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The origin and synchronic status of mid front vowels in Kazym Khanty

The present paper provides synchronic and diachronic analyses of two mid front vowels (*e* and *ɛ*) in the Kazym dialect of the Khanty language. Investigating the distribution of these vowels shows that they are phonemically contrasted in some positions and neutralized in others. The phonological status of both vowels is additionally confirmed by a perceptual experiment. The source for *e* and *ɛ* are two Proto-Khanty vowels, which are merged or distinguished depending on the consonantal context. Phonemic contrast is extended into some new positions through borrowings from Nenets, Komi-Zyrian, and other dialects of Khanty itself.

Keywords: vocalic systems; historical phonology; dialectology; Khanty language; Uralic languages.

1. Introduction

According to Wolfgang Steinitz's classification, Kazym dialect belongs to the northern group of Khanty dialects, while according to Nikolay Tereshkin's classification, it belongs to the western group. Existence of two *e*-type (mid front) vowels is a characteristic feature of this dialect. Kazym Khanty differs in this feature from the rest of the northern dialects, namely from Obdorsk (Nikolaeva 1999: 5), Sherkal (Steinitz 1950: 36), Shurishkar (Solovar, Nakhracheva & Shiyanova 2016: 22) and could also differ from Nizjam. According to Steinitz's description (1975: 5), only the Synja dialect distinguishes between *e* and *ɛ*, which are allophones of one phoneme. The aim of the present study is to clarify the nature of the relationship between two mid front vowels (free variation / allophonic alternation / phonemic contrast) and to conduct a diachronic analysis of these segments.

The remaining part of the paper is structured as follows. Section 2 gives a brief overview of the vowel system and specifies the issue. In section 3, I characterize the database on which my study is based. Section 4 provides the synchronic analysis of the distribution of *e* and *ɛ* as well as conclusions about their phonological status. In section 5, I give some additional arguments supporting the conclusions outlined in the previous section. Section 6 is devoted to the diachronic analysis. The last section establishes the main conclusions summarizing the results of the synchronic and diachronic analysis.

2. Vowel system of Kazym Khanty: a general overview

In Kazym Khanty, nine vocalic segments can be distinguished in the initial syllable. We describe them using three distinctive features: backness (front, central, back), height (close, mid, open) and tenseness (tense, lax). In non-initial syllables only five segments are possible.

Phonological status of all vowels, except for the pair *e*/*ɛ*, is certain, cf. the following minimal pairs: *taλ* 'empty' — *tăλ* 'winter' — *tɛλ* 'full', *χɯr* 'washtub' — *χur* 'photo' — *χər* 'glade,

vista' — *χor* 'bull, ox' — *χir* 'bag, sack', *peś* 'haunch' — *piś* 'cunning; opportunity', *vet* 'five' — *văt* 'so, well (particle)'. The vowel [ə] I consider to be an allophone of /ă/ in non-initial syllables.

Table 1. The vowel inventory of Kazym Khanty (without specification of the phonological status)

	Initial syllable							Non-initial syllable			
	front		central		back			front		central	
	tense	lax	lax	tense	lax	tense		tense	lax	tense	lax
close	i				ʉ	u		i			
mid	e	ɛ			ɵ	o		e	ɛ		
open			ă	a						ə	a

The formant space of the vowels can be visualized using the superposed bagplots diagram for F1 and F2 values of nine vocalic segments which are possible in the initial syllable. Each polygon is subdivided into internal and external areas. The internal area contains 50% of the values closest to the arithmetic meaning. This approach allows to measure the value of formants throughout the whole duration of the vowel, including accommodation areas on the border with consonants. Formant values on the border of the vowels are situated in the peripheral part of the polygon or considered outliers.

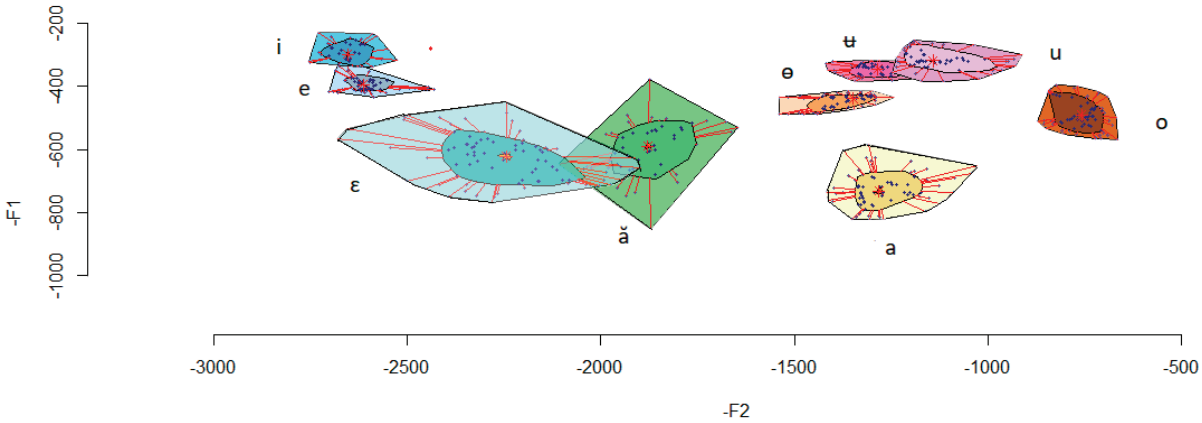

Figure 1. Formant space of the vowels in the initial syllable

Figure 1 shows that *e* and *ɛ* are completely different in their acoustic features. However, their status remains problematic, since no minimal pairs have been recorded for them. Strictly speaking, the existence of a minimal pair is not an absolute requirement for the confirmation of phonemic contrast. Thus, for example, it is widely known that there are no minimal pairs for /c/ and /č/ in standard Russian in the area of inherited and non-onomatopoeic lexicon. Providing a minimal pair is only a method for proving the existence of phonemic contrast, but not a requirement. To recognize two segments as different phonemes, two conditions must be fulfilled: 1) both segments must be possible in a similar phonological context; 2) segments must not show free variation, i.e. they must be lexically distributed.

