

1 Antonymy and antonyms

1.1 Introduction

Antonymy is unique among lexical semantic relations in that it requires one-to-one relations, rather than one-to-many or many-to-many. We can observe this in the different ways we talk about antonymy and synonymy in everyday English.

- (1) What's the opposite of *interesting*?
- (2) What's a synonym for *interesting*?

While question (1) presupposes a unique opposite, (2) allows for more than one answer. Within the Corpus of Contemporary American English (Davies 2008), *the opposite of* occurs 1,344 times but *an opposite of* only twice. On the other hand, *the synonym for* occurs only 4 times but *a synonym for* occurs 189 times. This peculiar binarity of antonymy means that some of the 'best' examples of the relation are those that either belong to semantic sets that naturally have only two members or are the polar categories of something (a dimension, an object, an event) that can be described in terms of a scalar dimension. An example of the two-member-set type is *female–male* – the only sexes for which English has well-known names. In the polarity case, we have adjectives that describe scalar dimensions (*short–tall*, *early–late*) and the 'poles' of things or events in space or time (*head–foot*, *start–finish*). But while these kinds of 'naturally binary' sets provide some of the clearest examples of antonymy, it is not sufficient to say that the existence of antonymy can be explained solely by the existence of binary sets and semantic dimensions with poles. This is because such an observation would not explain why two particular words form an (or the) antonym pair for a particular dimension/semantic field when other available synonyms are available (e.g. *large–small* rather than *large–little*), nor would it explain why some pairs are preferred over others in multidimensional semantic fields, such as taste (*sweet–sour* or *sweet–bitter* but not *sour–bitter*) or emotion (*happy–sad* but not *happy–afraid*).

It has been established that, unlike for other relation types, people have strong intuitions that various types of opposite relation all count under

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an umbrella category of OPPOSITE WORDS or ANTONYMS (Chaffin and Herrmann 1984) and that antonym relations are mastered earlier in our meta-linguistic development than synonym relations (Heidenheimer 1978). Murphy (2003:169) goes so far as to say that antonymy is ‘arguably the archetypical lexical semantic relation’. It is no surprise, then, that the advent of corpus linguistics has inspired a number of publications about antonyms and the antonym relation. Some of these (e.g. Mettinger 1994, Willners 2001, Jones 2002) have investigated the types of contexts in which antonyms typically co-occur in text, and some (e.g. Jeffries 2010, Storjohann 2010b) have considered the role of contextual properties in allowing for the construal of novel antonym relations. Other work (e.g. Paradis 2001, Murphy 2003, Croft and Cruse 2004) has remained on a more theoretical plane, emphasizing the context-dependence of antonym relations, in contrast with earlier Structuralist work.

This book bridges the gaps between the theoretical and the empirical, the more entrenched and the more creative uses of antonym pairs, and the paradigmatic and syntagmatic aspects of antonymy. Using a variety of textual and psycholinguistic evidence, we build up a theoretical picture of the antonym relation: how antonym pairings are semantically and contextually licensed and how they are stored and/or derived in speakers’ minds.

The purpose of this chapter is to give a brief overview of relevant work on antonymy, including historical and current theoretical approaches and empirical means of investigating antonymy. We discuss key contributions to the study of antonyms, moving from Aristotle to present-day perspectives, such as Relation by Contrast (Murphy 2003) and the Cognitive Construal Approach (Croft and Cruse 2004, Paradis 2010a). As we discuss each of these, we highlight unanswered questions and unsolved problems that deserve further investigation, setting out the necessary background information to frame this book within a wider academic context. The first step in this process, covered in the next section, is to define the basic terminology that is used. From there, we consider a range of theoretical perspectives and psycholinguistic and text-based empirical methods in turn, before outlining the remainder of the chapters.

1.2 Defining *antonymy* and *oppositeness*

We use **antonymy** to refer to the pair-wise relation of lexical items in context that are understood to be semantically opposite (as discussed below). Much of our work relies on the notion that antonym pairs can be judged to be ‘better’ or ‘worse’ exemplars of the category – for semantic, pragmatic, or form-related reasons. While we hold that antonymy is context-driven and available to a broad range of lexical pairings, this book (like much of the literature on antonymy) places particular emphasis on conventionalized pairings, also known as **canonical antonyms** (following Murphy 2003) – that is, pairs forming part of an antonym canon that is learnt through experience

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of the language. We use the term **opposite** to refer to the semantic relation between antonym pairs – that is, antonyms are understood to have meanings that are opposed to one another in a given context. Factors that contribute to particularly good antonym pairings may relate to more than just the two items' semantic oppositeness; for instance, the pairing of *increase* and *decrease* is supported by their rhyme and the perception of a parallel morphology, as well as their semantic opposition. The focus in this book is on the facts of meaning and usage that support antonym canonicity, rather than the contributions of formal properties like morphology, orthography, and so forth. Thus, when we write about antonymy, we are writing about the lexical and discourse instantiation of oppositeness, as well as antonym pairs stored in a language user's memory.

