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Chapter 7

From consonant to tone: Laryngealized and pharyngealized vowels in Udihe

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This article gives a comprehensive analysis of laryngealized and pharyngealized vowels in the Udihe language. Their realization in different Udihe varieties is considered, and their etymology is traced. The classification of Udihe dialects is also discussed. The presence of pharyngealized vowels is one of the most important features that distinguishes the northern dialect cluster from the southern one. The loss of pharyngealized vowels has led to changes in the morphology and syntax of the dialects of the southern cluster. The analysis provides a basis for a complete picture of a dialectal continuum, which includes dialects of Udihe and the closely related Oroch language. The internal mechanisms of the dialectal continuum are presented, taking into account types of pronunciation in neighbouring varieties.

1 Introduction

Udihe (Udeghe, Udege) is a highly endangered Manchu-Tungusic language spoken in the southern part of the Russian Far East. The Udihe live in Khabarovskij Krai (districts: Imeni Lazo, Nanaisky) and Primorskij Krai (districts: Terneiskij, Požarskij, Krasnoarmejskij), and also in the Jewish Autonomous Region. The original name is *Udihe* or *Udie*.¹ The official Russian name is *Udegeiskij jazyk*.² In

¹Until the 1920s, the Udihe did not have a common self-designation but used clan names, usually derived from names of rivers.

²The name *Udege* is the transmission of the self-designation *Udihe*: the pharyngealized element was perceived as a consonant /ɣ/ and was written down with the Cyrillic letter <ɣ>, which reflected the local Russian pronunciation of /ɣ/ as a fricative consonant. In literary Russian <ɣ> denotes a plosive consonant. “The Russian form *Udege* is based, in a certain sense, on a phonetic misunderstanding” (Kormušin 1998: 5).



linguistic literature it is also known as *udeiskij* (Evgenij Šneider 1936) and *udyx-eiskij* (Igor Kormušin 1998). In the 2010 census Udihe named themselves as: *Udie*, *Ude*, *Udegeitsy*, *Udexe*, and *Udexeitsy*.

According to the latest censuses³ (1989, 2002 and 2010), the number of Udihe is constantly decreasing from 1,902 in 1989 to 1,496 in 2010. In 2010, 620 people were registered in the Khabarovskij Krai; 793 people lived in the Primorskij Krai. An additional 83 Udihe were registered outside of these territories, including 42 people in the Jewish Autonomous Region. The census data also reflect the steady decline of the language: according to the 1989 census, Udihe was spoken by 462 people, in 2002 it was 227 people, and in 2010 it was only 103 people. The 2010 census shows a sharp drop in the Udihe competence in the Khabarovskij Krai (from 96 to 16 people).

Traditionally, the Udihe were semi-nomads, moving within a limited territory, each along a particular river and its tributaries, thereby forming territorial groups which usually consisted of several families. The territorial groups are mostly named after the corresponding rivers: (1) Kur-Urmi, (2) Samarga, (3) An-juj, (4) Xungari, (5) Xor, (6) Bikin, (7) Iman, and (8) Sea shore (Namunka). In the 1930s, the Udihe were compelled to become sedentary: each territorial group was settled in a specially built permanent settlement: Kukan (Kur-Urmi), Bira (An-juj), Kun (Xungari), Agzu (Samarga), Gvasjugi (Xor), Sjain, Mitaxeza and Olon (Bikin), Sančixeza (Iman). The less numerous Sea shore Udihe were dispersed. At present, the largest Udihe settlements are: Agzu (Terneiskij district), constituting about 80% of the population of the village; Gvasjugi (Imeni Lazo district; 65% of the population), Krasnyj Jar and Olon (Požarskij district; 55% of the population). Each territorial group is characterized by a specific language variety. Dialectal differences primarily concern phonetics and vocabulary, and to a lesser extent morphology and syntax.

Morphologically, Udihe is an agglutinative language; the agglutination is combined with elements of fusion mainly in verb paradigms. The root, both nominal and verbal, always occupies the extreme left position in a word; it is followed by derivational and inflectional suffixes, which form a chain that can number up to six or seven (in the case of verb forms). In addition to synthetic forms the verb system contains analytic constructions with auxiliary verbs. The verbal negative construction consists of a negative verb and a main verb without any specific con-negative suffixes (for more details see Hölzl 2015).

The peculiarity of Udihe inside the Manchu-Tungusic group is largely due to its phonetics and phonology, primarily the existence of several series of vow-

³For an analysis of the census data, see Perekhval'skaya (2016).

els. The northern dialect cluster has four series of vowels: short, long (including diphthongoids), pharyngealized and laryngealized; the southern dialect cluster has three series: short, long and laryngealized. The phonological interpretation of these vowels is controversial (see Nikolaeva & Tolskaya 2001: 39–41).

The present article contains a comprehensive analysis of these vowels in Udihe dialects. It is shown that they developed out of tri-phonemic complexes of the V-C-V type, which are found in the closely related Oroch language.

When considering complex vowel phonemes, the phonological system of each territorial variety (dialect) is regarded as independent (Trudgill 1985). In each variety the full mode and the allegro modes of pronunciation are taken into account, which makes it possible to show that, roughly, the allegro mode of one variety corresponds to the full pronunciation mode of another variety which, in turn, creates a new allegro mode, etc.

The objectives of the article are 1) to give an overview of Udihe dialects and their clusters; 2) to display the anatomy of the “dialect continuum” by comparison of the modes of pronunciation in each territorial variety; 3) to show the relative character of the synchrony/diachrony dichotomy in a language description; 4) to demonstrate one of the mechanisms of tonogenesis in a previously atonal language.

2 The Udihe: Areal groups and dialects

2.1 Udihe and Oroch

The Udihe language area borders with Nanai, Ulcha and Ewenki, as well as, historically, Manchu dialects. Udihe had rather intensive contacts with these languages. Thus, Kur-Urmi Udihe situated in traditional Ewenki territory underwent significant influence of the latter. Bikin Udihe and Bikin Nanai (Kilen) acquired a number of similar features (Perekhval'skaya 2001). The linguistic border between Udihe, on one hand, and Nanai or Ewenki, on the other, are clear cut. Neither speakers nor linguists hesitate in attributing a variety to one or the other of these languages.

The situation of Udihe and Oroch is different.⁴ As there are no definite linguistic criteria for distinguishing “language” and “dialect”, it is worth considering the ethnic identity of Udihe and Oroch speakers.

⁴In addition, there is Kilen on the Chinese side, which has been heavily influenced by Udihe or Oroch (for details see Hölzl 2018). Negidal, most probably, also had an Oroch substrate (Pevnov 2012).

Traditionally, the Oroch lived along the sea coast and the Tumnin river. Their territory borders the Anjuj and Xungari Udihe area in the West and the Samarga Udihe in the South (see Figure 1). Culturally, the Udihe and Oroch are rather close. While the Nanai, who lived along large rivers Amur and Ussuri, were mainly fishermen, the Udihe and Oroch travelled along small taiga rivers, their main occupation being hunting; fishing and gathering were secondary occupations. Their neighbours in the North, the Ewenki, were reindeer breeders; neither Oroch nor Udihe were engaged in breeding.

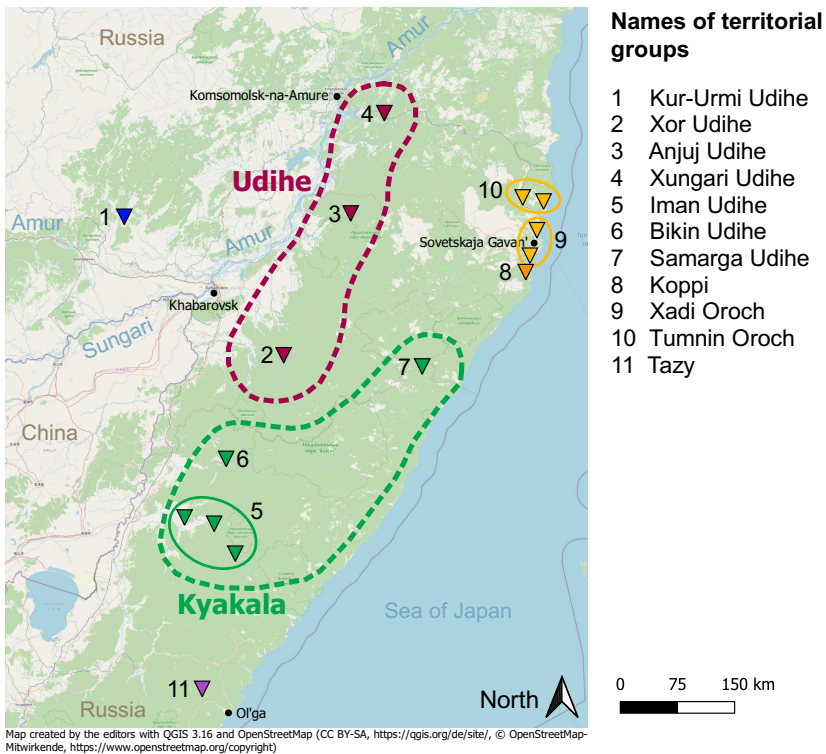


Figure 1: Udihe territorial groups

Previously, the Udihe and Oroch as well as other local ethnic groups had “clan identity”. “...the ethnonym Udihe (Udie) has been used since the 1930s. Before there was no general ethnic designation. Each areal group had its own self nomination: *hungakə* on Xungari, *bikiŋkə* on Bikin, *uniŋka* on Anjuj and so on” (Suliandziga et al. 2003: 142). The Oroch had no general ethnonym either. The Udihe call them *namuŋka* ‘sea shore dwellers’. This name was also used for the Udihe

living along small rivers that flow into the sea further to the south, so Oroch clans were not distinguished from the Udihe.

