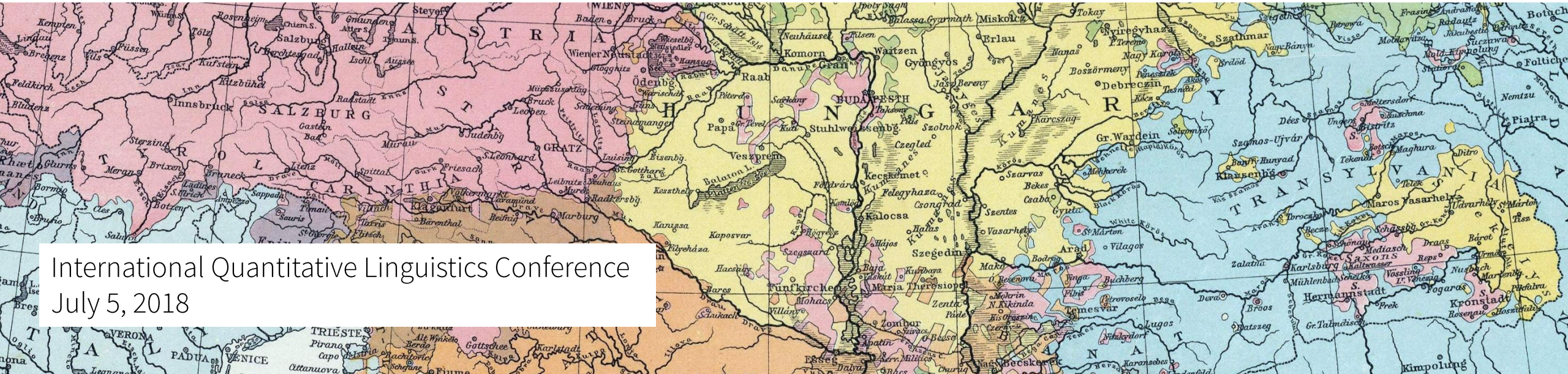
universität wien

Language contact in Austria-Hungary

Differences between the two parts and consequences for mathematical modelling

Katharina Prochazka*
Gero Vogl
University of Vienna, Faculty of Physics, Dynamics of Condensed Systems
*katharina.prochazka@univie.ac.at



International Quantitative Linguistics Conference
July 5, 2018

Background: Research question

Let us start by **taking a closer look at what happens in a language contact situation**. Imagine, for the sake of argument, a group that migrated to an area in which another language is dominant […]

Fase/Jaspaert/Kroon 1992: 4

How does language use change over time?
Do people shift their language?

Historical sociolinguistics: language use	**Geolinguistics**: language in time and space	**Quantitative linguistics:** mathematical modelling

Austria-Hungary

1804–1867
Austrian Empire

Compromise of 1867

1867–1918
Double Monarchy
Austria-Hungary

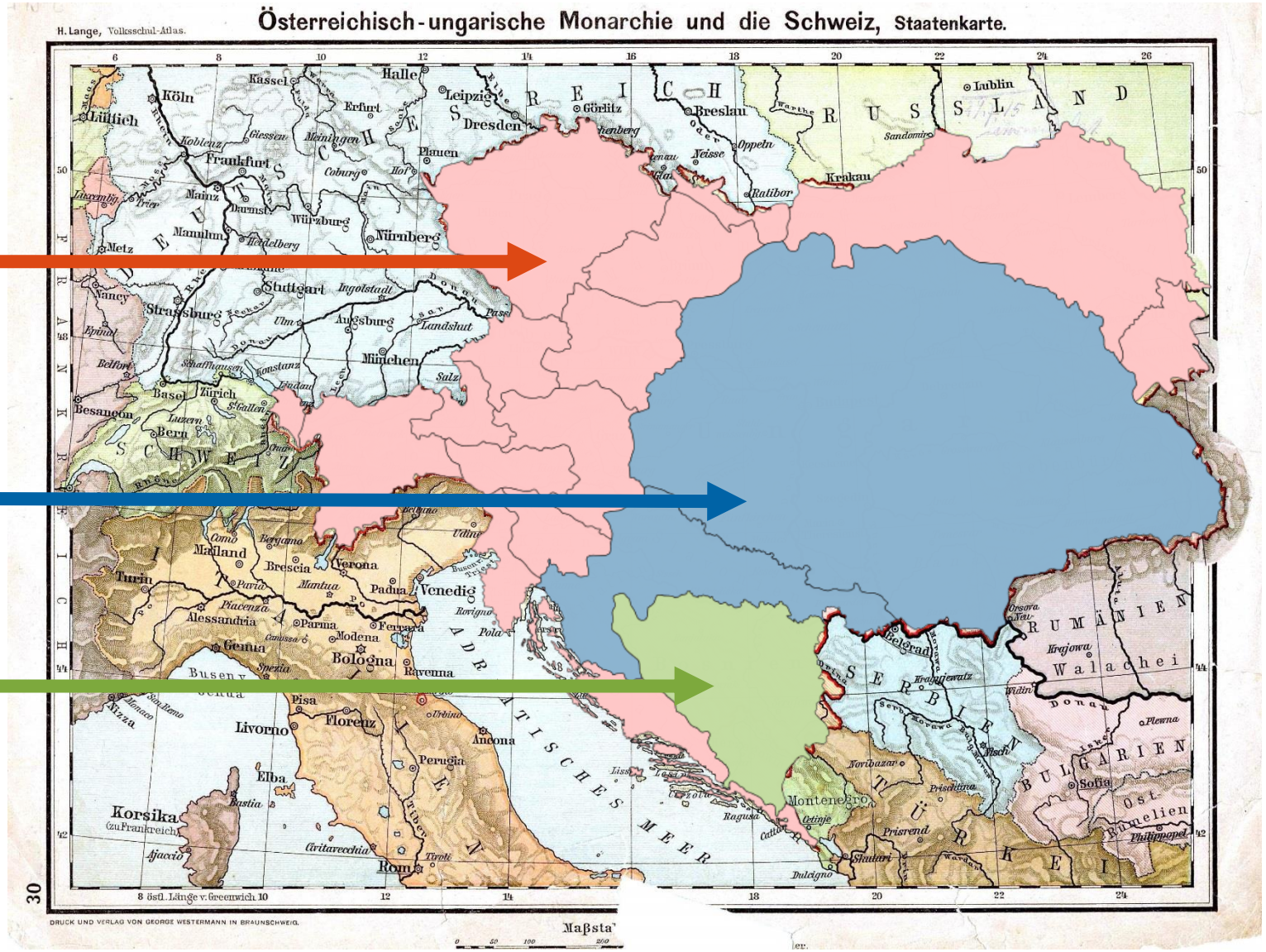
Map: Wikimedia Commons/public domain

Austria-Hungary

Austrian part
(Cisleithania)

Hungarian part
(Transleithania)

Bosnia and Herzegovina



Map: Wikimedia Commons/User: Herr Ziffer

Sources: Census data

Austrian part

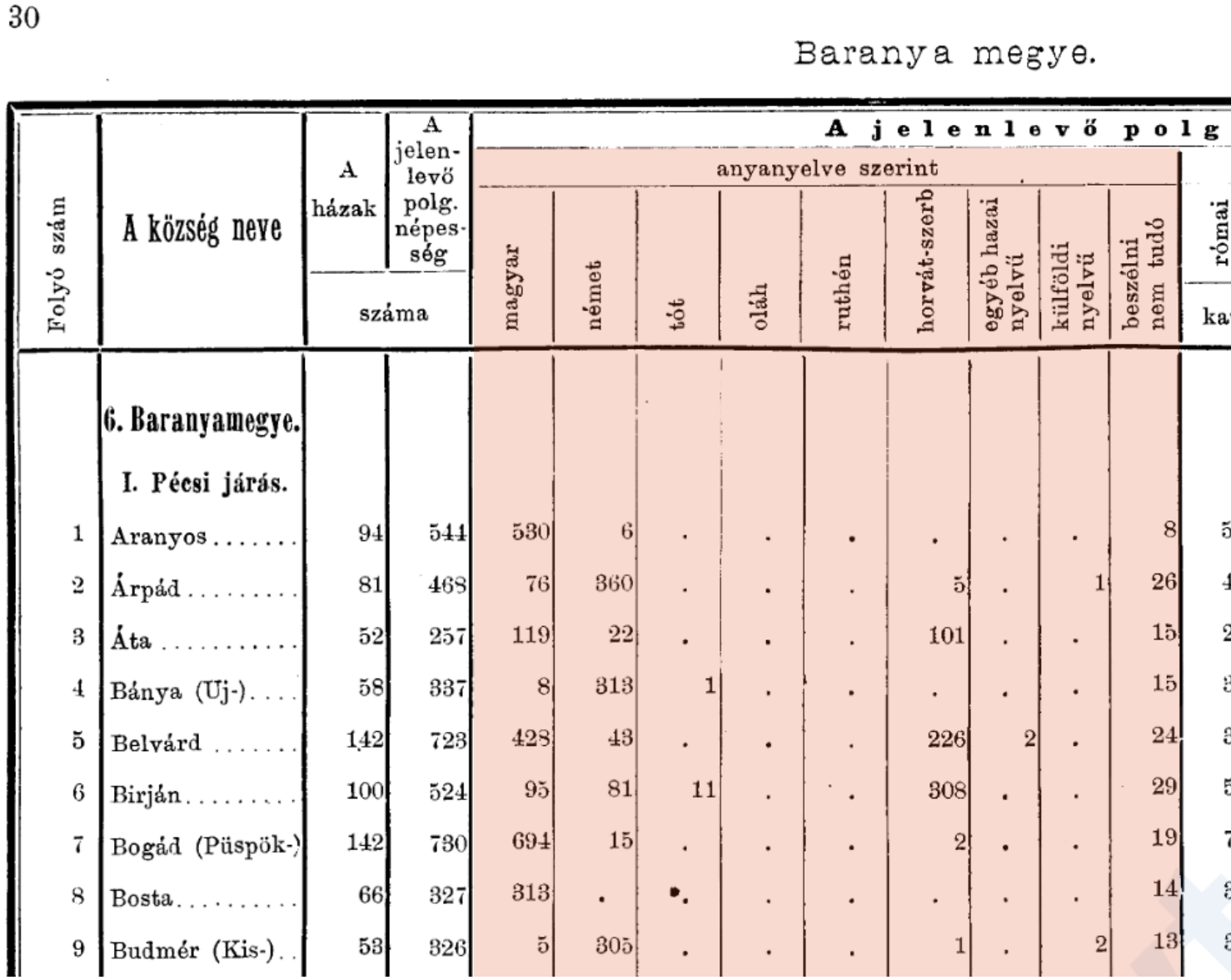
- 1880, 1890, 1900, 1910
- per village
- present civil population
- everyday language (*Umgangssprache*)
- only one answer possible
- German + 1 (2) language(s) + „other “
- multilingual publications