As of now, there is a relatively small body of literature dealing with the Kazym Khanty vowel system. For one thing, it was the topic of Galina Kurkina's monograph (Kurkina 2000) which focuses on the acoustic features of the sounds. Based on an extremely small sample (83 items), Kurkina claims that *e* and *ɛ* are in complementary distribution depending on the following consonant (2000: 21–22), hence they should be considered allophones of one pho-

neme. Andrey Kaksin (2010: 28) considers *ɛ* as a variant of the phoneme /e/, however, he does not specify whether it is an allophone or a free variant. Neither are these segments characterized clearly enough in "Sketch of Khanty dialects" (Solovar et al. 2016: 16). Initially, both segments are defined as “phonemes”, although *e* is represented in slashes whereas *ɛ* is given in square brackets. Later on, the authors list the positions for the sound [e] (hence raising the question if it is really the main realization of the phoneme /e/), which appears 1) “before palatal consonants *ń*, *ś*, *λ´*, *j*”; 2) “after *k* and *χ*, palatals and bilabial *w*”. The second statement contradicts Kurkina’s analysis. Positional distribution of [ɛ] was not considered in Solovar et al. 2016. From this brief overview, it becomes clear that previous studies failed to determine the phonological status of *e* and *ɛ* reliably and to confirm the conclusions with an extensive corpus. However, in general, the scholars named above tend to describe these segments as variants of one phoneme.

3. Materials

The database on which the present study is based consists of two parts: synchronic and diachronic. The synchronic part was composed by Anton Kukhto on the basis of the wordlist from Valentina Solovar’s dictionary (Solovar 2014), which was corrected by me during a field session in Kazym in July 2019. The most important corrigenda are mentioned in Appendix 1. This part of the database consists of 720 lexemes. For each item, the left and right consonantal context, the vowel in the preceding and following syllable, the number of the syllable from the initial of the word have been determined. Additional data from Kaksin 2010 was used in order to investigate the distribution in non-initial syllables. The diachronic part includes data from Steinitz’s dictionary (DEWOS). A number of clarifications and corrigenda, based on Solovar 2014 and my field notes, are mentioned in Appendix 2. Kazym Khanty lexemes are cited with comparanda from other Khanty dialects, namely from Vakh, Vasyugan, Verkhne-Kalymsk, Vartovsky, Likrisovsky, Yugan, Maly Yugan, Tremyugan, Upper Demyanka, Konda, Nizyam, Sherkal, Synja and Obdorsk dialects. Each item has been analyzed in order to determine the origin of the vowel according to Mikhail Zhivlov’s (2007) reconstruction of the Proto-Khanty vowel system and its right consonant context.

4. Synchronic analysis of the distribution of e and ɛ

In word-initial syllables, perfect complementary distribution has been recorded in some positions, while several other positions demonstrate only a few exceptions deviating from the strict distribution, but in other positions phonemic contrast is certain. Free variation does not occur in the speech of the same native speaker, nor have we observed any interspeaker variation.

4.1. Perfect complementary distribution has been observed in the word onset: the lax vowel *ɛ* appears before *p*, *n*, *t*, *λ*, *k* and *ŋ*[1], whereas the tense vowel *e* is possible only before *w*. Word-internally ɛ appears before *m*, *p* and *l*, and *e* appears before palatals (*ś*, *j*, *ń*, *t´*) and *χ*. Positions where complementary distribution with no exceptions can be postulated are summarized in Table 2:

[1] No examples for other consonants attested in my corpus.

Table 2. Complementary distribution of *e* and *ɛ*

ɛ	e
_m, _p, _l #_p, #_n, #_t, #_*λ*, #_k, #_ŋ	_ś, _j, + single example for _ń, _t′, _*χ* #_w

4.2. There is no complementary distribution in other positions, therefore I can postulate phonemic contrast between tense /e/ and lax /ɛ/. The positions of phonemic contrast can be subdivided into two groups: 1) where the contrast is supported by the range of examples; 2) where only single «exceptions» contribute to the existence of the contrast. This dichotomy allows to make the following assumption: positions belonging to the first group reflect an old phonemic contrast, whereas in the second group it is an innovation. The analysis starts with the second group. Table 3 presents the main trends in distribution and all found exceptions:

Table 3. Distribution of ɛ and e: trends and exceptions

Context	Most cases	Exceptions
_w	e	*λɛwasa* ‘carelessly, negligently’
_r	ɛ	*keriti* ‘to fall’
_ŋ	ɛ	*leŋki* ‘poor fellow (Rus. бедняжка)’, *leŋkər* ‘harvest mouse’
_n	ɛ	*penśar* ‘tambourine’
_k	e	*šɛk* ‘log, stump’, *šɛk* ‘ankle’

Omitting numerous examples of *e* before *w*, I have to mention here the only example where the lax vowel appears in exactly the same position, i.e. between *λ* and *w*. It is the hydronym *λew* ‘Sosva river’, which is not widely used by speakers currently living in Kazym, situated far from this river. Nevertheless, this word has reliable Khanty cognates. The etymology of *λɛwasa*, on the other hand, is unclear. This word remains the only example of *ɛ* before *w*.

In most cases, the lax vowel appears before *r*. The only exception is *keriti*, cf. the examples with identical consonant context: *kɛr* ‘snow crust (Rus. наст)’, *kɛras* ‘high steep coast of a river’, *kɛrətti* ‘to go around’. The cited examples imply the presence of phonemic contrast before *r* or at least between *k* and *r*. Contradicting the assumption above, the contrast here goes back to Proto-Khanty; a detailed diachronic exploration of the situation will be presented in Section 6.1. However, the following cases must be interpreted as supporting the idea of an innovative nature of the contrast in this group.

In the position before *ŋ* the tense vowel appears only in two words: *leŋki* and *leŋkər*. The second word is not known to modern speakers, but the first one is commonly used also as a part of compounds with pejorative-diminutive meaning: *iki-leŋki* ‘lit. man-poor fellow (Rus. мужичонка)’, *puχ-leŋki* ‘lit. boy-poor fellow (Rus. мальчишка)’. Both *leŋki* and *leŋkər* have reliable Khanty comparanda (DEWOS: 844, 782). The second word is likely to be an interdialectal borrowing. In the Kazym dialect, the standard correspondence for Likr. *θ* and Irt., Ni. *t* is the lateral fricative *λ*. Initial *l-* points to a loan from Synja or Obdorsk dialect. However, Steinitz cites the form *λɛŋkər*, which demonstrates the predictably expected word-initial *λ* along with the lax vowel *ɛ* before *ŋ*.

