Predicting cells in word-formation paradigms – a case study

Petr Kos and Jana Kozubíková Šandová
University of South Bohemia in České Budějovice
Czech Republic

1 Introduction

Paradigmatic approaches to inflectional morphology can successfully predict the form of cells in inflectional paradigms (see Ackerman & Malouf, 2013). In derivation, Bonami and Strnadová (2018) have shown that the content of cells can also be predicted in derivational paradigms on the basis of paradigmatic systems. More broadly in word-formation, however, it is not clear what the abstract cells correspond to and how their content can be predicted especially in paradigms which do not seem to belong to any paradigmatic system. This paper aims to suggest how the cells in word-formation paradigms, not only in derivational paradigms, can be defined and their content predicted in a case study based on a complementary application of an onomasiological analysis of coining new naming units (Dokulil, 1962, 1986; Grzega, 2007; Štekauer, 1998) with a semasiological analysis of word-formation paradigms (Boyé & Schalchli, 2016; Bauer, 2017; Bonami & Strnadová, 2018; Fradin, 2018, amongst others). We thus follow the genesis of a new lexeme (onomasiological perspective) and show how the abstractions over the existing lexemes in the mental lexicon of the coiner (semasiological perspective) determine the final form of the new one.

The structuring of abstract cells in inflectional and word-formation paradigms is fundamentally different because it is based on different functional and communicational requirements. In inflection, the structuring of cells is basically dictated by the needs of syntax and highly abstract morphological categories: if a speaker needs to form an inflectional form, they have a specific lexeme as their starting point, and syntax requires that the lexeme should be realized in a form which corresponds to one specific cell in a paradigm in compliance with the necessary grammatical categories. The analysis of inflection is thus a purely linguistic matter. However, the situation in word-formation is different: a speaker needs to name an extra-linguistic reality for which they cannot find an adequate lexeme in their mental lexicon. This initiates the process of naming, the starting point of which is not purely linguistic and should therefore be described from an onomasiological perspective.

2 Structural and lexical meanings

The key to the paradigmatic description of word-formation is the mutual relationship between the lexical and structural meanings (cf. *novelist* whose structural meaning could be described as *someone who is somehow associated with novels*, the lexical meaning being *a person who writes novels professionally*). The identity and structure of cells in word-formation paradigms are given by the structural meanings, which are abstractions over the lexical meanings of the existing lexemes. The creation of lexical meanings, nevertheless, begins in the very process of naming by mapping a specific onomasiological structure on some of the possible structural meanings, which are more general. Consequently, the lexical meaning should not be understood as a secondary idiosyncratic shift of the structural meaning, but it is a direct reflection of the onomasiological structure. Moreover, the existing lexical meanings are a source from which the structural meaning is abstracted.

3 Onomasiological categories

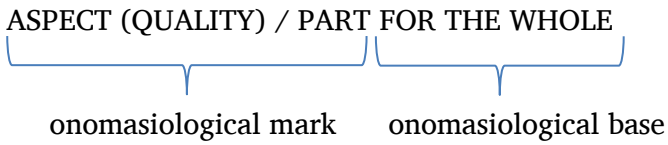
Dokulil (1962) distinguishes three different onomasiological categories, namely the modificational, the transpositional, and the mutational. Within the modificational onomasiological category the coiner merely adds a semantic feature to the existing lexical meaning of the word, e.g. the feature of diminutiveness or gender. Within the transpositional category, the creation of naming units is dictated by the needs of syntax. Within this category it is the phenomenal category, i.e. the word-class, that changes (e.g. *pale – paleness*, *to drink – drinking*, *nice – nicely*). The formation of naming units within these two onomasiological categories resembles inflection in that the existence of cells is given intra-linguistically and their form is highly predictable. However, within the mutational category, naming in the narrow sense, the existence of cells and their forms is not as clearly given.

4 Onomasiological process of naming

In the mutational category, the naming process starts with a concept to be named. The extra-linguistic referent is analysed and "both the more general, 'global' features and the more specific, 'local' features of a concept are processed" (Grzega 2005: 77).

The perception of salient features of the concept gives rise to an onomasiological structure. The local feature(s) become(s) an onomasiological mark and the global features become the onomasiological base. The local feature can either be static (a salient physical feature) or dynamic (an activity or relation to another entity), and in either case the local feature has a complex internal structure. This complexity of the local feature becomes reflected in the onomasiological structure which is the basis for the actual act of naming.

The onomasiological structure of the static local feature is



This, in fact, is double metonymy. The salient feature refers to one of the possible aspects of the referent – ASPECT FOR THE WHOLE, e.g. shape, colour, size, and at the same time this aspect refers to a part only or the referent as a whole - PART FOR THE WHOLE. The third part of this structure is the quality itself, e.g. what shape, what colour, or what size. So, for example, the onomasiological structure underlying the name redbreast is COLOUR (RED) / BREAST FOR THE BIRD.

The onomasiological structure of the dynamic local feature comprises, based on Dokulil (1962) and Štekauer (1998), is

The determining constituent is an entity in a metonymical relation to the referent, and the determined constituent (a verb) expresses the type of the relation (an onomasiological connective) or an activity. For example, the underlying onomasiological structure for *bee-eater* is BEE / EAT FOR THE BIRD.

When searching for a linguistic form of this structure, the coiner first linguistically expresses the most salient member(s) of the structure, the initial salient expression. For the future morphological form of the newly coined naming unit it is decisive which part of the structure is expressed and which word-class the initial salient expression belongs to. For instance, the same colour may be expressed literally by an adjective (*black*) or metaphorically by a noun (e.g. *devil* or *soot*).

5 The role of paradigms in the onomasiological process

For this initial linguistic expression, the coiner searches for a suitable structural meaning – referred to as 'word-formation cell' – by scanning the available structural meanings, which are abstractions over the existing lexicon and its paradigms (semasiological perspective). The onomasiological structure, however, does not match one ideal cell in a paradigm, as in inflection, but the coiner has a range of choices from a number of cells in different word-formation paradigms. The table below shows an example of the possible structural meanings and its paradigms for a static onomasiological structure expressing colour of an organism:

Onomasiological structure (static):	**COLOR / PART / ORGANISM**		
Structural meaning:	B has the colour	B has the colour like N	B whose part has the colour
Paradigms:	*white agaric*	*devil*	*black cap*
(an example for each)		*cornflower boletus*	*orange-cap boletus*
		snowy inkcap	*yellow-stemmed mycena*
		clouded agaric	
		brick-colored galera	

The second table shows an example of the possible structural meanings and its paradigms for a dynamic onomasiological structure based on sound produced by an organism:

Onomasiological structure (dynamic):	**SOUND / PRODUCE / ORGANISM**		
Structural meaning:	B producing sound	B whose sound is like N's	B whose sound is imitated
Paradigms:	*screech*	*lamb*	*whew*
(an example for each)	*screecher*	*reeler*	*whewer*
	whistling duck	*cat gull*	*jar bird*
	shriek owl	*bell ringer*	

The choice of the structural meaning is determined by the choice of the initial salient expression, and for the choice of the paradigm, in our conception, it is its size in the mental lexicon of the coiner that plays the decisive role.

6 A case study

Bonami and Strnadová (2018) based the predictability of the form of cells in derivational paradigms on the analysis of paradigmatic systems they enter. However, the paradigms employed in naming natural organisms do not seem to belong to any paradigmatic system, so we assume that the form of the cell can be predicted, as stated above, from the frequency of the occurrence of the given paradigm in the mental lexicon of the coiner. As the mental lexicon varies in people with different experience, we chose synchronically transparent English names for mushrooms coined by mycologists and names for birds coined by the common folk. From these we selected those that are motivated by one salient feature only.

In these names we identify all the possible structural meanings that express the same onomasiological structures, namely those for colour (static feature) and sound and food (dynamic features), the former within the names for both mushrooms and birds, and the latter two within the names for birds only, and then calculate the frequency of the occurrence of these structural meanings and corresponding paradigms within the corpus. The corpus comprises approximately 1,000 names for mushrooms and 1,000 names for birds.

The results show that the structural meanings, i.e. the cells, deriving from "literal" initial salient expressions, e.g. colour expressed by a colour adjective or sound by onomatopoeia, are more frequent than those expressed by a metaphor (i.e. the noun). Also, in all structural meanings deriving from the linguistic salient expression realised by a noun, the most frequently occurring structure is N + N – in names motivated by colour being in competition with N-y + N, N-ed + N, N-colored + N structures and in names motivated by food being in competition with N + V-er (synthetic compound) structure.

We believe that in this way we are able to suggest the level of predictability of the form of the word-formation cell for the given ontological type of concepts and offer a model for measuring the predictability of word-formation cells in a language as a whole.

References

Ackerman, Farrell & Robert Malouf. 2013. Morphological organization: the low conditional entropy conjecture. *Language*, 89, 429–464.

Bauer, Laurie. 2017. *Notions of paradigm and their value in word-formation*. Paper presented at ParadigMo 2017, First Workshop on Paradigmatic Word Formation Modeling, Toulouse.

Bonami, Olivier & Jana Strnadová. 2018. Paradigm structure and predictability in derivational morphology. *Morphology*, Springer, 1 –31.

Boyé, Gilles & Gauvain Schalchli. 2016. The status of paradigms. In: A. Hippisley & G. Stump (Eds.), *The Cambridge handbook of morphology* (206–234). Cambridge: Cambridge University Press.

Dokulil, Miloš. 1962. *Tvoření slov v češtině 1, teorie odvozování slov*. Praha: ČSAV.

Dokulil, Miloš. 1986. III Tvoření slov. In: Petr, J. et al., *Mluvnice češtiny 1*. Praha: Academia.

Fradin, Bernard. 2018. Paradigms and the role of series in derivational morphology. *Lingue e linguaggio*, XVII. 2, Bologna: Mulino, 155-171.

Grzega, Joachim. 2005. Onomasiologial approach to word-formation. A comment on Pavol Štekauer: Onomasiological approach to word-formation. *SKASE Journal of Theoretical Linguistics* 2(2), 76–81.

Grzega, Joachim. 2007. Summary, Supplement and Index for Grzega, Bezeichnungswandel, 2004, *Onomasiology Online 8* < http://www1.ku-eichstaett.de/SLF/EngluVglSW/OnOn-Total.pdf >

Štekauer, Pavol. 1998. *An onomasiological theory of English word-formation*. Amsterdam: John Benjamins.