A dynamic construal approach to antonymy[*]

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Abstract: Based on textual and psycholinguistic data, this article presents a Cognitive Semantic treatment of antonymy. It argues that antonymy is a conceptual construal, involving a contentful meaning dimension and a BOUNDED configuration. Form-meaning pairings are antonyms when they are used in binary contrast in discourse. In this respect, all antonym construals are on an equal footing, but nevertheless different lexico-semantic pairings have different levels of lexico-semantic affinity due to factors such as the salience of the contentful dimension, the configuration of the members that form part of the opposition, the symmetry of the members in relation to the BOUNDARY, contextual versatility and frequency.

Key words: corpus, dictionary, experiment, lexicon, ontologies, oppositeness, configuration

1. Introduction

This article presents a new look at a very old topic. At the time of Aristotle, there was already a long-standing tradition of using opposites in both philosophy and rhetoric. Yet, Aristotle is considered to be the first thinker to classify and to provide a systematic account of opposites (Ackrill 1963: 31-38, Lloyd 1966: 1–171). Oppositeness, or antonymy, which is the term used here, is a well-established notion in everyday contexts, as well as in many academic disciplines. It is a powerful relation in both thought and language, important to coherence in discourse as well as to the conceptualization of meaning through language and other modalities (Murphy, Paradis & Willners 2009).

Characteristic of antonyms is that they share an important segment of meaning at the same time as they differ prominently along the same dimension (e.g. Cruse 1986). Antonymy comes in different guises in linguistic communication. At the one extreme, it shows up as conventionalized antonym pairs such as *good–bad*, *heavy–light*, *hot–cold* and *slow–fast*. At the other extreme, antonymy may be construed for purposes of originality or poetic effect, e.g. 'The most beautiful things are those that *madness* prompts and *reason* writes.' (André Gide), 'Timid men prefer the *calm* of *despotism* to the *tempestuous* sea of *liberty*.' (Thomas Jefferson) or 'A *joke* is a very *serious* thing.' (Winston Churchill). In between those two extremes, there are numerous pairings which language users consider to be less good pairings, e.g. 'I prefer *calm* dogs to *high-strung* dogs', 'I prefer *calm* waters to *flowing* waters', 'I prefer a *calm* public to an *agitated* public' and 'I prefer *calm* conversation to *flame* warring', where the various different antonyms of *calm* are more clearly bound up with highly specific domains and situations (Murphy & Andrew 1993; Paradis 2005).

For decades, research on antonymy was tied up with the structuralist approach to meaning as a system of relations between words, leaving it separated from new insights into the dynamics of conceptual representations, and thus invisible to new observational

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techniques in linguistic research. With the growing sophistication of Cognitive Semantics and the development of computational facilities and experimental techniques, the foundation for research on antonymy has considerably improved. Based on a combination of a series of recent textual and experimental investigations (Jones et al. 2007; Murphy et al. 2009; Paradis et al. 2009; Willners & Paradis 2010), this paper offers a new take on antonymy as a linguistic category both by configuration (or schema) and by content. The primary goal is to propose a dynamic usage-based theoretical account for the category of antonymy that is capable of accommodating all kinds of antonym construals ranging from highly conventionalized lexico-semantic couplings to strongly contextually motivated pairings. The theoretical approach adopted is broadly that of Cognitive Semantics (Talmy 2000, Taylor 2003, Croft & Cruse 2004, Paradis 2005). Two questions are at the heart of the paper:

- What is antonymy?
- What are the differences between good antonyms, better antonyms and superb antonyms?

    The article is divided into 5 sections. Section 2 gives an account of the structuralist position of meaning in language in general and lexico-semantic relations in particular. Section 3 describes the Cognitive Semantic model, in which the present analysis of antonymy is couched. The empirical data that form the basis for the arguments in favour of a dynamic construal approach are reported in Section 4. Finally, Section 5 provides answers to the above questions concerning the nature of antonymy and the differences between good, better and superb antonyms and states the main contention of the article.

