

Exocentric compounds

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Abstract The notion of an exocentricity is explored, and some of the problems with it are mentioned. A range of exocentric types from a number of languages are introduced, and classified into a small number of major groups. Given that exocentric compounds are fundamentally defined by not being endocentric, rather than by having something in common, this cross-linguistic agreement is surprising. It is argued that there is always an analysis for such apparently exocentric compounds which does not involve invoking exocentricity, but involves a figurative reading—just not a consistent figurative reading across all types. It is suggested that exocentric compounding may not provide a productive means of word-formation, even if new exocentric compounds are arising.

Keywords Compound · Exocentric · Synecdoche · Metaphor · Typology · Conversion · Synthetic

1 Introduction

Many descriptive grammars and descriptions of word-formation processes discuss a category of exocentric compounds. Even within a single language, there may be a range of formally or semantically distinct constructions which receive this label. This paper is an attempt to classify the various types of exocentric compound that are found round the world, and provide a

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(provisional) terminology for discussing them. The extent to which these compounds are fairly termed ‘exocentric’ will also be considered.

The paper begins by introducing the notion of exocentricity, then sets out the aims of this contribution and considers the various types that are found, exemplifying from a range of languages. Finally, a range of general questions about exocentric compounds are discussed.

2 Introducing exocentricity

Bloomfield (1933) introduces the distinction between endocentric compounds (compounds having an internal centre or head) and exocentric compounds (those whose centre or semantic head is external to the compound itself). Bloomfield (1933, p. 235) defines endocentric compounds in terms of hyponymy: an endocentric compound denotes something which is a hyponym of its head element. A door-knob (to use Bloomfield’s example) is a kind of knob, so *door-knob* is an endocentric compound. In *turnkey*, on the other hand, Bloomfield claims that the head element is the verb *turn*, but *turnkey* is a noun, and thus cannot be a hyponym of the head of the compound. Such compounds are exocentric. Bloomfield unfortunately immediately confuses the issue by indicating that this label corresponds to the Sanskrit classification of bahuvrihi compound, which is not entirely accurate, as we will see below.

Although this distinction has been widely adopted and applied, surprisingly, it is not always clear-cut. Some examples will make clear why this should be the case.

One type of exocentric compound discussed by Marchand (1969) is the type where a noun is made up of a verb + preposition/adverb/particle. Marchand uses the example of *blackout*. Clearly there is no noun involved in *blackout*, yet the construction as a whole is a noun, so these must be exocentric.

Marchand has very few blind-spots, but the distinction between what Dokulil (1968) terms *Wortbildung* ‘the process of forming words’ and *Wortgebildetheit* ‘the analysis of complex words’ seems to be one of them. If we look at the synchronic structure of the English lexicon, forms like *blackout* appear to be compounds, in that they are made up of two independent lexemes.¹ If we look at the way in which this situation arose, we may come to a different conclusion about how we should view the structures. In particular, the *blackout* type takes part in the same stress shift that many other verb to noun pairs show. Cruttenden (2001, pp. 233–234) lists some thirty pairs of noun and verb where there is a stress difference between the two (e.g. *'import*_N, *im'port*_V; *'transfer*_N, *trans'fer*_V), the noun being stressed on the first syllable, the verb on the second. The difference between *black 'out*_V and *'blackout*_N seems to follow the same rule (see also Selkirk 1982, p. 27). Part of the reason that people seem to be reluctant to

¹ Saying this begs a number of questions concerning the nature of the lexeme, and whether function words belong to the class of lexemes. Since such questions do not lie at the heart of what it is that makes *blackout* a compound, I will not dwell on them here.

accept this analysis seems to be that the phrasal verbs are often considered to be syntactic constructions while the nouns are, perhaps for orthographic reasons, considered to be single lexemes. The difference seems to be terminological rather than substantive. Whether the verbs are lexemes or not, they are listemes (Di Sciullo and Williams 1987) or lexical items (Carstairs-McCarthy 2002, p. 13), just as the nouns are. This does not seem to be a suitable reason for suggesting that the path from one to the other cannot be a matter of word-formation. Thus we might want to say that *blackout* is a synchronic compound but a diachronic nominalisation. As long as the two are kept distinct, then in principle there should be no problem; nevertheless, the fact that two answers are possible has led to some confusion in this area.