One could define **oppositeness** in terms of logical incompatibility – that is, if a thing can be described by one of the members of an antonym pair, it is impossible for it to be described by the other. So, if a person is a *man*, he is not also a *woman*. If a piece of string is *long* with reference to some contextual standard, it cannot also be *short* with reference to the same standard. But logical incompatibility is an insufficient criterion for defining oppositeness, since many pairs of lexemes are semantically or logically incompatible, but this does not lead to their use as antonyms. So, while it is unlikely for something to be both a *limerick* and a *pencil*, this is not reason enough to think of *limerick* and *pencil* as opposites.

The reason that *limerick* and *pencil* are unlikely to be construed as antonyms is that semantic opposition involves similarities as well as differences, and these two words are not similar enough. On the other hand, *black* and *white* are readily construed as antonyms because (a) they are **incompatible**, in that they cannot refer to the same colour, and (b) *white* shares with *black* more properties that are relevant to linguistic-semantic opposition than other possible antonyms for *black*, and vice versa, in that *black* and *white* are the only two basic colour terms that refer to unmixed, achromatic colours. This principle of **minimal difference** between members of antonym pairs has long been noted in the literature (e.g. Clark 1970, Hale 1971, Lyons 1977, Cruse 1986, Murphy 2003).

Describing antonymy in terms of maximal similarity and minimal difference means that words may have different antonyms in different contexts depending on which of the words' properties are most relevant to contrast within a particular context of use. Consider, for example, sentences (3) and (4), taken from British newspapers, which are discussed as contextual opposites in Jeffries (2010:79–80):

- (3) The evil genius behind the strategy that has turned the party from **unelectable** to **unstoppable** in 10 years.
- (4) Let the professionals remember that the politicians that the public likes best are not the **aloof** ones but the **human** ones.

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Table 1.1. *Distribution of antonyms across word classes in CCALED (Paradis and Willners 2007)*

Word class	Antonym(s) given	%
Adjectives	1,031	59
Nouns	317	19
Verbs	220	13
Other	182	9
Total	1,750	100

In (3), *unelectable* and *unstoppable*, two words that derive their minimal difference in part from being morphologically alike, are placed into a frame (*from X to Y*) in which antonyms are regularly found. In (4), the opposition between a pair of non-canonical antonyms (*aloof–human*) is accentuated by a contrastive conjunction and the parallelism of *the [X/Y] ones*. These examples demonstrate that, though some pairs can be described as canonical antonyms, any opposition can be licensed within an appropriate context.

Note that our approach to antonymy makes no particular claims about the types of words or semantic structures that are contrasted in an antonym pair. As such, we use the term *antonym* to apply to any relation of lexical oppositeness, in contrast to some theorists (e.g. Cruse, Lyons, Lehrer), who have restricted the use of this term to certain types of opposition (particularly, contrariety). So, for our purposes, *down–up*, *hate–love*, *man–woman*, and *north–south* are antonyms, as are *alive–dead*, *long–short*, *happy–sad*, and so forth. Nevertheless, we give more attention to adjectives in the following chapters than to other word classes, for the simple reason that common adjectives have antonyms more often than common nouns or verbs do. For example, adjectives constitute the majority of headwords for which *Collins COBUILD Advanced Learners' English Dictionary (CCALED)* lists antonyms (Paradis and Willners 2007), as shown in Table 1.1.

Adjectives' affinity for antonymy can be attributed to their relative semantic simplicity. They often describe a single property that can be had to greater or lesser degrees – as opposed to the complex conglomerations of properties that many nouns typically represent and the temporal and argument-structure complexity of verbs. To illustrate this point, Table 1.2 shows the five most common verbs, nouns, and adjectives in English according to the *Oxford English Corpus (OEC)*.