2. The structuralist position
The basic assumption of the nature of meaning in Saussurean Structuralism, is that every language is a unique relational system in which words receive their meanings from their relationships with other words in the same language system, i.e. meanings are not substantive but relational. This means that a word does not have an independent existence but derives its meaning from its position in a linguistic network. This also means that the sense of a word is the set of sense relations the word has with other words in the same lexical field. Within this approach, language is regarded as an autonomous, self-contained system of paradigmatic and syntagmatic relations between words. Language is compared to a game of chess with rules and values (langue) and alternatives (parole). Langue is thus the language system that underlies the language put to use in a certain language community.
    Lyons (1977: 239–240) makes use of the notions language system and language behaviour respectively. He points out that Saussure's doctrine of the language system is not entirely clear. On the contrary, it has given rise to a lot of controversy in the literature. Saussure emphasized the supra-individual and social nature of the language system; and yet he held the view that it also had psychological validity in being stored in people's brains. Not all structuralists conceived of the nature of meaning as Saussure did, but rather as a reflection of the external world. Lyons goes on to say that linguists working within the structuralist framework argue about whether there is an underlying universal system or not, and many will deny that this system is internalized. What is clear is that the structuralist focus is on language as an externalized object and not on something in the mind of the language users.
    Lexico-semantic relations are of two types: paradigmatic and syntagmatic relations. Lyons (1977: 270–317) is mainly concerned with lexico-semantic relations from a

paradigmatic point of view, focusing on relations such as antonymy, synonymy and hyponymy. Paradigmatic relations hold between lexical items which are intersubstitutable in a given position in a syntagm. In contrast, the syntagmatic approach, or the contextual/usage approach, defines the meaning of a word as its uses across its grammatical occurrences (Firth 1957; Cruse 1986; Sinclair 1987). The Firthian dictum has it that "You shall know the meaning of a word by the company it keeps" and collocation is a key notion. Cruse (1986), which is an important piece of work in the structuralist approach to word meaning and sense relations, is a cross between the two approaches. The individual chapters of his book are devoted to the two different types of sense relations, but he explicitly says that the approach adopted is a variety of the contextual approach (1986: 1). Cruse assumes that the semantic properties of lexical items are fully reflected in the relations they contract within actual and potential contexts, semantic as well as grammatical. The main disadvantage of the structuralist approach to meaning is that it is a static system where words have (a) set meaning in the relational network. The theory does not provide any tools for explanations of lexical flexibility in how antonymy is used in language, as illustrated by the different examples in the introduction and, moreover, there is a want of empirical data in most of the literature on lexico-semantic relations in the structuralist tradition. It has become increasingly clear that it is of the utmost importance for a theory of semantics to be able to account for the flexibility of lexical meaning in language use and meaning making.

3. The cognitive position

A leading principle in Cognitive Semantics is that meanings are mental entities in conceptual space. Meanings are in people's minds rather than relations within language, as in Structuralism. Words and expressions do not 'have' meanings but are cues for making inferences that promote adequate reasoning and understanding (Verhagen 2005: 22). Words and expressions evoke specific profilings of conceptual structures when they are used in text and discourse. Lexical meaning is the relation between the relevant parts of the total meaning potential of words and expressions. Lexical meaning is constrained by encyclopaedic knowledge, conventionalized mappings between lexical items and concepts and conventional modes of thought in different contexts and situational frames (Cruse 2002; Paradis 2003, 2005). According to this view, meanings of words are always negotiated and get their definite interpretations in the specific context where they are used. Multiple readings of words and expressions are natural and expected in a dynamic model such as LOC.

In LOC, conceptual space is structured relative to two types of ontological knowledge structures: contentful and configurational structures (see Table 1).

Table 1. Ontologies and cognitive processes in meaning construction, adapted from Paradis (2005).

Ontologies (conceptual structures)		Cognitive processes
Content	Configurations	Construals
CONCRETE PHENOMENA	PART/WHOLE, THING,	*Gestalt*: e.g. structural schematization
EVENTS, PROCESSES, STATES	RELATION,	*Salience* : e.g. metonymization,
ABSTRACT PHENOMENA	BOUNDEDNESS, SCALE,	generalization, profiling
	DEGREE, POINT,	*Comparison*: e.g. metaphorization,
	FREQUENCY, FOCUS,	categorization, analogy
	PATH, ORDER, MODALITY,	*Perspective*: e.g. foregrounding
	…	/backgrounding, subjectification