For another problematic type, consider Søgaaard's (2004) claim that *dust bowl* is exocentric, because it does not denote a type of bowl. I would want to claim that such instances are endocentric, but that *bowl* is to be interpreted metaphorically. *Dust* modifies *bowl* in the construction *dust bowl* just as *fruit* modifies *bowl* in the construction *fruit bowl*; semantically, however, the *bowl* of *dust bowl* is not a literal dish, but something which resembles a dish. This type is vitally important for an understanding of exocentricity since there are so many words (compound or not) which are to be understood figuratively in context. Furthermore, in many cases the figure of speech is no longer comprehensible. What is the figure in a *hotbed of dissent*, for example?

Related to this are examples where one or more of the elements of a compound has changed its meaning or range of denotation since the compound was first used. Examples are the German *Walfisch* ('whale-fish = whale') and English *glow-worm*. At the time of coining, each of these was endocentric, but we would no longer say that *Walfisch* is a hyponym of *Fisch* or that *glow-worm* is a hyponym of *worm* (in New Zealand it is a larva; elsewhere it is a beetle). If we use the *Wortbildung* versus *Wortgebildetheit* distinction again, we might say that these words are formed as endocentric compounds but become exocentric compounds with time. If this is the case, note, this method of forming exocentric compounds is not productive, but happens through historical accident.

A rather different problem arises with words like *user-friendly* and *fat-free*. It is clearly not true that *if something is user-friendly it is friendly* or that *if something is fat-free it is free*. This might lead to the conclusion that these adjectives are exocentric; yet if that is so, rewordings such as *This computer is friendly to the user*, *This cereal is free of fat*, where the adjective from the compound is used as the head of a parallel syntactic structure, should not make sense, which they do. The conclusion must be that *friendly* and *free* with a complement (*friendly to users*, *free of fat*) do not mean the same as *friendly* and *free* with no complement. Moreover, the complement need not be present in the form of a prepositional phrase, but may become the first element in a compound. Under such an interpretation, *user-friendly* and *fat-free* must be seen as endocentric compounds, despite the apparent failure of the hyponymy test.

A question also arises with compounds like *singer-songwriter*. A singer-songwriter is a single person who is simultaneously a singer and a songwriter, and thus we could argue that *singer-songwriter* is a hyponym of *singer* and a hyponym of *songwriter*. Alternatively, we might argue that semantically there is

no most important element in such words, and so no head. Many scholars argue that these compounds are right-headed in English, because they take inflections on the rightmost element (*singer-songwriters*, not **singers-songwriter* or **singers-songwriters*, though the last is the way some of the corresponding Spanish constructions are marked) (Plag 2003, p. 147; Katamba and Stonham 2006, p. 334; Booij 2007, p. 81). It is not clear to me that this analysis is correct. Words like *turnkey* are also marked for plurality on the right-hand end, as are words like *Model T*, even though there are reasons for thinking that each of these types is left-headed, not right-headed. Right-edge marking of plurality in English seems to be a default marking, rather than something which inevitably correlates with headedness. But if *singer-songwriter* is not headed (Haspelmath 2002, p. 89), then does it represent a type of exocentric? Bisetto and Scalise (2005, p. 324) claim that compounds like this are endocentric, but that compounds of the type ‘mother + father = parents’ (found in many languages, including Mandarin and Mordvin, though not in English) are exocentric. Clearly there is disagreement in the literature. For Fabb (1998) they have two heads, for Booij (2007) they have one, for Haspelmath (2002) they have none and for Bisetto and Scalise (2005) there are slightly different types which differ in headedness. Since the disagreement arises from reasonable grounds, I do not pretend that I can solve the question here. Rather I will go with a majority ruling that such compounds are not exocentric. However, I do accept Bisetto and Scalise’s (2005) point that the exocentric/endocentric dimension cross-cuts the determinative/co-compound (or subordinate/coordinate) dimension, and that all four cells are filled.

