A corpus study of dialectal features in Selkup

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- Idea: Apply the methods of corpus dialectometry to the Selkup data
- Goal: Compare the clusterization of Selkup speakers to the existing classifications of Selkup dialects
- A pilot project (with 30 speakers and 15 features)

Selkup dialects: various classifications

Northern Selkup	Central Selkup	Southern Selkup
Taz	Vakh	Middle Ob
Tolka (Larjak)	Vasjugan	Chaya
Karasino	Tym	Ket
Turukhan	Narym	Upper Ob
Baikha		Chulym (†)
Eloguj		

[Glushkov 2013, following Janurik 1978]

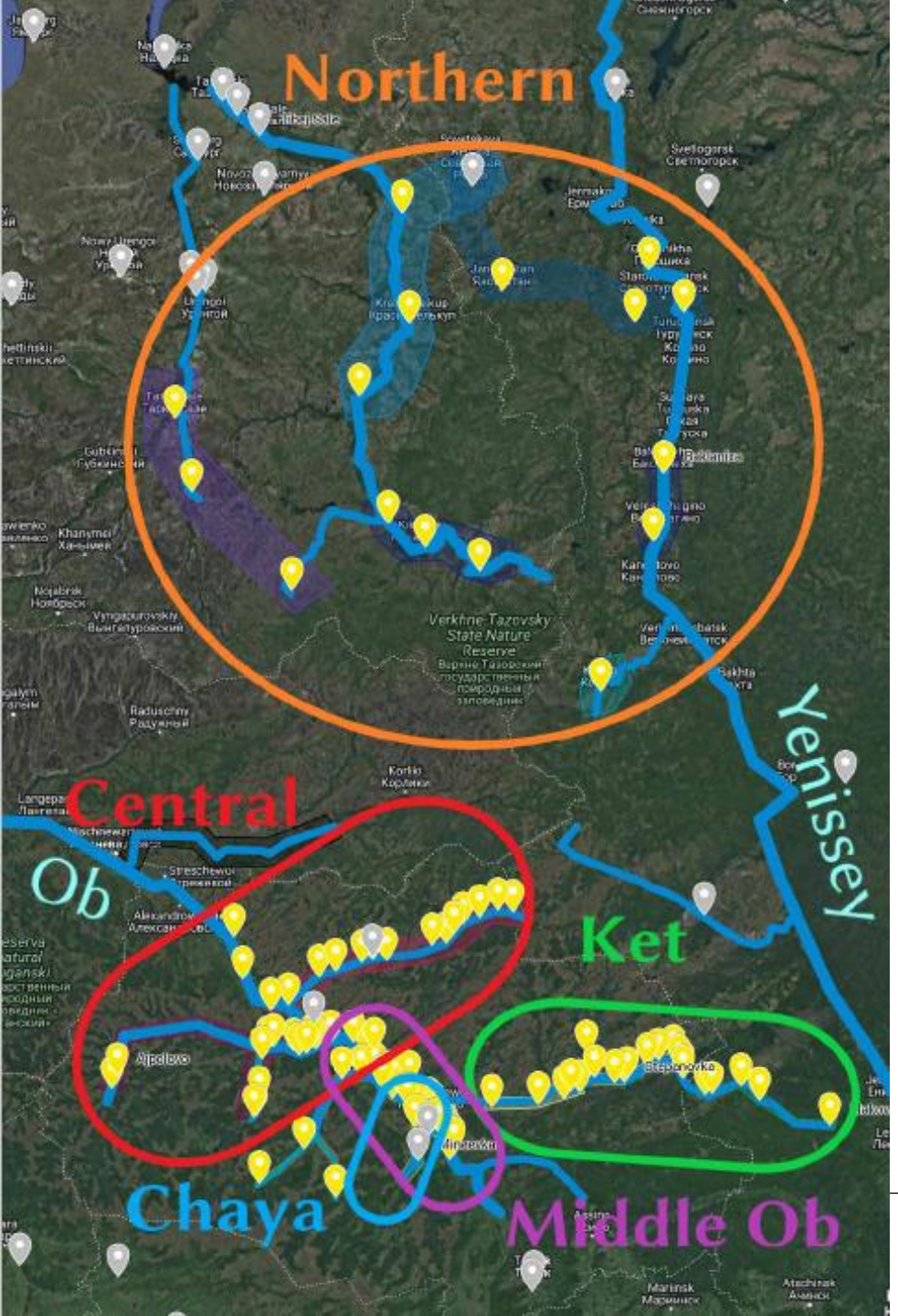
	(Central Selkup)		(Southern Selkup)	
Northern Selkup	**Tym**	**Narym**	**Ket**	**Ob**

