

Are Affixes Signs?

The semantic relationships of English derivational affixes

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Lieber argues that affixes are no different from ordinary lexemes – they are just bound. Therefore, they are signs. Beard, taking the opposite position, says that affixes (and function words) are completely different. If affixes are just like lexemes, they should exhibit the syntactic and semantic properties of lexemes. Lieber has explored the syntactic similarities, and in this paper, I explore semantic similarities, using English derivational affixes as a data source.

Lexemes typically are polysemous, and they enter into a number of lexical-semantic relationship, such as synonymy, antonymy, and hyponymy. I show that we find in English some of the semantic properties typical of lexemes, namely polysemy, synonymy, and antonymy. The absence of other semantic properties follows from the fact (as Beard has shown) that affixes encode a limited set of meanings.

1. Introduction

One controversy in morphological theory involves the extent to which affixes exhibit sign-like behavior. Although this issue has been discussed in linguistic theory at least since Saussure (1965) and was a problem for structuralists in their definition of the morpheme, it has been revived in recent morphological theory. Lieber (1992) and others view affixes as ordinary signs, just like lexemes, whereas Beard (1988, 1990, 1995) sees them as non-sign-like, even semantically empty. The most typical linguistic signs – lexemes – have one or more meanings and a syntax. This raises the question of whether elements smaller than words, namely bound morphemes, have the same properties. Lieber has explored the syntax of bound morphemes, and in this paper I wish to explore the meanings of one subclass of bound morphemes – derivational affixes. If affixes are lexeme-like, we would expect them to exhibit certain salient properties, such as entering into lexical-semantic relationships like synonymy, antonymy, hyponymy, etc.

2. Comparing derivational affixes and lexemes

The semantic relations that will be examined will be the following: first polysemy, then the most important paradigmatic relations (synonymy, antonymy, hyponymy, and meronymy) and finally some syntagmatic relations.

2.1. Polysemy

Like most lexemes, derivational affixes are polysemous, and the study of their development over time mirrors the semantic shifts found in lexemes. For example, the prefix *meta-* has two related currently productive senses: The first sense is '(an) X about (an) X' as in *metalanguage*, *metarule*, *metaquotation*, and *metastatement*. Thus a *metarule* is 'a rule about a rule or rules' and a *metalanguage* is 'a language about a language or about languages'. The second sense is 'a foundational study of X' as in *metapsychology* or *metahistory*. In this case, *metapsychology* is the foundational study of psychology. Historically, the first sense developed from the second, and we can see the beginning of a semantic shift from the first sense 'about' to 'of' in words like *metapopulation*, glossed as 'a population of populations', not 'a population about populations' (Lehrer 1995).

Another example of polysemy involves the suffix *-ist*, which has a very general meaning – 'one who is or does X', but there are three related clusters: (1) 'one who performs an action involving X' e.g. *violinist*, *harpist*; (2) 'one who holds an ideology', e.g. *socialist*, *capitalist*; (3) 'one who is prejudiced against some group', e.g. *racist*, *sexist*. These last two senses are paired with *-ism*, and the third sense developed out of the second. *Racism*, (*racialism*) was the ideology that there are differences among races, and since this ideology was used to justify discrimination, it acquired a negative connotation in recent social and political climates. This last sense is found in neologisms like *ageist* and *classist* 'one who discriminates against people because of their age or class' respectively, and *speciesist* 'one who unjustifiably discriminates in favor of humans over other animals'. The range of related senses and the semantic shifts of *meta-* and *-ist* are just what we find in the polysemy and semantic shifts of lexemes (Lehrer 1998).

A third example of polysemy is seen in the English suffix *-er*, denoting an agent (*baker*, *driver*, *dancer*) or an instrument (*vacuum-cleaner*, *toaster*, *opener*), and *-er* can be glossed as 'one who or that which does X' where X replaces the verb to which this suffix is added.