Bezirke, Gemeinden, Ortschaften (Okraji, občine, kraji)	Häuser (Hiše)	Anwesende Bevölkerung (Pričujoče prebivalstvo)							Umgspr. d. einh. Bevölk.(Obč. jez. domač. prebiv.)		
		männlich (moško)	weiblich (žensko)	zusammen (vkupe)	Confession (Po veri)						
					kathol. (katoliški)	evangel. (evangeljski)	israelit. (izraelci)	andere (drugi)	deutsche (nemški)	sloven. (slovenski)	andere (drugi)
Greuth, Rut (Dorf, vas)	14	93	79	172	165	7	.	.	110	62	.
Hart, Vacil oder (ali) Hrast (Dorf, vas)	19	66	84	150	150	.	.	.	32	118	.
Korpitsch, Korpiče (Dorf, vas)	16	81	56	137	137	.	.	.	37	80	.
Krainberg, Stermca (Dorf, vas)	7	21	29	50	50	.	.	.	.	50	.
Krainegg, Pod Krajnikom (Dorf, vas)	13	40	42	82	82	.	.	.	14	68	.
Leonhard, St., Lenart Sv. (Dorf, vas) Pf. [St. Leonhard bei Siebenbrunn], Sch. (žup., š.)	11	45	47	92	92	.	.	.	34	58	.
Lind, Lipje (Dorf, vas)	8	28	30	58	58	.	.	.	4	54	.
Maglern, Megvarje (Dorf, vas) Tel.,*Esb.*[Thörl-Maglern*] (tel., žel.)	38	130	135	265	247	18	.	.	139	120	.
Neuhaus, Podsturjo (Dorf, vas)	26	76	106	182	181	1	.	.	34	148	.
Pessendellach, V Dolah (Dorf, vas)	14	43	63	106	106	.	.	.	10	95	.
Pöckau, Peče (Dorf, vas)	52	140	175	315	282	33	.	.	63	248	.
Radendorf, Radnja ves											

Sources: Census data

Hungarian part

- 1881, 1891, 1900, 1910
- per village (except 1891)
- present civil population
- mother tongue (*anyanyelv*)
- only one answer possible
- Hungarian + multiple languages
- monolingual publications



30

Baranya megye.

Folyó szám	A község neve	A házak száma	A jelenlevő polg. népesség száma	A jelenlevő polg anyanyelve szerint: magyar	német	tót	oláh	ruthén	horvát-szerb	egyéb hazai nyelvű	külföldi nyelvű	beszélni nem tudó	római ka
	6. Baranyamegye.												
	I. Pécsi járás.												
1	Aranyos	94	544	530	6	.	.	.	.	.	.	8	
2	Árpád	81	468	76	360	.	.	.	5	.	1	26	
3	Áta	52	257	119	22	.	.	.	101	.	.	15	
4	Bánya (Uj-)	58	337	8	313	1	.	.	.	.	.	15	
5	Belvárd	142	723	428	43	.	.	.	226	2	.	24	
6	Birján	100	524	95	81	11	.	.	308	.	.	29	
7	Bogád (Püspök-)	142	730	694	15	.	.	.	2	.	.	19	
8	Bosta	66	327	313	.	.	.	.	.	.	.	14	
9	Budmér (Kis-)	53	326	5	305	.	.	.	1	.	2	13	

Censuses as data sources

- Every language survey should be regarded critically.
- The results do not have to match actual language use (although they likely overlap).
- Answers are heavily influenced by the circumstances.
- Even so, the census offers an enormous amount of data for:
  - a large time period in regular intervals
  - all settlements in a country

In addition: “bad data problem” of historical sociolinguistics

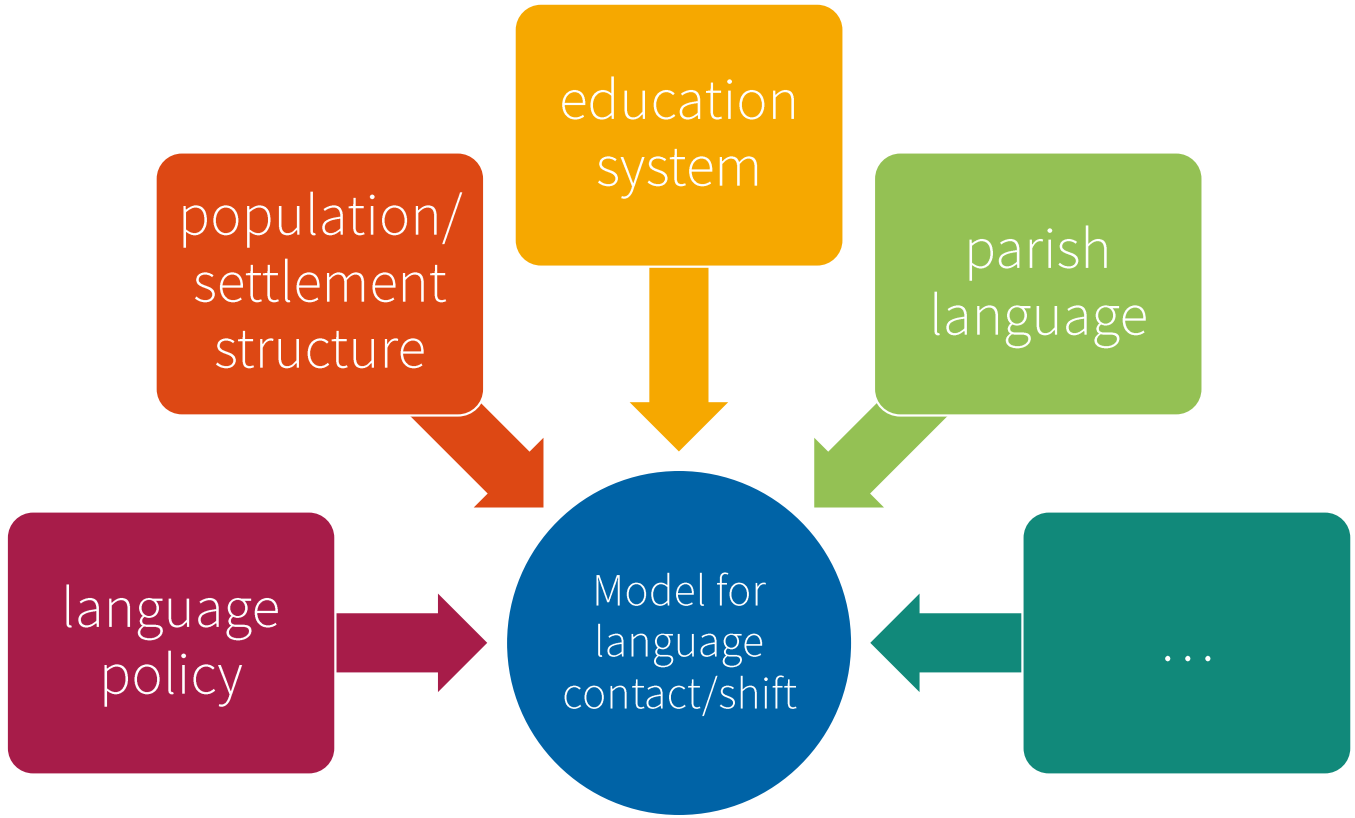
- New data on historical language use cannot be generated.

