of words with initial [z]-[z'] before vowels. According to our forecasts, a positive transfer was expected. The experiment showed that a voiced sibilant in such words like *зима/zima* (winter) or *завтрак/zavtrak* (breakfast) was replaced by a different sound perceived by Russian speakers as voiceless: *[s]*ima*, *[s]*avtrak*. This can be explained by the fact that all German voiced non-tense variants are realized as semi-voiced variants at the beginning of a word before vowels (ALBERTOVSKAYA; GÜRSOY, 2010), which can be perceived by Russian speakers as voiceless.

In the German speech, such homophones as *суп/sup* и *зуб/zub* are possible; in this case, [s]*up* sounds like *[z]*ub*, and [z]*ub* resembles *[s]*up* or *[z̬]*ub*.

2. Intervocalic position. In German, the decisive factor is the position in a morpheme, therefore sibilants are in the relations of complementary distribution. The experiment showed that voiceless [s]-[s'] are often replaced with voiced [z] in the German accent in this position: *ку[z]аться/ku[z]atsya (to bite), *во[z]емь/vo[z]em (eight), *но[z]ом/no[z]om (knife). If the respondents "saw" a morpheme boundary, for example, in the word *носик/nosik* (they are familiar with the suffix *-ik*, and a consonant is positioned at the end of a morpheme), there was a positive transfer: *no*[s]*ik*. Mainly the respondents with an average and high level of language proficiency demonstrated these results.

Instead of the *ss* double grapheme, the respondents pronounced either voiced [z] or voiceless [s]: **vo*[z]*edat*/**vo*[s]*edat* instead of *vo*[c:]*edat*. In the last example, deviations are reduced to the absence of gemination. This is explained by the absence of consonant gemination

in German (ALBERTOVSKAYA; GÜRSOY, 2010). Regardless of any position, German speakers pronounce a single consonant instead of Russian doubled consonants. When pronouncing sounds expressed by the *zz* double grapheme, deviations were mainly reduced to the absence of gemination: **ra*[z]*adorit* instead of *ra*[з:]*adorit*.

During the experiment, unforeseen accent deviations were also recorded. Instead of voiced [z]-[z'] in the intervocalic position, there was also an erroneous pronunciation of voiceless [s] along with the expected correct pronunciation: **mu*[s]*yka* (music), **mo*[s]*ol* (corn). It is difficult to associate such deviations with the principle of phoneme distribution depending on the position in a morpheme since the position of a consonant was perceived by the respondents as the middle of a morpheme, where a voiced consonant should not cause difficulties. We assume that it is either overcorrection or strong devocalization. Devocalization in the middle of a morpheme in the intervocalic position cannot be explained by the laws of the German language since voiced non-tense consonants in German are realized in their full-voiced variants. In view of the foregoing, we revealed the phenomenon of hypercorrection.

1. Before consonants. According to our forecasts, deviations were expected in this position in the German accent, first of all, when pronouncing a voiced sibilant. We also put forward a hypothesis according to which the respondents would not experience significant difficulties when pronouncing a voiceless sibilant since there are borrowings with the sequence "<s> + consonant" (albeit on the periphery) in the language system. During the experiment, it was confirmed that a positional restriction on the use of the <z> phoneme is transferred to the Russian language and provokes the replacement of voiced [z]-[z'] in this position by voiceless [s]: *[s]*dorovie* (health), **vo*[s]*ros* (increased).

"False" homophones can be formed, in which voiceless and voiced phonemes are neutralized in a voiceless consonant, for example, *слой/sloi* и *злой/zloi* sound the same – *[s]*loi*, *smeya* and *zmeya* – *[s]*meya*; *raspit* and *razbit* – **ra*[sp]*it*. The last example demonstrates the case of realizing the combination of two voiced phonemes as two voiceless phonemes, which is typical of the German accent: voiceless tense [s] subjects the subsequent voiced phoneme to progressive assimilation. Thus, deaf [p] emerges instead of voiced [b]. Even without "false" homophony, such errors seriously violate the meaning of any statement. For example, it is really difficult to recognize the verb *разграбить*/*razgrabit* in *ra*[sk]*rabit;* **po*[st]*ravit* hardly reminds of *pozdravit*. In some cases, the respondents tried to avoid an "uncomfortable" combination at any cost and missed its components in the accent, for example, *[s]*on* instead of [zv]*on*, **drya*[g]*i* instead of *drya*[zg]*i*. With the undeveloped pronunciation of hard and soft consonants

in the speech of many respondents, such erroneous homophones arose as *сват/svat* and *звать/zvat* – *[svat].