As Table 1.2 shows, all of the top five adjectives have unambiguous, conventionalized antonyms, whereas we can identify conventional antonyms for only one noun and arguably one verb in this list. Where antonyms are available for nouns or verbs, they are not as available across contexts as the adjectival antonyms. This is demonstrated by the percentage figures in Table 1.2, which show that the contexts for the top adjectives can usually support

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Verbs		Nouns		Adjectives	
OECD frequency ranking	Antonym [substitutability]?	OECD frequency ranking	Antonym [substitutability]?	OECD frequency ranking	Antonym [substitutability]?
1. be	—	1. time	—	1. good	<i>bad</i> [95%]
2. have	—	2. person	—	2. new	<i>old</i> [99%]
3. do	<i>undo</i> [2%]	3. year	—	3. first	<i>last</i> [90%]
4. say	—	4. way	—	4. last	<i>first</i> [50%]
5. get	—	5. day	<i>night</i> [64%]	5. long	<i>short</i> [74%]

substitution of a single antonym, whereas this is not the case for most of the top nouns and verbs. The numbers in Table 1.2 were arrived at by searching for the term in the British National Corpus (BYU-BNC, Davies 2004), then testing a random sample of 100 sentences to see if the proposed antonym would be grammatically and idiomatically substitutable. Though substitutability alone is not an indicator of antonymy, it is a good measure of semantic similarity. On a ‘minimal difference’ definition of oppositeness, the substitutability of the adjectival antonyms indicates that they have a ‘better’ fit as potential antonyms (i.e. have fewer differences) than the noun and verb pairs in the table. So, for instance, sentences containing *good*, such as those in (5) (from the BNC data), would be equally grammatical and interpretable if *bad* had been substituted for *good*, and that was the case for 95 of the 100 sentences sampled. On the other hand, around one third of the cases of *day* could not be substituted by *night*, as illustrated in (6) and almost none of the cases of *do* could sensibly be replaced by *undo*, as shown in (7).

- (5) a. Still, me ears ain’t as good (bad) as they was.
 b. Many had had a ‘good (bad) war’
 c. children are not a good (bad) investment
- (6) a. she could have eaten it all day (night) long
 b. I bought her those the day (night) before she died
 c. He was justly celebrated in his day (*night) as a populariser of science
- (7) a. How do (*undo) you know about the state he’s in?
 b. I did (*undid) very well
 c. it was only ‘natural’ to do (*undo) so.

The closeness of the antonyms’ meanings (investigated further in Chapter 7) is a contributing factor to canonicity. As well as being a diagnostic for minimal

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semantic difference, substitutability may also contribute to strengthening canonical relations because antonym pairs become conventionalized through their co-occurrence in text (see Chapter 2). That co-occurrence is facilitated by contextual parallelism (recall examples (3) and (4)) – which is only possible when the two members of the pair are substitutable in terms of their grammatical and collocational properties.

All of this is not to say that there are more adjectival antonyms in absolute terms than nominal antonyms, nor that adjectival antonyms are more commonly used in text. Lobanova *et al.* (2010), for example, found more examples of co-occurring nominal antonym pairs than adjective ones in a Dutch corpus. It is to say, however, that antonym relations are more central to the adjective classes than to other classes. Other symptoms of the antonym–adjective correlation are the prevalence of antonym responses for adjectives in word-association tests (Deese 1965) and in dictionary and thesaurus entries for adjectives (see Chapter 2). This has led some (e.g. WordNet: Miller 1990, Fellbaum 1998) to posit that the adjectival lexicon is unlike the nominal and verbal lexicons in being organized primarily by semantic opposition. Since we do not start from an assumption of an organized lexicon (see below), we do not assume that the antonym relation is different for adjectives than for other word classes. Instead, it is our intention to address the semantic roots of the adjective–antonym correlation and to explore the textual symptoms of such central members of the antonym category.

1.3 Key perspectives on antonymy and opposition

Having determined what *antonymy* is (or, at least, how we use the term in this book), the next step is to explore some of the ways in which it has been handled in the literature. Each of the following subsections, therefore, introduces a different theoretical perspective on antonymy, notes its influence, and points towards ways in which this book incorporates the approach or seeks to develop it further.

1.3.1 *Classical and Structuralist perspectives*

Much modern thinking about the antonym relation harks back to categories of propositional opposition devised by Aristotle (Ackrill 1963, Lloyd 1966), who created a diagrammatic representation ('the square of opposition') for universal and particularized affirmations and negations (*Every S is P*; *No S is P*, etc.). This diagram (discussed more closely in Chapter 5) introduced a range of terminology, including *contradictory* and *contrary*, that have been adopted (not always uncontroversially) in more modern philosophical and linguistic approaches, including Structuralist and Generativist (e.g. Bierwisch 1989) approaches. We examine the Structuralist approach in more detail here, as its vocabulary and agenda for the study of antonymy has been most influential in lexicological studies.

