Constructing a Lexical Resource of Russian Derivational Morphology

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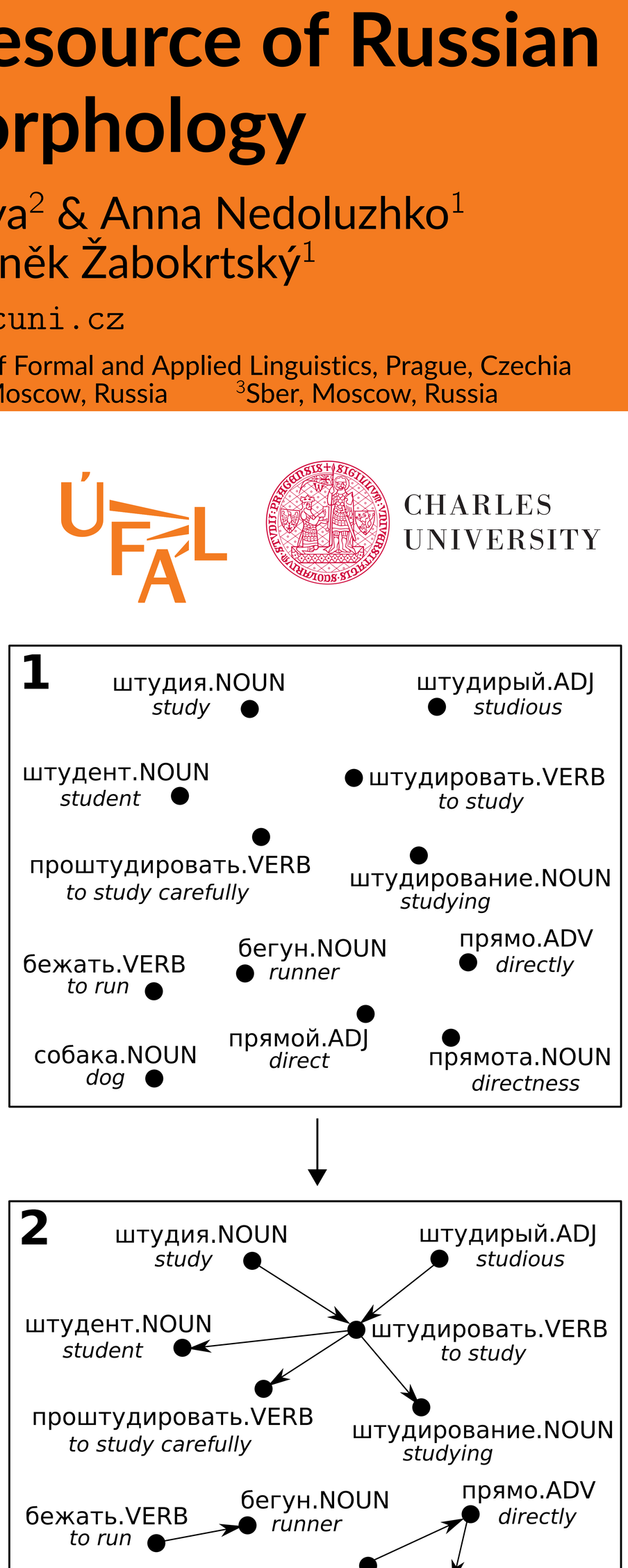
Summary

- The verb *exempl-ify* and the noun *example-s* are both based on the word *example*, but the verb is derived, while the noun is inflected. Russian has both of these morphological processes very rich, but there are only a few language resources that capture derivations.
- We improve the existing techniques and create the **largest resource of Russian derivational morphology** dubbed *DeriNet.RU*.
- The resource represents derivations as binary relations, and thus models derivationally-related words in rooted trees like other *DeriNets* (CS, ES, FA) and *Universal Derivations*. It is **freely available**.

How did we create *DeriNet.RU*? In three steps.

