

The speakers of minority languages are more multilingual

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Typology of small-scale multilingualism
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Different types of multilingualism

After [Lüpke 2016] we distinguish between

- multilingual interaction governed by any hierarchical relationships
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 - reciprocal
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It looks like in Daghestan small-scale multilingualism is governed by language community size. So we expect people in minority language communities to be more multilingual than the speaker of larger languages. We want

- quantitatively test this hypothesis
- show a nice example of minority community of non minority language

Our data

Data obtained during interviews on language usage from about 15 fieldtrips (see [Dobrushina 2013] for methodology details) and collected into **Atlas of Multilingualism in Daghestan** [Dobrushina et al. 2017]:

- 46 Daghestanian villages
- 24 languages (Russian excluded)

Our data

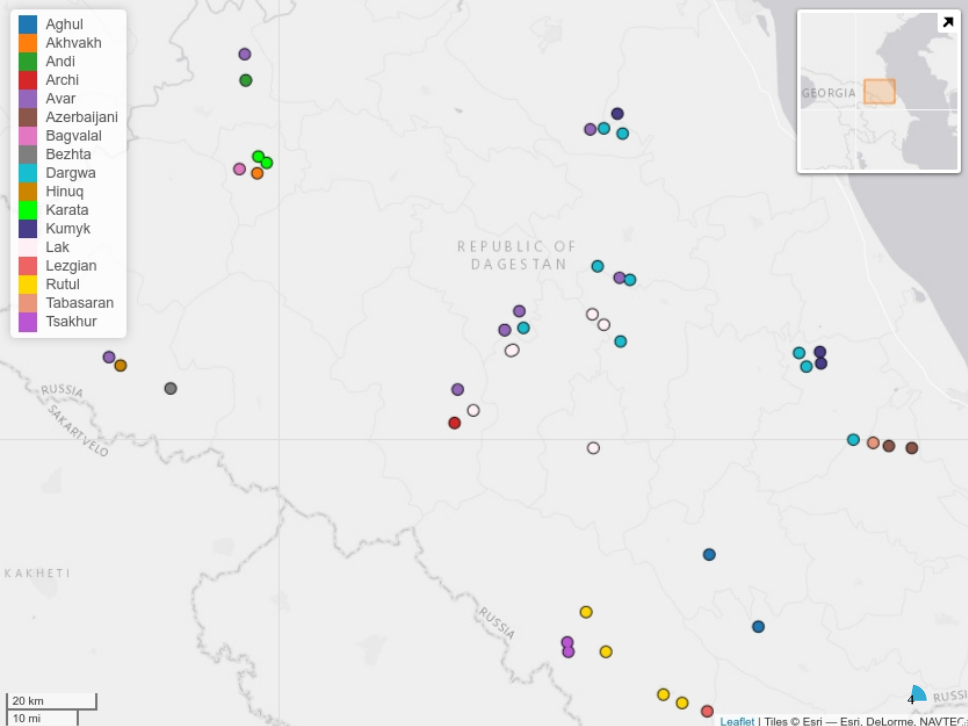
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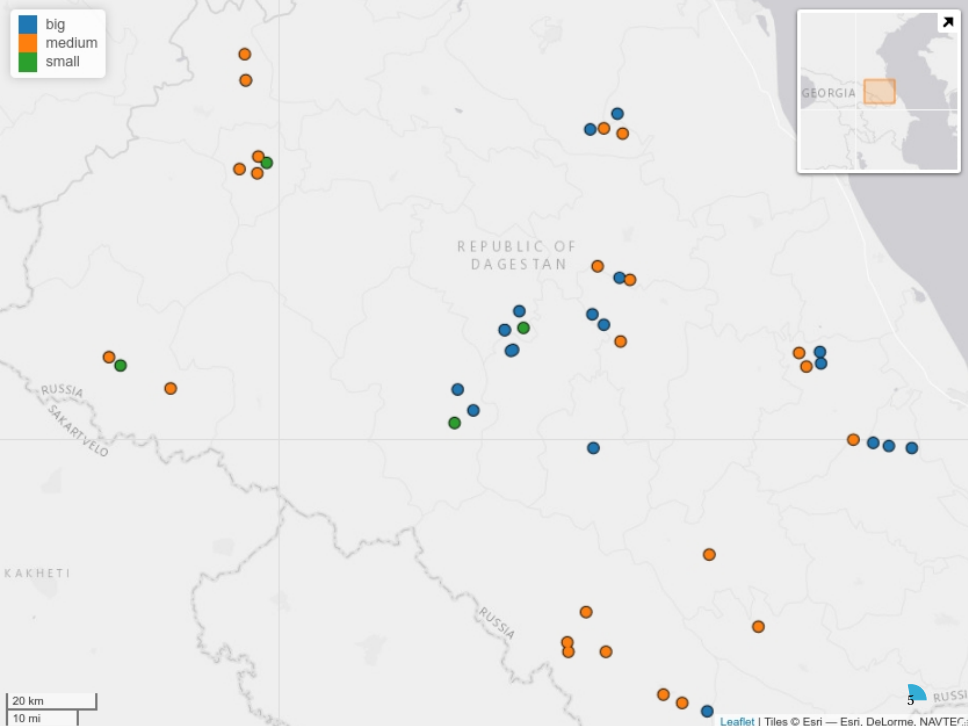
- 46 Daghestanian villages
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- 29 860 people born between 1900 and 1959
 - 14 410 females (48.2%)
 - 15 450 males (51.7%)
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- variable containing number of known languages
- we grouped all languages into three categories according to the nowadays number of speakers
 - **big** — 100 000 speakers and more
 - **medium** — 10 000–30 000 speakers
 - **small** — one village languages, 1 000–2 000 speakers





