

Synonymy from a Prototype Theory Perspective and its Symbiosis with Polysemy: Towards a New Dictionary of Synonyms

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Abstract: This paper presents an attempt at providing a model for comprehensive, precise and systematic presentation of a word's synonymy within a dictionary entry, especially in the case of highly polysemous words. It is founded on the complementarity of polysemy and synonymy and a prototype-based view of the latter lexical relation. The proposed model is presented through four steps of tailoring an entry in a new dictionary of synonyms: the analysis of a word's polysemous structure, the compilation of a word's synonym sets viewed as prototype-based categories, the definition of synonyms within a set and the structure and organisation of an individual synonym set and the whole entry. Comprehensiveness of synonymy presentation according to the model is reflected in the fact that an entry lists synonym sets corresponding to different senses of the given headword as well as in the tendency for each set to offer a wide range of synonyms. Systematicity and precision in synonymy presentation are achieved primarily due to the application of prototype-based principles to the structuring and organizing of synonym sets and the defining of synonyms. The model also opens up the possibility of a transparent diagram-based visual representation of a word's synonymy in an electronic dictionary offering a more convenient visual organisation of large amounts of information.

Keywords: POLYSEMY, SYNONYMY, SYMBIOSIS, COMPLEMENTARITY, PROTOTYPE THEORY, MODEL, DICTIONARY ENTRY, SYNONYM SET, SENSE DEFINING, ENTRY STRUCTURE

Opsomming: Sinonimie vanuit 'n prototipe-teorie-perspektief en die simbiose daarvan met polisemie: Op pad na 'n nuwe sinoniemwoordeboek. In hierdie artikel word 'n poging wat aangewend is om 'n model vir omvattende, eksakte en sistematiese voorstelling van 'n woord se sinonimie binne 'n woordeboekinskrywing daar te stel, veral by hoogs polisemiese woorde, bekend gestel. Dit is gebaseer op die komplementariteit van polisemie en sinonimie en 'n prototipegebaseerde siening van die laasgenoemde leksikale verwantskap. Die voorgestelde model word uiteengesit in vier stappe waarin 'n inskrywing in 'n nuwe sinoniemwoordeboek aangepas word: die analise van 'n woord se polisemiese struktuur, die samestelling van 'n woord se sinoniemstelle gesien as prototipegebaseerde kategorieë, die definiëring van

sinonieme binne 'n stel en die strukturing en organisering van 'n individuele sinoniemstel en die volledige inskrywing. Volgens die model word die omvattendheid van sinoniemaanbieding daarin gereflekteer dat 'n inskrywing sinoniemstelle lys wat ooreenstem met verskillende betekenis van die gegewe lemma sowel as in die tendens van elke stel om 'n wye reeks sinonieme te vertoon. Konsekwentheid en akkuraatheid in sinoniemvoorstelling word hoofsaaklik verkry deur die toepassing van prototipegebaseerde beginsels op die strukturing en organisering van sinoniemstelle en die definiëring van sinonieme. Die model ontsluit ook die moontlikheid van 'n deursigtige diagramgebaseerde visuele voorstelling van 'n woord se sinonimie in 'n elektroniese woordeboek wat 'n geriefliker visuele samestelling van groot hoeveelhede inligting aanbied.

Slutelwoorde: POLISEMIE, SINONIMIE, SIMBIOSE, KOMPLEMENTARITEIT, PROTOTIPETEORIE, MODEL, WOORDEBOEKINSKRYWING, SINONIEMSTEL, BETEKENISDEFINIËRING, INSKRYWINGSTRUKTUUR

1. Introduction

This paper deals with a major lexicographic challenge: how to provide dictionary users with a comprehensive and, simultaneously, precise and systematic presentation of a word's synonymy within an entry, especially in the case of highly polysemous words. In regard to this, the aim of the paper is to propose a model for tailoring an entry in a dictionary of synonyms or thesaurus, as a possible solution to the aforementioned problem of an efficient synonymy presentation. The model, intended for both an electronic and a printed dictionary with polysemous headwords having more than one synonym in, at least, two of their senses, is illustrated in the paper through its application to English. Such a dictionary can serve as a vital resource to learners of a particular language, linguists and all other users interested in linguistic research of lexical synonymy and its functioning in the given language. The model is based on the complementarity of polysemy and synonymy and a prototype-based view of the latter lexical relation. This theoretical foundation should ensure greater efficiency in providing an account of a word's synonymy as a system of mutually related synonym sets clearly displaying their members' similarities and differences.

A word has different synonyms depending on the sense in which it is used. This clearly suggests that a lexicographer intending to provide a complete picture of a word's synonymy cannot disregard the sense-specific nature of this lexical phenomenon. Hence, the proposed model promotes the symbiosis of polysemy and synonymy and its contribution to a comprehensive lexicographic account of the latter lexical relation. Moreover, various studies have pointed out that prototype theory, as a cognitive-linguistic approach, is highly beneficial for lexicographic practice (Atkins and Rundell 2008, Geeraerts 2001, Halas 2013, 2016a, 2016b, Jehle 2004, Jiang and Chen 2017, McKeown 1991, Molina 2008, Ostermann 2015, Rundell 2012, Van der Meer 2000). It has been used in both semasiological and onomasiological studies of the lexicon. In this

paper, this theory is significant as the one that provides a deep insight into the internal organisation of a synonym set.

1.1 Existing lexicographic models of synonymy treatment

This subsection briefly sets forth existing models of lexicographic treatment of synonymy, which take into account the sense-specific nature of this lexical phenomenon. The overview is based on models identified in English lexicographic practice, whose products dominate the world-wide dictionary market and, more importantly, which is highly productive, diverse and innovative in terms of dictionaries of synonyms and thesauri.

