

# Phonological and morphological variation in Botlikh: Comparing two dictionaries

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24.03.2020

# Botlikh

- ▶ Botlikh < Andic < Avar-Andic-Tsezic < East Caucasian
- ▶ Spoken by ~5,000-8,000 speakers
- ▶ Three villages in the Botlikh district of the Republic of Daghestan: Botlikh, Miarso, and Ashino
- ▶ Unwritten and mostly spoken at home; the Cyrillic script of Avar functions as an ad hoc writing system on social media
- ▶ Evaluated as “threatened” by Ethnologue ([Simons & Fenning 2018](#)), but many children still speak the language and attitudes are positive
- ▶ Heavy influence from Avar and Russian

# Botlikh

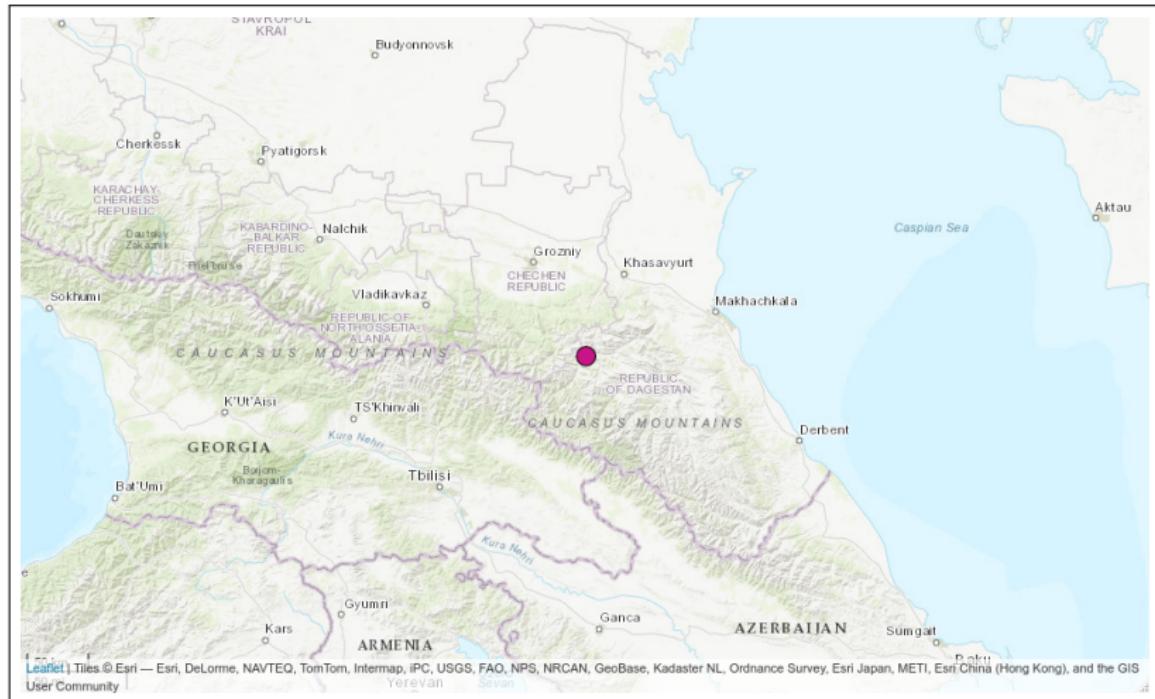


Figure 1: Botlikh on the map

# Botlikh



Figure 2: The old village

## Botlikh literature

- ▶ One full reference grammar in Georgian ([Gudava 1962](#))
- ▶ Several short sketches mostly based on information contained in the grammar by Togo E. Gudava ([Gudava 1967](#), [Azaev 2000](#), [Saidova 2001](#), [Magomedbekova 2001](#), [Xalidova 2017](#), [Alekseyev & Verhees Forth.](#))
- ▶ Several works on the lexicon and word formation ([Azaev 1975](#), [Sulejmanova 2013](#), [Alekseyev 2016](#))
- ▶ In general poorly described compared to other Andic languages like Godoberi or Bagvalal, BUT two Botlikh-Russian dictionaries are available to date ([Saidova & Abusov 2012](#), [Alekseev & Azaev 2019](#))

## Two dictionaries



Figure 3: Two Botlikh-Russian dictionaries

## Two dictionaries

- ▶ Saidova & Abusov (2012) compiled in the 2000s by a native speaker of Botlikh (Magomed G. Abusov) and an experienced linguist (Patimat A. Saidova)
- ▶ Alekseev & Azaev (2019) compiled in the 1960s/1970s by a native speaker of Botlikh and philologist (Xalil G. Azaev), later (in the 2000s) systematized by an experienced linguist (Mixail E. Alekseev), and published posthumously after the editing by Timur A. Maisak

## Two dictionaries

- ▶ Comparable both quantitatively and qualitatively
- ▶ ~8,000 headwords for Saidova & Abusov (2012) vs. ~9,000 words and expressions for Alekseev & Azaev (2019)
- ▶ Although the data in Alekseev & Azaev (2019) were collected several decades earlier, Magomed G. Abusov also consulted elderly speakers with the aim of collecting archaic vocabulary
- ▶ Saidova & Abusov (2012) also contains some notes on Miarso; reference to Miarso variants is not explicit in Alekseev & Azaev (2019), but it seems that such variants are occasionally reported in this dictionary too
- ▶ No metadata on the speakers consulted
- ▶ At first glance, the two resources seemed to display variation

## Our research

- ▶ Comparison of the two resources
- ▶ A quantitative investigation of an understudied language
- ▶ Provide numerical approximations for the impressionistic observations available in the existing literature
- ▶ Analysis of both phonological and morphological features
- ▶ Detect patterns of systematic variation within these two areas

# Outline

- ▶ Data
  - ▶ merging
  - ▶ extracting grammatical information
  - ▶ pairing and annotation
- ▶ Analysis
  - ▶ phonology (George Moroz)
  - ▶ nominal morphology (Chiara Naccarato)
  - ▶ verbal morphology (Samira Verhees)
- ▶ Results and discussion
- ▶ Methodological remarks