[Helimski 2000/1985]

Data

- The INEL Selkup Corpus (https://inel.corpora.uni-hamburg.de/portal/corpora/selkup/)
  - based on the archive of Angelina Ivanovna Kuzmina
  - texts collected in 1960-1970-s from many dialects
  - about 100 speakers
- The SLC Corpus
- Selkup Corpus of Texts based on the Archive of the Laboratory of Siberian Indigenous Languages TSPU (Tomsk)
  - data collected in in 1960-1990-s from Southern and Central dialects
- Older texts

Selkup dialects in the INEL corpus



- **Northern** (> 100 speakers)
- **Central** (several (semi-)speakers)
- Southern(?): **Middle Ob, Ket** and **Chaya**

Source data: example

- Occurrences

Feature	Example	Value	NEP	YIF	KMS	TFF	PVD
Dialect			Northern	Central	Ket	MiddleOb	Chaya
P: p/m	ACC	-m	11	13	256	440	294
P: p/m	ACC	-p	143	36	0	14	0
G: DUAL	DU	Q(I)	75	4	11	22	3
G: DUAL	DU	QÄQ(I)	4	0	0	0	0
G: DUAL	DU	STJA	0	2	0	24	0
G: DUAL	DU	STJAQ(I)	0	0	0	9	13
L: say	say/tell	eǯi-	3	11	0	6	0
L: say	say/tell	čenči-	0	7	10	20	0
L: say	say/tell	kəti-	59	0	30	8	26
L: say	say/tell	t'äri-	0	0	55	0	186

Data pre-processing

- Relative frequencies within each diagnostical context (here called ‚example‘)

Feature	Example	Value	NEP	YIF	KMS	TFF	PVD
Dialect			Northern	Central	Ket	MiddleOb	Chaya
P: p/m	ACC	-m	0,07	0,27	1,00	0,97	1,00
P: p/m	ACC	-p	0,93	0,73	0,00	0,03	0,00
G: DUAL	DU	Q(I)	0,95	0,67	1,00	0,40	0,19
G: DUAL	DU	QÄQ(I)	0,05	0,00	0,00	0,00	0,00
G: DUAL	DU	STJA	0,00	0,33	0,00	0,44	0,00
G: DUAL	DU	STJAQ(I)	0,00	0,00	0,00	0,16	0,81
L: say	say/tell	eǯi-	0,05	0,61	0,00	0,18	0,00
L: say	say/tell	čenči-	0,00	0,39	0,11	0,59	0,00
L: say	say/tell	kəti-	0,95	0,00	0,32	0,24	0,12
L: say	say/tell	t’äri-	0,00	0,00	0,58	0,00	0,88

