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Reconstructing phonetics behind the graphic system of Evenki texts from the Rychkov archive

This paper discusses the graphic system of manuscripts by Konstantin Rychkov (ca. 1910) containing texts in several dialects of Evenki (Tungusic) with Russian translation. The letters *г* and *h* arguably denote voiced velars or post-velars, stops and fricatives alike. The former is only used before front vowels, the latter otherwise. The letter *h* is also found quite often in place of the velar nasal. Palatalization is denoted by three means: a dedicated diacritic after the consonant, an umlaut on the vowel, or the vowel *i/ы* alternation. Russian letters for hissing sibilants were substituted with Latin ones by Rychkov, which might reflect a different ("lisping") pronounciation. A special diacritic under sibilants and *б* probably indicates semi-voicing.

Key words: Evenki language, graphic system, phonetics, velar, laryngeal, sibilants, palatalization, Handwritten Text Recognition

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Реконструкция фонетических соответствий элементов графики эвенкийских текстов из архива К.М. Рычкова

В данной статье обсуждаются особенности графической системы рукописей К.М. Рычкова (ок. 1910), содержащих тексты на различных диалектах эвенкийского языка с переводом на русский. Буквы *г* и *h* используются, по-видимому, для звонких велярных и поствелярных, не различая взрывных и фрикативных. При этом *г* встречается только перед гласными переднего ряда, *h* в прочих случаях. Кроме того, *h* часто появляется на месте велярного носового. Палатализация передается тремя способами: специальной диакритикой после согласного, умляутом над гласным и меной *i/ы*. Русские буквы для свистящих были заменены Рычковым на латинские, что может указывать на отличия в произношении («шепелявость»). Особый знак под сибилянтами и *б*, вероятно, указывает на полузвонкость.

Ключевые слова: эвенкийский язык, графика, фонетика, велярные, ларингальные, сибилянты, мягкость, распознавание рукописного текста

1. Evenki-Russian texts in the archive of Konstantin Rychkov

1.1. The Rychkov archive

Konstantin Rychkov (1882–1923) was a Russian ethnographer, linguist and journalist, among his other varied activities. Born in a poor family in Ust-Kamenogorsk (currently in Kazakhstan), he was exiled for revolutionary activities to the Turukhansk Krai, spanning huge territories in the North of Western Siberia. Working as a teacher in settlements of the Far North, he developed keen interest in the language, culture and the development of the indigenous peoples, particularly the Evenki – but also Dolgan, Ket, Selkup and others.

The archive of Konstantin Rychkov, largely unpublished, is preserved at the Institute of Oriental Manuscripts (IOM RAS), St. Petersburg. This archive includes 1341 manuscript pages of folklore and other texts in several Evenki dialects of Western Siberia collected between 1905 and 1913, in several folders (Folders 4, 5, 6a, 6b, 6v). To this text collection is adjacent an Evenki-Russian dictionary on cards [Rychkov, n.d.] (4329 cards). Apart from the Evenki materials, the archive also holds data on other languages, notably including a Dolgan dictionary (on 1535 cards) currently being prepared for publication by Prof. Setsu Fujishiro.

In what follows, we will concentrate on aspects of Evenki phonetics as reflected in Rychkov's transcription, using principally data from "Folder 5" [Rychkov, 1911], "Folder 6b" [Rychkov, 1913] and "Folder 6v" [Rychkov, 1912]. We will be mostly interested in establishing correspondences between Rychkov's notation and particular sounds or phonetic features, rather than in describing the phonetic variation observed in the texts.

The analysis of the Rychkov manuscripts is part of the Evenki section within the INEL project, which leverages archival data in order to develop digital text corpora for a number of language varieties indigenous to Siberia (see [Arkhipov, Däbritz, 2018] for a description of the project). We should stress that the analysis presented here is based on partial data and cannot thus be considered final.

1.2. Text content

The main body of the Folders 5, 6a, 6b, 6v is formed by both traditional and spontaneous monological texts, mostly with Russian translations. The former group includes indigenous tales and legends, but also a number of likely Russian tales (such as "Firebird"). The latter ranges from local history texts (on the origin and migration of different Evenki tribes) to descriptions of hardships in everyday life, short life stories and personal narratives such as hunting stories.

There is also a smaller amount of other kinds of data, such as elicited sentences, short songs, and riddles. Standing apart from the others, Folder 4 contains transcripts and descriptions (in Russian) of three shamanistic rites. Texts in Folder 4 are more complex in aspects of language, structure and layout; they will not be treated in the present paper.

1.3. Text layout, metadata and dialectal attribution

As follows from the inscription on the cover, the texts in Folder 4 were collected in 1905–1909 and rewritten in 1911 by Rychkov himself. Though not overtly indicated, we can assume that the remaining folders also contain texts rewritten from original fieldnotes. The Evenki texts and their Russian translations are written in parallel, with the Evenki text on the left of each page and Russian on the right. Russian translation is missing in Folder 5 on ff. 155–321, in Folder 6a on ff. 157–330 and in Folder 6v on ff. 301–434.

The metadata provided with the texts are generally scarce and sometimes altogether missing. In particular, it remains largely unknown whether two particular texts in a folder were recorded from the same speaker or not. Dialect groups can be identified easily; however, a more precise dialectal attribution demands further investigation. Beware that the geographical distribution of dialectal features in Evenki has not been stable in the past due to migrations as well as to dialect shifts in the local populations (see for instance [Vasilevich, 1948, p. 56–59; Maksimova, 2016; Mishchenkova, 2019]). Thus the dialects documented by Rychkov may or may not have been found in the same areas in later periods. Additionally, families could cover long distances during seasonal nomadic migrations, and thus be encountered far from their 'home' region.