# Merging (George Moroz)

A	B
АБАБЕ фон нувариях вхудоизложийт букеттим; инде (тапшы) АБАЛАДИ парс. 1) икнөд; абадан сынтын гүчүл дег баштаки никогда я к ним не приду 2) ни за что; абадан иңмөлү түшүнүү түбүн ни за что не следует от этого	аваданбайлыс масаты букв ғоворилы о то же из предыдущего
АБАЛДАЧЫМ III (-стый) кескіністік аладынмасының түсінік жаңырностык человек (бук ғиенеши в сердце кескіністік человек) аланының түбүнгү түсүнү бәрәдостык жыныс; расистору аладынмасынан түсүнү; алам иңмөлү түшүнүү; аваданлы в'ятка	
АБАЛДАРЫН I (-ын) албансец АБАЛДАРЫН II (-тын) албанска АБАЛДАРЫН I (үй) албанс; албанизуб миссия албанская	АВАЛДАЧЫМ III (-стый) кескін; тый ишиң абал наа шана жардал; ишиң авал мишина втуу в нашем квартале построили мечеть 2) скрут; тый авале куйнанында жана күйнөнде в этом округе из боянами корынды чечени
АБАЛДАРЫН I (-ын) албанс АБАЛДАРЫН II (-тын) албанс АБАЛДАРЫН III (-тын, -абалы) автобус; алтабузалылык истанши автобусынан; алтабузалык түсүн жасауда; алтабузалык түрлөрдө автобусы проблем	АВАЛДАЧЫМ III (-стый) ишан; аланай арын гылбайылди получими денди в шаш; АВАРАТ I (-ылы, -забалы) ред. пророк; аваратын аныру келение хана; прославленный пророк; пророк; прославленный пророк; аваратын тэргималыл миссией хана; идти по пути, указанному пророком;
АБАРАЧКА III (-ылы, -забалы) автотом; алтарчакын таңыр; иштеп алтарчак; алтарчакын таңыр ишкі плакть за алтарчак; алтарчакын шашы бешея в алтарчаке кончины чернила	АВАРА III (-тын) проприетар; помеха; тый мүзүүл авара ишу этому делу помехами; тый авара ишу мен кра гынгычай? ты принес, что помеха?
АБАРЫ III (-тын) авари; авари иши сокирин авари; аварила руки	АВАРА III (-тын) авари; авари иши сокирин авари; аварила руки
Абайей соң да обязательно, естественно, конечно; <b>абайей</b> дег гынба дүй санду конечно, я тобы с тобой	
абадандаша никон образом	
абаданың бечиый	
абадал-абал, ре.-иль уст. вечность	
абарона, ин.-4, ри.-тыя оборон; абарона биккій оборонять; абароналар оборонительный	
абай, ин.-абай, ре.-абай приезж, лечи, ишанды; позежай; абыу бүкілай приклонит; абыу иңтүй прислонится	
абайланы, ин.-абалы, ре.-тыя объявление; гәзіттікты абыланы объявление в газете; тәмдікли абыланыни кін дайындауды объявление в газете; абыланын бүхлай, абыланын кібделді, абыланын тәмдікте пояснять объявление	
аборт, ин.-абалы, ре.-тыя аборт; аборт ишы салып аборт; Гый тәншіккә аламын аборт иту Эта женщина сделала аборт	
аваданыб (просторный); аваданыб айы просторный сад; аваданыб райкаша недра душа	
аваданлык I. простор; 2. щедрость	
авал-ахир конец света; авал-ахир зәнді дандылар кібін на том свете встретимся; авал-ахир түтүл заман вечности	
авара, ин.-баль, ре.-тыя помеха, преграда	
авары ин.-атын, ре.-де пророк; Муса авары пророк Муса (Монсе); авары решинский бурай мүккем а) раздуть; б) Млечный путь	
авары, ин.-абалы, ре.-тыя авары; авары ишай совершил авары	
аванчук, ин.-е, ре.-тыя аванчук; Ишкүр қызат аванчукки бітіп Я посып письмо аванчукоттой	
авалык, ин.-абалы, ре.-тыя белое место; бұлғын авалыккында рұту синг познаны на пастбище; бітіп авалык равнина	
автобиография ин.-айыллык, ре.-айыл автобиография; Деб автобиографияның бекін	

Figure 4: Merging the dictionaries

# Merging (George Moroz)

From two .doc files to one .xls:

- ▶ .doc preprocessing: convert files to .html, change non-standard symbols, solve several tag problems ( $I$ ,  $H$ , etc.)
- ▶ extract first bold entrance, parse parenthesis for grammar information

# Extracting grammatical information

- ▶ Total number of lexemes extracted: 8,464 from Saidova & Abusov (2012) and 6,821 from Alekseev & Azaev (2019)
- ▶ Nouns: 2,871 from Saidova & Abusov (2012) and 3,097 from Alekseev & Azaev (2019)
  - ▶ grammatical information: genitive and plural
- ▶ Verbs: 1,504 from Saidova & Abusov (2012) and 1,640 from Alekseev & Azaev (2019)
  - ▶ grammatical information: habitual and aorist

# Extracting grammatical information

lemma	pos	noun_gen	noun_pl	verb_prs	verb_pst	reference
арбаглзив	noun	-лъи				Saidova, Abusov
арджан	noun	-алъи	-			Alekseev 2006
арёнда	noun	-лъи				Saidova, Abusov
аржаж/áй	verb			-аймалé	-ó	Saidova, Abusov
аржái	verb			-é	-o	Alekseev 2006
арж/áй	verb			-áймале	-ó	Saidova, Abusov
áржар	noun	-лъи	-дé			Alekseev 2006
аржíй	verb			-é	-a	Alekseev 2006
арж/и	verb			-e	-o	Saidova, Abusov
.						- - -

Figure 5: The database

## Pairing

We manually checked for lexemes represented in both dictionaries to carry out phonological and morphological analysis

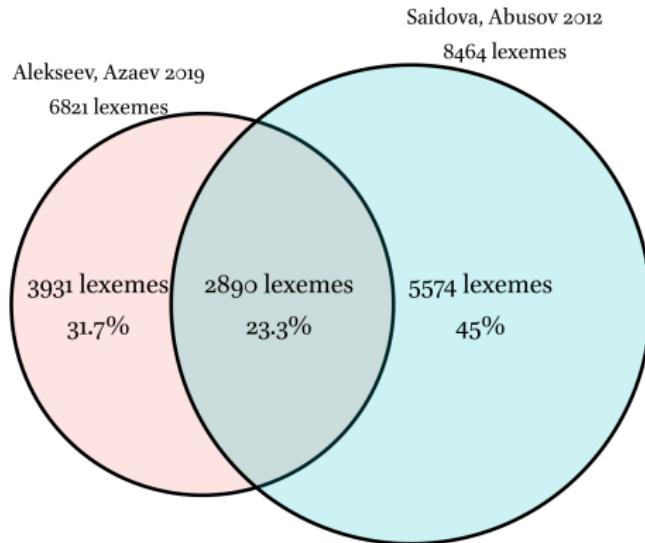


Figure 6: The database

## Pairing

We manually checked for lexemes represented in both dictionaries to carry out phonological and morphological analysis

- ▶ Those 2,890 include all POS
- ▶ There are multiple entries for the same root  
*Alekseev & Azaev (2019)*: *besqχe* ‘behind’, *besqχéku* ‘from behind’,  
*besqé-ssu-b* ‘back/hind (adjective)’, *héči besqérussubla* ‘in the end’
- ▶ There are also some sayings and proverbs (about 670) that constitute separate entries in *Alekseev & Azaev (2019)*  
*héči besqχérussubla* ‘in the end’

# Annotation

- ▶ Manual correction of automatically extracted information about grammatical features
- ▶ Addition of further annotation (for features that appeared to be potentially relevant for our research):
  - ▶ masdars
  - ▶ borrowings
- ▶ (In progress) Filter out superfluous entries for multi-word expressions and inflected forms

# Phonology

- ▶ There are 1,996 lexemes which look phonetically the same, while 909 are different (31%)
- ▶ If we remove the stress sign, there are 2,449 lexemes which look phonetically the same, and 456 are different (16%)
  - ⇒ 15% of lexemes have different stress pattern?...

