

ON THE PROBLEM OF ACOUSTIC PECULIARITIES OF STOPS  
IN SOME LANGUAGES OF THE CAUCASIAN AREA

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The point argued below is that the position of the vocal cords in the articulation of voiced stops in initial position can be interpreted not only on the basis of articulation and physiology but also by the paradigmatic characteristics of the system. These conclusions are drawn as a result of the spectrographic analysis of the stops of the Abaza, Avar, Adyghe, Hunzib, Ingush, Chechen, Lak, Udi, Georgian, Zan, Svan, Lezgian and Ossetic languages.

The basic model of the stops of the Caucasian languages represents a triple (three-member) system: voiced-aspirated-glottalized. This system, due to the existence of the force correlation, undergoes transformations and results in a four-member system or a triple system of a different type /1/.

In spite of general similarity, or even of the complete adequacy of some of the systems of stops in the Caucasian languages, distinctions between them show themselves during the processes of production of some features.

According to the analysed material, three degrees of voicing of the voiced consonants of the Caucasian languages are distinguished: the Kartvelian (Georgian, Zan Svan) languages are characterized by a low degree of voicing (the occurrence of voiced consonants in the initial position with the voiceless phase of closure).

Initial voiced stops of the Avar and Abaza languages represent the medial stage. Abazian voiced -b, d, g, g<sup>o</sup>, ʒ<sup>o</sup>, ʒ<sup>o</sup>, -consonants are produced with the voiced closure and -g<sup>~</sup>, ʒ, ʒ -consonants - with the devoiced phase of closure. An Avar initial voiced stop in connected speech is, as a rule, represented by its devoiced variant, but in an isolated word, the end of the closure may become voiced. Voiced stops of the other languages are produced with the phase of voiced closure in initial position.

Low degree of voicing of Svanian voiced stops results in the item acoustically similar to specifically pronounced glottalized sounds.

In producing the Svanian glottalized sounds either a reduced vibration of the vocal cords or a vertical vibration of the closed vocal cords seems to take place in a number of cases. Apparently, this fact can to some extent account for the phonetic changes that have taken place in some languages.

In such triple system of stops, as Udi, where non-aspirated consonants are produced in place of glottalized sounds, voicing of voiced stops is complete.

In the speech of the elder generation of Vartashen dialect of the Udi language (on the territory of Georgia, Oktomberi-village), the existence of glottalized stops and the pronunciation of initial voiced consonants with a voiced or devoiced phase of closure is optional. Whereas, in the speech of the younger generation voiced consonants are used only by a devoiced variant and non-aspirated voiceless stops are substituted by glottalized ones.

The existence of glottalized stops in the speech of the inhabitants of Oktomberi village might be due to the influence of the Georgian language. It is less probable that the oldest state is preserved. A high degree of voicing of voiced stops is characteristic of the system of the stops of the Ossetic language, which acquired glottalized stops in the Caucasian environment (this refers to dialect of the Ossetes living on the territory of the Georgian SSR.)

Thus, in spite of the Georgian environment, in this case, the degree of voicing is preserved. The larger number of Ossetes in comparison with Udians may be taken as the extralinguistic cause of this fact, and the existence of the "fourth row" (strong) stops which are remainders in the system of stops and have little duration of noise in comparison with the aspirated sounds, may be taken as its linguistic cause.

In initial position Lak voiceless strong stops are reproduced with a decreased duration (in their non-aspirated form) in comparison with the aspirated sounds. In

intervocalic position the duration of the phase of the closure of a strong stop is about twice as much and the duration of noise is about 1.5 times less in the corresponding phases of an aspirated stop. In Avar a strong stop in initial as well as in intervocalic position differs from an aspirated consonant mainly in its long duration of noise.

The Avar  $\bar{t}$  in intervocalic position shows other characteristics received by the devoicing of -d- or by the succession of two -t-s. It is reproduced with the perceptible increase of closure and decrease of noise.

As noted above, the degree of voicing of the Avar voiced stops is lower than that of the Lak language.

We may suppose that in Lak and Avar languages there exists an interdependent relationship between different representations of strong consonants and different degrees of voicing of voiced consonants. In Lak the non-aspirated reproduction of an initial strong stop must favour the formation and preservation of voicing or, vice versa, the existence of voicing must determine the acoustic picture of a strong consonant. The same relation exists in Avar. It is probable that a long duration of noise of a strong consonant determines the low degree of voicing, or, vice versa, a low degree of voicing determines the long duration of noise of a strong consonant.

Thus, it may be concluded that in triple as well as in four-member systems of stops, the existence of a non-aspirated consonant conditions complete voicing of an initial voiced stop. In the systems of stops with glottalized consonants, complete voicing of the initial voiced stop is not obligatory. Weakening of intensification, disappearance or appearance of one feature in the sound system may cause alternations of other features.

#### Reference

1. Структурные общности кавказских языков. -М.: Наука, 1978.