Maia Ninidze

A New Point of View on the Origin of the Georgian Alphabet

The history of the development of different scripts shows that writing may assume the organized systemic appearance that Georgian asomtavruli (capital alphabet) had in the 5^{th} century only as a result of reform. No graphic system has received such refined appearance through its independent evolution. Take, for example, the development of the Greek alphabet down to 403 B.C.

In reconstructing the original script of the Georgian alphabet I was guided by the point of view that "the first features and the later developed or introduced foreign elements should be demarked and in this way comparative chronology be defined" (10, p. 50) and that "knowledge of the historical development of the outline of letters will enable us to form an idea of how the change of the outline of letters occurred and ... perceive the type of the preceding change, no imprints on monuments of which have come down to us" (12. p. 202).

When one alphabet evinces similarity with another in the outline of corresponding graphemes of similar sounds, this suggests their common provenance or one's derivation from the other. But closeness existing at the level of general systemic peculiarities is a sign of later, artificial assimilation. The systemic similarity of Georgian asomtavruli with Greek would seem to suggest that it was reformed on the basis of the Greek counterpart.

The earliest Georgian inscriptions in the asomtavruli are characterized by similarity to Greek in: 1) equal height of letters, 2) geometric roundness of graphemes and linearity-angularity, 3) the direction of writing from left to right, 4) the order of the alphabet and the numerical value of graphemes, but not similarity in the form of individual graphemes. If we want to remove the trace of Greek influence from the extant alphabet, we should look for in what Georgian does not resemble Greek. It is these features that will be primary and original.

The Greek has 17 linear or linear-angular graphemes, Georgian has 10; in Greek there are 5 linear-circular and circular graphemes, Georgian has 17; In Greek there are two arc-shaped letters and -9 in Georgian. These general characteristics gave rise to the assumption that arc-shape was original to Georgian. Study of the further development of the Georgian alphabet did reveal a drastic tendency to replacement of circular and angular forms with arc-shaped ones.

From the 4^{th} century most of the linear-circular graphemes of the Georgian alphabet changed the circular to arc form. Of 18 graphemes 14 became open in some monuments [b,d, z, t^h, l, o, ž, s, wi, p^h, q', š, č', c']. Only 4 letters [k', m, t', ʒ] remained unopened, but in three of these a half-open arc form is seen in many places - [k'] [m] [ʒ] (8, pp 71, 97,103,125, 128; 12, pl. 5. XIII, XVII).

A similar trend is noticeable with angular letters as well. Of ten graphemes most [g, e, v, ej, i, č, x, q^h] in 6^{th} - 7^{th} cent. sources, occur here and there in arc form:

The letter † (k^h) , as the initial of Jesus Christ, in this form, as well as in other Christian scripts, doubtless took shape in the Christian period. Hence I shall not discuss the process of its development.

Both systemic changes lead to the restoration of arc form. Thus, in my view, at some stage of development, the Georgian alphabet may have had the following form:

That the angular form is acquired is shown by the fact that we have no pair of letters that would differ from each other only by angularity-archness. The Greek acute-angle forms too probably did not become established in our alphabet because the arched form would tend to turning into a right angle (on both sides) form - ⊓

The newest discoveries of Nekresi, Rustavi and Palestine suggest that Georgian graphemes must not have been of equal height from the start. The tendency towards inequality in height became stable in nuskhuri (old Georgian majuscule) and mkhedruli.(modern Georgian alphabet). 9 letters in nuskhuri became lower, 5 letters extended along the entire length, 7 - in the middle and above, while the remaining 15 - in the middle and lower part (1, pp 83, 85, 87)

Besides the proportional reduction of a grapheme, in nuskhuri mostly the left part became lower. Presumably, it must have been this part of the letters that were raised in height, which would have been natural for writing directed from left to right and from above downward.

In the post-reform period, at the time of opening circular forms, as well as at rounding the angular ones and making the raised ones lower - everything could not revert to the initial form. Therefore, in order to restore the original form, I studied separately the developmental history of each grapheme.

The letters (γ), (a), (p'), (č), (q^h) and (wi), appear to have suffered no change apart from the above said systemic changes.

ⴃ [d] often occurs both with an arc open to the left (including in the Nekresi inscription too) and shortened proportionally - Ͻ (11 figs. 28, 30; 8 pp. 158, 214, 255, 272, 315).