Another example of a deviation from the general distribution in loans is *e* before *n* in *penśar* (< Nenets *pə́ēnt’śer’’*) ‘tambourine’. It is not excluded that the second consonant of the cluster actually affects the articulation of *e* in this particular case (before *ś* only *e* is possible). Neverthe-

less, in other cases the second consonant does not influence vowel quality. Steinitz cites the same word with *ń* (DEWOS: 1185); primary *ń* here could explain the tense vowel. Still, in modern Khanty this lexeme has been recorded with dental *n*, therefore I am forced to postulate phonemic contrast in this position as well.

One more example of loans breaking the distribution is a pair of homonymous lexemes: *šɛk* from Komi-Zyrian *žek* 'log, stump' and *šɛk* from Komi-Zyrian *šeg* 'ankle'. Inherited words demonstrate *e* before *k*: *wek* 'unlikely', *tekənti* 'to become full', *tekuptəti* 'to fill'. The same situation can be observed in Russian loans: *lekśitti* < Rus. 'to treat', *lekkər* < Rus. 'doctor, medical assistant', *wekša* < Rus. 'squirrel'.

The tense vowel *e* appears in word-final position in all the words, except for the lexeme *nɛ* 'woman, female', which also has the oblique stem *nɛŋ-*.

4.3. A certain phonemic contrast has been observed in word-internal positions before *t*, *ʎ*, *š*. The following quasi-minimal pairs confirm this:

pɛʎa 'to, in direction of (postposition)' vs *peʎi* 'affirmative particle'
kɛša 'for (postposition)' vs *keši* 'knife'

An obvious explanation involving assimilation by the second syllable vowel must be rejected in light of the following counterexamples: *ʎɛʎi* 'hungry', *pɛši* 'fawn, young deer', *keʎaŋ pɛləka* 'to the left', *keʎ-a* 'rope-DAT.SG'.

For the position before *t*, no minimal pair or even quasi-minimal pair has been found. All the examples from my database are cited below.

Position after *m*, *ʎ* and *χ* before *t*: *mɛt* 'the most, very', *mɛta* 'to enough', *mɛtšəti* 'to push, to shove (in); to put on', *mɛtšaśti* 'to push oneself away'; *ʎɛt-ut* 'food'; *ʎɛti* 'to eat; to burn (intr.)'; *noχər-ʎɛtnɛ* 'spotted nutcracker (*nucifraga caryocatactes*)', *χɛtškəti* 'to cry (of drake)'. The last lexeme is also given in Solovar 2014 in the form *χeškəti* 'to cry (of drake)'. This may be an onomatopoeic word.

Position after *w*, *j*, *k* before *t*: *wet* 'five', *wetmit* 'fifth', *wetχuśjaŋ* 'fifteen', *wetlow χăjəp* 'marsh sandpiper (*tringa stagnatilis*)', *wetsot* 'five hundred'; *jetšəti* 'to ripe, to be ready, to come to end', *jetšɛməti* 'to finish, to end'; *ketəmti* 'to touch'. I can postulate phonological contrast before *t* taking into account the fact that the left context does not determine vowel quality in this dialect except for the position after *j*, note on which can be found immediately below.

4.4. The only case in which left context synchronically affects a vowel is the position after *j* in the initial syllable. After *j* before *t*, *š*, *ʎ* phonemic contrast is neutralized, and only the tense vowel is possible here: *jetšəti*, *jetšɛməti*, *ješa* 'a few, a little', *ješawəʎ* 'soon', *ješək* 'dear', *jeʎ* 'far, into the distance', *jeʎʎi* 'forward', *jeʎpija* 'before (postposition)', *jeʎəmti* 'to put to shame', *jeʎməʎti* 'to be ashamed'. Only the tense vowel can be found between *j* and *s*, otherwise the lax vowel appears before *s*: *pɛsi* 'mourning', *pɛsəʎ* 'sedge', *rɛskəti* 'to hit strongly; to slam strongly', *sɛsi* 'trap'.

4.5. In initial syllables, phonological contrast of /e/ vs /ɛ/ is only found in limited positions, namely word-internally before *t*, *š*, *ʎ* (if no *j* precedes the vowel) and before *r*, *w*, *n*, *ŋ*, *k*. In the second group of positions it is supported by a few examples only (*keriti*, *ʎɛwasa*, *penśar*, *leŋki*, *šɛk*, *šɛk*). In all other contexts the contrast is neutralized. The archiphoneme /E/ is realized as a tense vowel in onset before *w* and before palatals (*t´*, *ś*, *ń*, *j*) and *χ* word-internally, as well as between *j* and *s*, *t*, *š*, *ʎ*; as a lax vowel before *p*, *n*, *t*, *ʎ*, *k*, *ŋ* in onset and before *p*, *m*, *l*, *s* (but [e] / j_s) word-internally.

In non-initial syllables, [e] and [ɛ] are in complementary distribution depending on the right consonantal context (Table 4). Hence, the phonemic contrast is neutralized in this position.

Table 4. Distribution of [e] and [ɛ] in the non-initial syllables

_p	_m	_w	_t	_s	_n	_l	_r	_λ	_k	_ŋ
ɛ	ɛ	e	e	ɛ	e	ɛ	ɛ	e	e	ɛ

5. Evidence from a perceptual experiment

For further confirmation of the phonological status of /e/ and /ɛ/, a perceptual experiment was conducted. Four informants were asked to evaluate six pairs of words in random order. In each pair, one word (given with a gloss in the table below) was correctly pronounced by Kazym Khanty native speaker, whereas in the incorrect counterpart (given without a gloss) the first vowel was substituted using a computer sound editor. The informant had to recognize the word, i.e. repeat it and translate it into Russian or to claim that the word is incorrect or absent in the Khanty language.