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Work on relations at the lexico-semantic level are of key importance to the ideas within Structuralism, more precisely within European, or Saussurean, Structuralism. At the most general level, the central thesis of the approach is that every language is a unique relational system (Lyons 1977), the units of which derive their meanings from their relationships with other words (Saussure 1959). Lyons (1977), who is among the most prominent figures in Structuralist semantics, points out that Saussure's doctrine of the language system has given rise to controversy because his published writings are not entirely clear about questions related to the basis of meaning in language. On the one hand, Saussure emphasized the supra-individual and social nature of the language system; however, on the other hand, he also held the view that the system has psychological reality, as it is represented in the minds of individual language users.

For Lyons (1977), meaning is a system of relations between words. He contrasts his own position to that of Trier (1931), who claimed that every word calls forth its opposite in people's consciousness. Lyons does not express an opinion about whether oppositeness in the linguistic system is caused by a universal dichotomizing tendency or whether it is due to the pre-existence of a large number of opposed lexemes in language, but says that 'it is a fact of which the linguist must take cognizance, that binary opposition is one of the most important principles governing the structure of languages; and the most evident manifestation of this principle is antonymy' (Lyons 1977:271). The relation is taken as a primitive and a universal principle by other writers in the Structuralist tradition too – for example, Lehrer and Lehrer (1982) and Cruse (1986; mostly following Lyons 1977) divide opposites into four main types:

- **Complementaries** comprise pairs that in their default interpretations exhaustively bisect a domain into two sub-domains, as for *alive–dead*, *closed–open*, *false–true*.
- **Contraries** denote degrees of some property, e.g. *fast–slow*, *long–short*, *thick–thin*. Structuralists typically reserve the term *antonym* for members of this subcategory.
- **Reversives** denote change in opposite directions between two states, as in *dress–undress*, *fall–rise*.
- **Converses** denote two opposed perspectives on a relationship or transfer – for example, *buy–sell*, *child–parent*.

Lexico-semantic relations in the Structuralist framework are of two fundamental types: they are either **paradigmatic** or **syntagmatic** relations. A paradigmatic relation is one in which the related words constitute a set of potentially substitutable expressions, including antonymy, synonymy, and hyponymy. A paradigmatic approach to lexical relations (e.g. Lyons 1977) is therefore one that focuses on the semantic properties that define such sets.

Syntagmatic relations are relations of collocation and co-occurrence. A syntagmatic (or contextual/use) approach describes the meaning of a word

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as its uses across contexts (Firth 1957, Sinclair 1987), hence the Firthian dictum ‘You shall know the meaning of a word by the company it keeps’. Cruse’s 1986 approach to lexico-semantic relations is a cross between the syntagmatic and the paradigmatic. While much of his research is devoted to paradigmatic relations, he also points out that it is impossible to ignore the syntagm:

The two types of relation have their own distinctive significance. Paradigmatic relations, for the most part, reflect the way infinitely and continuously varied experienced reality is apprehended and controlled through being categorised, subcategorised and graded along specific dimensions of variation. They represent systems of choices a speaker faces when encoding his message. Syntagmatic aspects of lexical meaning, on the other hand, serve discourse cohesion, adding necessary informational redundancy to the message, at the same time controlling the semantic contribution of individual utterance elements.

(Cruse 1986:86)

In this book we expand on some aspects of the agenda set in Cruse’s contextualist account. In particular, we explore antonym co-occurrence in texts and what it reveals about the nature of the relation, both in language and in language users’ minds. Where we need vocabulary for types of semantic opposition, we make use of the terminology from Cruse (1986).

Structuralist approaches treat relations as stable properties between words, but, since the latter part of the past century, linguistics has witnessed a widespread reaction against seeing language as a stable system of contrasts within which we make choices. With the development of new theoretical insights in language and cognition and new computational methods, research on lexical relations has experienced a revival and has seen further development. However, the notion that lexical meaning is organized according to stable relations among words is maintained in the now-global WordNet project (Miller 1990, Fellbaum 1998), which represents lexical-semantic knowledge as networks of links between word senses. These links are labelled by relational type (e.g. synonym, antonym, hyponym), and the antonym relation is presented as the primary means of organizing the adjective lexicon and as a minor relation for other word classes. Antonym relations in WordNet can be either **direct**, in which case there is an antonym link between two word senses, or **indirect**, in which case one or more of their synonyms are direct antonyms. The pairs that WordNet scholars label ‘direct’ bear a superficial resemblance to those that we characterize as ‘canonical’. However, the term *canonical*, unlike *direct*, does not imply a particular model of lexical organization.