There are two lexicographic models pointing out the sense-specific nature of synonymy. According to the first one, an entry contains several synonym sets, each related to a different sense of the given headword. However, such entries provide only bare lists of synonyms, lacking definitions or any explanation of their similarities or differences. Within each set, a meaning of the headword is illustrated with example sentences but it is not defined. An example of this model can be found in *Collins Thesaurus: The Ultimate Wordfinder* (second edition, 2002) (Figure 1) and *Oxford Thesaurus of English* (third edition, 2009) (Figure 2). As explained in the front matter of *Oxford Thesaurus of English*, the first synonym in a set is bolded and, thus, marked as the core one, which can be interpreted as a recognition of prototypicality, the notion that is significant for the model proposed in this paper, which will be elaborated on in this paper.

cut verb **1** = slit, saw, score, nick, slice, slash, pierce, hack, penetrate, notch ... *Thieves cut a hole in the fence ... You can hear the saw as it cuts through the bone ...*
2 = chop, split, divide, slice, segment, dissect, cleave, part ... *Cut the tomatoes into small pieces ...*
3 = carve, slice ... *Mr Long was cutting himself a piece of cake ...*
4 = sever, cut in two, sunder ... *I cut the rope with scissors ...*
5 = shape, carve, engrave, chisel, form, score, fashion, chip, sculpture, whittle, sculpt, inscribe, hew ... *Geometric motifs are cut into the stone walls ...*
6 = slash, nick, wound, lance, gash, lacerate, incise ... *I cut myself shaving ...*

Figure 1: The adaptation of a section of the entry for the verb *cut* in *Collins Thesaurus: The Ultimate Wordfinder*

cut ► **verb** **1** *the knife slipped and cut his finger* **GASH**, slash, lacerate, slit, pierce, penetrate, wound, injure; scratch, graze, nick, snick, notch, incise, score; lance.
— COMBINING FORM: -tomy.
2 *cut the red pepper into small pieces* **CHOP**, cut up, slice, dice, cube, mince; carve; divide; *N. Amer.* hash.
3 *they cut the rope before he choked | he has cut his ties with the church* **SEVER**, cleave, cut in two; *poetic/literary* rend; *archaic* sunder; *rare* dissever.
4 *she's had her hair cut | cut back the new growth to about half its length* **TRIM**, snip, clip, crop, bob, barber, shear, shave; pare; prune, pollard, poll, lop, dock; mow.
5 *I went out into the garden to cut some flowers* **PICK**, pluck, gather; harvest, reap; *poetic/literary* garner, cull.
6 *she gazed at the lettering cut into the stonework* **CARVE**, engrave, incise, etch, score; chisel, whittle.

Figure 2: The adaptation of a section of the entry for the verb *cut* in *Oxford Thesaurus of English*

The same model is followed in WordNet, an electronic lexical semantic database originating in the 1980s (Miller et al. 2008), which most significantly demonstrates the cooperation of polysemy and synonymy, hence it receives special attention here. Its main feature is the organisation of lexical information according to word meanings instead of word forms (Miller et al. 2008: 329). Thus, it is widely considered as closer to an online thesaurus than a dictionary. Its organisation is based on a lexical matrix in which there is mapping between a word form and a word meaning, including instances in which a word form has several different meanings (the case of polysemy) or ones in which a meaning can be realized through several different forms (the case of synonymy). In such a mapping, polysemy and synonymy are complementary. WordNet assumes that its users are already familiar with a particular concept (meaning) and so only identifies this concept, rather than defining it. This is why meanings are represented by lists of word forms that can express them, allowing users to distinguish between different meanings. In this database, different senses of a word are represented through sets of synonyms. Hence, WordNet can be regarded in essence as a representation of polysemy which relies on synonymy. In addition to synonym sets, which are structured taxonomically so that semantic relations among them are shown, the identification of a particular meaning is also enabled by short glosses and illustrative examples. However, no meaning has a fully-developed dictionary definition. The aforementioned features of WordNet are illustrated with Figure 3:

- S: (v) **cut** (separate with or as if with an instrument) "*Cut the rope*"
- S: (v) **reduce, cut down, cut back, trim, trim down, trim back, cut, bring down** (cut down on; make a reduction in) "*reduce your daily fat intake*"; "*The employer wants to cut back health benefits*"
- S: (v) **swerve, sheer, curve, trend, veer, slue, slew, cut** (turn sharply; change direction abruptly) "*The car cut to the left at the intersection*"; "*The motorbike veered to the right*"

Figure 3: The adaptation of a section of the entry for the verb *cut* in WordNet

The second model also recognizes the sense specific nature of synonymy offering several synonym sets within an entry which correspond to different senses of a polysemous headword. Still, an entry formed according to this model provides considerably more information on synonyms comprising, primarily, their definitions accompanied by example sentences while some other pieces of information, such as additional notes on a difference between synonyms quite close in meaning, etc. can also be included. A typical example of this model is *Oxford Learner's Thesaurus* (first published in 2008), as shown in Figure 4:

cut *verb*

- 1 cut taxes
- 2 cut the bread
- 3 have your hair cut
- 4 cut your finger

1 See also the entries for ABOLISH, REDUCE and SAVE 2

cut • slash • cut sth back • cut sth down • scale sth back • rationalize • downsize • scale sth down

These words all mean to reduce the amount or size of sth, especially of an amount of money or a business.

PATTERNS AND COLLOCATIONS

- ▶ to cut sth/ cut sth back/ cut sth down/ downsize sth/ scale sth down **from** \$50 000 **to** \$40 000
- ▶ to cut sth/ cut sth back/ cut sth down/ scale sth down **by** \$5 000/ 30%
- ▶ to cut back/ cut down **on** sth
- ▶ to cut/ slash/ cut back on **jobs**
- ▶ to cut/ slash/ downsize **the workforce**
- ▶ to cut/ slash/ rationalize **the cost** of sth
- ▶ to cut sth/ slash sth/ cut sth back/ cut sth down/ scale sth down **drastically**
- ▶ to cut sth/ cut sth back/ cut sth down **considerably**

cut [T] to reduce sth, especially an amount of money that is demanded, spent, earned, etc. or the size of a business:

The president has promised to cut taxes significantly. ◇ *Could you cut your essay from 5 000 to 3 000 words?* See also **cut** → REDUCTION *noun*

slash [T, often passive] (*rather informal, journalism*) to reduce sth by a large amount: *The workforce has been slashed by half.* ◇ *A slump in the retail trade has forced the company to slash prices.*

[...]

2 cut • chop • slice • carve • dice

These words all mean to make smaller pieces of sth by using sth sharp such as a knife.