# Phonology

- ▶ There are 1,996 lexemes which look phonetically the same, while 909 are different (31%)
- ▶ If we remove the stress sign, there are 2,449 lexemes which look phonetically the same, and 456 are different (16%)
  - ⇒ 15% of lexemes have different stress pattern?... Yes, but including 265 (9%) cases where the stress is present in one dictionary and absent in the other

# Phonology

- ▶ What causes the difference between the two dictionaries?
  - ▶ Stress pattern differences in 188 lexemes (about 6%)
  - ▶ Multiple cases where there is a small difference that could be explained either as a typo or in terms of phonological variation: *čuhí* 'to run' [aa] vs. *čūhí* [sa], *kusu* 'cherry plum' [aa] vs. *kussu* [sa]
  - ▶ Multiple cases where Russian borrowings were adopted differently: *awtobus* 'bus' [aa] vs. *abtabus* [sa], *biton* 'milk can' [aa] vs. *bitun* [sa], *apteka* 'pharmacy' [aa] vs. *abteka* [sa]
  - ▶ Morphological preferences: *dinija=w* 'pious' [aa] vs. *dinija=b* [sa]

# Phonology: segments

Alekseev & Azaev (2019)

Saidova & Abusov (2012)

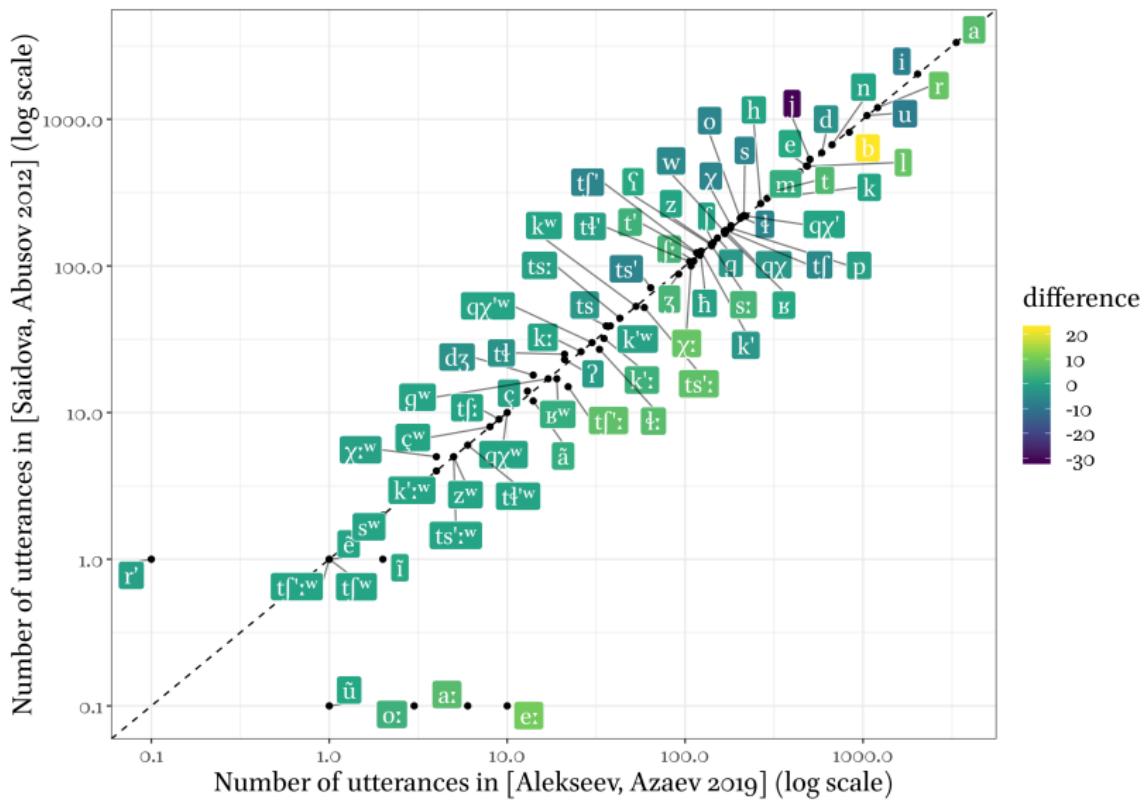
About 25 cases:

<i>ãhajr</i>	<i>ãhar</i>	'message'
<i>bezajr</i>	<i>bezir</i>	'roasting'
<i>mik'kujr</i>	<i>mik':ur</i>	'swallowing'
<i>reqχujr</i>	<i>reqχ&gt;wir</i>	'fight'
<i>reʃkujr</i>	<i>reʃkur</i>	'overnight stay'
<i>rikʷajr</i>	<i>rikʷar</i>	'lighting'
<hr/>		
<i>χwardar</i>	<i>χwardir</i>	'digging'
<i>mi?ar</i>	<i>mi?ar</i>	'nose'
...	...	...

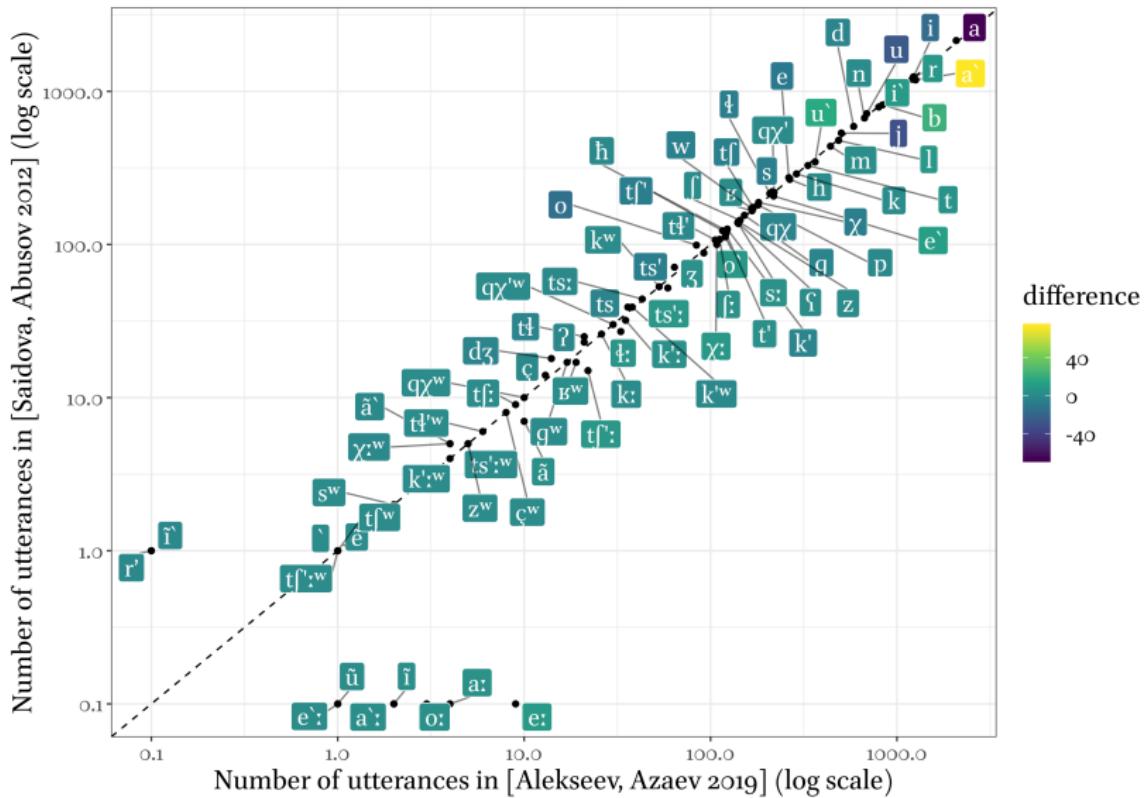
About 6 cases:

<i>fjalaj</i>	<i>fjallaj</i>	'silt'
<i>inuʃala</i>	<i>inuʃalla</i>	'everywhere'
<i>ʃila</i>	<i>ʃilla</i>	'reason'
...	...	...

## Phonology: compare Botlikh segments



## Phonology: compare Botlikh segments

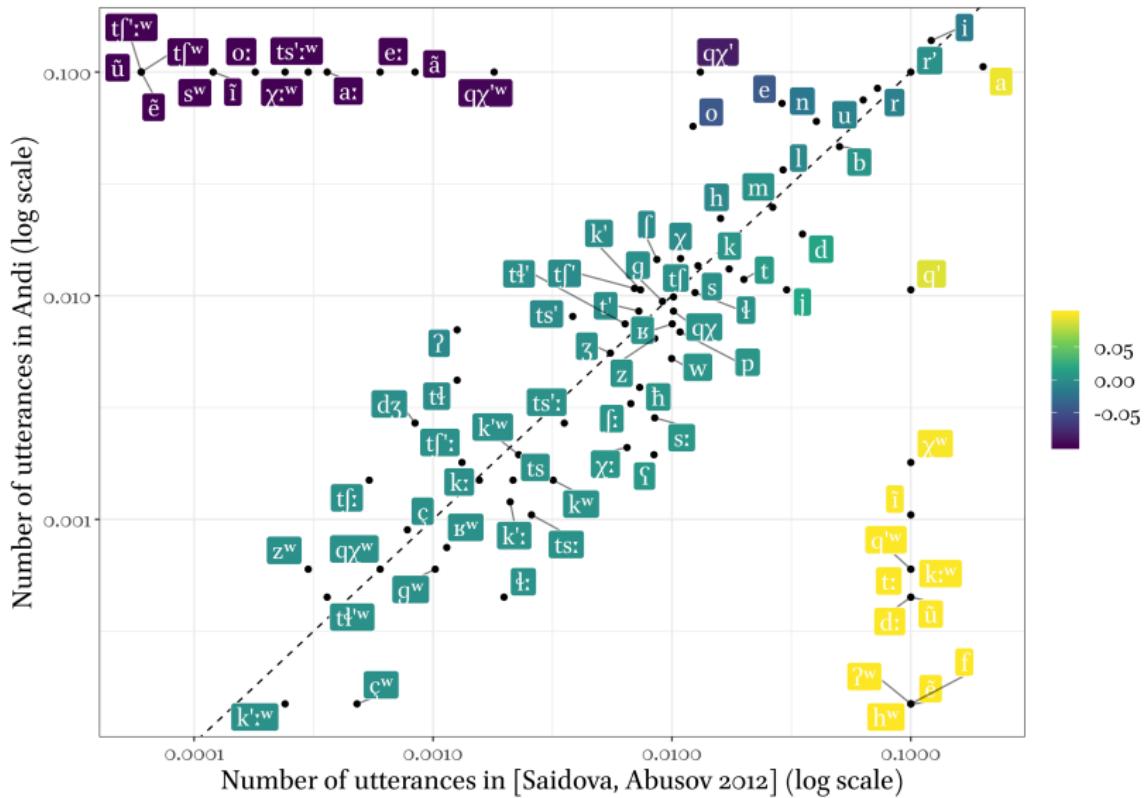


## Zilo Andi data

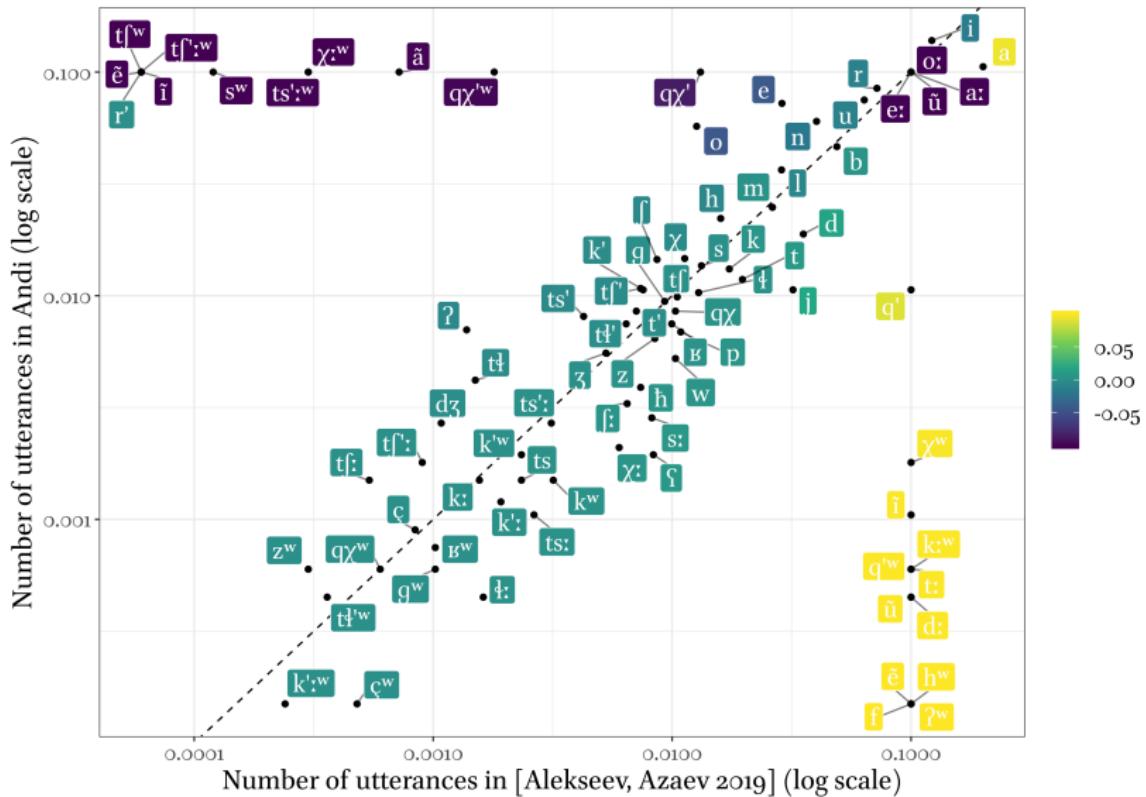
Dictionary data for Zilo were collected during fieldtrips to Zilo in 2016–2019 with N. Rochant, S. Verhees, A. Martynova and A. Zakirova who contributed to the same FieldWorks project