Modelling language contact

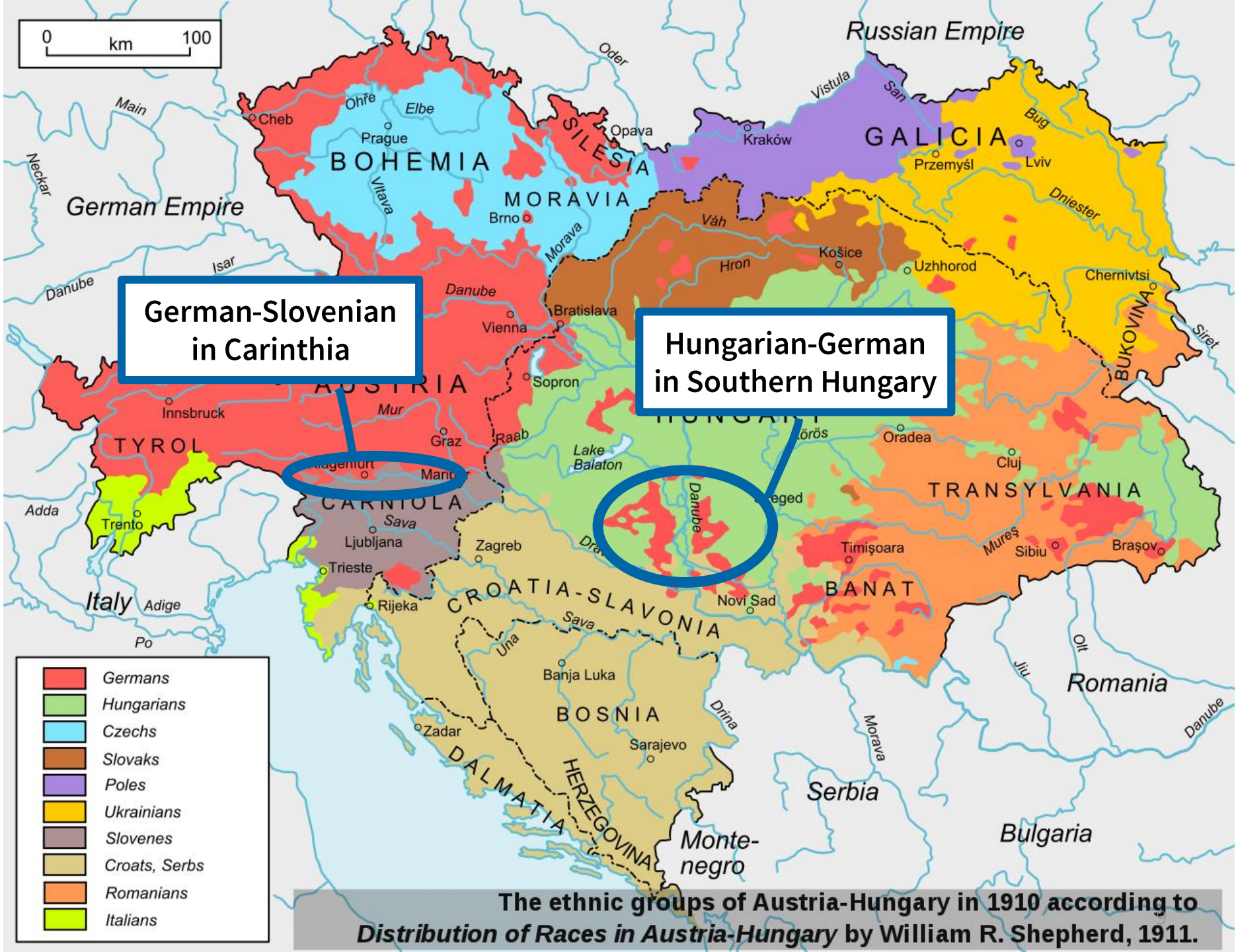
How does the language recorded in the census change over time (and space)?

Goals:

- Identification and description of factors influencing language use
- Mathematical quantification



Language contact in Austria-Hungary



The ethnic groups of Austria-Hungary in 1910 according to *Distribution of Races in Austria-Hungary* by William R. Shepherd, 1911.

Map: Wikimedia Commonms/User Andrein

Language policy

cf. Haslinger 2008, Marácz 2012, Seewann 2012

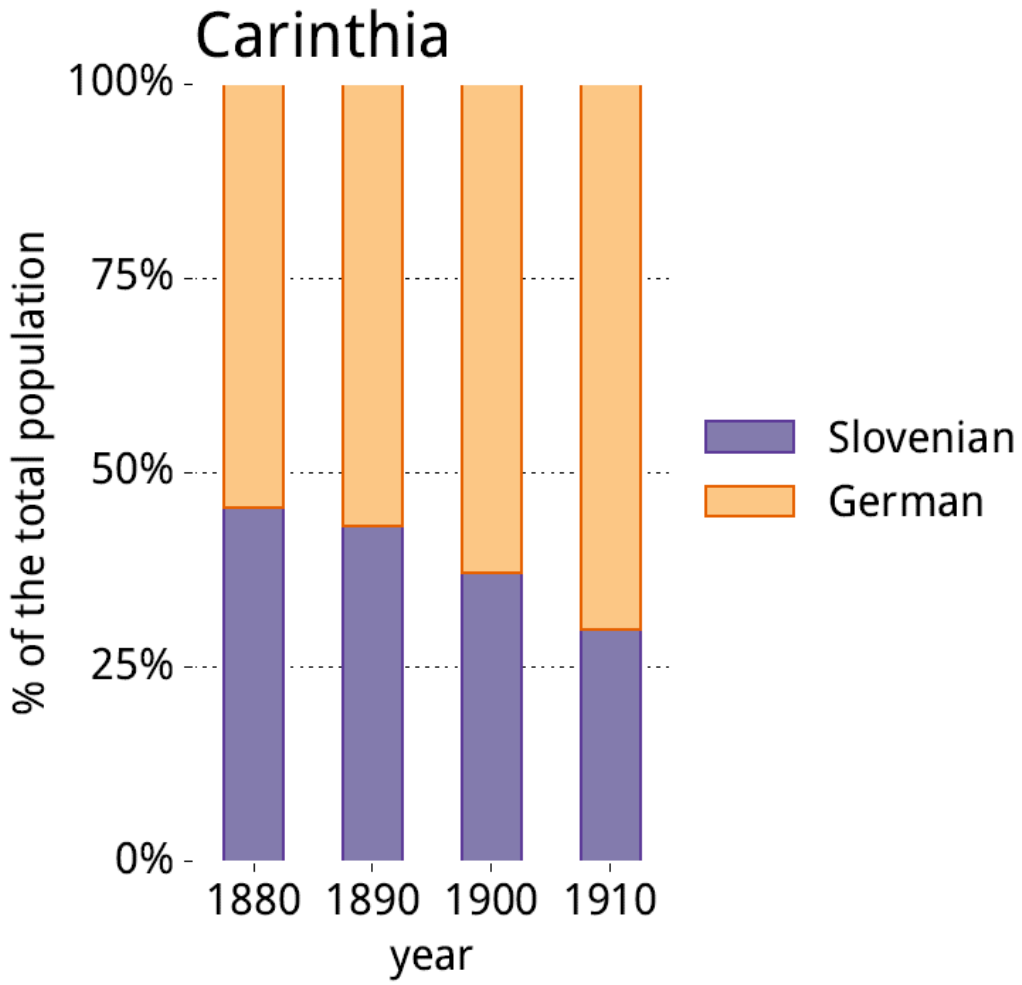
Austrian part

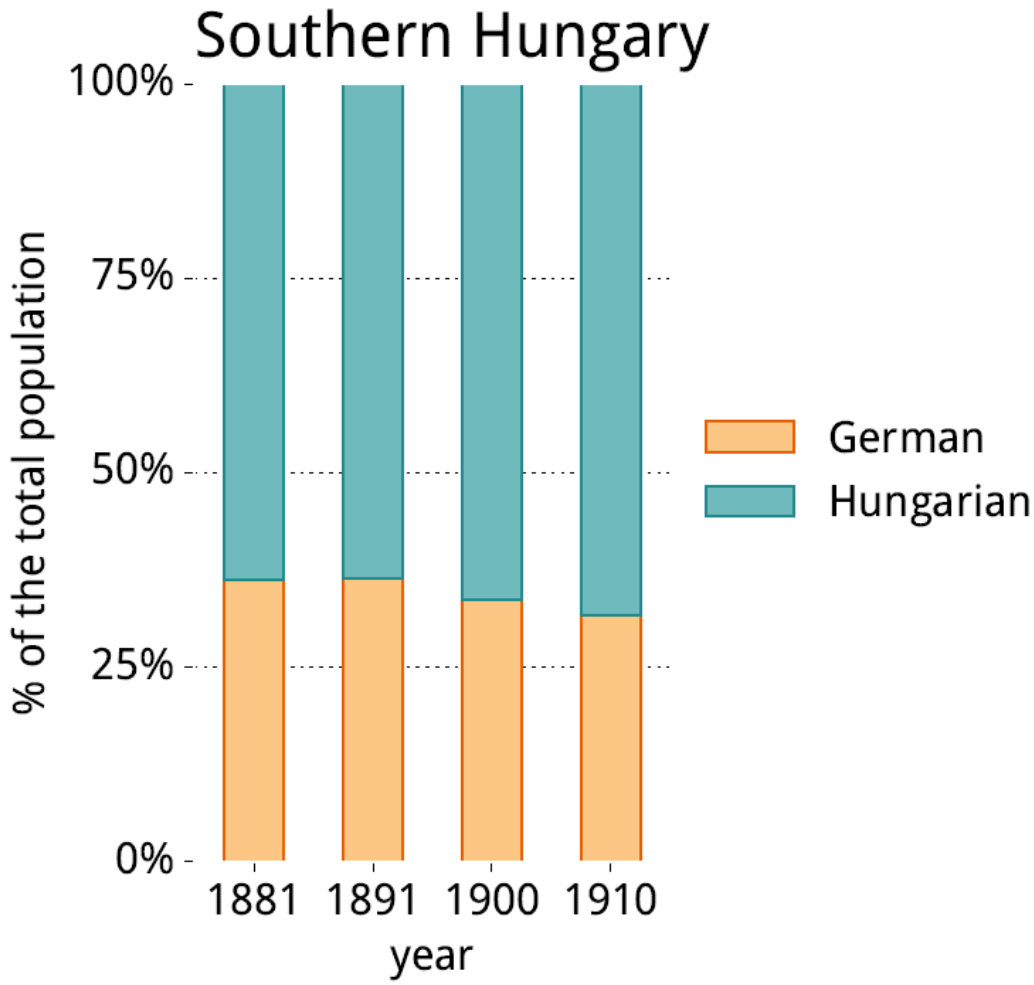
- German as prestige language
- German as primary official language
- equal treatment of languages by law
- relatively liberal acceptance of multilingualism

