1 Introduction

The present study is situated at the interface of morphology and lexical semantics. It investigates the semantics of two derivational English suffixes: *-age* and *-ery*. Although some recent investigations have started to study the semantics of affixation systematically (e.g. Lieber 2004), there are, on the whole, very few thorough accounts of the semantics of derivational morphology. This leads Lieber (2012: 2108) to claim that "the most neglected area of morphological theory in the last three decades has been derivational semantics".

One of the reasons for the lack of research in this area may be the challenges that word formation processes pose for semantic description. Semantic description is, of course, never easy or straightforward. Even for word meaning, a phenomenon that is much better researched and understood than the semantics of derivation, there are multiple theories and approaches that vary greatly with regard to the aspects of word meaning they formalise and the ways in which they do so (e.g. Wierzbicka 1996, Geeraerts 1997, Pustejovsky 1995). Apart from strengths and weaknesses that are particular to the varying approaches, the problems encountered in the area of lexical semantics are similar to those of derivational semantics. One of the main differences is that aspects like polyfunctionality or synonymy seem to be much more pronounced for derivational semantics and that, especially regarding affixation, there is the added difficulty of trying to account for the meaning of elements that never occur in isolation and are always dependent on other morphological elements.

Polyfunctionality and synonymy in particular are often mentioned as problematic with regard to affixation (e.g. Beard & Volpe 2005). The derivatives of one and the same affix can have very different readings. Consider, for example, the following derivatives of *-age*: *schoolage* 'a fee paid for tuition at a school'[1], *patronage* 'the right of presenting a member of the clergy to a particular ecclesiastical benefice or living', *screenage* 'screens collectively', *hourage* 'the aggregate number of hours spent in working or travelling', *bondage* 'the tenure of a bonde', *riffage* 'riffing, esp. on a guitar', *victimage* 'the condition of being a victim', *parachutage* 'a drop site', or *spillage* 'that which is spilt'. At first glance it certainly seems unlikely that one and the same affix can give rise to derivatives with so many highly different readings. On the other hand, the derivatives of different affixes can have very similar readings. Both *-age* and *-ery* derivatives, for example, often refer to collectives such as *blossomry* 'blossoms collectively' or *twiggage* 'twigs collectively'. Sometimes doublets with identical semantics, at least according to the para-

[1] Where possible, the semantic paraphrases used in this study are based on the semantic paraphrases provided in the *Oxford English Dictionary online* (OED).

phrases in the OED, are recorded, e.g. *vassalage* 'a body or assemblage of vassals' and *vassalry* '=vassalage'. Such amounts of polyfunctionality on the one hand and synonymy on the other are not common in the realm of lexical semantics but seem to be the norm for derivational semantics.

In light of this situation, the present study has two aims. First, it investigates the semantic structure of the two derivational suffixes *-age* and *-ery* in Middle English (ME) and Present Day English (PDE) in two different data sources – a dictionary (*Oxford English Dictionary online* (OED)) and a corpus (*British National Corpus* (BNC)). Although a number of researchers provide overviews of the semantics of English affixes (e.g. Marchand 1969, Dalton-Puffer 1996, Bauer, Lieber & Plag 2013), such detailed accounts of individual affixes are rare. The present study aims to find out which readings are expressed by derivatives at which point in time, whether there is semantic change from ME to PDE, and which readings are used more often than others. This goes beyond a mere list of possible readings, because the connections and dependencies between these readings, and, thus, the semantic structure of each morphological category is exposed. Such an account can also shed light on the development of polysemy within a morphological category – do polysemous structures, for example, arise slowly over time, or are they already found in the earliest usage period of derivatives?

The second aim of this study is the introduction of a new way of representing the semantic structure of grammatical categories such as derivational affixes: an adapted semantic map model. This model is based on implicational semantic maps as spelled out in Haspelmath (2003). The adapted semantic map model is envisaged as a pre-theoretical tool that can help to expose and compare the semantic structure of morphological categories, allowing for generalisations and abstractions based on the attested data. These can then, in a later step, form the basis of theoretical approaches to derivational semantics.

