

VARIABILITY OF PHONEMES IN SPOKEN RUSSIAN

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Abstract.

The segmental characteristics of Conversational Literary Russian are reviewed. Various modifications of different classes of phonemes caused by the loosening of their articulation and their acoustic correlates are described. The positions favourable to the modifications are analysed. Modifications of phonemes in 3 varieties of Spoken Russian /territorial dialects, urban popular speech and Conversational Russian/ are compared. There exists in them a number of spontaneity-due modifications common for these varieties. Thus we conclude that the difference between Conversational Literary Russian and Standard /Literary/ Russian proper is caused by spontaneous character of the former and not by the difference in their phonetic systems.

Introduction.

There existed 3 main varieties of Spoken Russian /SpR/ up to now used as spontaneous communication means: 1/ standard territorial dialects, 2/ substandard urban popular speech, 3/ Standard /Literary/ Conversational Russian /CR/. Nowadays the latter is rapidly expanding owing to general secondary education, the expansion of mass-media means and the growth of the cultural level of various strata of society. That is why CR should be studied properly and with great care. Firstly, such a study could help us to see the main tendencies of the Russian language development because it is through CR that dialectal and urban popular speech forms penetrate into Standard/Literary/ Russian /SR/. Secondly, the comparison of CR with the two other varieties of SpR on one hand, and with SR on the other, would enable us to discover spontaneous traits proper and to decide whether the system of linguistic units of CR is independent on that of SR. The phonetic study and the study of segmental units in particular may be of great importance because it is these units that when pronounced are minimally controlled by a speaker and it is in the field of segmental phonetics that substandard and common spontaneous traits

can be most apparent.

The phonetic systems of territorial dialects have been explored for decades. There recently appeared a number of works on urban popular speech. As to the phonetic characteristics of CR, they remain beyond the scope of experimental studies. That is why the present investigation has been undertaken.

Discussion of investigation.

The inventory of linguistic materials consisted of 3 sections. 1/ 15 fully transcribed spontaneous dialogues which made up 3 hours /60,000 phonemes/ used for the investigation of various modifications of segmental units in CR. 2/ Oscillogrammes and spectrogrammes of the fragments of the dialogues /37-min. duration, more than 10.000 phonemes/ containing the most distinctly pronounced modifications used for the study of their acoustic correlates. 3/ 16 fully transcribed monologue fragments /1-1,5 min. each/ extracted from the dialogues performed by the speakers of all the 3 varieties of SpR used to discover spontaneous features common to them.

The results of the investigation of the segmental characteristics of CR described earlier /1/ showed that 18% of consonants and 8% of vowels /in the most frequently used words of CR 30 and 20% respectively/ are subjected to various modifications, i.e. pronounced not as specified by SR pronunciation rules. 5% of consonants and 3% of vowels, /18 and 7% in frequent words/ are elided.¹

The analysis of stability of various phonemes and classes of phonemes has shown that more "lax" voiced consonants are modified and elided more often than the voiceless ones, soft or palatalized /marked/ more often than hard or velarized, more frequently used non-sonorants more often than sonorants. Affricates and liquids are the two most unstable

¹ Note that the terms "modification", "deviation", "ellipsis" are used here for the sake of convenience as it is SR that is used for reference, CR having pronunciation rules of its own.

groups, 48 and 40% of them modified respectively in CR. Nasals and vibrants are the two most stable groups, 12 and 9%. Plosives are modified more often than fricatives but the latter are more frequently elided. Dorsals are modified more often than labials and velars, palatal /j/ is most frequently elided.

There exists a certain correlation between stability, information load and perception of consonant classes: the more informative classes are more stable in speech. The more stable classes tend to be better perceived in noise /2/.

There exists a certain correlation between stability of sounds and frequency of occurrence: the phonemes /a/, /i/, /j/ are the most frequent ones in Russian /3/ - the former two being most unstable among vowels and the latter among consonants. The high frequency of occurrence of a morpheme or a word containing a given sound is also a favourable condition of its modification or ellipsis.

We believe that stability of segmental units is hierarchically organized: more frequent linguistic units /phonemes, morphemes, words/ have less information load due to their frequent usage in speech. They are modified or elided more often by a speaker without any consequence for speech understanding. When the process of speech perception is carried out in impaired conditions /CR perception can be regarded as such due to the large quantity of modified and elided segments causing considerable distortion of segmental structure of the word/ the rarer units /classes of units/ are more stable in realisation and thus they are better perceived by a listener which still increases their information load.