With a high level of Russian language proficiency and practiced pronunciation of voiced sibilants before consonants, many German respondents still had an insufficiently voiced (most likely, semi-voiced) pronunciation of the first component of such combinations, for example [ʒ]*namya*, [ʒ]*relyi*, [ʒ]*dorovie*, *Ku*[ʒ]*ma*, which was perceived by native speakers of the Russian language as the pronunciation of a voiceless sibilant instead of a voiced one.

The experiment also provided unexpected results: instead of voiceless [s]-[s'] in combination with consonants, whose pronunciation should not cause difficulties in this position, the German respondents pronounced voiced [z]: *[z]*ladkyi*, *[z]*port*, *[z]*luzhit*, **vku*[z]*no*, **ne*[z]*labyi*, **za*[z]*nyat*. For this reason, there can be homophones that do not exist in Russian: *слой/sloi* and *злой/zloi* sound like *[z]*loi*. Thus, words like *слой/sloi* and *злой/zloi* were mixed up in the speech of some respondents since they pronounced *zloi* instead of *sloi*, and vice versa. Firstly, there are no voicing changes in the German consonantism. Secondly, the <z> phoneme in similar combinations does not occur in the native language of the respondents, even in rare borrowings.

This accent feature is especially typical of southern German dialects, as well as residents of Switzerland and Austria. Nevertheless, it was impossible to establish a connection with the specifics of native dialects since there is no such phenomenon in native dialects. At an advanced stage of learning, such deviations can be explained by hypercorrection. At the initial stage of learning, this is due to the limited use of voiceless tense <s>.

On the one hand, little-used borrowings in the German language show the ability of languages to accept borrowings with combinations "<s> + consonant" without any changes. On the other hand, it does not always help students to properly pronounce similar combinations in the language being studied. Consequently, both the combinations of "<z> + consonant" and "<s> + consonant" can be perceived by German speakers as equally alien and complex. In this case, it is easier for Germans to pronounce a voiced consonant, especially in combination with the subsequent sonorant, which explains erroneous pronunciation like *[z]l*adkyi*.

This explanation is confirmed by the specific implementation of combinations of sibilants with consonants at the end of a word in the German accent. In German, there are single combinations of the <s> phoneme with consonants but there are no combinations of the <z> phoneme with consonants. When implementing the Russian combinations of "<s> + consonant", the respondents made mistakes more often and replaced a voiceless consonant with

a voiced one, for example, **ko*[z]*m* instead of *ko*[s]*m*, **smy*[z]*l* instead of *smy*[s]*l*. When implementing the combination of "<z> + consonant" (for example, *жезл/zhezl* (wand), *соблазн/soblazn* (temptation), the pronunciation of a voiced consonant did not cause difficulties.

2. After consonants. The prognosis for realizing phonemes in this position differs depending on the position of the consonant combination in a word. If we consider the implementation of "consonant + sibilant" at the beginning of a word, then our forecast for deviations in the pronunciation of Russian sibilants is similar to the forecast for the position before consonants: the expected difficulties with the pronunciation of a voiced sibilant due to the absence of such combinations in German and fewer deviations in the pronunciation of a voiceless sibilant due to the presence of rare words with such combinations in the native language of the respondents.