The theoretical background to this investigation is discussed in chapters 2 to 4. Chapter 2 explores the issue of affixes and meaning. Because of problems in accounting for the semantics of derivation like the ones already mentioned above, it is not clear whether it should be assumed that affixes make an independent semantic contribution to derivatives. There are two fundamentally different approaches to morphology: one, the morpheme-based approach, assumes that morphemes, including affixes, have independent meaning, and another, the word-based approach, claims that only words themselves have meaning. These two opposing views will be discussed in chapter 2 before the stance taken in the present study is described. Chapter 3 then discusses previous approaches to the semantics of grammatical categories. Two accounts in particular, Lieber's skeleton and body model (Lieber 2004) and the semantic map approach (Haspelmath 2003 among others), have informed the approach taken in the present investigation and will be discussed in some detail. Chapter 4 introduces the adapted semantic map

approach that will be used in this study. Details on the individual elements of the semantic maps and on their exact construction are provided here, and it is also explained how the semantic structure of grammatical categories is described.

Chapters 5 and 6 form the empirical part of this investigation. Chapter 5 discusses the neologisms of *-age* and *-ery* attested in two different time periods in the OED, and is thus a diachronic analysis, while chapter 6 is based on corpus data from the BNC, which represents late 20th century language usage. The different data sources provide information on the range of readings expressed by the derivatives of both affixes, and the incorporation of corpus data allows us to investigate which readings are frequently expressed and which might be rare occurrences. Semantic maps are used to discuss the semantics of the derivatives in both of these chapters. A conclusion in chapter 7 describes the semantic structure of *-age* and *-ery* derivatives and compares the results of the different data sources. It also assesses the suitability of the adapted semantic map model in accounting for the semantics of derivational affixation.

2 Affixes and Meaning

As a study that is concerned with the semantics of affixation, the present investigation has to come to terms with some fundamental issues regarding the semantics of affixes. There is a major divide in morphological theory concerning the analysis of affixed words such as *unhappy* or *beautiful*. Some approaches assume that such words are concatenated from a number of morphemes, e.g. *un-* and *happy*. These are called morpheme-based approaches. A different way of analysing words like *unhappy* is to assume that they are part of a set of words that contain the word-initial phonological string /ʌn/ and express a similar meaning to *unhappy*, e.g. *unlawful* or *unbelievable*. These are called word-based approaches. The difference between these two ways of analysing words lies in the concept of the morpheme. Morpheme-based approaches consider the morpheme as a unit of form and meaning and the smallest meaningful building block of words. Morphemes can be added to one another according to certain word formation rules to form larger structures, namely morphologically complex words. Word-based approaches look at the paradigmatic structure of sets of words and do not have to use a concept like the morpheme to find regularities between words. Affixes are naturally viewed very differently by these two approaches. While morpheme-based theories consider affixes to have meaning and to make a semantic contribution to their derivatives, word-based approaches do not make reference to affixes as independently meaningful elements.

This chapter reviews the main tenets of both approaches as well as some of their strengths and weaknesses. Evidence on the processing of morphologically complex words is also presented. Different processing models are closely related to the theoretical approaches to morphology, and the psycholinguistic data will shed some light on how complex words are analysed.

2.1 Morpheme-based Approaches to Morphology

Morpheme-based approaches to morphology assume that the morpheme is a unit of form and meaning, and the "smallest meaningful unit" in language (Plag et al. 2007: 66, but compare also Bauer 1983, Plag 2003, Katamba & Stonham 2006). Such a definition is intuitively appealing, as many examples quickly come to mind to support this position: free morphemes such as *tree* or *chair* are also lexemes, and these clearly have meaning. But bound morphemes such as affixes are also assumed to be meaningful in a morpheme-based approach. The meaning of such elements is not as intuitively obvious as that of lexemes, but it can still be discerned: *un-* means 'not' in *unhappy*, *unlucky* and *unimportant*; *-ness* means 'state of being X' in *happiness*, *laziness*

and *blueness*; *-ing* means 'action of doing X' in *drawing*, *flattening* and *questioning*. The complex words that are derived from a base and an affix in the above examples combine bases and affixes in a straightforward way not dissimilar to how words are combined to form a sentence. A similarity to syntax is indeed postulated in many morpheme-based approaches, for example when bases and affixes are combined according to word formation rules that are influenced by syntactic phrase structure rules. Both bases and affixes have a specified phonological form and a meaning that can be combined to render a composite phonological form and a composite meaning. Such an analysis seems to account well for the examples given above. It also has the advantage of explaining why affixation, i.e. the concatenation of morphemes, is so pervasive in the world's languages. Haspelmath and Sims (2010: 43) claim that "morpheme concatenation is the most common kind of morphological pattern cross-linguistically. By treating concatenation as the fundamental (or only) type of morphological rule, the morpheme-based model provides a natural explanation for this fact".

