Analysing phonological systems: on Bayesian typological research

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In this talk I will cover the following:

- goals of the linguistic typology
- different strategies of sampling
- Bayesian way of thinking about the linguistic typology
- Case study: vowels

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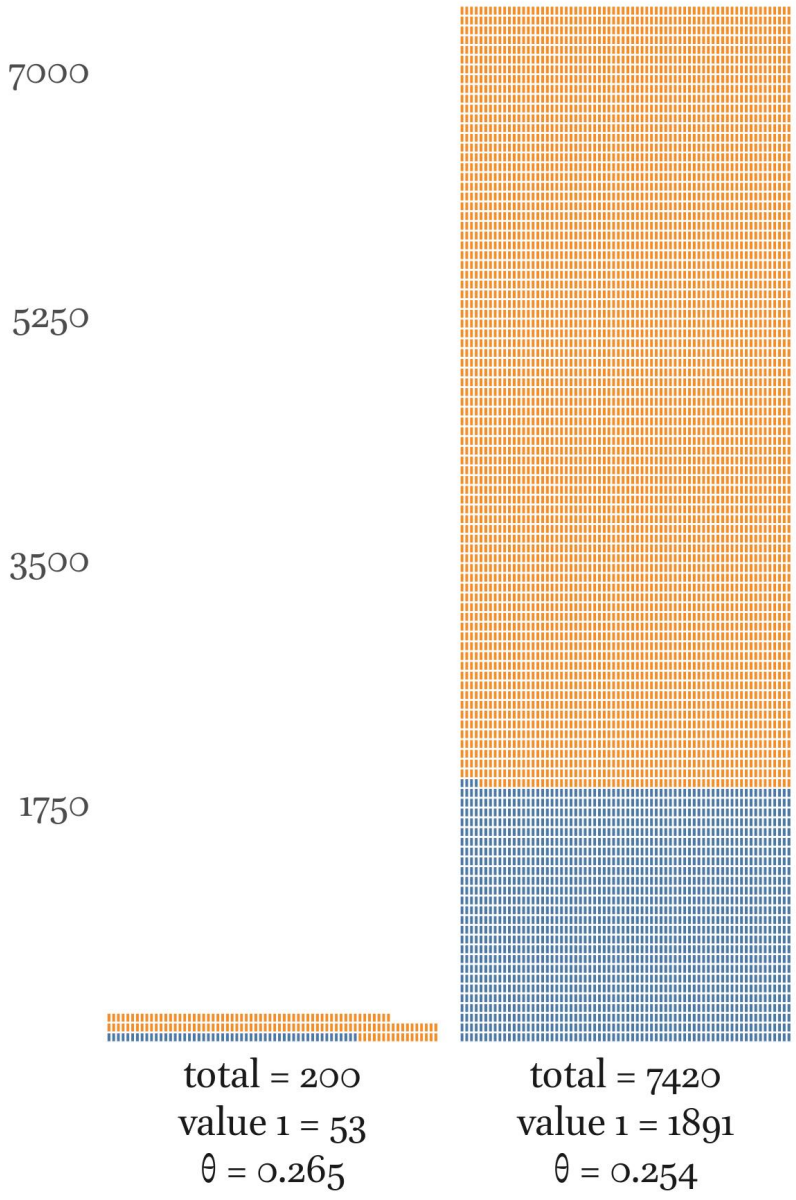
- From now $\hat{\theta}$ is the best estimation of θ that you know, if you want to convince a mad about statistics editor, add some **confidence intervals**
  - After you published your paper project is finished