A study of derivational affixes in English will show that polysemy is the norm and that few affixes have only one sense.¹

¹ Homonymy is found among words and affixes, but since homonymy is not a semantic relation – it is a case of accidental phonological and orthographic identity – it will not be discussed here.

3. Paradigmatic relations

The most important paradigmatic relationships found among lexemes are antonymy (of various types), synonymy, hyponymy, and meronymy.

3.1. Antonymy

Antonymy is widely found in English prefixes from both Latinate and Germanic origins. Prefixes attach to free words and bound roots. The Germanic items also function as adverbs. Below are some examples.

super – sub	superordinate	subordinate
	superset	subset
hyper – hypo	hyperactive	hypoactive
	hypernym	hyponym
pre – post	prewar	postwar
	prenatal	postnatal
pro – anti	pro-choice	anti-choice
	pro-education	anti-education
micro – macro	micro-economics	macro-economics
mini – maxi	miniskirt	maxiskirt
over – under	overachieve	underachieve
	overworked	underworked
up – down	upgrade	downgrade
	upstairs	downstairs
in – out	input	output
	inlet	outlet
in – ex	inhale	exhale
	introvert	extrovert

There is also one antonymous pair of suffixes: *-less* and *-ful*.

-less – ful	careless	careful
	harmless	harmful

Several of the morphemes among the prefixes are identical to free morphemes, either prepositions or adverbs, and in many cases they are the result of grammaticalization, that is, the evolution of free morphemes to bound ones. The meanings of most affixes are largely limited to concepts involving space, time, and quantity, that is, to concepts that are frequently expressed by grammatical means in languages (Beard 1995). There are also many instances where affixes have no antonym formed from the morpheme paired

above (*expert, beautiful*, but no **inpert, *beautiless*); in other cases the pairs of words are not antonymous, e.g. *inlaw-outlaw*. Part of the explanation lies with the fact that derivational morphemes, including the most productive ones, are not as productive in word formation as full lexemes are in phrase and sentence production. But in general, we see that antonymy is well represented as a semantic relation among affixes.

3.2. Synonymy

As often noted, synonymy is rarely absolute in that one usually does not find complete interchangeability. Rather we must think of synonyms as words whose meaning and distribution are very similar; there may be subtle connotative differences but substitution can occur in a wide range of cases. Beard (1990, 1995) uses this fact to dispute the sign-like behavior of affixes. He says that we do not find the subtle differences of meaning in affixes that we find in lexical synonymy, citing nominalizing suffixes (*-(at)ion, -ity, -ness*, etc.) However, choosing other affixes will show that parallels can be found among some derivational affixes. Consider a subset of agentive suffixes: *-er, -ist, -ster, -eur, -eer*, and *-ian*.² The first two are highly productive, and their difference in distribution can be accounted for in terms of the different bases they attach to: *-er* attaches to verbs and *-ist* to nouns.

The other four are not highly productive, but they do occur in neologisms, and when they are so used, they exhibit subtle differences of connotation. *-ster* has a negative connotation that ranges from naughty to very bad, found in words like *trickster, huckster, gangster*, and *mobster*. This point was brought home to me during the attempted coup in the Soviet Union in 1991, when a television news commentator referred to the anti-Gorbachev agents as *coupsters*. (This word was created during a discussion, not read from a prepared script.) More recently *fraudster* was used to describe a scientist who had published research based on lies.

-eur, because it is found in French loan words, carries a cluster of connotations of something exotic and foreign, but also with an association of skillfulness, as found in words like *raconteur, masseur, restauranteur*, and *provocateur*. Although it is not productive, it occurs in neologisms, like *scripteur* 'a script-writer' (Algeo 1991: 97) or *ecopreneur*, a blend of *ecology* and *entrepreneur*.