PATTERNS AND COLLOCATIONS

- ▶ to cut/ chop/ slice/ carve sth **into** sth
- ▶ to cut/ chop/ slice sth **off** sth
- ▶ to cut/ slice sth **in half/ two**
- ▶ to cut/ chop/ slice sth **up**
- ▶ to cut/ chop/ slice/ carve/ dice sth **meat**
- ▶ to cut/ slice **bread/ cake**
- ▶ to chop/ slice an **onion**
- ▶ to cut/ chop/ slice/ dice sth **finely**
- ▶ to cut/ slice sth **thinly**

cut [T] to remove sth or a part of sth, or divide sth into two or more pieces with a knife, etc.; to make or form sth by removing material with a knife, etc.: *He cut four slices from the loaf.* ◇ *He cut the loaf into thick slices.* ◇ *Shall I cut you a piece of cake?* ◇ *Don't cut the string; untie the knot.* ◇ *The climbers cut steps in the ice.*

chop (-pp-) [T] to make smaller pieces of sth using sth sharp such as a knife: *He was chopping logs for firewood.* ◇ *Roughly chop the herbs.*

slice [T, I] to cut sth into slices; to cut sth easily with or as if with a sharp blade: *Slice the cucumber thinly.* ◇ *a sliced loaf* ◇ *a loaf of sliced bread* ◇ *He accidentally sliced through his finger.* See also **slice** → PIECE

carve [T, I] to cut a large piece of cooked meat into smaller pieces for eating: *She taught me how to carve a leg of lamb.* ◇ *Lunch is ready. Who's going to carve?*

dice [T] to cut meat, vegetables, etc. into small square pieces: *diced carrots/lamb*

3 cut • trim • shave • mow • lop • shear • snip • crop • clip

These words all mean to make sth shorter or neater by removing part of it with a sharp tool.

[...]

Figure 4: The adaptation of a section of the entry for the verb *cut* in *Oxford Learner's Thesaurus*

However, it should be noted that this thesaurus takes only certain possible senses of a polysemous word into consideration. In addition to this, it applies greater selectivity in comparison with the aforementioned thesauri in determining synonyms for inclusion in a set to meet the needs of its target group (Lea 2008: 546).

In summary, both models recognize the sense-specific nature of synonymy. However, the first one typically provides a longer list of synonyms within a set but scarce information on them (only example sentences as indicators of meaning and register/regional labels), while the second one applies greater selectivity in compiling lists of synonyms, it also provides more detailed information on synonymy within entries. It should be noted, though, that these are print dictionaries where one of the main reasons for the constraints in their models is that of space, which makes it really difficult to provide an exhaustive list of synonyms and clearly and neatly present complete information on each synonym. This constraint is, in some cases, addressed by online thesauri which are linked to dictionaries, which makes it possible to provide a list of synonyms and link them to the relevant senses of their dictionary entries (offering definitions, grammatical information, example sentences, etc.). Still, the question that remains is whether it is possible to merge the two models within a single dictionary, i.e. a dictionary of synonyms, and provide users with an inventory of a word's synonyms which is exhaustive in terms of the number of synonyms included as well as the information on each of them presented in a systematic, neat and clear way.

2. Synonymy from a prototype theory perspective

A general definition of synonymy frequently referenced in linguistic literature is that formulated by Cruse (2002: 486), in which it is understood as the 'similarity or identity of meaning between senses associated with two (or more) different lexical forms.' Šarić (2011: 305) points out that a cognitive linguistic theoretical framework quite suitably answers various questions related to synonymy. A number of existing cognitive linguistic interpretations of synonymy also rely on the principles of prototype theory.

The key term in a prototype-based examination of synonymy is a synonym set (e.g. *big*, *huge*, *enormous*), dominated by a neutral member or a semantic dominant (Dragičević 2007: 258), the prototype, more general than the other members of the given set. It functions as the basis for the other members' sense definitions (e.g. *huge* as 'extremely big') acting as the semantic base of the given set, representing the central semantic component common to all its members. For example, in the synonym set *cut*, *chop*, *slice*, *carve*, *dice*, the prototype is the verb *cut* since its meaning is the most neutral and general ('to divide something into two or more pieces using a sharp tool'). It represents the semantic base for the other members that express more specific meanings. These distinct meanings are, in the given example, determined by a specific referent or a specific

manner of cutting (e.g. *carve* 'divide a large piece of cooked meat into smaller pieces', *slice* 'divide something into slices', etc.).

When applied to a study of synonymy, the main postulates of prototype theory, summarized by Geeraerts (1989) as the four prototypicality effects, provide deeper insight into the internal organisation of a synonym set. The first effect is related to degrees of typicality. The position of synonyms in a set depends on their similarity to the prototype. The distance between a particular synonym and the prototype is inversely proportional to their similarity. Hence, the cline from centre to periphery is the central organisational principle of a synonym set.

The second prototypicality effect refers to the flexible boundaries of prototypical categories. Certain peripheral members might be so loosely related to the prototype that they are treated as boundary cases that can belong to another set as well. For example, in the synonym set *cut, reduce, decrease, slash, lessen, diminish, lower, retrench*, the last member has a rather specific meaning ('(of a business, government, etc.) make costs smaller') in comparison with the prototype ('reduce the amount/quantity of something'). As the periphery of the set, it represents a boundary case that can be justifiably treated as a member of another set: *retrench, economize, cut back, budget, save*. Such examples indicate that synonym sets are prototypical categories whose edges are blurred rather than rigid or clear-cut. This also implies that synonym sets can be extended by new members at any point.

Following Geeraert's third prototypicality effect, each member of the synonym set needs to possess only some of the prototypical features. No single set of features is necessarily shared by all the synonyms in a set, as evident in this one: *cut, clip, trim, snip, shear, crop, barber, bob, pare, prune, pollard, mow*. The prototypical features of this set are contained in the definition of its dominant member *cut* 'make something shorter with a sharp tool.' In the definition of the peripheral member *mow* ('make grass shorter using a machine'), the target is precisely specified ('grass'), while 'with a sharp tool' replaced by 'using a machine'. *Mow* shares some but not all the features with the prototype. As a prototypical category, a synonym set acts as a cluster of such partially related descriptions.