In the oldest inscription of Nekresi the letter ⴈ [i] has the shape of an arc open to the left ɔ (11, fig. 28)

The letter ⴑ [s] in many inscriptions is sharply curved, and it must have had the shape of an arc open right - c .

In the oldest inscriptions, including that of Nekresi, the letter ⴚ [c], has a slanting long line at the end of the arc ⴚ. It must have had the shape ⊆ (11, fig. 26).

The right vertical line in the letter ⴄ [e] must have existed from the beginning. In many oldest inscriptions the arc is seen to join the vertical ⴄ. Before raising it, this grapheme may have had the form ∩.

The letter ⴌ [n] is lowered so much in some inscriptions (12, pl. 5, XIII) that it touches the horizontal line ⴌ.
It is the same with the letter ⴞ (x), The lower horizontal line is brought very close to the arc, while in some cases it slants to the right ⴞ ⴞ (12, pl.5, IX)

In 5th - 6th cent. palimpsests the letter ⴏ [ž] has a clearly expressed geometric outline, with a closed circle and horizontal line on the top. Later it assumes the form of an arc open on top ⴏ (8, pl. XXI). However, notably enough, occasionally the arc is open to left as well (12, pl. 5. XIV). This has made me think that originally the letter may have had the form ⴏ.

As a result of raising the letters in height and restoring the arc shape, some graphemes came to resemble one another (ⴣ [wi] and ⴗ [q'] – ⴗ; ⴆ [z] and ⴎ [p'] – ⴆ ; ⴊ [l] and ⴠ [h]) – ⴠ; ⴙ [č] and ⴡ [ej] – ⴡ). It is hardly possible for two letter-characters to have the same script at the creation of the alphabet. Hence, I think this becoming similar took place later.

In restoring the arc shape the circular elements of one grapheme ⴜ (c') opened below, of two - ⴝ [č'] and ⴃ [d] - to the left, with none opening to the right; but in eleven graphemes it opened above. This fact suggests the possibility that the remaining arc forms too were replaced later with forms open at the top, which caused the graphemes to resemble each other.

The letter ⴗ [q'] is higher than ⴣ [wi]; the arc may have joined the vertical at the very end and was turned to the right, as is the case in many later manuscripts (12, pl. 5, XXI, XXII). This form would have tended to slant leftward in the process of writing; hence originally it may have been written thus ç.

The graphemes ⴊ [l] and ⴠ [h] could not have had the same, arc form open at the top ⴠ. Presumably, this outline belonged to ⴠ (h) (12, pl. 5, XIV), while ⴊ [l] would originally have had at least somewhat different appearance, and failed to be restored precisely. I believe closest to the open at the top is the form ⴊ, open at the right, which would bend to turn its arc upside down.

In the process of study the conjectural outlines of the graphemes ⴊⴌⴞⴏ [l, n, x, ž] took the shape ⴊ ⴞ ⴌ ⴏ. In two cases the vertical and the arc are joined with an upper horizontal line, and in the remaining two - by means of the left vertical. This must have been dictated by the direction of writing and be of later origin. In the archetype they must have had 90° forms ⴊⴌⴞⴏ.

The same refers to the letter ⴠ [h] whose horizontal line is often reduced and rounded (12, pl. 5, VI). It may have come into being later, and prior to that the grapheme had the form ⴠ.

In some documents (12, pl. 5, IV) the right and left parts of the vertical of ⴅ (v) is represented rather as a fourth of a circle than of a semicircle, while their spread over a single plane in nuskhuri is attested everywhere. Therefore, I think that initially the grapheme had the form ⴅ.

In one inscription of Sapara (5, p. 152) the letter ⴍ [o] occurs three times in the ⴍ form. If it had this outline ⴍ, by raising and binding the left part we would obtain a form widespread in asomtavruli - Ⴍ.

The upper part of ⴔ [ph] occurs in many inscriptions - at times half-open and at others fully open. Hence it must have had the form - Ψ.

The lowering of the vertical lines of ⴁ [b] and ⴂ [g] in some early inscriptions, including that of Nekresi (12, pl. 5 X; 11, fig. 23), suggests that they may have had the ◡– and ◠– forms.

The letter ⴇ [th] occurs several times in the Nekresi inscriptions in the ⴇ form (11, fig.37). As the arc form is to the right, it would be open to the left - ⴇ .