One major phonetic feature underlying the Evenki dialectal classification is the reflexes of Proto-Evenki *s in word-initial and intervocalic positions. The three dialect groups show the following patterns [Vasilevich, 1948, p. 10–12]:

I. Northern, or "spirant" group: /h/ in both contexts;

II. Southern, or "sibilant" group: a sibilant in both contexts, with further subdivision into a "hushing" subgroup (/š/) and a "hissing" subgroup (/s/).

III. Eastern, or "sibilant-spirant" group: /s/ word-initially and /h/ intervocalically.

In our data, we will be concerned with the dialects encountered by Rychkov in the territory of the former Turukhansk Krai, namely the Ilimpi dialect of the Northern group and the Sym dialect of the Southern "hushing" group. The standard literary Evenki belongs to the Southern "hissing" group.

Yet another salient feature is the development of *-ld-* (*-*ldr-*) clusters; this parameter cuts across the major dialect groups. According to [Vasilevich, 1948, p. 14; 63 fn. 1], /ld/ is attested, for instance, in Ilimpi (Northern)

and Northern Baykal (Southern "hushing") dialects, /ll/ in Yerbogochen (Northern), Tokma–Upper Lena (Southern "hushing") and Standard Evenki, /ldʲ/ (with an 'affricated' /dʲ/) in Sym dialect (Southern "hushing").

Let us briefly characterize the folders listed above according to the available metadata and the two selected phonetic features.

Folder 5. Dialect: not mentioned. Phonetic features point to the Ilimpi (Northern) dialect: /h/ in both positions (*хуру* 'to leave', *ah*акта- 'to pursue'), /ld/ (*ylдe* 'meat').

Metadata: Text titles are often provided. The folder has no date. Only one text in the middle (p. 121) has a date (09.04.1911) and place (river Kemchug) mentioned; no other data on speakers or locations is found in this folder. Note that the river Kemchug, a tributary of Chulym, is rather known as the area of the Sym dialect (see also Folder 6a).

Texts in Folder 5 are rather heterogeneous linguistically, show much variation, many unexpected forms (e.g. the 1sg marker *-w* used for all persons), probably some Dolgan/Sakha influence (e.g. a sequential converb *-mətəmi* used similarly to Dolgan *-An*). This folder could be identified with the "North-Eastern group of tribes of the Turukhansk Krai (dying breed)" from Rychkov's letter to V. Kotvich (17.11.1913) [Voskoboinikov 1967: 101], i.e. those Evenki which ultimately became part of the Dolgans.

Folder 6a. Dialect: mentioned as "Barhahan dialect along the Rocky [i.e. eastern] bank of Enisey and its tributaries". Phonetic features suggest a Southern "hushing" dialect different from the one in Folder 6b: /š/ in both positions (*шуру*- 'to leave', *аш*аткан 'girl'), but /l(l)/ in place of /ld/ (*yle* 'meat').

Metadata: The folder is not dated. No text titles are provided. For some texts, location, speaker name and tribe are given. The name 'Barhahan' ("Барнаха́нское нарѣчiе") is not identified; however, Rychkov's dictionary mentions the "dialect of Kemchug, or Warhahan" (unnumbered card before № 3378). The river Kemchug, while lying to the west of Enisey and not to the east, is indeed found in the metadata to some texts; however, the dialect documented here apparently differs from the Sym dialect in Folder 6b.

Folder 6b. Dialect: mentioned as "Hojon dialect" ("Хойо́нское нарѣчiе"). Phonetic features point to the Sym dialect: /š/ in both positions (*шуру*- 'to leave', *аш*аткан 'girl'), /lr/ (although not exactly /ldr/) in place of /ld/ (*ylpe* 'meat').

Metadata: The folder as a whole is dated 1913. No other metadata present in the whole folder, and the texts have no titles.

Although the name 'Hojon' could not be identified, the texts in Folder 6b appear to be quite homogenous linguistically and typical for the Sym dialect.

Folder 6v. Dialect: mentioned as "Limpeya dialect" ("Лимпейское нарѣчiе"), i.e. Ilimpi. The phonetic features are consistent with this: /h/ in both positions (*хуру*- 'to leave', *ah*аткан 'girl'), /ld/ (*ylдe* 'meat').

Metadata: Texts in this folder have the most complete metadata, usually including date, location, speaker name, age and tribe. The dates range from July 5, 1912, to August 5. Most of locations besides the 'Kutynda ridge' ("Хр. Ку́тында") are names of rivers tributaries of Lower Tunguska.

The texts in Folder 6v are linguistically much closer to those from the Ilimpi dialect in the folklore collection [Vasilevich, 1936] than those in Folder 5, seemingly with less variation and less unexpected forms.

2. Graphic inventories of Rychkov's Evenki-Russian texts

The Russian part follows pre-reform orthography, notably using the letters **i**, **ѣ**,[1] and the word-final **ъ** after consonants:

(1) Такія старыя вѣсти есть.
  'So it was told.' (lit.: 'There are such old news.') [F. 5: 15][2]

Interestingly, the Latin **l** also sporadically appears in the Russian text instead of Russian **л**. In Folder 5 it occurs especially after **o** as in *olень* 'reindeer', *noложилъ* '(has) put down'; in Folder 6b also after **a** as in *пля-сать стаli* '(they) started to dance'.