The analysis of reasons of sound changes in CR has shown that the majority of them are caused by lax articulation which explains 66% of the consonant changes and 46% of them for vowels. Lax articulation leads to spirantization of stops /10% of stops in the dialogues are subjected to partial and entire spirantization/, weakening of nasal resonance of nasals /m, n/ and their substitution for oral nasalized [b, b', d, d'], lispings of the spirants but for /v-v'/, /f-f'/, vocalization of liquids and vibrants and /v-v'/, ellipsis of the weakest /f-f'/. Voicing of voiceless, i.e. articulation of "lax" instead of "tense" consonants can also be attributed to lax articulation. For vowels lax articulation leads to greater qualitative reduction of /a/ /pronunciation of [ʌ] instead of [ʌ] or [a]/, the appearance of qualitatively reduced /u/ and /ɤ/ in the unstressed syllables /pronunciation of [ʊ] and [ɯ] instead of [u] and [ʊ] instead of [ɤ]/. Besides, there exists a shift of vowels towards the center: instead of more close

and more front [i, e] more open and more back [ɪ, ɛ] are pronounced; more close and more back [u, ɔ] are replaced by more open and more front [ʊ, ɔ].

Analysis of positions favourable to articulation-loosening has shown that the majority of the cases occur in the intervocalic position where a consonant is necessarily weakened /vocalized, spirantized, voiced etc./ as a result of its articulation adjustment to that of the surrounding vowels. The mid-word position is also favourable for the process. The positions favourable to lax vowel-articulation have been studied elsewhere /4/.

Analysis of acoustic correlates of the consonants' modifications has shown that the acoustic changes can be grouped as follows: F-structure changes, noise components' changes, tonal components' changes, changes of duration. For spirantization the appearance of high-frequency noise at the place of stop is characteristic. Spirantized consonants in CR differ from the analogous consonants in SR. In SR they occur in intervocalic position only and have spirant-phase duration up to 50% of their entire duration /5/. In CR they may occur in any position and mostly have no stop at all: 58% of spirantized plosives and 85% of spirantized /c/ turn into full spirants in CR.

Noise resonance weakening is reflected in the formant structure, i.e. in the weakening of nasal formant.

Misp pronunciation of spirants is realized as a substitution of /s, s', z, z'/ with a round opening for flat-opening consonants. Lisped /s, z/ have a loosened second /back/ focus paralleled by very strong lip-rounding. Acoustically lispings is manifested through the lowering of upper noise-limit or high intensity noise-limit as compared to that of normally realized consonants in analogous positions.

When vocalized, /l-l', v-v'/ differ from non-vocalized by peak intensity shift from the consonant to the neighbouring vowel: peak intensity of the vocalized consonants is in most cases 0.76-1.00, of the "normal" ones - 0.25-0.50 of that of the neighbouring vowel. The paired comparison of peak intensity of vocalized and normal consonants in analogous phonetic positions has demonstrated that /l-l'/ and /v-v'/, when vocalized, have in statistically significant number of cases lesser peak intensity shift to the neighbouring vowel; with /r-r'/ this regularity also shows but shifts in the opposite direction. This can be explained by the presence of several high intensity peaks

Traditionally in Russian phonetics [ʊ] is used for very short lax mid-open back-retracted vowel, [ɯ] - for very short high front vowel, [ɤ] - for a diphthongoid with central back-retracted initial and front middle and final stages.

corresponding to the number of flaps with normal vibrants while vocalized consonants have more smooth picture.

Spectral analyses of vowels¹ has shown that three allophones of /a/ /the stressed [a] and two unstressed ones - [ʌ] and [ʊ] / can be described as follows: [ʊ] has FI lower and FII higher than [a], [ʌ] has FI lower than [a] and higher than [ʊ], FII higher than [a] and lower than [ʊ] which testifies that it is more close and more front than [a].

The vowel pronounced in the unstressed syllables where "o" is spelled as "o" - like vowel: FI and FII are lower than for [ʊ] or [ʌ] which are pronounced here in SR. The higher position of FI and FII for [ɪ] shows that the vowel is more open than [i] and somewhat back-retracted.

The comparison of phonemes' modifications in CR and SR shows that the inventory of these modifications coincides almost entirely. The fact that such hesitation-due modifications as elongation, vibration, i.e. repetition of one and the same sound many times, and such emphasis-due modifications as intensive pronunciation etc. are mentioned nowhere is caused evidently not by their absence in SR but by the absence of the phonetic studies of the spoken form of SR. CR and SR thus differ only in the inventory of phonemes undergoing this or that modification and in the inventory of positions where this or that modification occurs. Both inventories are usually more versatile in CR. Besides, modifications of phonemes in CR are more clearly pronounced: in CR consonants are fully, in SR - only partially voiced, vocalized, spirantized etc. All this leads to the extending of variability limits in CR.

