

Instantiating variables in schemas within Relational Morphology



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ABSTRACT

The article deals with the instantiation of variables in schemas within the Relational Morphology theory. On the basis of an approach to word-formation from concept to form, the article argues that for the question of what lexemes are retrieved from the lexicon to instantiate the variables in schemas in order to achieve the required meaning of the resulting word within the generative role of schemas, it is important to distinguish different functions of word-formation, namely those that provide mere variations on existing lexemes in contrast to the function of word-formation that provides names for concepts in the extra-linguistic world. In the first case, the variables in schemas are instantiated with lexemes on which we perform the variation, whereas, in the second case, the lexemes result from prior mental processing of the concept to be named. The paper thus also provides the description of the process of conceptualization within the naming function of word-formation and demonstrates the principles of conceptualization on various examples.

KEYWORDS

conceptualization, instantiation of variables, Relational Morphology, schemas, word-formation

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1 INTRODUCTION

Within the Relational Morphology theory (Jackendoff & Audring, 2020a, b), the lexicon comprises not only individual lexemes but also schemas. On the basis of the same-except principle, schemas express parallelism within a family of words that are the same in some respect, manifested as constants in the schema (e.g., a suffix), and different in others, manifested as variables. Schemas have two different roles, the relational and the generative. Within the relational role, schemas provide a structure to the lexicon, and within the generative role they provide templates for the formation of new lexemes (word-formation) or forms of lexemes (inflection). A new lexeme or a new form of a lexeme is formed by instantiating the schema's variable(s) with an existing lexeme retrieved from the lexicon.

On the main distinction between inflection and derivation, Booij states that derivation “is that kind of morphology that serves to create new lexemes, whereas inflection serves to create different forms of the same lexeme. Therefore, it is also said that derivation, unlike inflection, creates words for new concepts. However, one should realize that derivation has a secondary function in that it is also used to make stylistic variation possible” (Booij, 2000, p. 360).

Since the creation of both forms of lexemes and new lexemes falls under the generative role of schemas, the question arises of what determines which lexeme is



retrieved from the lexicon for the instantiation of a given schema in order to achieve the required meaning of a new word or the required form of an existing word, a question not dealt with within the Relational Morphology theory.

In inflection, the answer is unproblematic — since inflection creates different forms of a lexeme, the variable in an inflectional schema is instantiated with a lexeme whose form we aim to create. In word-formation, however, the answer is not as straightforward.

The aim of the present paper is thus to demonstrate that for the question of what lexemes instantiate the variables in schemas within word-formation, it is necessary to distinguish its two functions as stated by Booij in the quotation above — the function of making (stylistic) variation possible and the function of creating words for new concepts (i.e., naming). I aim to show that in the first function the situation is similar to that in inflection in that we instantiate the variables with lexemes on which we perform the variation; as for the second function, I aim to demonstrate that the selection of the lexeme results from previous mental processing of the concept to be named and is thus based on various choices that the coiner (consciously or unconsciously) makes during the naming process.

The second major objective of the paper is to describe how this mental processing, i.e., conceptualization, takes place within the naming function, in other words, what conceptual steps lead to the selection of the lexeme that subsequently instantiates the selected schema.

Also, if some derivatives resulting from the unification of the lexeme and the corresponding schema are fully semantically regular, while others demonstrate idiosyncratic meanings, other questions arise, namely what determines whether the resulting meaning will be regular or idiosyncratic and, if idiosyncratic, where the idiosyncratic parts of the meaning come from. Thus, the third, supplementary aim of the paper is to argue that the derivatives within the function of providing variation are fully compositional and semantically regular, unlike those within the naming function, in which the idiosyncratic meaning stands at the beginning of the whole naming process and is not a secondary addition to the regular one.

Section 2 provides a concise introduction to the approach to the genesis of words applied in this paper. As starting points for discussion, Section 3 suggests the distinction between the structural and lexical meanings of words and schemas, and Section 4 discusses different functions of word-formation. Section 5 describes the process of naming and explicates the principles of instantiating the variables in schemas within this approach. Finally, Section 6 provides sample analyses illustrating the process of naming.

2 APPROACH TO GENESIS OF WORDS

The approach to genesis of words applied in this paper is primarily based on two theories, Dokulil's onomasiological theory of word-formation (1962) and Jackendoff & Audring's Relational Morphology (2020a, b).



From Dokulil's theory, it draws inspiration in the basic framework of the formation of words from concept to form; a perspective that assumes that a word does not appear "out of the blue", but its formation arises from the speaker's need to name an existing concept in the extra-linguistic world. Word-formation is thus not a morphological process only as the genesis of a word starts with mental processing of the concept to be named, the result of which is paired with a model from the lexicon, be it an individual word or much more commonly a schema¹, in order to obtain the final form.

This is where Relational Morphology comes into play. Like in Dokulil's theory, within Relational Morphology the two roles of schemas, the relational² and the generative³, complement each other. They are complementary in that the structured lexicon is the necessary substrate for the production or re-production⁴ of lexemes, while the generative role enriches the lexicon with new lexemes as well as re-produces those that are regular but not frequent enough so that the lexicon need not store them. In this respect, the two theories are fully compatible.

While being compatible, the two theories also complement each other. Whereas the emphasis of Relational Morphology lies on the relational role of schemas, Dokulil sets the role of the structured lexicon into a broader context of the formation of words from concept to form, in which the structured lexicon provides templates for the production of lexemes and in which the assignment of form is preceded by mental processing of the concept to be named.

Nevertheless, questions related to the conceptualization of extra-linguistic reality were beyond the focus of linguistics of the time, so Dokulil merely presupposes such cognitive processes without elaborating on them in more detail, stating that "[an] act of forming a new word presupposes that a generalized reflection of reality in human consciousness (i.e., content) has been processed, organized and classified in a way that corresponds to the possibilities of expression, or more precisely the naming means, of a given language" (Dokulil, 1962, p. 29, my translation).

This part of the model is thus complemented from the perspective of Cognitive Linguistics, especially with works by George Lakoff (1987), Klaus-Uwe Panther, and Günter Radden (see, e.g., Panther & Thornburg, 2000, 2002; Radden & Panther, 2004).

3 STRUCTURAL AND LEXICAL MEANINGS

Jackendoff & Audring (2020a, p. 13) provide the structure of the word *piggish* (1) from the perspective of the Parallel Architecture (see Jackendoff, 2002), which links its phonological, morphosyntactic, and semantic features.

1 An approximate equivalent to Dokulil's *word-formation type*.

2 *Functionally structural aspect of word-formation* in Dokulil's terminology.

3 *Genetic aspect of word-formation* in Dokulil's terminology.

4 Dokulil (1986, p. 197) argues that the formation of truly new lexemes is a relatively rare phenomenon, a re-production of already existing lexemes being much more frequent.