Hungarian part

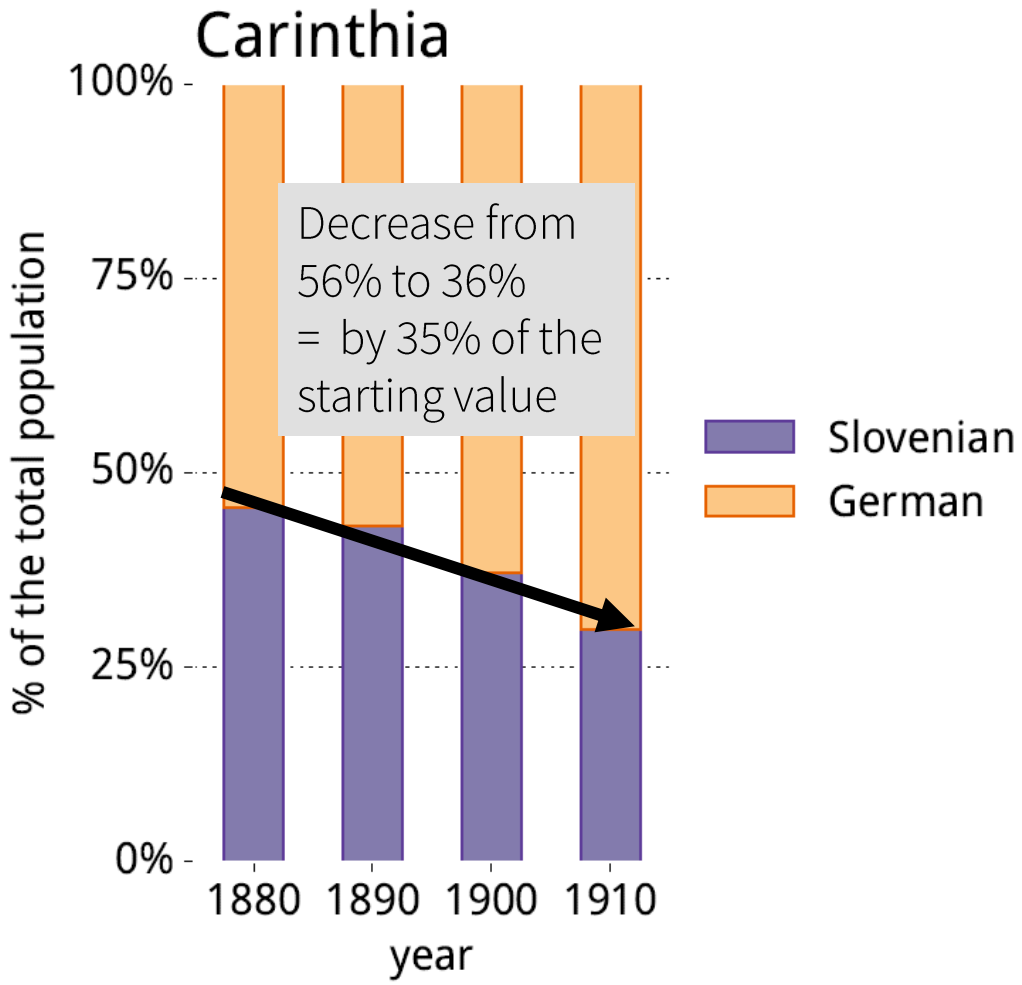
- Hungarian as prestige language
- Hungarian as official language
- legal definition of Hungarian as the primary language / language-led patriotism
- large-scale efforts to enforce Hungarian as the only language (magyarisation)

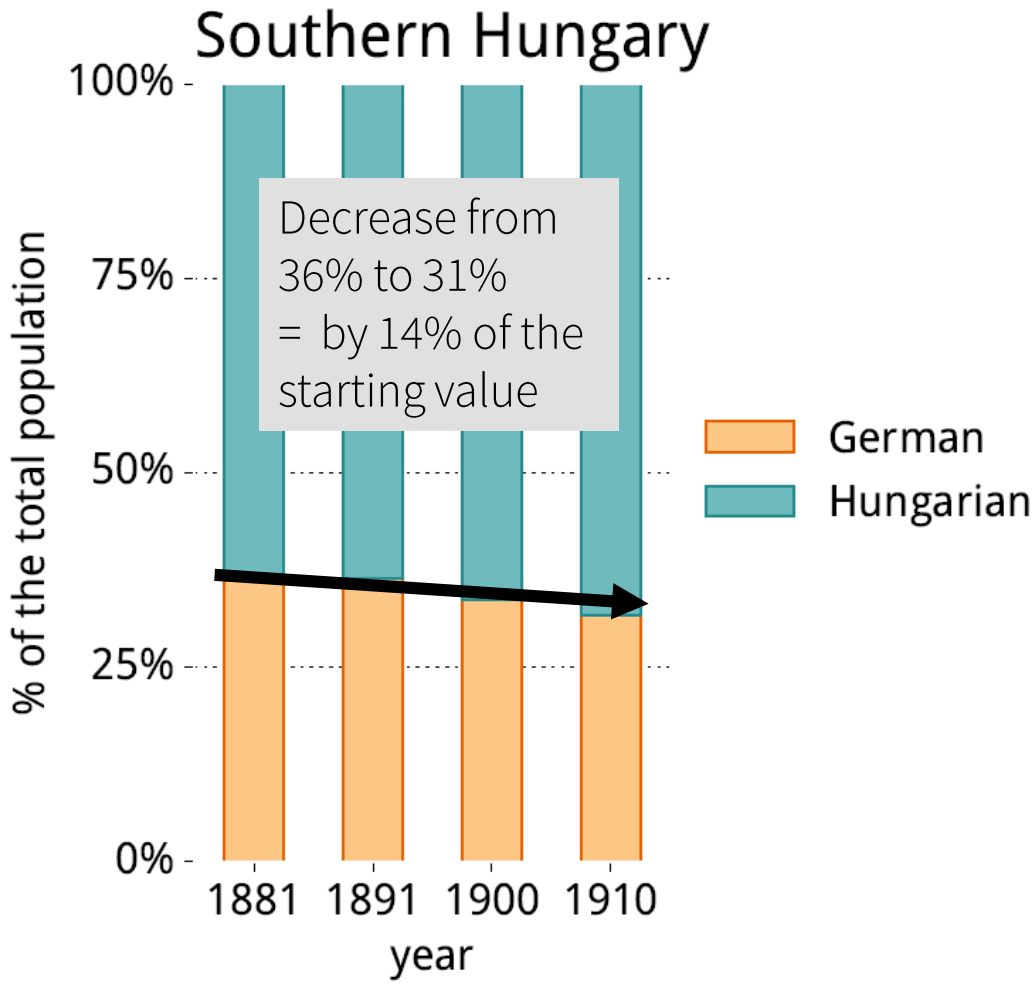
Consequences of language policy?