There are different type of sampling



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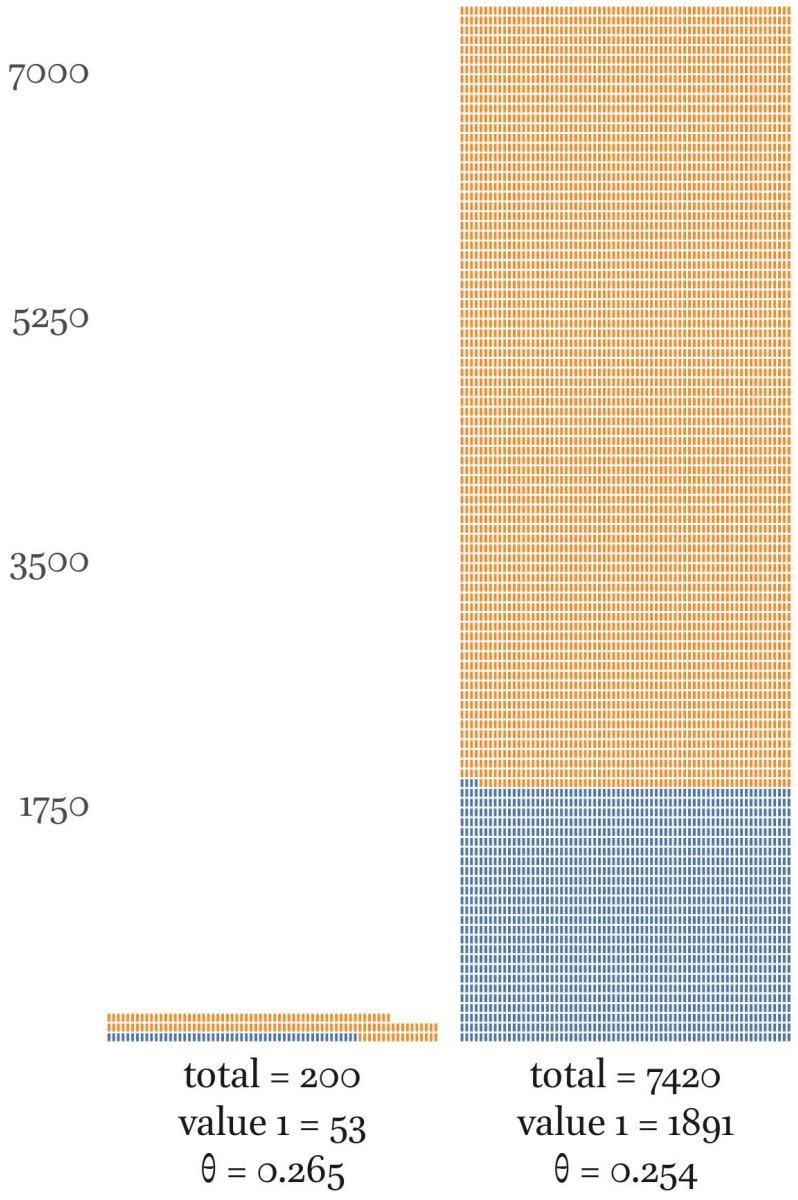