- ▶ Contain morphological affixes
- ▶ Do not contain additional affixes in a lemma form
- ▶ Contain different stems of the same lexeme (e.g. SG.ABS, SG.OBL, PL.ABS, PL.OBL, PST, NPST); those forms were removed during the analysis
- ▶ No information about stress

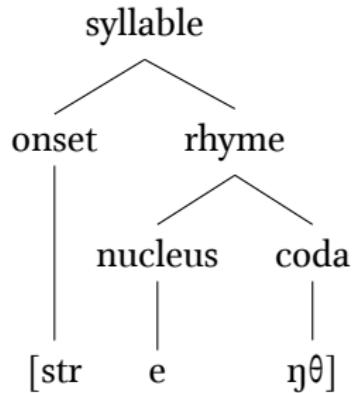
## Phonology: compare Botlikh and Zilo segments



## Phonology: compare Botlikh and Zilo segments

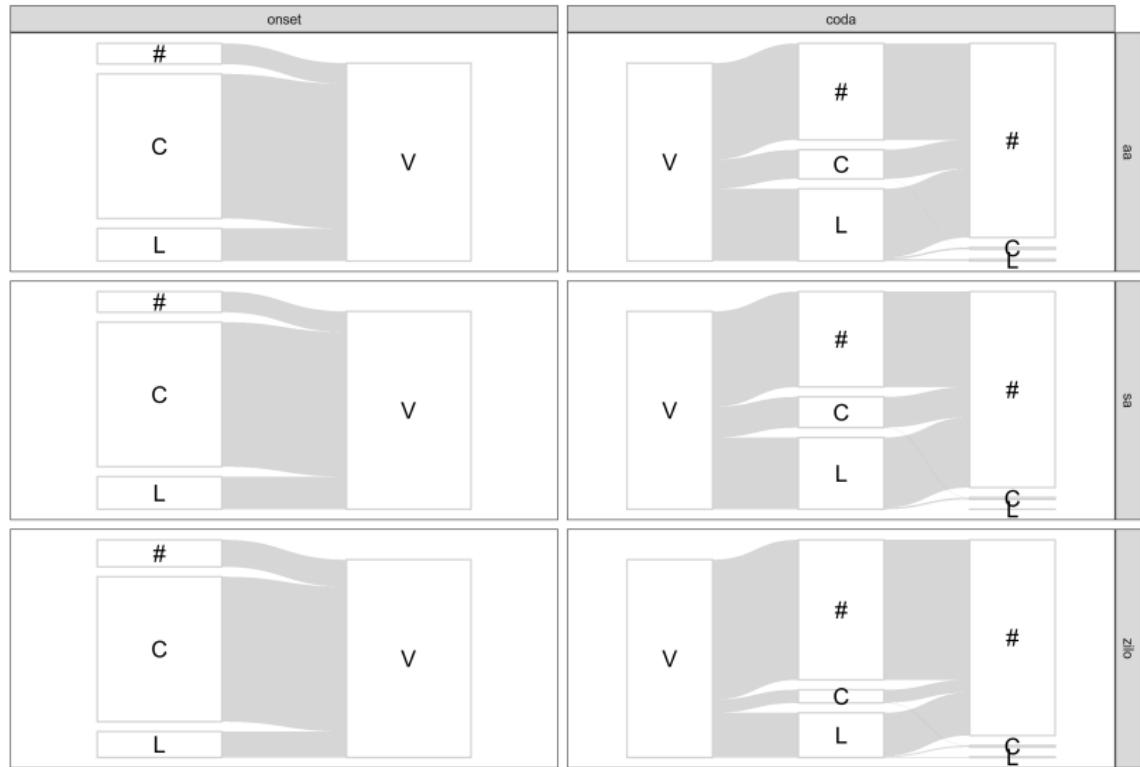


# Phonology: data–driven analysis of syllables



- ▶ Analyze all onsets of initial syllables in the corpus
- ▶ Analyze all codas of final syllables in the corpus
- ▶ Generalize obtained initials and codas into a syllable model
- ▶ Check, whether this model describes all intervocal consonant clusters

# Phonology: data–driven analysis of syllables



# Nominal morphology

Two topics investigated:

- ▶ Formation of the plural
  - ▶ to check the productivity of different suffixes
- ▶ Formation of the genitive
  - ▶ to study alternations in the formation of oblique stems

Comparison of the two resources to look for possible variation in such areas of nominal morphology

(based on 1,072 pairs retrieved during the first annotation round)

# Plural formation in Botlikh

- ▶ A suffix is attached to the absolute stem:  
*na* 'thing' < *na-bati* 'things'
- ▶ With stems ending in a consonant, the vowel *-a-* is often inserted before the suffix:  
*majmalak* 'monkey' < *majmalak-a-bati* 'monkeys'
- ▶ With stems ending in a vowel, alternation can occur:  
*ruša* 'tree' < *ruši-bati* 'trees',  
*salu* 'tooth' < *sala-bati* 'teeth',  
*burači* 'pitcher' < *burača-bati* 'pitchers'

# Plural formation in Botlikh

Among the most common suffixes are:

- ▶ *-baṭi* and allomorphs (*-maṭi* for stems ending in a nasal, *-wabaṭi* for stems ending in *-u*, etc.), the variant *-zabaṭi* (mostly with borrowings)  
*apicer* ‘officer’ < *apicer-zabaṭi* ‘officers’
- ▶ *-de* (mostly for stems ending in a sonorant)  
*ambur* ‘roof’ < *ambur-de* ‘roofs’
- ▶ *-e* and its variant *-we* (for stems ending in *-u*)  
*čan* ‘deer’ < *čan-e* ‘deers’

Other, less common, suffixes are: *-(b)daṭi*, *-(b)diṭi*, *-(a)l*, *-rdi*, *-bala(l)*

# Plural formation in Botlikh

Can our dictionary data help us be more precise about the distribution/frequency/productivity of plural suffixes in Botlikh?

...

Do the two dictionaries show any variation in these respects?