-eer also has a very slight negative connotation, and it refers to agents who

² There are a few other suffixes, such as *-ee*, which is mostly a patient-marking suffix but occurs as an agent with unaccusative verbs (see Bauer 1983). There are also some agents with *-ant/-ent* (see Szymanek 1989: 181).

are enthusiastic about banal activities, or perhaps activities which are shady or undesirable, e.g. *mutineer*. Neologisms listed in Algeo (1991: 94) include the following:

aeroneer	'enthusiast of model airplanes'
blacketeer	'black market operator'
concerteer	'a concert goer'
conventioneer	'one who attends a convention'
dandelioneer	'a state employee designated to dig dandelions'
pigeoneer	'keeper or trainer of homing pigeons'
privateer	'an operator or advocate of private ownership of a public utility'
pulpateer	'one who writes for pulp magazines'
sloganeer	'one who attempts to influence by the use of slogans'

A dean in charge of promoting a new program described himself as a *marketeer*.

The agentive use of the suffix *-ian* that is of interest here is that attached to nouns and adjectives ending in *-ic* or nouns ending in *-ics*, where the *-s* is dropped before *-ian*. Examples are *phonetician*, *mathematician*, *electrician*, *magician*, *geometrician*, *musician*, *theoretician*, *politician*, *physician*, *statistician*, *optician*, and *academician*. The suffix here refers to a skilled or professional practitioner of the occupation or specialty named in the base.

Even though there are words that do not carry these connotations for each of these suffixes, e.g. *engineer*, *youngster*, *chauffeur*, the existence of numerous words that do outweighs any exceptions, providing a general meaning that is found when neologisms are created.

Most morphologists would attribute neologisms constructed from non-productive affixes to the mechanism of analogy, but another possibility is Bybee's model of lexical connection (1988, 1995), where associative strength among the representation of lexical items plays a major role in productive processing. This model is promising in dealing with these phenomena, since it would account for creative uses of non-productive processing.

Another area where we find affixal synonymy is in the suffixes *-ship*, *-dom*, and *-hood*. Each of these has a range of senses, and the synonymy is only partial, but it is similar to that found in lexical items. The sense that they share is 'state or quality of being', as in *friendship*, *serfdom*, and *motherhood*. A consequence is that in the creation of neologisms, there is more than one possibility: e.g. *kingdom* (in the sense of the state of being a king vs. *kinghood*; *catdom* vs. *cathood* (cited in Walker 1936); *dogdom* (cited in Wentworth 1941) vs. *doghood*.

Other examples with three possibilities include *thiefdom*, vs. *thiefship*, vs. *thieffood*; and *cronydom*, vs. *cronyship*, vs. *cronyhood*. (See Wentworth 1941 on *-dom*.)

Subtle semantic differences have been observed for different negative prefixes, for example *un-/in-* versus *non-/a-*, as in pairs such as *immoral* vs. *amoral* and *nonchristian* vs. *unchristian*. Semantic differences can also be found in the reversives *un-* vs. *de-* (*unfrock* vs. *defrock*; *uncode* vs. *decode*). (See Algeo 1971; Andrews 1986; Funk 1986; Horn 1989; Zimmer 1964; and the many references therein.)

Finally, in examining the list of antonyms above, we find synonyms among them, for example, *hyper-* and *super-*; *hypo-* and *sub-*; *pre-* and *ante-*; *mini-* and *micro-*; *maxi-* and *macro-*.

When we look at the distribution of roughly synonymous, but rival affixes and compare them to the distribution of lexical synonyms, we see a great difference, however. On the whole, affixes tend to be in complementary distribution (van Marle 1985), whereas in the case of lexical synonyms we find tolerance for most combinations. To be sure, we do find doublets, as illustrated below (with examples from Szymenek 1989: 156 and Bauer 1983: 290).

falseness	falsity
morbidity	morbidity
impecuniousness	impecuniosity
inextricableness	inextricability
flippantness	flippancy
recentness	recency
zesty	zestful
grammaticalize	grammaticize
minimalize	minimize
lech	lecher
normality	normalcy
complacence	complacency
defectiveness	defectivity