In spite of their theoretical elegance, morpheme-based approaches have problems explaining other processes of word formation than affixation. The most obvious problems with the definition of the morpheme as a unit of form and meaning are a morpheme with a form, which is usually called *morph*, but without meaning, as well as a morpheme without a morph, but with meaning.

Both of these cases are attested in English. Some suffixes, for example, are clearly recognisable, but do not seem to make a semantic contribution to the supposed derivative. Consider, for example, the synonymous adjectives *syntactic* and *syntactical*, whose parallel existence and identical semantics show that *-al* does not add any meaning to the complex word in this case. The suffix *-al* is, in spite of its lack of meaning, still recognisable as a distinct element, as it also occurs in other adjectives, for example *magical*, where it derives adjectives from nouns, and thus clearly makes a semantic contribution. One might conclude that only *magical* contains the suffix *-al*, while the string <al> as the final element in *syntactical* does not represent a suffix. However, the structural and functional properties of the two adjectives are so similar that one hesitates to accept this explanation. Let us turn to the second possible problem with the traditional definition. A morpheme without a phonological realisation, but with meaning, is usually called a *zero morph*. This somewhat abstract construct is used to explain the otherwise puzzling occurrence of conversion, a word formation process which is, in English, often used to transpose nouns into verbs or verbs into nouns. The noun *cook*, for example, is derived from the verb *to cook*, and the verb *to google* is derived from the noun *google* without any overt marking. To explain this phenomenon without disposing of the morpheme, the morph is said to be invisible, while the meaning change from verb to noun or vice versa represents the conceptual side of the morpheme.

Further problems for the notion of the morpheme as the smallest meaningful unit in language are generated by non-concatenative word formation processes, i.e. processes that do not consist of the addition of meaningful morphemes to other morphemes in a linear way. These processes clearly have meaning, but their form is often difficult to establish – it may be invisible (conversion), consist at least partly of the deletion of material (truncation, backformation, *-y* diminutives), alternate the existing material (vowel change), or might be expressed by more than one form (extended exponence). Even affixational processes raise questions as to their supposed unity of form and meaning, as the following discussion will show. It is therefore fair to conclude that the morpheme as the smallest meaningful unit of language is a problematic notion. Carstairs-McCarthy (2005: 22) even says that it is an understandable position if some linguists "conclude that the term 'morpheme' has hindered rather than helped our understanding of how morphology works". According to him there have been different reactions to this problem in recent years: some scholars continue to use the term *morpheme*, but "some or all morphemes are explicitly not regarded as Saussurean signs" (Carstairs-McCarty 2005: 20), others continue to use it without "much theoretical weight being attached to it" (ibid.), and a third group does no longer use the term at all. In this study, the term *morpheme* will be avoided, as it seems to raise more questions than it answers. If it occurs, it will not have any theoretical value, i.e. I will not use it to comment on the sign-like status of morphological elements.

2.1.1 Morpheme-based Accounts and Affixes

Although the traditional definition of the morpheme is at the very least problematic, one could argue that affixes may still be considered form-and-meaning units, as most of the problems concerning the morpheme are posed by non-affixational word formation processes.

One of the issues mentioned above that also pertains to affixes is their polyfunctionality. The same affix can often be found in derivatives with a range of meanings, but different affixes also seem to give rise to very similar derivatives. The suffix *-age*, for example, can be found in derivatives denoting locations (*orphanage*), collectives (*baggage*), actions (*creepage*), amounts (*mileage*), or states (*victimage*). Derivatives of *-ery* have a similar range of meanings and refer to locations (*eatery*), collectives (*blossomry*), actions (*milksoppery*), or states (*smuggery*). Polyfunctionality is only a problem if one presupposes a one-to-one relationship between form and meaning of an affix, a principle also known as isomorphism. According to this principle, a given form should only have one meaning, which poses problems for polysemous forms. It is, however, "a truth universally acknowledged that natural languages do not exhibit an absolute one-to-one correspondence between meaning and form" (Booij 1986: 503). This is true for both lexemes and affix-