The comparison of phonemes' modifications in different types of SpR has shown that out of 15 the most essential dialectal vocalic specific features and 15 consonantal ones /6/ 10 and 9 respectively were also registered in CR. Out of 54 pronunciation deviations found in the 3 varieties of SpR 14 were registered for the statistically significant number of speakers.² For consonants these are lispings of the spirants, "unnatural" voicing and devoicing, spirantization of stops, vocalization of liquids, vibrants and /v-v'/, pronunciation of not enough palatalized /c/, pronunciation of not soft enough consonants before front vowels. For vowels these are "unnatural" allophones of stressed vowels /ʊ, ɔ, ɪ, ɤ/ instead of [u, o, i, a] / and those of the unstressed ones /ʊ, ɪ/ instead of [ʌ, ɪ] /, complete

¹ The spectral analysis was made by E.I. Oshujko.

² This work was carried out together with E.V. Andrijshchenko.

vowel reduction, pronunciation of [o] in formwords when unstressed. Weak consonants and vowels and reduced forms of frequent words should also be mentioned.

If for dialectal speech the presence of only some more or less regularly realized traits is characteristic, CR is marked by a large number of pronunciation peculiarities each appearing sporadically. Being of common spontaneous origin, they can coincide with the most versatile dialects' traits. But the phonetic system of CR being based on that of SR, these peculiarities can not be realized consistently. The appearance of common spontaneous traits in all the varieties of SpR gives the way for dialectal traits to penetrate into CR /either directly or through urban popular speech/ and then into Literary SR proper. That is how spirantized /c/ pronounced now more and more often as [s'] /7/ penetrated into SR.

Conclusion.

The analysis of segmental units' modifications in CR has demonstrated that the difference between CR and SR manifesting itself through the extension of the limits of allophonic variance in the former should be explained not by their systematic difference but by the spontaneous character of CR. This assertion is testified both by the identity of the inventory of allophones and mainly by the inventory of the functional units, i.e. phonemes, in CR and SR. This contradicts to the opinion that "CR can be regarded as a particular language" because "in is a particular system having the specified inventory of units and the specified laws of their functioning; this system is opposed to that of SR within the limits of Literary Russian" /8/. The study of the spoken form of SR where the appearance of the same phoneme modifications, however minor in quantity, could be expected, would help to ascertain our conclusion.

Modification of phonemes in CR leads to the indefiniteness, uncertainty of the characteristics of the sound units which is caused by the high speech tempo and becomes possible thanks to the great role of context /9/. That's why there appear in CR the allophones of different phonemes coinciding in their sound form, for example [θ] can appear both as a result of /t/ - spirantization and of /s/ - lispings, [ʊ] can be an unstressed allophone of /a/, /u/ and /ɤ/ etc. How can a listener accomplish phoneme identification of these segments which should be attributed to "non-full type of pro-

nunciation segments"¹ Generally, there is no necessity for a listener to produce their phoneme identification at all because "using redundancy he can recognize a word by its very general contour that is created by its rhythmic structure and by some cue sounds of its entire sound structure... A word can be even fully reconstructed from the context". Therefore "it is a profound error to suppose that each segment which can be singled out of the word should be directly attributed to a definite phoneme" /11/. The recognition of the word performed, the phoneme identification, if necessary, is easily accomplished by a listener because "a human being when working as a recognizing mechanism can identify punctually one and the same sound stimulus as different phonemes and various sound stimuli - as one phoneme" /12/. The impossibility to recognize a strongly "destroyed" word, i.e. the word with distorted rhythmic structure or the word with the stressed vowel reduction etc., leads to mishearing or asking for repetition. These two can also be caused by homophony that can not be solved by the context, a word having become homophonous to another word as a result of distortion. Asking for repetition appears only when a communicatively significant word can not be recognized. Both the "distortion" of non-informative words and their homophony are paid no attention to by a listener. The cases when communicatively significant words cannot be recognized are extremely rare: in the 10 dialogues analysed from that point of view there were found only one mishearing and nor askings for repetition. This shows that in spontaneous speech the loosened control of a speaker over the outer form of expression is differential: strongly distorted are uninformative /frequent/ units /phonemes, morphemes, words/. As for the number and degree of distortions of communicatively significant parts of the text, they should stay within definite limits which a speaker would never trespass in fear of disturbing successful communication.

¹ "The full type of pronunciation provides a possibility a l w a y s to determine the phoneme structure of a word. Non-full type vice versa requires for this purpose proper context or situation" /10/.

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