Doublets for agent suffixes, with differences of meaning, include the items below

jokester	joker
spinster	spinner
copiest	copier
informant	informer

Most often we find doublets for a short time, while rival affixes compete for acceptance, and a choice is made. This reflects an indeterminacy about the

most appropriate new word for a new concept (or new to the lay public). For example, when many new linguistics departments were established in the United States in the 1960s, a member of such a department was often called a *linguistician* by nonlinguists, analogous to *mathematician* and *phonetician*, since the word *linguist* had the meaning to many nonlinguists of 'a person who speaks many languages', a concept that linguists have lexicalized as *polyglot*. In time, however, *linguistician* ceased to be used.

A possible counterpart to the complementary distribution of rival affixes might be found in conventional compounds and fixed phrases: *handcuff*, not **wristcuff*; *distant future*, not **?far future*. Another parallel can be found in collocations. Examples from Cruse (1986: 281) are the following:

<p>acceptable spotless kitchen flawless performance unblemished record</p>	<p>unacceptable flawless, unblemished kitchen spotless, unblemished performance flawless record</p>
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To sum up, synonymy is a common relationship among affixes, and we find parallels to lexical synonymy.

3.3. Hyponymy and meronymy

One of the commonest and most important lexical relationships is that of hyponymy. In most semantic fields there is a superordinate term with several incompatible co-hyponyms. However, among the English affixes, the only example I could find, and a marginal one at that, is *multi-* which serves as a superordinate for *bi-*, *tri-*, etc.

Another common lexical relationship is the part-of relationship, and this one, like hyponymy, is missing from the inventory of affixes.

Beard (1995) explains the restricted types of lexical semantic properties found in English affixes and the affixes of most other languages by pointing out that the meanings expressed by affixes (derivational and inflexional) are the same as those found in function words. For example, in English meanings of affixes can also be expressed by prepositions or by logical words, like *not*; or else they are affixes that can be paraphrased by very general words (ACTION, AGENT, EVENT, STATE, QUALITY); or they can be paraphrased by highly restricted modifiers, like *former*. Below are some examples of affixes with their nearest free-word paraphrase.

Affix	Free word
pre-	before
meta-	about

anti-	against
un-	not
-ist	one who is or does
-er	one who or that which is or does
-ion	act of
-hood	state of
ex-	former
vice-	substitute
semi-	half

Beard observes that in most languages affixes and function words are alike in that the meanings they express are limited and are similar to each other.

A related explanation is suggested by the work of Miller & Fellbaum (1991), who have looked at the linguistic networks of words in English and the kinds of lexical semantic relationships that are found among the different parts of speech. Whereas taxonomy, hyponymy, and meronymy are the commonest kinds of relationships found in nouns, scales and antonyms are the commonest found in adjectives. Verbs are in between, and among the verbs one can find some examples of hyponymy and some of antonymy.

Almost all nouns in languages are rich in lexical content, denoting many specific things (concrete and abstract), persons, and places, and through nominalization, states, events, and properties. Although there are a variety of nominalizing suffixes (*-tion, -ness, -ity*, etc.), their meaning is so general that it is not possible to identify them with specific enough categories. This fact may provide a partial explanation for why hyponymy and meronymy are missing from affixes.³

4. *Syntagmatic relations*

Derivational affixes (and some inflexional affixes) are intimately connected with syntactic relationships in that they may change the part of speech or the subcategorization frame and they may add or delete arguments of a verb. However, in addition to these phenomena, lexemes are often related by specific collocations and semantic field associations, such as the relationship

³ Mithun's contribution at this conference (1996) has provided several case studies which seriously challenge the view that affixes express only the limited meanings found in grammatical or functional morphemes. In particular, in many languages of North America, affixes express meanings typically found among nouns and verbs of Indo-European languages.

