CIFellows 2020-2021

Computing Innovation Fellows

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Data-driven Evaluation for Crosslinguistic Low-resource Natural Language Processing

Common model evaluation methods

- focus on largely Indo-European languages
- attend to mostly monolingual settings
- tend to rely on scenarios with large amounts of data
- assume the one data set at hand is ***representative*** of population distribution

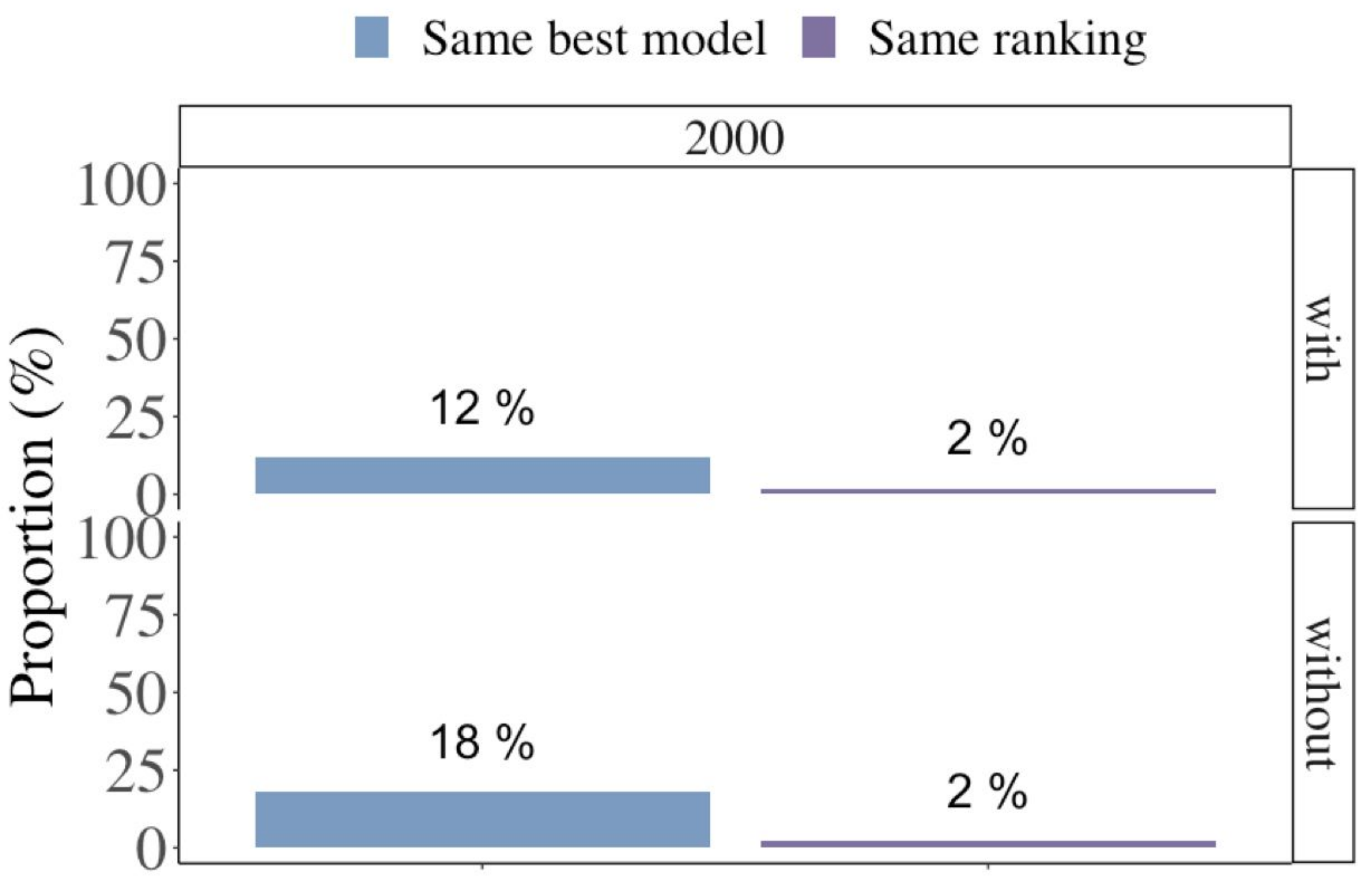
Low-resource settings / Truly low-resource Languages (e.g., endangered languages)