In Table 5, which shows the results of the perceptual experiment, I use the following symbols: ATL, ZAM, IMI, TRG — informants' initials; + — a word is correctly recognized; * — the informant claims there is no such word in Khanty; lexeme with a gloss — informant's interpretation.

Table 5. Results of perceptual experiment

	ATL	ZAM	IMI	TRG
[keši] 'knife'	+	+	+	+
[kɛši]	*	*kăši* 'to feel pain'	*kăši* 'to feel pain'	*
[kew] 'stone'	+	+	+	+
[kɛw]	similar to *kɛm* 'time'	*	*i kɛm* 'similar'	*
[kɛm] 'approximately'	+	*	+	+
[kem]	*	*	*	*
[kɛša] 'for (postposition)'	+	+	+	+
[keša]	*	*	*	*
[peś] 'haunch'	+	+	+	+
[pɛś]	*	*	*	*
[pɛši] 'олененок'	+	+	+	+
[peśi]	*piλa* 'together', *piλ* 'pair'	*piλ* 'pair'	*	*

It is important that when "rejecting" the word speakers considered it not as an incorrect pronunciation but as a totally non-existent form. This fact decisively confirms the phonological nature of /e/ and /ɛ/.

6. Diachronic analysis

On the basis of the following set of correspondence, Zhivlov (2007: 282) reconstructs two Proto-Khanty sources for the modern Kazym mid front vowels (*e* vs *ɛ* are not distinguished in Zhivlov 2007):

Table 6. Reflexes of the Proto-Khanty **ä* and **ē* in Khanty dialects

ProtoKh	V.	Vj.	Trj.	J	DN	Ko.	Ni.	Kaz.	O.
*ä	e/ö[1]	e/ö[1]	ă̯/ŏ̯[2]	ă̯/ŏ̯[2]	e	e	e	e	e/o[3]
*ē	i	i	i	i	e	e	je-, -e-	je-, -e-	i ~ e

Notes from the cited work: «1. *e* (*ö* adjacent to velars, if there is no *ä* in the second syllable). 2. *ă̯* (*ŏ̯*/*ŏ̯* after *k* not before velars, if there is no *ä* or *i* in the second syllable). 3. *e* (*o* ~ *e* adjacent to *ŋ*, *k*)».

6.1. My observations show that some positions of the synchronic phonemic contrast reflect Proto-Khanty opposition **ä* vs **ē*. In the position after *k* before *š* and *r*, *e* goes back to **ä* (1, 4) whereas *ɛ* goes back to **ē* (2–3, 5–6).

(1) Kaz. *keri-* 'to fall'; V., Vj. *kə̯rəγ*; VK *körəγ*; Vart., Likr., Mj., Trj. *kə̆rəγ*; J. *kə̆rəγ*; Irt. (DN, KoP., Kr.) *kerə*; Ni. , Š. *kerij-*; O. *kori-* (DEWOS: 676);
(2) Kaz. *kɛr* 'snow crust (Rus. наст)'; V., Vj., Likr., Mj., Trj., J., KoP., Kr. *kir*; Ni., Sy., O. *ker* (DEWOS: 661);
(3) Kaz. *kɛrət-* 'to go around'; V., Vj., Trj., J. *kirəγtə-*; Irt. (DN, KoP., Kr.), Ni., Sy., O. *kerət-* (DEWOS: 669);
(4) Kaz. *keši* 'knife'; V., Vj. *kə̯čəγ*; VK *köčəγ*; Vart., Likr., Mj., Trj. *kə̆čəγ*; J. *kə̆čəγ*; Irt. (DN, KoP., Kr.) *kečə*; Š. *kešə*; Sy. *keši*; O. *kesi* (DEWOS: 593);
(5) Kaz. *kɛš* 'fur stocking (Rus. чижи)'; V., Vj., Vart., Likr., Mj., Trj. *kiṇč*; J. *kinč*; KoP., Kr. *kenč*; Ni. *keša*; Sy. *keš*; O. *kis* (DEWOS: 646);
(6) Kaz. *kɛša* 'for (postposition)'; Trj. *kičə́*; DN, KoP., Kr. *kečə́*; Ni., Š., Sy. *keša*; O. *kossi, kosi* (DEWOS: 592).

If the left context is different, **ä* yields *ɛ* before *š* (7); before *r*, **ä* and **ē* are merged (8–12).

(7) Kaz. *pɛši* 'fawn, young deer (under one-year-old)'; V. *pečəγ*; KoP., Kr., Ni., Š. *pečə*; O. *pēsi* (DEWOS: 1095);
(8a) Kaz. *ńɛr* 'ire'; J. *ńir*; KoP., Ni., Š. *ńer* (DEWOS: 1069);
(8b) Kaz. *ńɛrəŋ* 'nervous, chippy'; V., Vj., Trj., J. *ńirəŋ*; KoP., O. *ńerəŋ* (DEWOS: 1069);
(9) Kaz. *nɛr-* 'to rub' V., Vj. Vart., Likr., Mj., Trj., J. *nir-*; DN, Kr., Ni., Š., O. *ner-* (DEWOS: 1012);
(10) Kaz. *sɛr, sɛri* 'deaf (of elk)'; V., Vj. *serɜ*; Vart., Likr., Mj., Trj. *sə̆rɜ*; J., KoP. *sə̆rə*; Ni. *serə*; Š., O. *ser* (DEWOS: 1368);
(11) Kaz. *wɛr* 'work, matter'; V., Vj. *wer*; Trj., J. *wə̆r*; Irt. (DN, KoP., Kr.), Ni., Š., Sy., O. *wer* (DEWOS: 1613);
(12) Kaz. *λɛr* 'root'; V. *ler*; Vj., VK *jer*; Likr. *θə̆r*; Mj., Trj., J. *λə̆r*; Irt. (DN, KoP., Kr.), Ni., Š., *ter*; Sy., O. *ler* (DEWOS: 797).

Separate reflexes of **ä* and **ē* have also been attested in the position before *t* and *λ*: ProtoKh. **ä* > Kaz. *e* (14–15; 18–21); ProtoKh. **ē* > Kaz. *ɛ* (13; 16–17).