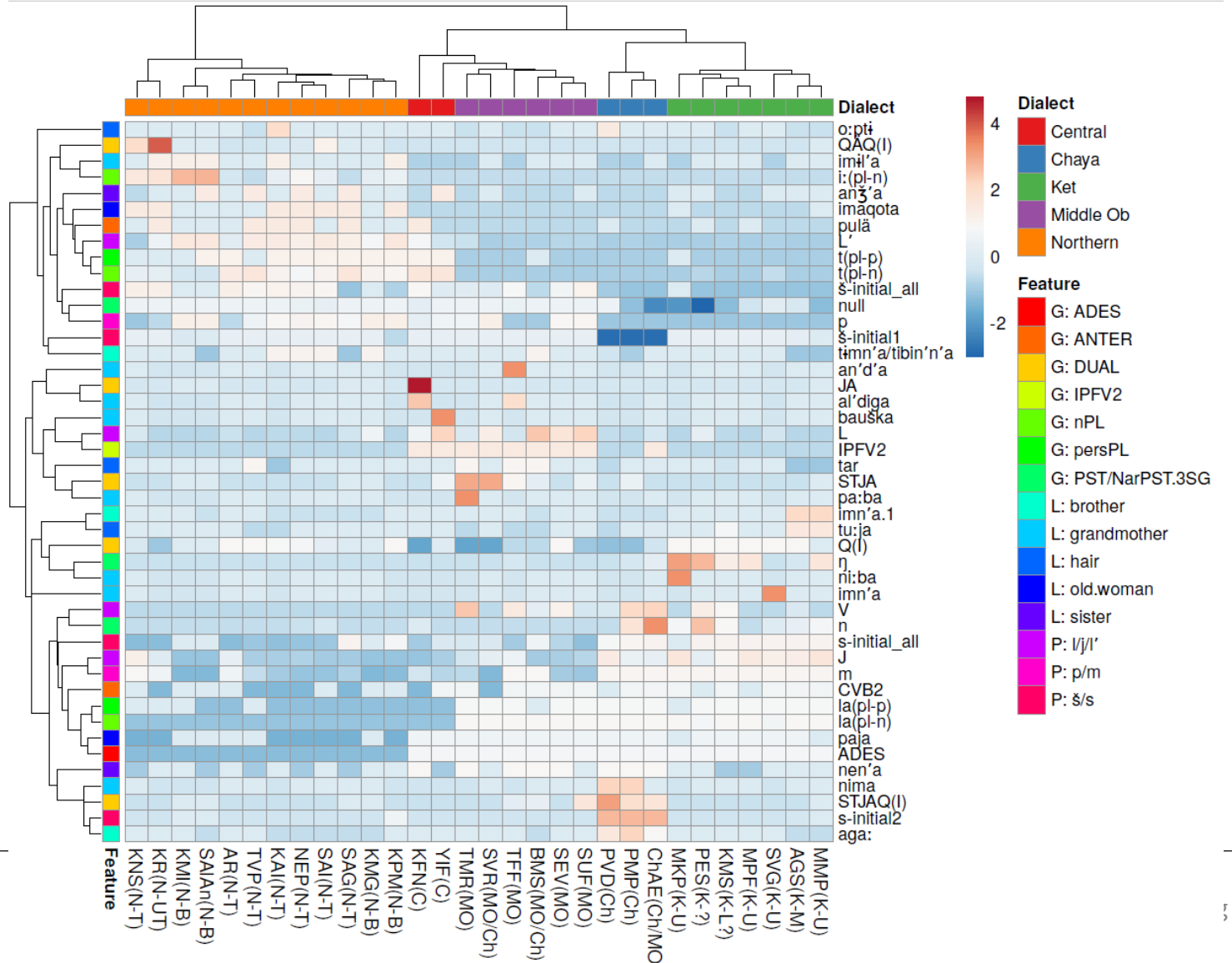
Challenges

- Corpus
  - Different amount of data (speakers and tokens) for various dialects
- Speakers
  - Different amount of data for individual speakers
  - Many speakers from whom only one text was recorded
- Missing values (→ imputation?)