The first researchers did not separate the Udihe and the Oroch, which, apparently, reflected the real state of affairs. In the absence of a common self-designation, these people/peoples were called *Orochen* (*Orochon*) by the Russians. This name was given to the indigenous population living along the coast of the Tatar Strait and the Sea of Japan, by Jean-François de Lapérouse (Šrenk 1883: 142). This term is essentially erroneous, since it goes back to the Manchu-Tungusic word for reindeer, *oro(n)*. Neither the Udihe nor the Oroch were engaged in reindeer herding. Nevertheless, this ethnonym was used for some time.⁵ The *Orochon* were considered a separate ethnic group, along with the Gold (i.e., Nanai), Tungus (i.e., Ewenki and sometimes Even) or Gilyak (i.e., Nivkh).

In the modern scientific literature, the term *Udihe* appears for the first time in Sergej Brailovskij's work (Brailovskij 1901). He used the autonym of one of the groups of northern Udihe. Brailovskij also introduced the term *Tazy*⁶ as a synonym for Udihe. However, he did not separate the Udihe and the Oroch, and used the term *Oroch – Udihe*, and *Tazy* as synonymous. In the late 1920s, the campaign to change ethnonyms of Russian minorities was launched in the country. Old ethnonyms were assumed to be derogatory and were replaced usually by self-designations of respective peoples. Thus, Gold became Nanai, Gilyak became Nivkh, Tungus became Ewenki, Lamut became Even, etc. The *Orochon* were divided into three groups: Oroch, Udihe, and Tazy. This subdivision was apparently worked out by the famous geographer Vladimir Arseniev (Arsen'iev 1947-1949), who worked in the area.

This division is now universally recognized, and these ethnonyms are included in the list of Russian minorities. They were also recorded in Soviet passports as “nationality”. At present, when these languages are on the verge of extinction, and people themselves firmly know their “nationality”, this separation became reality. Still, the question arises how these idioms actually correlate.

⁵The term *Orochon*, referring to both the Udihe and the Oroch together, was used in all geographical, statistical, and other documents of the late 19th and early 20th centuries (see, for example, Šrenk 1883; Nadarov 1887; Margaritov 1888; Protodjakonov 1888; Przevalskij 1990 [1870]). It is worth mentioning that in Iman this designation is still used referring to the Udihe, being perceived as pejorative.

⁶The term *Tazy* goes back to Chinese 韃子 *dázi* ‘local resident of Primorye’; the word was already attested many hundreds of years ago in Chinese sources (Hölzl 2018: 116). *Tazy* is an ethnic group of Tungus-Manchu origin who have lost their native language and use a northern dialect of Chinese. *Tazy* were settled in the village of Mikhailovka, Olginskij district; about the *Tazy* language situation, see Belikov & Perekhval'skaya (1994).

The first dictionaries and other linguistic data on Udihe (Protodjakonov 1888; Leontovič 1898; Nadarov 1887; Margaritov 1888; Schmidt 1928), as well as a generalizing work of Brailovskij (Brailovskij 1901), did not separate Oroch and Udihe words.⁷ However, Brailovskij compared the data that he personally collected with words of other territorial groups, and came to the conclusion that the southern Udihe clans which had undergone Chinese influence were different from other groups. He combined northern Udihe (in modern terminology) and Oroch. At the same time, Brailovskij insisted on the cultural and linguistic unity of all “Oroch-Udihe”. The same was the point of view of Peter Schmidt (Schmidt 1928). The anthropologist Viktor Lar’kin also considered Oroch and Udihe two dialects of the same language, and divided Udihe into several sub-dialects (Lar’kin 1959: 5). Udihe and Oroch have been considered separate languages since the 1930s, beginning with works by Evgenij Šneider (Šneider 1936, 1937), Valentin Avrorin and Elena Lebedeva (Avrorin & Lebedeva 1978).

Regardless of whether Udihe and Oroch should be considered closely related languages or distant dialects of the same language, the fact remains that their territorial varieties form a dialect continuum. The Xadi (coastal) variety of Oroch is close to northern Udihe. The frontier dialect (Koppi variety) is described as either the most southern dialect of Oroch (Avrorin & Lebedeva 1978), or the most distant dialect of Udihe (Kormušin 1998). In fact, here the “official” border between Oroch and Udihe just coincides with the administrative border between the Khabarovskij and Primorskij Krai. Since the mouth of the Koppi river administratively is a part of the Khabarovskij Krai, local “Orochons” received the passport designation “Oroch” and are officially the Oroch. Until recently, the linguistic position of the Koppi variety remained unclear. In 2010, together with Natalia Kuznetsova, we conducted a study of the Koppi variety. Based on these data, I came to the conclusion that the Koppi variety combines features of Oroch and Udihe, being a transition from the northern dialects of Udihe to coastal varieties of Oroch. However, it shows more properties characteristic of Oroch. One of the main features being the preservation of etymological V-q-V and V-h-V complexes.

2.2 Udihe and Kekar (Kyakala)

Previously, the Udihe were also known as *Kekar* (*Kyakala*, *Kyakar* or *Kiyakara* in Manchu). “The Oroch call them *Ude* or *Kekar*, they call Oroch *Pæ*” (Emeljanov 1927). However, *Ude* and *Kekar* were not used as complete synonyms and referred not to one and the same but to two closely related ethnic groups. In 1998, Igor Kormušin wrote:

⁷There are newly found data on early Oroch (Alonso de la Fuente 2017).

Anthropologist Paul Schmidt in 1915 mentioned a remarkable fact, which did not attract due attention. Classifying the Manchu-Tungusic ethnic groups, he wrote that Oroch consist of three tribes: Oroch, Kyakar and Udihe. The term «Kyakar» [...] is preserved in Udihe in the form *kæ̃*⁸ (< *keka(r)*).⁹ As the legend says, there was also a legendary clan of the same name, which branched into several Udihe clans, localized mainly along the southern sea coast: *Amuliŋka*, *Geuŋka*, etc. If one takes into account that the *Udi*¹⁰ clan participated in the formation of Ulcha, and therefore should be localized much further to the north, then one should conclude that *Udi* and the *Kekar* correspond to the «Northern» and the «Southern» components of the Udihe ethnos respectively... (Kormušin 1998: 11–12, my translation – E.P.)

The anthropologist Anatolij Startsev suggested that initially there were three Udihe clans: *Udie*, *Kæ* and *Pianka* (Startsev 2004). According to Lar'kin (1959) the large *Kæ* clan divided into several clans: *Kančuga* (Kancuga), *Geonka*, *Kuinka* and *Suanka*. It is worth pointing out that in Xor (“Udihe proper”) there were only two clans: *Kjalundzjuga* (Kælundžuga) and *Kimonko* (Kimonko). The clan names *Kančuga*, *Geonka*, *Kuinka*, *Suanka* are usual among the Bikin Udihe and *K'æ* was registered in Iman.

It may be concluded that two distinct groups, Udihe and Kekar, were classified as one “nation” which is now called Udihe (or Udeghe, Udie). *Udihe* corresponds to the northern dialect cluster (Xor and Anjuj varieties); *Kekar* corresponds to the southern dialect cluster (Bikin, Iman and Samarga varieties). Very roughly, it can be said that northern dialects (“Udihe”) are closer to Oroch.

2.3 Udihe areal groups and dialects

2.3.1 Overview

Traditionally, the Udihe, being semi-nomads were spread across a fairly large territory: about a thousand kilometers from north to south. First researchers,

⁸Note that Kormušin used the apostrophe to mark laryngealized vowels after (not before) the character: *kæ̃*' (Shn. *k'eæ̃*, Sim. *Ki'a*).

⁹Janhunen has argued that it goes back to the word for ‘edge’, *kira > kija > kae (2012). However, *K'eæ̃* ‘clan *Kae*’ and *keæ̃* ‘edge’ are not homonyms. *K'eæ̃* contains the laryngealized /'eæ̃/ which points to the historical change VqV > V?V > V'V. It is mostly probable that the sequence *keka transformed into *k'eæ̃*.

¹⁰*udi* might be a word from the Manchu branch of Tungusic: Manchu *weji*, Alchuka *udi*, Bala *udi* ‘forest’. It seems there is no other Tungusic language that has a cognate of this word (Hölzl 2018: 121–122).

geographers, and anthropologists (see, for example, Arsen'iev 1947-1949: V, 81) indicated that dialectal differences in Udihe were so significant that the Udihe from different territorial groups hardly understood each other. However, modern studies showed that, with all the differences, the Udihe dialects are mutually intelligible (Simonov 1988; Perekhval'skaya 2010). Still, differences between Udihe dialects are not insignificant, and the mutual understanding between the dialects does not mean that they have identical systems (Trudgill 1985: 21–23).

Traditionally, Udihe dialects were named according to the river basins where they were spoken. Hunter-gatherer groups roamed within the basin of one river and acquired their specific language variety. The language of a larger areal group, however, was not uniform. Thus, Udihe clans living along the Bikin-river occupied specific smaller areas (along smaller rivers), and their language had specific features. There are still differences in the speech of those who came from the camps of Mitaxeza, Sjain, Olon, Sigou, Ulunga, Toholo, etc.

By the beginning of the 20th century, there were the following Udihe groups (Table 1): Kur-Urmi, Xor, Anjuj, Xungari (now Gur), Samarga, Bikin, Iman (now Bolshaja Ussurka).