The experiment conducted has confirmed our prediction: in the German accent, the combination of "consonant + [z]-[z']" at the beginning of a word caused difficulties, i.e., the respondents replaced a voiced sibilant with a voiceless tense phoneme, for example, **v*[s]*orvan*. Such deviations were often accompanied by a violation of the opposition of voiceless and voiced consonants, then both components of the combination were pronounced as voiceless: *[fs]*orvan*. When pronouncing consonant combinations that are difficult for native German speakers (not only because of the lack of such combinations in their native language but also because of the difficulties in articulating them), some components were dropped out, for example, *[z]*iki* instead of [bz']*iki*.

In the German accent, the pronunciation of consonant combinations with sounds [s]-[s'] caused difficulties less often than similar combinations with a voiced sibilant. For example, most respondents pronounced *всегда/vsegda* (always) correctly, despite the fact that there are no combinations <fs> or <vs> in this position in German. Sometimes their accent was marked by erroneous vowel insertions between a consonant and a sibilant, for example, *[vəs]*adit*; occasionally there is an erroneous exchange of a paired voiceless phoneme to voiced one: *[vz]*adit*.

The initial multi-component consonant combinations containing voiceless sibilants (for example, *кстати/kstati* (by the way) did not cause any problems for the respondents.

In the middle and at the end of a word, no special difficulties were predicted in the implementation of consonant combinations with sibilants in the speech of the respondents since both phonemes are used in similar combinations in these positions in their native language.

According to the experiment results, certain deviations were registered in the speech of the respondents in the middle of a word in this position. When implementing consonant combinations with voiced [z]-[z'], sibilants both after sonorants and after noisy phonemes were realized as voiceless [s]: **vo*[ns]*at* (to stab), **o*[ps]*yvat* (to call names). The previous example shows that such deviations are often combined with violations of the opposition of voiceless and voiced consonants, in which it is worth looking for the reason for such deviations in the speech of the respondents. As a result of such violations, "false" homophones emerge in the speech of the respondents, for example, the verb *подзуживать/podzuzhivat* (to nudge) sounds like *подсуживать/podsuzhivat* (to favor) – **po*[ts]*uzhivat.*

Consonant combinations with voiceless [s]-[s'] in the middle of a word sometimes caused difficulties and an erroneous replacement of a voiceless phoneme with a voiced non-tense one: **bar*[z]*uk* (badger), **pol*[z]*otni* (fifty). Vowel insertions are also possible between a consonant and a sibilant, for example, **po*[ləs]*otni*. In the native language of the respondents, this position can contain only the <ps> and <ks> combinations, so words like *моnсик/mopsik*, *кексик/keksik* are quite easy to grasp. Since the remaining combinations are absent in German and their pronunciation in Russian caused difficulties, we made the following assumption. In this position, there might be not a lexical non-representation of words with other similar combinations in German, but rather a syntagmatic prohibition on the use of voiceless tense sibilants after consonants in the middle of a word, except for the above-mentioned <ps> and <ks>. The German scientists addressing this issue did not distinguish between these two cases. However, this distinction is fundamental for the prediction of an accent and the development of methods for its reduction since the syntagmatic restrictions of the native language are reflected in the speech of foreign students.

At the end of a word after consonants, we confirmed our forecast regarding the absence of difficulties in the implementation of sibilants after consonants. In German, both phonemes are possible but the voiced non-tense variant is represented by voiceless [s], which coincides with the realization of the Russian voiced phoneme in this position. When implementing consonant combinations with sibilants at the end of a word, there is a positive transfer: *gi*[ps] (gypsum), *vo*[rs] (pile), *tse*[ns] (qualification), *po*[ls] (crawled).