Evenki words such as proper names and specific cultural terms, when they occur in Russian translations, are generally spelled in the same way as they are in the Evenki text (see below), eventually preserving stress marks and often separated from a following Russian inflection suffix with an apostrophe:

(2) Тутъ сестра […] стукнула по лбу **Ететы́р`'а**.
  'Then the sister […] struck **Etetyr** on his forehead.' [F. 5: 111]

Rychkov's transcription for Evenki is also mostly Cyrillic. Latin extensions include the letters **j l w**; in Folders 6a, 6b, 6v **s** is used instead of Russian **с**, probably reflecting pronunciation peculiarities (see 3.3). Other extensions include Cyrillic letters **ӈ h ӈ** and several diacritics. Among the latter, stress mark ´ and palatalization mark ` occur most frequently (although not entirely regularly), as well as umlaut in **ä ö ÿ** (see 3.2). Much rarer are macron (**ā**) and a kind of low caron (**ç**; see 3.3).

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[1] In what follows, boldface is used for citing single letters as a shorthand for angle brackets: **ш** = <ш>; italic is used for longer (orthographic) examples: *olень* 'reindeer'; square brackets mark phonetic transcription: [š]; slashes mark phonemic transcription: /š/. Tilde marks alternations within a dialect or archive folder: *куӈакан~куhакан*, as well as cross-dialectal correspondences: /s/~/š/~/h/. Stress marks are in most cases omitted.

[2] Short references will be given as follows: [F. 5] = Folder 5 [Rychkov, 1911]; [F. 6b] = Folder 6b [Rychkov, 1913]; [F. 6v] = Folder 6v [Rychkov, 1912]; [D] = Dictionary [Rychkov, n.d.].

3. Phonetic features as reflected in Rychkov's transcription

The values of most letters in Rychkov's Evenki transcription are straightforwardly correlated with the phonemic inventory. Despite the high number of dialects and their huge geographical spread, as pointed out by Vasilevich [Vasilevich, 1948, p. 5], the number of phonemes is the same in all dialects, and there is principally only variation in their allophones. Slightly simplified common inventories of vowels and consonants adapted from [Vasilevich, 1948, p. 6] are given in Tables 1 and 2, alongside with the corresponding characters used by Rychkov in angle brackets. The most important peculiarities in his inventory are highlighted with bold.

Table 1

Evenki vowel inventory with corresponding Rychkov's symbols

	Front		**Central**		**Back**			
					Unrounded		**Rounded**	
Close	i iː	<и/ы>					u uː	<у/**ÿ**>
Mid	eː	<**e~ä**>	ə əː	<**e**>			o oː	<o/**ö**>
Open					a aː	<a/**ä**>		

The most salient variation parameter is the correlation /s/~/š/~/h/. Recall that the standard literary Evenki (henceforth StE) has /s/, while the dialects registered by Rychkov belong to two other groups, Northern (/h/) and Southern "hushing" (/š/).

In what follows, we will discuss some non-trivial correspondences between Rychkov's notation and the above inventories, starting with the vowels. First, Rychkov does not mark vowel length as such. Although his vertical accent mark usually occurs on vowels which should be long (based on other sources), it is generally restricted to appear only once per orthographic word. An apparent exception is the cliticized negative forms, which he spells in one word with the host but still, often, providing two accent marks, cf. *ешáwhýчö* '(he) didn't say' [F. 5: 62]. We can thus conclude that he used them indeed as a stress marker, rather than a marker of vowel quantity which can occur on more than one vowel in a (simple) word.

As to vowel qualities, the letter **e** is used for both /ə əː/ and (long) /eː/. Only **i** is used for the Evenki /i/ vowel, unlike in Russian translations where both Cyrillic **и** and **i** regularly appear, following the standard pre-reform orthography. (This helps to partly disambiguate the handwriting in the Evenki part, since in the Russian part all the three of **a o и** can be confused). However, the letter **ы** also competes to denote the same

Table 2

Evenki consonant inventory with corresponding Rychkov's symbols

		Labials		Coronals		Palatals		Velars		Laryngeals	
Plosives	**vcd**	b	\<б\>	d	\<д\>			g	**\<h/r\>**		
	vcl	p	\<п\>	t	\<т\>			k	\<к\>		
Affricates	**vcd**			ǯ' (~d')	\<ц\>						
	vcl			č' (~t')	\<ч\>						
Fricatives				s (~š~h)	\<c~**s**~ш~ **x/h/r**\>					h	\<x\>
Nasals		m	\<м\>	n	\<н\>	n'	\<н`\>	ŋ	**\<ӈ~h\>**		
Approximants		w	\<w\>			j	\<j\>				
Laterals				l	\<л\>						
Trills				r	\<p\>						

phoneme /i/, presumably reflecting allophonic variation between palatalized and non-palatalized consonants preceding the vowel, as the umlaut (see 3.2).

In consonants, the voiceless and voiced affricate are denoted with the letters **ч** and **џ**, respectively. Note that both in Northern and Sym dialects the voiced member of the pair is a palatalized stop [d'] rather than affricate [ǯ']. The velar nasal /ŋ/ is denoted by **ӈ**. Cyrillic **x** represents (laryngeal) /h/, as in the modern orthography. This sound appears, first, as an independent phoneme in most dialects, alternating with zero in some of them (3a); second, as the Northern Evenki correlate of the Southern /s~š/ (3b).