1900



REPUBLIC OF
DAGESTAN

RUSSIA
SAKARTVELO

KAKHETI

RUSSIA



1910



REPUBLIC OF
DAGESTAN

RUSSIA
SAKARTVELO

KAKHETI

RUSSIA

20 km

10 mi

1920



REPUBLIC OF
DAGESTAN

RUSSIA
SAKARTVELO

KAKHETI

RUSSIA

20 km

10 mi

1930



REPUBLIC OF
DAGESTAN

RUSSIA
SAKARTVELO

KAKHETI

RUSSIA

20 km

10 mi

1940



REPUBLIC OF
DAGESTAN

RUSSIA
SAKARTVELO

KAKHETI

RUSSIA

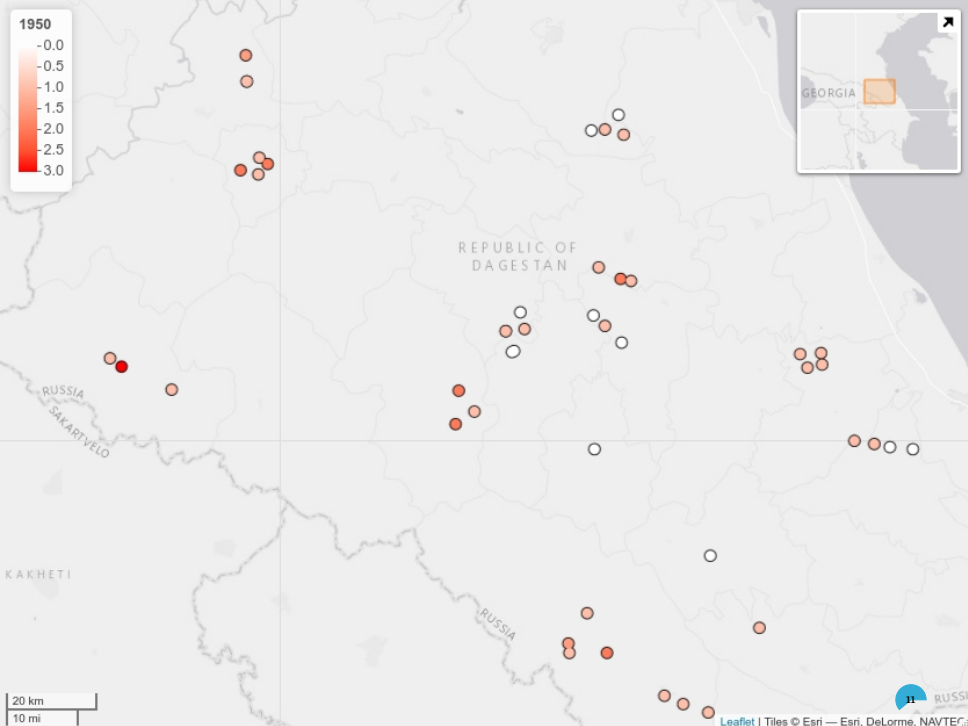
20 km
10 mi

10

Leaflet | Tiles © Esri — Esri, DeLorme, NAVTEQ

1950

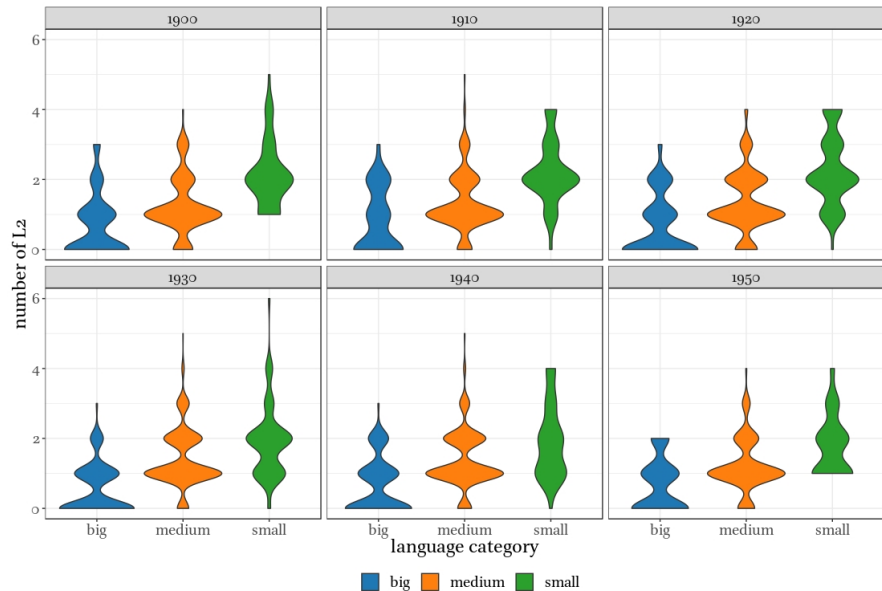
-0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0



20 km
10 mi



Number of L2 in each village by decade and language category



Poisson Mixed Effects Model

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation)

