# ‘RomanCyrillic Std’ – a Free Font for Slavists (and other Philologists)

Sebastian Kempgen, University of Bamberg
sebastian.kempgen@split.uni-bamberg.de

The author has developed and released two high-quality free fonts for the scientific community, *RomanCyrillic Std* and *Kliment Std*. The latter font has already been introduced in a separate paper (see Kempgen 2006c); the purpose of this paper is to introduce the *RomanCyrillic Std* font which has originally been released at the same time as *Kliment Std* but has been considerably updated and expanded this year. Much of what has been said regarding the *Kliment Std* font is also true for *RomanCyrillic Std* and needs not be repeated here again.

## 1. Download URL, license

The official web page for the *RomanCyrillic Std* font is

**`http://kodeks.uni-bamberg.de/AKSL/Schrift/RomanCyrillicStd.htm`**

As can be seen from the address, it is part of the material offered on the ‘Kodeks’ server run by the author, online since 1996. The Kodeks server is a server dedicated to help with teaching and studying Slavic medieval languages, and the cultural history of the Slavic peoples and countries, and it contains a section on the Slavic scripts, too. The font page is part of this sub-section of the server. At the same time, the font is being mirrored on the ‘Repertorium’ web-site maintained by David Birnbaum at

**`http://clover.slavic.pitt.edu/~repertorium/resources/fonts/fonts.html`**

The licensing conditions of the font allow it to be freely used for any scholarly research and publication; however, commercial use is not covered by the license (a similar commercial font exists). That the font is free for use does not mean that is in the public domain; rather, the author retains all copyright to the outlines used for the characters and to the final product. The main reason for this is that the author has licensed the basic outlines himself from another, commercial font vendor. For any user of the font this has two important consequences: 1) The font is fully licensed and legal to use which means it does not violate anyone else’s copyrights – in contrast to many other free fonts available on the internet! This is the most important consequence. 2) This also means that the font may not be altered, modified, changed, renamed etc. by the end-user. For most users this is completely without importance and practical relevance. If you would like to see additions, or if you have suggestions regarding the font and its character set, the advice is really simple: contact me and I will add new characters, signs etc.

Also downloadable from the Kodeks server is a 21-page pdf file containing tables for all Unicode blocks supported by the font. The same figures contained in this pdf file are also available online along with the font itself which is why we limit ourselves to use just some of them in this article.

 orig. publ. in: *Script & e-Scripta* vol. 5, Sofia 2007, 27–42

## 2. Font format, platforms, encoding, compatibility

The font is made available as a Unicode 5.0 OpenType font in TrueType format (i.e. as a file with name ending with the suffix .tff).[1] Because computers running Mac OS X as well as those running Windows support such .tff files, this font can be used on Windows PCs as well as Macintoshes – there is only one font file for use on both platforms. This means that there is complete compatibility and interoperability between these two platforms for any documents that use this font. The same is true for web-sites that assume the presence of a specific font in their html code.

The encoding of the current release of the font (v. 2.2) is based on version 5.0 of the Unicode standard; the first releases were based on version 4.1 of Unicode. Being a strict Unicode font means that the correct Unicode number and slot are being used for any given character.[2] However, the Unicode standard itself is evolving, with more characters being added and introduced from time to time, especially in areas of relevance to Slavic philology. Consequently, the font itself will evolve over time to incorporate new characters, accents etc. Therefore, it is a good idea to check the website given above from time to time to see if a newer version might be available. The font does not make use of the so-called 'private area' to incorporate characters which are not yet a part of the Unicode standard so as to guarantee maximum compatibility.

## 3. Design

*RomanCyrillic Std* is a serifed font that most closely matches the ubiquituous *Times* font, a standard in desktop publishing and a basic font whose presence is presupposed by any PostScript-compliant printer. Below is a sample using the usual nonsensical sentences used to display a distinctive selection of the characters and their shapes.

