# DEFINING PARADIGMS IN WORD FORMATION: CONCEPTS, DATA AND EXPERIMENTS

NABIL HATHOUT          FIAMMETTA NAMER

## 1. CONTEXT[1]

In the wake of the word-based models, specifically in connection with the word and paradigm approach introduced by Blevins (2016), the paradigmatic approach is gaining a growing support in the field of Word Formation (WF), essentially derivation but also compounding. More and more work refers to this approach since Van Marle 1985, and among them Stump 1991, Bochner 1993, Bauer 1997, Štekauer 2014. Paradigmatic WF is an alternative to the generative models in morphology and to binary and oriented rules. Paradigmatic models involve derivational relations that are not limited to base-derivative pairs and that may be oriented both ways or have an unspecified direction (Jackendoff 1975). Morphological paradigms are usually considered as interconnected by more or less complex networks of words, reflecting the patterns of the many relations that each word has with the others. These networks cluster into derivational families on one dimension and pile up and form analogies on the other. Paradigm-based approaches to WF are characterized by several distinctive properties, among which: the need for a strong meaning/form correlation, the peculiar nature of the paradigmatic

regularities, which (re)defines canonicity in WF, and the importance taken by derivational families and the fundamental question of their identity and their limits (unlike lexemes, families are open sets).


## 2. OVERVIEW OF THE VOLUME

This special issue, dedicated to the paradigmatic dimension of WF, follows the *ParadigMo* ("Paradigmatic Word Formation Modeling") workshop[2]. The papers gathered in this volume aim to provide empirical, theoretical or experimental answers to ongoing investigations about paradigms in WF. The arguments in the various articles are based on examples in French, Modern Hebrew, Italian, and Portuguese. The paradigmatic dimension of the data is examined empirically through large-scale corpus-based analyses, psychological experiments, and statistical and computational models.

The special issue consists of three parts: in the first B. Fradin, then O. Bonami & D. Paperno discuss the theoretical questioning of inflection/derivation relationships in terms of paradigms; the second part includes the papers of G. Schalchli & G. Boyé, M. Huguin, L. Laks and J. Radimský which present paradigmatic analysis of different cases; finally, three experimental articles, those of A. Soares Rodrigues & P.J. Rodrigues, of S. Piccinin *et al.* and of M. Ferro *et al.* address the psycholinguistic validity of the paradigmatic organization of the lexicon.

**Fradin** provides an answer to the central question of the thematic issue: how to define derivational paradigms? He starts from the fundamental notions of morphological families and derivational series and adopts a relational conception of series. He then compares the properties that structure inflectional and derivational paradigms. His main argument is that series do not play the same role in the two types of paradigms. In inflection, paradigms are defined by the morphosyntactic properties of words, while in derivation, the position of a lexeme in a paradigm is defined by the series in which it participates.

**Bonami & Paperno** address the question of the difference between inflection and derivation in terms of stability of semantic contrasts in inflectional and derivational paradigms. They empirically confirm the common intuition that inflection is more regular than derivation, a hypothesis that so far has received only partial confirmations at best. The method they describe uses distributional semantics tools and is applied on French data.

---

[2] ParadigMo took place in Toulouse (France) on the 19th and 20th June 2017 (http://w3.erss.univ-tlse2.fr/ParadigMo2017/).

In their paper, **Schalchli & Boyé** provide a paradigmatic analysis of the families formed by the names of countries, of languages, ethnics and their relational adjectives. These families present a systematic syncretism. The article makes several important contributions, the main one being the notion of lexome which transposes to derivational families what morphomes are to lexemes. Another contribution that places this study at the centre of current debates on derivational paradigms is the clear separation between the formal and morphological levels and the existence of independent structures at these two levels.

**Huguin** is interested in the paradigmatic organization of derivatives formed by proper names designating public figures, and in particular names of French politicians. Based on a large body of written texts, she shows that the deanthroponyms based on politicians' proper names form derivational families with many form-meaning discrepancies: affix competition, lexical gaps, polysemy and suppletion.

**Laks's** article deals with the inter-paradigmatic co-dependence between inflection and derivation in Modern Hebrew. By adopting a word-based approach to templatic morphology, he demonstrates how cooperation and competition between inflectional and derivational paradigms explain the case of lexical gaps in Hebrew passivization. Under certain conditions, a missing passive verb form is compensated by a morphological form coined in another pattern (and therefore using another lexeme).

**Radimský** focuses on attributive NN compounds in Italian and French. The starting point of the study is the observation that the plural forms of these compounds tend to be formed by two plural nouns in Italian while in French, only the head bears a plural mark, the attributive noun tending to be invariable. His analysis is that this variation results from the possibility of glossing the plural compounds by copulatives propositions where the attributive noun is either singular or plural and that Italian prefers the first option while French prefers the second.

The **Rodrigues & Rodrigues'** paper undertakes the study of affix rivalry and polysemy in Portuguese with an experimental approach of lexical decision task with priming. It defines the notion of cross-paradigm (which can be viewed as the intersection between an affix-driven derivational series and a semantically-governed, or process-organized, paradigm), and experimentally proves its relevance in the mental lexicon of native speakers of Portuguese: when they belong to a cross-paradigmatic organization, unattested possible words are classified as actual words more frequently, and with a shorter response time. The data of the experiment are event deverbal nouns, quantity denominal nouns and quality deajectival nouns.

A second paper presents the results of a psycholinguistic study on morphological processing, that of **Piccinin, Dal Maso & Giraudo**. As with

Rodrigues & Rodrigues, the question concerns cross-formation paradigms, namely the indirect relations in Italian involving a bound stem, e.g. *terrore* 'terror'/*terribile*. The issue addressed here is the role such paradigms play in the organization of the mental lexicon of L2 learners of Italian. The experiment outcome proves that the lack of transparent, segmentable and autonomous status for bound stems does not affect L1 processing mechanisms as predicted by the paradigmatic approaches, while for L2 speakers, truly morphological relationships might be impaired by formal opacity.

**Ferro, Marzi & Pirrelli**'s paper addresses the difficult question of the processing of the morphological paradigm elements and the frequency effects within families and series. The study is based on a discriminative learning model implemented by means of a recurrent neural network, namely a self-organizing time maps (TSOM) trained on sequences of symbols. The authors show that the behavior of the model is consistent with what is known about the frequency effects found in psycholinguistic experiments.

REFERENCES

Bauer, L. (1997). Derivational Paradigms. Yearbook of Morphology 1996. G. Booij and J. van Marle. Dordrecht, Kluwer**:** 243-256.

Blevins, J. P. (2016). Word and Paradigm Morphology. Oxford, Oxford University Press.

Bochner, H. (1993). Simplicity in generative morphology. Berlin / New York, Mouton de Gruyter.

Jackendoff, R. (1975). "Morphological and semantic regularities in the lexicon." Language **51**: 639-671.

Štekauer, P. (2014). Derivational Paradigms. The Oxford Handbook of Derivational Morphology. R. Lieber and P. Štekauer. Oxford, Oxford University Press**:** 354-369.

Stump, G. (1991). "A Paradigm-Based Theory of Morphosemantic Mismatches." Language **67**(4): 675-725.

van Marle, J. (1985). On the Paradigmatic Dimension of Morphological Creativity. Dordrecht, Foris Publications.

*Nabil Hathout*
UMR CLLE-ERSS (CNRS & Université Toulouse Jean-Jaurès)
France
email: `nabil.hathout@univ-tlse2.fr`

*Fiammetta Namer*
UMR ATILF (CNRS & Université de Lorraine)
France
email: `Fiammetta.namer@univ-lorraine.fr`

4