(13) Kaz. *λɛt-ut* 'food'; V. *lit-o̯t*; Vj. *int-o̯t*; Trj., J. *λit-ŏt*; Irt. (DN, KoP., Kr.) *tet-ăt*; Š. *tet-ŏt*; Sy. *let-ŏt*; O. *lit-it* (DEWOS: 714);

(14) Kaz. *ket-əm-* ‘to touch’; cf. V., Vj. *kə̯t*; VK *kə̯t*; Vart., Likr., Mj., Trj. *kə̆t*; J. *kə̆t*; Irt. (DN, KoP., Kr.) *ket* (DEWOS: 698);
(15) Kaz. *wet* ‘five’; V., Vj. *wet*; Trj., J. *wă̆t*; Irt. (DN, KoP., Kr.), Ni., Š., Sy., O. *wet* (DEWOS: 1641);
(16) Kaz. *pɛλa* ‘to (postposition)’; V., Vj. *pil*; J. *piλ*; KoP. *pet-*; Ni., Š. *peta*; Sy. *pela*; O. *pelȧ* (DEWOS: 1145);
(17) Kaz. *λɛλt-* ‘to load (up), to ship; to seat’; V. *lilt-*; Vj. *ilt-*; Trj., J. *λiλt-*; DN, KoP., Kr., Ni., Š. *tettə-*; Sy., O. *lelt-* (DEWOS: 748);
(18) Kaz. *keλ* ‘rope’; V., Vj. *kə̯l*; Vart. *kə̆λ*; Likr. *kə̆θ*; Mj., Trj. *kə̆λ*; J. *kə̆λ*; Irt. (DN, KoP., Kr.), Ni., Š. *ket*; Sy., O. *kel* (DEWOS:);
(19) Kaz. *ńeləŋ* ‘greedy’; V., Vj. *ńeləŋ*; Trj., J. *ńă̆ləŋ*; Irt. (DN, KoP., Kr.), Ni., Š. *ńetəŋ*; Sy., O. *ńeləŋ* (DEWOS: 1042);
(20a) Kaz. *weλ-* ‘to hunt, to kill’; V., Vj. *wel-*; Likr. *wă̆θ-*; Mj., Trj., J. *wă̆λ-*; Irt. (DN, KoP., Kr.), Ni., Š. *wet-*; Sy., O. *wel-* (DEWOS: 1580);
(20b) Kaz. *weλpəs* ‘hunting, hunt, fowling’; Trj., J. *wă̆λpəs*; DN, KoP., Kr., Ni., Š. *wetpəs*; Sy., O. *welpəs* (DEWOS: 1581).
(21) Kaz. *weλəm* ‘marrow’; V., Vj. *weləm*; Vart. *wă̆λəm*; Likr. *wă̆θəm*; Mj., Trj., J. *wă̆λəm*; Irt. (DN, KoP., Kr.), Ni., Š. *wetəm*; O. *weləm* (DEWOS: 1584);

For an exact description of the development of Proto-Khanty **ä* and **ē*, two additional rules are needed. The vowel **ä* yields *ɛ* (22–23) after labial non-approximants (*m*, *p*). Labials *m* and *p* are put in the same class opposed to the labial approximant *w* when it comes to the realization of the synchronic archiphoneme /E/. After *t* and before *λ*, **ä* is reflected as *ɛ* (24–25). Upon first sight, such a position seems quite unnatural; nevertheless, one can find a typological parallel even within Finno-Ugric languages. Thus, Proto-Permic **ȯ* yields Proto-Udmurt **a* before *l* after dentals, whereas normally it yields **o* (Zhivlov 2010: 171, Lytkin: 1964: 128–129).

(22) Kaz. *mɛt-* ‘to get tired’; V. *met-*; Trj., J. *mă̆t-*; Ni., Sy., O. *met-* (DEWOS: 971);
(23) Kaz. *pɛλ-* ‘to prick, to prick oneself, to stick oneself into’; V., Vj. *pel-*; Trj., J. *pă̆λ-*; DN, KoP., Kr., Ni., Š. *pet-*; O. *pel-* (DEWOS: 1138);
(24) Kaz. *tɛλ* ‘clothes; vessel’; Vj. *tel*; KoP., Ni., Š. *tet*; O. *tel* (DEWOS: 1427);
(25) Kaz. *tɛλ* ‘full’; Vj., Vk *tel*; Likr. *tă̆θ*; Mj., Trj. *tă̆λ*; DN, KoP., Kr., Ni., Š. *tet*; Sy., O. *tel* (DEWOS: 1425);

The only example which cannot be explained by the phonological laws is (26). I assume here some kind of ablaut, which has undergone analogical levelling in Western Khanty but has been preserved in Eastern Khanty, cf. *λɛλt-* in example (17).

(26) Kaz. *λɛλ-* ‘to get on (sledges or some other transport)’; V. *lel-*; Vj. *jel-*; Trj., J. *λă̆λ-*; Irt. (DN, KoP., Kr.), Ni., Š. *tet-*; Sy., O. *lel-* (DEWOS: 747).

6.2 Another position of the contrast of Proto-Khanty **ä* and **ē*, which was already noted in (Zhivlov 2007), is a word onset. My observations allow to add some details to the whole picture of reflexes in onset.

Table 7. Reflexes of the Proto-Khanty **ä* and **ē* in the word-initial position

	#_C	#_n	#_w	#_ŋ
*ä	ɛ	ɛ	e	ɛ
*ē	je	jɛ	?	ɛ

Reflexes of two Proto-Khanty vowels are clearly distinguished before *λ* and *t*.