The graphemes Ⴋ [m] and Ⴏ [ʒ] remained unopened to the end but, as noted above, in many early inscriptions in both cases arc forms are attested in place of a right angle (8, p. 125; 12, pl. 5 XVII). In these graphemes a straight line may have crossed the arc Ψ, ሐ. In the course of writing half of the arc closed, while half became angular and, owing to this mixing up, it so happened that these letters failed to restore their initial appearance.

If we sum up the findings of the observation, we shall obtain an interesting picture. 26 graphemes are formed of an arc or 90° variations of an arc and straight line crossing it at one point. Out of 9 such combinations we have 4 pairs: (b, q') ; (v,o); (g, p') (t^h, q^h); 2 triplets - (m, p^h, ʒ); (a ,e, h) and 3 quadruplets: - ɔ ∪ ⊂ ∩ (i, j, s, γ); (l,n, ž,x). (d, č, c, wi); this may have been the principle of the creation of the Georgian alphabet and the other graphemes might have had the remaining 10 forms of this system.

The asomtavruli Ⴐ (r) has a curious outline. The raising may have occurred by adding a vertical line and initially it may have had the form.

At the time of creation of the alphabet the grapheme Ⴆ [z] may have had the form of an arc open to the right and joined to a horizontal.

Conjecturally, the graphemes Ⴙ, Ⴒ [č',t',] originally had the forms and, besides closing the arc, one horizontal line was added to each for the sake of stability. It is such a form that occasionally occurs in the outline of Ⴙ - a horizontal joined to a vertical - (8, p.121) Adding a horizontal to Ⴒ [t'] would be necessary to end writing in the right lower corner.

In oldest documents the letter Ⴘ [š] is doubly tied and symmetric against the horizontal axis. Conjecturally, it was symmetric in the archetype too, with the outline. Such form would be much more inclined to double binding than Ⴘ.

The non-stable ending of the grapheme Ⴡ [ej] leads me to the assumption that it may have derived from the form through making the left part linear.

In early inscriptions the letter Ⴤ [ǯ] consists of three intersecting lines. It may have been obtained from the outline by the same principle according to which the other letters were raised in height. The left line moved upward, while the arc joined to it became straight together with the horizontal, inclined leftward. A similar outline occurs at several places in the Nekresi inscriptions (11, fig. 1, 10). Likening this grapheme to the Christian symbol must be a later development but in my view the likeness to the cross was the reason why the arc form failed to be restored.

Elevation of the letter Ⴉ [k'] by adding a vertical line between the elements - as it occurs elsewhere - probably did not take place because one element found itself within the other ∈. Elevation and forming into a circle were probably effected through the extension of the horizontal line downward.

It is quite probable for the letter Ⴜ [c'] to have had the form, being elevated and closed by addition to the vertical on the left side.

As for the letter Ⴕ [k^h], it must probably have been of the only remaining form.

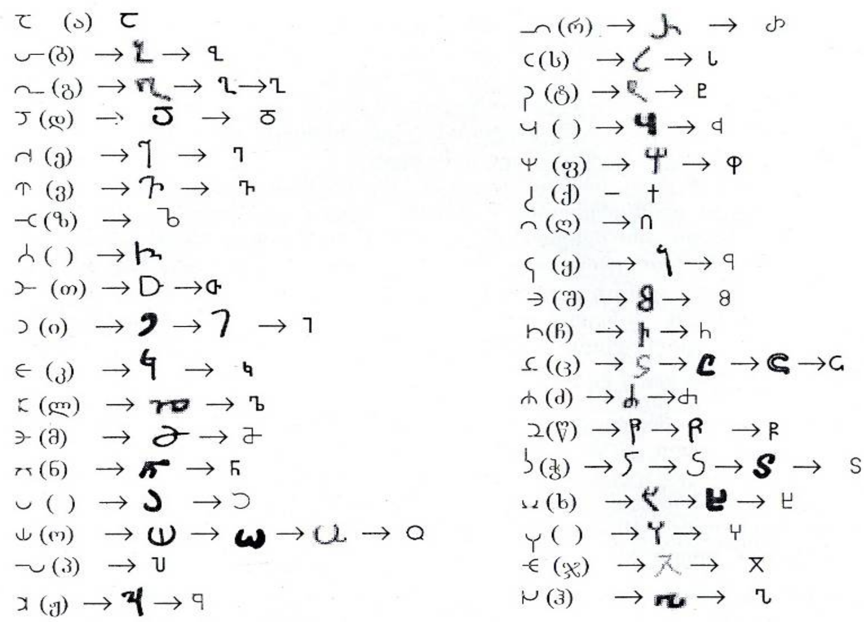
That [b, p^h] closed at the top - ႡႴ, [o] and [t^h] assumed the shape of a large closed circle - Ⴍ, Ⴇ, and [g,e,v,i] became linear - Ⴂ Ⴄ Ⴅ Ⴈ is the result of stylization according to the Greek (see the Greek graphemes BΦ, OΘ, ΓEVI) . Let us see how systemic are the changes suffered by the graphemes:

[a] increased proportionally - Ⴀ. The arc of [b] closed and the left part became elevated through the addition of a vertical - Ⴁ. The arc of [g] turned angular and its left part became elevated by the addition of a vertical - Ⴂ. [d] became closed - Ⴃ. [e] became elevated by extending the vertical downward and the arc turned angular - Ⴄ. The left part of [v] became elevated and the arcs turned angular Ⴅ. In [z] the left part became elevated through the addition of a vertical and the arc closed - Ⴆ. The left part of [ej] straightened and the right-side fourth part of the arc assumed an unstable end - Ⴡ . [t^h] became closed with a vertical line and later turned 180° - Ⴇ. ɔ [i] became angular and its right part straightened - Ⴈ. ∈ [k'] became closed and elevated by the lengthening

downward of the horizontal Ⴉ. ⊏ [l] acquired an upper horizontal line joining the elements; the left part became elevated by adding a vertical, and the arc closed - Ⴊ. The lower part of ϶ [m] closed and the upper became angular - Ⴋ. ⌐ [n] became elevated by adding a vertical line on the left side - Ⴌ. The right arc part of ◡ [j] grew - Ⴢ. ⍦ [o] became elevated and its left part closed - Ⴍ. ¬◡ [p'] increased proportionately - Ⴎ. ⊐ [ž] acquired an upper horizontal line joining the elements; its arc closed and the vertical lengthened - Ⴏ. _⌒ [r] became elevated by the addition of a vertical, and later the horizontal curved - Ⴐ. The left part of ⊂ [s] straightened - Ⴑ. The arc of ⊃ [t'] closed and a horizontal was added to the right of the grapheme to complete it - Ⴒ. The arc of ⊣ [wi] closed - Ⴣ. The arc of Ψ [p^h] closed - Ⴔ. ⌒ [γ] became proportionally elevated - Ⴖ. The arc of ς [q'] closed - Ⴗ. The semi-arcs of ∋ [š] closed - Ⴘ. The arc of ⊢ [č] became angular - Ⴙ. ⊆ [c] grew proportionally and later the horizontal directed against the direction of writing became shorter - Ⴚ. Half of the arc of ⋔ [ʒ] closed and half became angular - Ⴛ. ⊐ [c'] became elevated and closed by adding a vertical line to the left and the horizontal extended downward - Ⴜ. A horizontal line was added to ⊃ [č'] to end the grapheme on the right - Ⴝ. ⊔ [x] became elevated by adding a vertical - Ⴞ. ⋎ [q^h] became angular and elevated proportionally - Ⴤ. The left horizontal of ∈ [ǯ] became elevated and the right part straightened - ⅄, while later, by extending the right inclined line, came close to the form of a cross - Ⴟ. ⊌ [h] acquired a horizontal line joining the elements and the left part became elevated - Ⴠ.

In the case of existence of such graphic prototypes of Georgian graphemes the horizontal line extending to the right of Ⴋ [m], the outgrowths of Ⴡ [ej], Ⴍ [o] and Ⴚ [c] as, well as many curious graphic elements can be accounted for.

Here follows a table in which first the conjectural prototype of a grapheme is indicated, and in the end the universally spread variant, while in the middle such outlines - if needed - that are attested in various sources and may be helpful in restoring the picture of the development of a grapheme:



If a reform was indeed carried out, parallel forms would naturally exist for some time. In the course of time, circular form continued partly, but the Georgian alphabet failed to accept the foreign angular form and rounded forms were restored in the mkhedruli (modern Georgian alphabet). It is also noteworthy that Georgian rejected asomtavruli (capital) style as well.

During the new differentiations (some letters were placed in the middle of the four-line system, some spread along the entire height, some - in the middle and above, and some - in the middle and lower part) the element that, in my conjecture, was initially arc shaped, in each case found itself between the middle lines.

The separation of a Greek group in the Georgian alphabet must be a later development and connected with the arrangement of the original letters in a new order. This may have taken place earlier too, but the graphic reform must have been carried out only after the establishment of classical Greek writing. Before that, Georgian writing must have already gone through a definite stage of development. Had our alphabet been created at a time close to the 5^{th} century A.D., it would have been much more stable and there would not have been such a battle of forms as is attested in the very first inscriptions that have come down to us. Had its creation and arrangement according to the Greek order taken place simultaneously, there would have existed regularity in choosing this or that form for graphemes.

If we consider the evidence of Charaxes of Pergamum (2^{nd} - 3^{rd} cent), John of Antioch, compiler of the "Chronicle" of 334 (7^{th} cent.) and Suida (10^{th} cent.) to the effect that "the golden fleece is a technique of gold-writing, written on parchment", that prior to the 4th century the Iberians had already a script and the "Colchians had preserved "qurbeis" written by their fathers", i. e. books of stone and wood (4, p. 116; 3, pp. 22-23; 7, pp. 145-168) we should not be surprised at the existence of original writing in Georgian for centuries earlier than the extant sources.

In my view the Georgian alphabet could not have been created according to some script but from graphic quadruplets obtained by 90° rotation of 9 graphic outlines formed of an arc and straight line - ɔ, ◡—, ◠_, ↑, ɔ—, ∋, ꞇ, ℸ, ꞓ. This is the simplest and probably the most optimal complex that could have been created for the script. Only two simple forms would be needed to write such letters. It could be imprinted on leather, with two different-shape brands, or on - also simply - newly puddled clay. This method was applied in cuneiform writing as well.

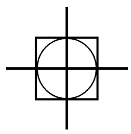
Separate graphic forms, derived above, occur in Old Semitic, Pehlevi, Armazic, Parsi, Archaic Greek, and in many other scripts. Hence they are acceptable from the graphic point of view. It cannot be said that our ancestors could have borrowed these characters from different scripts, for all the nine characters are formed according to a single principle.

In many ancient countries the number nine had a special significance. This number may originally have been connected with calendar days, pagan gods or some important development, and later an alphabet was created on its basis. The sacred significance of nine is obvious on monuments of pagan-period folklore. Georgians may have used quadruplets of these nine outlines to denote digital units, tens, hundreds and thousands.

Interestingly enough, in the old Georgian language there existed terms corresponding to parts of a character of this outline: "iota" - straight line and "horn" or arc. These two geometric forms must have been very familiar to ancient man in the form of bow and arrow too.

As to the rotation of graphic images, each image on ceramic slabs of the 5^{th} millennium Mesopotamia repeats four times, being 90° variations of one another (9, pl. 1).

The outlines of the thirty-six characters fit in a figure composed of a concentric circle, square and cross. It is noteworthy that the cross, circle and square are widely used in ancient Georgian ornaments: "A linear cross with equal beams, set against the cardinal points, was a sign of coordination in the culture of gathering tribes, "Ancient humans conceived of the earth as motionless, while the sky and heavenly bodies as moving. The sky, in their view, was of quadrangular form. It is worth noting that "a cross of equilateral beams, placed in a circle in low relief, which must be expressive of heavenly bodies, in particular, sunrays, is depicted on the bottoms of bowls found in Nekresi and dated to the 1^{st} cent. B.C.". According to one view, "All necessary preconditions for creating writing or obtaining it from elsewhere must have been in the Caucasian ornament" (6, 63, 90, 34).



As evidenced by world historical practice, alphabetic writing may be obtained from a pictorial graphic system (Phoenician from Phoenician pictographic writing), as a result of gradual development of some other alphabet (Greek from Phoenician) and by adapting and changing the letters of some other alphabet (Armenian from Ethiopic). However, there is one more, very logical path: creation of a new original system of simple, graphic forms and assigning each character in the language to each sound.

In various languages the systems of sounds differ. Hence, when one language becomes connected with another of different origin, there may arise a discrepancy between the number of sounds and graphic characters (there is a grapheme but there is no sound, i. e. episemon, or there is an extra sound, for the denotation of which a complex of two characters is used). Systemic research into the graphic development of Georgian writing and the full correspondence of the graphic and sound systems leads me to the assumption that it shows no trace of such dependence on any other system. In the case of ancient Georgian writing we may be dealing with the creation of an original system of letters

specially for this language. This assumption stems from the results of my observations; however, I am well aware that this stands in need of verification from many angles.

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* All the references (1-12) are published in Georgian.