between *eat* and *food*, *drink* and *beverage*, *read* and *book*, *cook* and *chef*, *play* and *game*, etc. There are also syntagmatic relationships of the sort described as semantic incorporation, such as *kick* and *foot*, *punch* and *fist*, and *hurry* and *fast* where an instrument or manner is part of the meaning of the verb. This type of syntagmatic relationship does not appear among English affixes, nor presumably that of most languages, but this fact also follows from the nature of the meanings of affixes, as discussed above, because affixes do not encode the highly specific types of meanings found in lexemes. (But see footnote 3.) The verb meanings we find are very general, such as CAUSE, BEGIN, DO, etc. and the nominal meanings are THING, PERSON, PLACE, etc. Although we can see an analogy between the agent-action relation in lexemes like *A chef cooks* and *An X-er X-izes*, such associations are forced.

5. Global properties of lexemes and affixes

The lexicon is often divided into two sets of partially overlapping contrasts: (1) open classes vs. closed classes and (2) content words vs. function words. Content words typically belong to open classes and function words to closed classes. The distinction is clear in most cases, but there are disagreements on categories such as prepositions, which have been considered function words by many structuralists but are grouped with nouns, verbs, and adjectives (as lexical classes) in generative and post-generative theories. Prepositions constitute a (mostly) closed but rather large class, at least larger than other closed classes, like modals, determiners, pronouns, quantifiers, and conjunctions. Manner adverbs also constitute an open class.

A similar distinction between content and function items can be made in the affixes. Some affixes, such as nominalizing suffixes (*-ation*, *-ness*, etc.), exist for grammatical purposes.⁴ In contrast, most English prefixes and some suffixes (e.g. *-able*, *-ful*, *-less*, *-free*, *-ess*, *-ly*) have more specific meanings, and it is these that exhibit the relationships of synonymy and antonymy.

⁴ Whether they have any meaning has been debated. Many linguists deny that they have any meaning; others, (e.g. Langacker 1987; Wierzbicka 1988) argue that nominalization itself produces a conceptual change because each part of speech carries a meaning, and nominalizing a verb or adjective adds this meaning.

6. Affixes and combining forms

I have assumed, without comment, that there is general agreement on what items are included in affixes and what are not. One class of items that may be controversial is bound morphemes that have been described as **neo-classical compounds** and **combining forms**. Combining forms include the parts of neo-classical compounds and other formatives that are the results of splinters from blends that have become productive, such as *-gate*, meaning 'political scandal' from *Watergate*. Algeo (1991) treats these as affixes. For example *bio-*, *Euro-* and *eco-* are listed as prefixes, while *-gate* and *-naut* are listed as suffixes. Bauer (1983), Warren (1990), Lehrer (1998) and others present strong arguments for treating these as bound stems, not as affixes, and Beard concurs (1995). So far I have not found any fully convincing tests that would allow us to draw the distinction in borderline cases. And it may be that the only importance in drawing the distinction lies in evaluating Beard's claim that the meanings encoded in affixes is limited. If *Euro-*, *bio-* etc. are prefixes, then the kinds of affixal meanings will not be limited, and consequently the semantic relationships will include hyponymy, meronymy, and other relationships.

7. Conclusion

To return to the original question: Are affixes signs? Beard selected as his primary examples morphemes with relatively little meaning, and I selected those with the most meaning. In looking at all the cases we see a cline rather than a clear-cut division. Beard's criticisms against the sign-view of affixes is especially convincing in the case of zero-morphemes (which some linguists have posited) and somewhat convincing in the case of purely grammatical affixes. Although affixes may encode only a limited set of meanings, and although there are many that are semantically general, there are still many that have rather specific and stable meanings. The affixes with such meanings as well as the semantic relationships that exist, in particular, antonymy and synonymy, are just what we find in free, open class lexemes. Therefore, I conclude that affixes and function words are signs.