- (1) Semantics: [LIKE (PIG); SLOPPY, GREEDY]₂
 Morphosyntax: [_A N₁ aff₃]₂
 Phonology: /pɪg₁ɪf₃/₂
 (Jackendoff & Audring, 2020a, p. 13)⁵

The semantic level of the word shows two types of meaning, the one which is connected with the meaning of the schema for *-ish* words, namely “LIKE (PIG)”, and also “SLOPPY, GREEDY”, which “are not connected with anything in the schema; these are the idiosyncratic parts of the word meanings” (Jackendoff & Audring, 2020a, p. 15).

In line with Dokulil (1962), we shall call these two types of meaning the structural meaning and the lexical meaning, respectively.

The structural meaning is motivated by the components of the word, i.e., in our case, the derivational base and the affix. It thus arises from the structure of the word and is a concrete realization of the structural meaning of the corresponding schema. So, for the word *piggish*, the structural meaning is motivated by *pig* and the suffix *-ish*, which is a concrete realization of the structural meaning of the corresponding schema (2).

- (2) Semantics: [LIKE (X_x)]_y
 Morphosyntax: [_A N_x aff₃]_y
 Phonology: /..._xɪf₃/_y
 (Jackendoff & Audring, 2020a, p. 15)

- (3) Semantics: PIG₁
 Syntax: N₁
 Phonology: /pɪg/₁
 (Jackendoff & Audring, 2020a, p. 10)

In relation to the semantic level of the word *pig* (3), Jackendoff & Audring (2020a, p. 9) state that “[a]s is customary, we use the notation PIG informally to stand for the meaning of *pig*, whatever that might be. [...W]e are committed to a rich semantics that is coterminous with human concepts”. In line with this approach to lexical semantics, the lexical meaning of a word is seen as an abstraction of a set of features of the corresponding concept in the mind of the speaker, thus in terms of Lakoff’s *Idealized Cognitive Model* (ICM). “ICMs are proposed as a way in which we organize knowledge, not as a direct reflection of an objective state of affairs in the world, but according to certain cognitive structuring principles. The models are *idealized*, in that they involve an abstraction, through perceptual and conceptual processes, from the complexities of the physical world” (Cienki, 2010, p. 176, emphasis in original). The lexical meaning encompasses both our knowledge of the concept a word represents and the network of associations we have with it.

The structural meaning is often (not always, as will be shown below) not as specific as the lexical meaning, as can be seen for the word *piggish*: “[...] *pig* plus the af-

⁵ For the purpose of the present paper, the index numbering has been modified in (1) and (2).

fix *-ish* together motivate the meaning ‘like a pig in some respect’ — but they don’t tell us in *what* respect, namely in sloppiness or greed. [...] These extra idiosyncratic bits of meaning do not have relational links to the schema, so they remain arbitrary” (Jackendoff & Audring, 2020a, p. 55–56, emphasis in original). The last sentence in the quotation above seems to imply that the structural meaning of a word is the core one and some “extra idiosyncratic bits” of meaning have been added to it in order to capture the overall lexical meaning of the word; in other words, that the lexical meaning is specified by the use of the word, so that it is a secondary idiosyncratic shift of the structural meaning. From the perspective of the genesis of the word, however, this is not the case.

In the genesis of a word, the concept’s ICM, the future lexical meaning of the resulting word, is the starting point of the process of naming, and its structural meaning arises from the unification of the result of conceptualization with a selected schema. Therefore, the structural meaning depends both on the way we mentally process the concept and on what schema we select for its linguistic coding. Consequently, the same concept may be conceptualized in different ways, or the same conceptualization may be paired with a different schema, which leads to different forms with different structural meanings sharing the same lexical meaning (synonymy). Alternatively, different concepts may be separately mentally processed in such ways that they lead to the same resulting conceptualization and are paired with the same schema, which leads to two lexemes sharing the same form and structural meaning but with different lexical meanings (polysemy). For further illustration, see Sections 6.1 and 6.2.

As becomes apparent from (1), (2), and (3), unmotivated words, such as (3), have the lexical meaning only, schemas, such as (2), have the structural meaning only, and morphologically or otherwise motivated words, such as (1), have both the structural and lexical meanings. The only difference between the structural meaning of a schema and that of a motivated word is that the semantic level of a schema contains variables whereas the semantic level of a motivated word has the variables instantiated.

It may just be added that this distinction of the two types of meaning in complex words is not unique to Dokulil, as it is also Langacker (1999) who makes this distinction, terming the structural meaning as *compositional meaning* and the lexical meaning as *conventional linguistic meaning* (see Langacker, 1999, p. 63).

4 FUNCTIONS OF WORD-FORMATION

As stated above, Booij (2000, p. 360) distinguishes two different functions of derivation, one that makes stylistic variation possible and one that provides words for new concepts. Nevertheless, variation on existing lexemes is not confined to providing alternative syntactic patterns but may also arise from some pragmatic aspects. We may thus distinguish three basic functions of word-formation, one that enables syntactic variation, one that enables pragmatic variation, and one that provides new names for (new) concepts.





A typical representative of word-formation that enables syntactic variation is nominalization, such as the transposition of verbs to nouns, where the noun has the meaning of action or process. Consider the pair of examples in (4):

- (4) (a) *After she settled in Madrid, ...*
 (b) *After her settlement in Madrid, ...*

The derivation of the verb *settle* in (4a) to the noun *settlement* in (4b) leads to a change of a word-class without any concomitant change of meaning. Both the verb and the nominalized noun express the same concept; what changes is the phenomenal category, i.e., the word-class only. In Dokulil's words, who sees such nominalizations as part of his transpositional onomasiological category: "Action viewed through the prism of substance still remains to be action, what has changed is its conception — it is not understood as a mark of something else but as a phenomenon of its own" (Dokulil, 1982, p. 258–259, my translation). This view is shared by ten Hacken, who defines transposition as "a process that changes the syntactic category of a word, does not change its semantic category, and does not modify, add or delete any semantic features" (ten Hacken, 2015, p. 196).

Nominalization thus enables the expression of the concept expressed by the verb in an alternative syntactic pattern. So, during the process of generation of such lexemes, the variables in the corresponding schemas are instantiated with lexemes on which we perform the variation. The derivative is fully semantically compositional as its lexical meaning is a compositional function of the lexical meaning of the verb and the structural meaning of the corresponding schema. The lexical and structural meanings of the derivative thus fully overlap.

The second type of variation is pragmatically driven. This is the case of diminutives and augmentatives with purely evaluative meaning. This includes the subjective evaluation of size as in the Italian diminutive *librino* 'small book' derived from *libro* 'book', endearment as in *maritino* 'dear husband' from *marito* 'husband' as well as contempt as in *dottorino* 'untrustworthy doctor' from *dottore* 'doctor'.⁶ The denotational meanings of both the derivational base and the derivative remain the same as they refer to the same concept (both *libro* and *librino* may refer to an identical book, *marito* and *maritino* to an identical husband, etc.); what is added in the derivative is the subjective evaluation of the referent in question by which the speaker aims to achieve some pragmatic effect. In such derivatives, the structural and lexical meanings fully overlap, i.e., they exhibit full compositionality, and their pragmatic effect is specified on a given occasion giving it its *full contextual value*, in Langacker's (1999, p. 63) terms. Within this function of word-formation that leads to pragmatically-driven variation, both the derivational base instantiating the variable and the resulting derivative express the same concept, so during the process of generation of such lexemes the variables in the corresponding schemas are instantiated with lexemes on which we carry out the variation.