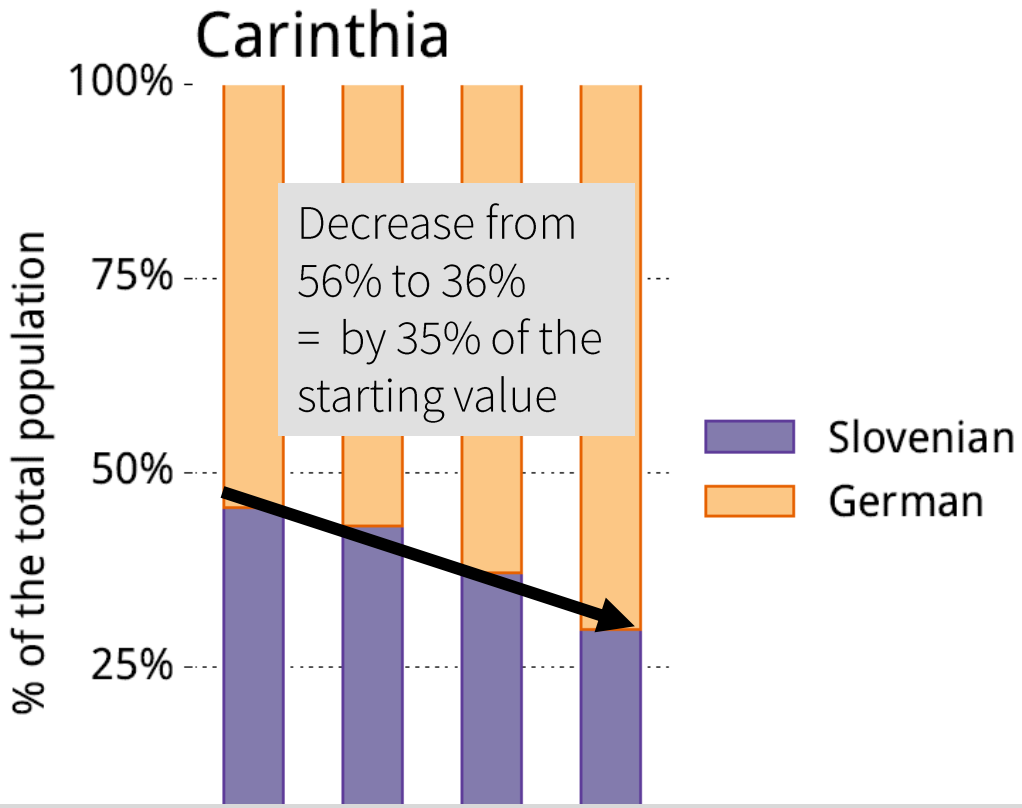


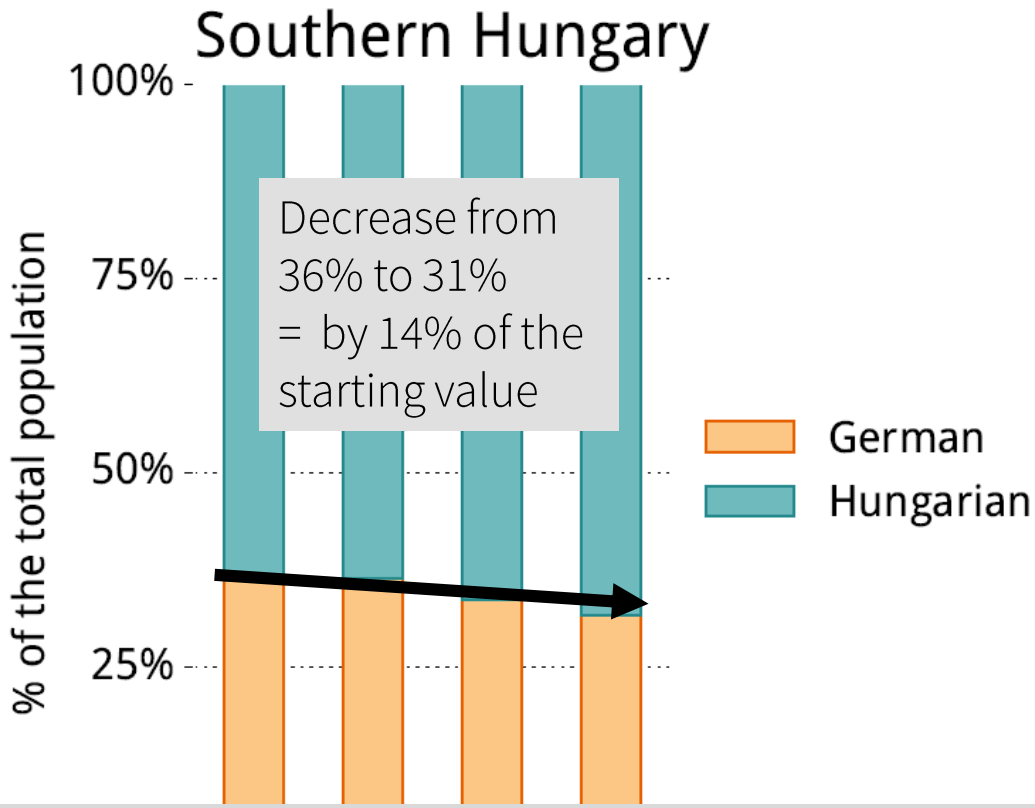
Consequences of language policy?





Consequences of language policy?



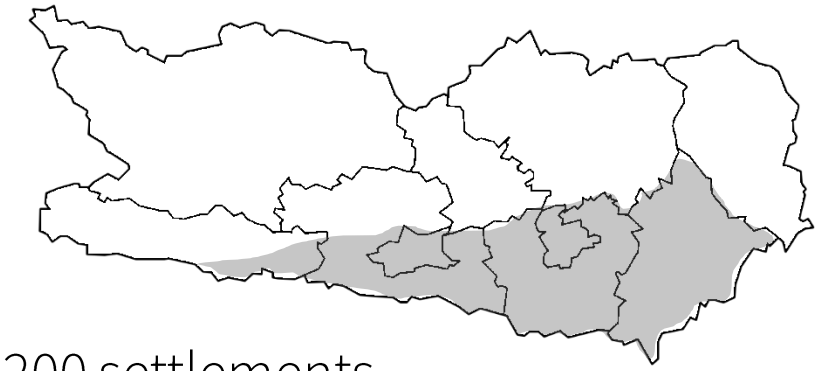


Consequence for modelling

Magyarisation is not directly visible in the census data and therefore (probably) does not have to be considered in the model.

Settlement and population structure

Carinthia



- ~1200 settlements
- ~2200 km²
- ~65,000 German + 84,500 Slovenian (1880)

Southern Hungary

- ~450 settlements
- ~8100 km²
- ~300,000 Hungarian + 170,000 German (1881)

investigated area

Maps: Wikimedia Commonms/public domain

Settlement and population structure: Languages

Carinthia

- few “other” languages

Bezirke, Gemeinden, Ortschaften (Okraji, občine, kraji)	Häuser (Hiše)	Anwesende Bevölkerung (Pričujoče prebivalstvo)							Umgspr. d. einh. Bevölk. (Obč. jez. domač. prebiv.)		
		männlich (moško)	weiblich (žensko)	zusammen (vkupe)	Confession (Po veri)						
					kathol. (katoliški)	evangel. (evangeljski)	israelit. (izraelci)	andere (drugi)	deutsche (nemški)	sloven. (slovenski)	andere (drugi)
Greuth, Rut (Dorf, vas)	14	93	79	172	165	7	.	.	110	62	.
Hart, Vacil oder (ali) Hrast (Dorf, vas)	19	66	84	150	150	.	.	.	32	118	.
Korpitsch, Korpiče (Dorf, vas)	16	81	56	137	137	.	.	.	37	80	.
Krainberg, Stermca (Dorf, vas)	7	21	29	50	50	.	.	.	.	50	.
Krainegg, Pod Krajnikom (Dorf, vas)	13	40	42	82	82	.	.	.	14	68	.
Leonhard, St., Lenart Sv. (Dorf, vas) Pf. [St. Leonhard bei Siebenbrunn], Sch. (žup., š.)	11	45	47	92	92	.	.	.	34	58	.
Lind, Lipje (Dorf, vas)	8	28	30	58	58	.	.	.	4	54	.
Maglern, Megvarje (Dorf, vas) Tel.,*Esb.*[Thörl-Maglern*] (tel., žel.)	38	130	135	265	247	18	.	.	139	120	.
Neuhaus, Podsturjo (Dorf, vas)	26	76	106	182	181	1	.	.	34	148	.
Pessendellach, V Dolah (Dorf, vas)	14	43	63	106	106	.	.	.	10	95	.
Pöckau, Peče (Dorf, vas)	52	140	175	315	282	33	.	.	63	248	.
Radendorf, Radnja ves											

Settlement and population structure: Languages

Southern Hungary

- sometimes considerable number of "other" language (esp. Croatian/Serbocroatian)

Baranya megye.

Folyó szám	A község neve	A házak száma	A jelenlevő polg. népesség száma	A jelenlevő polg anyanyelve szerint: magyar	német	tót	oláh	ruthén	horvát-szerb	egyéb hazai nyelvű	külföldi nyelvű	beszélni nem tudó	római ka
	6. Baranyamegye.												
	I. Pécsi járás.												
1	Aranyos	94	544	530	6	.	.	.	.	.	.	8	
2	Árpád	81	468	76	360	.	.	.	5	.	1	26	
3	Áta	52	257	119	22	.	.	.	101	.	.	15	
4	Bánya (Uj-)	58	337	8	313	1	.	.	.	.	.	15	
5	Belvárd	142	723	428	43	.	.	.	226	2	.	24	
6	Birján	100	524	95	81	11	.	.	308	.	.	29	
7	Bogád (Püspök-)	142	730	694	15	.	.	.	2	.	.	19	
8	Bosta	66	327	313	.	.	.	.	.	.	.	14	
9	Budmér (Kis-)	53	326	5	305	.	.	.	1	.	2	13	

Settlement and population structure: Languages

Southern Hungary

- sometimes considerable number of “other” language (esp. Croatian/Serbocroatian)