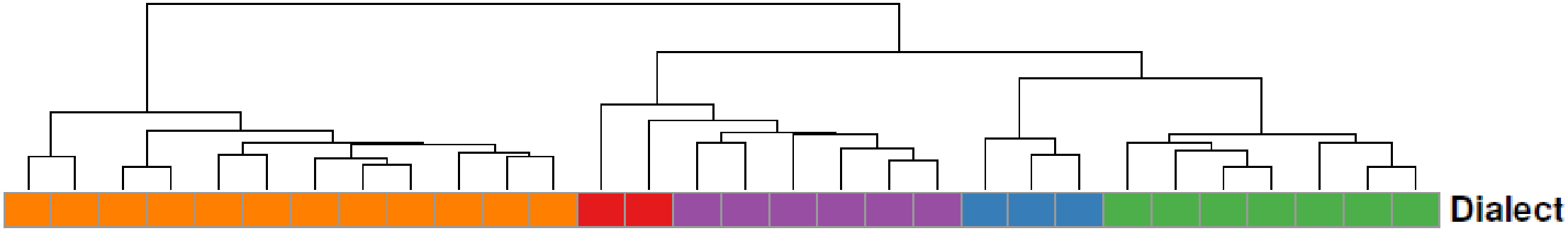
Challenges

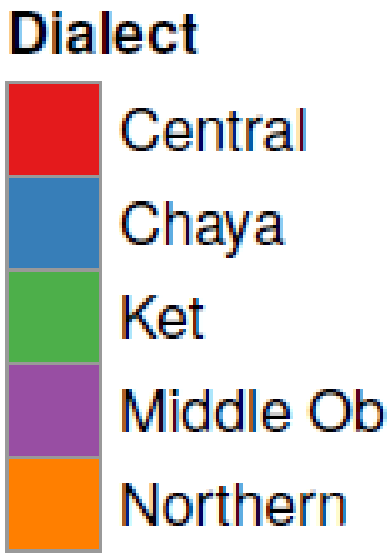
- Features
  - Features may have different number of values, which could influence the results, since features with the greater number of values will have the highest impact (→ reduce the range of each value).
  - Features may have many diagnostical contexts, which leads again to the higher impact into the overall distribution (→ calculate the average of each value through all diagnostical contexts?)
  - For now the absolute frequencies are not taken into account. Thus, we don't distinguish between 400/0 and 1/0 occurrences, both resulting after pre-processing in 1/0 values.
  - There are features attested only for some speakers (→ exclude?)
- Various methods of cluster analysis
  - For now we use Ward clusterization method and Euclidean distances (implemented in https://biit.cs.ut.ee/clustvis/)
  - Which other clusterization methods and metrics should we check?
  - Neighbor nets?