6 Examples taken from Grandi & Körtvélyessy (2015, p. 5).



The third function of word-formation is concept naming. I aim to demonstrate that unlike in the first two functions, the selection of the lexemes instantiating the variables in schemas is not so straightforward as it is always preceded by mental processing of the concept to be named, in which only part of the named concept's ICM is selected to represent the whole concept in the name. As a result, while the functions of word-formation providing mere variations on existing lexemes produce fully semantically regular and transparent lexemes as their structural and lexical meanings fully overlap thus being fully compositional, the naming function leads to partial compositionality only as the structural meaning of the resulting lexeme expresses only a section of the lexical meaning.⁷

However, in order to be able to claim this, we need to separate the function of schemas from their form; in other words, we need to allow a form, i.e., a schema, to have more word-formation functions. I thus argue that schemas that primarily have the first two functions may also be made use of for the naming one or vice versa. This is the reason why nominalization schemas may be used to name concepts with the result of having an idiosyncratic meaning, such as *settlement* as a synonymous term for hamlets, villages, and towns. The relation between the named concept (i.e., a place) and the activity (i.e., to settle) is non-contingent (conceptually not necessary) since the named concept may be motivated by a different aspect than the activity. So, the selection of the activity as the motivation for naming the concept A PLACE WHERE PEOPLE HAVE COME TO LIVE AND MAKE THEIR HOMES is one of more possibilities that we have; in other words, the selection of the lexeme *settle* to instantiate the variable in the nominalization schema results from some previous mental processing. The derivative *settlement* (place) is not a mere variation on the derivational base *settle*, unlike in the action meaning of *settlement*.

Similarly, concept naming can also make use of primarily evaluative schemas. This is in line with ten Hacken, who argues that “the diminutive in Dutch is used in many cases to name a new concept. The special meaning cannot be accounted for as the result of lexicalization with subsequent specialization because the required regular meaning does not exist. Thus, a train ticket can be called *kaartje*, but there is no corresponding meaning of *kaart* (‘map, card’)” (ten Hacken, 2015, p. 200). Thus, for naming the concept TRAIN TICKET in Dutch, a primarily evaluative schema was selected, and its variable was instantiated with a lexeme resulting from a previous mental processing of the concept.

The same applies to other instances of formal diminutiveness even where the purely evaluative use is conceivable, but the derivatives express a different concept than that of the derivational base, as in the Russian *ručka* ‘ballpoint pen,’ or ‘(door) handle’ (lit. ‘hand-DIM’) and the Dutch *telefoontje* ‘phone call’ (lit. ‘telephone-DIM’).⁸

7 On the example of *blender*, Langacker (1999, p. 62) demonstrates that derivatives are only partially compositional. Since *blender* is an instance of a term for a concept, his conclusion corresponds to the one taken in this paper. Langacker’s (1999) conclusion, however, does not take into account derivatives enabling variation on existing lexemes.

8 Examples taken from Jackendoff and Audring (2020a, p. 35).



For instance, in *ručka* both BALLPOINT PEN and DOOR HANDLE are viewed through the conceptually related HAND (as something held by hand), whose corresponding lexeme thus instantiates the variable in the schema used. From this it follows that the lexical meaning of the resulting derivatives is not a compositional function of the meaning of its morphological constituents (cf. Booij, 2000, p. 364), as the structural and lexical meanings of the derivatives do not overlap. In addition, as has been suggested above, the two lexical meanings of *ručka* are not different idiosyncratic secondary shifts of the shared structural meaning, but they are results of two separate conceptualizations linguistically coded by the same schema, which have led to the same form.

5 THE PROCESS OF NAMING

Since it is only the concept-naming function of word-formation that provides names for (new) concepts, the present section will focus on this role only and will deal with the process of naming from concept to form.

The underlying assumption for the approach to word-formation from concept to form is that the existence of a concept is a necessary precondition for the formation of a word; thus, the genesis of a word is a naming process, at the end of which is a resulting linguistic form.

The basic framework of the model is inspired by Dokulil (1962) in that at the beginning there is a need of a speaker to name a (new) concept, and the concept undergoes conceptualization in the speaker's mind, the result of which is paired with an existing model retrieved from the lexicon. As stated in Section 2, the conceptualization part of the naming process is not further developed in Dokulil's theory, so its current design is a proposal that results from the implementation of works within the Cognitive Linguistics paradigm.

The justification for the individual steps of the naming process is based on the observation that:

- a) different names for an identical concept may exhibit varied categories the concept was assigned to; from this it follows that categorization is subject to selection by the coiner,
- b) different names for an identical concept may exhibit a variety of motivations; from this it follows that the conceptualization process necessarily includes a selection of motivating features for naming,
- c) identical motivating features may be represented in the resulting names by different, although related, concepts; from this it follows that metonymy and metaphor may be instrumental within the process of conceptualization,
- d) an identical motivation for an identical concept may appear in different morphological patterns; from this it follows that the resulting conceptualization is independently paired with a morphological model, which may be selected from a choice of possibilities.