Table 1: Udihe and Oroch dialects

Cover terms	Subgroups	Dialects	
Udihe		Kur-Urmi	
		Xor	
	Northern (Udihe)	Anjuj (Xungari)	
		Southern (Kyakala)	Iman
			Bikin Samarga
Oroch		Koppi Xadi Tumnin	

In the 1930s, the Udihe were forcibly made sedentary: each areal group was settled in a specially built permanent settlement: Kukan (Kur-Urmi Udihe), Bira (Anjuj), Kun (Xungari), Agzu (Samarga), Gvasjugi (Xor), Sjain, Mitaxeza and Olon (Bikin), Sančixeza (Iman). The less numerous sea-shore Udihe were dispersed. In the 1960s and 70s in the course of the “consolidation of villages” campaign,

smaller Udihe villages were liquidated: Bira (Anjuj), Sančixeza (Iman), Sjain and Mitaxeza (Bikin). The Bikin Udihe resettled in the new Udihe village of Krasnyj Jar; and Anjuj and Iman Udihe were resettled into neighboring Russian villages. Therefore, a significant number of the Udihe were dispersed and came into daily contact with speakers of Russian. In the late 1930s the Kur-Urmi Udihe village of Kukan became a place of exile of political prisoners. After the building of the Khabarovsk-Sovgavan' railway, Kun, the village of the Xungari Udihe, became a railway station. Soon the Udihe were an insignificant part of the population in these villages.

At present, the largest Udihe settlements are: Agzu (Terneiskij district), where they constitute about 80% of the population of the village; Gvasjugi (Imeni Lazo district): 65% of the population, Krasnyj Jar and Olon (Požarskij district): 55% of the village population.

Each territorial group was characterized by a specific language variety. From a linguistic point of view, there are significant similarities between the Iman and Bikin dialects, on the one hand, and between the Xor and Anjuj dialects, on the other. They form the northern Udihe dialect cluster (Xor and Anjuj varieties), and the southern Udihe cluster (Bikin and Iman varieties). Samarga displays mixed features; however, it seems to be historically closer to the southern (Kekar) group. As for the Kur-Urmi dialect, it was heavily influenced by Ewenki. Orest Sunik expressed the idea of the proximity of Samarga and Xungari varieties (Sunik 1968: 231). According to Sunik, three dialect groups were distinguished in Udihe: Iman-Bikin, Xor-Anjuj and Samarga-Xungari. This statement cannot be verified because the Xungari variety has been completely lost and no data on it were published. From a purely a geographic point of view, the Xungari dialect should be placed in the northern cluster. Therefore, I will contrast the northern group (Anjuj, Xor) and the southern group (Bikin, Iman, Samarga) (2).

2.3.2 Dialect continuum

The linguistic reality is more complicated than the division of language into two dialect clusters. Territorial varieties of Udihe and Oroch form a “dialect continuum”. Neighboring varieties are linguistically rather close to each other, while the extreme points show significant differences. Moving from one variety to another, one can observe the gradual loss of certain linguistic features and the appearance of other features. This concerns all language levels: phonetics and phonology, morphology and syntax, vocabulary. In this article I will focus on the concrete realization of complex vowels in different varieties of Udihe.

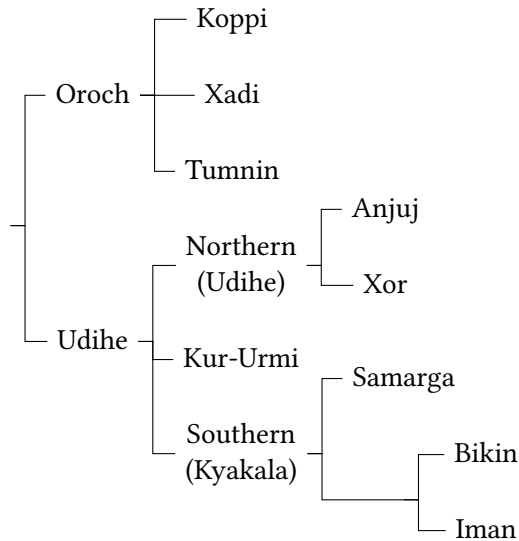


Figure 2: Classification of Udihe and Oroch varieties

3 Data

This work is based on the study of the following data:

1. Dictionaries

- Dictionaries of Oroch (Schmidt 1928; Avrorin & Lebedeva 1978);
- Dictionaries of Udihe (Nadarov 1887; Šneider 1936; Kormušin 1998; Simonov & Kialundziuga 1998; Girfanova 2001).
- Tungus-Manchu Comparative Dictionary. Materials for the etymological dictionary (Cincius 1975/77).

2. Descriptions

- Linguistic descriptions of Udihe varieties (Šneider 1936; Sunik 1968; Simonov 1988; Kormušin 1998; Nikolaeva 2000; Nikolaeva & Tolskaya 2001; Hölzl 2018).

3. Field data gathered in a number of field trips

- Tumnin and Xadi variety of Oroch, Khabarovskij Krai (2001, 2010); main speakers: Anatolij Namunka, Inna Akunka.

- Xor variety, Khabarovskij Krai (1989, 2011, 2013, 2014, 2018); main speakers: Valentina Kjalundzjuga, Nelli Andreeva (Kimonko), Polina Sun (Kjalundzjuga), Tatjana Dvojnova (Sulaindziuga).
- Koppi variety, Khabarovskij Krai (2006, 2010); main speaker Alexandr Ivaščenko (Pudza).
- Samarga variety, Primorskij Krai (1989, 2010, 2011); main speakers: Anatolij Kamandiga, Tatjana Kaza.
- Bikin variety, Primorskij Krai (more than 10 trips in the period 1984–2011); main speakers Aleksandr Kančuga, Nadežda Kukčenko, Aleksandr Pionka, Lydia Simanchuk, Susan Geonka, Anna Kančuga, Andrej Suanka, Evdikija Kjalundziga.
- Iman variety, Primorskij Krai (1989, 2010); main speakers: Ksenia Ajanka, Antonina Suanka, Aleksandr Kjalundziga.
- Field data were gathered with the help of Vladimir Belikov, Fatima Eloeva, Albina Girfanova, Irina Nikolaeva, Maria Tolskaya, Vlada Baranova, Kirill Maslinskij, Ksenia Viktorova, Valentin Vydrin, Natalia Kuznetsova.

4 Pharyngealized and laryngealized vowels in Udihe varieties

4.1 Udihe vowels

The peculiarity of Udihe inside the Manchu-Tungusic group is largely due to its phonetics and phonology, and especially the existence of several series of vowels. Laryngealized (glottalized) and pharyngealized (aspirated) vowels are features that clearly distinguish Udihe from Oroch and other Manchu-Tungusic languages (Zinder 1948: 58; Cincius 1949). However, the pharyngealized vowels in Udihe prove to be less stable than the laryngealized ones. Bikin and Iman varieties have lost pharyngealized vowels completely, while in Samarga they are kept only in some root morphemes. They are fully preserved only in the Xor dialect. On the contrary, laryngealized vowels are preserved in all varieties, although their specific realization may differ significantly (Šneider 1936; Simonov 1988; Nikolaeva 2000). In fact, the concrete realization of laryngealized vowels is one of the important features which distinguish Udihe dialects.

One of the most significant features that distinguish northern and southern varieties is the lack of pharyngealized long vowels in southern Udihe (1):

		‘fire’		‘button’
(1)	Xor	tō	~	to ^h o
	Bikin	tō	~	tō

Table 2: Vowel inventory of the Xor and Anjuj varieties (Šneider 1936: 83–86; Simonov 1988)

Description	Vowels								
Short	a	o	u	ə	i	e	æ	ø	(y)
Long	ā	ō	ū	ē	ī	iə	eæ	yø	yī
Long laryngealized	‘a	‘o		(‘ə) ^a					
Long pharyngealized	a ^h a	o ^h o	u ^h u	ə ^h ə	i ^h i	(i ^h e)	e ^h æ	y ^h ø	y ^h i

^aLaryngealized /‘ə/ is postulated by Nikolaeva and Tolskaya on the basis of one verb form: the perfect stem for verbs of the type *ətətə*- ‘to work’ – *ətət’ə* ‘he has worked’ (Nikolaeva & Tolskaya 2001: 40). However, this phoneme has a very narrow scope: it does not occur in any other position.

Table 3: Vowel inventory of the Bikin, Iman and Samarga varieties

Description	Vowels								
Short	a	o	u	ə	i	e	æ	ø	(y)
Long	ā	ō	ū	ē	ī	ē	æ	ō	
Long laryngealized	‘a	‘o		(‘ə)					

4.2 Interpretation of the Udihe complex vowels

The interpretation of the Udihe vocalic complexes, laryngealized and pharyngealized, has long been controversial. Trubetskoi’s phonology counts several dozen vowel phonemes in Udihe, as it was presented by Šneider (1936); in some other works the phonemic status of these complex vowels is not clarified (Nikolaeva 2000).

I regard suprasegmentals as an independent tier (Goldsmith 1976). Therefore, I postulate the appearance of the suprasegmental tier as a compensation for the simplification of the segmental tier. In Xor, Bikin and Iman varieties it was the

representation of the suprasegmental tier that underwent changes while the segment tier remained unchanged. The concrete realizations of pharyngealized and laryngealized long vowels differ according to the variety and also according to the mode of speech.

4.3 Pharyngealized long vowels

4.3.1 Etymology

Udihe pharyngealized vowels go back to a combination of three phonemes, V-s-V. In root morphemes:¹¹

- (2) Udihe *a^hanta* ‘woman’ ~ Oroch *asa*, Pl. *asa-nta*; Negidal *asīxān* ‘girl’; Ewenki *asī* ‘female’;
- (3) Udihe *a^hikta* ‘fir-tree’ ~ Oroch *asikta*, Ewenki *asikta*, *acēkān*, Nanai *xasikta* ‘fir-tree’;
- (4) Udihe *i^hi* ‘larch tree’ ~ Oroch *isi*, Negidal *isi*, Manchu *isi*, Ewenki *ismama* ‘dry larch tree’;
- (5) Udihe *o^hə*, *wo^hə* ‘deer-leg fur’ ~ Oroch *ōso*, Negidal *ōsa*, Ewenki *ōsa* ‘deer-leg fur’;
- (6) Udihe *u^həndə*, *wu^həndə* ‘to throw’ ~ Ewenki *usəndə* ‘to throw (weapon)’, Negidal *usə* ‘spear’.