3 Asking questions about exocentricity

3.1 The range of exocentricity

Although we might expect from our experience of languages like English that endocentric compounds will be the default type (and although Dressler 2006 states explicitly that this is the case cross-linguistically), there are individual languages for which that is not true. For instance, Turkana (Dimmendaal 1983) is cited as a language which has exocentric compounds but no or few endocentric compounds, and Kayardild (Evans 1995) is another where the main compounding pattern is exocentric. Some languages may not have exocentric compounds, but have derivational morphology which can have a similar semantic effect. Bare (Aikhenvald 1995), Burushaski (Berger 1998) and Kayardild are languages which have a suffix which may be glossed as ‘having ~’. For example, in Kayardild there is a proprietive suffix which gives rise to constructions *jangka-wuru maku-wuru* and *daman-kuru* which may be glossed as ‘other-SUFF woman-SUFF = having another woman’ and ‘tooth-SUFF = old man dugong’ respectively (Evans 1995, p. 198). It is interesting that Kayardild falls into both categories: not only does it have exocentric compounds, it has constructions which we might think would obviate the need for exocentric compounds.

Lezgian (Haspelmath 1993) has an affix which can be glossed as ‘lacking ~’. *Namus* ‘honour’ gives rise to *bejnamus* ‘dishonorable’ (Haspelmath 1993, p. 121) and there is also productive conversion from adjective to noun in instances which denote ‘negative human qualities’ (Haspelmath 1993, p. 109). Haspelmath does not illustrate a noun meaning ‘dishonourable person’ as a result of this process, but we might expect it to have the same form, *bejnamus*.

The important point about such examples is that they show (a) that the category of ‘person/thing which has ~’ is one which is salient enough to recur across languages of different types and families; (b) that the semantic effect gained from exocentricity is not simply a matter which is restricted to compounds; (c) that in some cases this semantic effect can be analysed as arising through conversion. While ‘exocentricity’ may be something which is usually ascribed only to compounds, even this may be queried: the derivatives above may be headed, but they are semantically equivalent to exocentric compounds; in instances of conversion, a similar kind of exocentricity could be hypothesised (see e.g. Schönefeld 2005), though this is not the usual practice.

The total range of exocentrics in any language is not always clear. I say this because of my experience with English, which may be unusual in this regard. Most descriptions of English list a small number of patterns of exocentric compounding, perhaps restricted to the types illustrated by *red-head*, *egg-head* and *pickpocket*. Marchand (1969) adds the *blackout* type, discussed above. But Bauer (1983) lists a whole range of constructions, used only in attributive position, which appear to be exocentric. These are illustrated in (1), with a parenthesised head noun in each case. Saying that these are exocentric compounds is based on the assumption that these are adjectives created by the compounding of words of other classes. The two assumptions are not necessarily true (as argued by Bauer 2007, 2008), and some, if not all, of these may be explained away as having a rather different structure. Nevertheless, in the context of this paper, it is important to notice that potentially exocentric constructions are not necessarily described as such, even in good language-descriptions or in descriptions which focus on word-formation. It is accordingly difficult to be sure that other languages do not also have a wider range of exocentrics than can be determined from reading the grammars of those languages.

- (1) fail-safe (device)
- roll-neck (sweater)
- before-tax (profits)
- go-go (dancer)
- quick-change (artiste)
- tow-away (zone)

3.2 The aims of this paper

This paper aims to consider the range of constructions that are classified as exocentric compounds cross-linguistically. A major finding of the paper is that, within the parameters of the investigation carried out, this range is remarkably small.