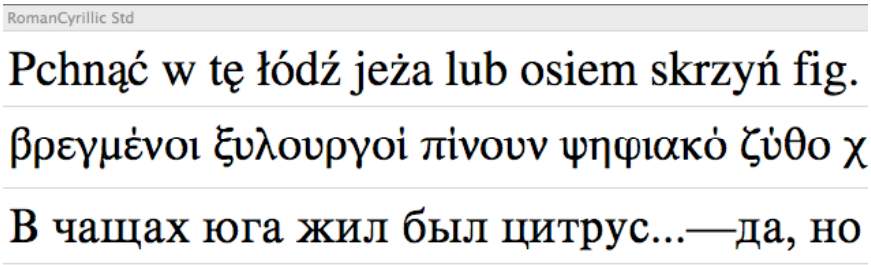


*Fig. 1: Sample scripts supported by* RomanCyrillic Std

Because *Times* is itself very similar to *Times New Roman*, *RomanCyrillic Std* can be and should be used along with both these fonts, just as *Kliment Std*. The font uses the same outlines as his commercial counterpart (named *RomanCyrillic Three*) and as his

[1] Terminologically, fonts are now referred to as being either 'OpenType – TrueType flavored' or 'OpenType – PostScript flavored', with suffixes being .ttf or .otf . Until now, these fonts were instead referred to as being 'TrueType' (.ttf) or 'OpenType' (.otf) which implied that only PostScript fonts were or could be OpenType fonts, while .ttf fonts were platform-specific and Windows-TrueType fonts by origin. The TrueType font format itself, however, has been developed by Apple.

[2] Interestingly, Unicode defines only character numbers, not their names, although all Unicode docs use names to describe each character. However, the font uses established character names though technically this is not a requirement.

non-Unicode predecessor (named simply *RomanCyrillic*), so there is no difference or restriction in print quality. Also, one could even mix the non-Unicode predecessors with this Unicode version of the font without disrupting the visual appearance of the text. The only restriction that one should be aware of is that this free version of the font currently comes in one weight only, i.e. as a regular or upright typeface. At present, there is no free bold or italic version. An italic version may be mimicked by slanting the font – selecting 'italic' as the style in a word processor will result in a pseudo-italic oblique font. Similarly, selecting 'bold' may somewhat fatten the typeface but again this will not be a real bold font. Of course, *RomanCyrillic Std* also shares many of its characters – and characteristics – with *Kliment Std* which means these two fonts also match in all aspects relevant for typesetting. In fact, whenever both fonts have the same character shape (or glyph), the characters are simply identical. The main differences between the fonts are that a) *RomanCyrillic Std* has much more characters in it (more Cyrillic, more Latin, plus Classical Greek, and IPA), and that b) *Kliment Std* uses older shapes for certain characters (like Ꙉ) which is why this font aims at medievalists while *RomanCyrillic Std* implements current character shapes and designs (i.e. in this case Я).

In the following sections, we will outline some of the main features of the *RomanCyrillic Std* font. Some of them may be obvious and trivial, others may be more or less hidden and may merit special attention. The table in the Appendix presents a structured overview of what is available in *RomanCyrillic Std* in comparison to fonts like *Times* or *Times New Roman.* All in all, the font contains now more than 2.200 characters.

## 4. Latin and Numbers

The font may be named *RomanCyrillic Std* but it nevertheless also contains a large set of Latin characters – in fact, more than one thousand of them, many more than for any other script. The following Latin Unicode tables are fully implemented: *Basic Latin*, *Latin-1 Supplement*, *Latin-Extended A*, and *Latin Extended B*. *Latin-Extended Additional* is supported in all of its relevant parts (about two thirds). Many characters in the *Latin-Extended B* section are not available in any other font from the author, i.e. they are exclusively available here and have been designed for this font first. The presence of these characters should make the font attractive to users from other philological disciplines, too.[3]

In the *Latin-Extended B* table (see Fig. 2), characters such as the *Serbocroatian digraphs* ( DZ Dz dz – DŽ Dž dž – LJ Lj lj – NJ Nj nj ) are present, as well as *Macedonian transliteration* ( Ǵ ǵ ), *nasal o* ( Ǫ ǫ ), uppercase and lowercase *Štokavian accents* ( ȁ â ȅ ê ȉ î ȍ ȓ ȗ û ). Support for even more Latin letters is in the *Latin-Extended Additional* block, where characters for the transliteration of *historical*