In suffixes:

- (7) Udihe *bəli^hə* ‘girl (in tale)’ < **bəli-sə* ~ Negidal *bəlin*, Ewenki *bəlin* ‘hysteria’;
- (8) Udihe *tumi^hə* ‘path in mountains’ < **tumi-sə* ~ Negidal *tuasan* ‘footprint’, Ewenki *tū* ‘to step on’.
- (9) Udihe *ɲama^hi* ‘warm’ < *ɲama-si* ~ Oroch *ɲama*, *ɲama-si*, Nanai *ɲama*, Ewenki *ɲama* ‘warm’.

It is worth noting that the transition V-s-V → V^hV in root morphemes took place mostly when this complex was at the beginning of the word, in other words, when the root began with a vowel (see examples above). Later, a prosthetic glide

¹¹Hereinafter, the correspondences are given according to Cincius (1975/77).

could appear $o^h\theta > wo^h\theta$ 'deer-leg fur'; $i^hi > ji^hi$ 'larch tree', which already happened early in Udihe.

When a consonant was at the beginning of the word, this transition often did not take place, cf.:

- (10) Udihe *gaja* 'waterfowl, duck' ~ Oroch *gasa* 'waterfowl', Negidal *gasa* 'swan', Ewenki *gasa* 'crane';
- (11) Udihe *kəjə* 'word, language' ~ Oroch *xəsə* 'word', Negidal *xəsə* 'word, language', Nanai *xəsə* 'word, order', Manchu *xəsə* 'order, command'.¹²

Some words which have a consonant before the pharyngealized vowel do not have a convincing Tungus etymology:

- (12) $gə^hə$ 'bad', $dü^hi$ 'brain', $ʒa^hi$ 'wild boar', $tə^hu$ 'all'.

Or go back to different complexes:

- (13) Udihe to^ho 'button' ~ Negidal *toxon*, Nanai *toχō* 'button', Manchu *toχon* 'metallic button'.

Intervocalic *-s-* in Udihe goes back to *-č-*: *asa-* 'to fit' ~ Oroch *ača-*, Nanai *ača-* 'to come to'; Ewenki *arča-* 'to meet'.

4.3.2 Realization

Pharyngealization in different Udihe varieties can be realized as: a) a break of the sound by aspiration; b) breathy voice phonation, c) a "clean" long vowel. The concrete realizations of pharyngealized long vowels differ according to the variety and also according to the mode of speech.

Table 4 shows that each Udihe variety is characterized by two different modes of pronunciation: the full mode (FM) which is shown in the cell to the left and the allegro mode (AM) in the right cell.

Taking into account different tempo modes in each variety, Table 4 shows that the allegro mode of pronunciation of one variety corresponds to the full mode of pronunciation of the neighboring one, which produces a new allegro mode. It demonstrates the internal "anatomy" of the dialect continuum.

From a phonological point of view, the VhV sequence with a weakened consonant in the intervocal position is of particular interest. Acoustically it is a long vowel interrupted by aspiration. Its phonemic interpretation, however, can be twofold, depending on the variety analyzed.

¹²Šneider gives the forms $ga^hə$ 'duck' and $kə^hiə$ 'word', which are not confirmed by modern material. I did not find such forms in any of the varieties.

Table 4: Types of realizations of pharyngealized long vowels in different Udihe varieties and Oroch. Comments: V-s-V and V-h-V: sequences of three segments; V^hV: long vowels interrupted by aspiration; \bar{V} : long vowel with pharyngealized phonation (“breathy voice”); \bar{V} : long vowel.

	Oroch			Udihe		
Varieties	Xadi, Tumnin		Koppi (transitional)		Xor, Anjuj (Udihe)	
				Bikin, Iman (Kyakala)		
Stages	V-s-V	V-h-V	V ^h V	\bar{V}	\bar{V}	

In Koppi, this is an optional pronunciation variant characteristic of the allegro mode; the full mode of pronunciation is V-h-V (sequence of three phonemes). In the speech of Alexandr Ivashchenko, a Koppi speaker, sequences of this type were pronounced as three syllables in the full mode of pronunciation. In order to clarify a word Ivashchenko could chant it, clearly dividing these sequences into three syllables *abdæha*¹³ ‘leaf (of a tree)’ [ab.dæ.ha]. However, in the allegro mode, the V-h-V sequence contracted into a long vowel, interrupted by a brief aspiration [ab.dæ^ha]. See the following pronunciation of the word /abdæha/ ‘leaf (tree)’ in allegro (left) and full (right) modes of pronunciation.

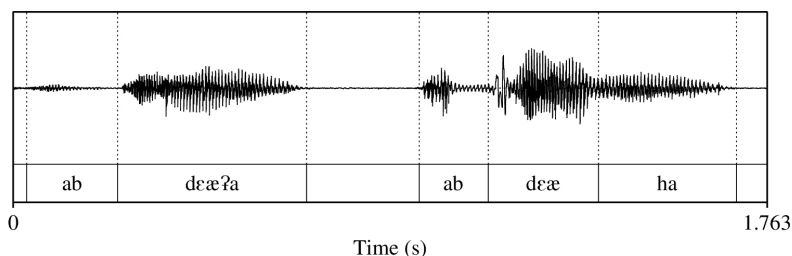


Figure 3: Koppi dialect, speaker Akexandr Ivashchenko: [abdæ^ha], [abdæha] ‘leaf’

Similar observations were made by Igor Kormušin:

In the fully marked type of pronunciation, if the vowels surrounding the pharyngeal consonant are similar, they are pronounced with equal length

¹³Hereinafter, aside from specific phonetic realizations, Udihe words are given in Šneider’s writing system.

and, in fact, form two syllables with **h** being voiced: *ahanta* (a-ḥan-ta) 'woman', *gehe* (ge-ḥe) 'bad', *oloho* (o-lo-ḥo) 'boiled fish', *ihi* (i-ḥi) 'larch'. In the fully normal type of pronunciation, **h** is articulated simultaneously with the second vowel, becoming a pharyngeal overtone in its initial part; at the same time, the pharyngeal consonant is fused with the previous vowel, so that a single complex sound is formed; as a result, the syllable border is aligned differently, combining two syllables into one: a^hanta, ge^he, olo^ho, i^hi. [...] in the normally abbreviated type of pronunciation, the surrounding vowels fuse into a long one, the pharyngeal consonant following it [...] a^hnta, ge^h, olo^h, i^h. This pronunciation creates conditions for the deletion of **h** [...] (Kormušin 1998: 64–65, my translation – E.P.).

Kormušin distinguished three pronunciation modes: fully marked, normally full and normally abbreviated. They correspond to chant, full style and allegro mode.

According to my data, none of the varieties exhibit coexistence of all the types of pronunciation that Kormušin singled out. Most likely, the researcher combined phenomena observed in different varieties.

Evgenij Šneider who worked in the 1930s with Anjuj Udihe interpreted the sequence VhV (full style in Anjuj) not as a sequence of two syllables, but as a long vowel interrupted by aspiration.

Of course, *h* in this sound complex is not an independent consonant [...] When comparing Udihe words with pharyngealized vowels with words of the same meaning in other Manchu-Tungusic languages, it turns out that [...] the two-syllable combination became monosyllabic, i.e., the transformation process *s* (ṣ) > *h* (ḥ) was accompanied by the contraction of the pair of identical vowels. This resulted in the emergence of a new category of vowels, for example *aha-* 'to catch up' (Ewenki *asa-*); *imaha* 'snow' (Oroch *imasa*); *ihi* 'larch' (Oroch, Manchu *iṣi*) [...] (Šneider 1937: 10–11, my translation – E.P.).

4.3.3 Realization of pharyngealized vowels

4.3.3.1 Koppi

The two types of pronunciation, V-h-V and VhV, seem to be characteristic of the northernmost dialects of Udihe: Koppi, and, apparently, Xungari. Most likely, at the end of the 19th century pronunciation of pharyngealized complexes as three segments V-h-V was also characteristic for Xor Udihe. In Nadarov's work we

find *яга* (*jaga*) ‘eye’ (Shn. *jehæ*, Sim. *jâ*), *нюге* (*niuge*) ‘nose’ (Shn. *nyhø*, Sim. *ɲiê*), *того* (*togo*) ‘button’ (Shn. *toho*, Sim. *tô*). It is not clear what kind of sound was represented by the Cyrillic letter «Г»; most likely it was a pharyngeal consonant, possibly voiced. In some cases, Nadarov did not note it, cf. another variant of the word ‘eye’ *я* (*ja*), *ниама* (*niama*) ‘leather jacket’ (Shn. *nehæma*, Sim. *ñâma* ‘leather’).¹⁴

4.3.3.2 Xor

In Xor Udihe a “new category of vowel” was formed. In the 1930s, the Udihe on the Xor River apparently pronounced VhV in the full pronunciation mode, and V^hV in the allegro mode. The full pronunciation mode of Xor Udihe was the basis of “literary” Udihe, in which several textbooks for primary school were published. Simonov, who worked with Xor Udihe since the late 1970s, noted at that period the V^hV variant was the full mode, and pharyngealized vowels were pronounced \bar{V} in allegro mode:

Pharyngealized vowels are pronounced with a sharp increase in intensity towards the end of the phonation. [...] When the aspiration is present, it is not in the middle of the vowel, but is superimposed on its entire second half. (Simonov 1988: 52, my translation – E.P.)