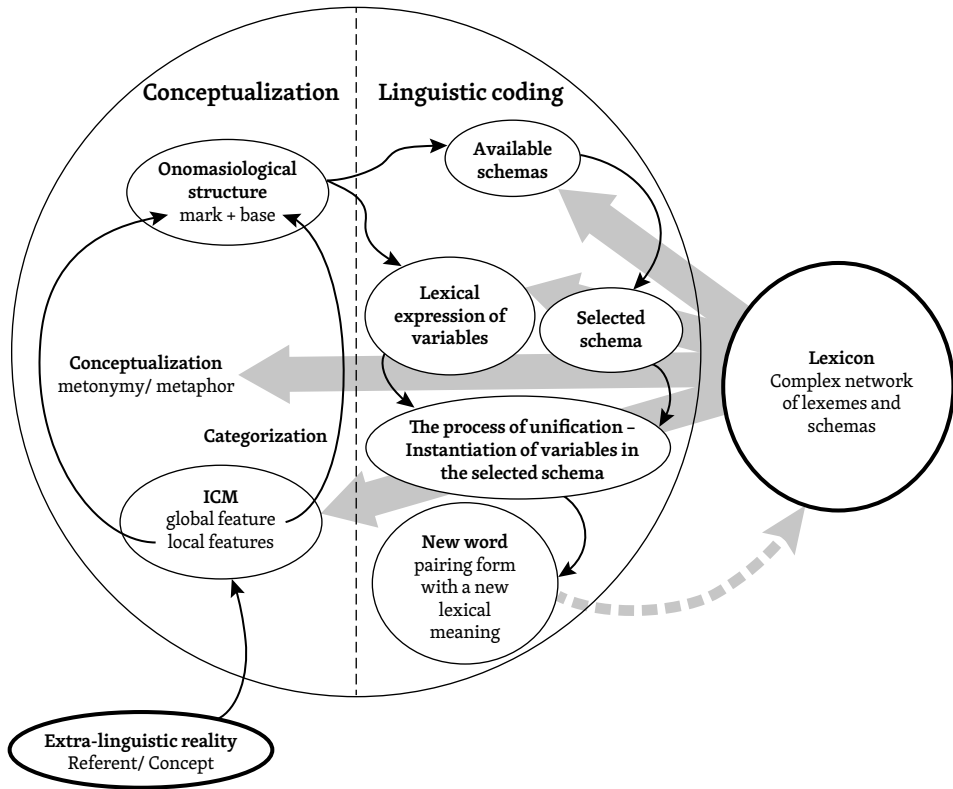


FIGURE 1. The Process of Naming

The process of naming schematically illustrated in Figure 1 comprises two major stages, that of conceptualization and that of linguistic coding, and the whole process occurs on the background of the lexicon, as suggested by the grey arrows.

Lexicon comprises a structured complex network of fully specified lexemes and schemas abstracted from them. It is the relational role of schemas that is instrumental in providing structure to the lexicon since they “express the commonalities among items listed in the lexicon” (Jackendoff & Audring, 2020a, p. 37).

The central function of the linguistic coding stage is the unification of the selected schema with the selected lexeme(s) instantiating its variables as “schemas plus unification can play the role usually assigned to procedural rules, namely building novel structures from stored parts. As Shieber (1986, p. 23) puts it, ‘this systematic relationship between static identity and dynamic unification...allows a declarative formalism to have a procedural interpretation’” (Jackendoff & Audring, 2020a, p. 30). In other words, this part of the process is related to the generative function of schemas.

However, this linguistic coding stage of the process is preceded by mental processing of the concept to be named. It is the result of the conceptualization that is instrumental in the selection of both a schema and the lexeme(s) instantiating its variables.



The naming process starts with the perception and/or conceptualization of the extra-linguistic reality. Its salient features are abstracted in the concept's ICM (see Lakoff, 1987). Following Grzegą (2007, p. 6), two types of features in a concept's ICM are distinguished, namely global features and local features. Global features are those that the concept shares with other members of an already existing category, which leads to assigning the named concept to the selected category. The category may vary in specificity according to the experience of the speaker with the extra-linguistic world, i.e., where a layperson may see a type of TREE, a specialist may see a type of LINDEN. The most general category into which a concept may be classified is that of the basic cognitive category, i.e., for the word class of nouns, for instance, it is the category of THING (see Langacker, 1987/1991) or for verbs, it is the category ACTION.

Local features are parts of the concept's ICM that distinguish the named concept from other members of the selected category. For the sake of economy, one or more local features only are selected for the naming purposes thus metonymically representing the whole ICM, leaving the rest of the ICM unexpressed. This corresponds to Radden & Panther's description of motivation in naming illustrated by means of the concept SCREWDRIVER. They conclude that

“(...) the following conceptual steps can be identified in the motivational process. First, there is the tool screwdriver that has to be named. This tool is associated with a complex ICM (source), which provides the basis for naming the thing (target). Second, guided by language-independent factors such as salience, economy, and metonymy, only certain components of the complex ICM get selected and named by a given speech community. The coding of these salient parts is sufficient to evoke the whole ICM by means of a PART FOR WHOLE metonymy.” (Radden & Panther, 2004, p. 8).

As stated in the quotation, which feature is selected arises mostly from its salience, i.e., we select a feature that most clearly distinguishes the named concept from other members of the selected category. Other factors that may have an impact on the selection are some general conventions, i.e., we tend to conceptualize human occupations, such as *teacher*, on the basis of their purpose (see Panther & Thornburg, 2002, p. 6), and the influence of a highly specific schema (see below).

The selected part(s) of the ICM lead(s) either directly or via subsequent conceptualization by metonymy and/or metaphor to the onomasiological structure.

By the term *onomasiological structure* we understand the final result of conceptualization, a conceptual basis for the actual linguistic coding. The onomasiological structure has two basic parts, the onomasiological base and the onomasiological mark (see Dokulil, 1962, p. 29).

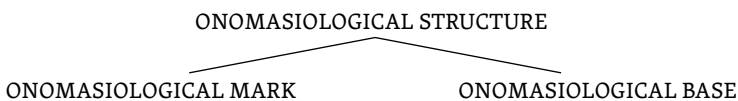


FIGURE 2. Graphic representation of the basic constituents of the onomasiological structure



The onomasiological base represents an existing category into which the named concept has been classified on the basis of the global features within the concept's ICM.

The onomasiological mark is the result of the conceptualization of the local features, i.e., those parts of the ICM that distinguish the named concept from other members of the selected category. As has been mentioned, the selected parts of the ICM for naming may be reflected in the onomasiological structure directly or may undergo further conceptualization by metaphor and metonymy. Instances of lexemes in which the part(s) of the ICM enter(s) the onomasiological structure directly are, e.g., *anteater* (animal), *apple tree*, and *longhair* (cat). Here the salient parts of the ICM selected for naming via the initial PART OF ICM FOR WHOLE ICM metonymy, namely food (ANT), fruit (APPLE), and body part (LONG HAIR), respectively, do not undergo any further conceptualization through a subsequent metonymy or metaphor as these very parts of the respective ICMs become expressed in the resulting names.

Further conceptualization of the selected parts of the ICM means that the selected parts of the ICM are represented in the onomasiological structure by a different concept, i.e., in the case of metonymy they are subject to intra-domain mapping and in the case of metaphor to inter-domain mapping. Needless to say that at this stage both metonymy and metaphor may interact in a complex way. An example of further conceptualization via both metaphor and metonymy is *catbird* (a bird whose vocalization resembles a cat's miaowing). Here the bird's specific vocalization triggers a metaphorical mapping, the vocalization being likened to MIAOWING, which is further conceptualized as CAT via the PRODUCER FOR PRODUCED metonymy (more specifically CAT FOR MIAOWING). As a result, the bird's vocalization selected from the ICM of the bird is represented in the onomasiological structure by the concept CAT.