Both types of structures are conceptual pre-meanings. Conceptual structures involve meaning proper, i.e. content structures pertaining to THINGS, EVENTS and STATES, and configurations or schemas such as BOUNDARIES and SCALES. In addition to these conceptual representations, there is an operating system consisting of different types of *construals* such as assignment of focus of attention (salience) and Gestalt. Language put to use in human communication comes about through construal operations which are imposed on the concepts by speakers and addressees at the time of use. At that time, the definite contextual meaning construal is established (Paradis 2004, 2005, 2008). A great deal of flexibility is built into LOC in that configurational concepts are considered to be free structures that are mapped onto different content domains. This way of meaning modelling sets configuration free from contentful meanings. This also makes it possible for us to apply different configurations of one and the same contenful meaning structure. For instance, there is the construal of different parts of speech on the basis of LENGTH, as in *long, length* and *lengthen* (Paradis 2005: 546–549), or the construal of content structures on the basis of SCALE or BOUNDARY as in *very bad*, which is construed on the basis of a SCALE and *completely bad* where a BOUNDARY is profiled (Paradis 2008). Some meanings are more adaptable to different configurational construals. For instance, *very long* is perfectly felicitous, while *completely long* is strange. As will be demonstrated in this article, the advantage of LOC is that it is a highly dynamic model in which we are able to handle conventionalized as well as more *ad hoc* couplings between configuration and content.

4. The dynamic construal approach

Some lexical meanings are well suited for antonymic configuration construals in that they are inherently binary and have a built-in duality, e.g. *male – female* (Croft & Cruse 2004: 164–165). However this is not enough for a construal of antonymy since opposability also involves an element of comparison. The contrasting meanings have to be opposed in discourse. Murphy (2003: 45) argues for a general pragmatic principle of Relation-by-Contrast, governing all semantic relations, i.e. antonymy, synonymy, hyponymy, co-hyponymy and meronymy. The principle defines relations on the basis of minimal differences. For antonyms the contrast relation holds among the members of a pair, if and only if they have all of the same contextually relevant properties but one. I take this pragmatic definition as my point of departure and complement it with my cognitive semantic approach to antonymy, which offers an explanation for antonymy in language and thought and which also offers an account of why some lexical items tend to form set couplings.

I begin with the schematic structure of antonymy. When two meanings are used as antonyms in a context, they are construed as representing two sides of a dimension of meaning, and the binary contrast expressed is invoked through a process of comparison. LOC provides us with a contentful dimension of meaning which might be LENGTH, EXISTENCE, GENDER and a BOUNDED configuration. This way, a dichotomy can be set up, and the two opposites are located on either side of the boundary and they are contrasted through comparison in the context where they occur (see Figure 1). This means that on this view, all antonyms are equal in the sense that the category does not have internal structure – a pair along a meaning dimension divided by a boundary are either antonyms or they are not, and they are antonyms only if they are used in binary opposition in a given context. Granting that antonyms are used to express binary opposition, any dimensionally alignable meanings can be construed as a pair of antonyms, including everything from "What's the opposite of *riot*. It's *lots of people keeping quiet*" (Wilbur 1973: 8) through pairings such us "It is neither *good*, nor *bad*" and negated oppositions

"These flowers are both *beautiful* and *not beautiful*", or indeed construed in a fashion where one side of the contrast is left implicit, e.g. "I am *not your maid*", which very clearly points up the opposite of what a maid is supposed to do. It deserves to be pointed out that this is not the case for the corresponding affirmation, unless the expression is used ironically (Giora et al. 2009, Giora et al. 2010). In order to be able to explain degrees of goodness of opposability, we need a modelling component of conceptual structures and an operational component for the profiling of meanings in use and interpretation. For this reason we turn our focus of attention from antonymy as configuration to construal of antonymy in terms of content and strength of lexico-semantic conventionalization in language

First of all, adjectival meanings figure as prime expressions of antonymy. Direct antonyms in the *Princeton WordNet* are considered to be the hubs around which the adjective vocabulary revolves. In the light of antonyms *par excellence* there are clear similarities across the meanings of the antonyms that obtain high scores for co-occurrence in text sententially, in specific constructions and in psycholinguistic experiments of different kinds (Paradis et al. 2009; Willners & Paradis 2010) as well as of the headwords for which antonyms are offered in dictionaries and thesauri. Based on data from *Collins Cobuild Advanced Learner's English Dictionary* (2003), Paradis & Willners' (2007) study gives an indication of which items lexicographers consider to have conventionalized partners. The distribution of headwords with antonyms across word classes in that dictionary is as follows: 59% of the headwords are adjectives, 19% nouns, 13% verbs and 9% are adverbs and prepositions.

