Derivational paradigms: Rules, patterns or neural networks?

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Paradigms play a major role in inflectional morphology and there is much research on the topic; even whole theories of morphology are built on the notion of paradigm, e.g. Paradigm Function Morphology (Stump 2001), Word and Paradigm Morphology (Blevins 2016). In recent years, linguists have transferred the notion of paradigm from inflection to word-formation, the goal being to use the achievements of the research on inflectional morphology for explanation of the organization of derivational morphology (overview of research on the topic in Bonami & Strnadová 2018).

In inflectional morphology, the term paradigm has been used in two senses:

1) All inflectional forms of a lexeme;

2) All lexemes with the same inflection, that is, an inflection class.

In this paper, we analyze derivational paradigms similar to inflection classes, i.e. starting from nouns for animals, we examine the following derivational families: diminutives of animals, nouns for young animals, and diminutives of young animals. Our data cover all three subgroups of the Slavic family. Our goals are:

- to provide clear evidence for the existence of derivational paradigms (we examine closely related derivational paradigms, some of which have their origin in inflection, e.g. young animals constituted an inflection class, **nt*-stems, in Proto-Slavic);
- to contribute to the better understanding of the nature of derivational paradigms, including instances of syncretism and paradigmatic gaps.

We collected large sets of nouns for animals from a number of Slavic languages as well as the respective nouns for diminutives of animals, young animals and diminutives of young animals, sample in (1). To make the data comparable and easily analyzable, we ordered all examples in all languages paradigmatically (word-formation paradigms).

(1)	'stork'	DIM	young X	DIM of young X
Bg.	*štărkel*	*štărkel-če*	*štărkel-če*	*štărkel-č-ence*
Cz.	*čáp*	*čáp-ek*	*čáp-ě*	*čáp-átko*
R.	*aist*	*aist-ik*	*aist-enok*	*aist-enoč-ek*
Sl.	*bocian*	*bocian-ik*	*bocian-ča*	*bocian-č-atko*
U.	*leleka*	*leleč-ka*	*leleč-en'a*	*leleč-en'-atko*

To uncover the nature of derivational paradigms, we also ran three psycholinguistic experiments with three groups of native speakers of Slovak. The first group had to produce only nouns for young animals, the second group only diminutive nouns and the third group had to write both, nouns for young animals and diminutive nouns.

In Slavic languages, esp. in the paradigms that we examined, derivation and inflection intertwine diachronically (young animals constituted an inflection class of their own in Proto-Slavic) and synchronically (when native speakers have doubts about a derivational form, they tend to replace it with an inflectional one, e.g. in Slovak: *slôň-a* 'baby elephant', *leopard'-a* 'baby leopard', etc. instead of the correct forms *slon-íč-a*, *leopard-íč-a*). Depending on the task, one and the same derivational paradigm in the same language seems to be processed differently by native speakers.

While the derivational paradigms we analyze contrastively are nice examples of rule and pattern morphology, the results of our psycholinguistic experiments are hard to capture in terms of "fixed" patterns and rules. However, they are easily explicable if seen as "flexible" language processing based on a neural network.

References

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