The motivation for further conceptualization by metonymy and/or metaphor may lie in the fact that some features may resist linguistic coding, i.e., there is no matching lexeme, as in the case of non-geometrical shapes or smells. Metaphor and metonymy may also achieve a more economical expression by compressing more selected features into one concept, cf. *ghost orchid*, where, apparently, the selected features are the plant's white flower, the flower's characteristic shape, as well as the facts that it seems to be floating in the air due to the lack of leaves, and it grows in marshes, an environment which is associated with supra-natural entities. Through metaphor, all these features are compressed into the single concept GHOST, whose linguistic equivalent is retrievable from the lexicon as a single lexeme. Subsequent metaphor and metonymy may also be instrumental in avoiding unwanted polysemy/homonymy (cf. *blackbird* and *devil bird*, the latter being a local term for the swift, as the names for both species of birds are motivated by its black plumage). Lastly, the subsequent conceptualization may be enforced by existing specific schemas (see below). A factor which may work against opting for subsequent conceptualization is its resulting lower transparency as it obscures the original motivation; this, however, is relevant only in contexts where transparency is required.

The result of conceptualization, the onomasiological structure, can be seen as an interface between the conceptualization and the actual process of linguistic coding. The linguistic coding stage comprises the selection of a suitable schema, the retrieval



of lexeme(s) instantiating its variable(s) from the lexicon, and the unification of the lexemes with the schema.

Dokulil's claim quoted above, i.e., that conceptualization "corresponds to the possibilities of expression, or more precisely the naming means, of a given language" (Dokulil, 1962, p. 29, my translation), has two aspects — firstly, for the semantic relations within the onomasiological structure there must be a schema in the lexicon that has a matching structural meaning, and secondly, all the concepts in the onomasiological structure must be linguistically expressible, i.e., the variables in the selected schema must be instantiated with stored lexical items. To put it in more simple terms, for the result of conceptualization, a corresponding schema and corresponding lexemes (or phonotactic patterns in the case of onomatopoeia) must be retrievable items stored in the lexicon.

Nevertheless, the lexicon may offer more schemas whose structural meaning matches the result of conceptualization, which leads to a competition of form. For the same concept as well as for the same onomasiological structure, we may thus find competing patterns, such as *hatmaker* next to *hatter*, *black-headed gull* next to *blackhead*, or *soap-scented toadstool* next to *soapy toadstool* next to *soap toadstool*, all these terms being attested in English.

Among the factors that have an impact on which existing schema is selected are their relative height of resting activation, the socio-linguistic context in which the name is coined (e.g., an ornithologist coining a standard name will more likely opt for a schema represented by *black-headed gull* rather than the one represented by *blackhead*), the competition between transparency and economy (see Körtvélyessy, Štekauer & Zimmermann, 2015), and the role of creativity (see Körtvélyessy, Štekauer & Kačmár, 2021). To what extent the different factors contribute to the selection varies in individual cases.

The whole process of naming may be summarized as follows: the concept to be named is first categorized and part of its ICM is selected for naming. This part of the ICM may be subject to further conceptualization by means of metaphor and/or metonymy. For the result of conceptualization, a matching schema and a lexeme, or lexemes in the case of compounding, instantiating its variables are retrieved from the lexicon and undergo the process of unification.

This newly coined form is paired with its lexical meaning, which equals the concept's ICM enriched with a new concept (in the case of subsequent conceptualization, cf. CAT in *catbird*) or with a higher salience of the selected feature for naming, and becomes a new lexeme. Finally, the newly formed lexeme enters the lexicon enhancing the resting activation of the corresponding schema since "activation spreads not only between words, but also from words to the schemas that they are instances of" (Jackendoff & Audring, 2020b, p. 8).

The grey arrows in Figure 1 suggest that the lexicon not only provides schemas and lexemes for unification within the linguistic coding part but may also affect, or direct, mental processing of the concept to be named. Existing schemas may thus have an impact on the initial selection of features within the concept's ICM as well as on subsequent conceptualization of the selected features.

The impact of an existing schema on the selection of the salient features for naming is apparent in terms of drug addicts. Consider (5):

- (5) Semantics: [PERSON WHO IS ADDICTED TO (X_x)]_Z
 Morphosyntax: [_N N_x N_y]_Z
 Phonology: /..._x hed_v/_Z

The right-hand constituent in (5), namely *head*, is a constant, and the left-hand constituent is a variable that is to be instantiated by a term for a drug, cf. the corresponding lexemes, such as *acidhead*, *dopehead*, *hophead*, *weedhead*, *hashhead* etc. The awareness of the existence of the schema thus directs the selection of the feature DRUG from the ICM of the concept (addicted person) as this is the only structural possibility that the schema provides.

Nevertheless, if the speaker does not want to use this highly specific schema for drug addicts, they can select other features, such as MANNER OF USE as in *smoker* (marihuana addict), TYPE and COLOUR OF SUBSTANCE as well as EFFECT as in *snowbird* (cocaine addict),⁹ and EFFECT only as in *sleepwalker* (heroin addict). The corresponding schemas of these lexemes are rather general, so that they most likely do not affect the conceptualization process.

The effect of schemas on subsequent conceptualization may be seen, for instance, in compounds in which the right-hand constituent is a body part and the overall lexical meaning of the compound denotes a human, such as *loudmouth* (vociferous person) and *bighead* (conceited person). Such words have derogatory connotation. The corresponding schema to such lexemes is (6).

- (6) Semantics: [PERSON WHOSE BODY PART (Y_y) HAS THE QUALITY (X_x)]_Z
 Morphosyntax: [_N N/ADJ_x N_y]_Z
 Phonology: /..._x .._y/_Z

It is the derogatory connotation of this schema that differentiates it from a similar schema for non-human entities corresponding to lexemes, such as *bighead* (type of fish with a big head) and *parrot leaf* (type of plant with red and green leaves). At the same time, it also appears to be the only schema in English that is directly derogatory,¹⁰ so if we want to coin a term for a human with derogatory connotation, (6) is at hand, with the consequence that the right-hand constituent must be a body part.

In *loudmouth* (vociferous person), the salient parts of the ICM that are used for the naming process are LOUD, TALK, and ANNOYING. The feature ANNOYING prompts the selection of (6), as a schema for forming derogatory terms for humans, so the feature TALK needs to undergo further conceptualization via the PART OF BODY FOR ACTIVITY metonymy, more specifically MOUTH FOR TALKING; in other words, the initial feature TALK needs to appear in the onomasiological structure as MOUTH in order to match the selected schema. Compare the different schema in *loudspeaker* (device) that has a similar onomasiological structure as *loudmouth* but lacks the derogatory

⁹ Examples taken from <https://www.addictioncenter.com/drugs/drug-alcohol-slang/>

¹⁰ Nesset (2010) implies that other languages, such as Russian and Norwegian, also have schemas that specifically form derogatory terms.



connotation. The same effect of an existing schema on conceptualization can be seen in *bighead* (conceited person, someone who has a very high opinion of how important they are), in which the initial feature *OPINION* is further conceptualized as *HEAD* through a metonymic chain *ACTIVITY FOR RESULT* (more specifically *THINKING FOR OPINION*) and *PART OF BODY FOR ACTIVITY* (more specifically *HEAD FOR THINKING*). Unlike in *loudmouth*, where the feature *LOUD* is expressed literally, the feature *IMPORTANT* is further conceptualized as *BIG* through the conceptual metaphor *IMPORTANCE IS LARGE SIZE*.