# Plural suffixes in the dictionaries

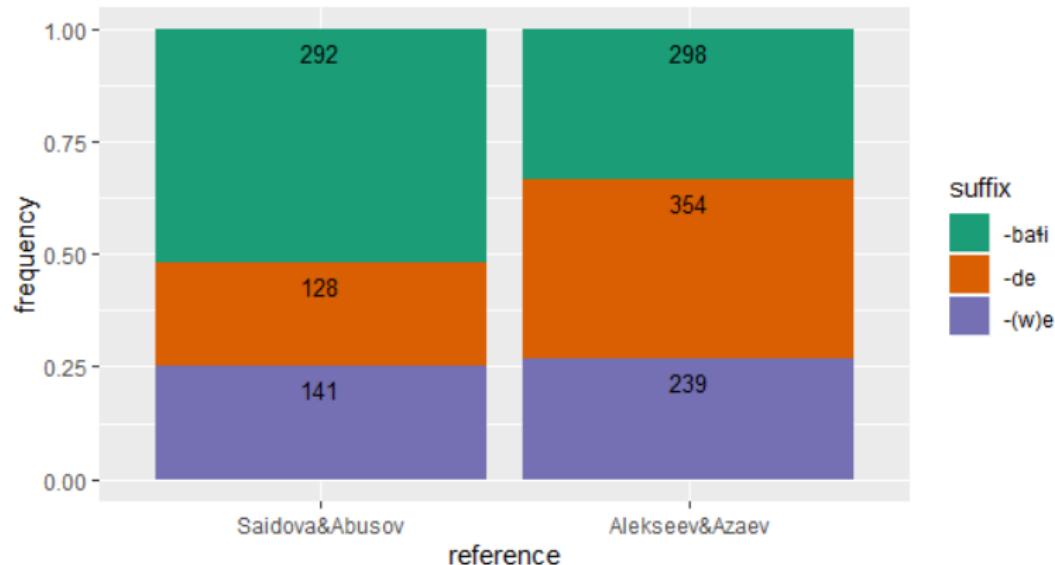
- ▶ Plural suffixes are not reported for all nouns, cf. *singularia tantum* and plural entries (nationalities, *pluralia tantum*)
- ▶ Sometimes more than one variant is reported (so, some nouns were counted twice)

Table 1: Plural suffixes in the dictionaries

	Saidova & Abusov (2012)	Alekseev & Azaev (2019)
- <i>(x)ati</i>	292	298
<i>-de</i>	128	354
- <i>(w)e</i>	141	239
<b>other</b>	24	21
<b>no plural</b>	499	193

# Plural suffixes in the dictionaries

Figure 7: Plural suffixes in the dictionaries



$$(\chi^2 = 59.368, \text{df} = 2, \text{p-value} = 1.283e-13)$$

# Plural suffixes in the dictionaries

- ▶ Preference for *-(x)batı* over *-de* in Saidova & Abusov (2012) vs. the opposite trend in Alekseev & Azaev (2019)
- ▶ The higher frequency of *-de* in Alekseev & Azaev (2019) is partly due to masdars
  - ▶ Saidova & Abusov (2012) almost never report the plural form for such nouns, whereas Alekseev & Azaev (2019) consistently report *-de*
- ▶ Variation often involves (but is not restricted to) borrowings
  - ▶ *birgadir* 'foreman' < *birgadir-zabatı* vs. *birgadir-de*
  - ▶ *kassir* 'cashier' < *kassir-zabatı* vs. *kassir-de*
- ▶ The frequent mentioning of more than one variant might suggest idiosyncratic variation

# Case declension in Botlikh

## Two declension types

- ▶ I type — the stem does not change when a suffix is attached (mostly stems ending in a vowel and masdars)  
*babu* 'mom' < *babu-ti* (genitive)  
*masir* 'measurement' < *masir-ti* (genitive)
- ▶ II type — case suffixes are attached to the oblique stem of the noun (mostly stems ending in a consonant, sometimes stems ending in a vowel)  
*askar* 'army' < *askar-a-ti* (genitive)  
*din* 'religion' < *din-i-ti* (genitive)  
*ima* 'father' < *imu-ti* (genitive)

# Case declension in Botlikh

Can our dictionary data help us be more precise about the patterns of case declension (oblique stem formation) and their frequencies?

...

Do the two dictionaries show any variation in these respects?

# Oblique stem formation in the dictionaries

We used the grammatical information included in the dictionaries (genitive suffix) to investigate oblique stem formation in Botlikh

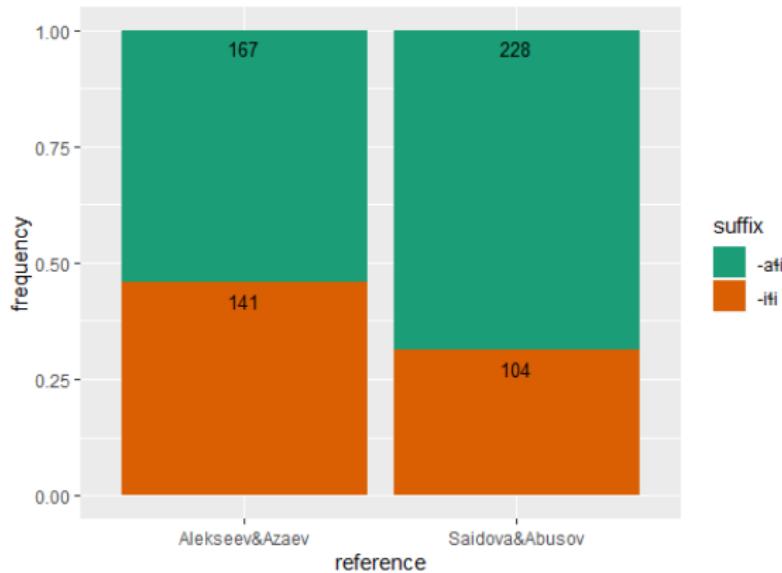
Table 2: Oblique stem formation in the dictionaries

	-ti		-a-ti		-i-ti		-u-ti	
consonant	232	266	228	167	104	141	-	1
-a	182	167	-	-	3	13	15	14
-i	143	151	10	4	-	-	3	2
-u	81	78	1	-	-	3	-	-
-e	6	6	-	-	-	-	-	-
-o	7	7	-	-	-	-	-	-

Saidova & Abusov (2012) vs. Alekseev & Azaev (2019)

# Oblique stem formation in the dictionaries

Figure 8: Oblique stem formation for stems ending in a consonant



$(\chi^2 = 13.523, \text{df} = 1, \text{p-value} = 0.0002357)$

# Oblique stem formation in the dictionaries

- ▶ Significant variation between the two dictionaries in the formation of oblique stems for nouns ending in a consonant
- ▶ This again involves (but is not restricted to) borrowings (a general preference for *-a-* over *-i-* in [Saidova & Abusov \(2012\)](#))
  - ▶ *dakument* 'document' < *dakument-a-ti* vs. *dakument-i-ti*
  - ▶ *kassir* 'cashier' < *kassir-a-ti* vs. *kassir-i-ti*
  - ▶ *adijal* 'blanket' < *adijal-a-ti* vs. *adijal-i-ti*
- ▶ Different variants for one and the same noun are reported far less frequently as compared to plural suffixes

# Verbal morphology

Formation of present (habitualis) and past (aorist) forms of:

- ▶ Basic verbs (infinitive in *-i*)
- ▶ Derived verbs (infinitive in *-t̪i*)
- ▶ Causative verbs (infinitive in *-a-j*)

Comparison of the two resources to look for possible variation in such areas of verbal morphology  
(based on 554 pairs retrieved during the first annotation round)