[3] From a font designer's view, it is very interesting to see how different designers implement certain rare characters differently, for example the uppercase Schwa: Ə ə (phonetics) or Ә ә (Cyrillic). The *Times* font has essentially the same lowercase schwa as *RomanCyrillic Std*, but has another design for the uppercase schwa: Ə ə. In the *Times* font, the uppercase schwa is simply a 'blown up' (enlarged) lowercase character. This, we think, is a mistake. Uppercase characters should have a true uppercase design, in this case using a design similar to the character pair C c. This last remark concerning the design of uppercase characters is also valid for quite a few other characters in Unicode. For a font designer, it is obvious that many new Latin uppercase characters that have been invented by missionars or others often simply are 'blown up' lowercase characters instead of being true uppercase designs.

*Russian*, and *Macedonian* ( Ќ ќ Ѓ ѓ Ѝ ѝ ) are available along with character used for the transliteration of Near East languages (Arabic etc.). For typographical perfection, the font also features the 'presentation forms' defined in Unicode for the Latin script, i.e. a basic set of ligatures (ﬅ ﬆ ﬄ ﬃ ﬀ).

In other words: *RomanCyrillic Std* implements not only the contemporary orthography of all Slavic languages but also the (Latin) transliteration of all Slavic languages using the Cyrillic alphabet. It also supports other 'Western' and Near East philologies; however, at this time it does not try to implement all characters for Asian languages like Vietnamese. – The font also has a full set of Roman numerals, fractions, and superscript and subscript numbers.


*Fig. 2: Latin-Extended B*

## 5. Cyrillic

Let us now turn our attention to Cyrillic. The font features a full Cyrillic character set (see Figs. 3 and 4) which includes the contemporary orthography of all Slavic languages using this script as well as all current additions of historical characters and also all the extensions that the Cyrillic script received in Soviet times for the many languages of Siberia. The font also contains all characters which make up the 'Cyrillic

supplement' block; they have recently been added to Unicode to fully support languages like Komi. Grey cells in Fig. 4 are slots not yet defined in Unicode, i.e. they designate slots which could contain additional characters in the future. Again, all characters in the Cyrillic Supplement block have been designed exclusively for this font; they are not yet available in any other font by the author.

Here again, each character pair has its own carefully designed uppercase and lowercase variant. Several of the characters of Greek origin developed their own shapes in the context of the Cyrillic script, especially *ksi* and *psi*, and the uppercase *ksi* and the lowercase *psi* were given new, specially developed shapes that fit into a serifed Cyrillic font. These are some samples:

Ѣ ѵ ѳ ѡ ѻ ѽ ѿ ѥ ѧ ꙗ ѫ ꙗ ѯ ѱ ҁ

It should be noted that currently a submission to Unicode to include more historic Cyrillic characters into the next revision of the standard is under review by the relevant bodies. It is expected that these characters will be added to Unicode v. 5.1. As soon as this version is made public, the font will be updated accordingly.

*Fig. 3: Cyrillic (incl. historical and non-Slavic characters)*

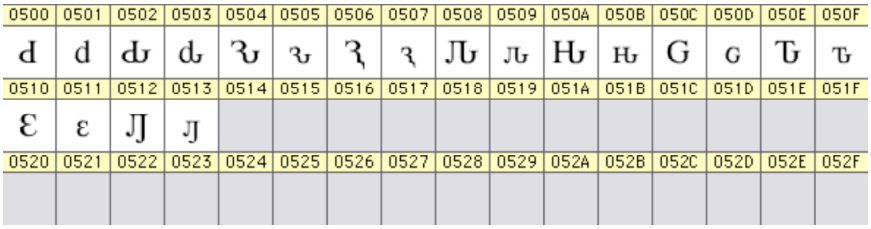


*Fig. 4: Cyrillic Supplement*

The font also has the 'thousand' number sign ( ҂ ), the non-spacing, i.e. combining titlo ( ◌҃ ), the palatalization hook ( ◌҆ ) which is also a combining symbol, and the two breathing marks *dasi pneumata* and *psili pneumata* ( ◌҇ ◌҈ ) in their corrected Cyrillic forms (not in the Glagolitic forms attested in the Kiev folia which were used for the official Unicode documents up until version 4.1). Of course, all combining accents from the IPA-section can also be used in conjunction with the Cyrillic characters which means that one can write accented Cyrillic with this font, too. This is a sample:

á é и́ ó ý ы́ ъ́ à è ѝ ò ỳ ы̀ ъ̀

From their appearance, many characters in the lower half of the table in Fig. 3 are identical to corresponding Latin characters (like ÄÖ etc.). However, because these characters are part of Cyrillic alphabets, it is essential to have them in Unicode defined as such, i.e. as Cyrillic characters.[4] If we were concerned only with the 'presentation side' of a text, i.e. with its on-screen or printed appearance, one could mix Latin and Cyrillic characters at will to achieve the desired result; however, the underlying encoding of characters is of equal importance. That is, for a string of characters that are meant to be Cyrillic characters, Cyrillic characters should be used, for text in the Latin script only Latin Unicode characters etc. And, of course, to make this possible, there should be all necessary Cyrillic characters defined in Unicode, regardless whether 'the same character' also exists in the Latin portion of Unicode or not.[5]

## 6. Glagolitic

Another unique feature of the *RomanCyrillic Std* font is its implementation of the support for Glagolitic. The Glagolitic script had been adopted for version 4.1 of the Unicode standard, i.e. each character had been given its official 'slot' and unique number. *RomanCyrillic Std* does not include Glagolitic characters as such; instead, the author chose to implement automatic transliteration of Glagolitic into Cyrillic in this

[4] Of special importance to Slavists is the presence of character 04D0 and 04D1, i.e. Ăă, among the 'Soviet' extensions to the Russian alphabet, because this same character has been used by Petăr Beron in his famous 'Riben Bukvar' for the 'schwa' character, i.e. where contemporary orthography uses Ъъ. The Bulgarian Slavic-Cyrillic importance of Ăă has not been noted before, it seems.

[5] The same argument is, of course, also true for the relation of the Glagolitic script to Cyrillic. Because the flying accents in the Cyrillic block were changed by the Unicode organization from their 'Glagolitic' shapes to reflect their true Cyrillic shapes, it is only logical that the removed 'Glagolitic' diacritics should now be added to the Glagolitic portion of Unicode because one font can have them in one shape only, but one font should be capable of serving all of its supported scripts at the same time with all necessary characters.

font. This means that instead of Glagolitic letters, *RomanCyrillic Std* has the matching Cyrillic letters in the appropriate slot. Thus, Cyrillic letters are present twice in the font: once as Cyrillic letters and once as automatic transliteration characters for Glagolitic. The Cyrillic transliteration of Glagolitic letters used in this font is the standard transliteration used in well-known text editions by Jagić and others. In contrast to the *Kliment Std* font, *RomanCyrillic Std* does not use older character forms but standard forms instead. For example, it uses Ч and not Ҷ. A feature common to both fonts is the use of a true Cyrillic Iota (uppercase and lowercase), a specially designed character shape for the 'second' or 'spidery x' (Ҳ) and the vertical OY ligature (ȣ). A non-smiling 'smiley' appears in the slot for the 'Glagolitic Pe' character for reasons that will be explained in Kempgen (2008; forthcoming): there is no transliteration for this character. Because of the 1:1 correspondence between Glagolitic and the transliteration characters used by *RomanCyrillic Std*, the transliteration will work flawlessly both ways: it is possible, for instance, to take an already available Glagolitic text (as long as the encoding is Unicode-compliant), and to simply change the font to *RomanCyrillic Std* to have the text correctly transliterated into Cyrillic. This also works the other way around: instead of writing directly in a true Glagolitic font, it is possible to use the Cyrillic letters from the Glagolitic section of *RomanCyrillic Std* and then afterwards to switch the font to a Glagolitic one to see what the text looks like in Glagolica. Thus, the font is a useful educational tool and a tool for editors, librarians etc. alike.

## 7. Greek – Monotonic and Polytonic

The *RomanCyrillic Std* font has a full set of Greek characters that cover a) monotonic or Modern Greek as well as b) polytonic or Classical Greek (see Fig. 5). In contrast, the current version of the *Kliment Std* font so far only has support for monotonic Greek. In Unicode, all combinations of diacritics with their base characters are defined for Greek as such, that is, each combination can be optimally designed. This leads to a large number of characters (256), but on the other hand the typographic result is perfect. The addition of Classical Greek to the *RomanCyrillic Std* font is the more important because the current version of *Times New Roman* lacks support for this script – it only supports Modern Greek.

What may be worth mentioning here (again) is the fact that the author has implemented all of the *historical characters* of the Greek script which are useful for Slavicists, too, for example when writing about Old Church Slavonic number signs. Thus, the font features symbols like *archaic Koppa* (03D8, 03D9), *Stigma* (03DA, 03DB), *Digamma* (03DC, 03DD), *Koppa* (03DE, 03DF), and *Sampi* (03E0, 03E1), all of them in lowercase and uppercase forms. Further remarks concerning the design of these characters can be found in the article accompanying the release of the *Kliment Std* font.

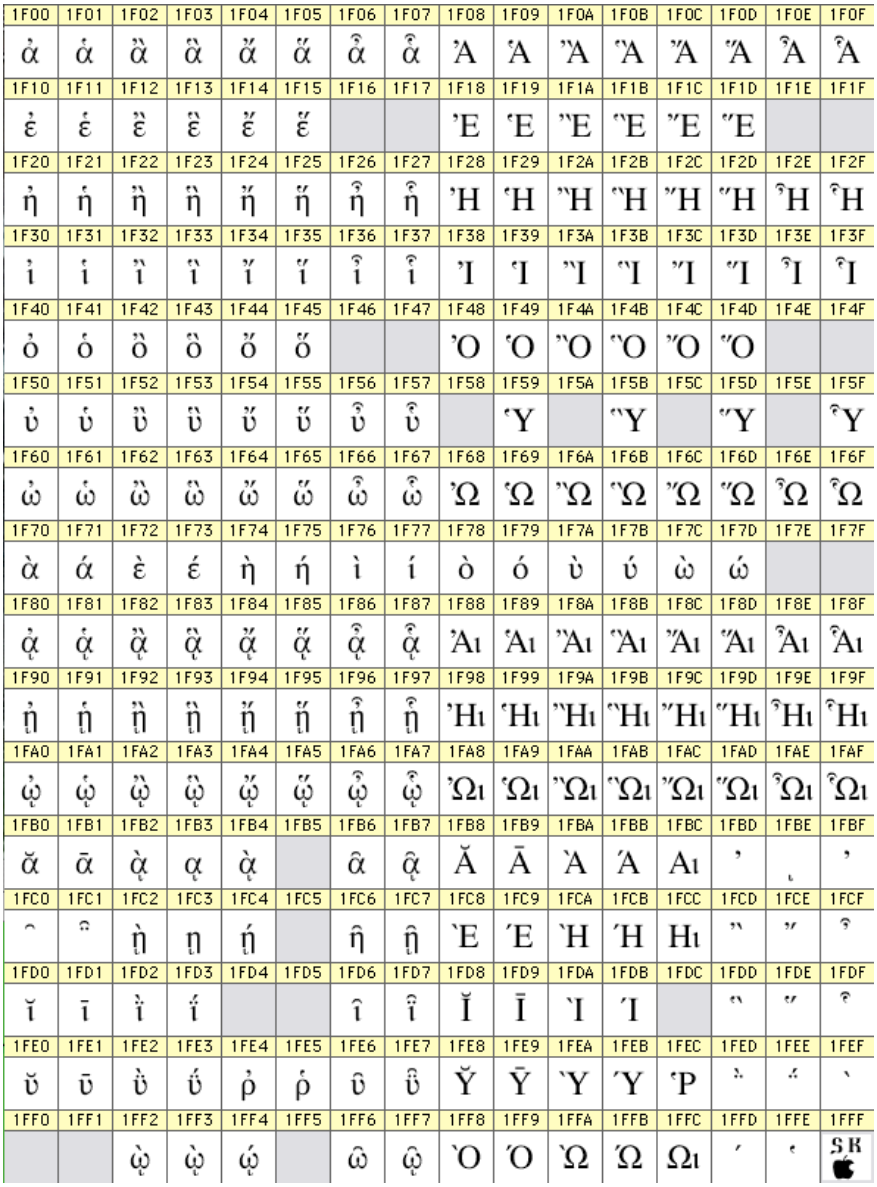

*Fig. 5: Polytonic Greek*

## 8. IPA Characters

*Phonetic signs* (Unicode block 'IPA Extensions') are fully implemented in this font – *Kliment Std* has only selected phonetic characters. Again, the addition of IPA characters is important for philologists because neither *Times* nor *Times New Roman* has any real support for these signs. The phonetic symbols in *RomanCyrillic Std* have been imported from a commercial font by the author (*Trubetzkoy* and *Trubetzkoy Pro*); therefore, the design and the print quality is of the highest standard and all characters match the base font perfectly.

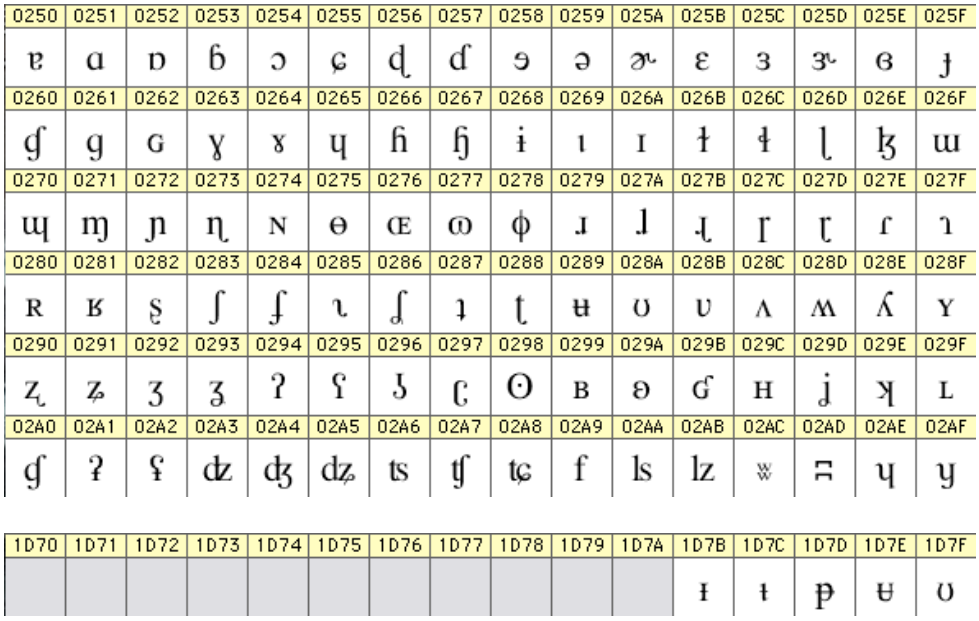


*Fig. 6: IPA Phonetics & Phonetics Extended*

Implemented in *RomanCyrillic Std* for the first time in any Unicode font by the author are the characters in the *Phonetics Extended* block. The first of these new Unicode characters, the small ɪ with a horizontal stroke, is of special importance to Slavic philology because of its use in Russian phonetics. Here are some sample characters from the font:

ɐ ɑ ʌ ɘ ə ɛ ɪ ɨ ɪ ɬ ɪ ɬ ʀ ʁ ʃ ʒ ʔ ʤ ʤ ʦ ʧ

There are even more phonetic characters defined in Unicode, especially for caucasiologists, but these have not yet been implemented in *RomanCyrillic Std*. A future update could possibly add them.

## 9. Diacritics (Spacing and Non-Spacing)

*RomanCyrillic Std* has the same set of diacritics as *Kliment Std*, and that means a full implementation of the corresponding Unicode blocks. As these signs were already documented in the article about *Kliment Std*, we need not repeat all information here. 'Spacing' modifiers are accents or other symbols that have their own character width, i.e. they behave like a character and will appear next to the preceding character. These spacing modifiers are an important part of the Unicode support for phonetics. With these characters, one can write aspirated consonants like

$p^h$ $k^h$ $t^h$

etc. The sample has been carefully chosen here to demonstrate that in order to write an aspirated consonant one should not simply use a small raised 'h' but use the correct phonetic character instead to have a correctly encoded text.

Anyway, such spacing modifiers are important if one writes about accents, orthography, scripts etc.[6]

Also fully implemented is the next block of symbols which is closely related to the preceding one. Called '*Combining Diacritical Marks*', they are zero-width characters, i.e. the cursor will not move upon insertion of such a character, but the diacritic will automatically appear above or below the preceding character. Whenever a combination of a base character and a diacritic is available as such, however, it should be used and not constructed from its parts. For example, one can use the pre-accented n-haček ( ň ) or one can write an 'n' and then put the wedge from the combining diacritics on top: ň. The result will often look similar (if not identical), but the underlying encoding will be different, and this can have consequences in areas such as sorting of words, spell checking etc.

To sum this up: the *RomanCyrillic Std* font fully supports *all* diacritics, spacing or non-spacing, which are defined in the corresponding sections of the Unicode standard, but the advice is to use these diacritics only where appropriate, i.e. where no pre-accented character is available.

## 10. Other Symbols

Concluding this overview of the features of the *RomanCyrillic Std* font, I'd like to mention some additional Unicode blocks that are supported in the font. These include a full support for *Roman numerals* in uppercase and lowercase ( MCDLIX ), fractions ( ⅟ ⅓ ⅔ ⅕ ⅖ ⅙ ⅞ ), arrows ( ← ↑ → ↓ ↔ ↕ ), mathematical (logical) operators ( ∀ ∃ ∈ ∉ ), selected geometric shapes ( ■ □ ▶ ▷ ● ○ ), Zodiac signs and various dingbats ( ★ ☪ ✓ ❊ ❦ ❧ † ☩ ☭ ) etc. *Punctuation* has also been given extensive support, including symbols used for marking up text for correction, dashes, dots etc. In this area, *RomanCyrillic Std* is very similar to *Kliment Std* – both share nearly the same set of glyphs; however, the editorial characters are new designs and additions to *RomanCyrillic Std*.

## Conclusion

*RomanCyrillic Std* is a font containing over 2.200 characters in its latest release. It contains many characters designed for this font first. It is aimed not only at slavists but to philologists in general. With its extensive support for Latin, Greek, Cyrillic, IPA plus diacritics, punctuation, arrows, dingbats and other shapes, it is a one-stop solution for many purposes. It could be called the 'swiss-army knife' among fonts aimed at philologists – see also the comparison table (below). In contrast to *Kliment Std*, it uses contemporary character shapes (where such a distinction exists) so its appeal is even broader. Its design matches the font(s) usually found in scholarly

[6] Under Mac OS X, the German translation of 'Spacing Modifiers' is a typical example of a translation not being done by a specialist in the field: 'Abstandssteuerungszeichen' is a ridiculous ad-hoc translation, and a misleading one at the same time. These character do not 'control the distance' between neighbouring characters, as the name would imply – that's what the en-dash, em-dash etc. are for. The German translation for 'Combining Diacritics', namely 'Diakritische Zeichen – Kombinierende Zeichen' is much better which makes one wonder why the non-spacing modifiers have not simply been transliterated as 'Nicht-kombinierende Zeichen' or '… Diakritika'.

publications and the font is fully legal to use within the boundaries of the license (see above).

*References*

Kempgen, S.:

a) Unicode 4.1 and Slavic Philology – Problems and Perspectives (I). In: A. Miltenova, D. Radoslavova, E. Pancheva (eds.), *Computer Applications in Slavic Studies*. *Proceedings of Azbuky.net*. *International Conference and Workshop*. *24-27 October 2005*, Sofia, Bulgaria. Sofia 2006, 131–159.

b) Unicode 4.1 and Slavic Philology – Problems and Perspectives (II). In: T. Berger, J. Raecke, T. Reuther (eds.), *Slavistische Linguistik 2004/2005*, München 2006, 223–248.

c) 'Kliment Std' – a Free Font for Slavic Medievalists. In: S. Kempgen, T. Slavova (eds.), *Scripta & e-Scripta* vols. 3–4, Sofia 2006, 9–23.

d) Glagolitic Pe – Fact or Fiction? *Scripta & e-Scripta* vol. 6, Sofia 2008 (forthcoming).

e) Features of the 'RomanCyrillic Std' font. URL: http://kodeks.uni-bamberg.de/AKSL/media/RomanCyrillicStdTables.pdf . 21 pages.

Unicode, Inc.: http://www.unicode.org/charts/

**Appendix: Features of 'RomanCyrillic Std' in comparison to other fonts**

| | RomanCyrillic Std v. 2.2 (Win/OS X) | Times / Helvetica v. 5.0d10e1 (OS X) | Times New Roman / Arial v. 3.05 (Win/OS X) |
|---|---|---|---|
| Basic **Latin** | ✓ | ✓ | ✓ |
| Latin-1 Supplement (= Western Europe) | ✓ | ✓ | ✓ |
| Latin Extended-A (= Eastern Europe & more) | ✓ | ✓ | ✓ |
| Latin Extended-B | **208/208** ! | most | some |
| Croatian Digraphs | ✓ | ✓ | – – |
| Maced. Translit. (ǵ) | ✓ | ✓ | – – |
| Štokavian Accents | ✓ | ✓ | – – |
| Nasal o | ✓ | ✓ | – – |
| Latin Extended Additional (256) | ✓ | ✓ | ca. 1/3 |
| Maced. Translit. (ḱ) | ✓ | ✓ | – – |
| Russ. Hist. Translit. (ḟ, ẏ) | ✓ | ✓ | – – |
| Sorbian (ḿ, ṕ) | ✓ | ✓ | – – |
| **IPA** – Phonetic | **96/96!** | 2/96 | 1/96 |
| Spacing Modifiers | **80/80!** | 11/80 | 9/80 |
| Translit. of Jers | ✓ | – – | – – |
| Combining Diacritics (= „Flying Accents“) | **112/112!** | 40/112 | 5/112 |
| **Greek** | | | |
| Modern Greek | ✓ | ✓ | ✓ |
| Archaic Letters (Koppa, Stigma, Sampi…) | ✓ | – – | – – |
| Classical Greek | ✓ | ✓ | – – |
| **Cyrillic** | | | |
| Std. Russian & Slavic | ✓ | ✓ | ✓ |
| Macedonian Add. ( è, ѝ ) | ✓ | ✓ | – – |
| Hist. Add. ( ѣ ѧ ѫ …) | **41/41!** | – – | – – |
| Ukrainian Ghe ( Ґ ґ ) | ✓ | ✓ | ✓ |
| Non-Slavic Cyrillic (ex GUS-Countries) | **132/132!** | ca. 1/2 | ca. 1/10 |
| **Glagolitic** | | | |
| Transliteration into Cyrillic | ✓ | – – | – – |

| | RomanCyrillic Std v. 2.2 (Win/OS X) | Times/ Helvetica v. 5.0d10e1 (OS X) | Times NR/ Arial v. 3.05 (Win/OS X) |
|---|---|---|---|
| Armenian, Georgian, Hebrew, Arabic, Ethiopian | – – | – – (supported by other fonts) | Hebrew, Arabic |
| General Punctuation | **70/112** | 18/112 | 27/112 |
| Superscripts/Subscripts (0…9) | **30/46** | – – | – – |
| Currency (Euro…) | 1/48 | 3/48 | 6/48 |
| Comb. Diacr. for Symbols (O) | ✓ | – – | – – |
| Number Forms | **49/64** | | |
| Add. Fractions (2/3…) | ✓ | – – | 6/13 |
| Roman Numerals | ✓ | ✓ | – – |
| Arrows | 6/112 | – – (complete in Apple Symbols) | 7/112 (complete in Wingdings) |
| Mathematical Operators (∏, ∫, ≠ …) | **45/256** | 12/256 (complete in Apple Symbols) | 15/256 (complete in other fonts) |