Simonov presented to the speakers words with a pharyngealized vowel, pronounced in two syllables: “words **je.hæ* (instead of *jâ* ‘eye’); **a.han.ta* (instead of *ânta* ‘woman’); **imo.ho* (instead of *imô* ‘fat’) were simply not understood by speakers” (Simonov 1988: 52, my translation – E.P.).¹⁵

In 2006, only one type of pronunciation of pharyngealized vowels was observed in the Xor variety. With the most complete pronunciation mode, a separate word could be pronounced as V^hV. However, even in this case, aspiration appears also after the vowel, cf. Figure 4.

Figure 4 shows that the final part loses vocalic characteristics turning into an aspiration. The final complex consists of a long vowel (250 milliseconds), the duration of which is almost twice of the initial short vowel (*u*). Compare pronouncing by the same speaker of the Accusative case form of the same word: *umahawa* (Figure 5).

¹⁴Simonov suggested that Nadarov recorded pharyngeal (*h*) only at the rhythmic boundaries of the word, but this does not explain the presence of doublets in Nadarov’s list of words: ‘eye’ *я* and *яга*; ‘nose’ *нюгу* and *нионё* (Nadarov 1887).

¹⁵This consideration was the reason for changing the type of writing for Xor Udihe made by Simonov; he introduced circumflex “ \hat{v} ” to mark breathy voice phonation (aspiration): *imô* ~ Shn. *imoho*.

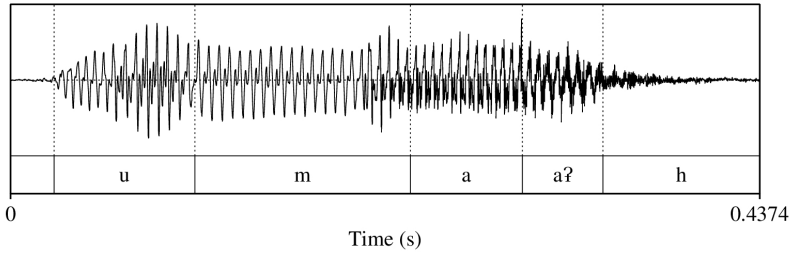


Figure 4: Xor variety. Speaker Valentina Kjalundzjuga: *umaha* [umaʔah] ‘bone marrow’

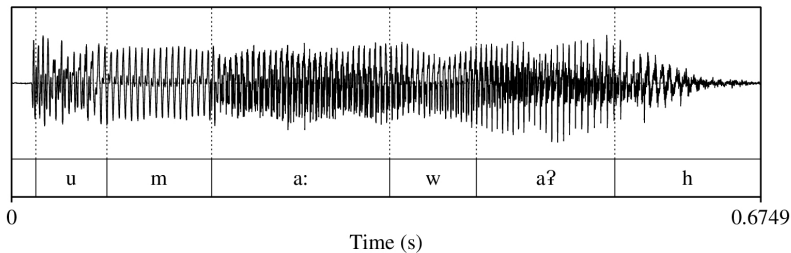


Figure 5: Xor variety. Speaker Valentina Kjalundzjuga: *umahawa* [umaawʔah] ‘bone marrow ACC’

Figure 5 shows that the long vowel /ā/ in *umaha* has lost its pharyngealized quality, but the aspiration appears at the absolute end of the word. Such a transfer of aspiration to the end of the phonetic word may be an individual characteristic of the speaker, but most likely it reflects the pronunciation of pharyngealized vowels in the Xor variety. Kormušin also pointed out such a realization of pharyngealized vowels.¹⁶

Compare the realization of these two words in Figure 6. The principles of Autosegmental Phonology (Goldsmith 1976) explain this by the independent character of the suprasegmental level. Phonation characterizes the whole word and not any particular segment and is realized at the end of the word.

As pointed out by Kormušin, such a pronunciation creates the conditions for a loss of aspiration. This happened primarily with pharyngealized vowels in the final position, as in the examples above. Apparently, the loss of pharyngealization

¹⁶Nikolaeva questioned the possibility of such a realization: if pharyngealization is realized at the end of the word, it contradicts the basic phonotactic rules of Udihe. However, it is not a consonant, but a pharyngealized vowel (Nikolaeva 2000). This is an additional consideration in favor of the interpretation of these complexes as single phonemes.

occurred primarily in non-root morphemes. The pharyngealization, therefore, was lost in the personal markers 2SG, PL: $-ị > -i$; $-ụ > -u$; and in past tense suffixes: $-ạ- / -ọ- / -ə̣- > -a- / -o- / -ə-$.

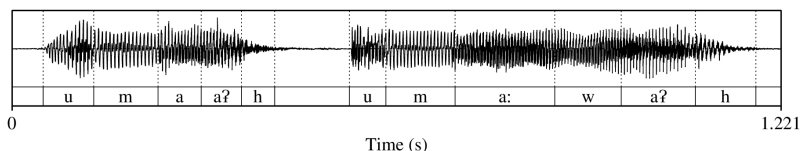


Figure 6: Xor variety. Speaker Valentina Kjalundzjuga: *umaha* [umạh] ‘bone marrow’; *umahawa* [umaawah] ‘bone marrow (ACC)’

Table 5: Personal possessive forms in Udihe varieties and in Oroch. The Oroch data are taken from Avrorin & Lebedeva (1968) and Avrorin & Boldyrev (2001). In both sources, alternative forms are given without comments. I suggest that forms which are closer to Udihe are characteristic of the Xadi dialect which is more innovative.

Form	Oroch	Xor Udihe FM	Xor Udihe AM, Bikin Udihe	Translation
1SG	təgə-wi, təgə-ji, təgə-i	təgə-i	təgə-i	‘my shirt’
2SG	təgə-si	təgə-ḷi	təgə-i	‘your shirt’
1PL.EXCL	təgə-mu, təgə-wu	təgə-u	təgə-u	‘our shirt’
2PL	təgə-su, təgə-hu	təgə-ḷu	təgə-u	‘your shirt’

In the Xor variety, this loss is characteristic of the allegro mode of pronunciation. Auxiliary and negative verbs, being the most frequent ones, were also “erased” as the full mode of their pronunciation was replaced by the allegro mode. Besides, in the speech of younger Xor variety speakers, pharyngealized vowels are totally lost and have been replaced with pure long vowels in all positions.

Published Xor Udihe texts demonstrate incoherence in marking the pharyngealized vowels, which reflects differences in modes of pronunciation. An example are folklore texts recorded mainly with the Xor Udihe (Simonov et al. 1998). In the vast majority of past tense forms, pharyngealization is not marked in suffixes, cf. in text No. 1: *oloktoni* (< **olokto-ho-ni*) ‘s/he cooked’; *andalati* (< **andala-ha-ti*)

‘they made friends’; *alasiēni* (< **alasi-hə-ni*) ‘s/he waited’ (Simonov et al. 1998: 74). Similarly, pharyngealized vowels in personal suffixes are also not marked in these texts. And in root morphemes, pharyngealized vowels are sequentially marked.

4.3.3.3 Samarga

In the Samarga variety, pharyngealization is kept only in some root morphemes.

4.3.3.4 Bikin and Iman

Pharyngealized vowels are completely lost in Bikin and Iman, where the corresponding complexes are pronounced as clear long vowels, cf. the word for ‘leaf’: Oroch [abdasa]; Koppī variety [abdəha] (FM) ~ [abdə^ha] (AM); Xor Udihe [abdæ^he] (FM) ~ [abdæ^hɛ] (AM); Bikin Udihe [abdæ^hæ]. While in Xor the loss of pharyngealized vowels is a recent phenomenon, and elder speakers still pronounce them at least under the full mode of pronunciation, in the Bikin and Iman varieties, pharyngealization was not characteristic for the speech of people born in the 1920–1930s. This means that pharyngealized vowels were lost at least a hundred years ago. In the Bikin variety, the etymological pharyngealized vowels were replaced by long ones, and there is a tendency for these vowels to become short (Nikolaeva 2000: 115–116; Tsumagari 2012).

In sum, the data presented show that Udihe varieties present different stages of one process: weakening of the consonant in the intervocalic position with the substitution of segment units by suprasegmental ones.

4.3.4 Loss of pharyngealization and its effects in morphology

Loss of pharyngealization had a significant impact on the morphological system of the southern dialects. The main consequence of the loss of pharyngealized vowels here was the formal coincidence of possessive suffixes of the first and second person singular and plural (Exclusive form) for vowel-final stems; cf. data in Table 6.

In southern Udihe, in order to clarify the “possessor”, personal pronouns are used. While in northern Udihe the use of personal pronouns indicates emphasis, in southern Udihe it is neutral. Therefore, southern Udihe displays a greater degree of analyzability.

Table 6: Fragment of the paradigm of the personal possessive conjugation of the noun *kusigə* ‘knife’ in Bikin and in Xor Udihe. Forms merged in Bikin Udihe are bold.

	Nominative		Accusative	
	Xor	Bikin	Xor	Bikin
1SG	kusigə-i	(bi) kusigə-i	kusigə-wə-i	kusigə-wə-i
2SG	kusigə-ḷ	(si) kusigə-i	kusigə-wə-ḷ	kusigə-wə-i
3SG	kusigə-ni	kusigə-ni	kusigə-wə-ni	kusigə-wə-ni
1PL.EXCL	kusigə-u	(bu) kusigə-u	kusigə-wə-u	kusigə-wə-u
1PL.INCL	kusigə-fi	kusigə-fi	kusigə-wə-fi	kusigə-wə-fi
2PL	kusigə-ḷ	(su) kusigə-u	kusigə-wə-ḷ	kusigə-wə-u
3PL	kusigə-ti	kusigə-ti	kusigə-wə-ti	kusigə-wə-ti

4.4 Laryngealized long vowels

4.4.1 Etymology

Udihe laryngealized vowels go back to the V-q-V complex, which was a three-phoneme combination and is present in many Tungusic languages, cf.:

- (14) Udihe *um'a* ‘fishing hook’ ~ Oroch *uməkə(n)*; Negidal *umaxa/umaka*; Ewenki *umika*;
- (15) Udihe *l'o-* ‘to hang’ ~ Oroch *lō/loko* [loqo]; Negidal *loko-*; Solon *loko-*; Kilen *loqo-*; Ewenki *loko-*;
- (16) Udihe *x'ai*¹⁷ ‘liver’ ~ Oroch *xākin* [xāqin]; Negidal *xāxin*; Kilen *xakī*; Ewenki *hakin*;
- (17) Bik. Udihe *g'ata* ‘cranberry’ ~ Oroch *gākta/gakka* [gaq:a]; Negidal *gaxakta*; Ewenki *gakakta*;
- (18) Udihe *g'ai* ‘crow’ ~ Oroch *gāki* [gāqi]; Negidal *gāxi*; Ewenki *gāki*;
- (19) Udihe *kakt'a* ‘half’ ~ Negidal *kaltaka/kaltaxa*; Ewenki *kaltaka*; Solon *xaltaxa*;
- (20) Udihe *s'ou* ‘scoop’ ~ Ewenki *sokowun/hokowun*; cf. Oroch *soko-* [soqo], Negidal *soxo-* ‘to scoop’.