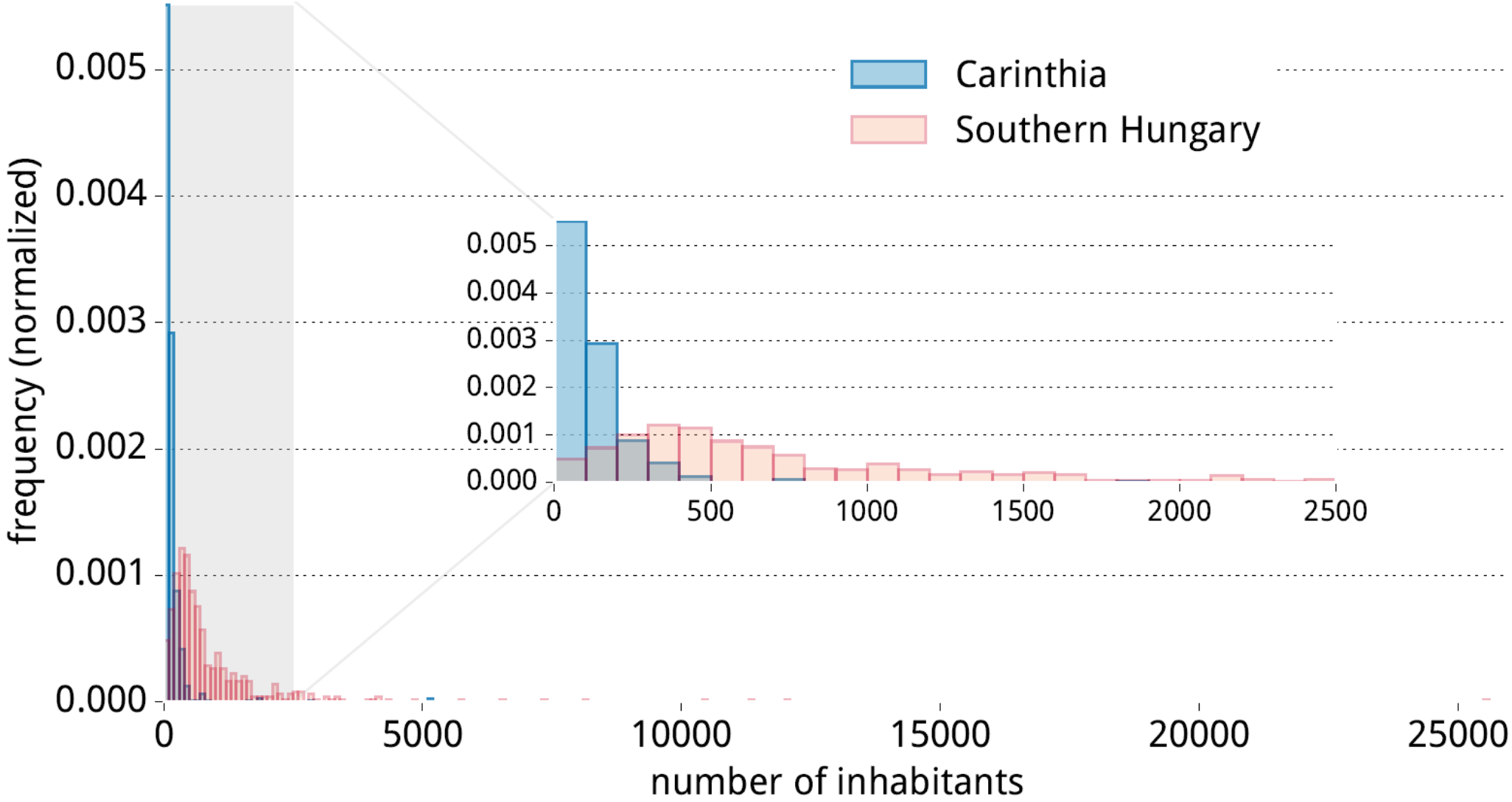
Baranya megye.

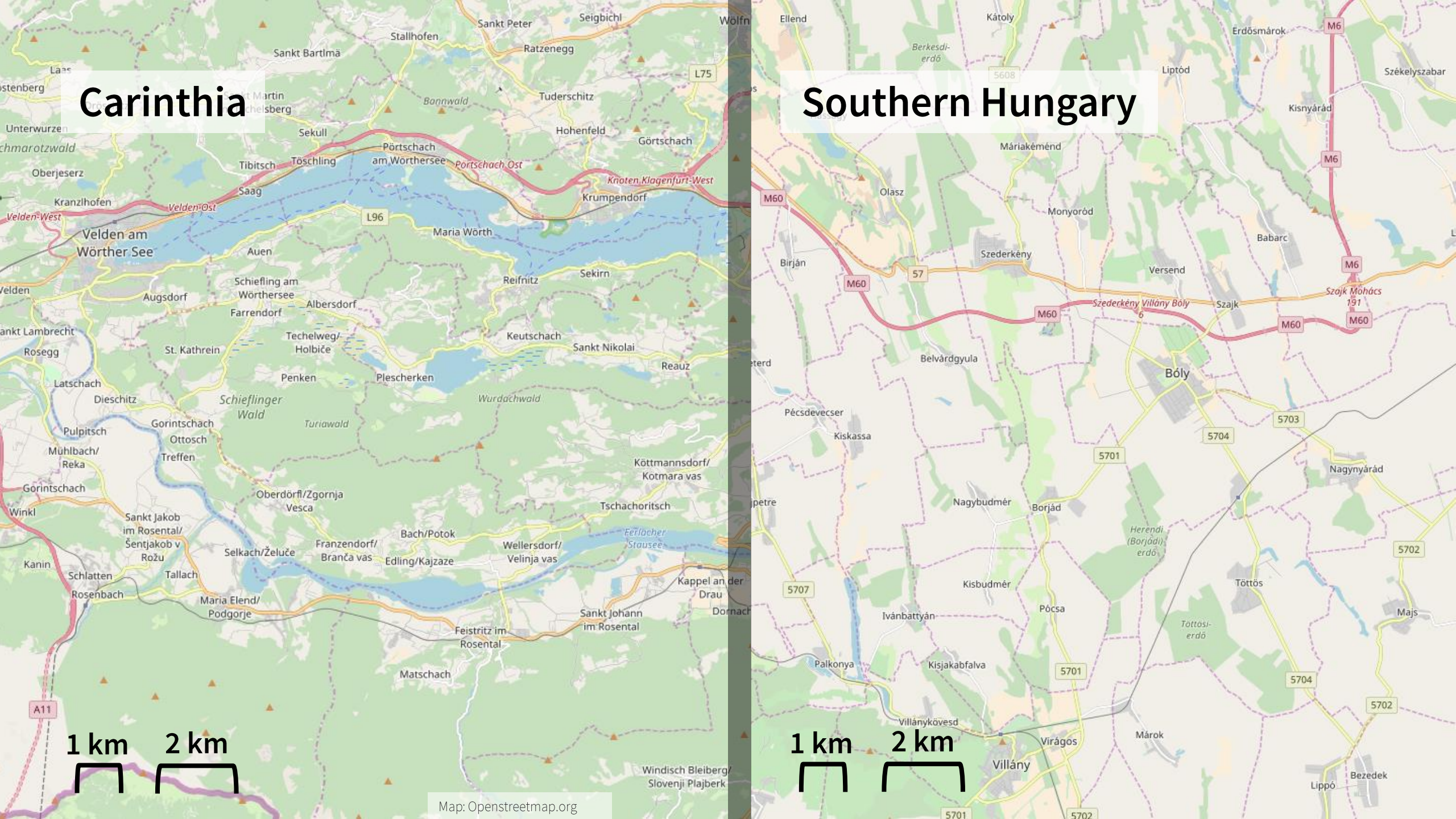
Folyó szám	A község neve	A házak száma	A jelenlevő polg. népesség száma	A jelenlevő polg. anyanyelve szerint: magyar	német	tót	oláh	ruthén	horvát-szerb	egyéb hazai nyelvű	külföldi nyelvű	beszélni nem tudó	római ka
	6. Baranyamegye.												
	I. Pécsi járás.												
1	Aranyos	94	544	530	6	.	.	.	.	.	.	8	
2	Árpád	81	468	76	360	.	.	.	5	.	1	26	
3	Áta	52	257	119	22	.	.	.	101	.	.	15	
4	Bánya (Uj-)	58	337	8	313	1	.	.	.	.	.	15	
5	Belvárd	142	723	428	43				226	2		24	
9	Budmér (Kis-)	53	326	5	305	.	.	.	1	.	2	13	

Consequence for modelling

If all languages are taken into account, the model for Southern Hungary has to be much more complex. Where is the limit at which we can ignore “others”?

Settlement and population structure: Settlement size

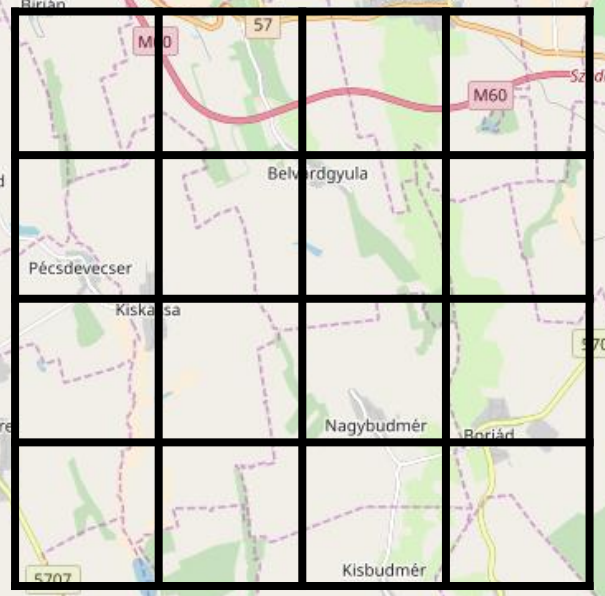



Carinthia
Southern Hungary
1 km
2 km
1 km
2 km
Map: Openstreetmap.org

Carinthia

1 km 2 km

Southern Hungary

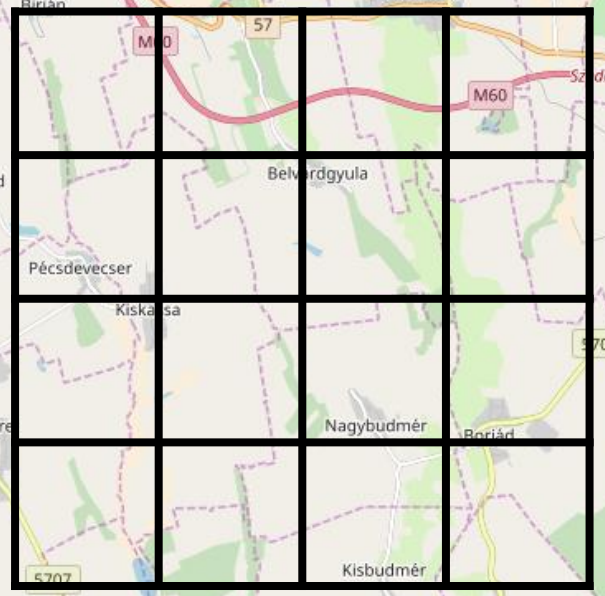


1 km 2 km

Map: Openstreetmap.org

Carinthia

Southern Hungary



Consequence for modelling

In Southern Hungary a different abstraction is necessary/possible than in Carinthia.