(3) a. /h~0/:   *хунат* 'girl' (StE *хунāт*), *хімат* 'soon' (StE *химāт*)
    b. /h~s~š/:   *хулан* 'fox' (StE *сулакū*), *хі* 'you (sg)' (StE *си*)

Such usage of **x** is in line with the modern orthography. However, Rychkov also uses another letter, **h**, clearly distinct from **x** and more intriguing.

3.1. The letter h: Between velars and laryngeals

The letter in question is not the Latin **h** but its Cyrillic counterpart; its capital has the shape of **һ** rather than **H**. The letter is part of modern Sakha (Yakut) and Dolgan alphabets, introduced in Böhtlingk's Yakut grammar (1849–1851), and is also encountered in Rychkov's Dolgan materials. The contexts where **h** is found, while not overlapping with those of **x**,[3] are heterogeneous:
- in various positions in place of expected /g/ – word-initially and word-finally: *hун-* 'to speak' (StE *гӯн-*), *hуско* 'wolf' (StE *гускэ*), *hah* 'swan' (StE *гāг*); word-medially between vowels and in clusters: *moho* 'fire' (StE *того*); *амарhут* 'after that' (StE *амаргӯт*);
- intervocalically in place of expected /h~s~š/: *аhаткан* 'girl' (StE *асāткāн*), *моhаду* 'to the forest' (StE *мōса* 'forest');
- intervocalically in place of expected velar nasal /ŋ/: *нуhан* 's/he' (StE *нуӈан*), *куӈакан ~ куhакан* 'child' (StE *куӈāкāн*);
- in clusters with nasals in place of expected /ŋ/: *hуhне* 'straight' (StE *ӈӯӈнэ*); *тунhа* 'five' (StE *тунӈа*).

The question is then to clarify the relations of **h** to the segments (and corresponding letters) it competes with: /g/, /h/ and /ŋ/.

It turns out that the letter **г**, in spite of being the direct correspondence of Latin **g**, is rarely used by Rychkov in words known to have /g/ in literary Evenki and across dialects. We find it only before front vowels, predominantly in the sequence (-)*гі-* (4a), less frequently in sequences (-)*гä-* (in Folders 5

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[3] Exceptionally, **x** is encountered several times in two of these contexts, namely in the roots *саха* (cf. Sakha *саха* 'Sakha') [F. 5] and *талхана* 'flour' (Sym Evenki *талган*) [F. 6b].

and 6v) or (-)*ге-* (in Folder 6b), cf. (4b). Before non-front vowels, **h** appears instead (see examples above), including in Russian loans (4c). Also in word-medial clusters, **r** only appears when followed by a front vowel (5a), otherwise **h** is used (5b). Only **h** appears in word-final position (only a few occurences in the texts, see (6)).

(4) a. *гірку-* 'to walk' (StE *гирку-мū*), *дыгін* 'four' (StE *дыгин*), *андагіl* 'friends' (Yerbgochon Evenki *андагū* 'friend')

b. *гä~ге* 'other' (StE *гē*), *гälацä-* 'to ask' (StE *гэлэ̄де-ми*), *гäрбі~гербі* 'name' (StE *гэрбū*)

c. *hубернатор* 'governor' (Rus. *губернатор*), *Гріhорij* 'Gregory (proper name)' (Rus. *Григорий*); cf. also *hо́род* 'city' [D: 1304] (Rus. *город*), *ɓумаhá* 'paper' [D: 1160] (Rus. *бумага*)

(5) a. *нӱlгі* 'wandering' (StE *нулгū*), *харгі* 'devil' (StE *харгū*)

b. *халhан* 'foot' (StE *халган*), *амарhут* 'after that' (StE *амаргȳт*), *хенды* 'big' (StE *хэгды*)

(6) *hah* 'swan' (StE *гāг*)

But these are not all of the uses of **r**. Surprisingly enough, it is also found intervocalically in place of /h/ alternating with /s~š/, always in the same complementary distribution with **h** depending on the following vowel:

(7) a. *агі* 'woman' (StE *аси*), *еhыгічі~еңеhычі* 'strong' (StE *эңэсū* 'force'), *егікакун* 'just now' (StE *эсӣкэ̄кӯн*)

b. *моhаду* 'to the forest' (StE *мо̄са* 'forest'), *elaha* 'when' (StE *э̄ласа*)

Similar observations have been made by S. Fujishiro regarding Rychkov's Dolgan dictionary from the same archive. As she remarks in [Fujishiro, 2018, p. 99, fn. 5], "Rychkov used the letter h for voiced velar and uvular fricatives or stops, [g], [ɣ], [ɦ], [ŋ], [h]. In most cases, the letter corresponds to r in Modern Dolgan." This formulation rightfully includes only voiced segments. On the other hand, it is also to some extent contradictory, since the segments listed do not conform to the description: both [ɦ] and [h] denote laryngeals (glottals) and not uvulars, and [h] is not voiced.