Results (only 15 features-30 speakers): clusters

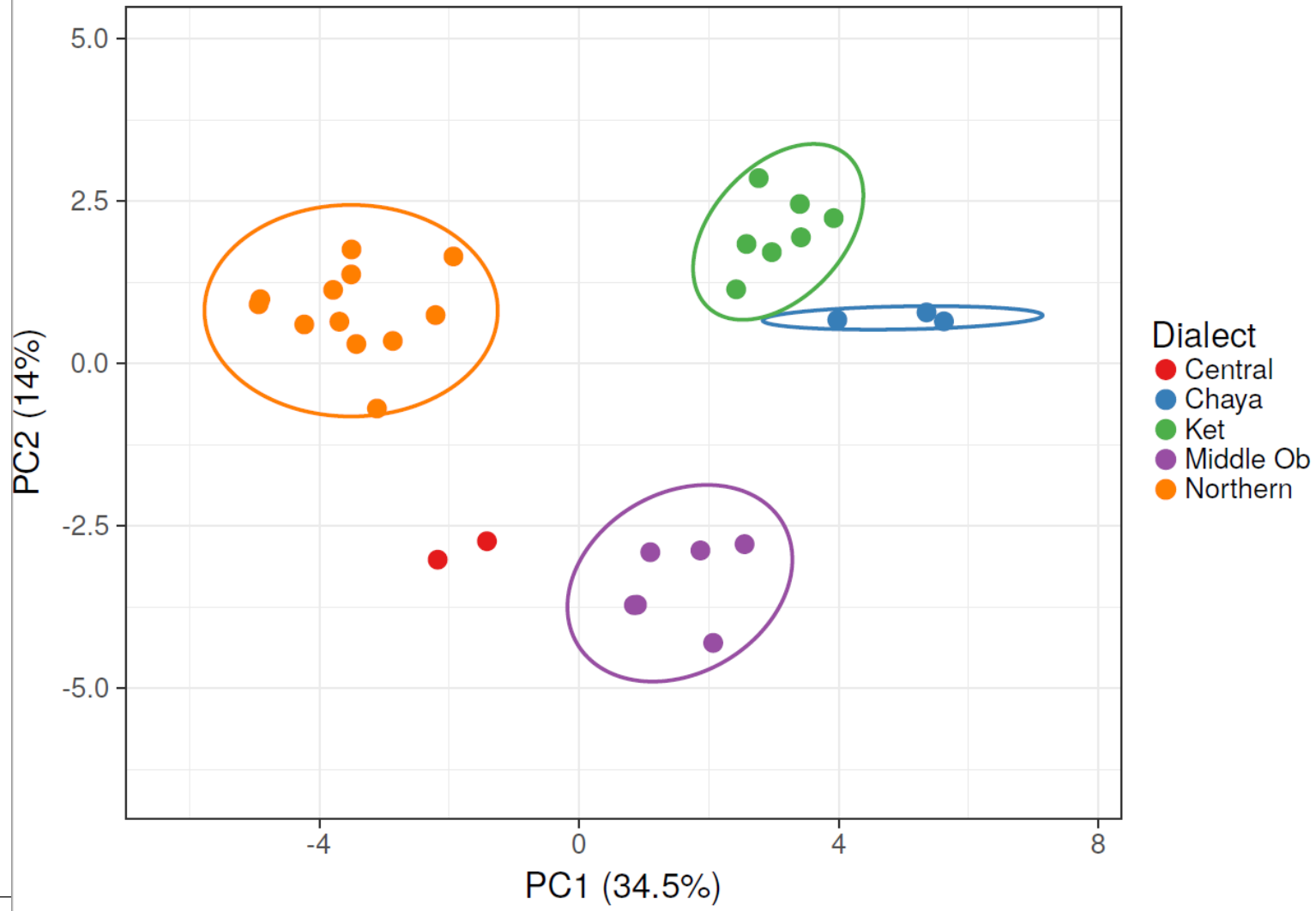


Results (only 15 features-30 speakers): clusters

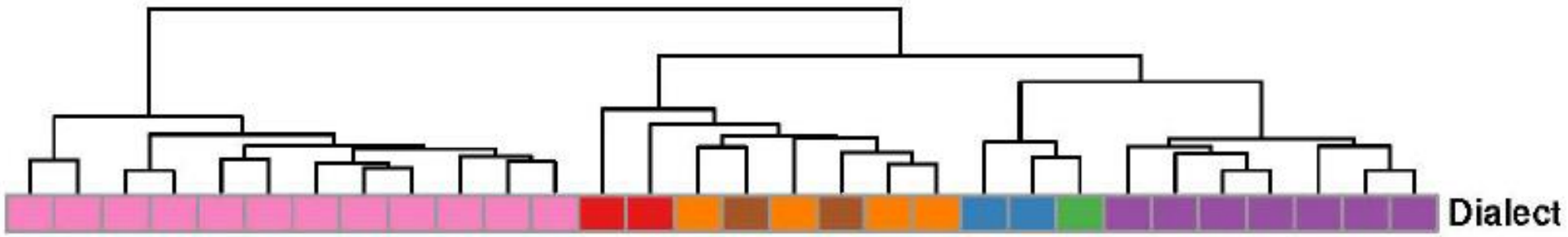


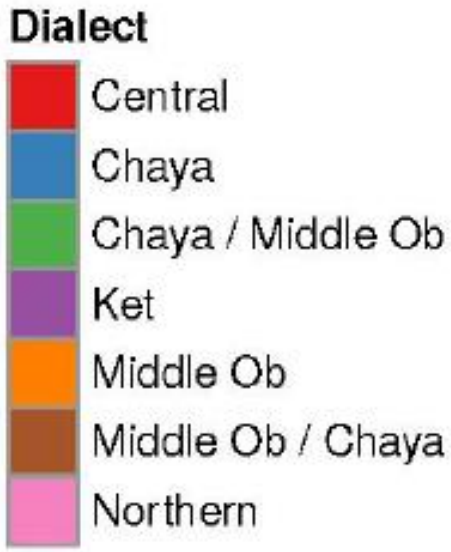


Results (only 15 features-30 speakers): PCA

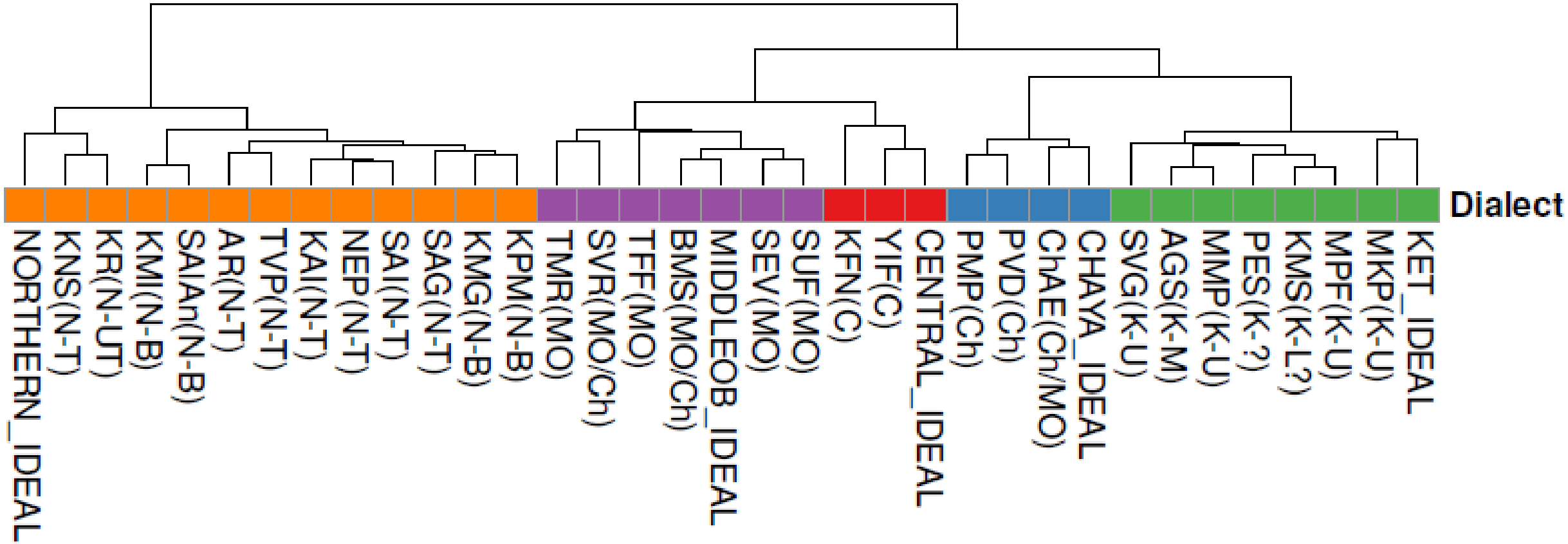


Results: dialectal attribution





Results: «ideal speakers»



Question: what to do with this data?

- It seems that such a collection of data makes sense, but what questions can we ask ourselves when we have 50 features? Will it bring us any new knowledge about the Selkup dialects?
  - Systemizing and visualizing our knowledge about features and their distribution
  - Looking at what groups we get (how the (sub-)dialects are divided into groups)?
  - What groups we get when filtering out separate features or groups of phonetic/morphological/lexical/syntactic features?
  - Attributing an unknown speaker to a dialect
  - …
  - ???

Thank you for your attention!