1 km 2 km

1 km 2 km

Map: Openstreetmap.org

Settlement and population structure: Geography

Carinthia

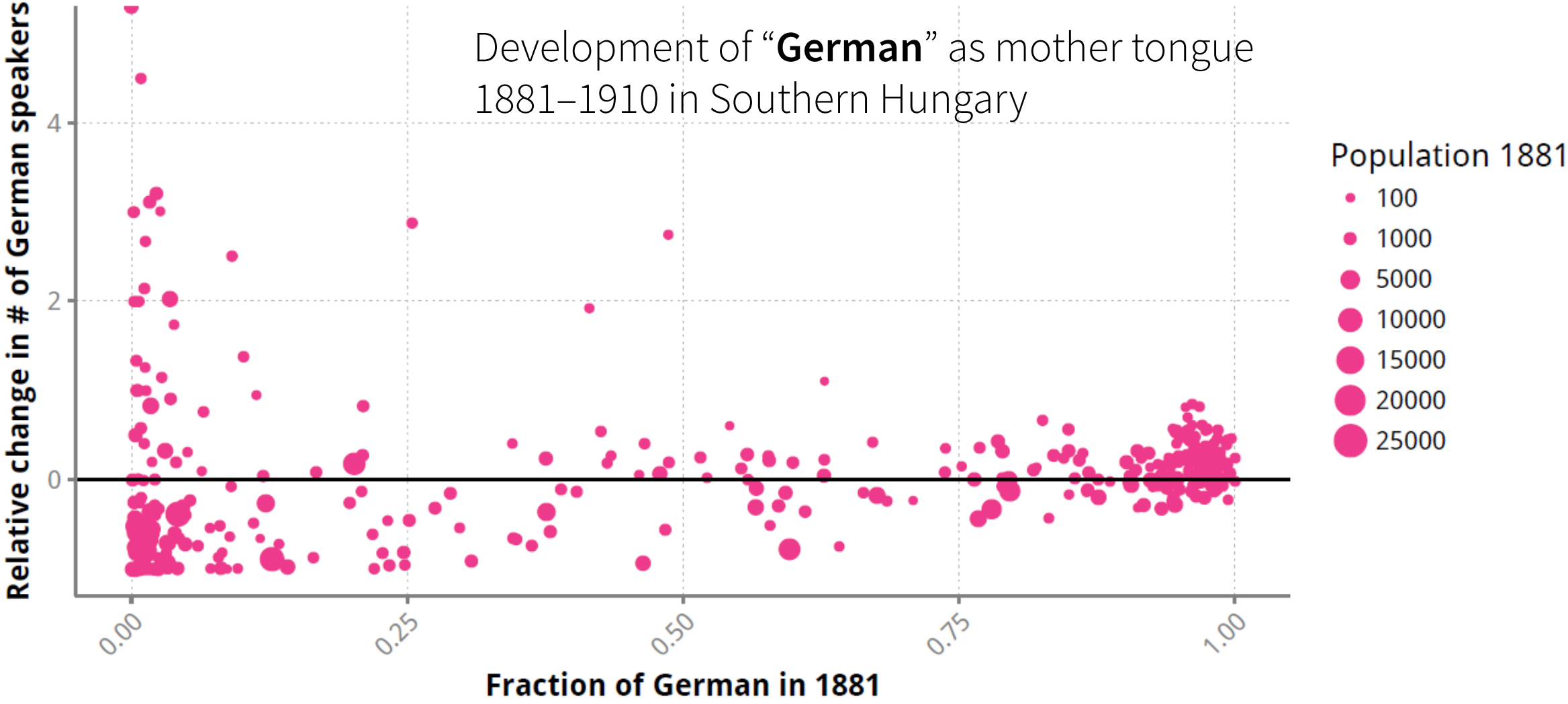
- contiguous language area

Southern Hungary

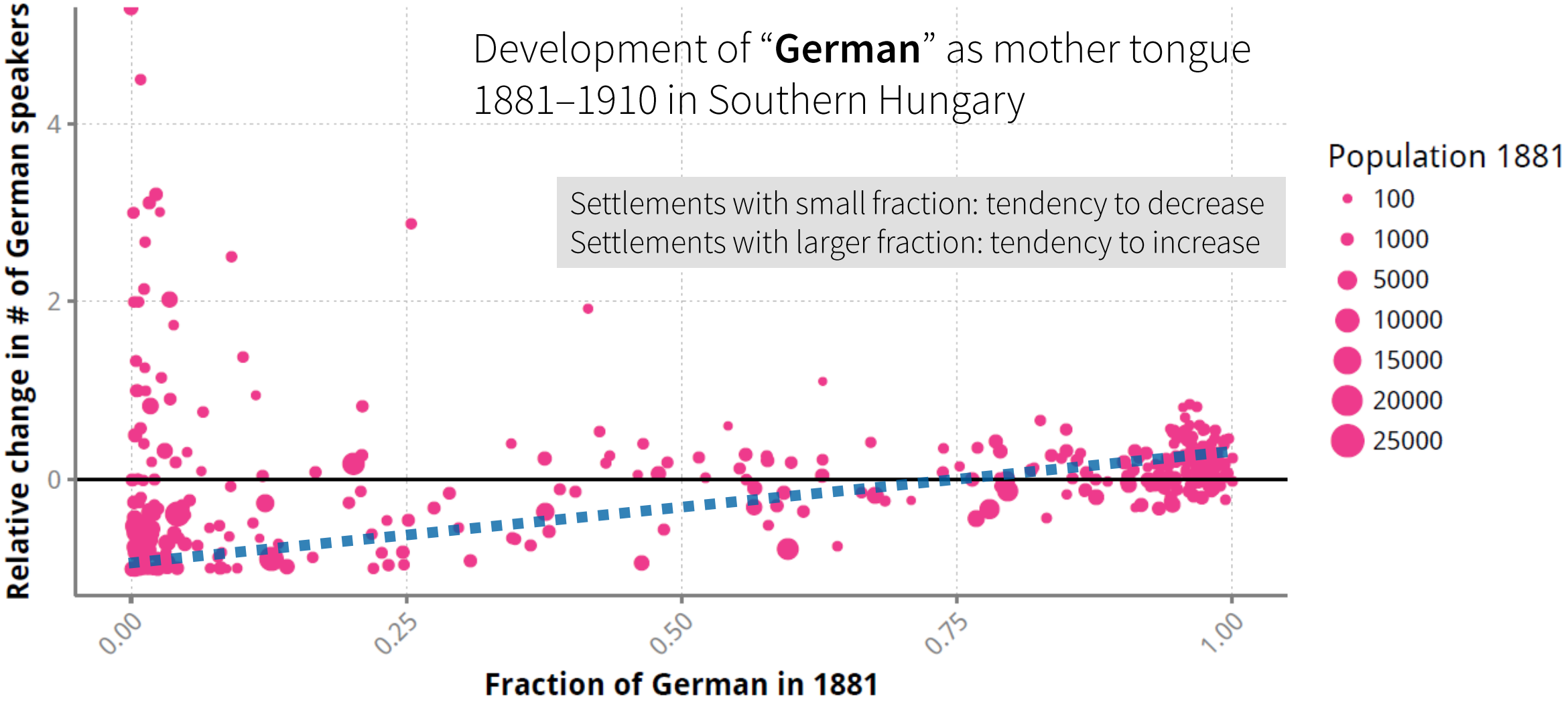
- isolated language islands

Consequences for modelling
In Carinthia, direct interaction between settlements is likely,
in Hungary it is less likely.