Note that /g/ is normally realized as a stop word-initially and in clusters, but as a fricative [ɣ] intervocalically and word-finally in most dialects [Vasilevich, 1948; Tsintsius, 1949, p. 48–49]. We find no evidence for a fricative realization of /g/ in word-initial position, neither in the past nor in modern Northern or Sym dialects. We must thus assume that Rychkov does not distinguish between the two sounds ([g] and [ɣ]), using **h** and **r**

in both cases. On the other hand, the fricative component of intervocalic [ɣ] can undergo weakening, eventually turning into a breathy [ɦ] or zero; in Tokma-Upper Lena dialect, diphthongs and long vowels are reported in place of [w] < [ɣ], e.g. *moo* < *mowo* 'fire' (StE *того*), and [w] in neighbouring Southern dialects [Vasilevich, 1948, p. 90–91].

Vasilevich notes that in some northwestern varieties of Ilimpi dialect, intervocalic /h/ is voiced [ɦ] before /i/ [Vasilevich, 1948, p. 161]. This voicing is also observed in modern audio recordings of Northern dialects,[4] and is seemingly neither rare not obligatory. She also reports [Vasilevich, 1948, p. 201, 264] voicing and strengthening of intervocalic /h/ in some Eastern dialects, cf.: "ahӣ ~ aɦӣ ~ aʃ̆ӣ ~ aгӣ" 'woman' in Tungir Evenki (Chita oblast); "ahӣ ~ aʃ̆ӣ ~ ajӣ" 'woman' in Uchur-Zeya Evenki (Eastern Yakutia and Chita oblast).[5] However such strengthening of [h] into [ɣ] or [g] has not been reported, to our knowledge, for the Northern dialects, and is not observed, at least at the first sight, in the available recordings. It should also be mentioned that the strengthening reported by Vasilevich is conditioned by close vowels, i.e. [i] and [u], while Rychkov makes the distinction between front and back vowels instead.

To sum up, the most reliably reconstructed difference between the word-initial /h/ (symbolized by **x**) and the intervocalic /h/ and /g/ (both symbolized by **h** and **г**) is that of voicing. On the other hand, Rychkov apparently makes no difference between the (voiced) laryngeal fricative [ɦ] in *elaha* 'when' and the velar stop [g] in *нуско* 'wolf'. As a non-confirmed hypothesis, Rychkov himself might have spoken a Southern variety of Russian, notoriously featuring a fricative [ɣ] (or [ɦ], depending on the specific variety) in place of standard Russian [g]. This seems possible given the heterogeneous origins of population in Eastern Kazakhstan at the time; and it could explain his non-distinction of [g] and [ɣ ɦ].[6]

Taking into account the complementary relations between **h** and **г**, and disregarding for the moment the relations between **h** and **ӈ**, we can then reconstruct the distribution of letters **x h г** as follows (see Table 3):

<x> stands for a **voiceless laryngeal**, irrespective of the vocalic context;

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[4] The recordings consulted were part of the forthcoming INEL Evenki corpus and of the materials collected by Olga Kazakevich and her colleagues available at http://siberian-lang.srcc.msu.ru/

[5] **ʃ̆** stands for a voiced velar fricative, i.e. [ɣ].

[6] Unfortunately, no explanation is provided by Rychkov himself to his writing system, neither in the folders 4, 5, 6a, 6b, 6v, 8, nor, according to S. Fujishiro (p.c.), in his Dolgan materials or letters to V. Kotvich. So far we have been unable to identify any direct predecessor for Rychkov's writing system; e.g. the sample texts published by Kotvich around the same time [Kotvich, 1910], while making use of the Cyrillic script, follow a clearly different system and, in particular, do not show any similar distribution of **г** and **h**.

<h> stands for a **voiced non-palatalized** velar or uvular or laryngeal, irrespective of the stop/fricative distinction and of specific place of articulation within the **velar/post-velar** zone;

<г> stands for a **voiced palatalized** velar or uvular or laryngeal, again irrespective of the stop/fricative distinction and of specific place of articulation within the **velar/post-velar** zone.

Table 3

Distribution of Rychkov's letters with their phonemic correspondences and hypothetical phonetic values

	#_V		V_V		R_V		V_#
	#_V$_{fr}$	#_V$_{bk}$	V_V$_{fr}$	V_V$_{bk}$	R_V$_{fr}$	R_V$_{bk}$	
/h/ (~0)	x [hʲ]	x [h]	–	–	–	–	–
	хімат 'soon'	*хунат* 'girl'					
/h/ (~/s~š/)	x [hʲ]	x [h]	г [ɦʲ]	h [ɦ]	–	–	–
	хі 'you (sg)'	*хулан* 'fox'	*агі* 'woman'	*elaha* 'when'			
/g/	г [gʲ]	h [g]	г [ɣʲ]	h [ɣ]	г [gʲ]	h [g]	h [ɣ]
	гä~ге 'other'	*нуско* 'wolf'	*дыгін* 'four'	*moho* 'fire'	*харгі* 'devil'	*хalhан* 'foot'	*hah* 'swan'

As mentioned above, the letter **h** also appears in place of expected velar nasal /ŋ/. In some lexical roots, the choice of **h** or **ӊ** is quite stable. E.g., the 3 pers. pronoun has always **h**: *нуhан* 'he/she/it' (StE *нуӊан*). In other cases, there is more or less variation, e.g. *куӊакан ~ куhакан* 'child' (StE *куӊа̄ка̄н*), *hуhне ~ нуhне* 'straight' (StE *ӊуӊнэ*). In turn, /ŋ/ in clusters (esp. with nasals) is almost invariably represented as **h**: *моhнон* 'fool' (StE *моӊнон*), *тунhа* 'five' (StE *тунӊа*), *анhані* 'year' (StE *анӊанӯ*). Only a handful of instances of *-мӊ-* and *-ӊм-* keep both nasals, e.g. in the root *омӊо-* 'to forget' (StE *омӊо-*). Finally, in a few cases in Folders 6v and 6b *-нhд-* appears in place of /ŋn/: *унhден* '(he) sends' (StE *уӊнэн*).