The fourth effect entails that synonym sets exhibit family resemblance. Organised around the same prototype, synonyms in a set are mutually related, sharing some sense components and overlapping to a certain extent.

2.1 The complementarity of polysemy and synonymy

Cruse's definition of synonymy claims that it is a relation between senses of different words and not words themselves. From this perspective, an in-depth study of synonymy needs to rely on polysemy, defined by Evans (2005: 33) as a phenomenon in which 'a single linguistic form' has various but mutually related senses. A more precise and thorough account of synonymy between two lexemes requires an analysis of their polysemous structures and the identification of

their synonymous senses. Rasulić (2016: 129) observes that synonymy between two lexemes is primarily based on the sameness of their primary (prototypical) senses, while it is additionally reinforced by the sameness of their secondary senses. For instance, the verbs *cool* and *chill* are synonymous in their primary sense 'to make somebody or something become colder' but not in some secondary senses, such as *chill* 'to frighten somebody' or *cool* 'become calmer.' In contrast, the adjectives *close* and *near* are synonymous in their primary sense 'a short distance or time away' (e.g. *Her house is close to/near the hospital.*) and in their secondary sense 'near or close in family relationship' (e.g. *Even their close/near relatives didn't know about the engagement.*).

This clear synergy between polysemy and synonymy implies that a thorough and detailed examination of a single word's synonymy fundamentally requires an analysis of its polysemous structure, followed by a search for synonyms corresponding to different senses of the given word. Dirven and Verspoor (2004: 44) support this idea, claiming that a systematic combination of the semasiological and onomasiological approach contributes to 'a fully integrated conception of lexicology.'

3. The proposed model for tailoring an entry in a dictionary of synonyms

This paper presents a model as a possible solution to the aforementioned issue of comprehensive and, simultaneously, systematic and clear presentation of a polysemous word's synonymy. For the purpose of the illustration of its functioning, the model is, in this paper, applied to the case of the English verb *cut*.

The model starts from two fundamental theoretical principles:

- (1) the symbiosis of polysemy and synonymy,
- (2) a prototype-based view of synonymy.

The essential idea of the proposed model is that a lexicographer must first analyse the word's polysemous structure and compile an exhaustive inventory of its senses. This inventory will then serve as the structural and organisational basis for an entry, representing a system of synonym sets related to different senses of the given word. An important issue in the analysis of a word's semantic structure is sense differentiation, which might refer to either the splitting of identified senses into a larger number of more specific senses or the lumping of identified senses into a smaller number of more general senses. Which sense differentiation strategy is applied is of crucial significance for the creation of synonym sets since it directly influences their scope. Namely, depending on the applied sense differentiation strategy (lumping or splitting), a particular use of a word can be more or less specifically demarcated. The more specifically a particular sense is demarcated, the narrower the range of its synonyms is. For instance, one of the uses of the verb *cut* is 'reduce the amount or quantity of something,' which can be treated as a superordinate sense that

subsumes two more specific senses; 'reduce the amount of money, especially costs, prices, etc.' and 'reduce the number of people in an organisation.' In each of these three senses, the verb *cut* has a different synonym set: 'reduce the amount or quantity of something:' *cut, reduce, decrease, slash, lessen, diminish, lower*; 'reduce the amount of money, especially costs, prices, etc.:' *cut, retrench, mark down, discount*; 'reduce the number of people in an organisation:' *cut, slim down, downsize*. If the strategy of lumping is used, the two more specific senses will not be so finely differentiated but instead will be subsumed under the more general, superordinate sense. This will clearly affect the range of synonyms for this use of the verb *cut* since the grouping of these senses leads to the merging of three potentially narrower synonym sets into a single, wider one: *cut, reduce, decrease, slash, lessen, diminish, lower, retrench, mark down, discount, slim down, downsize*. The proposed model is based on the assumption that a dictionary of synonyms should provide more complex synonym sets addressing and clearly outlining the similarities and, more importantly, the differences between synonyms within an extensive range. Hence, the practice promoted in this paper employs the strategy of lumping.

The aforementioned analysis is a necessary prerequisite for the second step in the given process — compiling synonym sets for the given word.¹ The formation of a synonym set starts with the establishment of its prototype, relative to which all its other members are identified and organised. Each prototype holds the most neutral and general meaning in each set, central and common to all other set members. These members are selected as words that express the same or a more specific meaning in comparison with the prototype. They generally represent a specialisation of the basic, general, prototypical meaning, as in the following example of the set corresponding to one of the senses of the headword *cut*: *cut, slit, slash, lacerate, gash, nick, notch*. However, it might happen that the given headword is not the prototype in each of its synonym sets. For example, *cut* is not the prototype in the synonym set corresponding to its sense 'hurt someone's feelings'. The prototypical member carrying the meaning central to all other members is *hurt*, while *cut* is one of the peripheral members (being more restricted in its use since its typical subjects are words or actions, not people and it is typically used with an adverbial modifier, such as 'deeply'). Still, the given set is listed within the entry for *cut*, but without any information on the synonyms (e.g. definitions, illustrative examples, etc.). Instead, cross referencing is applied, as can be seen in the illustration of the model in Section 4. Namely, the sense is cross-referenced, linking the primary entry to the entry for *hurt* and the given synonym set to which *cut* belongs and where the full information on all members of this set is provided. Hence, within an entry, complete information on synonyms is provided only in the case of sets whose central member is the headword itself. Furthermore, the overlapping of synonym sets across different entries is avoided through such a practice since polysemous headwords appear in only one completely evolved synonym set in each of their senses. It should also be noted that certain entries

may contain only cross-references if their headword is not the prototype in any of its synonym sets. For example, the verb *slash* has two senses. The first, 'violently make a long opening or wound in something with a sharp tool,' places it as a member of the synonym set formed for sense 1 in the entry for *cut*, as shown in the illustration of the model in Section 4. The second, 'make something significantly smaller in quantity, amount, size, etc.' makes it a member of the synonym set corresponding to sense 3.a. in the entry for *cut* as well (see Section 4). The entry for *slash* would, thus, contain two cross references, as can be seen in the following illustration:

slash *verb* /BrE slæʃ, AmE slæʃ/ slashes, slashing, slashed, slashed

See the entry for **cut** *verb*

1. MAKE AN OPENING OR A WOUND

cut, slit, slash, lacerate, gash, nick, notch

See the entry for **cut** *verb*

3.a. REDUCE THE AMOUNT OF SOMETHING

cut, reduce, decrease, slash, lessen, diminish, lower, retrench, mark down, discount, slim down, downsize

However, if a headword is a member in the set whose prototype does not have more than one synonym in, at least, two of its senses, this set cannot be included into the given dictionary since it does not adhere to the principle of the dictionary's compilation stated in the introduction to the paper.