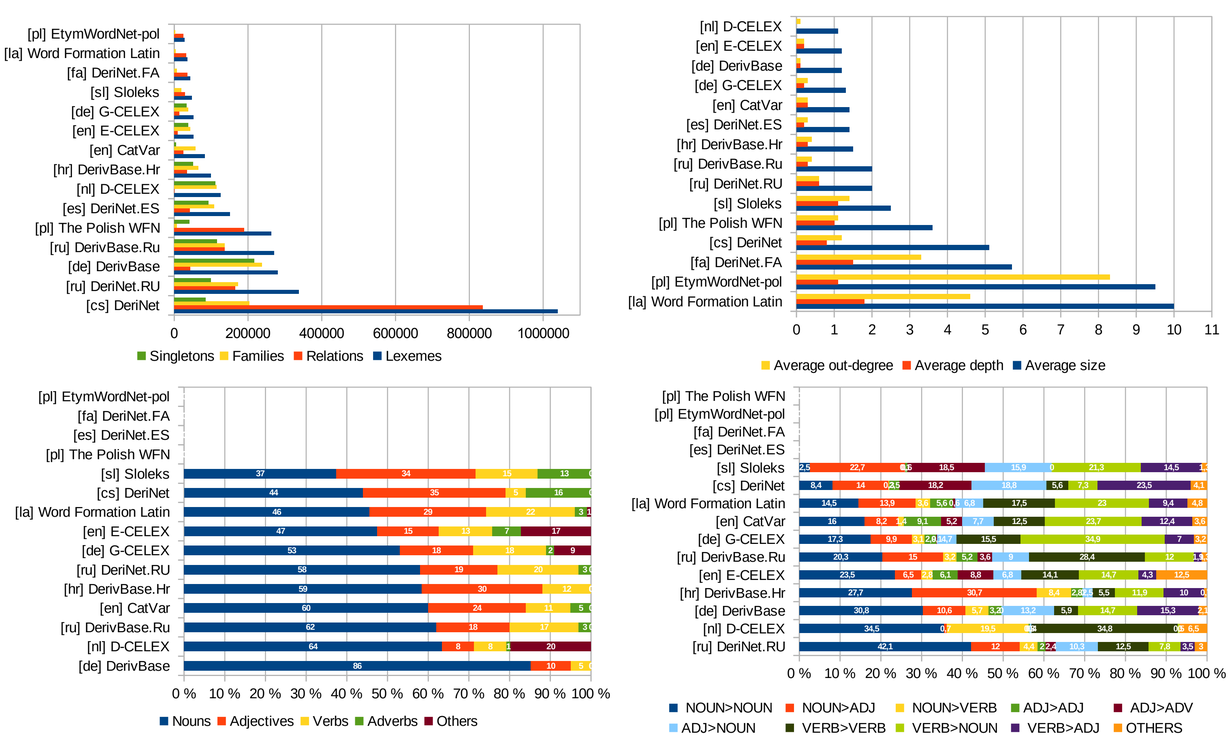
1. Corpus-attested nouns, adjectives, verbs, and adverbs were extracted from Araneum Russicum Corpus Maius.
2. Derivational rules extracted from grammar books were applied to lexemes, organising related lexemes into families. For example:
   - rule887(y + adj + ить → verb), e.g.,
     простой '*prostoj*' (*simple*) → упростить '*uprostit*' (*to simplify*).
3. A machine-learning scorer of relations and Maximum Spanning Tree algorithm restructured families into rooted trees.



Results & Future Work

- Our construction achieved **62.9% accuracy** (baseline 52.6%, maximum oracle score 87.3%); measured on a new data set of manual, parallel annotations by two Russian native speakers.
- *DeriNet.RU* includes more than **300 thousand lexemes** connected with more than **164 thousand derivational relations**.
- It is freely available under **CC BY-NC-SA 4.0**; it was **incorporated into *Universal Derivations*** as one of the largest resources.

Figure: Quantitative comparison between *DeriNet.RU* and the 15 largest resources from the *Universal Derivations* collection.



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