Among the adjectives with antonyms in *Collins Cobuild Advanced Learner's English Dictionary*, 95% express gradable meanings, either scalar such as *long–short* or non-scalar such as *dead–alive* (Paradis 2001; Paradis & Willners 2006). The remaining 5% of the adjectives are non-gradables such as *abstract–concrete* and *female–male*.[1] It is clear from Paradis' & Willners' (2007) study that what all adjectives with antonym partners in the dictionary share is that they express single properties, such as LENGTH, SIZE, EXISTENCE, SPEED, LUMINOSITY, STRENGTH, WIDTH, MERIT, GENERALITY and GENDER. This simplicity allows them to be maximally similar with respect to the contentful meaning structure at the same time as they differ maximally in signifying opposite poles of the dimensions in question by configuration. For instance, *long* and *short* are both associated with the content domain of LENGTH on a SCALE, and *dead* and *alive* are associated with EXISTENCE construed on either side of a BOUNDARY. The conceptual simplicity of the content expressed in combination with a configuration of SCALE or BOUNDARY invites binary contrast and makes it a prominent mode of construal of comparison.

In contrast, it is not equally natural for most non-gradable adjectives to form pairs, since many of them derive from nouns and thereby inherit more complex meaning structures (Paradis 2004/2011, 2005). For instance, it is not immediately obvious what would be the natural antonyms for *medical, economic, linguistic, musical* or *dental* from a semantic point of view. A possibility would of course be lexicalizations with the prefix *non-*, which turns meanings into their opposites 'not being X'. However, the

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[1] The diagnostic of gradable adjectives is that they can be qualified by degree modifiers. Scalar adjectival meanings may be modified by scalar modifiers, e.g. *very long,* and non-scalar meanings may be modified by totality modifiers, e.g. *completely dead* (Paradis 1997). Recall that words do not 'have' set configurations in LOC, but are amenable to construals that fit the context at the moment of use. This means that we may think of word meanings out of context as more or less biased towards scalar, non-scalar or non-gradable use, but it is always possible to employ different configurations with one and the same contentful meaning structure (Paradis 2008). From the examples and the definitions of the headwords in the dictionary, we get to know whether they are gradables or non-gradables.

productivity of the *non-* prefix in word formation makes it less useful and less informative in dictionary entries. Also, and perhaps more importantly, we only rarely have a need for lexical items that mean 'not financial' 'not linguistic', 'not pictorial' or 'not dental'. *Abstract–concrete* and *female–male* are examples of non-gradables offered in the dictionary. Both those pairs are symptomatic of how people categorize phenomena in the world and/or how the nature of the world forces us to categorize things accordingly, which is intimately linked to the process of linguistic conventionalization.

As shown by Paradis & Willners (2007), considerably fewer nouns than adjectives are provided with antonyms in the dictionary. This is of course hardly surprising since many adjectives signify single properties, while many nouns are expressive complex meaning structures which involve many properties. The nominal meanings for which antonyms are offered represent both abstract and concrete notions. Almost two thirds denote abstract meanings and the rest signify concrete meanings. There are abstract pairs such as *victory–defeat, advantage–disadvantage, pessimism–optimism,* and concrete pairs such as *borrower–lender, buyer–seller, hero–villain* and *dog–bitch.* As with the adjectives, the majority of the antonymic nouns profile simple content structures, which easily lend themselves to binary contrast. Abstract nominal meanings given antonym partners always profile simple content structures and the meanings of the concrete nominals profile particular conventionalized dimensions such as 'transfer of goods', 'personality', 'intelligence', 'status' and 'sex' and again, like for the adjectives above they mirror meaning segments that are natural and practical in people's worldly matters and doings (Paradis 2005: 549–554).

The majority of verb meanings with antonyms in the dictionary refer to bounded events, e.g. *accept–reject, agree–disagree,* and to unbounded events, e.g. *diminish–increase* and *criticize–praise* and a few of them refer to scalar and bounded states, e.g. *hate/love, like/dislike* and *dread–look forward to.* The semantic patterns are again similar to the adjectival and nominal meanings described above in being conceptually simple with a natural tendency to bisect a domain or form opposite poles on a scale. The final 9% consists of temporal, directional and locational prepositions and adverbs such as *in–out, up–down, before–after.* They are all simple meaning structure. They are straightforwardly binary in the sense that the individual members of the pairs very saliently prompt an opposition.