The third step refers to the defining of synonyms included into an entry. The definition of the prototype serves as the basis for formulating the definitions of its synonyms. As Pisárčiková and Benko (1996: 691) underline, the explanation of the prototypical meaning is to be general enough to encompass the essential meaning of all synonyms in a set. Furthermore, a prototype definition used as a common pattern for defining all synonyms in a set acts as a formal indication of their relatedness to the prototype and, simultaneously, their mutual connection. For example, a sense of the verb *cut*, for which a rather complex synonym set can be compiled, is defined as 'make an opening or a wound in something with a sharp tool or object.' Acting as a prototypical definition, it serves as the base for all other synonym definitions in the set. Their specific sense components are tacked on to the prototypical definition, so their specific variations of its meaning are demonstrated. In this way, within a set, differences in meaning between any particular synonym and the prototype, as well as between synonyms themselves, is made apparent. As Adamska-Sałaciak (2013: 330) emphasizes, when choosing between alternative synonyms, it is not only their similarities but also their differences that play an important role. Thus, in the definition of the synonym *slit*, 'an opening or a wound' is more precisely and specifically determined by adding the adjectives 'long and narrow' to the basic, prototype pattern. The final formulation of this *slit* is 'make a long and narrow opening or

wound in something with a sharp tool or object.' Similarly, in the case of the synonym *slash*, the way in which an opening or a wound in something is made is specified with the adverb 'violently,' while the opening or wound itself is described as 'long.' This yields the final formulation; 'violently make a long opening or wound in something with a sharp tool or object.' In the definition of the synonym *lacerate*, the added information refers to the fact that there are typically a number of openings or wounds as well as the object in which they are made ('make a number of openings or wounds in skin or flesh with a sharp tool or object').

Definitions can also include stylistic and pragmatic information on synonyms since the contrast among them is often reflected in their specific collocational range or associative meaning. This can include expressive features (e.g. approving, disapproving) or stylistic features related to a specific dialect (e.g. British, American, etc.), sociolect (e.g. standard, non-standard, slang, etc.), register (e.g. formal, informal, spoken, written) or field (e.g. geometry, law, computing, etc.). These pieces of information can be provided in the form of labels before the very text of definitions. Typical collocations of a particular synonym that distinguish it from other synonyms in the given set are highlighted in example sentences following the definition. In addition, typical referents used with a particular synonym are provided in brackets before its definition (e.g. *retrench* '(of a business, government, etc.) make costs smaller').

The fourth step deals with the structure and organisation of each individual synonym set as well as each entry as a whole. An entry represents a system of a headword's synonym sets. Since each synonym set in this system is related to a particular sense of the headword, these sets are arranged so that their mutual relations correspond to appropriate senses in the polysemous structure of the headword. In other words, synonym sets are mapped according to, and following, the organisation of their corresponding senses in a particular polysemous structure. Therefore, sets corresponding to closely related senses are grouped within the same numbered section. Every set within a section is positioned within its specific field. The first set in a section is the one corresponding to the most general sense in the given group. This set regarded as the superordinate one is followed by sets corresponding to more specific senses, probably derived from the most general one through metaphorical extension, specialization or any other semantic mechanism. These subsets are numbered according to the model 1.a, 1.b, 1.c, 2.a, 2.b, etc. and ordered according to the descending scale of their corresponding senses' frequency of use in the contemporary language.²

The internal structure and organisation at the field level in an entry or an individual synonym set itself follow the principle 'from centre to periphery.' The prototype is followed by other members ordered according to the declining scale of their similarity to it. For example, in the synonym set of the headword *cut* corresponding to the sense 'reduce the amount or quantity of something,' members positioned immediately after the prototype are *reduce* and *decrease*,

since they show relatively close similarity to it. These two synonyms are followed by *slash*, whose meaning is slightly more specific in comparison with the prototype, as the extent to which something is reduced is implied ('significantly'). *Slim down* and *downsize* are the most peripheral members of the set on account of the precise specification of the referent ('companies, organisations') and their respective, specific components of manner ('by reducing the number of jobs') and aim ('in order to reduce costs'). If two or more synonyms are equally similar to the prototype (for example, *reduce* and *decrease* in the given set), their placement in the set is also determined according to the declining scale of their frequency of use in the contemporary language. The gradient relatedness of synonyms to the prototype is also visually presented in the sample entry in Section 4 by the indentation of their definitions; the greater the indentation the weaker the synonym's similarity to the prototype. If two synonyms are equally similar to the prototype, their indentation is the same. Synonyms practically identical to the prototype are not indented.

4. The illustration of the proposed model

The application of the proposed model representing a system of synonym sets is illustrated by the entry for the verb *cut*:³

cut *verb* /BrE kʌt, AmE kʌt/ cuts, cutting, cut, cut

1. MAKE AN OPENING OR A WOUND

cut, slit, slash, lacerate, gash, nick, notch

cut make an opening or a wound in something with a sharp tool or object:

[cut something + adjective] *She tripped over a stone and cut her head open.*

slit /BrE slit, AmE slit/ make a long and narrow opening or wound in something with a sharp tool or object: [slit something + adjective] *He slit open the envelope and took out the money.*

slash /BrE slæʃ, AmE slæʃ/ violently make a long opening or wound in something with a sharp tool or object: *My neighbour was so angry that he slashed the tires on my car.*

lacerate /BrE 'læsəreɪt, AmE 'læsəreɪt/ FORMAL make a number of openings or wounds in skin or flesh with a sharp tool or object: *I have seen that her leg was badly lacerated.*

gash /BrE ɡæʃ, AmE ɡæʃ/ make a long and deep opening or wound in something, especially human skin, with a sharp tool or object: *He gashed his hand with a broken bottle.*

nick /BrE nɪk, AmE nɪk/ make a small wound in something with a sharp tool or object: *I nicked myself while shaving so I'll just put a bit of toilet paper on my face.*

notch /BrE nɒtʃ, AmE nɑ:tʃ/ make a small V-shaped opening in an edge or a surface with a sharp tool or object: *He marked the place by notching one of the planks.*