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References

- Algeo, J. (1971). The voguish uses of *non*. *American Speech*, **46**, 87–105.
- Algeo, J. (1991). *Fifty Years Among the New Words: A Dictionary of Neologisms, 1941–1991*. Cambridge: Cambridge University Press.
- Andrews, E. (1986). A synchronic semantic analysis of *de-* and *un-* in American English. *American Speech* **61**, 221–232.
- Bauer, L. (1983). *English Word Formation*. Cambridge: Cambridge University Press.
- Beard, R. (1988). On the separation of derivation from morphology. *Quaderni di Semantica* **9**, 3–59.
- Beard, R. (1990). The empty morpheme entailment. In W.V. Dressler, H.C. Luschützky, E. Pfeiffer & J.R. Rennison (eds.), *Contemporary Morphology, Trends in Linguistics, Studies and Monographs* **49**, 159–169. Berlin: Mouton de Gruyter.
- Beard, R. (1995). *Lexeme- Morpheme Base Morphology*. Albany, N.Y.: State University of New York Press.
- Bybee, J. (1988). Morphology as lexical organization. In M. Hammond & M. Noonan, (eds.), *Theoretical Morphology*, 199–142. San Diego: Academic Press.
- Bybee, J. (1995). Diachronic and typological properties of morphology and their implications for representation. In L.B. Feldman (ed.), *Morphological Aspects of Language Processing*, 225–246. Hillsdale, N.J.: Lawrence Erlbaum.
- Cruse, D.A. (1986). *Lexical Semantics*. Cambridge: Cambridge University Press.
- Funk, W-P. (1986). Toward a definition of semantic constraints on negative prefixation in English and German. In K. Kastovsky, A.J. Szwedek, B. Ploczinska & J. Fisiak (eds.), *Linguistics Across Historical and Geographical Boundaries*, 876–889. Berlin: Mouton de Gruyter.
- Horn, L.R. (1989). *A Natural History of Negation*. Chicago: University of Chicago Press.
- Langacker, R.W. (1987). *Foundations of Cognitive Grammar*. Stanford, Calif.: Stanford University Press.
- Lehrer, A. (1987). A note on the semantics of *-ist* and *-ism*. *American Speech* **63**, 181–85.
- Lehrer, A. (1995). Prefixes in English Word Formation. *Folia Linguistica* **29**, 133–148.
- Lehrer, A. (1998). *Scapes, holics, and thons*: The semantics of English combining forms. *American Speech* **73**, 3–28.
- Lieber, R. (1992). *Deconstructing Morphology*. Chicago: University of Chicago Press.

- van Marle, J. (1985). *On the Paradigmatic Dimension of Morphological Creativity*. Dordrecht: Foris.
- Miller, G.A. & Fellbaum, C. (1991). Semantic networks of English. In B. Levin & S. Pinker (eds.), *Lexical and Conceptual Semantics*, 197-229. Amsterdam: Elsevier Science Publications.
- Mithun, Marianne. (1996). The meanings of roots and affixes. Paper presented at the Seventh International Morphology Conference, Vienna, Austria. February, 1996.
- de Saussure, F. (1965). *Cours de Linguistique Générale*, published by C. Bally & A. Sechehaye. Paris: Payat.
- Szymanek, F. (1989). *Introduction to Morphological Analysis*, Warsaw: Panstwowe Wydawnictwo Naukowe.
- Walker, John (1936). *A Rhyming Dictionary of the English Language*, revised and enlarged by L.H. Dawson. New York: Dutton.
- Warren, B. (1990). In W.V. Dressler, H.C. Luschützky, E. Pfeiffer & J.R. Rennison (eds.), *Contemporary Morphology*, Trends in Linguistics, Studies and Monographs **49**, 111-132. Berlin: Mouton de Gruyter.
- Wentworth, H. (1941). The allegedly dead suffix *-dom* in Modern English. *PLMA* **56**, 280-306.
- Wierzbicka, A. (1988). *The Semantics of Grammar*. Amsterdam & Philadelphia: John Benjamin.
- Zimmer, K.E. (1964). *Affixal Negation in English and Other Languages*. Supplement to *Word* **20.2**, Monograph 5.