With this description of the semantic characteristics of conventionalized antonyms that deserve to be mentioned in a learner's dictionary in mind, Paradis et al. (2009) and Willners & Paradis (2010) carried out a series of investigations using both textual and experimental methods. Their focus in these studies is on adjectives since they are the types of form-meaning pairings most commonly associated with antonymy. The aim of the investigations was to identify whether there are two types of antonyms, canonical or non-canonical, or whether the strength and goodness of opposability is a matter of a continuum of canonicity. One of the experiments, the judgement experiment, pointed up a dichotomy between superb antonym pairings and other pairings, while the elicitation experiment indicates that antonymy is a cline from more to less strongly affiliated members. The investigations were carried out using both English and Swedish corpus data and both English and Swedish test items in the experiments. Both studies show that a very small number of adjectives could be identified on the basis of their being strongly co-occurring in sentences along certain meaning dimensions. Examples of such pairings are *good–bad, wide–narrow, dark–light, thin–thick, weak–strong* and *fast–slow*. The actual frequencies for these lexical instances of each dimension were outstanding both individually and as co-occurring pairings, which is taken to be a sign of their being

applicable in a large range of meaning structures and useful in a large range of contexts, individually and as pairs, in which case the dimensional meaning structure is guaranteed.

   The results of both the elicitation experiment and the corpus-driven study in both English and Swedish converge in a picture of the category of antonymic lexical meanings in English as a prototypicality structure ranging from a small number of excellent antonym partners to category members on the outskirts for which a partner does not come easy.[2] Figure 1 gives the complete three-dimensional picture of the responses. The X-axis shows the total number of antonyms suggested across each test word. The Y-axis gives all the test items of which every tenth word is supplied along the axis, while the Z-axis shows the number of given participant responses participants per antonym. The bars represent the various elicited antonyms in response to the test items. The height of the bars indicates the number of participants who suggested the antonym in question. There is a gradual decrease across stimuli in participant agreement of the best antonym for a given word. The low bars at the front represent a single antonym suggested by one experiment participant.
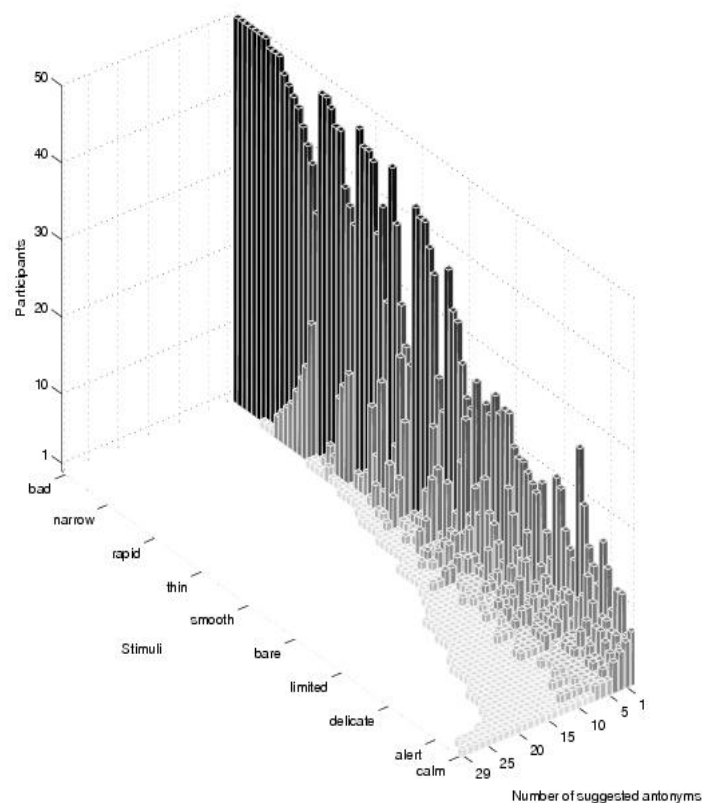

Figure 1. The distribution of English antonyms in the Elicitation experiment. The Y-axis gives the test items, with every tenth test item is written in full, the X-axis gives the number of suggested antonyms across the participants given on the Z-axis (Paradis et al. 2009: 403).

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[2] This does not mean that items that are less frequent in language cannot form strongly conventionalized pairings. For instance, had we included verbs, it is most likely that *maximize – minimize* would have scored high both in terms of sentential co-occurrence and in the experimental investigations, as indeed was shown by Herrmann et al. 1986. The same was shown by Jones et al's (2007) web study of antonyms in constructions.