(27) Kaz. *ɛλ* ‘body’; V., Vj. *el*; Vart. *ĕλ*; Likr. *ĕθ*; Irt. (DN, KoP., Kr.), Ni., Š. *et*; Sy., O. *el* (DEWOS: 56);
(28) Kaz. *ɛλi* ‘capacious’; V., Vj. *elγi*; KoP., Ni. *etə*; O. *eli* (DEWOS: 73);
(29a) Kaz. *jeλ* ‘far, into the distance’; V., Vj. *il*; Trj. *iλ*; Ni. *jet*; Sy. *jel* (DEWOS: 58);
(29b) Kaz. *jeλn* ‘distantly’; V., Vj. *ilən*; Vart. *iλən*; Likr. *iθən*; Ni., Š. *jetn̮*; O. *jeln̮* (DEWOS: 60);
(29c) Kaz. *jeλta* ‘from afar’; Mj., Trj. *iλtə*; Ni. *jetta*; Sy. *jel’ta* (DEWOS: 59);
(30a) Kaz. *jeλɛm* ‘shame’; V., Vj. *ilim*; Vart. *iλim*; Likr. *iθəm*; Mj., Trj., J. *iλəm*; KoP *itim*; Ni., Š. *jetem*; O. *jelem* (DEWOS: 79);
(30b) Kaz. *jeλɛmt-* ‘to put to shame, to make ashamed’; Trj. *iλemtə-*; Ni. *jetəmt-* (DEWOS: 80);
(31) Kaz. *jeλpi* ‘foreside’; Trj., J. *iλpi*; KoP. *ippə*; Ni., Š. *jetpə*; Sy. *jelpi* (DEWOS: 60);
(32) Kaz. *ɛt-* ‘to grow’; V., Vj. *et-*; Trj., J. *ăt-*; Irt. (DN, KoP., Kr.), Ni., Š., Sy., O. *et-* (DEWOS: 201);
(33a) Kaz. *ɛtər* ‘clearly’; V., Vj. *etər*; Trj., J. *ătər*; Irt. (DN, KoP., Kr.), Ni., Š., O. *etər* (DEWOS: 218);
(33b) Kaz. *ɛtermə-* ‘to clear up’; Irt. (DN, KoP., Kr.), Ni., O. *etərmə-* (DEWOS: 218);
(34) Kaz. *ɛtmə-* ‘to go out, to appear’; V., Vj. *etəm-*; DN, KoP. *etəmə-*; Š., Sy., O. *etmə* (DEWOS: 202);
(35) Kaz. *ɛtəλtə-* ‘to introduce, to show in’; V. *etl̮tə-*; J. *ătl̮tə-*; Ni., Š. *etl̮tə-*; Sy., O. *etl̮’tə-* (DEWOS: 202);
(36) Kaz. *jetn* ‘evening’; V., Vj., Likr., Mj., Trj., J., *itən*; Irt. (DN, Kr.) *itən*, *itn̮*; Ni., Š., Sy. *jetn̮* (DEWOS: 217).

Collected examples demonstrate the same reflexes before *p*, *s* and *š*. However, no reliable conclusions can be drawn for these positions, since there is evidence for only one of two Proto-Khanty vowels.

(37) Kaz. *ɛpət-* ‘to overflow, to burst its banks’; Trj. *ăpət-*; Irt. (DN, KoP., Kr.), Ni., Sy., O. *epət-* (DEWOS: 153);
(38) Kaz. *ɛpəλ* ‘smell, taste’; V., Vj. *ewəl*; Vart. *ăwəλ*; Likr. *ăwəθ*; Mj., Trj., J. *ăpəλ*; Irt. (DN, KoP., Kr.), Ni., Sy., O. *epət* (DEWOS: 147);
(39) Kaz. *ɛsəm* ‘female breast’; Trj., J. *ăsəm-*; Irt. (DN, KoP., Kr.), Ni., Š., Sy., O. *esəm* (DEWOS: 194);
(40) Kaz. *ɛsλ-* ‘to hit’; V., Vj. *əsəl-*; Trj., J. *ăsλ-*; Irt. (DN, KoP., Kr.), Ni., Š. *estə-*; Sy. *esəl-*; O. *esl-* (DEWOS: 193);
(41) Kaz. *ješək* ‘expensive’; V., Vj., Vart., Likr. *ičəγ*; Mj., Trj., J. *ičək*, Irt. (DN, KoP., Kr.) *ječək*, Ni., Sy. *ješək*, O. *jesək* (DEWOS: 10).

The word-initial distinction of **ä* and **ē* before *n* has been preserved in a special way: **ä* > *ɛ* (42a-b), **ē* > *jɛ* (41). In connection to this, it is important to note the merge in word-internal position before *n*.

(42) Kaz. *jɛnλ* ‘edge’; V. *in’l*; Vj. *inl*; Trj. *in’λ*; J. *inλ-*; KoP., Kr. *jint*; Ni. *jentl*; Š. *jent*; Sy. *jetl*; O. *in’l̮* (DEWOS: 124);
(43a) Kaz. *ɛnəm-* ‘to rise, to grow’; V., Vj. *enəm-*; Likr., Mj., Trj., J. *ănəm-*; Irt. *enəm-*; Ni., Š., Sy. *enəm-* (DEWOS: 110);
(43b) Kaz. *ɛnməλt-* ‘to raise, to grow’; J. *ănməλtə-*; Ni. *enmət-*; O. *enməlt-* (DEWOS: 110).

Word-initially before *ŋ*, two Pronto-Khanty vowels are merged in *ɛ* (42–44).

(44) Kaz. *ɛŋəλ-* 'to groan, to moan'; V. *ӧ̆ŋəl-*; DN, KoP., Kr., Ni., Š. *eŋət-*; O. *eŋel-* (DEWOS: 141);
(45) Kaz. *ɛŋkər-* 'to curse'; J. *iŋkər-*; DN, Kr., Sy. *eŋkər*; O. *eŋχər-* (DEWOS: 139).

6.3 Remaining positions demonstrate merging of Proto-Khanty **ä* and **ē*. Before *p* (46–50), *m* (51–52), *n* (53–56), *r* (8–12) they yield *ɛ*. Before *w* (57–64) and *ś* (65–68), they are reflected as *e*. The data for other positions are insufficient to make any reliable claims. Before *l*, *ŋ*, *k*, only reflexes of **ä* are attested.