# Basic verbs

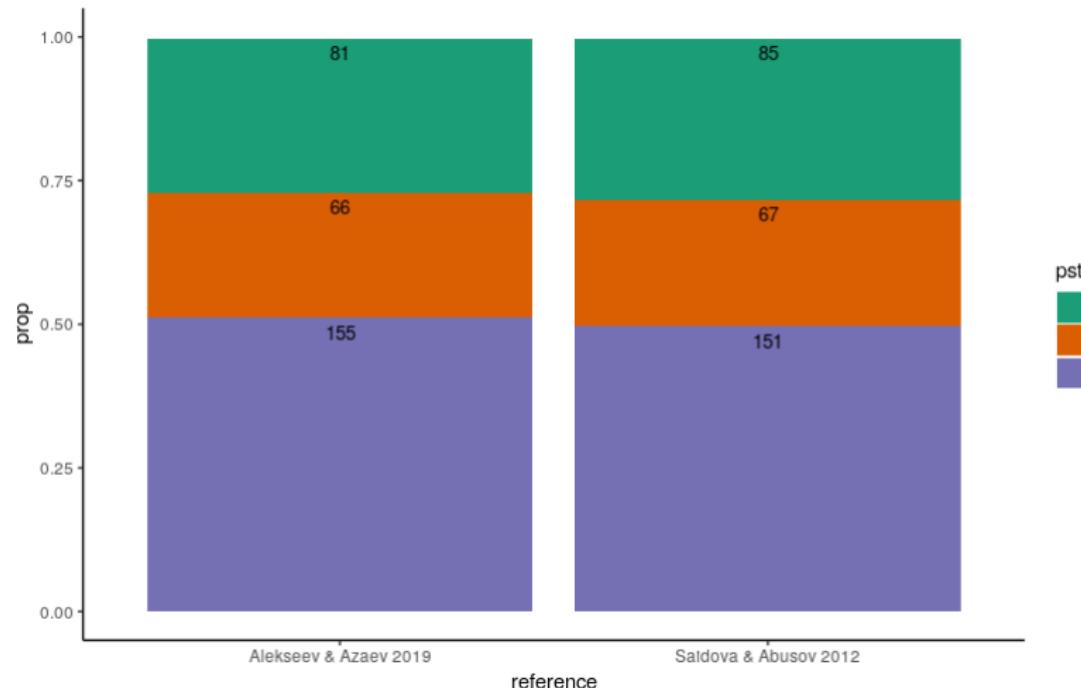
- ▶ Habitualis: *-e*
- ▶ Aorist: *-a / -u / -iw*

Table 3: Basic verbs: inflection

	Infinitive	Habitualis	Aorist
see	<i>haꝝ-i</i>	<i>haꝝ-e</i>	<i>haꝝ-a</i>
do	<i>ih-i</i>	<i>ih-e</i>	<i>ih-u</i>
be able	<i>baꝝar-i</i>	<i>baꝝar-e</i>	<i>baꝝar-iw</i>

# Basic verbs

Figure 9: Aorist suffixes in the dictionaries



# Derived verbs

Analytic formation of both the habitualis and the aorist with auxiliaries

- ▶ be: *b-uk'-e, b-uk'-a*
- ▶ become: *b-ah-e, b-ah-u*

Table 4: Derived verbs: inflection

	Infinitive	Habitualis	Aorist
roar	<i>buda-ti</i>	<i>buda b-uk'-e</i>	<i>buda b-uk'-a</i>
bleat	<i>baʃada-ti</i>	<i>baʃada b-ah-e</i>	<i>baʃada b-ah-u</i>

# Causative verbs

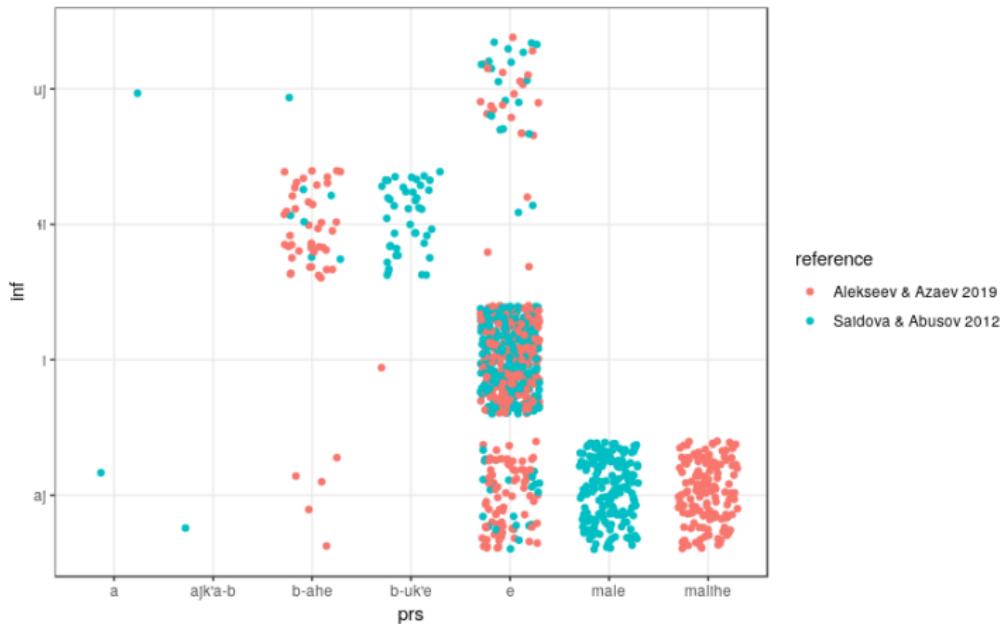
- ▶  $-o < *-a-u$  [-CAUS-AOR]
- ▶  $-mal-e$  a reduced form of  $-malih-e$ ?
- ▶  $-mal-o$  rarely found in the data

Table 5: Causative verbs: inflection

	Infinitive	Habitualis	Aorist
resettle	<i>guč-a-j</i>	<i>guč-e</i>	<i>guč-o</i>
roast	<i>žad-a-j</i>	<i>žad-a-j-mal-e</i>	<i>žad-a-j-mal-o</i>
sew up	<i>mik'-a-j</i>	<i>mik'-a-j-mal-e</i>	<i>mik'-o</i>
sew up	<i>mik'-a-j</i>	<i>mik'-a-j-malih-e</i>	<i>mik'-a-j-malih-u</i>