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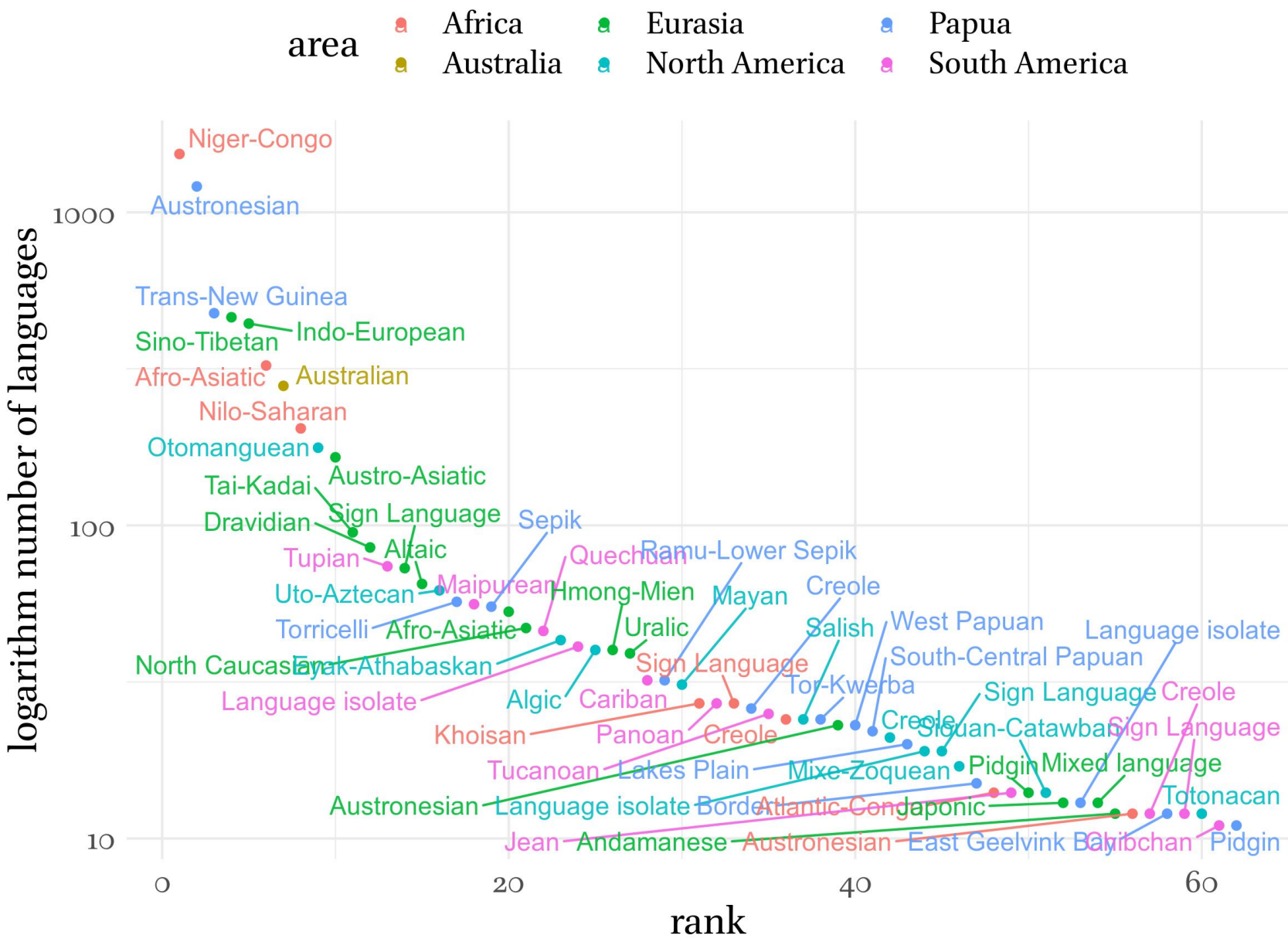
!!! but each language is grouped in **a language family** and **an area**, so each observation is not independent…

Language families (languages > 10)



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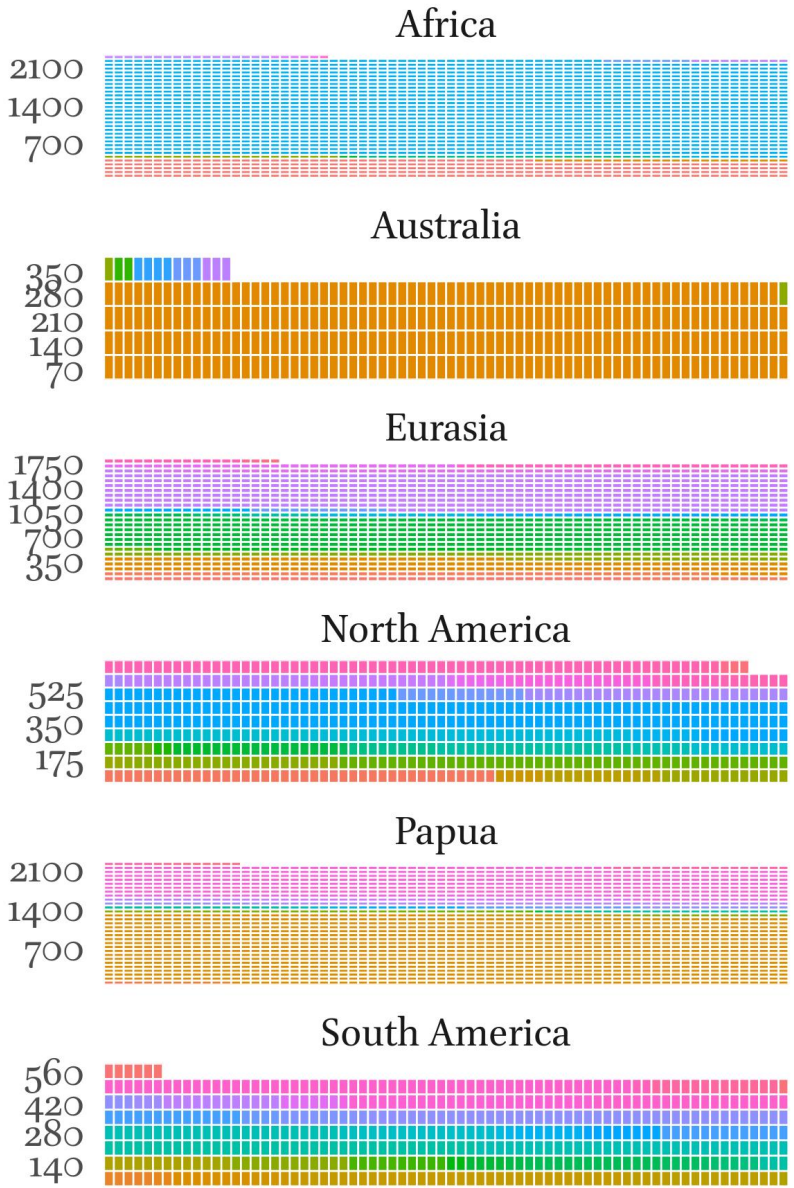