At the top of the list of test items are those for which the participants suggested only one antonym: *bad* (*good*), *beautiful* (*ugly*), *clean* (*dirty*), *heavy* (*light*), *hot* (*cold*), *poor* (*rich*) and *weak* (*strong*), then the test items for which the participants suggested two opposites, e.g. *narrow* (*wide*, *broad*) and *slow* (*fast*, *quick*), the stimulus words with three different answers and so on. The very last item is *calm*, for which 29 different antonyms were suggested by the 50 participants. The shape of the list of elicited antonyms strongly suggests a scale of canonicity from very good matches to test items with no preferred partners.

An aspect that seems to be of importance for the best pairings is the salience of the dimension. The dimensions of which the conventionalized antonyms are representatives are salient in the sense that they are easily identifiable by us as language users. For instance, any adult speaker of English would be able to identify the SPEED dimension underlying *slow – fast*, while the dimension behind say *rare–abundant, calm–disturbed, lean–fat* or *narrow–open* appear to have a less transparent application with respect to the shared contentful dimension and would consequently create a fair amount of uncertainty among speakers. The results of the investigations also suggest that polysemy as such does not prevent word forms from participating in strongly conventionalized couplings with other words, e.g. *light – dark* and *light – heavy* or *narrow – wide* and *narrow – open*. What this seems to tell us is that contextual versatility is a reflection of ontological versatility, i.e. that the use potential of these antonyms applies in a wide range of contentful ontological contexts, and that they are frequent in constructions and contrasting frames in text and discourse – nothing more nothing less.

I therefore argue that antonym canonicity and conventionalization of pairings in language are two sides of the same coin. I side with Herrmann et al (1986:134–135) in their argument for a continuum of goodness of antonym pairings on three indicators, which is highly relevant for the level of strength of linguistic conventionalization too. They take the first indicator to be concerned with the clarity of the dimensions on which the pairs of antonyms are based – the clearer the relation, the better the antonym pairing. For instance, according to them the dimension on which *good – bad* is based is clearer than the dimension on which *holy – bad* relies. The clarity stems from the single component *goodness* for the first pair as compared to the latter pair which they claim relies on at least two pairs, *goodness* and *moral correctness*. In other words, the clearer the dimension is the stronger the antonymic relation. The second indicator is that the dimension has to be predominantly denotative rather than predominantly connotative, and the third indicator is concerned with the position of the word meaning on the dimensions. In order to be good antonyms the word pairs should occupy the opposite sides of the midpoint and the distances from the midpoint should be of equal magnitude, e.g. *hot – cold,* rather than the same side, e.g. *cool – cold* (Ogden 1932, Osgood et al. 1957). On this account, assessment of the structure of the category of antonymy based on the contentful side of the meanings point to a prototypicality structure that forms a continuum from antonyms, good antonyms, better antonyms and excellent antonyms.[3]

5. Conclusion

Two questions are at the heart of this analysis. They concern (i) what antonymy is, and (ii) what the differences between good, better and superb antonyms are. In answer to the

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[3] For a complete list of the English seed word and all the different antonyms they elicited, see Paradis et al. (2009) and for the list of Swedish seed words and the antonyms they elicited, see Willners & Paradis (2010).

first question concerning the nature of antonymy, I argue that antonymy is a binary opposition of some content. Antonymy is a binary construal of comparison in which the contentful dimension is divided by a BOUNDED configuration. The configuration of BOUNDEDNESS constitutes an absolute and necessary requirement for meanings in a certain content segment to be used as antonyms (irrespective of whether the configuration of the opposing elements against which the contrast is profiled is BOUNDED or UNBOUNDED). In contrast to this definition of antonymy by configuration (or schema), the categorization of antonymy by contentful meaning structures forms a continuum in that some pairings are 'better' pairings of binary opposition than others. The structure of the category of antonymy from the point of view of the content segment is one of prototypicality, with canonical pairings as core members and *ad hoc* couplings on the outskirts (Paradis et al. 2009). In answer to the second question, the article attempts to untangle the question of the nature of the meanings of the more canonical, conventionalized antonym pairings as opposed to all other pairings that have no such obvious partners, and it does so by appealing to their ontological set-up in terms of the salience of the contentful dimension as well as the configuration of the members that form part of the opposition, the symmetry of the members of the antonymy in relation to the BOUNDARY between the members of the pairs, contextual versatility and frequency. It is my contention that lexical items that are strongly coupled with an antonym partner in language as shown through different empirical indicators are all inherently binary along a salient contentful segment.

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