(46) Kaz. *jɛpəs* 'skewer, spit'; V., *jiwəs*; Vj. *iwəs*; VK, Vart. *jiwəs*; Likr., Mj., Trj., *jipəs*; Irt (DN, KoP., Kr.), Ni., Sy., O. *jiwəs* (DEWOS: 397);
(47) Kaz. *kɛpəλ* 'paws from the feet of hoofed animals (moose, deer)'; V., Vj. *kӧ̆wəl*; Vart. *kӑ̆pəλ*; J. *kӑ̆pəλ*; Irt (DN, KoP., Kr.), Ni. *kepət*; Sy. *kepəl* (DEWOS: 655);
(48) Kaz. *rɛp* 'mountain, hill'; Vj. *rew*; Vart. *rӑ̆w*; Likr. *rӑ̆p*; Trj., J. *rӑ̆p*; Irt (DN, KoP., Kr.), Ni., Sy., O. *rep* (DEWOS: 1278);
(49) Kaz. *šɛpəŋ* 'rotten'; Vj. *čewəŋ*; Mj., Trj., J. *čӑ̆pəŋ* (DEWOS: 292);
(50) Kaz. *λɛp-* 'to go in'; Trj., J. *λӑ̆p-*; DN, KoP., Kr., Ni. *tep-*; Sy., O. *lep-* (DEWOS: 785);
(51) Kaz. *nɛm* 'negative particle used before pronouns'; V., Vj. *nem*; Vart., Likr., Mj., Trj., J. *nӑ̆m*; Irt (DN, KoP., Kr.), Ni., Sy., O. *nem* (DEWOS: 1000);
(52) Kaz. *sɛm* 'eye'; V., Vj. *sem*; Likr. *sӑ̆m*; Irt. (DN, KoP., Kr.), Ni., Sy., O. *sem* (DEWOS: 1338);
(53) Kaz. *mɛna* 'bend, curve'; V., Vj., Trj. *miṇ* (DEWOS: 932);
(54) Kaz. *kɛn* 'light'; Mj. *kӑ̆ṇəγ*; J. *kӑ̆nəγ*; Irt. (DN, KoP., Kr.), Ni., Š. *kenə*; Sy. *keṇ*; O. *kon* (DEWOS: 648);
(55) Kaz. *pɛnt-* 'to close, to lock'; V., Vj. *pent-*; Trj. *pӑ̆nt-*; DN, KoP., Kr., Sy., O. *pent-* (DEWOS: 1179);
(56) Kaz. *sɛn* 'nit'; V., Vj. *seṇəγ*; Likr., Mj., Trj., J. *sӑ̆nəγ*; DN, KoP., Kr., Ni. *senə*; Sy. *seṇ*; O. *sen* (DEWOS: 1345);
(57) Kaz. *sew-* 'to plait, to weave'; V., Vj., VK *sӧ̆γ-*; Vart. *sӑ̆̆γ-*; Mj., Trj. *sӑ̆̆̆γ-*; J. *sӑ̆w-*; Irt. (DN, KoP., Kr.), Ni., Sy., O. *sew-* (DEWOS: 1308);
(58) Kaz. *sewi-* 'to bind'; V., Vj., Trj. *siγi-*; DN, Kr., *seγej-*; Ni., Š. *sewij-*; O. *siji-* (DEWOS: 1312);
(59) Kaz. *pew-* 'to freeze, to feel cold'; V. *pӧ̆γ-*; Trj. *pӑ̆̆̆γ-*; DN, KoP. *peγ-*; Ni. *pew-*; Š. *peγ-*; Sy., O. *pew-* (DEWOS: 1115);
(60) Kaz. *sewər-* 'to hew'; Likr., Mj., Trj. *sӑ̆̆̆γər-*; J. *sӑ̆wər-*; Irt. (DN, KoP., Kr.), Ni., Š., Sy., O. *sewər-* (DEWOS: 1321);
(62) Kaz. *sewəs* 'stern of a boat'; V., Vj. *sӧ̆γəs*; VK *söγəs*; Vart. *sӑ̆̆γəs*; Likr., Mj., Trj. *sӑ̆̆̆γəs*; J. *sӑ̆wəs*; Irt. (DN, KoP., Kr.), Ni., Š., Sy., O. *sewəs* (DEWOS: 1323);
(62) Kaz. *tewən* 'windless'; V.,Vj. *teγən*; Trj. *tӑ̆̆̆γən*; J. *tӑ̆wən*; DN *tewen*; KoP., Kr. *tewin*; Ni., Sy., O. *tewən* (DEWOS: 1415);
(63) Kaz. *wew* (commentary on the semantics see in Appendix 2); V., Vj. *wӧ̆γ*; VK *wöγ*; Vart. *wӑ̆̆γ*; Likr. *wӑ̆̆̆*, Mj. *wӑ̆̆̆*; Trj. *wӑ̆̆̆*; J. *wŏw*; DN, KoP., Kr. *weγ*; Ni. *wew*; Š. *weγ*; Sy. *wew*; O. *wej* (DEWOS: 1571);
(64) Kaz. *λew* 'servant, labourer'; V. *lӧ̆γ*; Vj. *jӧ̆γ*; Likr. *θӑ̆̆̆*; Mj., Trj. *λӑ̆̆̆*; KoP. *tew*; Kr. *teγ*; Ni., Š. *tew*; O. *lew* (DEWOS: 733);
(65) Kaz. *peś* 'haunch'; Vj. *pit´-*; Irt. (DN, KoP., Kr.) *pet´-*; Ni., Š., Sy. *peś*; O. *piś* (DEWOS: 1251);

(66) Kaz. *śeś* (*seńś-*) 'bast'; V., Vj., Likr., Mj., Trj., J. *sińt´*; DN, KoP., Kr. *seńt´*; Ni. *śeńś*; O. *śiś* (*śiṇś-*) (DEWOS: 1347);
(67a) Kaz. *weś* 'beauty'; Vj., Trj. *wit´*; KoP., Kr. *wet´*; Š., O. *weś* (DEWOS: 1648);
(67b) Kaz. *weśəŋ* 'beautiful (also of animals and clothes)'; V., Vj. *wit´əŋ*; Trj. *wit´əŋ*; DN, KoP., Kr. *wet´əŋ*; Š., O. *weśəŋ* (DEWOS: 1648);
(67c) Kaz. *weśəp* 'beautiful'; Trj. *wit´əŋ*; KoP., Kr. *wet´əp*; Ni. *weśəp* (DEWOS: 1648);
(68) Kaz. *weś-* 'to sew (on)'; V., Vj. *wet´-*; Trj. *wăt´-*; Ni. *weś-* (DEWOS: 1646).