Stratified random sampling divide population into groups that differ in important ways and then perform random sampling from each group

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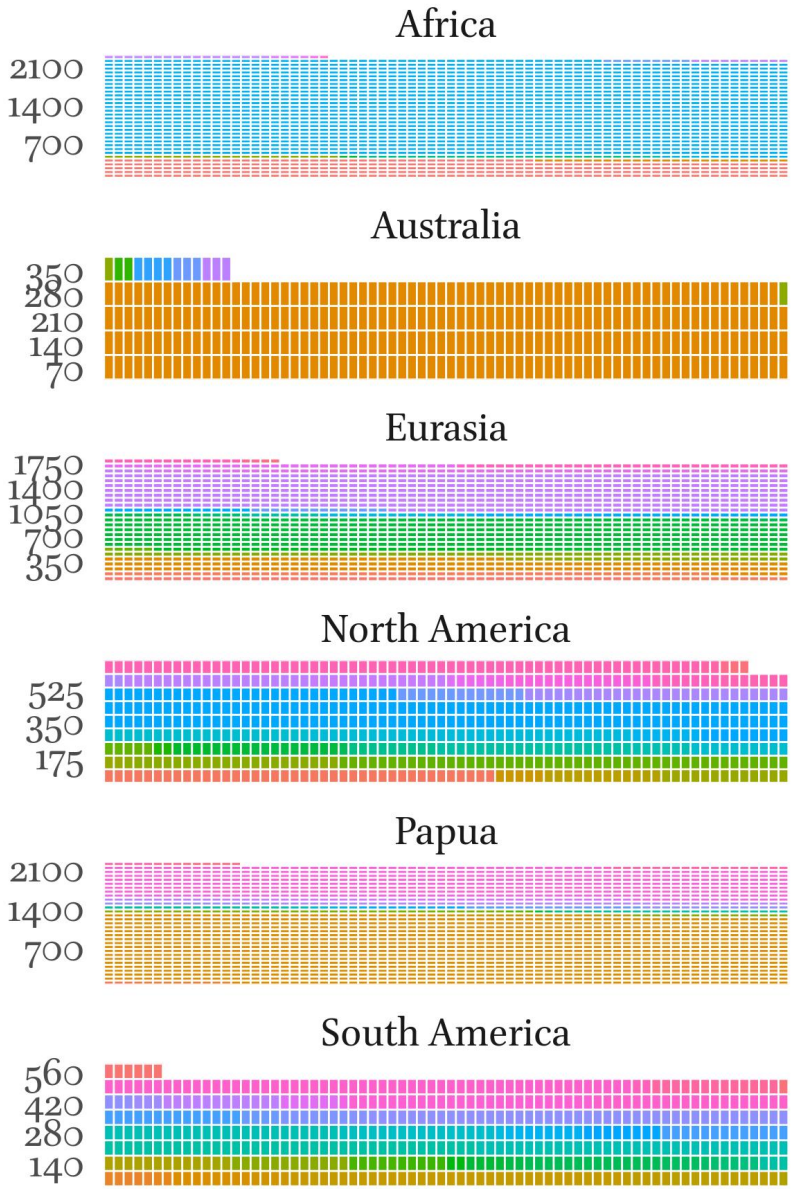