Family: poisson (log)

Formula: sum_langs ~ status + (1 | residence.en) + (1 | decade)

Data: df

AIC	BIC	logLik	deviance	df.resid
7502.1	7532.5	-3746.1	7492.1	3195

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.4215	-0.4501	-0.1821	0.3202	3.7685

Random effects:

Groups	Name	Variance	Std.Dev.
residence.en	(Intercept)	0.3679222	0.60657
decade	(Intercept)	0.0004188	0.02046

Number of obs: 3200, groups: residence.en, 46; decade, 6

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	0.7151	0.3052	2.343	0.0191 *
statusmedium	-0.5011	0.3311	-1.514	0.1301
statusbig	-1.5692	0.3412	-4.599	0.00000424 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:

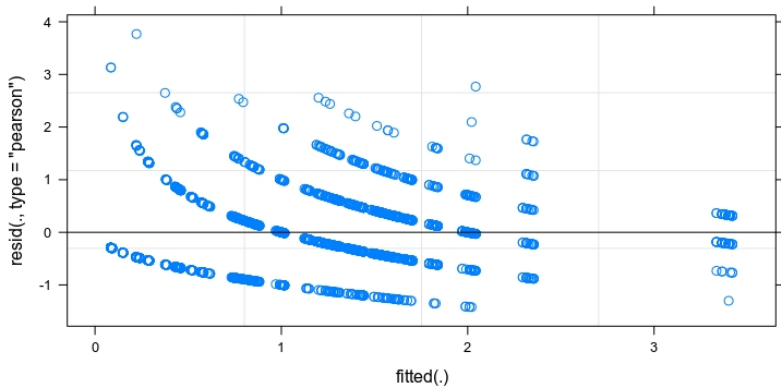
	(Intr)	sttsmd
statusmedim	-0.921	
statusbig	-0.893	0.824