¹⁷In sequences *a-q-i the first vowel holds the phonation: [a^ʔai] or [ʔai], in practical writing: 'ai.

It should be noted that only the uvular variant [q] of the phoneme /k/ transformed into the glottal stop and further created the creaky voice phonation. The velar [k] was preserved in Udihe as [x] and [k]:

- (21) Udihe *joxo* ‘kettle’ ~ Oroch. *iko*; Negidal *ix̄ā*; Ewenki *ik̄ā*.
(22) Udihe *jəxə* ‘to sing’ ~ Oroch *ikə*; Negidal *ix̄ā*; Ewenki *ik̄ā*.
(23) Udihe *cikə*- ‘to urinate’ ~ Negidal *cix̄ən*; Kilen *cik̄ə*; Ewenki *cik̄ən*-.

In Oroch, in accordance with an assimilation rule, the uvular allophone [q] occurs only after the vowels [a] and [o]. In other cases, the velar [k] appears. Apparently, a similar rule was also present in Udihe. The uvular [q] then transformed into the glottal stop. This explains why the series of laryngealized vowels in Udihe is limited to ‘o and ‘a.

Evgeny Šneider, on the basis of general system considerations, postulated the presence of the entire set of laryngealized long vowels, both simple and diphthongoids (Šneider 1936: 83). As Simonov showed, this does not correspond to the linguistic reality (Simonov 1988).

It is worth noting that “non-etymological” laryngealized vowels sporadically appear after the plosives *b*, *p*, *c*, if followed by the vowel *a*, cf.:

- (24) Udihe *b’ata* ‘boy’ ~ Oroch *bātu*, *baturi* ‘strong warrior’, Nanai *ātor* ‘strong warrior’; Manchu *baturu* ‘hero, warrior’;
(25) Udihe *c’aligi* ‘white’ ~ Oroch *čām* ‘white’; Nanai *čāyžā* ‘white’.¹⁸

It is also noticeable that many Udihe words with laryngealized vowels do not have a reliable Tungusic etymology. Often they are attested only in Udihe: ‘*ana* ‘boat’, ‘*d’a* ‘cotton wool’; ‘*gob’o* ‘fly’, ‘*asa* ‘bay’; ‘*t’añki* ‘middle’, ‘*s’ai* ‘salt’ and others. Still, these words are known in all Udihe dialects. The etymology of some other words is not very convincing, e.g. *od’o* ‘grandfather’ is compared with Oroch *adiyi*; Ulcha *ədəkə(n)* ‘father-in-law’ which is doubtful.

It may be supposed that Udihe had undergone influence of a substrate or adstrate non-Tungusic language which was also the source of non-Tungusic loanwords.

¹⁸However, consider Ewenki *bagadi* ‘strong, brave’, proto-Mongolian **bayatur* and proto-Mongolian **čayān* ‘white’. Based on a comparison of Udihe forms with historically attested Mongolian ones (as given by Cincius 1975/77), it may be imagined that Udihe retained a more ancient form. However, Udihe laryngealized vowels originate from -q- and not -g/y-.

4.4.2 Types of realization

Laryngealization in different Udihe varieties can be realized as: a) a break of the sound by the glottal stop; b) creaky voice phonation, c) the increased intensity in combination with the low/falling tone. The flattening effect of laryngealization is observed in all Udihe varieties. However, only in the most innovative varieties of Bikin and Iman, it became the main (and in Iman Udihe the only) distinctive feature [+tone]. Thus, these varieties should be classified as tonal, which is untypical for Manchu-Tungusic languages.

The concrete realizations of laryngealized long vowels differ according to the variety and also according to the mode of speech.

Table 7: Types of realizations of laryngealized long vowels in different Udihe varieties and Oroch. Comments: V-q-V and V-ʔ-V: sequences of three segments; V'V: long vowels interrupted by a glottal stop; \bar{V} : long vowel with laryngealized phonation (“creaky voice”); \dot{V} : long vowel with falling (low) tone.

	Oroch			Udihe	
Varieties	Xadi, Tumnin	Koppi (transitional)	Xor, Anjuj (Udihe)	Bikin, Iman (Kyakala)	
Stages	V-q-V	V-ʔ-V	V'V	\bar{V}	\dot{V}

Table 7 shows the two modes of pronunciation: the full mode (FM) which is shown in the cell to the left and the allegro mode (AM) in the right cell.

Udihe varieties and the closely related Oroch language represent changes of certain phonetic complexes “from consonant to tone”; each variety representing a certain stage of this process. The innovation was spreading, roughly, in the direction from north to south: Oroch → Koppi variety → Xor and Anjuj varieties → Bikin and Iman varieties.

Cf. the word for ‘dog’: Oroch [inaqi]; Koppi variety FM [unæʔi], AM [inə²i]; Xor variety FM [inæ²ai], AM [inə²ei]; Bikin variety FM [inə²ei], AM [inə²ei].

4.4.3 Realization of pharyngealized vowels

To study the realizations of laryngealized vowels in different Udihe varieties is a difficult task when based on written sources. In the case of pharyngealized vowels written sources provide more or less reliable information, but laryngealized

vowels are written with an apostrophe uniformly by all researchers; this spelling hides rather different types of realization.

4.4.3.1 Oroch and Koppi

According to Avrorin and Lebedeva, in Oroch the phoneme /k/ is realized as uvular [q] in the position after /a/, /ä/, /o/, between identical vowels, or before /i/ (Avrorin & Lebedeva 1978). This is also characteristic of the Koppi variety.

It should be noted that in slower speech, an aspiration [h] is clearly heard between the vowel and the uvular [q]: [na^hqi] 'dog', [beæ^hqa] 'river', [ara^hqi] 'strong spirit', [ga^hqi] 'crow'. A variant realization is a pause before [q], which is perceived as a "long stop": [maa[?]qi]. Here ([?]q) represents a preglottalized consonant. See Figures 7 and 8 on the pronunciation of the words [beæ^hqa] and [maa[?]qi] in Koppi.

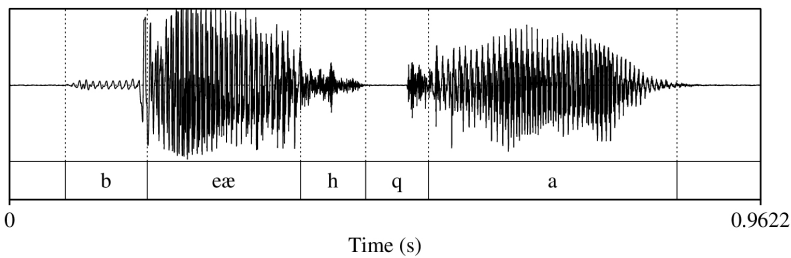


Figure 7: Koppi variety. Speaker Alexandr Ivaščenko: [beæ^hqa] 'river'

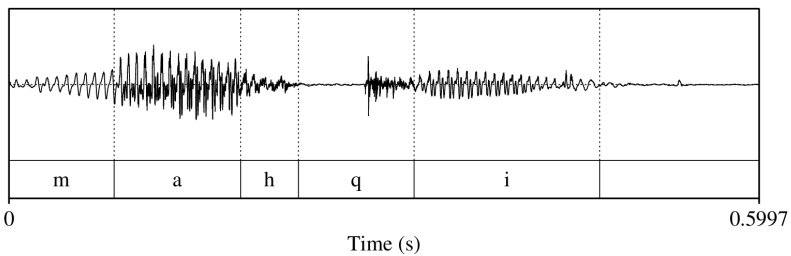


Figure 8: Koppi variety. Speaker Alexandr Ivaščenko: [maa[?]qi] 'there is no'

The spectrogram of [beæ^hqa] 'river' shows aspiration after a long diphthongoid [eæ], then there is a gap followed by the stop [q]. The spectrogram of [maa[?]qi] 'there is no', seems to present no aspiration, but the silence zone before the stop lasts for more than 70 milliseconds.

In other phonetic contexts the phoneme /k/ is realized as a velar [k]: [ukəhə] ‘door’: Bikin *ukā* ‘door, doorway’. The Koppi speaker never pronounced [q] as [ʔ]. Apparently, this pronunciation is not typical for the Oroch language, including the Koppi dialect. Obviously, we are dealing with a sequence of independent phonemes, and not with a complex sound in this variety.

4.4.3.2 Xor

Šneider described laryngealized vowels of Xor Udihe as having a stop interrupting the vowel; Lev R. Zinder and Margarita I. Matusevich¹⁹ showed that this stop occurs closer to the beginning of the vowel (Zinder 1948). At present, these vowels are pronounced in allegro mode with “creaky voice” phonation. See two variants of *in’ai* ‘dog’ pronounced by the same speaker within the same recording session. At first, the speaker clarified the word (full mode); later, she pronounced it more “carelessly” (allegro mode). It is worth noting that the speech tempo remained almost the same; it was the intensity of pronunciation and the tonal pattern that changed.