The conceptualization of *bighead* (conceited person) thus differs from the conceptualization of *bighead* (type of fish having a big head). In the latter, the selected part of the ICM, the characteristic physical feature, enters the onomasiological structure directly without further conceptualization, whereas in the former the dynamic behavioural features are further conceptualized in order to match the naming means of the language. Moreover, they enter different specific schemas since the term for the fish is not seen as derogatory.

6 SAMPLE ANALYSES

In order to illustrate the process of naming, I will first describe the genesis of different lexemes denoting a single concept (Section 6.1) and of different lexemes sharing the same form but denoting different concepts (Section 6.2).

6.1 NAMING SWIFT

This section deals with the genesis of various lexemes denoting a single concept, namely the bird swift.

Natural organisms typically occur across vast geographical areas, so for a single referent we can find a large variety of names within individual languages (mostly local names) as well as across languages, exhibiting a broad range of motivation. It is for this reason that bird names are a good starting point for the illustration of the process of naming because we can contrast various ways in which an identical concept may be named. *SWIFT* is among the concepts in which different features may be selected for naming and in which even the same selected feature may lead to different forms.

The extra-linguistic referent, in our case the swift, exhibits a number of features, either static, such as colour and shape, or dynamic, such as movement and vocalization. These perceived features are abstracted in the mind of the speaker as parts of the concept's ICM (see Figure 3).

The features that the concept shares with members of an already existing category, the global features, assign the concept to the existing category. In the case of the swift, the global features of the concept are overall shape, the ability to fly, feathers, a beak etc., in other words those that categorize the concept as *SWALLOW*, more broadly as *BIRD*, or even more broadly as *LIVING CREATURE*. As mentioned above, the specificity of categorization depends on the level of experience of the speaker with the extra-linguistic world.

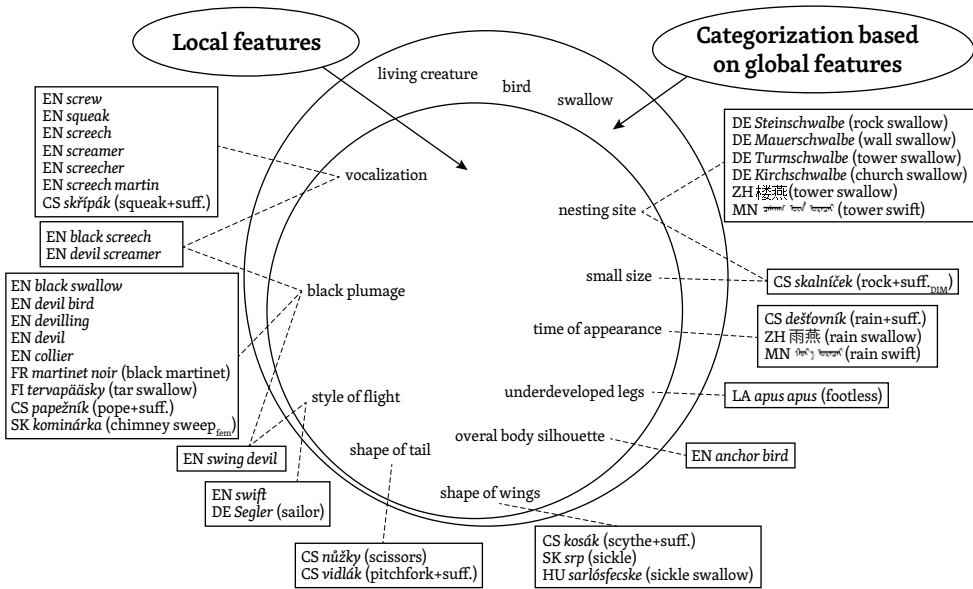


FIGURE 3. The ICM of the swift (*Apus apus*) based on selected names in various languages

Local features are parts of the concept’s ICM that distinguish the named concept from other members of the selected category. One or more local features are selected for naming purposes, thus metonymically representing the whole ICM by the PART OF ICM FOR WHOLE ICM metonymy. For SWIFT, it can be the bird’s specific vocalization, its black plumage, etc. The feature BLACK, for instance, is either included in the onomasiological structure (the result of conceptualization) directly, cf. *black swallow*, or triggers further conceptualization by metaphorical mapping, resulting in the concept DEVIL, cf. *devil bird*, *devilling*, and *devil*, as the feature BLACK is shared by both SWIFT and DEVIL. The same feature may also trigger other metaphors, cf. COLLIER (as in the English *collier*), TAR (as in the Finnish *tervapääsky*), POPE (as in the Czech *papežník*),¹¹ or CHIMNEY SWEEP (as in the Slovak *kominárka*).

An example of a name for the same concept in which a different feature has been selected for naming is *anchor bird*, the feature being OVERALL BODY SILHOUETTE. In this case, we do not have a choice between literal and metaphorical expression as for the feature BLACK, since non-geometric shapes do not have corresponding lexemes in the lexicon, so the only way to achieve its effability is through metaphor (see Figure 4), the concept ANCHOR standing for OVERALL BODY SILHOUETTE in the onomasiological structure.

11 Due to the lack of media at the time of the coinage, popes were thought of wearing black garment as the local priests did.

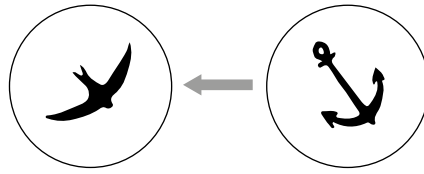
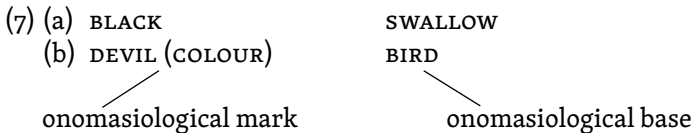


FIGURE 4. Graphic representation of the metaphorical mapping in *anchor bird*

The result of conceptualization, the onomasiological structure, thus comprises the category to which the concept has been assigned, the onomasiological base in Dokulil's terminology, and the onomasiological mark, as the distinguishing feature within the category. The feature **BLACK**, for instance, included in the bird's ICM can thus be represented in the onomasiological structure by the concept **BLACK** or by a different concept resulting from the subsequent conceptualization, for the English examples this being **DEVIL**.



In order to linguistically express the resulting conceptualization, we need to retrieve a suitable schema and the lexeme(s) instantiating its variable(s) from the lexicon. For the onomasiological structure (7b), the lexeme representing the concept **DEVIL** in English is *devil*, and among the patterns available at the time of the formation of the attested names were (8), (9), and (10).¹²

(8) is a general schema for endocentric NN compounds.