Overdispersion test

dispersion ratio	= 0.4329
Pearson's Chi-Squared	= 1383.2471
p-value	= 1.0000

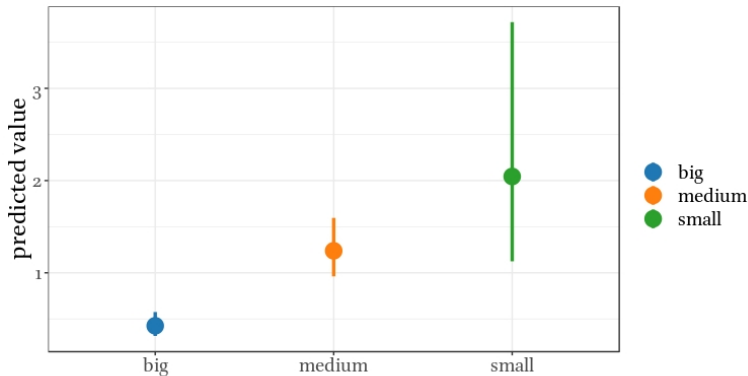
No overdispersion detected.

Poisson Mixed Effects Model: Residuals



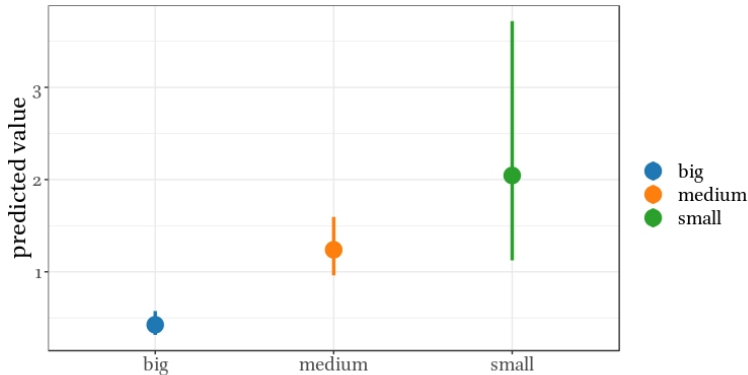
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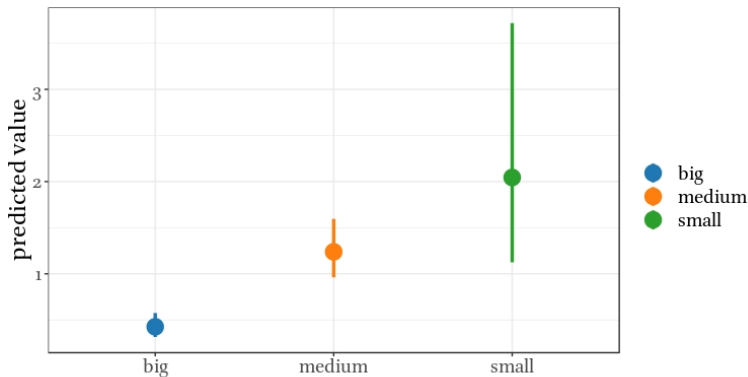
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- Special case: Chuni

Conclusions:

- The variable language size is statistically significant.
- Obtained coefficients could be interpret as following:



- Special case: Chuni
- It is not the only case of Daghestanian languages:
 - Circassians in Arabic communities in Israel [Kreindler et al. 1995]
 - Abaza in Circassian communities in Russia (personal observations)

Send us a letter!
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All visualisation and statistical analysis were made in R version 3.5.3 [R Core Team 2019] with packages ggplot2 [Wickham 2016], lme4 [Bates et al. 2015],
lingtypology [Moroz 2017]

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