One cannot be sure which of the sounds potentially symbolized by **h** is (are) meant by Rychkov in these cases. While a fricative [ɣ] or de-buccalized [ɦ] is more likely intervocalically, a denasalized stop [g] might appear in clusters. The [ŋ]~[ɦ] alternation can be observed in modern recordings of Northern

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dialects, although it does not seem at all widespread to such an extent as Rychkov's transcriptions might suggest. A similar alternation is reported by Vasilevich e.g. for Upper Lena and Angara dialects (Southern "hushing"): ӡэнэ- 'to go' (StE ӈэнэ-), аӡаӡ'акāн- 'orphan' (StE аӈаӡ'акāн-) [Vasilevich, 1948, p. 95]. Note also the development of *ŋ > γ/w ~ 0 in Central resp. Southern dialects of Selkup [Khelimskii, 1985].

3.2. Three ways of marking palatalization

Three means are employed by Rychkov, in various combinations, to denote palatalization. Recall that it is currently assumed that the only segments with phonologically contrastive palatalization in Evenki are /n'/, /d' (ӡ')/ and /č' (t')/ [Vasilevich, 1958]. Both /d'/ and /č'/ have dedicated letters in Rychkov's transcription, **ӡ** and **ч**.

The principal palatalization marker for /n'/ is a diacritic similar to a grave accent placed slightly above and to the right of the letter (in contrast to the accent mark which is closer to vertical and placed directly above the vowel, and at a greater distance from it). But the palatalization diacritic is not limited to **н`**. It is also regularly present on **р`**, both in common names (8a) and in proper names (8b), including loans:

(8) a. *бір`а* 'river' (StE *бира*), *hур`какан* 'boy' (StE *хуркэкэн*),
       ір`акшä* 'skin' (StE *ирэксэ*); *букатыр` 'bogatyr' (Rus.
       богатырь), *менкер`* 'saddle-bag' (Urmi Evenki *мэӈгэр*) [F. 5],
       бер`* 'bow' (StE *бэр*), *гíр`амда 'bone' (StE *гирамна*) [F. 6b]

   b. *Ететыр`* (personal name), *Кундаhы́р`* (tribe name) [F. 5],
      Кундóгір`* (tribe name), *Удыгíр` (tribe name) [F. 6v],
      Чíр`амба 'river Sym' [F. 6b]

In Folder 6b, palatalization mark is regularly present on final **т`** [t'] corresponding to StE [t] in some suffixes such as instrumental: *шулакит`* 'fox (instr.)' (StE *сулакит*), *таріт`* 'therefore' (StE *тарит*), *аjам`* 'well' (StE *аят*), *шот`* 'very (much)' (StE *сōт*). This is characteristic of the Sym dialect; however, [Vasilevich, 1948, p. 65] describes the Sym variant as -*ч* [č].

The second means is the umlaut over vowels **ä ö ÿ**. The umlaut and the palatalization diacritic on the consonant can appear separately or in parallel: *н`ан ~ н`äн ~ нäн* 'again' (StE *нян*). Vowels with umlaut appear not only after **н**, but also after affricates **ч**, **ӡ** and sonorants **l**, **j**. The vowel **ä** also appears after **ш** (or rather **sш**, see 3.3), **г** and **р**. In Folder 6b, **ä** is mostly replaced by **e**: *г`ä ~ гä* [F. 5, F. 6v], *г`e ~ ге* [F.6b] 'other' (StE *гē*), and **ö ÿ** are used quite rarely. Vowels with umlaut are also found word-initially or after another vowel, in which case they are likely representing a sequence [j] + vowel.

Finally, the choice of vowels **i** vs. **ы** (for the same phoneme, /i/) is also conditioned by palatalization, as in modern Evenki orthography after **д** and **н**. Only **i** is used after all consonants bearing the palatalization diacritic and **j**, after **ч**, **ʒ** and (in Folders 5 and 6v) **ш**, after **г**, **х** (see 3.1), as well as word-initially. Conversely, only **ы** is found after **т**, **д** and **h**; but in Folder 6b, *-mi-* sometimes indicates a palatalized [t'], similarly to **т`** discussed above.

The use of *-ны-* vs. *-гi-* in texts is oscillating and leads, with the addition of **h ~ ӈ** alternation, to numerous variants such as *еӈегiчi ~ еӈеһычi ~ емыһычi ~ еһеӈычi ~ еһегiчi ~ еһыгiчi ~ еһыһычi ~ еһеһычi* 'strong' (StE *еӈесӣчӣ*).

3.3. Sibilants, voicing and an obscure diacritic

All in all, the following spellings for sibilants are found in different contexts: **с s ш сш сш з z**; other combinations involving sibilant letters, including **сч**, **сч**, arguably correspond to clusters. The two Russian letters for hissing sibilants, **с** and **з**, are only used in Folder 5, and most occurrences of **с** in loans are corrected into Latin **s**. In Folders 6b and 6v, only **s** and **z** are used (with very few exceptions), including in native words, in particular in the sequence **sш** (~**сш** in Folder 5).