1.a. HURT SOMEONE'S FEELINGS

hurt, wound, pain, cut, grieve, distress, upset, sting

See the entry for **hurt** *verb*

2. DIVIDE SOMETHING INTO PIECES

cut, slice, dice, cube, chop, carve

cut divide something into pieces with a sharp tool: [[cut something in/into something](#)] *She cut the cake into twelve pieces.*

slice /BrE slaɪs, AmE slɑ:s/ divide something into thin pieces with a sharp tool: *Slice the tomatoes and put them on the pizza.*

dice /BrE daɪs, AmE daɪs/ divide something, especially food, into small cubes with a sharp tool: *Dice the ham and then mix it with the vegetables to finish the salad.*

cube /BrE kju:b, AmE kju:b/ divide food into small cubes with a sharp tool: *The bread should be cubed and dried in the oven.*

chop /BrE tʃɒp, AmE tʃɑ:p/ divide something into pieces with repeated blows of a sharp tool, especially an axe or a knife: [[chop something into something](#)] *Please chop the carrots into equal pieces.*

carve /BrE kɑ:v, AmE kɑ:rv/ divide a larger piece of cooked meat into smaller pieces with a sharp tool for eating: *On this special day, my father always ceremoniously carves the turkey.*

2.a. DIVIDE SOMETHING INTO TWO PIECES

cut, cleave, sever

cut divide something into two pieces with a sharp object: [[cut something in/into something](#)] *You should cut the potatoes in half. After the accident, the car was cut in two by the train.*

cleave /BrE kli:v, AmE kli:v/ OLD-FASHIONED/ LITERARY divide something into two pieces with a sharp and heavy object: *He cleaved the log in half with an axe to light the fire.*

sever /BrE 'sevə(r), AmE 'sevər/ divide something into two pieces with a sharp object, especially suddenly and forcibly: *The bullet went through the window and severed the phone cord.*

2.b. DIVIDE A LINE IN TWO

cross, intersect, cut, bisect

See the entry for **CROSS** *verb*

3. MAKE SOMETHING SHORTER

cut, clip, trim, snip, shear, crop, barber, bob, pare, prune, pollard, mow

cut make something (grass, hair, etc.) shorter with a sharp tool: [**cut something+adjective**] *For this role, I had to cut my hair short. Your task is to cut the grass/lawn/hedge every week.*

clip /BrE klɪp, AmE klɪp/ make something shorter with scissors or shears: *He was clipping the hedge all morning.*

trim /BrE trɪm, AmE trɪm/ make something shorter and neater with a sharp tool: *If you want to be a good gardener, you have to trim hedges regularly.*

snip /BrE snɪp, AmE snɪp/ make something shorter with scissors using short quick strokes: [**snip at/through something**] *She grabbed a pair of scissors and started snipping at loose threads.*

shear /BrE ʃɪə(r), AmE ʃɪr/ FORMAL make someone's hair shorter: *The soldiers' hair was shorn before the ceremony.*

crop /BrE krɒp, AmE krɑ:p/ make someone's hair very short: [**crop something+adjective**] *She wanted a change so she cropped her long brown hair short.*

barber /BrE 'bɑ:bə(r), AmE 'bɑ:rbər/ make a man's hair shorter: *He wanted to neatly barber his hair before the party.*

bob /BrE bɒb, AmE bɑ:b/ make someone's hair shorter so that it is of the same length all the way around and sits above the shoulders: *She bobbed her hair so that everyone could see her new earrings.*

pare /BrE peə(r), AmE per/ BRITISH make something, especially one's nails, shorter so that it becomes smooth and neat: *When your nails are soft, it is easy to pare them.*

prune /BrE pru:n, AmE pru:n/ make a tree, shrub or bush shorter by removing its dead branches or stems with a sharp tool: *This month is the perfect time to prune roses.*

pollard /BrE 'pɒləd, 'pɒlə:d, AmE 'pɑ:lərd/ SPECIALIST make a tree shorter by removing branches at its top with a sharp tool: *Although the trees were pollarded, this avenue is still beautiful.*

mow /BrE məʊ, AmE moʊ/ make grass shorter using a machine: *He regularly mows the lawn/grass in front of his house.*

3.a. REDUCE THE AMOUNT OF SOMETHING

cut, reduce, decrease, slash, lessen, diminish, lower, retrench, mark down, discount, slim down, downsize

cut make something smaller in quantity, amount, etc.: *We can't buy the house if they don't cut the cost. The citizens asked from the local authority to cut spending/*

prices/taxes. [cut something by] *The company cut our salaries by 20%.* [cut something from something to something] *Is it possible for you to cut the article from 9000 to 7000 words?*

reduce /BrE rɪ'dju:s, AmE rɪ'du:s/ make something smaller in quantity, amount, size, etc.: [reduce something from something to something] *The company had to reduce the number of employees from 100 to 60.* [reduce something by something] *We managed to reduce our costs by 5%.*

decrease /BrE dɪ'kri:s, AmE dɪ'kri:s/ FORMAL make something smaller in quantity, amount, size, etc.: *I should decrease my sugar intake.*

slash /BrE slæʃ, AmE slæʃ/ INFORMAL make something significantly smaller in quantity, amount, size, etc.: *The company slashed the costs/prices by 50%.*

lessen /BrE 'lesn, AmE 'lesn/ make something smaller, weaker, etc.: *Such a tactic will help to lessen the influence of reforms.*

diminish /BrE dɪ'mɪnɪʃ, AmE dɪ'mɪnɪʃ/ make something smaller, weaker, etc.: *The captain's sickness will diminish our team's chances.*

lower /BrE 'ləʊə(r), AmE 'loʊər/ make something smaller in degree, value, quality, etc.: *The temperature should be gradually lowered.*

retrench /BrE rɪ'trentʃ, AmE rɪ'trentʃ/ FORMAL (of a business, government, etc.) make costs smaller: *The company will have to retrench.*

mark down /BrE mɑ:k daʊn, AmE mɑ:rk daʊn/ make a price of something smaller: *During the weekend, we will mark down all goods by 50%.*

discount /BrE dɪs'kaʊnt, AmE dɪs'kaʊnt, 'dɪskaʊnt/ make a price of something smaller: *This supermarket is discounting the price of sweets.*

slim down /BrE slɪm daʊn, AmE slɪm daʊn/ make a company or an organisation smaller by reducing the number of jobs: *The reforms require slimming down the workforce.*

downsize /BrE 'daʊnsaɪz, AmE 'daʊnsaɪz/ BUSINESS make the number of employees smaller in order to reduce costs: *At the meeting, they decided to downsize the cabinet.*