The aim is not, however, to quantify the number of languages showing a particular type, nor the genetic or geographical range within which the individual types are found (though see Sect. 10). To do this would require a much larger sample of languages, and a properly balanced one. The aim here is a step before this—simply to discover what the types are and thereby introduce a discussion of the cross-linguistic possibilities associated with such compounds. The sampling for materials has been more a matter of convenience than of representativeness, though the examples will indicate that a wide range of languages has been considered. While it is difficult to quantify the languages considered (how do you count languages which show nothing new, isolated examples which are not discussed by the relevant grammarian, or languages for which no exocentric compounds are listed?) descriptions of over 50 languages were read for relevant materials.

A subsidiary aim here is to consider the notion of exocentricity, and to ask how far the label reliably reflects the class, and how far these compounds deserve to be distinguished from endocentrics. Although various suggestions have been made in the literature about individual types of exocentric, this paper brings together a number of hypotheses to provide a conclusion which may be surprising.

4 Bahuvrihi

Bahuvrihi compounds (narrowly defined—see above for Bloomfield's usage) are those in which the compound expresses some salient facet of the denotatum. For example, *shorthorn* denotes a type of cattle noteworthy for their short horns, and *birdbrain* denotes a person who is perceived as having a brain no bigger than that of a bird. These are frequently glossed as 'cattle which has short horns' or 'person who has a bird's brain', and so on, and are accordingly often known in German as *Possessivkomposita* ('possessive compounds'), although the label is apparently seen as a marginal term in some way and is often enclosed in scare quotes (e.g. Fleischer 1975, p. 106). Other terminologies are also found, though they are not now common (see Bauer 1978, p. 13).

4.1 Structures

The bahuvrihi compound par excellence is made up of an adjective and a noun, and denotes a person or object which has a NOUN which is ADJECTIVE. The adjective is frequently replaced by a numeral or other quantifier (as in *bahuvrihi*, an example of the type from Sanskrit, which means literally 'much rice'). Bahuvrihis are typically used to denote people (especially as nicknames), animals and plants. Examples are given in Tables 1 and 2.

Given that there are many languages in which adjectives make up a small class or are arguably non-existent, and that in such cases the job performed by

Table 1 Adjective + Noun bahuvrihis

Language	Form	Element gloss	Meaning	Source
English (Indo-European, Germanic) ^a	red + cap		Military policeman (UK); railway porter (US)	
Finnish (Uralic, Finnic)	hierohelma	fine + hem	Snobbish lady	Sulkala and Karjalainen (1992, p. 362)
Fongbe (Niger-Congo, Atlantic-Congo)	dà-vɔ̀vɔ̀	head + red	Red-head	Lefebvre and Brousseau (2002, p. 230)
French (Indo-European, Italic)	rouge-gorge	red + throat	Robin	
Kashmiri (Indo-European, Indo-Iranian)	nas tsoṭ	nose + deformed	One with a deformed nose	Wali and Koul (1997, p. 288)
Kayardild (Australian, Pama-Nyungan)	kamarr-birdi	rock + bad	Treacherous reef	Evans (1995, p. 197)
Koasati (Muskogean, Eastern)	nakeó-baski	ear + long	Mule	Kimball (1985, p. 396)
Margi (Afro-Asiatic, Chadic)	ghàghàl + údzù	old + body	Old person	Hoffmann (1963, p. 53)

^a Language families are as given in Gordon (2005) † indicates an extinct language

Table 2 Quantifier + Noun bahuvrihis

Language	Form	Element gloss	Meaning	Source
Danish (Indo-European, Germanic)	tusind-ben	thousand + leg	Millipede	
German (Indo-European, Germanic)	drei-eck	three + corner	Triangle	
Hindi (Indo-European, Indo-Iranian)	pənj-ab	five + rivers	Punjab (a state with five rivers)	Kachru (2006, p. 123)
Natchez († Gulf)	?at-tau:ʔif	foot + many	Centipede	Mithun (1999, p. 468)
Papiamentu (Creole, Iberian based)	shen-pia	hundred + foot	Centipede	Kouwenberg and Murray (1994, p. 32)
Sye (Austronesian, Malayo-Polynesian)	no-ndvat	leg + four	Car	Crowley (1998, p. 54)
Thai (Tai-Kadai, Kam-Tai)	sām fiam	three + edge	Triangle	Iwasaki and Ingkaphirom (2005, p. 39)
Tonkawa († Coahuiltecan)	tanʔok-apay	tail + hair + none	Opossum	Hojer (1946b, p. 296)
Turkish (Altaic, Turkic)	kırk-ayak	forty + foot	Centipede	Kornfilt (1997, p. 476)