(8) Semantics: $[(Y_v) \text{ WHICH IS ASSOCIATED WITH } (X_x)]_z$
 Morphosyntax: $[_N N_x N_y]_z$
 Phonology: $/\dots_x \dots_y /_z$

The variable Y as the right-hand constituent of the compound is instantiated with a lexeme representing the category into which the concept was assigned, in the case of *devil bird* by the lexeme *bird* retrieved from the lexicon. The variable X is instantiated with a lexeme representing the resulting concept in the onomasiological mark, in this case *devil*. Both *devil* and *bird* can unify with the schema as they are both nouns, thus meeting the restrictions imposed on the variables at the morphosyntactic level.

Another structural possibility at the time of the formation was (9).¹³

¹² According to OED, as terms for the swift, the first recorded use of *devil bird* was in 1885, of *devilling* in 1797, and of *devil* in 1885.

¹³ "In Old English, *-ling* added to nouns forms nouns with the general sense 'a person or thing belonging to or concerned with (what is denoted by the primary noun) [...]'. In Middle English and modern English the suffix continued to be freely employed with the same



- (9) Semantics: [ANIMATE ENTITY WHICH IS ASSOCIATED WITH (X_x)]_Z
 Morphosyntax: [_N N/V/Adj/Adv_x aff₄]_Z
 Phonology: /...lɪŋ₄/_Z

The onomasiological structure (7b) is unifiable with (9) as the category BIRD is semantically included in ANIMATE ENTITY,¹⁴ and *devil* instantiating the variable X is a noun.

Yet another structural possibility is (10),¹⁵ a “pattern” typically not discussed in morphological literature.

- (10) Semantics: [THING¹⁶ WHICH IS ASSOCIATED WITH (X_x)]_Z
 Morphosyntax: [_N N_x]_Z
 Phonology: /.../_{x,z}

Here, the schema comprises a variable only, which in our case results in *devil* as a term for the swift. The category BIRD is included in the category THING, the schema thus being available for naming this concept, and the variable X is instantiated with the lexeme *devil* as a lexeme corresponding to the onomasiological mark. I argue that the whole process of formation of such lexemes is the same as for the morphologically complex lexemes since the resulting form depends on the selected schema only.

The schematic representation of the lexemes arising from the schemas (8), (9), and (10) are (11), (12), and (13), respectively.

- (11) *devil bird*
 Semantics: [(BIRD) WHICH IS ASSOCIATED WITH (DEVIL); SWIFT]₇
 Morphosyntax: [_N N₅ N₆]₇
 Phonology: /devl₅ bɜ:d₆/

- (12) *devilling*
 Semantics: [ANIMATE ENTITY WHICH IS ASSOCIATED WITH (DEVIL); SWIFT]₈
 Morphosyntax: [_N N₅ aff₄]₈
 Phonology: /devl₅ lɪŋ₄/₈

function as in Old English [...]. The suffix is no longer productive in the uses above explained” (OED).

- 14 All the Middle English and modern English examples in OED listed under the suffix *-ling* are animate entities, such as *nestling* (a young bird), *suckling* (a young animal), *grayling* (a fish), and *firstling* (the first offspring of an animal).
- 15 The notation of the schema is inspired by the one for zero denominal verbs as in Jackendoff & Audring (2020a, p. 98).
- 16 THING is to be understood as the most generic level of categorization corresponding to the word-class of nouns, as in Langacker (1987/1991).

(13) *devil*Semantics: [THING WHICH IS ASSOCIATED WITH (DEVIL); SWIFT]₉Morphosyntax: [_N N₅]₉Phonology: /devl/_{5,9}

As these lexemes are motivated, their corresponding semantic levels comprise both the structural and lexical meanings. The lexical meaning notated as SWIFT represents the concept's ICM (see Section 3), enriched with DEVIL in contrast to the initial ICM of the concept.

6.2 NAMING CONCEPTS EXPRESSED BY *SLEEPER*

Another set of examples illustrates the case of names for different concepts sharing the same form, specifically the form *sleeper*.

Among the lexical meanings of *sleeper* are someone who typically sleeps excessively, an inactive spy, a fish that typically rests motionless at the sea bottom, as well as a train car for sleeping, child's sleepwear, and a boring lesson.¹⁷

All these different lexical meanings presuppose its own course of conceptualization.

A rather straightforward course of conceptualization is for the concept SOMEONE WHO SLEEPS EXCESSIVELY (14).

(14) *sleeper* (someone who sleeps excessively)Semantics: [ANIMATE ENTITY WHICH (SLEEPS); SOMEONE WHO SLEEPS EXCESSIVELY]₁₀Morphosyntax: [_N V₁₁ aff₁₂]₁₀Phonology: /sli:p₁₁ ə₁₂/₁₀

The concept is categorized as HUMAN. The most salient feature of the concept's ICM is the dynamic SLEEP, which is selected for naming through the PART OF ICM FOR WHOLE ICM metonymy. This feature enters the onomasiological structure directly, without any subsequent conceptualization, the onomasiological structure thus comprising HUMAN as the onomasiological base and SLEEP as the onomasiological mark. For this result of conceptualization, the lexicon offers a matching schema (15).

(15) Semantics: [ANIMATE ENTITY WHICH (X_x)]_ZMorphosyntax: [_N V_X aff₁₂]_ZPhonology: /..._X ə₁₂/_Z

The structural meaning and the variable are compatible with the onomasiological structure, as the category ANIMATE ENTITY includes HUMAN, and the word-class of *sleep* is compatible with the morphosyntax of the variable, the conditions for unification thus being met.

¹⁷ Examples taken from Panther & Thornburg (2000).



It should be noted, however, that in naming the concept **SOMEONE WHO SLEEPS EXCESSIVELY** the most salient feature **SLEEP** need not be expressed in the onomasiological structure directly and may undergo further conceptualization as examples from other languages suggest; cf. the colloquial Czech *ochrapa*, in which the selected feature **SLEEP** undergoes subsequent metonymic shift to **SNORE** (*chrápat*), or the Spanish *lirón* 'dormouse' and *marmota* 'marmot', in which the feature **SLEEP** is further conceptualized in relation to animals that are known for long hibernation periods. So, the rather straightforward conceptualization in English is not the only possible way to mentally access this concept.

The course of conceptualization of *sleeper* as an inactive spy (16) is more complex.

(16) *sleeper* (inactive spy)

Semantics: [ANIMATE ENTITY WHICH (SLEEPS); INACTIVE SPY]₁₃

Morphosyntax: [_N V₁₁ aff₁₂]₁₃

Phonology: /sli:p₁₁ ə₁₂ /₁₃

The concept is categorized as **SPY**. The most salient feature of the concept's ICM is **BEING INACTIVE**, which is selected for naming through the **PART OF ICM FOR WHOLE ICM** metonymy. This feature is subsequently conceptualized through the metaphorical mapping **INACTIVITY IS SLEEP**. The onomasiological structure thus comprises **SPY** as the onomasiological base and **SLEEP** as the onomasiological mark and is matched with the same schema (15).