3.b. SHORTEN A TEXT, FILM, PERFORMANCE

cut, abridge, condense

cut make a text, film, performance shorter by removing some of its parts: *All the scenes that were not believable enough were cut.*

abridge /BrE ə'brɪdʒ, AmE ə'brɪdʒ/ make a text, film, performance shorter by removing some of its parts: *The first version of his speech was abridged.*

condense /BrE kən'dens, AmE kən'dens/ make a text shorter and concise: [condense something into something] *I think that the whole chapter can be condensed into a one-page text.*

4. MAKE SOMETHING WITH A SHARP TOOL

cut, carve, score, engrave, incise, etch, chisel, whittle

cut make something by using a sharp tool to remove material: [[cut something in something](#)] *They had to cut a hole in the floor to escape.*

carve /BrE kɑ:v, AmE kɑ:rv/ make something by using a sharp tool to remove material from wood or stone: [[carve something from/out of something](#)] *I carved the whole figure from a block of jade.* [[carve something into/in something](#)] *She carved a piece of stone into the shape of a heart.*

score /BrE skɔ:(r), AmE skɔ:r/ make a mark on a surface by using a sharp tool to remove material: *In order to recognise it later, score the plywood with a knife.*

engrave /BrE ɪn'grɛv, AmE ɪn'grɛv/ make a text or designs on the surface of a hard object by using a sharp tool to remove material (wood, stone, metal, etc.): [[engrave something on something](#)] *Her name was engraved on the ring.* [[engrave something with something](#)] *The plate was engraved with their symbol.*

incise /BrE ɪn'saɪz, AmE ɪn'saɪz/ FORMAL make a text or designs on the surface of a hard object by using a sharp tool to remove material (wood, stone, metal, etc.): [[incise something in/on/onto something](#)] *Human figures were incised in the stone.*

etch /BrE etʃ, AmE etʃ/ make a text or picture in a piece of glass, metal, etc. by using a sharp tool to cut lines: [[etch something in/into/on something](#)] *His initials were etched into the metal plate.* [[etch something with something](#)] *The glass is etched with her name.*

chisel /BrE 'tʃɪzl, AmE 'tʃɪzl/ make a shape in wood or stone by using a specific tool (a chisel) to remove material: [[chisel something+ adverb/preposition](#)] *She chiselled my name into the marble.*

whittle /BrE 'wɪtl, AmE 'wɪtl/ make a shape of a piece of wood, etc. by using a sharp tool to remove small pieces from it: [[whittle something from something](#)] *He whittled a female figure from a piece of wood.* [[whittle something into something](#)] *He whittled a piece of wood into a female figure.*

4.a. MAKE A SOUND RECORDING

record, cut, tape-record

See the entry for **record** *verb*

4.1 The proposed model in an electronic environment

Given the visual and processing efficiency of electronic dictionaries, there is an obvious need to examine the application of the proposed model in an electronic environment.

The main advantage offered by this format is its enabling of a more convenient visual organisation of large amounts of information. This is particularly

evident in such an entry as the one presented in the previous section of the paper. This entry can be displayed in the same visual layout in a print dictionary and an electronic dictionary. The only exception is cross referencing to another entry in the case of synonym sets in which the headword is not the prototype (e.g. See the entry for **hurt** *verb*). This note is omitted in an electronic dictionary as unnecessary since, even in the aforementioned case, the information on all synonyms can be accessed from the given headword's entry through hyperlinking, the additional benefit possessed by this format. Hyperlinking enables a visual representation that, in its basic form, offers a smaller amount of initial information, yet provides simple access to more detailed information. This initial presentation can be limited to only sense definitions of the given headword and synonym sets corresponding to them yet each synonym in these sets can be hyperlinked to more complete information. This can include its definition, example sentences, pronunciation, grammatical patterns in which it appears, and more. In this way, the basic appearance of an entry is not burdened with a large amount of detailed information, enabling a simpler and more efficient search experience. Hyperlinking is especially convenient for cross-referencing, a practice frequently used by the proposed model and already discussed in Section 4 of the paper.

Moreover, as the proposed model is based on the symbiosis of polysemy and synonymy according to the principles of prototype theory, an electronic environment allows for the visual representation of an entry in the form of a diagram, such as the following one:

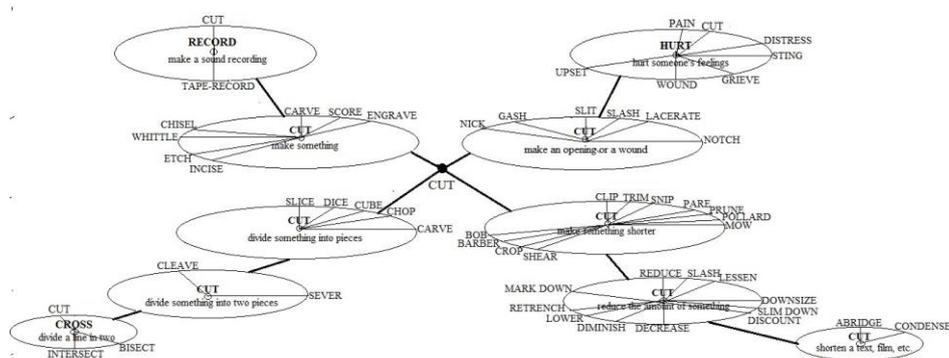


Figure 5: A diagram-based entry for *cut* in an electronic dictionary of synonyms