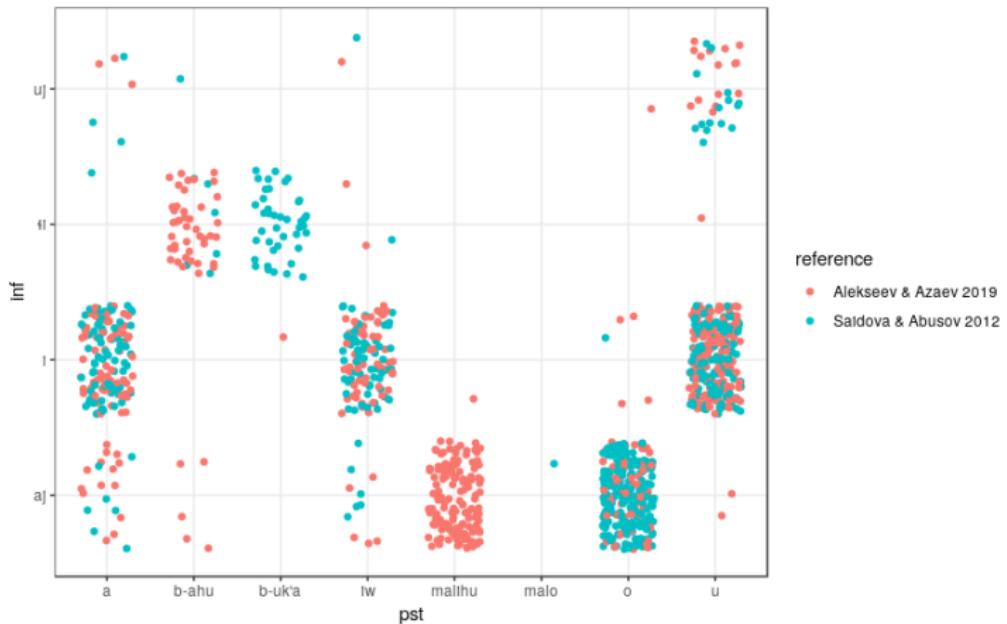
# Habitualis in the dictionaries

Figure 10: Habitualis



# Aorist in the dictionaries

Figure 11: Aorist



# Variation

- ▶ Basic verbs display little variation in the aorist (and no variation at all in the habitualis)
- ▶ Most variation is observed for derived and causative verbs:
  - ▶ Derived verbs: preference for auxiliary 'be' in [Saidova & Abusov \(2012\)](#) vs. 'become' in [Alekseev & Azaev \(2019\)](#)  
BUT it seems that this is just a matter of personal taste for citation forms: examples in the dictionary entries show that both variants are possible
  - ▶ Causative verbs: full (older?) forms *-malih-e* and *-malih-u* in [Alekseev & Azaev \(2019\)](#) vs. reduced form *-mal-e* and synthetic *-o* in [Saidova & Abusov \(2012\)](#)  
This might be interpreted as diachronic variation, since the data in [Alekseev & Azaev \(2019\)](#) are older

# Variation

- ▶ Phonological variation
  - ▶ stress patterns
  - ▶ syllable structure
- ▶ Morphological variation
  - ▶ nouns: plural suffixes and oblique stem formation
  - ▶ verbs: present (habitualis) and past (aorist) forms

Variation seems to affect (to a greater extent) specific groups of words

- ▶ nouns: borrowings and masdars (both at the phonological and at the morphological level)
- ▶ verbs: causative (and derived – with respect to the choice of a specific auxiliary)

# Variation

How do we explain the variation observed?

- ▶ Idiolectal variation?
- ▶ Diachronic variation?
- ▶ Personal preferences of the author?
- ▶ ...?

# Methodological remarks

- ▶ Variation — is something that is present in most languages, but it is not clear
  - ▶ how to measure the degree of variation in languages
  - ▶ how to make cross-linguistic comparison of the degree of variability

# Methodological remarks

- ▶ Variation — is something that is present in most languages, but it is not clear
  - ▶ how to measure the degree of variation in languages
  - ▶ how to make cross-linguistic comparison of the degree of variability
- ▶ Two similar datasets collected independently in a small language community approximately in the same time period can nevertheless display considerable variation
  - ▶ it is more clear, where to search for the variability, rather than what is vary
- ▶ This demonstrates the importance of transparency in data collection i.e. metadata on the speakers consulted
- ▶ And methodological decisions
  - e.g. what is included or not as a separate dictionary entry

## Methodological remarks

- ▶ The availability of comparable material on which quantitative investigations can be conducted is a rare luck for such small languages like Botlikh
- ▶ This precious information can be used to provide numerical approximations for impressionistic observations reported in the available literature on the language
- ▶ This is exactly the phylosophy of the Data-driven phonology

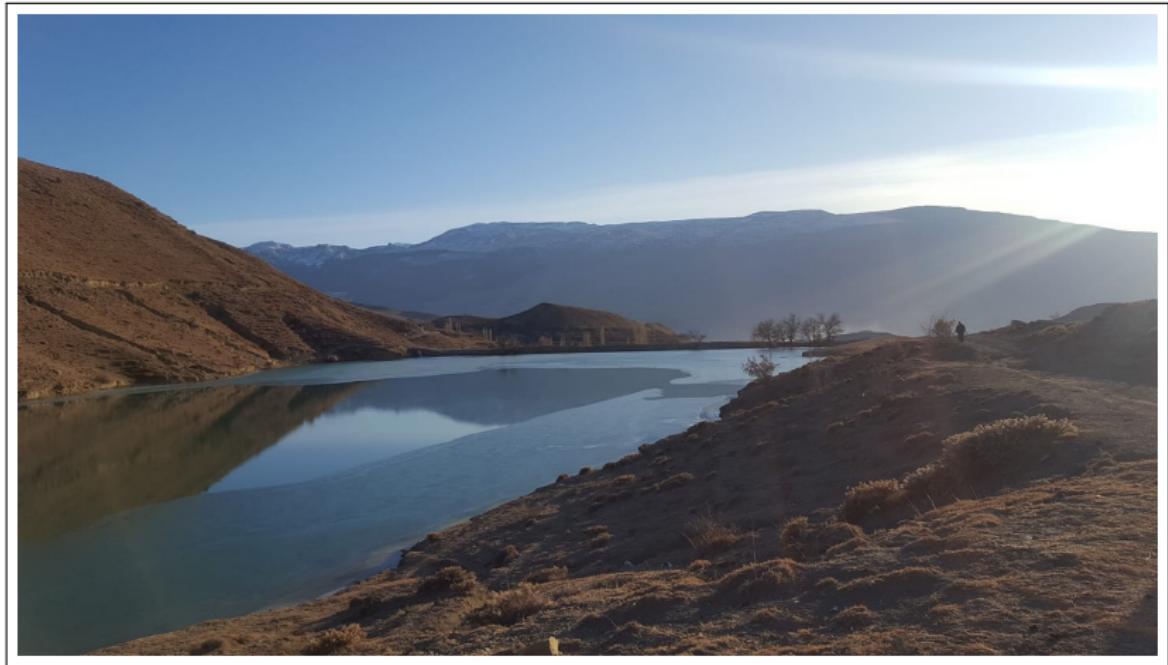
## Further research

- ▶ Cleaning the data by removing superfluous entries (multi-word expressions, inflected forms)
- ▶ Completing the annotation of masdars and borrowings to analyze them separately
- ▶ How much variation is left if we do not consider such “hot spots”?

## Further research

- ▶ Other Avar-Andic dictionaries are being added (Avar, Godoberi, Karata, Tindi, Chamalal, Bagvalal, Akhvakh)
- ▶ The same procedure of data processing and extraction of grammatical information is being carried out
- ▶ This will give us the opportunity to conduct comparative analysis at different linguistic levels (phonology, morphology, lexicon) of the different languages of the Avar-Andic branch of EC languages

The end



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