On the origin of the Glagolitic alphabet

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1. Introduction

The emergence of a new alphabet is influenced by other existing scripts, but the incorporation of various sources into that alphabet may be attributed to a specific individual. The creator's mind functions as a locus where accumulated experiences and knowledge of various script systems and considerations of political, religious, and social needs interact. For instance, Ulfilas created the Gothic alphabet in order to translate the Christian Bible in the fourth century by adopting an uncial Greek alphabet form and incorporating several Latin and Runic letters. The Armenian alphabet, devised in the beginning of the fifth century by Saint Mesrop Mashtots in order to preach to Armenians, integrates the Semitic-based Parsi script of Iran (Pahlavi) on the pattern of Greek. This paper is devoted to another case of this sort, exploring the origin of Glagolitic, allegedly the first Slavic script.

The question of the origin of Glagolitic is more complicated than the cases of the aforementioned scripts, even if not completely obscure, because so many ancient scripts were named as Glagolitic's models that it

is hard to pinpoint which script contributed and to what extent. The purpose of this paper is to weigh various arguments in favor of distinct sources and to evaluate the role of the creator and the influences of possible sources in the emergence of Glagolitic.

It has been generally accepted that Saints Constantine-Cyril and Methodius and their Moravian school commenced the codification of the first Slavic literary language in the ninth century. The Moravian prince Rastislav sent a message to Michael III, the Byzantine emperor, asking him to send a bishop and teacher who could preach to the newly converted Moravians in their native tongue. Michael III chose two brothers-monks, Constantine and Methodius from Thessaloniki of Macedonia, since they were native speakers of a Slavic dialect (Old Bulgarian). They went to Moravia (863 AD) with liturgical books and Gospels translated into Slavic and transcribed in the new Slavic alphabet they created. After the brothers' deaths, their disciples continued their missionary work in other Slavic regions.

Although the story of Constantine's Moravian mission tells us about the creation of only one alphabet, there are in fact two Slavic alphabets, Glagolitic (*glagolica*) and Cyrillic (*kirillica*), used to transcribe Old Church Slavonic. In the field of Slavic philology, there have been heated debates on the origin of the two Slavic alphabets, centering on the following issues: which script appeared first; whether there existed an unknown proto-Slavic script before the two alphabets emerged; and what scripts influenced (or evolved into) the two alphabets. The first question was resolved on a relatively firm ground on the basis of philological evidence in favor of the precedence of Glagolitic. However, the other two inter-connected queries have not obtained sufficiently clear answers. This paper addresses these questions, focusing on Glagolitic.

I first explore the possibility of a proto-Slavic script in Section 2, by examining controversial phrases from several historical manuscripts. I

provide critical assessments of various arguments on the issue and suggest a reasonable medium. In Section 3, the question of the influence of other scripts is examined in terms of the structural and formal aspects of the Glagolitic system. I seek possible models for the Glagolitic system by comparing the organization and forms of Glagolitic letters with those of other alphabets. Section 4 contains concluding remarks.

2. A proto-Slavic script?

The general consensus regarding the issue of precedence between Glagolitic and Cyrillic is that the former appeared before the latter (*contra* Istrin 1963, Georgiev 1964), based on the facts that: (i) the oldest extant Slavic manuscripts are written in Glagolitic; (ii) traces of Glagolitic writing are recognized in some palimpsests, under a new layer of Cyrillic text, but not vice versa; and (iii) there are a few manuscripts in which the main text is written in Glagolitic and notes in Cyrillic are added later in the margin, but no document has been found with Glagolitic notes and Cyrillic text.[1]

These pieces of evidence strongly support the primacy of Glagolitic. Who then created Glagolitic and Cyrillic alphabets? If the Slavs did not have their own script before Constantine-Cyril's Moravian mission, and if Glagolitic preceded Cyrillic, the logical conclusion would be that Glagolitic is Constantine's creature.[2] However, a few historical narrative sources contain phrases that might counter this conclusion.[3]

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[1] See Matejka (1963), Schenker (1995), among others, for more discussion of the evidence in favor of the precedence of Glagolitic over Cyrillic.

[2] It is unclear when the first alphabet began to be called Glagolitic (*glagolica*). The Cyrillic script (*kirillica*), which appeared after the Glagolitic, was named after Constantine-Cyril. The Russian copyist named Upir' Lixoj mentions in a postscript that his Cyrillic copy of *The Prophet Daniel* is a transliteration of the original text in Glagolitic (*is kurilovice*). As this transliteration was accomplished in 1047, it is reasonable to assume that the Glagolitic alphabet was known as *kurylovica* (*kyrilovica*; *kyrilica*) in the first period of Russian literary culture. This label was subsequently

2.1 Arguments for a proto-Slavic script

There are two major manuscripts that have long puzzled Slavists: *Vita Constantini* (*Žitie Konstantina filasofa*, henceforth *VC*) 'The Life of Constantine' and Xrabr's treatise *O pis'menax* 'On Letters.' *VC* is about Saint Constantine-Cyril's life and his missions to the Saracens, the Khazars, and the Slavs of Moravia. The oldest copy of this text is no older than the fifteenth century, but it is presumed that the original text was written following Constantine's death (869) by his brother Methodius. Chapter VIII of this manuscript contains a passage about what Constantine found when he went to Cherson in Crimea:

> And he found there a Gospel and Psalter written **in Rus'ian letters**. He also found a man who spoke that language. And having conversed with him, he acquired the meaning of this speech; and by comparing it with his own language, he differentiated the letters, vowels from consonants. And addressing a prayer to God, He quickly began to read and interpret. And many people marveled at him, praising God. (Emphasis is mine. English translation is quoted from Goldblatt 1986: 312)[4]

The phrase *rusъskymi pismeny* ('in Russian letters') has led to heated debates on the existence of the proto-Slavic alphabet before Constantine's Moravian mission. Among a number of theories that attempt to interpret the phrase, I here limit my discussion to representative ones for the sake of space.

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transferred to an alphabet, which was created not by Constantine-Cyril but by his followers (Matejka 1963: 162).

[3] It has been conjectured that this name appeared in Croatia in the fourteenth century (Comrie and Corbett 2002: 29).

[4] All English translations of Glagolitic and Cyrillic passages in this paper are either mine or adapted from the specified sources, with reference to the original texts in Lavrov (1930/1966).

The extant interpretations are split in terms of whether the word "Russian" is intended for its lexical meaning ('of *Rusъ*') or not. The first direction, in favor of the authentic reading, was taken mostly by Russian and Bulgarian scholars, who claimed the existence of a pre-Constantine script (e.g., E. Georgiev 1956, 1964; V. Istrin 1963). The second direction was adhered to mainly by West European and American scholars, including R. Jakobson (1944) and H. Lunt (1958/1962, 1964). But a few other arguments based on innovative analyses of the (inter)textual context, such as those by Goldblatt (1986) and Tachiaos (1993), have also been raised.

If the phrase in question was actually authentic, there would be no choice but to assume that the author of *VC* indeed intended to say that a Slavic alphabet was in use when Constantine went to Cherson. The construal of "Russian" as indicating *Rusъ*, that is, Old Scandinavian (Varangians), was suggested by scholars such as Francis Dvorník (1933) and Tadensz Lehr-Spławiński (1959). This Gothic hypothesis, however, was soon rejected because it was unlikely that Gospel and Psalter were translated into pagan Varangians' language.

The most dramatic and adventurous interpretation of the given phrase has perhaps been to accept the phrase as indicating 'Slavic,' arguing that there indeed was a pre-Constantine Slavic script used in writing and translating. This hypothesis finds supporting evidence in a passage in Xrabr's treatise *O pis'menax* 'On Letters':

> Earlier the Slavs did not have letters but by means of **strokes and carvings** they deciphered (read) and counted (divined), being pagan. And when they were baptized, they had to write their Slavic speech with Roman and Greek letters without design. Because how could one adequately write with Greek letters *bogъ* or *životъ* or *ʒělo* or *crъky* or *čajanie* or *širota* or *ědь* or *ǫdu* or *junostь* or *ęzykъ* or other similar words? And so it was for many years. (English translation is adapted from Schenker 1995: 173)

In this passage, the Slavs are reported to decipher and count, using "strokes and carvings" (*črъtami i rězami*), which have been interpreted by certain scholars as indicating a preliminary form of alphabet. However, as Franklin (2002: 89-90) reasonably notes, although it may be taken for granted that some signs and marks, pictures and symbols, were probably used to represent certain meanings, the use of "strokes and carvings" does not necessarily indicate that the Slavs had an elaborate alphabet system like Glagolitic. Franklin argues that it is more natural to regard them as visual signs for commercial needs or fortune-telling.

Hypotheses of proto-Slavic letters identify the script with various ancient scripts, including ancient Indian Brahmi syllabic script (Seriakov 1997), pre-Sumarian script from Mesopotamia, Cretan Linear A and B inscriptions (Sotiroff 1970, Grinevich 1993, Serafimov 2008), and many other candidates.[5] For instance, Sotiroff (1970) suggests that the formal similarity between Linear B alphabets and Glagolitic supports the possibility that Glagolitic is an inherited form of the ancient Mycenaean script. However, arguments in favor of the existence of a proto-Slavic alphabet (as an elaborate alphabet system) are largely discredited when the low cultural level of the Slavs of that period is taken into consideration. In addition, many of the arguments are only based on the similarities of letter shapes of remote ancient scripts and ignore the lack of sound-matching between similar letters. Crucially, the formal similarities themselves are not as rigid as suggested.[6]

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[5] See Franklin (2002: 91-93) for his refutation of arguments for a proto-Slavic or pre-Constantine (Cyrillic) script.

[6] Of course, the structural and formal similarities of letters from various sources and Glagolitic in itself should not be ignored in the exploration of the origins of Glagolitic, although some of the suggested similarities are not sufficiently reliable. As will be seen in Section 3, these kinds of similarities indicate that Glagolitic was modeled on other scripts, including the three "holy" languages of that time (Greek, Hebrew, Latin).

In terms of the question of a pre-Constantine script, Xrabr's passage actually offers a more realistic possibility. Xrabr states that the Slavs used Greek and Roman letters without additional formal elaborations, to transliterate Slavic speech. This is also supported by the existence of several ancient Bulgarian epigraphic monuments, the Byzantine renditions of Slavic proper names in Greek, and Latin transliterations of Church Slavonic originals. Bulgarian scholar Emil Georgiev (1963) is the most active defender of the theory that there was a Greek-based pre-Constantine writing alphabet, of which no extant examples have been preserved.[7]

As Xrabr complained, however, the Greek and Roman adaptation to Slavic speech must have been too primitive to be regarded as an independent alphabet, mostly due to the difficulty of expressing Slavic-only sounds. Constantine and Methodius, as Greek Church scholars, must have been well versed in Greek and Latin. They cannot have construed an adaptation scheme, with a similar appearance to Greek/Roman, as a "Slavic" script, and thus it would not have been described as "Russian letters" in *VC*. In contrast, Glagolitic, with its innovative and artificial character, cannot have been regarded as an outcome of the natural evolution of Greek adaptation to Slavic speech. The passage from the *Conversio Bagoariorum et Carantanorum* indicating that "a certain Greek, Methodius by name, has with deceitful sophistry degraded the Latin language and the Roman doctrine as well as the authority of Latin books through the use of newly invented Slavic letters" (Schenker 1995: 167) supports this position. Schenker argues that the emphasis on the distinct nature of the alphabet created by Constantine shows that the alphabet was not a mere adaptation of Greek or Roman letters to the needs of Slavs.

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[7] He does not deny that the Glagolitic script was Constantine's creation, but he maintains that Cyrillic is still the older script, deriving from cursive Greek.

2.2. Arguments against a proto-Slavic script

The most representative view that interprets *rusъskymi* of *VC* as indicating something other than "Russian" or "Slavic" would be the "Syriac" hypothesis, maintained by A. Vaillant (1935), R. Jakobson (1944), D. Gerhardt (1953), H. Lunt (1958/1962, 1964), R. Auty (1967), and others. On the one hand, they reject the possibility of the existence of proto-Slavic letters because it is unlikely that the Slavs lived in Crimea around the ninth century (Birnbaum 1999), and the cultural level of the Slavs of that period was not high enough to have translated biblical manuscripts into their own script (Tachiaos 1993: 62). On the other hand, they argue that the mysterious *rusъskymi* is a metathetical form of *surъskymi* 'Syriac' resulting from a scribal error. They bring other examples of similar scribal errors in old Slavic manuscripts. For instance, chapter XVI of *VC* contains the list of nations already praising the Lord in their own tongue. This includes the Syrians, *Suri*, but Lunt (1964: 218, fn. 6) points out that in two of the older and more accurate copies they were referred to as *Rusi*. He also notes that in the *Novgorod First Chronicle,* the *mitropolitz surъskyi* ('Syrian bishop'), whose arrival in Kiev constitutes the sole entry under 6412/1104 in the oldest copy (Synodal), has been written as *ruskyi* in all other copies.

Grounded on these parallels, the "Syriac" hypothesis seems highly plausible, being "an act of sober textual criticism, not of arbitrary fantasy," as Auty put it (1967: 115). However, it is also true that this argument is only based on indirect evidence. As Istrin (1963: 18-19, 103-106) and Tachiaos (1993: 62-63) criticize, the argument, depending on a scribal error, is convenient but the text does not feature the allegedly correct form *surъskymi* in any extant copies.

In addition to the "Syriac" theory, several arguments have been put forward to resolve this issue by interpreting the circumstantial context in the given and other texts, along with the historical environment of that period. One such attempt is Harvey Goldblatt's interpolation theory (1986),

according to which the expression *rusъskymi* was inserted in Muskovy by the fifteenth-century copyists to "convey a message conforming perfectly to the ideological atmosphere of the 15th-c. 'Rus'ian lands'" (325), when Moscow gained hegemony over the East Slavic region and identified itself as a protector of the Orthodox Church. This interpretation appears to be in harmony with the context of *Skazanie o gramote Rousьtei* from the mid-fifteeth century. In *Skazanie*, Constantine is described not as the inventor of the Slavic letters and translator of Greek books into Slavic, but as a passive carrier of "Rus'ian writing" to the Western Slavs.

Alternatively, Tachiaos (1993: 64, fn 70) argues, against Goldblatt's interpolation theory, that it is unlikely that the fragments of the text of *VC* existed separately and were gathered and interwoven by the fifteenth-century scribes after more than 500 years since Constantine's death. Instead, he insists that the Gospel and the Psalter in "Russian letters" were actually drafted by Constantine himself when he was still in Constantinople.[8] While in Cherson, Constantine could have had his drafts of the Slavic alphabet sent from Constantinople, and with the help of a native Slav he met there he could have master the Slavic language and completed the alphabet. However, it would be strange if Constantine already had a draft of a Slavic alphabet by the time of his Khazar mission (860), because it was after the Khazar mission that the Byzantine emperor asked Constantine to go to the Slavs, expressing his concern over the lack of a Slavic alphabet (*VC* chapter XIV).[9]

2. 3. Recapitulation and assessment

Thus far, I have examined diverse extant explanations of the phrases in question from the two narrative sources. I have admitted that it is plausible

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[8] This interpretation is crucially based on Tachiaos's reading of the word *obrěsti* not as 'to find' but as 'to receive, to accept,' as is sometimes attested in Old Russian manuscripts.

[9] Also see Birnbaum (1999: 14) for a similar opinion.

that before Constantine's Moravian mission the Slavs used some adaptations of Roman and Greek letters. However, they could neither have been referred to as "strokes and carvings" nor "Russian letters." As Xrabr exemplifies, the use of Roman and Greek letters for transliteration must have been done with significant difficulties because Slavic speech contained many sounds that did not exist in Roman and Greek. This problem must have been serious, because Constantine's creation of a new alphabet representing all Slavic sounds was reported as an important event that initiated Slavic literacy in *VC*, Xrabr's treatise, and even certain Latin documents such as *Conversio Bagoariorum et Carantanorum*. Also, as will be seen in the next section, the formal difference between Glagolitic and Greek letters cannot be explained by the theory that Glagolitic was a mere adaptation of Greek letters to Slavic speech.

The question about *rusъskymi*, in contrast to some Russian scholars' arguments, does not necessarily relate to the "strokes and carvings." The most reasonable account of the phrase appears to be the metathesis theory, although the alleged authentic reading was not revealed in any extant copies of *VC*. Nonetheless, the examples of metathesis in the same root in the given text and other Old Russian manuscripts reasonably support this account. Of course, there cannot be any definitive theory regarding this issue due to the lack of direct evidence, but the other theories are based more on circumstantial speculations than the "Syriac" theory.

Auty's comparative textual analysis of *VC* chapters 6, 8, and 14, which describe missions to the Saracens, the Khazars, and the Slavs respectively, is illuminating in this respect (1971). He observes that the narrative structures of the three passages are repetitive and conventional, consisting of the arrival of a message to Michael III, asking for a teacher, the emperor's commands, and Constantine's reply. However, the Moravian part is distinct from the other two because it includes their discussion of the language and script question. Auty convincingly argues that this deviation

indicates that the duty of creating a script was particularly important in the preparation of the Moravian mission and that the emperor's statement that the Slavs did not have *boukъvy* ('letters') should be interpreted not as a mere narrative convention but as the report of a real historical event. This also supports the conclusion that there was no pre-Constantine alphabet.

3. Models of Glagolitic

If there was no proto-Slavic script (other than relatively simple Greek/ Roman adaptations) before Constantine's Moravian mission, we can safely conclude that the alphabet Constantine created is Glagolitic (since Glagolitic preceded Cyrillic, based on independent evidence). On what principle, then, did Constantine make the script?

It is widely known that Glagolitic was modeled on Greek, but this does not hold for every Glagolitic letter: Glagolitic consisted of 38 letters while Medieval Greek only contained 24. In addition, the phonological systems of the Greek and Slavic languages were not identical, and thus Constantine needed to devise a number of non-Greek letters to fully transcribe Slavic-only sounds. There were other alphabet systems that the creator of Glagolitic could consider for this purpose. In the next sections, I will examine what systems could have served as models for Glagolitic.

3.1. Structure

3.1.1. Greek
It has been generally accepted that Glagolitic was patterned on Cursive Greek (Taylor 1881, Leskien 1905, Jagić 1911, Vajs 1932). This is not only testified to by historical manuscripts, such as Xrabr's "On Letters," but also

supported by the structural similarity between the Glagolitic and Greek alphabet systems.[10]

Greek has 24 letters in a fixed order, and each letter bears a name, phonetic value, and numerical value. The Greek alphabet consists of three groups, each of which represents 1-9, 10-90, and 100-900. Since there are only 24 letters, the system includes three symbols that only represent numbers (i.e., numerals). Glagolitic is identical to Greek in that each letter has a name, phonetic value, and numerical value, appearing in a fixed order. Glagolitic has 38 letters and thus can represent more numerical values than Greek does: 1-9, 10-90, 100-900, and 1000-9000 (according to Mathiesen, forthcoming, 9). For representing numerical values, Glagolitic uses 36 individual letters and two digraphs (ꙗ [u/ü], ꙑ [y]). Each individual letter's name, order, numerical value, and phonetic value in Greek and Glagolitic are given in Table 1.

[TABLE 1] Glagolitic and Greek: order, name, numerical value, and phonetic value (adapted from Scehnker 1995: 168-172 and Mathiesen, forthcoming: 22)[11]

	Glagolitic				Greek		
Order	Form	Numeral	Phonetic Value	Name	Form	Numeral	Phonetic Value
1	ⰀⰀ	1	[a]	azъ	α	1	[a]
2	Ⰱ	2	[b]	buky			
3	Ⰲ	3	[v]	vědě	β	2	[b]
4	Ⰳ	4	[g]	glagoli	γ	3	[g]
5	Ⰴ	5	[d]	dobro	δ (Δ)	4	[d]
6	Ⰵ	6	[e]	jestъ	ε	5	[e] / [e:]

7	Ⰶ	7	[ž]	živěte			
8	Ⰷ	8	[ʒ]	ʒělo			
9	Ⰸ	9	[z]	zemľa	ζ	7	[zd]
10	Ⰺ (Ⰹ)	10	[i]	iže	η	8	[h] / [ɛ]
11	Ⰻ	20	[i]	i	ι	10	[i] / [i:]
12	Ⰼ	30	[ʓ]~[ǯ]	ʓervь/d'ervь/ǵervь			
13	Ⰽ	40	[k]	kako	κ	20	[k]
14	Ⰾ	50	[l] / [ĺ]	ljudie	λ	30	[l]
15	Ⰿ	60	[m]	myslite	μ	40	[m]
16	Ⱀ	70	[n] / [ń]	našь	ν	50	[n]
17	Ⱁ	80	[o]	onъ	o	70	[o] / [o:]
18	Ⱂ	90	[p]	pokoi	π	80	[p]
19	Ⱃ	100	[r] / [ŕ]	rьci	ρ	100	[r]
20	Ⱄ	200	[s]	slovo	σ	200	[s]
21	Ⱅ	300	[t]	tvrьdo	τ	300	[t]
22	Ⱆ (Ⱛ)	400	[ü] *(Greek only)*	ükъ	υ	400	[u] / [u:]
23	**Ⱇ**	500	[pʰ] *(Greek only)*	pʰertъ	φ	500	[pʰ]
24	Ⱈ	600	[kʰ] *(Greek only)*	kʰěrъ	χ	600	[kʰ]
25	Ⱉ	700	[o]	otъ	ω	800	[o] / [o:]
26	Ⱚ	800	[tʰ] *(Greek only)*	tʰe	θ	9	[tʰ]
27	Ⱌ	900	[c]	ci			
28	Ⱍ	1000	[č]	črьvь			
29	Ⱎ	2000	[š]	ša			
30	Ⱋ	3000 (?)	[ć]	ća/šta			
31	Ⱏ / Ⱏ	4000 (?)	[ъ] / [ь]	jerъ / jerь			
32	Ⱑ	5000 (?)	[ě]	jatь			
33	Ⱒ	6000 (?)	[x]	xlьmъ			
34	Ⱓ	7000 (?)	[jo]	jǫsъ			
35	Ⱓ	8000 (?)	[ju]	ju			
36	Ⱔ	9000 (?)	[ę]	ję			

In Table 1, we can observe that the numerical values of Greek and Glagolitic letters are not identical because the letters for Slavic-only sounds intervene. It is noteworthy that the relative order of letters and their numerical values are the same in Glagolitic and Greek with only a few exceptions, which shows that Constantine first arranged Slavic sounds according to the order of corresponding Greek letters, and then inserted Slavic-only sounds where relevant in terms of the class of sounds.[12]

Although it is clear that Constantine used the Greek alphabet as his primary model in creating Glagolitic, the directory of sounds in Greek was not identical with that in Slavic: some Greek sounds did not exist in Slavic, while some Slavic phonemes were not represented among Greek letters. It is not difficult to imagine that Constantine had to resolve these problems in different ways. As Mathiesen (forthcoming, 23-24) describes, for the twenty-one sounds in common, Constantine adopted Greek letters (I will set aside the issue of formal similarity/difference between corresponding Greek and Glagolitic letters until Section 3.2). For the Greek-only sounds, he evaluated whether each one would be necessary for translating the Bible and preaching to Slavic people. As a result of these evaluations, five letters, Ꙟ (=υ), Ⰼ (=φ), Ⱈ (=χ), Ⱉ (=ω), Ⱚ (=θ), were added to Glagolitic. Finally, it was crucial for Constantine to create symbols to represent the ten Slavic-only phonemes. Letters for these sounds must have been modeled on scripts, other than Greek, as will be explored in detail in the next section.

3.1.2. Armenian

It is widely accepted among Slavists that the letter for the sound /š/ was adopted from Semitic. However, Cubberley (1984) and Mathiesen

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[12] This similarity is not only found in the comparison between Glagolitic and Greek. Many alphabets that were influenced by Greek appear more or less similar to Greek, assigning a name, a numerical value, and a fixed order to each letter.

(forthcoming) instead focus on the phonetic similarities of /š/, as well as some other sounds, between Glagolotic and Armenian. [13] Mathiesen compares seven Glagolitic letters that represent non-Greek sounds with seven Armenian ones and observes that the relative order of five of these letters is identical, as illustrated in Table 2.

[TABLE 2] Glagolitic and Armenian parallels

Glagolitic	Ⱇ [tʰ]	Ⰲ [c]	Ⱅ [č]	� [š]	Ⱛ [ć]
Armenian	Թ[tʰ]	Ծ [c]	Ճ [č]	Շ [š]	Չ [čʰ]

Mathiesen advances a claim that Constantine, after exhausting Greek letters, turned to the Armenian alphabet to represent the remaining Slavic sounds. Given that Constantine's mentor Bishop Photius was particularly well-versed in Armenian, it is very likely that Constantine had at least partial knowledge of Armenian and that he paid attention to the Armenian alphabet system when he was looking for models while creating Glagolitic. Mathiesen points out that Armenian is included in the list of various older languages that Constantine enumerated in his discussion with Roman church scholars (*VC* chapter XVI). Although Mathiesen cannot explain the other three letters ⱔ [ə/ĭ], Ⰴ [ě], Ⱒ [x] in the same way, he still maintains their correlation with Armenian, pointing out that Armenian also has distinct phonemes of Խ [x], Ը [ə], and Է [ē] (the last of which is different from Ե [e]).

3.2. Form

Although Constantine adopted Greek as a structural model for Glagolitic, it does not necessarily follow that he also took Greek as a model for the

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[13] See also Gaster (1887) and Vernadsky (1943) for the link between Armenian and Glagolitic.

shapes of the letters, especially given the apparent formal discrepancies between Greek and Glagolitic.[14] In terms of letter shapes, Glagolitic looks like a patchwork consisting of shapes from various sources. However, it is unlikely that Constantine used models randomly from various script systems. The formal similarities alone are not a reliable basis for suggesting a correlation between scripts. In addition to physical resemblance, the availability or accessibility of the scripts, on the one hand, and the religious justification for adopting certain models according to the historical context, on the other, should also be taken into consideration.

3.2.1. Greek

As shown in Table 1, some letters of the Glagolitic alphabet look similar to the corresponding Greek letters. It seems natural that some of the letters representing Greek-only sounds resemble the Greek original forms: Φ, ⴔ. In addition to these, many other Glagolitic letters appear to be modeled on their Greek counterparts, as illustrated in Table 3.

[TABLE 3] Glagolitic and Greek parallels (adapted from Schenker 1995: 168-172)

Glagolitic	ⰳ [g]	ⰴ [d]	Э [e]	ⰸ [z]	ⰺ / ⰹ [ı]	ⰾ [l]	ⰿ [m]
Greek	γ [g]	Δ* [d]	ϡ′[900]	θ [tʰ]	ι [i]	λ [l]	μ [m]

Glagolitic	ⱂ [p]	ⰱ [r]	ⱅ [t]	Φ [f]	Ⰰ [ě]	ⴔ [tʰ]	Є [ę]
Greek	π [p]	ρ [r]	τ [t]	φ [pʰ]	A* [a]	θ [tʰ]	E [e]

* Δ and A are epigraphic forms.

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[14] Formal differences between Greek and Glagolitic are discussed in the literature on the beginning of the Slavic alphabet (e.g., Ellis H. Minns 1925: "The general impression of Glagolitic is singularly unlike any sort of cursive Greek" [Diringer 1968: 487]).

Nonetheless, as exemplified in Table 4, not all the forms of the remaining letters sufficiently match their Greek counterparts.[15] This is why various other possibilities have been raised by Russian and Bulgarian scholars who argue for the existence of a proto-Slavic script before Constantine's Moravian mission. I enumerate a few recent views in this line of thought in Section 3.2.5, but first I will examine the ten letters representing Slavic-only sounds.

[TABLE 4] Formal discrepancies between Greek and Glagolitic

Greek	α [a]	β [b]	κ [k]	o [o]	ν [n]	…
Glagolitic	ⴀ [a]	ⴂ [v]	ⴉ [k]	ⴍ [o]	ⴖ [n]	…

Cubberley argues that Constantine established the Glagolitic system based on an existing Greek-originated writing scheme: "it is probable that the first alphabet arose more or less spontaneously with the practical needs of commerce and militarism, and that the "creator's" task was the formalization and expansion of this base for application to the religious area" (1984: 291). In other words, he suggests that there existed a pre-Glagolitic script developed as an adaptation of the Greek script to Slavic speech, and that Constantine formalized this pre-Glagolitic writing strategy and created letters for non-Greek sounds based on Armenian.

Although his suggestion is not unreasonable in itself, the circumstances of that time appear to contradict his contention. If there had been an alphabet before Constantine went to Moravia, even in a relatively primitive form, why was the Byzantine Emperor so concerned about the lack of Slavic letters for the propagation of Christianity? In addition, as

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[15] It is mysterious why the forms of some sounds in Glagolitic were formally unrelated to those of their Greek counterparts, while other sounds assumed identical forms to the Greek counterparts. For now, I do not have a definitive answer to this question, but the only reason must have been Constantine's intention to differentiate Glagolitic from Greek to a certain extent. Still, it is unclear how it was determined which letters were chosen to be taken from Greek.

shown in Table 4, Glagolitic is too formally distinct from the Greek alphabet to be construed as based on a Greek adaptation strategy (see Section 3.3 for related discussions).

3.2.2. Armenian

Like Mathiesen, Cubberley (1984) also explores the correlation between Glagolitic and Armenian. Cubberley points out that Glagolitic is based on cursive Greek, not on uncial Greek, for the common sounds and on "something else" for the other sounds. He argues that the only candidates are Armenian and Georgian, both of which have at least all the required consonant sounds. As I mentioned earlier, the logical accessibility of a certain model is necessary for that model to be considered. Circumstantial evidence demonstrates that Constantine could possibly have known at least the letters and sounds of Armenian, since Armenians had long been numerous in Constantinople and the Balkan area. The Paulicians, for instance, originated in Armenia and were active in ninth-century Crimea (293).[16]

Unlike Mathiesen, who bases his argument on structural similarities in terms of sound value and order, Cubberley (299) attempts to show how the Glagolitic letter shapes for palatal fricatives evolved from the orresponding Armenian ones. According to him, the letters Ⰶ [ž], Ⱌ [ʒ], Ⱋ [š], Ⱎ [c], Ⱇ [č] come from (or evolved from) Armenian as ligatures (Cf. Mathiesen's argument in Table 2). Cubberley's detailed arguments on the evolutionary process of each letter are beyond the scope of this article, but some of his suggestions are highly speculative, lacking concrete evidence. As far as the letter shapes go, it is also possible that Constantine himself created the forms for these five sounds or depended on other unknown sources.

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[16] Cubberley notes that it is not necessarily implied [word choice?] that the famous "rusъskymi pismeny" were in fact Armenian (as is done by Vernadsky 1943: 347-350), although the Armenian letters could have been learned in just such a way.

3.2.3. Hebrew

Most Slavists acknowledge that Ⱎ [š] is from Semitic. In terms of the formal similarities, Hebrew also has other parallels with certain Glagolitic letters. Compare the Hebrew and Glagolitic counterparts illustrated below:

[TABLE 5] Glagolitic and Hebrew parallels (adapted from Schenker 1995: 168-172)

Glagolitic	Ⰰ* [a]	�転 [k]	Ⰲ [c]	Ⱎ [š]
Hebrew	א [a]	ק [k]	צ / ץ [c]	שׁ [š]

* The letter Ⰰ could be the image of the cross.

Table 5 shows four sets of parallels. As in the case of Armenian, the relative order of Hebrew and Glagolitic letters are identical. This is in fact not surprising since similar sounds group together in a similar way in genetically and evolutionarily connected alphabets. In this regard, Mathiesen's observation of the identical relative order of the Armenian and Glagolitic counterparts might not be significant. Schenker also notes a formal similarity between Glagolitic Ⰱ [b] and Ⰵ [e] and Samaritan [m] and [he]. Given that Samaritan also inherited the Hebrew alphabet tradition, this resemblance is not surprising. However, the letters' sound values are not identical, and thus it remains unclear whether the correlation between them holds.

3.2.4. Latin

The Roman alphabet has also been discussed as a possible source of the Glagolitic letters (Matejka 1963: 156). The most elaborate attempt to link the shape of the Glagolitic letters to Latin sources was presented by M. Hocij (1940), who pointed out the similarities of some Glagolitic letters to certain types of cursive manifestations of seventh- and eighth-century Latin. As a more modest version of this hypothesis, Schenker (1995) suggests that Ⱚ and Ⱑ might originate from Latin *v* and *h*, respectively. However,

Constantine's creation of a new alphabet was not only intended to provide the Slavs with their own script but also to prevent Bavarian bishops' predominance over the Slavic region, armed with the Latin alphabet and Catholicism. A Greek-based alphabet would have been effective for this political purpose. In this respect, it is not very likely that Constantine adopted Latin letters for a model.

3.2.5. Others

Thus far, it has been shown that Glagolitic was created based on several models: Greek, Armenian, Hebrew, and arguably Latin. The link between these scripts is not only phonetic but also structural and formal. However, the debate over the "Russian letters" and "strokes and carvings" in the old narrative sources, combined with the formal similarities between Glagolitic and inscriptions found in Slavic areas, has led certain scholars (e.g., Ivan Ohienko, Emil Georgiev, Michael Hocij, and G. Sotiroff) to propose the existence of an indigenous proto-Slavic script. For instance, Sotiroff (1970) argues that there was a proto-Slavic script that was genetically related to (or evolved from) the Linear B letters in the tablet inscriptions found in the Aegean region, which arguably represents Mycenaean Greek, dating back to 1500 BC. His arguments are mostly based on formal resemblance, but Linear B letters are no more similar to Glagolitic letters than cursive Greek letters of the ninth century. I illustrate some pairs of letters from Glagolitic and Linear B below:

[TABLE 5] Glagolitic and Linear B parallels (adapted from Sotiroff 1970: 315)

Glagolitic	ⴀ [a]	Ⱚ [i]	ⰶ [ž]	Ⰱ [r]	Ⱍ [č]	Ⱀ [N]	ⷑ [ə/ĭ]
Linear B	[a]	[i]	[je]	[ra]	[de]	[wi]	[?]

A more important shortcoming of arguments along this line is that despite the apparent similarities of some letters, letter forms are selected in a random fashion without consideration of sound-matching. About half of the pairs in Table 5 do not correspond in terms of sound value. There are indeed many instances of formal resemblance across many scripts in the world. However, similarity itself cannot make any particular hypothesis reliable. On the one hand, we can find similar shapes in genetically unrelated scripts, such as Glagolitic and Medieval Korean. On the other hand, a script influences another upon historical physical contact, so it is unlikely that formal similarities in temporally and geographically severed alphabets share the origin. In this respect, what is important is probability rather than the random matching of similar forms in distinct alphabets. In the case of Linear B, the period succeeding the Mycenaean civilization, known as the Greek Dark Ages, provides no evidence of the use of such writing. Even though it is possible to conjecture that the script from 1500 BC happened to be available to Constantine, this cannot be proved in any way.

Even if the forms provided in Table 5 were taken to indicate similarities between Glagolitic and Linear B letters, this does not necessarily mean that Glagolitic was inherited from an ancient alphabet and referred to as the proto-"Russian letters" in *VC*. If that "Russian" script had been used around the ninth century productively enough for elaborate Glagolitic documents to be produced in the script, it would be strange that neither manuscripts in that script nor Greek manuscripts that mention about the script were preserved in any way. It would be more reasonable to suggest that if Constantine happened to encounter or learn this script (without leaving any evidence of this contact), he adopted some forms to represent certain sounds. If one decides to pursue this possibility, s/he would have to resolve further questions, such as: (i) How did this script, the traces of which were not found during the two millennia, come to be

used by the Slavs in the ninth century and found by Constantine? (ii) If they were available and accessible, why is there no textual evidence that supports the proto-Slavic script, except for the controversial two phrases? (iii) Would the use of the proto-Slavic letters to create Glagolitic have been adequate for Constantine's missionary purposes? The third question is crucial, because it is hard to imagine any cultural and religious associations between Glagolitic and the letters of 1500 BC, the trace of which was not found until recently. Constantine, who was sent to propagate and enlighten the Slavs using biblical texts as primary media, would not have adopted any ancient script without considering whether it was justified from political and religious points of view. It should be noted that the possible sources enumerated above (Greek, Latin, Armenian, Hebrew, and Samaritan) were already in use for propagating Christianity.

3.3. Recapitulation and assessment

Table 6 summarizes the discussion so far of the formal sources of Glagolitic letters.

[TABLE 6] Parallels between Glagolitic and Other Scripts

	Glagolitic		Source Script
Order	Form	Phonetic Value	Script
1	ⴀ	[a]	Hebrew?
2	ⴁ	[b]	Samaritan?
3	ⴂ	[v]	Latin?
4	ⴃ	[g]	Greek
5	ⴄ	[d]	Greek
6	ⴅ	[e]	Greek
7	ⴆ	[ž]	Armenian?
8	ⴇ	[ʒ]	Armenian?
9	ⴈ	[z]	Greek

10	ℛ (ꙗ)	[i]	Greek
11	Ꙋ	[i]	?
12	Ⰹ	[ʒ́]~[ǯ]	?
13	Ⱅ	[k]	Hebrew
14	Ⰾ	[l] / [ĺ]	Greek
15	Ⰿ	[m]	Greek
16	Ⱀ	[n] / [ń]	?
17	Ⱁ	[o]	?
18	Ⱂ	[p]	Greek
19	Ⱃ	[r] / [ŕ]	Greek
20	Ⱄ	[s]	?
21	Ⱅ	[t]	Greek
22	Ⱆ (ꙋ)	[ü]	? (Digraph)
23	Ⰶ	[pʰ]	Greek
24	Ⱈ	[kʰ]	Latin
25	Ⱁ	[o]	Digraph
26	Ⱇ	[tʰ]	Greek
27	Ⱌ	[c]	Hebrew/Armenian?
28	Ⱍ	[č]	Armenian?
29	Ⱎ	[š]	Hebrew/Armenian?
30	Ⱋ	[ć]	Digraph
31	Ⱏ / Ⱏ	[ъ] / [ь]	Glagolitic
32	Ⱑ	[ě]	Greek
33	Ⱒ	[x]	?
34	Ⱓ	[jo]	?
35	Ⱓ	[ju]	?
36	Ⰵ	[N]	Greek

As shown in the table, there are still nine letters lacking any clues with a few more uncertain cases. However, a few observations can be made from this table. First, for Constantine, the structure of the Glagolitic system and the forms of the letters constituted distinct two levels of work. While Constantine minimized the number of the structural models for the alphabet as much as possible, relying on Greek and inevitably on another source (Armenian), he imported letter forms from various sources.

Second, Constantine seems to have sought letters with phonetic values similar to the given Slavic sounds in other scripts. This may look so because scholars only considered sound-form matching cases. Otherwise, however, almost an infinite number of sources must have been open to Constantine as well as to contemporary scholars, and it would have been virtually impossible for him to obtain any sensible result.

Third, regarding the letters from unknown sources, we can speculate that Constantine created his own shapes on purpose. There existed Greek and other alphabet letters available for some of those sounds represented by letters from unknown sources but Constantine chose not to use them and instead created different forms. Notably, some of the letters from known sources appear in more or less distorted forms with ornamental designs. The formal discrepancies between Glagolitic and source scripts can hardly be regarded as the result of natural evolution or change, given that the Cyrillic alphabet that appeared no more than a century later than Glagolitic has maintained an obvious formal identity with Greek. This indicates that Constantine, when choosing the forms, did not consider practical convenience (for creating on his part or for learning on the Slavs' part) the first criterion, obscuring the formal association with other alphabets.[17] Why, then, did Constantine intentionally adopt this rather

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[17] Matthews (1953: 364) also notes the characteristics of Glagolitic as a mask to conceal its Byzantine origin.

complicated patchwork-strategy, rather than the much easier path of simply adopting Greek (and Armenian) forms?

One logical answer to this question might be that Constantine wanted to differentiate his new alphabet from the source alphabets, except for letters for some Greek-only sounds. While modeling the established alphabets, he might have wanted a certain degree of originality for his alphabet. This could be why even allegedly sound-matching forms show significant deviation from their Greek counterparts; Constantine could have intended to endow his new alphabet with a certain degree of independence from the influence of the Roman bishops, along with authenticity coming from a more or less clear association with Greek. In this respect, it is suggestive that during the religious debate in Venice, in response to church scholars who expressed doubts of the legitimacy of the new Slavic letters and endorsed only three holy languages (Hebrew, Greek, and Latin), Constantine defended his alphabet by enumerating various people turning glory unto God in their own languages (*VC* chapter XVI). This episode proves that Glagolitic looked very distinctive to the eyes of those who were versed in Greek and Latin languages.

4. Conclusion

Thus far, I have explored the origin of Glagolitic by weighing various arguments on controversial phrases in old manuscripts about the Moravian mission and by investigating the structural and formal similarities between Glagolitic, on one hand, and Greek, Armenian, Hebrew, Latin, and others (such as Linear B), on the other hand. It has been shown that there is no direct evidence to interpret *rusъskymi pismeny* as referring to 'Slavic,' based on its lexical meaning, while there are some textual and circumstantial grounds supporting the interpretation of the phrase as a scribal error. This

leads us to the conclusion that there was no systemic alphabet before Constantine's Moravian mission, although we can admit the possibility of primitive transliteration schemes utilizing Latin and Greek letters.

I have also shown that Constantine did not devise Glagolitic from scratch and had to depend on various existing scripts to formalize the structure and forms of the Glagolitic system. The task of creating Glagolitic proceeded through three steps. The first and most important step was to organize the structure of the system. The backbone of this system was Greek, from which Constantine brought the basic organizing principle of his new alphabet (the names, phonetic values, numerical values, and the order of letters). The second step was to look for letters for Slavic-only sounds in scripts other than Greek. The third step was to devise forms for both Greek-Slavic common sounds and Slavic-only sounds. He depended on various sources (Greek, Latin, Hebrew). Glagolitic has affinities with various ancient scripts of that time, but the extent of the resemblance varies from one script to another. This may be ascribed to Constantine's intention to make the Slavic letters assume both independence from the influence of the Roman church and Bavarian bishops and authenticity rooted in Greek. Indeed, the emergence of Glagolitic was an event that was controlled and performed by its creator, rather than the consequence of natural development.

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Discussion: On the origin of the Glagolitic alphabet

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This paper discusses various issues related to the origin of Glagolitic, an extant script that is believed to have been used for the translation purpose in the medieval Slavic world. The main point to be made in the discussion is that Constantine, the creator of the script, had recourse to various existing scripts to formalize the structure and forms of Glagolitic, The reviewer agrees with the author in most respects, and has no detailed counterarguments to the claim made in the paper. The followings are just the reviewer's speculation-based questions.

1. Is there any possibility that glagolitic letters be decomposed to some "letter features"?. For example, circle, vertical line, horizontal line, diagonal line, and its position relative to the circle, etc., each of which, of course, does not convey any phonetic "distinctive feature". It may be unlikely to construct combinatorial rules to govern the formation of each letter, but, in consideration of the fact that most letters contain circles and lines, this may be at least worthwhile to give some research.

This may be related to Cubberley's speculation that Slavs may have had some writing "base" (his term) or "strategy" (the author's term) before

Constantine's creation. It may not have been formalized or even internally contradictory in its actual use, but still could have given some primary data or idea for the Saint's effort to create Glagolitic.

Further, the "decomposition" idea is not incompatible with the manuscript wordings, "strokes and carvings", which may be "less formalized, pre-Slavic *scriptoids*," whose primary purpose is not to express elaborate religious thoughts, but to express some mundane commercial matters.

Needless to say, this does not suggest that there existed a "Proto-Slavic script" before the Contantine's creation, but in his effort to make a new alphabet, this "primitive and native" way of writing the language might be utilized by Constantine in addition to other existing alphabets, including Greek and others.

2. The author, citing Schenker 1995, sees that there are formal similarities in some of the letters representing Greek-only sounds between the Glagoltic and Greek original. Cf. Table 3 to page 8. It seems that some discussion better be provided regarding the apparent similarities. It appears not very similar between the letters of [d], [t], [i] or [p], for example. As for the letters of [r], the circle is positioned differently.

On other hand, the letter of Greek theta is very much similar with that of the glagolitic counterpart, but their phonetic value is different. The phonetic value of "jat'" is most likely [front], but its Greek epigraphic letter, it seems, is [back].