Single letters **с s з z** can also bear additional diacritics, e.g. **ç ş ş` ʒ ʒ` ẕ z`**. Note that **з**, **z** appear only in loanwords, and **с**, **s** mainly in loanwords except some clusters like *-ск-*, *-ст-*, since the dialects documented by Rychkov generally lack /s/ in their inventory and [s] can only appear in native items as an allophone of either /h/ or /š/.

Vasilevich lists, among others, the following features for the Ilimpi dialect: [š] in clusters in most varieties: [-kš-, -šk-] (~StE [-ks-, -sk-]); in some Northern subdialects, [š] or [t'] in place of StE /č/; [š] in 2 person singular markers in possessive and some verbal forms [Vasilevich, 1948, p. 160–164]. The following can be found in Folders 5 and 6v:
− Word-final /s/ in 2sg markers is regularly written with **ш** ([š]): *ечäш бакаṷäнде* 'you will not find'; *хiнiш дундаду* 'to your land'; interestingly, the same ending is regularly noted with the reflexive possessive: *монiш ṷӱду* 'to his own home'.
− Word-final /s/ in roots was not found in the texts.
− Word-medial postconsonantal /s/ (usually in cluster *-ks-*) is generally found as **ш**: *ерiкшä-* 'to breathe' (StE *эрӣксэ*), *ip`акшä* 'reindeer skin' (StE *ирэ̄ксэ*), *хукшiлда* 'ski' (StE *сӯксилла*). Exceptionally, StE *тукса-* 'to run' is regularly recorded as *тупса-* in Folder 5; it is a variant not reflected in the dictionary [Vasilevich, 1958].[7] The same root in Folders 6v and 6b has the expected shape, *тукша-*.

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[7] *тупса-* is recorded in the Nepa (Southern "hissing") dialect [Vasilevich, 1948, p. 141].

- Word-medial preconsonantal /s/ in suffixes is written with **ш** ([š]): cf. adverbial allative suffix *-шкі* (StE *-скū* /-ski:/) and its variant *-шкат*: *чашкі* 'further', *амашкі* 'back', *мучӱшкат~хучӱшкат* 'back'; cf. also a derivational suffix followed by imperative (StE *-кал*): *а-ш-кал* 'lie down!', *куколе-ш-кал* 'lie!'

- Word-medial preconsonantal /s/ in roots is represented by only one but frequent lexeme: 'wolf' (StE *гускэ*), in which the sibilant is spelled in a few different ways, however not including **ш**: namely, with either **с~s** or **з~z**, in most cases bearing an unexplained 'low caron' diacritic: *hуçко ~ hузко* [F.5] *~ hуşко ~ hуş`ко* [F. 6v: 371] *~ hуz`ко* [F. 6b: 24].

- In some roots we observe the sequence **сш~sш** in place of StE /č/ or /s/ + consonant: *бусшä- ~ бушшä-* 'to be ill' (StE *буслэ-*, Uchur *буссэ-*, Zeya *бушшэ-*), *ісшä-* [F.5] *~ ічä-* [F. 6v] 'to see' (StE *ичэ-*). Note that Ilimpi texts in [Vasilevich, 1936] have *вųşşə-* /buššə-/ 'to be ill' and *ісə-* /ičə-/ 'to see'. Sym texts in Folder 6b have the expected *іче-* 'to see' and different lexemes for 'to be ill'.

- The verb 'to reach' (StE *ис-мū*) in its 3rd person past forms (StE *иста* 'reached (3pl)', *истан* 'reached (3sg)') features /s/ in a heteromorphemic cluster. In Folder 5, we find * icтa* (usually without the expected *-н* in 3sg); in Folder 6v, they appear as *iшта*, *iштан*. Finally, in 6b the same forms appear as *iшa*, *iшан*; cf. *ışşa* /işša/ in Sym texts in [Vasilevich, 1936].

The original /s/ in apparent loanwords in all positions is usually rendered with **с~s**, often bearing the 'low caron' diacritic (see below): *саха* 'Sakha' (Sakha *саха*), *холст~холыст* 'sackcloth' (Rus. *холст*) [F. 5], *sабла* 'sabre' (Rus. *сабля*), *sтаршіна* 'sergeant' (Rus. *старшина*), *lімпеjскаj* 'Ilimpi (adj.)' (Rus. *илимпейский*) [F. 6v], *sушка* 'cracker ring' (Rus. *сушка*), *кisla-* 'to become sour' (Rus. *киснуть*, cf. past *скисло*) [F. 6b]. However, in a number of loans word-initial and intervocalic /s/ (or /z/) apparently had been subject to the /s/>/h/ transformation: *каhак* 'Cossack' (Rus. *казак*) [F. 5]. Since this also occurs in the "hushing" Sym texts (Folder 6b), such loans were perhaps mediated by other dialects or languages; cf. a mix of reflexes of various sibilants in a passage discussing prices on everyday goods [F. 6b: 24–25]:

    (9) a. *хукнó* 'woollen cloth' </s/ (Rus. *сукно*), *sóртыl* 'sort' </s/ (Rus. *сорт*); *símsa* 'chintz' </s'/, /c/ (Rus. *ситец*, gen. *ситца*), *шер`áнка* 'match' </s'/ (Rus. *серянка*), *тьішача* 'thousand' </s'/, /č'/ (Rus. *тысяча*); *хolkówыj* 'rouble' </c/ (Rus. *целковый*);

        b. *шólтаj* 'yellow' </ž/ (Rus. *жёлтый*); *аршін* 'arshin' </š/ (Rus. *аршин*); *крупчатка* 'groats' </č'/ (Rus. *крупчатка*)

Three aspects in Rychkov's rendering of sibilants call for an explanation:

1) the voluntary replacement **c**, **з** > **s**, **z**;

2) the sequence **cш**~**sш**;

3) the mysterious 'low caron' diacritic.