6.4 Table 8 summarizes reflexes of Proto-Khanty **ä* and **ē* in word-internal position.

Table 8. Reflexes of the Proto-Khanty **ä* and **ē* in the word-internal position

	_p	_m	_w	_t	_n	_l	_r	_š	_λ	_ś	_k	_ŋ
*ä	ɛ	ɛ	e	e/ɛ[1]	ɛ	ɛ	ɛ/e[2]	ɛ/e[2]	e/ɛ[1,3]	e	e	ɛ
*ē	ɛ	ɛ	e	ɛ	ɛ	?	ɛ	?	ɛ	e	?	?

Notes: 1) **ä* > *ɛ* / *m, p_t, λ*; 2) **ä* > *e* / *k_r, k_š*; 3) **ä* > *ɛ* / *t_λ*.

7. Conclusions

In its current state, Kazym dialect demonstrates a phonemic contrast between the tense and lax front vowels only in limited positions. In positions of neutralization, vowel quality can be predicted by the following consonant and by the preceding *j*. The original source of the contrast are two Proto-Khanty vowels which yield different reflexes in one positions but are merged in others. The relative complexity of the rules which describe the distribution of reflexes confirms once again the Neo-Grammarian statement that the majority of imaginary "exceptions" can be explained by formulating additional sound laws. Being a result of analogical leveling, the only real exception in my database has no phonological explanation. Deviations from the postulated pattern are also found in borrowings, including interdialectal Khanty borrowings. So the diachronic study of Kazym mid front vowels is a perfect and concise example of the whole Neo-Grammarian methodology based on the principle of *Ausnahmslosigkeit der Lautgesetze*.

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Appendix 1. Corrigenda to Solovar 2014

Solovar 2014		Correction	Commentary
109	*jɛšawəʌ*	*ješawəʌ*	This variant is cited on p. 106, it is also confirmed by the field study.
146	*lɛkkər*	*lekkər*	This form has been recorded in my field notes. It is also more likely from the systemic point of view.
146	*lɛkśitti*	*lekśitti*	This variant is cited below on p. 146, it has also been confirmed by the field study.
230	*ńemәś karti*		The lexeme is not used currently; it is completely unknown to speakers in Kazym. The example has been excluded from consideration.
253	*pəsmɛkʌəti*	*pəsmekʌəti*	More likely *pəsmekʌəti*, the form is found in DEWOS. It is also more likely from the systemic point of view.
269	*pɛʌa (i)*	*pɛʌa*	Only the form *pɛʌa* has been confirmed by the field study. The form *pɛʌi* is recognized as one from a foreign dialect.
293	*seŋənwej*	*sewənwej*	The compound literally means 'knitted boots', i.e. 'socks'. The first part of the compound is related to the verb *sewti* 'to knit, to crochet' (Solovar 2014: 292).

Appendix 2. Corrigenda to DEWOS

In the transcription used in DEWOS for Kazym dialect, dental *n* and retroflex *ɳ* are distinguished. In modern descriptions (Kaksin 2010, Solovar 2014, Solovar et al. 2016) this distinction is not noted.

DEWOS		Correction	Commentary
782	*ʌɛŋkər*	*leŋkər*	The form *leŋkər* is cited in Solovar 2014: 146. Apparently, it is a loan from another dialect. Neither one nor the other form is used by speakers at the present moment.
828	*ļɛkəp*		The lexeme is not currently used; it is completely unknown to speakers in Kazym. The example has been excluded from consideration.
986	*ɳɛki*		The lexeme is not currently used; it is completely unknown to speakers in Kazym. The example has been excluded from consideration.
1069	*ńer, ńerəŋ*	*ńɛr, ńɛrəŋ*	According to modern data: *ńɛra-suχa* 'to spite somebody', *ńɛrəŋ-suχəŋ* 'obstinate' (Solovar 2014: 230), hence, *ńɛr* 'ire', *ńɛrəŋ* 'nervous' are more apparent. It is also more likely from the systemic point of view.
1427	*teʌ*	*tɛʌ*	According to Solovar 2014: 317, the form is *tɛʌ*; the same pronunciation has been confirmed by the field study.
1145	*pɛʌa, pɛʌi*	*pɛʌa*	Only the form *pɛʌa* has been confirmed by the field study. The form *pɛʌi* is recognized as one from a foreign dialect.
1406	*tɛkən-*	*tekən-*	Solovar (2014: 317) lists this lexeme with *e*. It has also been confirmed by field study.
1571	*wew*		Glossed in Solovar 2014 as 'weakness, tiredness; weak (of a man)', but as 'power, strength; heavy (work)' in DEWOS; the collocation *wewa jĭs* 'to become weak' is also cited in DEWOS. The semantic development remains unclear.

Abbreviations

Languages and dialects

DN — Upper Demyanka; Irt. — Irtysh; J. — Yugan; Ko. — Konda; KoP. — Konda on the basis of Paasonen's notes; Kr. — Krasnoyarskie on Konda; Likr. — Likrisovsky; Mj. — Maly Yugan; Ni. — Nizyam; O. — Obdorsk; ProtoKh. — Proto-Khanty; Rus. — Russian; Š. — Sherkal; Sy. — Synja; Trj. — Tremyugan; V. — Vakh; Vart. — Vartovsky; Vj. — Vasyugan; VK — Verkhne-Kalymsk

Sources

DEWOS = Steinitz 1966–1993.

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И. М. Егоров. Происхождение и синхронный статус передних гласных среднего подъема в казымском диалекте хантыйского языка.

Настоящая статья посвящена синхронному и диахроническому анализу двух гласных переднего ряда среднего подъема (*e* и *ɛ*) в казымском диалекте хантыйского языка. Исследование дистрибуции этих гласных показало фонологический контраст в одних позициях и нейтрализацию в других. Фонологический статус обеих гласных дополнительно подтвержден перцептивным экспериментом. Источником e и ɛ являются две пра-хантыйские гласные, которые различаются или совпадают в зависимости от консонантного контекста. Фонологический контраст распространился в некоторых новых позициях благодаря ненецким, коми-зырянским и междиалектным хантыйским заимствованиям.

Ключевые слова: фонология, вокализм, историческая фонология, диалектология, хантыйский язык