According to the above-mentioned hypothesis, a positive transfer was expected **at the end of a word** and our prediction was confirmed. The respondents pronounced words like *нос* and *обоз* without any deviations: *no[s], obo[s].*

Experiment 2 results

The second experiment assessed the oral comprehension of Russian sibilants. It turned out that the nature of errors in oral comprehension differs depending on the level of proficiency in the Russian language. At the initial stage, the pronunciation and oral comprehension of paired sibilant consonants caused difficulties for the respondents in the same positions. First of all, these are positions where similar consonants cannot be used in German. At the beginning of a word before consonants (for example, in *здоровье* and *змея*), the respondents heard and fixed the [s] sound instead of such consonants as [z]-[z']. In German, only the <s> phoneme can be used in this position. Deviations in the perception of a given pair of sounds at the beginning of learning are caused by different positional patterns of the two languages, associated with the limited distribution of German phonemes. Thus, our hypothesis for this category of German speakers has not been confirmed. At the initial stage of learning, in order to work on positional deviations, in particular on the pronunciation of sibilant consonants in different positions, it is necessary to pay attention not only to the pronunciation of sounds but also to the development of phonological hearing since difficulties arise not only in pronunciation but also in the identification of these sounds in speech.

The German audience who speaks Russian at a high level had different results in relation to their accent: deviations are determined primarily by the impaired hearing of voiceless and voiced consonants. According to the laws of German consonantism, there can only be the [s] sound in such words as *свидетель/svidetel* (witness) и *сказать/skazat* (to say) at the beginning of a word before consonants, but the respondents still heard and fixed the [z] sound. Most likely, this is explained not by the distribution of phonemes in the native language of the respondents but rather by the fact that the Russian consonants [s]-[s'] are not tense enough for the Germans if compared with similar German sounds. Positional errors associated with the specific distribution of paired whistling phonemes in the German language are reflected in the Russian speech of Germans but do not affect the oral comprehension of Russian by Germans. Thus, our initial hypothesis was confirmed only for students with a high level of language proficiency.

Conclusion

As a result of our research, we drew the following conclusions:

1) Syntagmatic restrictions on the use of phonemes in the native language of students are often transferred to the target language and form an accent. When positional patterns coincide, one can expect a positive transfer.

2) At an advanced stage of learning, the phenomenon of hypercorrection might occur in the speech of foreign students. In this case, we mean a situation when the native language of students prohibits the use of a phoneme in a certain position but this phoneme appears in a foreign speech, which creates an accent deviation.

3) When realizing the Russian whistling phonemes <s>–<s'>, <z>–<z'> in the German accent, along with the transfer of positional restrictions from the native language and hypercorrection, the perception of the morphemic articulation of a word is an important factor in forming a foreign accent. A mistake might be related to whether students "saw" a morpheme border in the word and whether they perceived this position as the end or the middle of the morpheme.

4) In the German accent, complex Russian consonant combinations have various deviations: both the replacement of a consonant in the accent with a consonant that occurs in this position and the loss of combination components and vowel insertions between consonants in the combination.

5) The presence of little-used borrowed words in the native language does not always guarantee that the realization of a phoneme, whose analog contains this borrowed word, will not cause difficulties for foreign students in the target language. At the initial stage of learning, coarticulation has a greater impact in such positions. In the Russian combinations of whistling sounds and sonorants, it is easier for German speakers to pronounce a voiced consonant since a voiced consonant is closer to a sonorant than a voiceless constant. At the same time, the German consonant [z] is not used in this position, and the consonant [s] occurs in a limited number of borrowings.

6) Positional restrictions on the use of phonemes in a foreign accent are often combined with the phonological opposition of consonants. In the German accent, deviations in paired sibilants were aggravated by deviations associated with the opposition of voiceless and voiced consonants. At the same time, there were more errors associated with indistinguishable voiceless and voiced consonants.

7) The oral comprehension of lexical units whose counterparts in the students' native language are subject to syntagmatic restrictions and are in complementary distribution relations with each other is affected by the level of language proficiency. Advanced students identify such units without much effort. However, beginners have difficulties perceiving such units by ear.

All of the above should be taken into account when developing effective methods for dealing with disorders associated with the transfer of similar phonemes from the native language of students to the target language. Different positional patterns in the sound structure of the native and studied languages are a serious factor in phonetic interference. If there are syntagmatic restrictions on the use of phonemes in the native language of students, they can be transferred to the target language and form phonetic interference under certain conditions, which is confirmed by this study of the German accent in the Russian speech in the field of paired sibilant consonants.

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