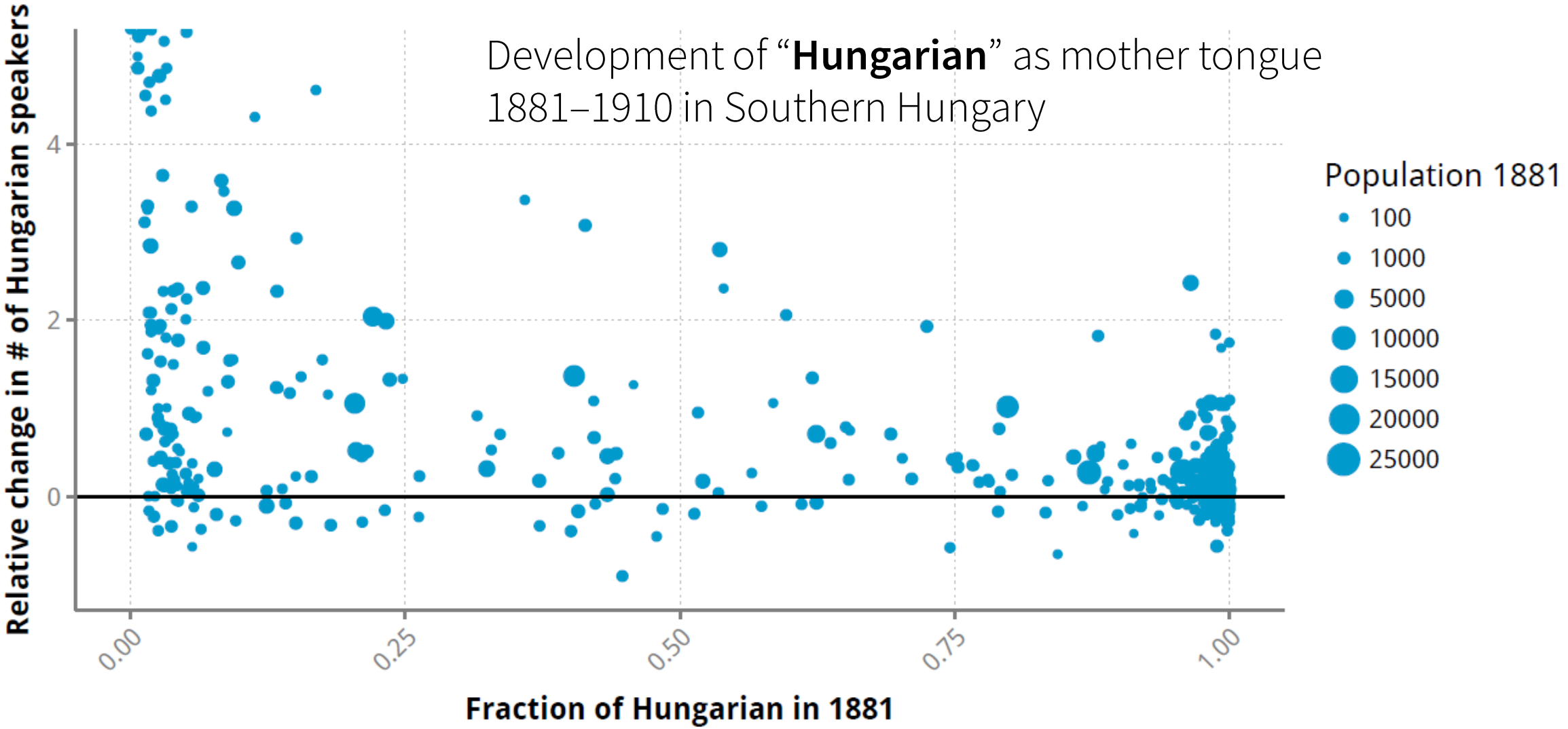
Settlement and population structure: Language groups



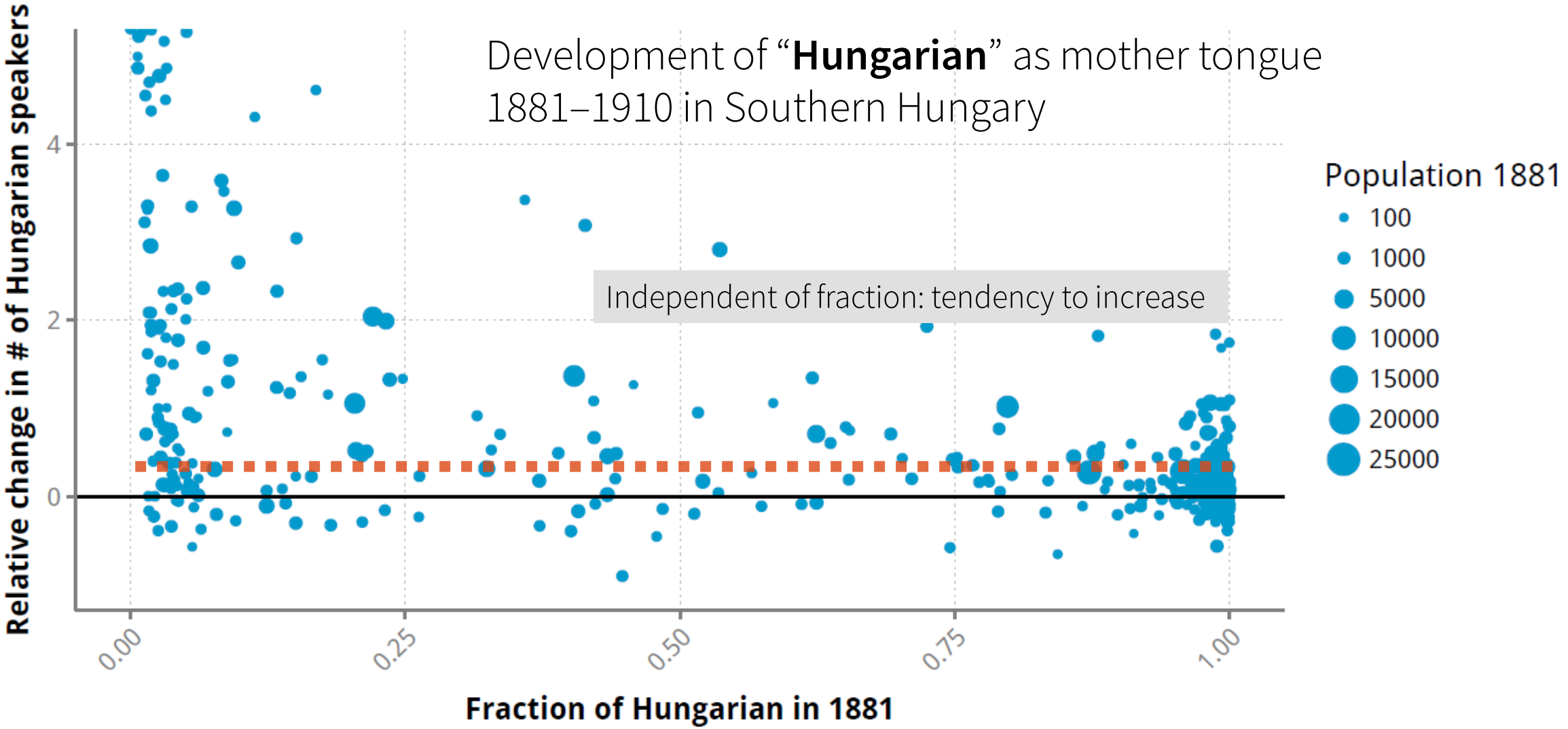
Settlement and population structure: Language groups



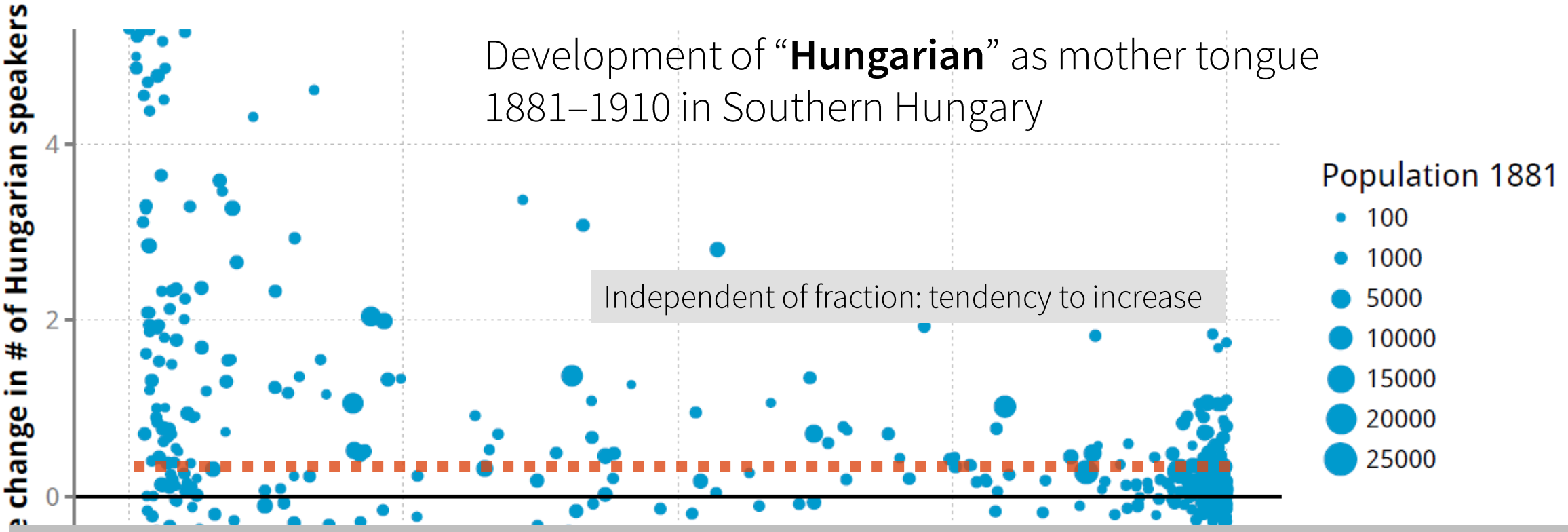
Settlement and population structure: Language groups



Settlement and population structure: Language groups



Settlement and population structure: Language groups



Consequence for modelling

Language groups can develop differently.

Do not assume they act symmetrically without confirmation from the data.

Summary

Lessons learned from Austria-Hungary

- Language policy is not necessarily directly and immediately reflected in the data.
- Settlement structure plays a role.
- Different language groups develop differenly (and not always symmetrically), so it is important to look at the data before modelling.

Conclusion

- Different datasets make different models possible.
- Differences necessarily affect model / theory development.
- Models are always situation-dependent. !

Thank you for your attention!

Special thanks to:

- Statistics Austria
  - Eva-Maria Asamer, Adelheid Bauer, Alois Gehart
- Research Centre of Hungarian Germans at ELTE Budapest
  - Maria Erb, Elisabeth Knipf, Karl Manherz, Márta Müller
- Manfred Glauninger (University of Vienna)

dynamics of condensed systems

katharina.prochazka@univie.ac.at

http://dcs.univie.ac.at/languagediffusion

This work is supported by a uni:docs fellowship (University of Vienna).