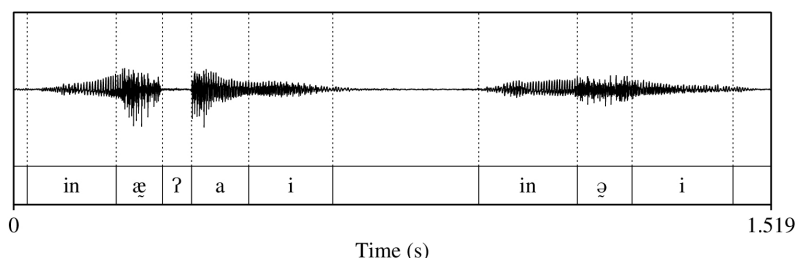


Figure 9: Xor variety. Speaker Valentina Kjalundzjuga: *in'ai* ‘dog’: FM [unæ²ai], AM [inəɕi]

In Figure 9, the creaky phonation zone can be seen in AM pronunciation. It should be noted that in FM the part of the vowel before the stop is also pronounced with creaky phonation.

These observations confirm the conclusions made by Zinder and Matusevich. Indeed, there is a pronunciation variant when the vowel is broken by a stop. Still, at present the most common way to pronounce a “laryngealized vowel” in

¹⁹The results of the study of the Udihe phonetic system, carried out in the 1930s by Lev Zinder and Margarita Matusevich in the laboratory of experimental phonetics of Leningrad State University, were not published. Partially they were included in Zinder (1948) and Kormušin (1998).

Xor Udihe (FM) is when the vowel is not broken with a stop, but with a glottal approximant, cf. the utterance by V.T. Kjalundzjuga of the word *bul'a* 'ash', see Figure 10.

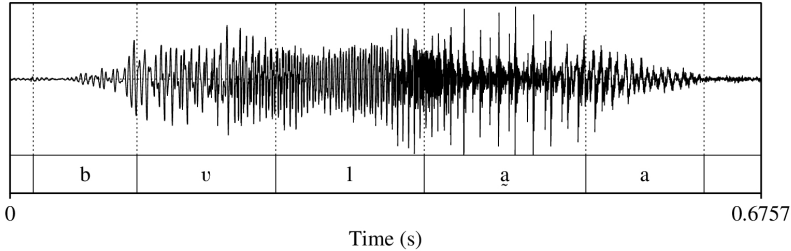


Figure 10: Xor variety. Speaker Valentina Kjalundzjuga: *bul'a* 'ash tree' [bulaʔa]

Thus, in Xor Udihe, three types of pronunciation of laryngealized vowels co-exist: 1) the vowel is interrupted by a stop; 2) by an approximant; 3) the vowel bears creaky voice phonation. However; the creaky phonation does not characterise the whole vowel, and happens in the place where the stop would have been pronounced under another mode of pronunciation.

4.4.3.3 Bikin, Iman

In varieties of the southern dialect cluster laryngealized vowels with glottal stop are not found. Specific realizations of laryngealized vowels are in fact a diagnostic feature that differentiate local varieties of Bikin Udihe. The Udihe came from different smaller camps before settling down in the village of Krasnyj Jar, and they still retain certain speech differences. Unfortunately, at present, it is difficult to make a detailed study of these varieties due to the poor preservation of the language and the small number of speakers. However, our language consultants distinguish people speaking *Sjain*, *Olon*, *Ulunga*, *Mitahiza*, *Sigou* and other varieties. Basing on the data that I have, it may be concluded that Udihe varieties located upstream the Bikin-river were more conservative in vocalism, and the most innovative one being *Olon*, the village lowest downstream.

The realization of laryngealized vowels in Bikin Udihe varies significantly. It may be a) a laryngeal spirant; b) creaky voice phonation; c) a sharp increase of intensity of the vowel in combination with a low tone. The latter [c] is typical primarily for people from *Olon*. Consider realizations of laryngealized vowels: laryngeal spirant and creaky voice phonation with a speaker of the *Sigou* variety.

Figure 11 shows that the laryngealized vowel is in the beginning of the word and is realized as a laryngeal spirant, clearly visible on the spectrogram. The

vowel [ā] is long and carries the creaky phonation. The next vowel [ɐ] is more close. The example presented concerns the full pronunciation mode in Bikin variety; in the allegro mode, laryngealized vowels are never pronounced as a laryngeal spirant.

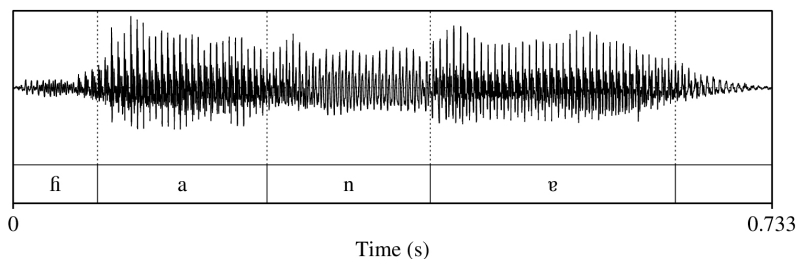


Figure 11: Bikin variety. Speaker Lydia Simanchuk: 'ana 'boat' [fianɐ]

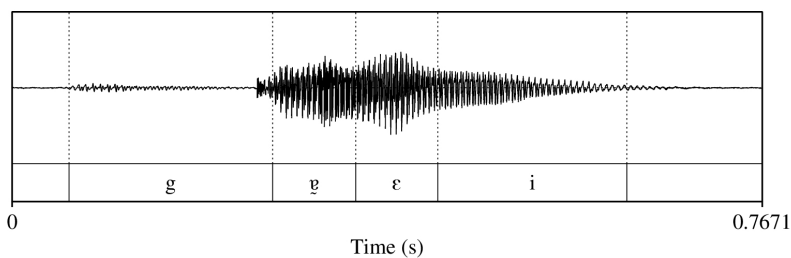


Figure 12: Bikin variety. Speaker Lydia Simanchuk: *g'ai* 'crow' [ŋɛɪ]

In Figure 12, the laryngealized vowel occurs in a CV syllable. It has an articulation that is more close and carries the creaky phonation.

It is interesting that in some Bikin variants the laryngealized element, as an independent suprasegmental unit, can change its position in the word. It can be located at the beginning of the vowel (see Figures 11, 12), and it can also move to the end of the vowel (see Figure 13). It may be an individual characteristic of the speaker, or, perhaps, characteristic of a local variety. Figure 12 presents the example of phonation realized at the second part of the vowel.

Figure 13 shows a decrease in pitch on the laryngealized vowel. This peculiarity of pronouncing laryngealized vowels in the Xor variety was noted by Galina Radchenko, who conducted an experimental study of the phonetics of this variety (Radchenko 1988: 37). Radchenko explained this phenomenon by the tone-lowering effect of laryngealization. This is even more obvious in the Bikin variety. Consider the pronunciation of *od'o* 'grandfather' by a speaker of the Sjain variety in Figure 14.

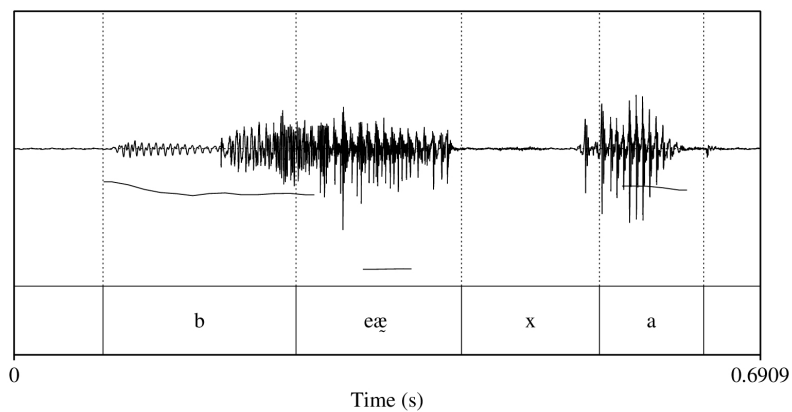


Figure 13: Bikin variety. Speaker Nadežda Kukčenko: *b'æsa* 'small river' [beæxa]

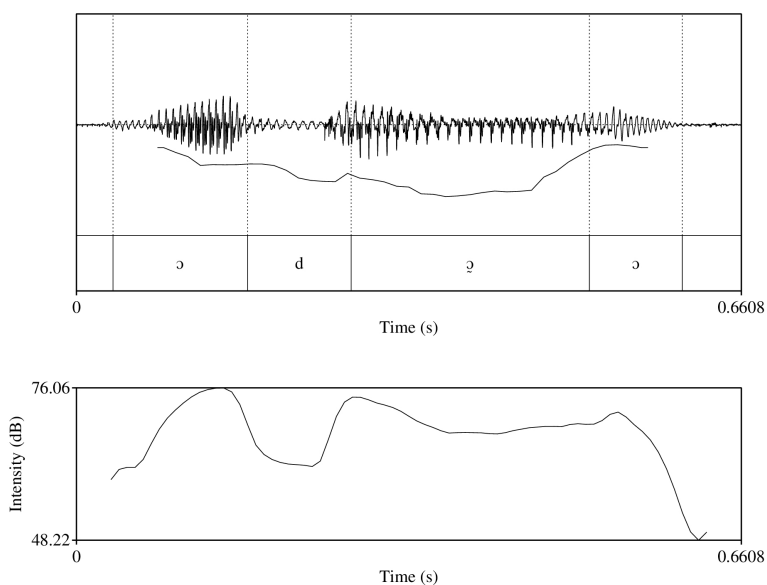


Figure 14: Bikin variety, speaker Alexandr Kančuga: *od'o* 'grandfather' [ɔdɔ]