These two concepts together with **FISH THAT TYPICALLY RESTS MOTIONLESS AT THE SEA BOTTOM** (again conceptualized through the subsequent conceptual metaphor **INACTIVITY IS SLEEP**) have been conceptualized in such ways that the result of conceptualization includes **SLEEP** as the onomasiological mark and **ANIMATE ENTITY** as the onomasiological base, and the corresponding lexeme *sleep* instantiated the variable in (15).

However, there are other lexical meanings of *sleeper*, for instance, a train car for sleeping, child's sleepwear, and a boring lesson. All these concepts have different ICMs, but these ICMs one way or another include the feature **SLEEP** as one of their parts, and this feature enters their onomasiological structures directly. What they differ in is the schema they use for unification. These schemas have the same morphosyntactic and phonological levels as (15), but they differ in the structural meaning at the semantic level. The list in (17) shows the semantic level of the schemas and examples of other lexemes comprising the series.

(17) (a) [FACILITY WHICH IS DESIGNATED FOR (x)]
diner (restaurant), *crapper* (toilet)

(b) [PIECE OF CLOTHING WHICH IS DESIGNED FOR (x)]
trainer (sports shoe), *stroller* (casual shoe)

(c) [ENTITY WHICH CAUSES (x)]
thriller (book or film with an exciting story), *weeper* (sentimental film)

Sleeper as **TRAIN CAR FOR SLEEPING** thus corresponds to (17a), **CHILD'S SLEEPWEAR** corresponds to (17b), and **BORING LESSON** corresponds to (17c).



As argued in Section 4, we need to separate the form of schemas from their function. So, (15) used for the naming function in the examples above may also enable syntactic variation. Consider (18):¹⁸

(18) *And she got up, pushing her chair quickly back, forgetful of the sleeper next door.*

The lexeme *sleeper* in (18) is not a name for a specific recurrent concept but is used referentially as an alternative to *the person who sleeps/ is sleeping* (for an analogical treatment of *reader* as an example of stylistic variation, see Booij, 2000, p. 360). It is thus part of an alternative syntactic pattern, a morphological schema embedded in a larger syntactic schema. The verb *sleep* instantiating the variable in (15) does not result from the conceptualization of a named concept as in (14) and (16) and as such does not represent its whole ICM but is used to provide variation for an alternative syntactic pattern which includes the verb *sleep*. The structural and lexical meanings of the derivative fully overlap in that there are no extra idiosyncratic bits of meaning. The equivalence in meaning of the two alternative patterns implies that the derivative demonstrates full compositionality, the difference in the aspect of the verb (repeated action, i.e., the simple tense reading of the verb, versus ongoing action, i.e., the progressive tense reading of the verb) is specified as its *full contextual value* (see Langacker, 1999, p. 63) at the time of the production.

On the example of *sleeper*, Panther & Thornburg (2002) argue that there is one central sense of *-er* derivatives from which other related senses are metaphorically or metonymically extended. This corresponds to the dynamic construal approach in which “neither meanings nor structural relations are specified in the lexicon, but are construed ‘on-line,’ in actual situations of use” (Croft & Cruse, 2004, p. 97). This suggests that the meaning of *sleeper* is underspecified with only two basic senses “one inclined to sleep” and “one sleeping” (see Panther & Thornburg, 2002, p. 309) and the specific lexical meanings are irradiated from these basic senses.

Within the approach taken in this article, however, individual lexemes are formed on patterns specified in schemas, which are abstracted, on the same-except principle, from series of lexemes sharing the same structural meaning, the same morphosyntax, and the same form of the suffix (in derivation). As suggested in (17), for the various lexical meanings of *sleeper*, we can abstract different schemas that have identical morphosyntactic and phonological levels but differ in the semantic level. The individual lexical meanings of *sleeper* arise from the process of conceptualization of the concept named, at the beginning of which is the concept’s ICM (representing the future lexical meaning), and the result of which is matched with a corresponding specific schema, so the resulting meaning-form pairings enter the lexicon as separate units.

If such derivatives are based on different specific schemas, this approach assumes that they necessarily undergo separate naming processes as the structural meaning on the semantic level, as well as the other levels, must be shared by members of the same series of lexemes that constitute the schema. If there are metonymic relations

18 The example is taken from Benson, E. F. (1908) *Sheaves*. Leipzig: B. Tauchnitz, p. 270.

identified between the different schemas sharing the same morphosyntactic and phonological levels, as suggested by Panther & Thornburg (2002), such relations belong to long-term “schema-formation” rather than to “word-formation” in the sense of coining single lexemes.

Nevertheless, for the instances of *sleeper* which stem from an identical schema, cf. (15) instrumental in naming the concepts INACTIVE SPY and FISH THAT TYPICALLY RESTS MOTIONLESS AT THE SEA BOTTOM, an alternative interpretation to the one in (16) is conceivable, which, however, does not invalidate the proposed model. The alternative interpretation allows for the subsequent metaphorical mapping INACTIVE ENTITY IS SLEEPING ENTITY, the onomasiological mark thus being SLEEPER and the onomasiological base SPY or FISH, respectively. This onomasiological structure is then matched with (9), whose variable is instantiated with the whole complex lexeme *sleeper* expressing the onomasiological mark.

This interpretation is thus closer to Panther & Thornburg’s (2002) proposal in that the whole complex lexeme is an extension of the basic sense “one sleeping” applied to a different concept. However, the formation of such lexemes still assumes conceptualization of the named concept, the result of which is matched with an existing schema. Each sense thus results from a separate act of naming.

Both interpretations are equally possible, so we can consider them to be specific instances of competing schemas, which, however, result in an identical form.

7 CONCLUSION

If unification is the only morphological process within the generative role of schemas in the Relational Morphology theory, the main aim of the paper is to show what precedes the process of unification, i.e., on what principles lexemes are retrieved from the lexicon for the instantiation of variables in schemas. These principles differ depending on the function of word-formation applied. Within the syntactically-driven and pragmatically-driven variations, the variables in the corresponding schemas are instantiated with lexemes upon which we perform the variation. The newly coined lexemes demonstrate full compositionality, as the lexical meaning of the new lexeme is a compositional function of the meaning of the lexeme instantiating the variable and of the structural meaning of the corresponding schema.

Within the concept naming function, the situation is different. The lexeme with which we instantiate the variable in the selected schema is a result of prior mental processing of the concept to be named. The lexeme instantiating the variable may thus correspond to one of the concepts included in the ICM of the named concept or to a concept arising from subsequent conceptualization via metaphor and/or metonymy. In consequence, the relation between the named concept and the one via which we name it is not contingent (i.e., conceptually necessary). Such lexemes are only partially compositional since their lexical meaning is more specific than the structural one. The idiosyncratic parts of the lexical meaning are not secondary additions to the structural one but constitute the concept’s ICM which stands at the beginning of the whole naming process.





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