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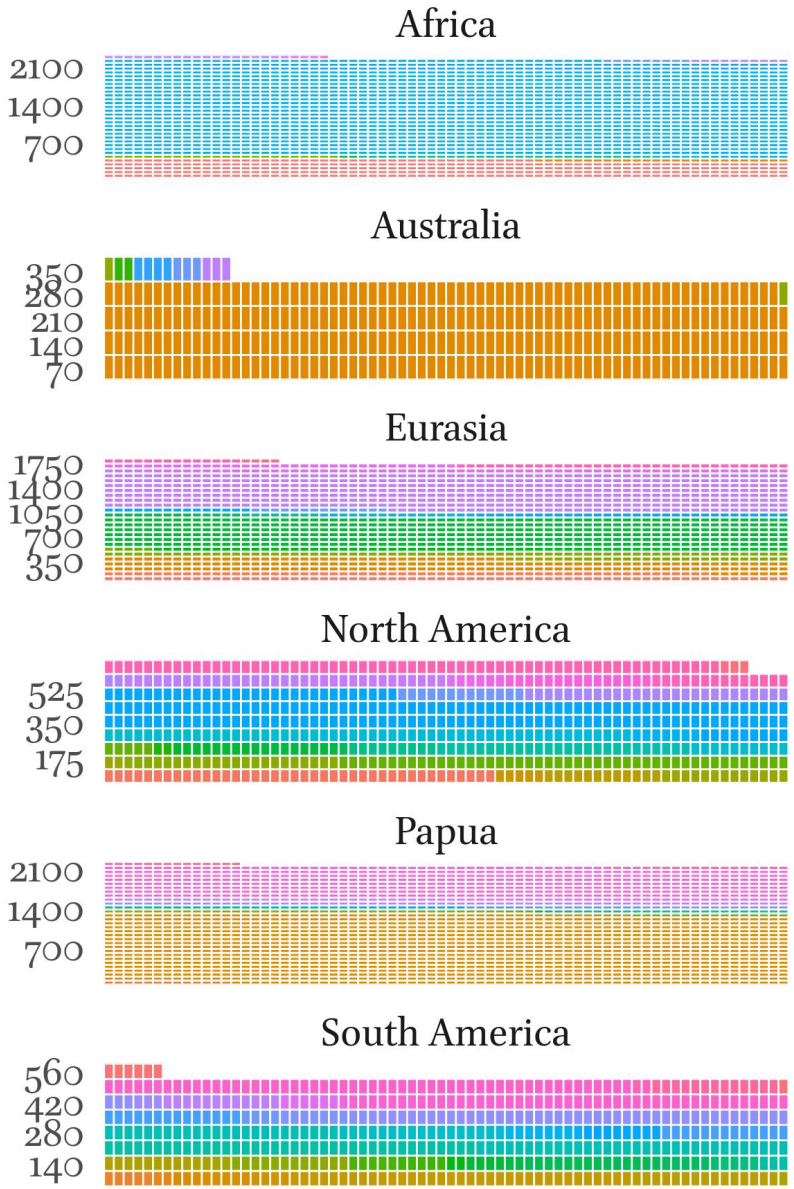

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⇒ So for creating statistically reasonable sample one need to get around 300 languages

I am not the first

- [Bell 1978] "Language Samples"
- [Dryer 1989] "Large Linguistic Areas and Language Sampling"
- [Perkins 1989] "Statistical Techniques for Determining Language Sample Size"
- [Nichols 1992] "Linguistic Diversity in Space and Time"
- [Rietveld and Van Hout 1993] "Statistical Techniques for the Study of Language and Language Behaviour"
- [Rijkhoff and Bakker 1998] "Language sampling"
- [Maslova 2000] "A dynamic approach to the verification of distributional universals"
- [Widmann 2001] "Language Sampling for Typological Studies"
- [Janssen et al. 2006] "Randomization Tests in Language Typology"
- [Baker 2010] "Language Sampling"

What about phonology?

It is possible to use phonological units or relation of any phonological theory you like:

- features, feet, syllables, etc.
- feature constituents, OT constraints, exemplars, phonological alternations
- phonological distinctions (e. g. /i/ vs. /ɨ/)
- ...

Send me a letter!
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