The interpretations suggested below are only tentative, and they all assume that there is some phonetic motivation behind these peculiarities of the writing system, which is however ultimately unknown.

1. Although Rychkov also uses Latin letters elsewhere (**w j l**), he does so only sparingly. The fact that it is the occurrences of **c** in loans such as *pyç*` 'Russian' that were first corrected into *pyş*` suggests some difference from the expected [s] sound that he intended to emphasize. This might be an intermediate articulation between [s] and [š], sometimes reported for Evenki /s/ (Olga Kazakevich, p.c.; cf. the 'lisping [шепелявое] pronunciation of the sibilant,' supposedly reflected in some data collected by Messerschmidt in 1723 [Mishchenkova, 2019, p. 74–77]). Note that **s** can additionally be marked or not marked as palatalized, cf. *pyş*` 'Russian', *кlyş*` 'key' (< Rus. *ключ*, [č']) but *кыres* 'cross(?)' (< Rus. *крест*, [s]), *nisal* 'gun' (< Rus. *пищаль*, [š']), so these two features should be considered as independent.

2. The sequence **cш**~**sш** between vowels corresponds to a long [š:] or to a [č'] in other data. The following vowel bears the umlaut in the majority of cases, indicating a palatalized articulation [š(:)']. However, if it were for the palatalization alone, Rychkov's regular palatalization mark (`) would have been sufficient. The two-letter sequence might also mark the length of the consonant articulation. On the other hand, the preconsonantal **sш** in *isшma* in Folder 6v is probably neither palatalized nor long. Yet another alternative would be a kind of affricated articulation with a burst component in the middle, as e.g. in older Russian pronunciation of *ещё* [-š'č'-] 'yet', now simplified into [š(:)']; however this remains speculative and does not follow from the spelling itself.

3. The mysterious caron-like mark appears below a limited set of consonants. First, it appears with the sibilant letters (**c~s** and **з~z**). A lion's share of all the occurrences in the texts is covered by only two roots, *hyçko~hyзko* 'wolf' and *pyş*` 'Russian'. The former is encountered with more voiced (ca. 50) than voiceless (ca. 10) spellings. It is also remarkable that, while /s/ and /z/ in Russian loans are spelled most of the time with resp. **c~s** and **з~z**, like in *кн`aз* 'prince' (Rus. *князь*), *sliз*` 'slime(?)' (Rus. *слизь*) [F. 5: 254], there are also cases when a Russian voiced sibilant is rendered by a voiceless letter with 'low caron': *paşe* 'really?' (Rus. *разве*) [F. 6b: 147], *şaseдameлдypa* '(to the) assessor' (Rus. *заседатель*) [F. 6b: 201].

Second, in a few cases the 'low caron' is found under the letter **б**. The only occurrence in the texts is a borrowing, *бopox* 'powder' (Rus.

порох) [F. 5: 16], where it corresponds to an original voiced /p/. More cases are found in the dictionary, e.g. *бумагá* 'paper' (Rus. *бумага*) [D: 1160], *б̌ алýна* 'beluga sturgeon' (Rus. *белуга*) [D: 1057], *бóчўку* 'barrel' (Rus. *бочка*) [D: 1128]. Interestingly, they are not restricted to loanwords: *дýкубча* (*декубҹа*) 'written' [D: 1435]; *туÿбн́от* 'scrambled egg' [D: 2563]; *ц̌`ÿбкун* 'a beaded ornament' [D: 1555]; *чабг̌итамá* 'steep [slope]' [D: 3066], *ц̌`öмбомó* 'a circled ornament' [D: 1547]. In the first three words, *-б̌*-forms a suffix – passive, at least in the first two, usually written as *-w*-; cf. the variant *дукýwча* 'drawing' [D: 1433]. Note also an exceptional use of 'low caron' with **w**: *Ẇóуẇ!* 'an interjection of fatigue' [D: 1219].

Given the fluctuations in the use of voiced vs. voiceless sibilants with the 'low caron,' as well as its use in the case of mismatch of voicing in loanwords, the most natural explanation seems to be that this diacritic denotes an intermediate value of the voicing feature, i.e. 'semi-voicing' (commonly designated with small capitals in the Finno-Ugric Transcription (FUT)). The origins of this sign remain unclear, but note a similar diacritic (but mirrored – as a circumflex above the letter) used in the transcriptions of A. Dulson (Tomsk) school, notably by Angelina Kuzmina in her Selkup materials (1960s–1970s).

4. Conclusion

Texts collected by Konstantin Rychkov constitute a valuable resource documenting several local varieties of Evenki in the beginning of XX c. The graphic system of these texts provides cues for some phonetic features not reflected in other sources, such as palatalization of /r/ and 'semi-voicing' of sibilants and /b/. The letter **x** is used for voiceless laryngeals. Voiced velars and post-velars are denoted by **h** (non-palatalized) and **r** (palatalized), without distinction between stops and fricatives. Further investigation is needed to confirm the phonetic values of sibilants transcribed as **s**, **сш~sш**.

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