The diagram has already been recognised in lexicographic practice as suitable for presenting semantic structures of words and lexical relations, as in *The Thinkmap Visual Thesaurus* or *Visuwords*, an online graphical dictionary. The diagram above is based on the prototype theory view of a polysemous struc-

ture as a hierarchically organised set of derivationally related senses gathered around their prototype⁴. This representation of a word's synonymy includes only a part of its corresponding polysemous structure; only those senses for which synonym sets can be formed. Each of the ellipses in the diagram for the verb *cut* establishes both one of its meanings and the corresponding synonym set, whose internal organisation is prototype-based. In each case, the prototype is in the centre of the area enclosed by an ellipse, while its synonyms are represented by points on the given closed curve. The position of a synonym depends on its similarity with the prototype — the shorter the distance between a point on an ellipse and its centre (shown by the line connecting them), the greater the similarity between the given synonym and the prototype, and vice versa. Synonyms that are equally similar to their prototype are symmetrically positioned on a curve in relation to the centre (e.g. *cut* and *tape-record* in the ellipse representing the sense 'make a sound recording'). In an electronic dictionary, each synonym on an ellipse would be hyperlinked to the complete information on it, including all elements contained in the sample entry shown in Section 4. All pieces of information contained in the textual entry can thereby also be provided through a diagram. Such a diagram-based entry might offer its users a clearer and more succinct representation of a word's integrated synonymy. Furthermore, this visual format enables a quick and easy search for the desired word, including all the necessary information on semantic contrasts among synonyms.

5. Conclusion

Compared to existing ones, this model functions as an attempt to unify such synonym lists as found in *Collins Thesaurus: The Ultimate Wordfinder* or the *Oxford Thesaurus of English* with information on such synonyms as offered in the *Oxford Learner's Thesaurus*. Providing users with as much relevant information as possible about a word's synonyms within one entry is the driving concept behind this model. In fulfilling this goal, the model cannot follow the selective approach employed by the *Oxford Learner's Thesaurus*, but rather embraces one of inclusiveness.

The proposed model achieves comprehensiveness due to its relying on synonymy's dependence on polysemy, as one of its fundamental principles. It provides synonym sets related to different senses of the given word. The model is inclined towards inclusiveness within an individual synonym set as well, which can be, thus, complex including a wide range of synonyms.

Such an approach to a word's synonymy requires a long and complex dictionary entry providing a vast amount of information, which, however, needs to be clearly presented to dictionary users. The principle of complementarity between polysemy and synonymy also contributes to systematicity in the organization of synonym sets within an entry, which follows the organization of appropriate senses in the given polysemous structure. Hence, there are sec-

tions including sets corresponding to closely related senses. This model demonstrates that a word, beyond its polysemous structure, can acquire an organised structure encompassing all its synonyms. Such organization of synonym sets accompanied by indicators of corresponding word meanings is expected to enable an easier and quicker search for the needed set and, simultaneously, individual synonym.

Further systematicity and consistency in synonymy presentation is achieved by the application of the prototype-based view of synonymy. In each synonym set, all its members are identified and organised relative to the prototype according to a declining scale of their similarity to it, which can also be visually represented in an entry. The organisation of synonyms in a set obviously follows a clearly established system. In addition to this, there is a set pattern in defining synonyms according to which the definition of the prototype serves as the base for definitions of all other synonyms in the set. The applied prototype-based strategies can help users easily understand similarities and differences in meaning between any particular synonym and the prototype, as well as between synonyms themselves. Due to efficient demonstrating of nuances in meaning, it is believed that users can quickly identify synonyms that most accurately and precisely express the meanings sought. The application of prototype-based principles also affords a transparent diagram-based visual representation of a word's synonymy in an electronic dictionary offering a more convenient visual organisation of large amounts of information.

The cooperation of polysemy and synonymy, as a principle, is common to the proposed model and WordNet. However, in this model, based on a lexicographic treatment of synonymy that relies on polysemy, the cooperation of these two relations is viewed from a perspective opposite to that adopted by WordNet, in which polysemy depends on synonymy. It might be assumed that the lexicographic outcome would be the same regardless of which of the two perspectives is employed. Yet this is not true, despite their similarities. While in both cases the outcome is an entry containing a number of synonym sets corresponding to different senses of a polysemous word, a more detailed examination shows that synonym sets in the two models have different functions. As illustrated in Figure 3, synsets in WordNet serve to help a user to identify a particular lexical meaning. The selection of their members and their internal organisation are not meant to provide a comprehensive list of various ways of expressing a particular meaning, or to show mutual semantic distinctions among synonyms they comprise. This indicates that such sets do not fulfil the recognised primary functions of a dictionary of synonyms. In contrast, in the model proposed in this paper, synonym sets are designed precisely to serve these functions. Therefore, a synonym set corresponding to a particular meaning in WordNet will almost certainly be measurably different from one related to the same meaning in the proposed model. For example, the synset formed in WordNet for one of the senses of the verb *cut*, 'reduce the amount of something,' contains the following synonyms: *reduce, cut down, cut back, trim, trim*

down, trim back, cut, bring down. The members of the synonym set formed for the same meaning according to the model proposed in this paper are the following: *cut, reduce, decrease, slash, lessen, diminish, lower, retrench, mark down, discount, slim down, downsize*. Clearly, the representation of polysemy relying on synonymy and the representation of synonymy relying on polysemy are two different models of cooperation between the two lexical phenomena whose differing intrinsic purposes result in markedly different lexicographic outcomes.

Endnotes

1. In this paper, only the lexical segment of the lexicon is taken into account in the formation of synonym sets. Thus, these sets include only words.
2. For the purpose of illustrating the proposed model in Section 4 of the paper, the information on the frequency of particular senses of the verb *cut* has been obtained from English general-purpose and learner's dictionaries listed in the References.
3. For the purpose of forming a sample entry as an illustration of the proposed model, English thesauri listed in the References have been used as sources of possible synonyms of the verb *cut*.
4. More on polysemy from a prototype theory perspective including the presentation of a polysemous structure according to the radial set model in Halas (2016a).

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