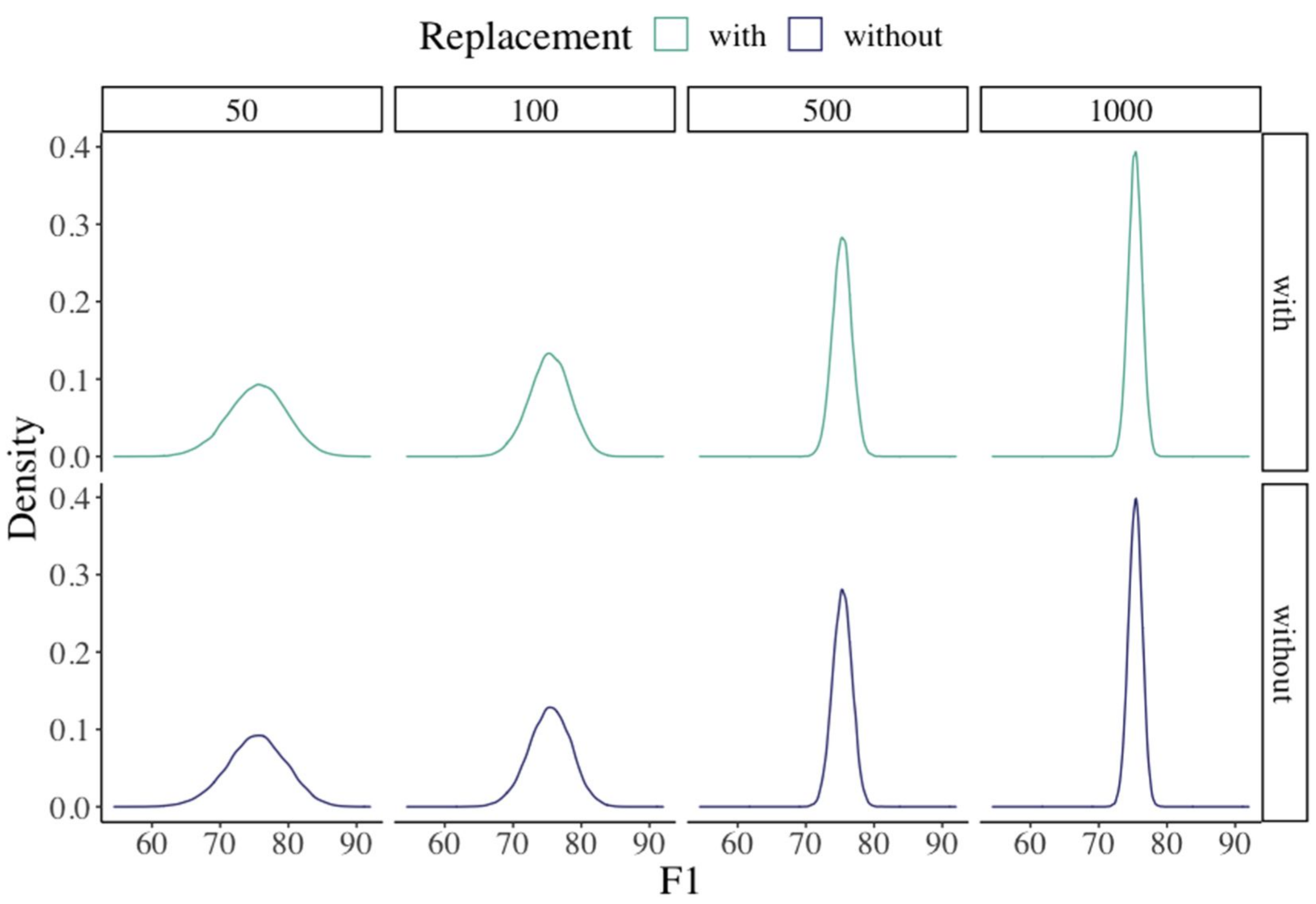
- have only limited data

Therefore assumption about data set representativeness is less likely to hold

Do models generalize to new data sets?