7 From consonant to tone: Laryngealized and pharyngealized vowels in Udihe

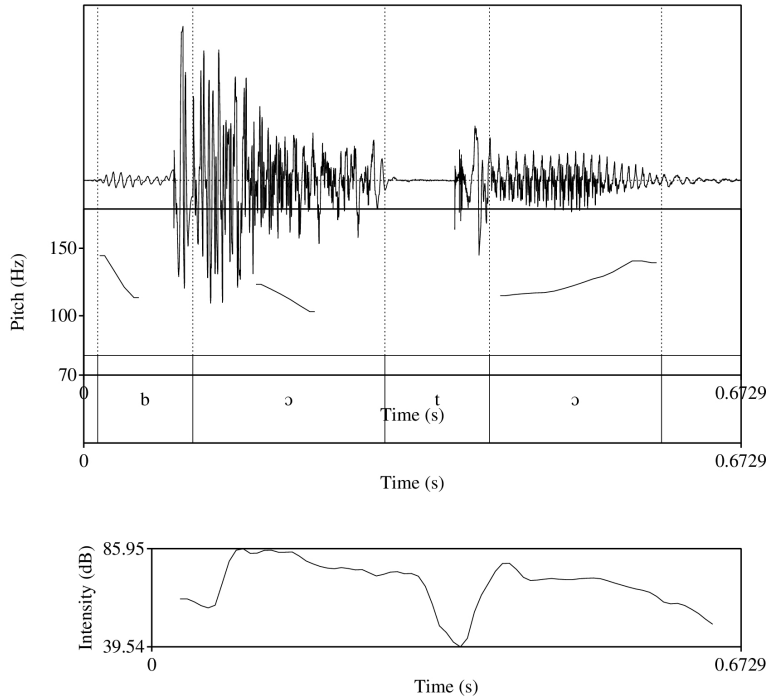


Figure 15: Bikin variety, speaker Alexandr Kančuga: *b'oto* 'ligneous mushroom' [bòtót]

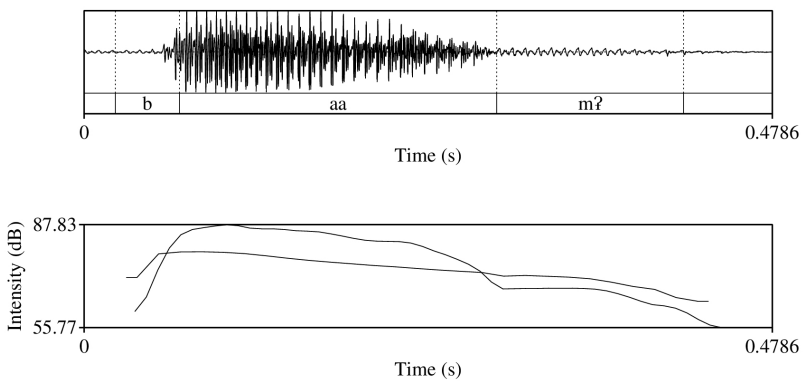


Figure 16: Bikin variety. Speaker Alexandr Pionka: [baamⁱ] 'I met'

Figure 14 shows a word pronounced in the full mode with creaky phonation. It shows that the laryngealized vowel is characterized by a high intensity and lowering of the pitch.

In the Xor variety low pitch was a side-effect of vowel laryngealization. In the Bikin variety, due to the gradual loss of creaky phonation in allegro mode, low pitch accompanied by a high intensity of pronunciation became the main distinctive feature of laryngealized vowels in some idiolects. Consider the following example: the word *b'oto* 'ligneous mushroom' pronounced by the same speaker.

The examples in Figures 14 and 15 present different tones (pitch movements): $\grave{\text{a}}-\grave{\text{a}}$ and $\grave{\text{a}}-\acute{\text{a}}$.

Tone raising on the second syllable as shown in Figure 14 was described by Šneider in 1936 who interpreted it as an exponent of musical accent in Udihe (Šneider 1936: 92). See details in Nikolaeva (2000: 134–137). This interpretation seems erroneous, since accent (stress) is connected with the hierarchy of syllables in a word. In Udihe, a word is characterized rather by a melodic pattern, which is closer to tone than to stress. Thus, we may conclude that in the vocalic systems of southern Udihe, tonal systems are under formation. This is most obvious in bisyllabic and polysyllabic words; however, it is also characteristic of monosyllabic words which have at least two moras (Simonov 1988). Consider the following example: the verb *b'aami* 'I met' pronounced by a speaker of the Olon variety which is the most innovative one and where phonation was lost.

The laryngealized vowel is realized by a sharp raise of intensity together with low tone, in other words, on the suprasegmental level. The change "from consonant to tone" is complete.

5 Discussion

Juha Janhunen suggested the appearance of tonal distinctions in Udihe are due to the Chinese influence (Janhunen 1999). His argument could be summarized as follows: a) Udihe is the southernmost of the Tungusic languages, and it was in contact with Chinese which is tonal; b) generally, tones in many Asian languages have arisen as "suprasegmental compensation" for the loss of segment sequences; c) four types of vowels of Udihe correspond to four tones of Chinese, as also noted by Radčenko (1988: 104). Janhunen pointed out that Chinese tones also have complex realizations and are characterized not only by changes in pitch, but also by the duration and the presence of different types of phonation. There are certain objections to this explanation.

First, the contraction of the V-s-V and V-q-V segment chains into a single complex vowel is already characteristic of the Koppi transitional dialect. And there was no Chinese influence in Koppi.

Second, the four types of vowels which correspond, according to Janhunen, to four tones of Chinese are found only in varieties of the northern dialect cluster. And, these are the varieties which were much less affected by Chinese influence than Bikin and Iman Udihe. Indeed, many features of the southern varieties can be explained by intensive contact with Chinese (for more details see Perekhval'skaya (2001). However, the influence of Chinese manifested itself, rather in the general trend to analytism, which was also noted by Tsumagari (2012: 83–84) and in a certain “simplification” of the system: alignment of paradigms by analogy, etc.

Still, the origin of Udihe vocalism is hard to explain. Using Edward Sapir's term “drift”, it can be said that in Udihe and in neighbouring Oroch varieties there was an influence of a certain “constant factor”. This had to be some peculiarities of articulation that were not characteristic of other Manchu-Tungusic languages. A large amount of Udihe common words are of non-Tungusic origin: *gə^hə* ‘bad’, *du^hi* ‘brain’, *ʒa^hi* ‘wild boar’, *tə^hu* ‘all’, ‘*ana* ‘boat’, ‘*d'a* ‘cotton wool’; *gob'o* ‘a fly’, ‘*asa* ‘bay’; *t'an^hki* ‘middle’, *s'ai* ‘salt’, *kæfakta* ‘firewood’ as well as the word *asasa* ‘thank you’ and some others. On a rather cautious assumption, Udihe was influenced by a non-Tungusic language, previously present in this area, but not Chinese.

6 Conclusions

In the dialects of the southern cluster, three types of vowels correspond to the four types of vowels characteristic of the northern dialect cluster of Udihe.

The decrease in pitch on a laryngealized vowel is characteristic of all Udihe varieties, but in the dialects of the northern cluster the low pitch was a side-effect of vowel laryngealization. In Bikin and Iman, due to the gradual loss of creaky phonation in allegro mode, low pitch became the main distinctive feature of laryngealized vowels in some idiolects.

All Udihe varieties are characterized by a specific prosodic structure of the word. The word has minimally two moras, and consist of an initial and final rhythmic part that differ by suprasegmental pattern. This was noted by researchers of Udihe before (Simonov 1988). Still it was often interpreted in terms of “stress” (accent): Šneider and Sunik wrote that an Udihe word has two stresses, one of which falls on the initial syllable of the word, and the other on the final

syllable (Šneider 1936; Sunik 1968). The term stress or accent is not appropriate here. It is the prosodic structure of the word that is contrastive: words with similar segmental chains can differ by their prosodic structure.

Contrastive prosodic patterns depend on the presence of a laryngealized vowel and on its place in the word. Contrastive prosodic patterns are, in fact, linguistic tones. Thus, Udihe and especially its southern varieties became a tonal language of the type of languages with low tone density, like Scandinavian dialects or Latvian.

Further research is hindered by the fact that suprasegmental patterns in modern versions of Udihe are lost due to the influence of Russian.

The study of Udihe varieties shows how conventional the line between synchronic and diachronic descriptions of language can be. A synchronic description and comparison of modern varieties can shed light on the history of these varieties.

The study of the Udihe dialect continuum reveals the internal mechanisms of language change. It becomes obvious that in all territorial varieties of the Udihe language, similar trends acted, but in different areas they appeared with different degrees of intensity. The internal “structure” of the dialect continuum has been demonstrated: the allegro-style of one dialect corresponds to the full style of the neighbouring dialect, which produces a new allegro-style, and so on.

It is easy to see that each dialect is an independent system that is not reducible to the system of another dialect. At the same time, mutual understanding between speakers of different dialects is preserved and can be quite easy.

As a result of these considerations, it becomes clear that the idea of the unity of “language” (the concept of “such and such a language”) in the absence of codification is often misleading and causes disputes among linguists. “One language” is an abstraction. In reality, there are specific systems – idiolects that can be combined into dialects, language varieties and separate languages. However, the higher the taxon, the more likely it is that the various systems are combined. The foregoing does not apply only to cases where the “language” means a codified norm.

Abbreviations

Sim.	data from Simonov & Kialundziuga (1998)	C	any consonant
Shn.	data from Šneider (1936)	ʋ	vowel with creaky voice phonation
AM	allegro mode of pronunciation	˘	vowel bearing low tone
FM	full mode of pronunciation	ʋ̤	vowel with breathy voice phonation
V	any vowel		

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