1.3.2 Relation by Contrast

Murphy (2003) develops a theoretical model (begun in Murphy 1995, 2000) in which antonym relations – and indeed all paradigmatic lexical

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relations – obtain between words in use. As such, it presents an explicit argument against the position (most commonly associated with the Structuralist tradition) that lexico-semantic relations are central to the organization of the lexicon. Taking the example of *black* and *white*, then, Murphy claims that there is no need to represent the knowledge that they are antonyms in the lexicon, since their opposition is predictable from a pragmatic principle of minimal difference, shown in (8), which she terms **Relation by Contrast (RC)**.

(8) *Relation by Contrast (RC)*

The contrast relation holds among the members of a set if the members of the set have all the same contextually relevant properties but one (Murphy 2003:44).

Different types of semantic relation arise through different applications of RC that specify the nature of the contrasting property. Antonymy is categorized as a binary realization of a more general relation of ‘lexical contrast’, the instantiation of RC presented in (9):

(9) *Relation by Contrast – Lexical Contrast (RC–LC)*

A lexical contrast set includes only word-concepts that have all the same contextually relevant properties but one (Murphy 2003:170).

The key difference between this approach and semantic approaches that make reference to minimal difference is that RC does not refer to particularly semantic properties of the contrasted words. Instead, it holds that lexical relations are ‘metalexical’, rather than represented in the lexicon. Relations obtain between ‘word-concepts’ – that is, conceptual knowledge *about* words, rather than lexical or semantic representation *of* the words. This means that the goodness-of-fit between two members of an antonym pair can rely on properties of the words (or their use) other than (as well as including) their semantic properties. Thus, collocational preferences, morphological properties, rhyme, alliteration, connotation, social register, and so forth can come into play in judging word pairs as related (e.g. antonymous) or not, as well as (and especially) the particular communicative demands of the context. The requirement that the related word-concepts be as similar as possible in ‘contextually-relevant properties’ determines the semantic nature of the relation, since it would be extremely rare that meaning was less relevant to a communicative context than other aspects of words, such as morphological complexity or rhyme.

Because the Relation-by-Contrast approach does not rely on any particular theory of semantic representation, it is consistent with any theory for which semantic relatedness itself is not a determinant of meaning. As a pragmatic approach, it focuses on the ways in which antonym relations are derived in contexts of use, offering ample evidence that antonym choice is context-sensitive. However, Murphy acknowledges the psycholinguistic

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evidence (see Chapter 3) for an antonym canon – which entails knowledge of antonym pairings, not just knowledge that allows the derivation of antonym pairings. She argues that the psycholinguistic methodologies for determining relational entrenchment are evidence for metalexical, rather than intralexical, knowledge and processes, and therefore the knowledge that, say, *black* is the antonym of *white* is recorded in the conceptual representation of knowledge *about* the words, rather than lexical knowledge that contributes directly to the formation of grammatical and sensible utterances. At the same time, however, there is (a) textual evidence for canonical antonymy (that is, co-occurrence of pairs across a range of frames known to associate closely with antonyms – see Chapter 2) and (b) the propensity for canonical antonym substitution in speech errors (see Hotopf 1980). Both of these contribute evidence that preference for canonical pairings is not just present in the artificial experiments, but also in on-line utterance generation. In order to reconcile the position that the mental lexicon is not semantically organized with the evidence that canonical relations influence utterance construction in terms of co-occurrence and collocation, Murphy 2003 has to propose a roundabout way of involving word-concepts as well as words themselves in utterance generation.

The present book develops and improves upon Murphy's 2003 account by (a) providing further evidence for the antonym canon and the means for measuring antonym canonicity, (b) adopting an adaptation to Construction Grammar (following Murphy 2006) that allows for linguistic representation of paradigmatic relations without proposing fixed *semantic* relations in the lexicon, and (c) paying attention to the semantic detail that allows generation of antonym pairings with minimal relevant difference as per Relation by Contrast.

1.3.3 Previous Cognitive approaches

Despite the fact that a great deal of research within Cognitive Linguistics is concerned with lexical semantics, relatively little attention has so far been given to the study of antonymous relations, either in terms of theoretical development or empirical work (exceptions include Cruse and Togia 1996 and Paradis 1997, 2001). The earliest cognitivist studies are restricted to oppositeness in adjectives, and centre on the relation between gradability and different logical types of oppositeness.

Building on Structuralist work on antonymy, Cruse and Togia (1996) provide the first attempt to develop a Cognitive model for scalar antonyms such as *bad–good*. In order to be able to account for antonyms within the Cognitive framework, they invoke a number of theoretical notions used in Cognitive Linguistics (Langacker 1987, Lakoff 1987). The most important notion is that of **domain**, which in Cognitive Linguistics is defined as any complex conceptual structure (Langacker 1987). Domains organize