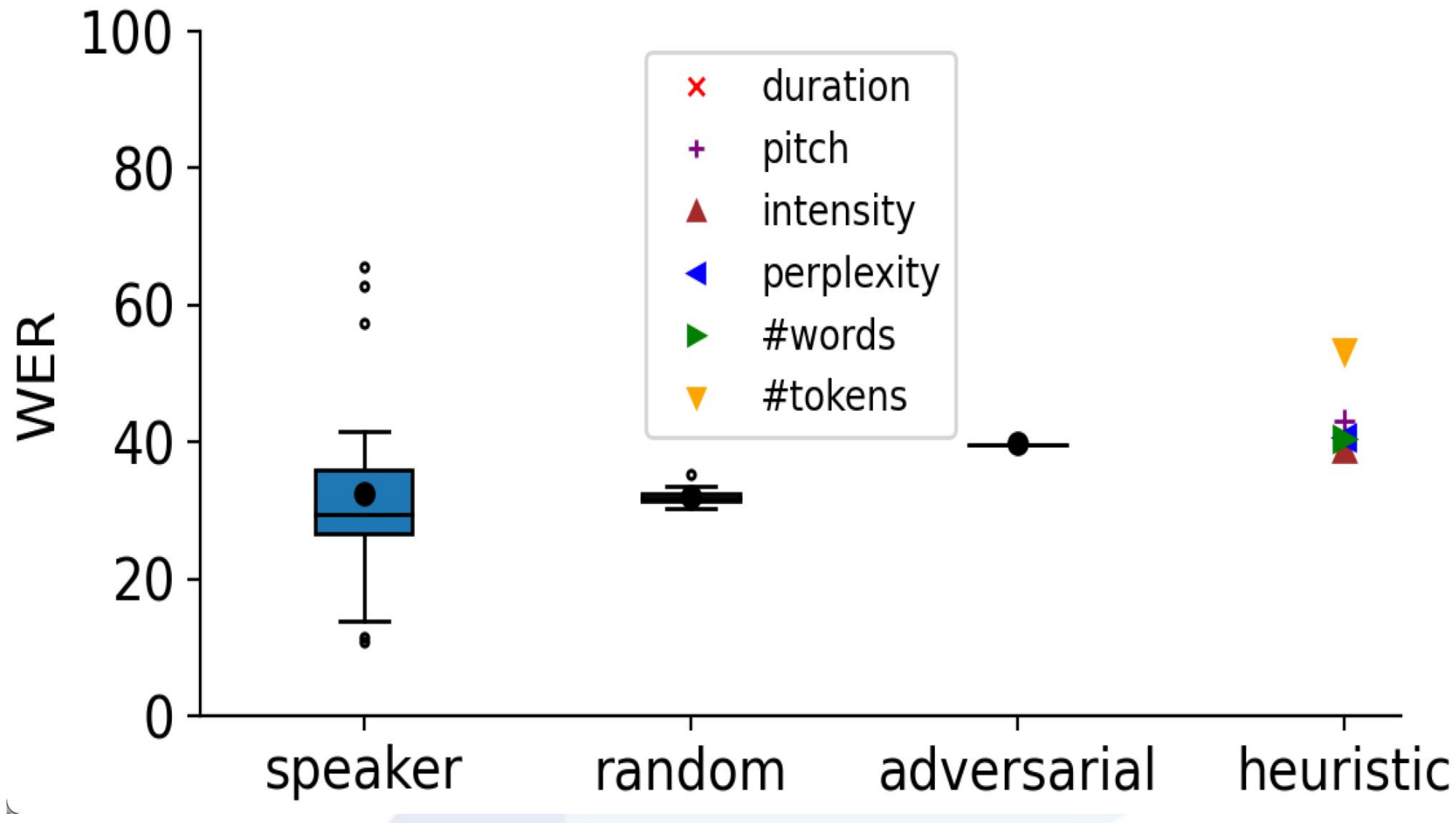
- morphological segmentation as test case
- new randomly sampled data sets of the same size
- new test sets of different sizes
- Models generalize poorly in both augmented low-resource settings and indigenous Mexican languages





How *standard* is standard evaluation?

- automatic speech recognition as test case
- Commonly evaluate models via one pre-defined set of speakers, without cross-validation across speakers
- High variability in acoustic models across speakers for low-resource settings
- For endangered languages, held-out speaker might not be applicable because there is only one speaker in the data



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