THE STATISTICAL ANALYSIS OF INITIAL AND FINAL CONSONANT CLUSTERS IN ARMENIAN

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ABSTRACT

Though it is generally accepted that there are no initial clusters in Armenian the examination of the Modern Armenian word-stock has revealed a considerable number of initial and final clusters, met in 2676 and 135600 words accordingly. The types of initial clusters are more limited as compared to final ones. The most frequent types are those with sonants r, y, and fricatives s, š.

It is accepted that there are no initial consonant clusters in Armenian and the use of the vowel "ə" in them prevents the formation of such clusters. This concept being true in general, is not to be applied to all the cases. According to our computational analysis of Modern Explanatory Dictionary of Armenian by E.Aghayan, 2676 out of 135600 words deviate from this rule. Some of those words belong to the native word stock and some of them are late borrowings. A number of those words reveal two pronunciation variants. One of them with the vowel "ə", the other without it. Academician Jahukian regards them as "instable models". Yet a considerable number of the above-mentioned 2676 words have a unified pronunciation that is without the vowel "ə". Therefore we can state that for some cases initial consonant clusters are to be found in Armenian too. Moreover if in those cases the pronunciation of words with the vowel "ə" occurs they should be considered substandard.

An initial double consonant clusters the second element as a rule is the sonant "y" or "r". Out of 30 consonants, 17 are used in combination with "y" (byur, gyuɣ, dyurin ȶyur, lyard, xyus, cyurel, kyank', hyur, jyun, čyuɣ, myus, nyard, šyuɣ, syun, p'yunik, fyur'er). In the dictionary we can find 984 words with the initial consonant + "y" combination, the majority of which being combinations by, dy, jy, hy. Combinations with other consonants and "y" occur each in less than a dozen words. In combinations consonant "r" there may be 8 different consonants (brigadir, dramaturg xramat, krem, prizma, traktor, k'ristonya, franseren). The total

number of such combinations is 444, a considerable number of which are late borrowings. Among them combinations "tr" and "pr" occur in 265 words. The total number of combinations in which the second component is expressed by "y" and "r" is 1428, that is more than half of the above-mentioned 2676 words.

Words with other combinations are not numerous. There we must mention consonant + the sonant "l" combinations (blank, klasic'izm, šleyf, planer, slavon, gladiator), 191 words all. As the first component of double consonant clusters as a rule fricatives "s", "z" and "š" occur more frequently. For example "s" + consonant combinations occur in 846 words (St̆ap'vel, slavon, sxema, smoking, skuteɣ, syuže, spitak, svastika, stamok's, sc'enar, spbp'el, Sfinks). Among them "sp" and "st" types occur in 646 words.

In "z" + C combinations the second component may consist only of [b], [g] and [m] occlusives (zbaɣvel, zgušanal, zmaylel). There are 192 cases out of which 145 make "z" + "g" combinations.

The number of "š" + C combinations is 70 (špar, švayt, štab), and there is only one case of "ž" + C (žčᶜi).

Of the words with initial consonant clusters to be found in the dictionary, 30 have as the first component the consonant "k'" [k] (k'vant, k'sanhing). There are also a few borrowings having unusual initial clusters (tᵛist, psixologizm, pfenig).

In Armenian the number of consonant clusters consisting of three component is relatively few. The third component of such clusters is often "y". However, their number is not great (only 28). More numerous are the words with initial "stv" and "str" clusters. All in all 120 words.

Thus we may state that 2 per cent of the total number of words in the dictionary contains initial consonant clusters which exclude the existence of vowel "ə" in Modern Armenian literary pronunciation.

Final consonant clusters occur in considerably more words. In double consonant clusters all the consonants may be used as the second component with the exception of "y" and "ṙ", whereas the first component may be expressed with any consonant but [d], [ɣ], and [j].

The analysis reveal 13672 words with final consonant clusters. In more than half of those cases the first component is expressed either by sonants [r] and [y].
[r] is followed with any consonant (borb, bard, marg, hard, parz, kirt', haverž, marx, gorc, hark, šnorh, perč, t'arm, noktyurn, gorc, p'arč, kerp, lurj, vars, nerv, gort, harc, arp, jirkᶜ, torf) with the exception of 5 consonant l, ɣ, y, r, ṙ. The total number of such clusters is 4285 where cases with rd, rt, rj, rk, rz, rc, rk', rt', rp, make the overhelming majority.
[y] is followed with any consonant (ayb, ayg, ayd, huyz, xayt̆, huyz, ayl, šeyx, ayc, makuyk, anpačuyč, aboym, jayn, žptamyš, žayr, ays, ayt, hayr, c'uyc', kahuyk', dreyf), with the exception of consonants h, j, ɣ, y, v, p'. The total number of such clusters being 3056.

"n" + consonant combinations make almost half of the number of such clusters, the second component of which may be expressed by any forelingual, backlingual occlusives, africates and the fricatives s, z, š (žang, hand, bronz, kant', p'aṙapanc, sunk, ganj, čanč, ṙevanš, šunčᶜ, jinj, avans, kent, cᶜancᶜ, hank'). The total number of such words is 2694.
"n" is not followed by the labials "b", "p", "p'". In "m" + consonant combinations, the number of which being 312 (xumb, saṁt', himn, zamš, amp, toms, ek'spromt, dramp', himk', triumf) the two third of which represent "m+b" clusters.
"ɣ" + consonant combinations make 555 cases (kuɣb, heɣg, naɣd, t'uɣt', p'iɣc, p'eɣk, iɣj, kaɣč, koɣm, zeɣč', koɣp, gaɣj, uɣt, k'aɣč, čeɣkᶜ).
In double consonant clusters the first component is often expressed by the fricatives s, z, š. s + consonant make 812 words (xaris, hask, parisp, hast, xosk'). [s+t] out of which is the most frequent (673 cases).

"z'+ consonant make 383 words (skizb, azg, azd, kazm, vazk') [z+m] of which is the most frequent (335), "š"+ consonant make 384 words (vašx, mašk, drošm, hašt, hrašk') [š+t] out of which is the most frequent (264).
The rest of the above-mentioned 13672 words that is to say 1180 words may be classified according to the second component. Here we usually observe voiceless k', k, t. Consonant + k' combinations make 704 words, among them more frequently occur ck' [xosvack'] – 312 words, c'k' [gnac'k'] – 96 words, ṙk' [kaṙk'] – 86 words, tk' [hetk'] – 77 words. The characteristic feature of final double consonant clusters in Armenian, as a rule, is their voiceless pronunciation. Out of the 13672 words only 2714 have distinctly voiced pronunciation. The rest (8258 words) have voiceless pronunciation. 2700 words may have double pronunciation (voiced or voiceless).
In Armenian there are only 20 words with 3 consonant clusters. 18 of them (anc'k', kurck', hamaynk', c'aytk', rarbk', partk') as the third component have [k'], -nc'k' cluster makes 12 words, two borrowed words [punkt, boršč] have different components. As you can see the third component is always a voiceless consonant.

Thus we may conclude that in literary Eastern Armenian there exist mainly double consonant clusters either in initial or final position and the number of 3 consonant clusters are comparatively few. We have included borrowed words in our survey and we may state that we observe a tendency of increase of the number of such words. The without [ə] utterance of consonant clusters in such words prevails especially in the pronunciation of the young generation.