Table 3 Verb + Noun bahuvrihis

Language	Form	Element gloss	Meaning	Source
Apache (Na-Dene, Athapaskan)	cʰis-tèt	body + to be wide	Terrapin	Hoijer (1946a, p. 76)
Kiowa (Na-Dene, Athapaskan)	mòk ʔn-lʔāy	nose + white ^a	Coot	Watkins (1984, p. 77)
Nivkh (Isolate)	nyki kyl-	tail + be long	Duck sp.	Gruzdeva (1998, p. 23)
Sye (Austronesian, Malayo-Polynesian)	nimt(e)avlar	eye + red ^b	Conjunctivitis	Crowley (1998, p. 53)
Urarina (Isolate)	lura-kutúri	be bald + head	Bald person	Olawsky (2006, p. 428)

^a The word glossed as ‘white’ is said to be verbal in this language

^b The word glossed as ‘red’ is said to be verbal in this language. Note that the semantics in this particular example is not quite the same: the infection causes the red eyes, it does not possess them

Table 4 Noun + Noun bahuvrihis

Language	Form	Element gloss	Meaning	Source
Danish (Indo-European, Germanic)	storke-næb	stork + beak	Pantograph	
English (Indo-European, Germanic)	paper + back		Soft-bound book	
Kayardild (Indo-European, Indo-Iranian)	kirr-maku	face + woman	Effeminate-looking man	Evans (1995, p. 197)
Paamese (Austronesian, Malayo-Polynesian)	hirēvu	neck + bulge	Heron	Crowley (1982, p. 90)
Turkana (Nilo-Saharan, E. Sudanic)	e-wur-ù-mosiŋ	smell + rhinoceros	Tree sp.	Dimmendaal (1983, p. 293)

^a Contrast with *heart + good* ‘kind’, which may not be exocentric

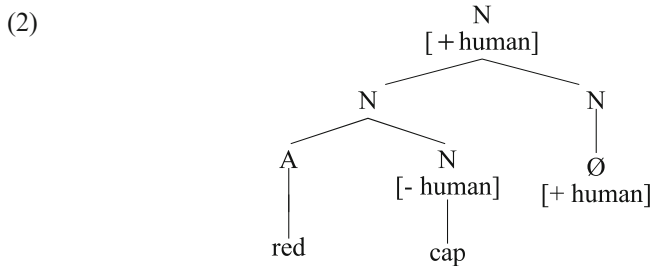
adjectives is typically performed by verbs, we would also expect to find verb–noun bahuvrihis that work in precisely the same way. And this is the case, as illustrated in Table 3.

Also very frequent are noun–noun bahuvrihis. One of the nouns acts as a modifier to the other, just as the adjective acts as the modifier to the noun in the examples in Table 1. Examples are given in Table 4.

4.2 Interpretation

The exocentric analysis of bahuvrihi compounds seems to imply that there is an unexpressed element in the position of the head, and that the head carries at least some features of the denotatum of the compound as a whole. While it

is unnecessary to be too specific about the details of any tree structure, we are presumably looking at something like (2).



The alternative analysis is to say that there is no zero element at all, and these constructions are not exocentric. Rather they are interpreted according to the figure of speech synecdoche (sometimes called ‘pars pro toto’). So *redcap* is a perfectly regular endocentric compound with a right-hand head, but it is interpreted as ‘person who is habitually associated with a red cap’ in much the same way as *crown* is interpreted as ‘person or group of persons who are habitually associated with a crown’ in the sentence *The Crown will not impose any charges for the use of its intellectual property*² (for hints at such a treatment, see Marchand 1969, p. 386; