The peculiarities of Cyrillic letterforms: design variation and correlation in Russian typefaces

Maxim Zhukov

Maxim Zhukov

The peculiarities of Cyrillic letterforms:
design variation and correlation in Russian typefaces

The Latin-based typographic font, in its alphabetical part, took shape in the 15th–16th centuries, and has changed very little since. The standard forms of printed Cyrillic were resolved only in the 19th century – four hundred years after Western romans. Like many non-Latin alphabets, modern Cyrillic is a younger typographic script, and, like many of those scripts, it allows for a number of alternate versions of letterforms. The use of certain forms requires shaping other characters, related to them, in a similar way. A wide choice of alternates makes consistency and coordination crucial in styling Cyrillic typefaces. The correlations in letterform construction are not always the same; they are not permanently fixed. The composition of pairs and groups of letters sharing certain visual features varies widely. Those links cannot be reduced to linear connections of letters ranged in rows: they are multidirectional. They also extend beyond the limits of the Cyrillic alphabet: shapes related to certain letters may be found among numerals, or in Greek and Latin scripts. The aim of this essay is to highlight some of the special features and relationships of letterforms that are to be taken into consideration when designing Cyrillic type.

author's address
United Nations, room NL–0312Z
New York
New York 10017, USA
e-mail zhukov@un.org

1. Not all Slavic languages are written in Cyrillic script (e.g. Latin is used for writing Polish and Czech) – and, vice versa, not all languages written in Cyrillic (e.g. Kabardin and Kazakh) are Slavic.

Je garde Charlemagne parmi mes saints: il nous a donné le bas-de-casse.
Maximilien Vox (*Faisons le point*, 1983: 121)

Alphabet: Cyrillic. Type: Russian

Thorny was the path of Cyrillic's historical development. Slavic alphabets[1] – unlike those of Greek and Latin scripts, which go back to North Semitic writing, or even earlier – have not evolved naturally. Cyrillic script was allegedly born in a cell of two Greek Orthodox monks called to convert the pagan tribes of Slavs. Like Latin script, Cyrillic writing derived from Greek writing, which 'the holy brothers' Cyril and Methodius tried to adapt for recording Slavic speech.

There is considerable confusion about definitions when it comes to Cyrillic script and type. Sometimes, when browsing through press dispatches, one can find a report of scholars having designed an alphabet, 'based on Russian graphics', for one of the ethnic groups which never had a script of its own. Moreover, many typefaces produced abroad for setting text in Russian are called 'Cyrillic' or 'Kyrillisch', though they only contain letters of the Russian character set. Many companies complement their Latin-script typefaces with a kind of pan-Slavic 'character set extension' comprising letters of Russian, Ukrainian, Byelorussian, Serbian, Macedonian and Bulgarian alphabets, and call them 'Russian'. In scholarly usage it is not uncommon to call the style used in early books *kyrillitsa*, meaning 'pre-Petrine letter' – most often a kind of *polu-ustav*, which is now being more correctly defined as *tserkovno-slavyansky* ('Church Slavonic'). For example, A. F. Johnson – in his additions to Talbot Baines Reed's *A history of the old English letter foundries* – writes: 'At any rate, Thessing's type is Cyrillic, not modern Russian...' (Reed, 1952: 64).

There is certainly an urgent need to make things clear, one of the overwhelming factors being the new political realities in Cyrillic-using countries. In my opinion, Cyrillic should mean the totality of character sets, both Slavic and non-Slavic, which are based on the early Slavic alphabet created by Cyril and Methodius (figure 1).

Cyrillic came to Kievan Rus from the Balkans, and is sometimes called the Old Bulgarian alphabet, though it was originally designed for translating Christian texts into the language of Slavs who lived in the region of Thessalonika, Greece, and for spreading the Holy Word among Moravian Slavs. Hence, claiming that a new alphabet has been developed for an ethnic minority which never had one 'on the basis of the Russian alphabet' is about as sensible as stating that the Vietnamese alphabet had been created 'based on French graphics'.

Figure 1. Early Cyrillic and modern Russian alphabet (†letters added since 1708; *letters dropped since 1708). [Typefaces: Izhitsa, Petersburg]

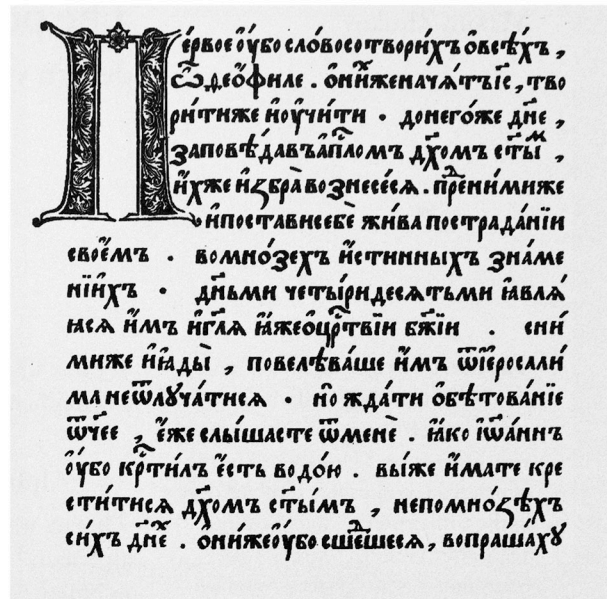Figure 2. Russian *polu-ustav* style printing type, 16th century. [Acts of the Apostles. Moscow: Ivan Fedorov, 1564]
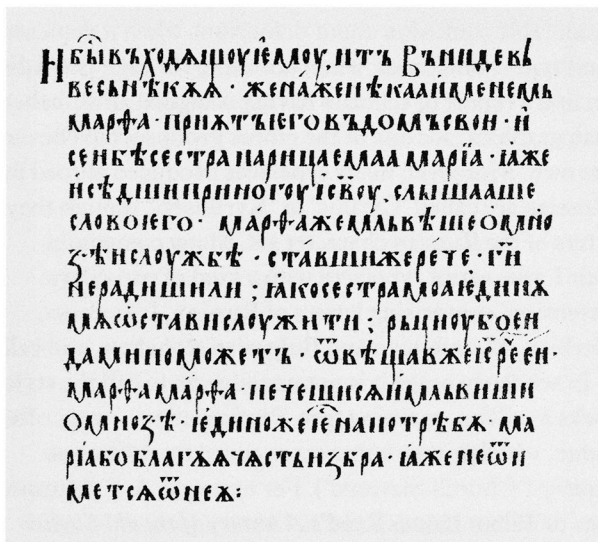
Figure 3. Bulgarian *ustav* hand, 14th century. [From the Czar Ivan Alexander Gospels (the 'Curzon Gospels'), 1356; The British Library, London: Add. MS 39627, fo. 161ᵛ.]
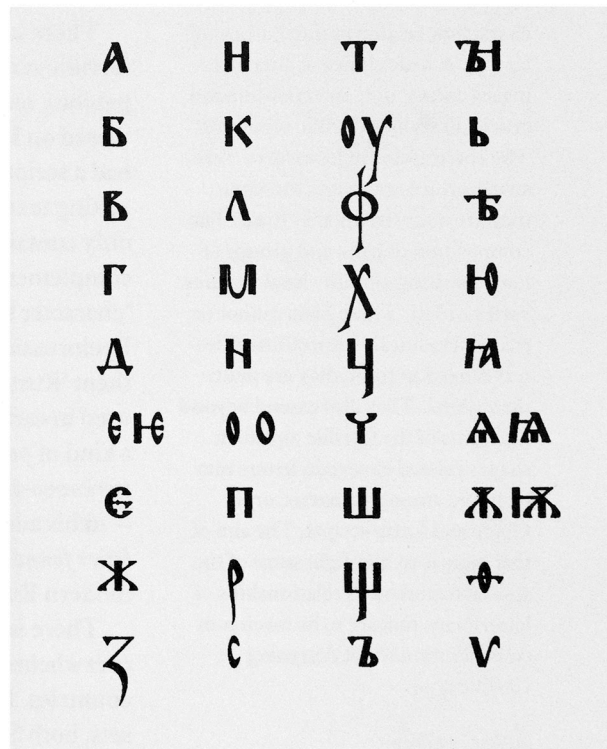
Figure 4. *Ustav*, by Vladimir Lazursky. [From: Ilya Krichevsky, *Iskusstvo shrifta*. Moscow: Iskusstvo, 1960: 56]

As to the Russian type, the modern Cyrillic printed style is certainly of Russian origin, since its forms can be traced back to Peter's civil type. It remains a universally acceptable visual incarnation of Cyrillic in print, in exactly the same way that the modern western roman letter, whose basic shapes were finally set in 15th century Italy, is the conventional embodiment of the Latin alphabet.

Romain du Tsar

Cyrillic drastically changed in appearance in the early 18th century with the accession of Peter I (the Great), the reformer czar, whose own drawings supposedly served as a blueprint of its new – Latinized – letterforms. Czar Peter, who boldly changed the course of Russia's history, also attached much importance to the daily lives of his subjects; he sought to westernize the traditional Russian way of life even in petty details. He insisted on adopting European manners in everyday life: on smoking tobacco, shaving beards, wearing European clothes, drinking coffee, using tooth powder. Peter's policy of enlightenment, his encouragement of the arts and sciences, led book printing to flourish.

The revision of the Russian alphabet's content and spelling rules for civil printing in Russian – the Church Slavonian still had to be used in ecclesiastical literature – made the printed word more accessible to ordinary readers. On the other hand, the redesign of the alphabet's letters, the institution of 'civil type' (*grazhdanskiy shrift*), another part of Peter's alphabetic reform, can be regarded as one of those innovations which were not called into being by an imperative historical necessity, but were rather of a voluntarist nature.

By the Petrine reform, Cyrillic writing had developed to a stage comparable with that occupied by semi-uncial in the genealogy of Latin script. The *polu-ustav* style (figure 2) which was used for setting, and also writing, books, was to earlier *ustav* (figures 3, 4, and 5) as Latin half-uncial is to uncial. Both were book styles – formal, slowly written (*polu-ustav* slightly faster than *ustav*). Just as half-uncial was not used for routine needs (cursive hand was), in Cyrillic the 'civil hand' (*grazhdanskoye pis'mo*) (figure 6) catered to everyday needs, while *polu-ustav* was normally used for more formal occasions. However, Cyrillic never had its own 'Carolingian minuscule', nor a correlate to its later incarnation, the humanist hand, from whose shapes the contemporary Cyrillic lower-case letterforms could have gradually evolved.

Figure 5. *Ustav*, by Oldřich Menhart. [From: Villu Toots, *300 burtu veidi*. Riga: Latvijas Valsts izdevniecība, 1960: 345]
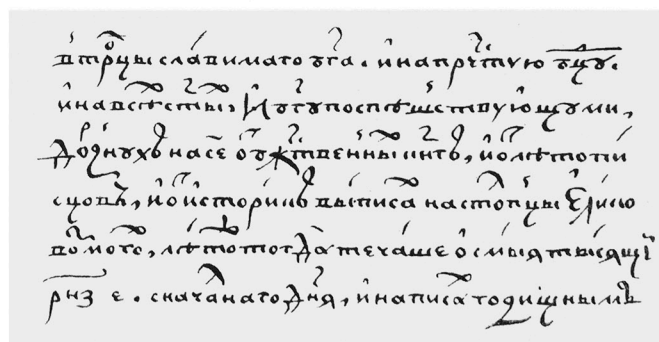

Figure 6. *above* Russian 'civil hand,' late 17th century. [From: Villu Toots, *300 burtu veidi*. Riga: Latvijas Valsts izdevniecība, 1960: 345]

It is important to note that the forms of Latin-script typographic characters are closely linked with formal, book hands, though cursive styles have also affected their looks (italic owes more to them than roman[2]). This dependency holds true for Cyrillic too, though more for the pre-reform printed *ustav*, which – much like Gutenberg's types – presented a faithful rendition of the handwritten book style. As to the civil type, its shapes had no direct precedent in Russian (or any other Cyrillic-based) book hands – unlike those types of the incunabula which imitated *littera humanista*. While the handwritten origin shows clearly in Venetian 'old styles', Petrine type presents a rather artificial crossing of the forms of *some* characters taken from the civil hand with the letterforms of the Dutch roman of the 'late baroque' style, or with 'pre-classicist' type. The visual structure of the Western letter, its proportions, were not well understood by the designers of civil type: they appear to have cared more for its external, peripheral features. The innovators were obviously trying to force Cyrillic letter shapes to blend better with Western forms (figures 7 and 9). Moreover, sadly, it is apparent that they held as models not the best samples of Western romans of the late 17th and early 18th centuries, as is obvious when comparing Petrine type characters which keep the same shape in both Latin and Cyrillic scripts (e.g. A, C, E, a, c, e, etc.) with similar letters in the better West European types of the same period: those of Philippe Grandjean, Christoffel van Dijck, and Tótfalusi Miklós Kis.

In general, this period was not the most glorious in the history of Western type design – rather a *saison morte*, when the Renaissance tradition was long gone, while the newer aesthetics of classicism had not yet found their expression in printing type. However, the era of French absolutism, of which the climax was the reign of Louis XIV, giving rise to the advancement of arts and sciences, also motivated the progress of printing. The efforts of a special commission of the *Académie des Sciences* (the so-called Commission Jaugeon) to develop a 'regularized' design of letters – crowned by production of punches for a new type – are important not only for the qualities of their product *per se*: they present a fine example of a direct interference of supreme power in the lowly sphere of typographic design, of which the intimate problems suddenly acquired national significance.[3]

The fact that the activities of the 'Commission Jaugeon' were a direct, though quite particular, implementation of the royal policies towards centralizing and rationalizing the life of society – in all its aspects, including *arts et métiers* – if known to Peter, could not leave the young and ambitious sovereign of Russia unimpressed. However, the effects of both monarchs' typographic activities are not comparable. Louis was just modifying the shapes of the typographic script that already existed – for his own *imprimerie*. Peter was altering *the very content of the alphabet itself*, for the whole Russian Empire: revising letter shapes, and dropping the letters that he considered obsolete or unnecessary (later some found their way back). Thus, the changes in Cyrillic introduced by Peter the Great went much further than the fine-tuning of stylistic features of type characters whose shapes were already quite well established, as in the *Romain du Roi*.

It is not my objective in these notes to explore the westernization of Cyrillic letter shapes effected by Peter the Great, or his attempts at

2. The appearance of italic in Russian print is believed to date only to the late 1730s (Shitzgal, 1959: 129).

3. This was by no means the first, or the last, case of extending the policies of the powers that be into the special domain of lettering. The *cas célèbre* of such 'command design' had allegedly been established under Charlemagne – the famous miniscule's implantation being an important part of his work in organizing education. One of the latest examples was the notorious decree of 3 January 1941 signed by Martin Bormann, Head of Chancellery of the National Socialist German Workers' Party, declaring the broken script a *Judenschrift* and ordaining the use of *Normalschrift* (roman) as the only truly Aryan style. Examples of official attention to typographic design are actually so numerous that they may present a subject for special research.

Figure 7. Type specimen: characters of pre-reform Cyrillic and civil type, annotated by Peter the Great. [*Izobrazhenie drevnikh i novikh pismen slavenskikh pechatnykh i rukopisnykh*. Moscow, 1710: 1. Saint Petersburg, Central National Historical Archive, Synodal Collection.]
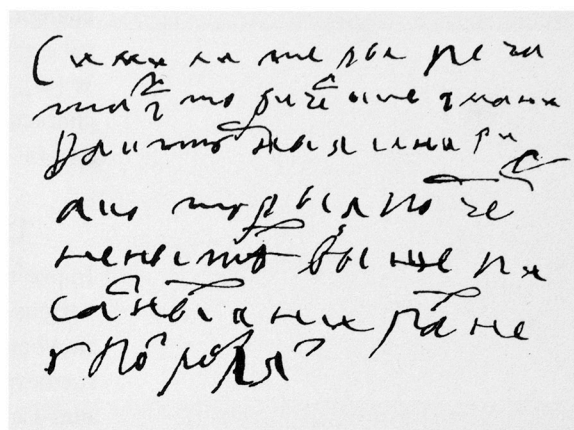
Figure 8. Czar Peter's handwritten note on the inside front cover of the 1710 type specimen (in figure 8): 'These letters are for printing of books on history and manufacturing, and those blackened are not to be used [in] the above-mentioned books.'
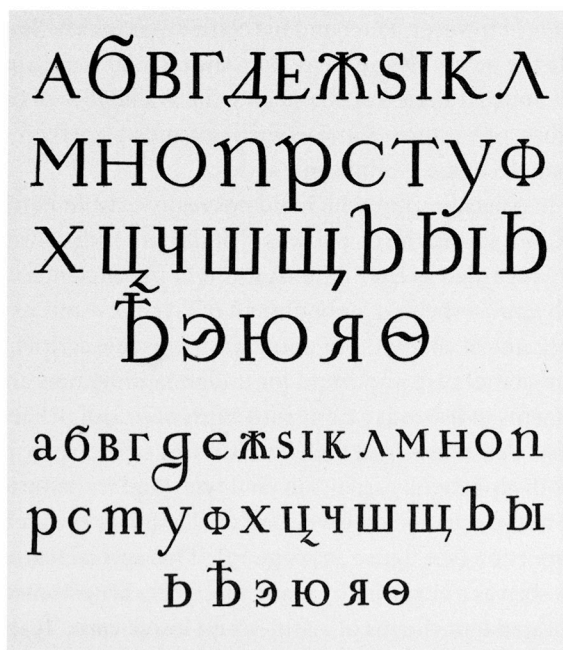
Figure 9. Civil type, first version, large size, upper and lower-case, *c.* 1708. [From: *Repertuar russkogo tipograf-skogo grazhdanskogo shrifta XVIII veka. Chast' I: Grazdanskiy shrift pervoy chetverti XVIII veka, 1708–1725. Katalog shriftov i ikh opisanie*. Moscow, 1981: 21]
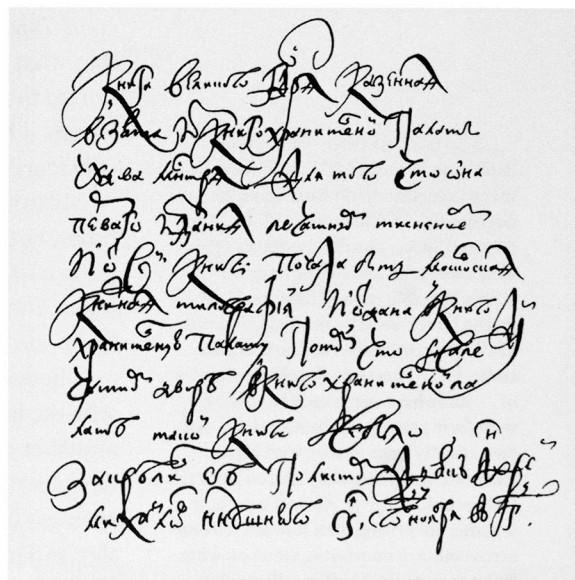
Figure 10. Russian *skoropis'* ['quick hand'], 1698. [From: Albert Schramm, Vom russischen Buch. *Zeitschrift für Buchkunde*. Leipzig, 1924.]

changing the composition of the Russian alphabet – through expurgating nine letters, including those inherited from Greek, like ꙍ (ꙍ̄), ѡ (ω), ѱ (ψ). I want to concentrate on those *structural* changes in characters which resulted from the introduction of a new set of letters – the minuscule, or lower-case – to Cyrillic script.

The case of 'case'

In pre-reform Cyrillic (*ustav, polu-ustav, vyaz', skoropis'* – all various styles of our script) there were no 'cases' – that is, no distinction between majuscule and minuscule letters. It was the same in all medieval scripts, Eastern and Western, uncial, semi-uncial. Many non-Latin writing systems remain 'single-case' (they have only one alphabet). Among these are Georgian, Hebrew, Amharic, Arabic, Indian scripts, South-East Asian scripts, and so on. The orthographic rules of languages using single-case scripts do not graphically emphasize (e.g. 'capitalize') proper nouns, titles and geographical names, nor do they provide for beginning new sentences with capitals.

However, the advent of lower-case in Cyrillic was historically inevitable and fully justified by its genetic links with the Greek and Latin alphabets. The minuscule letters, their relationship to the shapes of capitals, their origin and further development are certainly different in each of these three scripts. And still, the general evolution of their structures follows the same direction.

It is widely assumed that Peter the Great, just like Charlemagne centuries before him, provided Russian typography – and through it, Cyrillic – with a lower-case. In addition, Western punctuation signs, Arabic figures and Roman numerals became standard in Russian *Neue Typographie*. However, Peter and his contemporaries believed that what made the new style different from the old one was, in addition to the new unusual shapes of characters, the availability of capital letters. Therefore, pre-reform Russian writing hands were then considered as single-case all-minuscule styles.

Meanwhile in palaeography, which did not really exist in Petrine times, both *polu-ustav* and the civil *skoropis'* of the late 17th century (figure 10) were regarded as later modifications of the ancient *ustav* style. And both *ustav* – the first embodiment of Cyrillic – and its model and basis, Greek uncial, are without doubt all-majuscule scripts.[4]

These circumstances are important for understanding how and why the letterforms in use today came into existence. And, whatever alphabet or 'case' Peter the Great added to Russian typography, it is obvious that both alphabetic variants in civil type (and its historical offsprings) differ not so much in construction of characters as in relative size and in proportion (see figure 23, page 17). This special feature of Cyrillic type is seen as a curiosity by many foreigners accustomed to the more elaborated letterforms of Latin-script lower-case: 'It appears as if Russian text consists of capitals only', I hear often from foreign colleagues of mine.

Foreigners are not the only ones perplexed by Cyrillic letter construction sharing the same pattern in both capitals and lower-case. For many years, there was no consensus among Moscow designers, typographers, and publishers about what the *small capitals* should look like

4. The fact that Peter, whose 'uncivilized ways of civilizing' Russia are still much argued about in Russian society, did not care for the 'old fashioned' script contributed, quite naturally, to its nostalgic idealization. 'As to Cyrillic letterforms,' writes Yuri Gherchuk, 'they were based on the Greek uncial – the majestic script of the 9th century Byzantine liturgical codices.... Therefore the oldest samples of ... *ustav* have very much in common with their prototypes: beautiful and austere, usually large in size, with highly elaborate and generously spaced letters' (Gherchuk, 1983: 3). And, of course, it is rather surprising for a Russian to come across other, iconoclastic, views on what is the same to the Cyrillic calligraphic tradition as the lettering on the Trajan column is to the Latin one: 'the writing unhappily was modelled on Greek majuscule writing of the ninth century ... Greek majuscule writing was excellent on the whole, but letters maintaining the uncial tradition and developing into the majuscule, or capital, alphabet suffered a collapse in terms of legibility and aesthetic qualities' (Anderson, 1969: 293–4).

in Cyrillic typefaces, and even whether they were necessary. For a
Western type font it is customary to include three full alphabets –
upper-case, lower-case, and small capitals. Conversely, a few Cyrillic
fonts had only two, upper and lower-cases, plus seven alternates (А,
Б, Е, Р, С, У, Ф) custom-drawn to match the x-height, the weight, and
proportions of lower-case. Some thought that their substituting the
respective lower-case letters (а, б, е, р, с, у, ф) would make up for
the absence of the 'true' small capitals. Economical as it was, it seems
clear that small capitals in such an interpretation and treatment are
hardly necessary in Russian typography (or in any typography, for
that matter). Of course, the visual order of Cyrillic lower-case is quite
different from the one governing the forms of Latin-script minuscule.
It is more complex and, in a sense, more sophisticated. Nuances in
proportion and weight, and details of construction, play very
important roles in this visual order.

The Cyrillic letterforms in current use are an accomplished fact
and I strongly believe that they should be treated with respect. Russian
printing type came into being as the *tour de force* of a wilful innovator
czar; however, time has reconciled the reader's eye to its shapes and
imparted somewhat more logic and consistency to their construction.

Variation and correlation

The Latin-script typographic font, in its alphabetical part, took shape
between the 15th and 16th centuries and has changed very little since.
The stability of Latin-script typographic character construction is
what allows, after many centuries, the resuscitation and practical use of
typefaces modelled on those of the Renaissance, baroque, and classical
periods. Each revival presupposes certain design revisions, intentional
or unintentional, more or (often!) less faithful to the spirit of the origi-
nal. It is quite significant that the use of such 'revivals' in typography
does not necessarily impart a 'period look' to printed matter.

The standard forms of printed Cyrillic were resolved only in
the second part of the 19th century – four hundred years after Western
romans! Around the late 18th and early 19th centuries, when Latin-
script typefaces reached maturity and entered a new phase of stylistic
development (the 'moderns'), the new Cyrillic style's letterforms were
still unstable, under-developed. The pace of their design evolution was
measured not in centuries, but in decades, even years. A number of
letterforms of the early Cyrillic-based typefaces turned out to be
transient and did not survive.

The immaturity and instability of many character shapes of Russian
typefaces of that period preclude the use of unedited revivals in mod-
ern print: it inevitably makes the text look archaic and quaint, evoking
unnecessary historical connotations. However, this does not justify the
denial of high artistic qualities of old Russian types. The Cyrillic typo-
graphic heritage, both pre-reform and new style, is an inexhaustible
source of inspiration for many generations of type designers, present
and future. Still, with all respect to tradition, one must not follow it
slavishly. It follows from the argument above that this truism becomes
more meaningful when designing typefaces based on an historical
model, an old Cyrillic font. A sensible revision of certain letter shapes,

their modernization – in line with current criteria of 'normal' character construction – is often necessary. One most famous success story of applying this approach is the work of Galina Bannikova (1901–1972): her Bannikova Roman was based on studies of the original civil type of the 1700s (figures 13 and 14). The course of the design of that typeface shows the gradual fine-tuning of the original concept, the most strict, though careful, selection of visual devices in interpreting the forms of the first Russian roman, whose original shapes now look rather eccentric.

Five centuries of evolution of Western type design polished its letterforms to perfection. A stabilization of design features took place within certain style categories: 'venetians', 'old styles', 'transitionals', 'moderns', etc. Each of those categories is different not only in relative proportions of letters, serif shape, the slant of stress in round forms, and contrast in stroke weight, but also in details of construction of certain characters and figures. Other typeface categories – sanserifs, slab-serifs, *italiennes* or *anglaises* – have their own conventions and finer points in construction. For example, an A with a flat apex, a long J, an open-shaped P, are standard in old-style roman, while an M with vertical side stems, a Q with a short tail, and a crossed W, are more appropriate in modern roman; simplified shapes of a, g and t are typical of sanserif and slab-serif styles. Such instances illustrate the link between character construction and the stylistic category to which a typeface belongs. These conventions are also applicable to Cyrillic: at various stages in Cyrillic type design similarly distinctive features are evident – but they have still not been sufficiently surveyed and studied.

As I pointed out above, modern Cyrillic is certainly a younger 'typographic script'. And yet it provides opportunities for designing typefaces in categories which have no historical precedents in the Cyrillic typographic tradition. This makes feasible (and convincing!) such designs as Cyrillic versions of Roman *capitalis monumentalis*, of 'old-style' romans, of 18th-century Scotch-style 'transitional' romans, and even of broken scripts (figures 15 and 16).

At the same time, in Cyrillic types, just as in Latin-script types, there are variations in letter design which are not conditioned by period, or by creative concept. However, Cyrillic more often allows for alternate versions of character design within the same typeface. For example, in some typefaces Л may have a symmetrical, lambda-like (Λ) construction, with or without a bulbous terminal on the left-hand diagonal stroke; but more often it is drawn as an asymmetrical, trapezium-shaped or lateen-shaped structure, its left-hand diagonal stroke slightly curved, leaning against a pylon-like vertical stroke and almost always crowned with a bulbous terminal. Cyrillic K may be an exact copy of its Latin-script sister, or Greek kappa (κ), but in most cases it has its own special shape, with curved top and/or bottom branches, resembling Greek psi (Ψ) (figures 11 and 12).

However, the use of certain letter shapes requires the use of other characters, related to them in shape. For example, the triangular, gabled form of A sometimes leads to the lambda-like form of Л, the analogous, delta-like triangular Д, and sometimes to the twin-peaked M (figure 17). On the contrary, in Peter's civil type Д has a lateen-like asymmetrical shape, with the vertical stem topped with double-sided
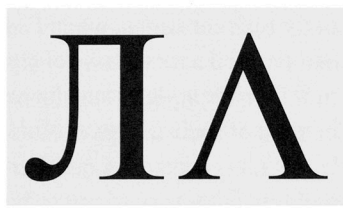
Figure 11. Alternative forms of the same letter. [Typeface: Newton]
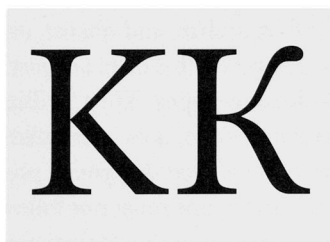
Figure 12. Alternative forms of the same letter. [Typeface: Adobe Minion]

АБВГДЕ
абвгде
ЖЗИЙКЛ
жзийклм
МНОПРС
нопрсту
ТУФХЦЧ
фхцчшщ
ШЩЪЫЬ
ъыьэюя
ЭЮЯ
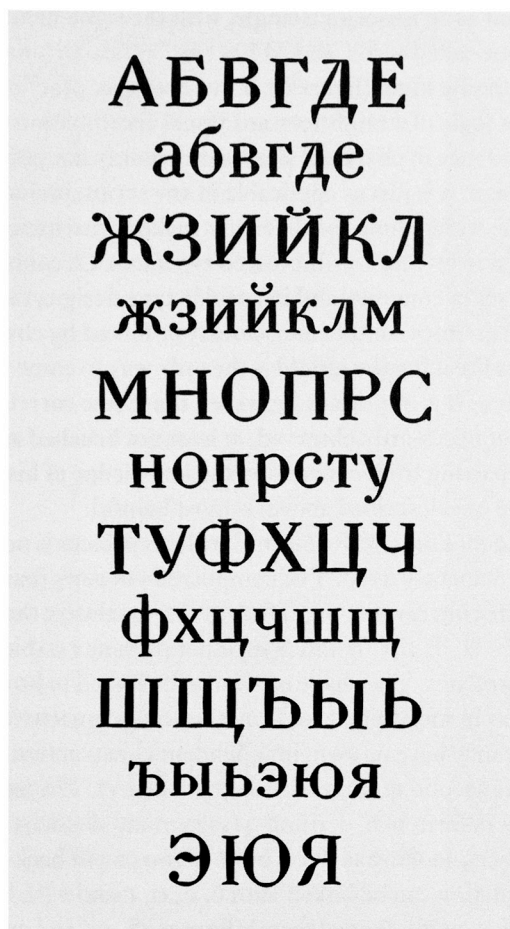
Figure 13. Typeface by Galina Bannikova based on Russian typefaces of the 1820s. [Baikonur Roman, 1961]

АБВГДЕЖЗ
абвгдежзийк
ИЙКЛМНОПР
лмнопрстуфх
СТУФХЦЧШЩ
цчшщъыьэюя
ЪЫЬЭЮЯ
1234567890
РУФ
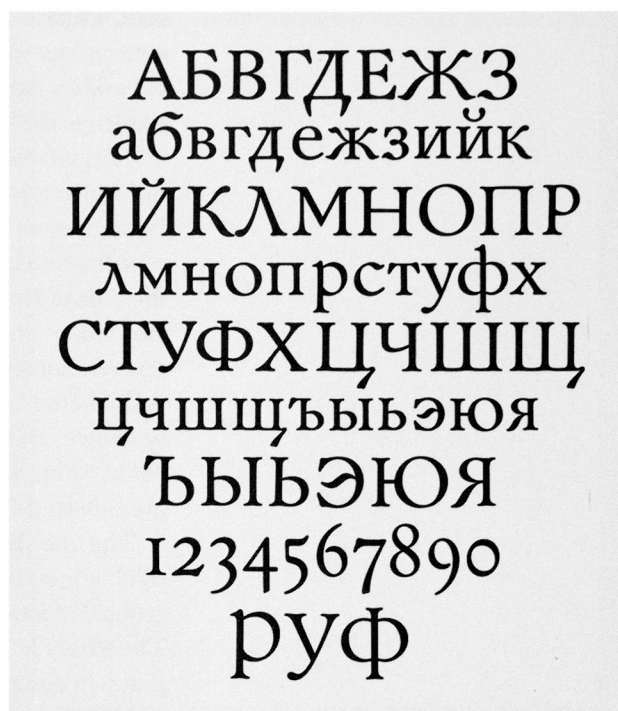
Figure 14. Typeface by Galina Bannikova based on the civil type of Peter the Great, here with old-style figures and alternate letters Р, У, Ф. [Bannikova Roman, 1950]

АБВГДЕ
ЖЗИЙКЛ
МНОПР
СТУФХЦЧ
ШЩЪЬЮ
Я

Figure 15. Cyrillic letters by Vasil Yonchev, styled after the Trajan inscription in Rome.
[From: Vasil Yonchev, *Shrift prez vekovete*. Sofia: B'lgarski Khudozhnik, 1964: 252.]

«Сказать по правде, в школьном табеле по чистопи санию у меня были четверки,… а открытка, напис анная во время летних каникул на Рейне в 1929 год у, не порадовала бы ни одного преподавателя письм а…» Так пишет Герман Цапф в своей автобиогра фии «Новые алфавиты»—в попытке оглянуться на зад, вернуться к началу своей карьеры каллиграфа и дизайнера шрифта. Цапф родился в 1918 году в Нюр нберге. Он вспоминает окрестные леса, где «гонялся за бабочками, ловил саламандр, собирал цветы и ка мни». Его первое знакомство с печатным делом сос тоялось, когда ему было шестнадцать, и он работал учеником ретушера. За четыре года работы ретуш ером он открыл для себя писания Рудольфа Коха и Эдварда Джонстона. Именно тогда он впервые ощ утил восхищение красотой письменного знака. До ма «с неутомимым усердием исписывал я буквами страницу за страницей, часто без всякого удовольс твия от того, что у меня выходило… По вечерам

Figure 16. Cyrillic version of Renaissance *cancellaresca corsiva*.
[Typeface: ITC Zapf Chancery]

serif, while Л is built as an isosceles triangle, with the right-hand diagonal ending with one-sided serifs, and M has two vertical pylons and the middle part 'hanging high' (figure 9). Thus everyday practice can challenge the linear logic of straightforward visual coordination.

This interdependence of character shapes is certainly not peculiar to Cyrillic type design: it is just as applicable to any script, including Latin. However, the wider choice of alternates makes consistency and coordination crucial in styling Cyrillic-based typefaces. Of course, those links are not set in concrete, and in specific type designs they are violated or ignored at times – either consciously or forced by circumstances. Sometimes breaking the mould is the only way to come up with a better solution. It is important, however, that these correlations be known, and if not necessarily observed, at least not brushed aside out of whim. In departing from convention the knowledge of historical precedents (like the one described above) is most helpful.

The interdependence of letterforms in Cyrillic typefaces is not rigid, nor even permanently fixed. The composition of rows (pairs and groups) of letters sharing certain visual features is not always the same. The letters Б, В, Р, Ч, Ъ, Ы, Ь and Я together present a stable group of design correlates. The shape of Ж may be linked to how К and Я are treated (as in most typefaces from the second quarter of the 19th century), or it may have its own, independent construction (as in typefaces before the second quarter of the 19th century). The letter ф can be analogous in form to b, d, p and q (as in many classicist and Biedermeier typefaces, looking as if it is built of two ps put back-to-back), or its construction can be linked with б, e, o, c and э (if, like Greek phi (φ), it has a single-looped form) (figures 18, 19, and 20).

The complexity of links in letterform construction has to do not only with their facultative, or optional, nature, but also with their multilateral character. They are not always direct and/or linear. The same letter may be related to different rows of correlates. For example, the top of Д can be treated similarly to A, Л and M, and its bottom treated as in Ц and Щ (Г, Т, Е and Ъ may or may not be referred to the same group of correlates) (figure 21).

Of course, the analogies in Cyrillic letter construction extend far beyond the Cyrillic alphabet itself. Shapes related to certain letters may be found among numerals (cf. 3 and 3), or in Greek (Д and Δ), and in Latin script (ф and q) (figures 17, 20, and 22).

The taximetrics of Russian type

The peculiarities of structure of Cyrillic letterforms are surprisingly little studied, despite the fact that hand lettering was so widely used in the USSR for decades to compensate for the backwardness of typography and lack of good typefaces. Hand lettering necessarily requires an intimate involvement with the letterform, and Soviet designers' experience in layout, arrangement, and harmonization of Cyrillic letterforms, exploring and exploiting their visual features, was quite extensive. However, that experience was hardly applied to the typographic script *per se*, which turned towards the most fundamental, generic characteristics of Cyrillic letter construction.
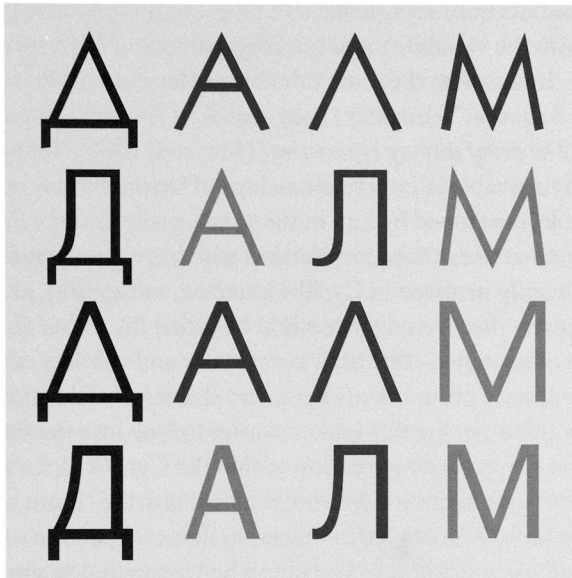
Figure 17. Changing correlations of the same letter, depending on its construction pattern. [Typefaces: ITC Kabel, Futura, ITC Avant Garde Gothic, ITC Franklin Gothic]

Figure 18. Imperative correlation in letter construction. [Typeface: ITC Fat Face]
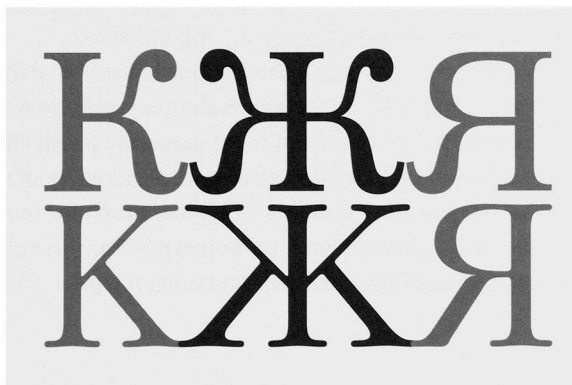
Figure 19. Alternative forms of the same letter and its imperative correlates. [Typefaces: ITC Bookman, ITC Garamond]

Figure 20. Alternative correlation in letter construction. [Typefaces: ITC Avant Garde Gothic, Standard Poster]
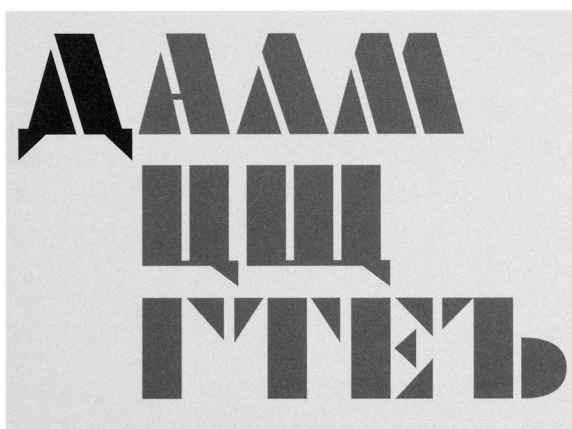
Figure 21. Imperative, optional, and alternative correlation in letter construction. [Typeface: Futura Eugenia]

Figure 22. Cyrillic 'zeh' and numeral 'three'. [Typefaces: Adobe Minion, ITC Fat Face, ITC Bauhaus, ITC Garamond]

Very few publications on Cyrillic lettering, typography, and type design look into the variability and interdependence of letterform construction. In my view, the most valuable exploration of this issue was made by Solomon Telingater (1904–1968) in *Iskusstvo aktsident-nogo nabora* [*The art of display typesetting*] (Moscow, 1966). Telingater offered an original table of interrelationships of letterform construction. That table, developed by him in the 1950s, presented the first attempt at summarizing those correlations which are quite apparent to all professionally involved in Cyrillic lettering, calligraphy, or type design. Telingater discovered what might be called the *second dimension* in those connections – that their complexity and subtlety cannot be reduced to simple grouping of characters sharing visual features.[5]

I find it useful to pursue this issue, in order to look into the finer connections in character construction within the Cyrillic alphabet, as well as those reaching beyond its boundaries: into the 'Latin connection', to links with Greek letter shapes, to numerals, and so on.

Statistics of visual features of Cyrillic, when compared to similar data for Latin script, provide valuable information on many peculiarities of Cyrillic letterforms, e.g. the number of extenders and verticals in lower-case (figures 24, 25), the angle of stroke connection (figure 26), the role of straight lines in letter construction (figure 27), the ratio of 'single-width' and 'double-width' letters (figure 28), the overall dynamics of letter shapes (figures 29, 30), and so on.

In an age of globalization, such analytical efforts may prove to be of much practical value. The on-going production of fonts with extended character sets for multilingual word processing, and the historical endeavour of classifying, describing, and encoding all the characters of all existing writing systems – this work calls for more information on the intricacies of character construction, and rules and conventions governing letter design, in various scripts.

5. More recently those studies were further advanced by Zhivko Stankulov (1977) and Andrey Andreyev (1985) of the Moscow Printing Institute.

Figure 23. Capitals and lower-case: identical letter shapes.
[Typeface: ITC Bookman]

Figure 24. Letters with ascenders and/or descenders.
[Typefaces: Petersburg, ITC Officina Sans]

Figure 25. Vertical strokes with two-sided serifs.
[Typeface: ITC Garamond Narrow]

Figure 26. Strokes connecting at 90°.
[Typefaces: ITC Garamond Narrow, ITC Officina Serif]
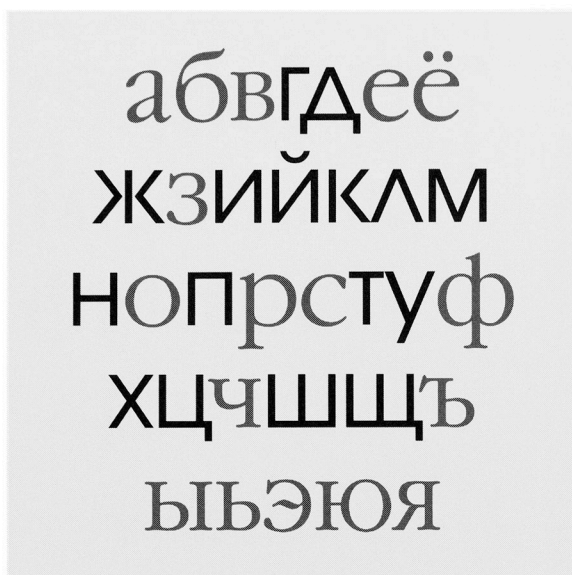
Figure 27. Straight lines in letter construction.
[Typefaces: ITC Garamond, ITC Avant Garde Gothic]
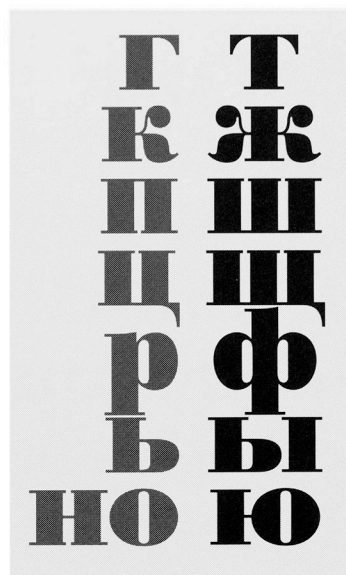
Figure 28. 'Double-width' letter-
forms. [Typeface: Standard Poster]

Figure 29. Letter shapes turned to the right.
[Typefaces: ITC Tiepolo, FreeSet]

Figure 30. Letter shapes turned to the left.
[Typefaces: ITC Tiepolo, FreeSet]

The comparative tables (pages 20–25)

Comparative study of the visual features of Cyrillic presented in these notes has been conducted on the basis of the Russian character set. Just like Serbian, Bulgarian, Ukrainian, Byelorussian, and other Slavic and non-Slavic character sets, the Russian set presents a special case, a subset of the Greater Cyrillic compound super-alphabet, numbering more than 80 characters.

These alphabetical subsets differ in numbers of letters: Russian has 33; Ukrainian, 32; Byelorussian, 32; Serbian, 30; Macedonian, 31; and Bulgarian, 30. They also vary in composition: Russian letters и, Ы, Э are missing in Serbian, Bulgarian, Macedonian, and Ukrainian character sets, while Ukrainian Є and Ї are not present in Russian, Serbian, Bulgarian, Macedonian, and Byelorussian alphabets. Byelorussian Ў is not part of Russian, Serbian, Bulgarian, Macedonian, and Ukrainian sets; Serbian Ђ, Ј, Љ, Њ, Ћ and Џ are never used in Russian, Bulgarian, Ukrainian, and Byelorussian; while Ѓ, Ќ and Ѕ are peculiar to Macedonian only.

Similarly, conventions of Latin-script type design are traced by analysing the visual features of letters contained in English alphabet, which in its turn presents one of many variants of the compound greater Latin super-alphabet.

Of course, many letters which are endemic to various language subsets of both Cyrillic and Latin scripts possess some features which are sometimes responsible for the unique look and 'feel' of text in a certain language. It may be true for both characters with some special diacritics, like Ø, as well as for those having a peculiar construction, like Љ. However, many, if not most, distinctive features of both Latin and Cyrillic scripts, those revealing their dissimilarities (or similarities), can be pinpointed by comparative analysis of their working models, for which I have chosen Russian and English character sets.

The conclusions which I have drawn in the course of assembling the tables and writing these notes are rather tentative and most general in character. By no means do they exhaust the issue of visual identity of various Cyrillic-based scripts, even of Russian. That was not my intention at all, and such a task may hardly be feasible. My aim was to reveal those fundamental correlations in character construction which are crucial in Cyrillic type design.

The pattern proposed in the tables is open-ended: it can be expanded, or reduced, or restructured. One can, for example, incorporate in it letters of the Greek alphabet, or substitute the Russian character set with, say, the Macedonian. It is certainly possible to apply it to the italic letters, which in Cyrillic differ from their roman counterparts much more than in Latin script. Or one can try to explore those very differences in construction between roman and italic.

I think that prioritizing the structural connections is also useful. In the cross-reference chart (table 20) I have used a simple triplicate classification, to distinguish between imperative (!), optional (/), and alternative (≈) links existing in Cyrillic letter construction.

Comparative tables

Table 1   Identical construction pattern: capitals and lower-case

Cyrillic	25 / 33	75%	в г д ж з и й к л м н о п т х ц ч ш щ ъ ы ь э ю я
roman	6 / 26	23%	o s v w x z

Table 2   Lower-case: letters with ascenders and/or descenders

Cyrillic	7 / 33	21%	б д р у ф ц щ
roman	12 / 26	46%	b d f g h j k l p q t y

Table 3   Vertical strokes with two-sided serifs: capitals and lower-case

Cyrillic	20 / 33	61%	Г Ж И Й К Л М Н П Р Т Ф Ц Ч Ш Щ Ы Ь Ю Я
	20 / 33	61%	г ж и й к л м н п р т ф ц ч ш щ ь ы ю я
roman	13 / 26	50%	F H I J K L M N P R T U Y
	10 / 26	38%	f h i k l m n p q r

Table 4   Letters with strokes connecting at 90 degrees: capitals and lower-case

Cyrillic	17 (21) / 33	52 (64)%	Б В Г Д (Ж К Л)* Н П Р Т Ф Ц Ч Ш Щ Ъ Ы Ь Ю (Я)
	14 (18) / 33	42 (54)%	в г д (ж к л) н п т ц ч ш щ ъ ы ь ю (я)
roman	8 (9) / 26	31 (35)%	B D E F H L P (R) T
	2 / 26	8%	f t

Table 5   Letters having round shapes: capitals and lower-case

Cyrillic	5 / 33	15%	З О С Э Ю
	8 / 33	24%	б ё з о с э ю
roman	5 / 26	19%	C G O Q S
	5 / 26	19%	c e g o s

---

* Letters in parentheses may, or may not, be part of this group,
depending on the specific design style.

Table 6　Letters with round elements: capitals and lower-case

Cyrillic	9 (13)/33	27 (39)%	Б В (Д Ж К Л)* Ғ Ф Ч Ъ Ы Ь Я
	9 (14)/33	27 (42)%	а в (д ж к л) р (у) ф ч ъ ы ь я
roman	6/26	23%	B D J P R U
	13 (14)/26	50 (54)%	a b d f h j m n p q r t u (y)

Table 7　Letters having oblique strokes: capitals and lower-case

Cyrillic	2 (5)/33	6 (15)%	А (Л М У) Х
	1 (4)/33	3 (12)%	(л м у) х
roman	4 (5)/26	15 (19)%	A (M) V W X
	3 (4)/26	12 (15)%	v w x (y)

Table 8　Letters with oblique elements: capitals and lower-case

Cyrillic	2(8)/33	6 (24)%	(Д Ж)* И Й (К Л М Я)
	2(8)/33	6 (24)%	(д ж) и й (к л м я)
roman	4 (6)/26	15 (23)%	K M N (Q R) Z
	2/26	8%	k z

Table 9　Letters having 'double width': capitals and lower-case

Cyrillic	7/33	21%	Г/Т К/Ж П/Ш Щ Р/Ф Ь/Ы Н О/Ю
	7/33	21%	г/т к/ж п/ш щ р/ф ь/ы н о/ю
roman	2/26	8%	L/T V/W
	2/26	8%	n/m v/w

* Letters in parentheses may, or may not, be part of this group,
depending on the specific design style.

Table 10	Symmetrical letter shapes: capitals and lower-case		
Cyrillic	10 (12)/33	30 (36)%	А (Д) Ж (Л) М Н О П Т Ф Х Ш
	9 (11)/33	27 (33)%	(д) ж (л) м н о п т ф х ш
roman	11/26	42%	A H I M O T U V W X Y
	6/26	23%	i l o v w x

Table 11	Letter shapes turned to the right: capitals and lower-case		
Cyrillic	11/33	33%	Б В Г Е Ё К Р С Ъ Ы Ь
	11/33	33%	б в г е ё к р с ъ ы ь
roman	13/26	50%	B C D E F G K L N P Q R S
	13/26	50%	b c e f g h k m n p r s t

Table 12	Letter shapes turned to the left: capitals and lower-case		
Cyrillic	7 (9)/33	21 (27)%	(Д)* З И Й (Л) У Ч Э Я
	8 (10)/33	24 (30)%	а (д) з и й (л) у ч э я
roman	2/26	8%	J Z
	5/26	19%	a d j q y z

Table 13	Letters of direct Greek origin: Latin and Cyrillic alphabets		
Cyrillic	19/33	58%	А В Г Д Е З И К Л М Н О П Р С Т У Ф Х
roman	20/26	77%	A B C D E F G H I K L M N O P S T V X Z

Table 14	Original non-Greek letters: Latin and Cyrillic alphabets		
Cyrillic	14/33	42%	Б Ё Ж Й Ц Ч Ш Щ Ъ Ы Ь Э Ю Я
roman	6/26	23%	J Q R U W Y

* Letters in parentheses may, or may not, be part of this group, depending on the specific design style.

Table 15 Identical letterforms: Latin and Cyrillic alphabets

11 (13)/26 48(50)% А В Е Ё (К)* М Н О Р С Т Х (Я)

8 / 33 24% а е ё о р с у х

10/33 30% *а е ё и п р с т у х*

Table 16 Cyrillic letterforms similar, but not identical, in construction to the Latin ones

3 (6)/33 9(18)% Г/L (Ж К)/К И Й/N (Я)/R

Table 17 Latin and Cyrillic letters identical in shape, but designating different sounds

5 /26 19% В Н Р С Х

4 /33 12% р с у х

7/33 21% *и п р с т у х*

Table 18 Identical letterforms: Greek and Cyrillic alphabets

11 (14)/33 33(42)% А В Г Е (К Л) М Н О П Р Т (Ф) Х

Table 19 Original Cyrillic letterforms, different from both Latin and Greek ones

16 (20)/33 48 (60)% Б Д Ж З И Й (К Л) У (Ф) Ц Ч Ш Щ Ъ Ы Ь Э Ю (Я)

21 (25)/33 76% б в г д ж з и й (к)* л м н (п т ф) ц ч ш щ ъ ы ь э ю я

21 (22)/33 21% *б в г (д) ж з й к л м н ф ц ч ш щ ъ ы ь э ю я*

* Letters in parentheses may, or may not, be part of this group,
depending on the specific design style.

Table 20   Correlation in construction of Cyrillic letters with characters
of Latin alphabet and Arabic figures

	Б	Г	Д	Ж	З	Й	К	Л	П	У	Ф	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я	б	ф	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Б	!	≠					!				!	≠	≠	!	!	!					!			!		!	!							!						!	!
Г		≠							!			≠		≠	!										!	!		!			!										
Д			/	!	!	!	!	!			!										/			/				≠	≠					/	/		/	/			/
Ж			/		!	!			!	/			/	!										/										/	!		/	/			!
З						/		/	/			≠	/			!						/			!	!			!	!	!			/							
Й			/		!			/	!	!	!		/									≠												!		≠	/		!	!	/
К						!		!	!				/	!		/								/										!	!		/	/			!
Л						!	!		!							/																		!	/		/	/			/
П												!	!	!	!																			!			!	!			
У													/	/										!										!	!		!	!			!
Ф													!		!	!	!	!		!	!	!		!	!	!			!		!								!	!	!
Ц						≠	!	!	≠						≠							≠				≠	≠			!				!	!		≠				
Ч							!	!	!		!	!				!								!																!	!
Ш						!																																			
Щ								≠					≠									≠				≠	≠			!				!	!		≠				
Ъ										!	!				!									!			!	!						!				!			!
Ы											!				!									!															!		!
Ь															!									!															!		!
Э																!							/		!	!	/	/	!	/				≠					!		/
Ю																														!						!					
Я																							/		!									!		/	/				!
б																																					/		!	≠	/
ф																																									

The most obvious analogies were elided in the above table, to avoid clutter. These include the similarities in construction of the vertical and curved strokes; the positioning of the 'waistline' in two-story structures, like the Б, Ж, Ч, etc.; the relationship of the 'double-width' and 'single-width' letters, e.g. the П and Ш, and so on.

S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	p	q	r	t	u	y	ß	1	2	3	4	5	6	7	8	9	0	&
!						!																					≠	≠		≠				≠					≠
!						!										!		≠	≠									≠		≠									
≠	/	/	/	/	/	≠					/		!	/		!				!				/	/		/												
	/	/	/	/							/	/		/	!	!				!	/			/	/		/												!
!								!	!																														
	!							≠	≠		≠	≠	!	≠	/	!	!		≠	!	/	≠			≠	≠	≠	≠	≠	≠		≠							≠
	/	/	/	/							/	/		/	!				/	!	/			/	/		/												!
	/	/	/	/							/	/		/	/				!	!	/			/	/	/	/	/	/		/								≠
!	!										!				!	!		!																					
	!	!	!	!	!						!			!				!			≠	≠		≠		≠													
!																			≠																				
≠	!					≠		!					≠	!		!				≠		≠																	
	!			≠								≠		≠	!					!									!										
!		≠									!		!	!	!																								
≠		≠									!		!	!	!	≠		≠		≠		≠																	
!						!		!	!	!				≠	≠	≠																							
								!	!					!	≠																							
								!	!					≠																								
!								≠	!	!	≠	≠																!	≠	≠			≠	≠				≠
								!				≠																							!			
	/	/	/	/	/			!				!							/	≠				/		/											≠
								!	!	!	!	≠	≠	≠				!	!	!		≠	!		!				≠								≠
								!	!	!	!				!	!				!																		

References

Anderson, Donald M. 1969. *The art of written forms: The theory and practice of calligraphy*. New York: Holt, Rinehart and Winston

Andreyev, Andrey. 1985. Sovmestnaya razrabotka shrifta v russkoy i latinskoy grafike [Coordinated typeface design: Russian and Latin scripts]. Unpublished research paper, Moscow Printing Institute

Gherchuk, Yuri. 1983. *The art of lettering in the Soviet Union*. Moscow: Sovietsky Khudozhnik Publishers

Reed, Talbot Baines. 1952. *A history of the old English letter foundries*. Edited by A. F. Johnston. London: Faber and Faber

Shitzgal, Abram. 1959. *Russkiy grazhdanskiy shrift, 1708–1958* [*Russian civil type, 1708–1958*]. Moscow: Iskusstvo Art Publishers

Shitzgal, Abram. 1985. *Russkiy tipografskiy shrift: Voprosy istorii i praktika primeneniya* [*Russian printing type: History and practice*]. Moscow: Kniga Publishers

Stankulov, Zhivko. 1977. Sovremennye problemy formoöbrazovaniya bukvennykh znakov pechatnych shriftov kirillovskoy sistemy pismennosti [Current problems of letterform design in Cyrillic-based printing types]. PhD thesis, Moscow Printing Institute

Telingater, Solomon and Kaplan, Lev. 1966. *Iskusstvo aktsidentnogo nabora* [*The art of display typesetting*]. Moscow: Kniga Publishers

Vox, Maximilien. 1983. *Faisons le point*. Paris: Union Bibliophile de France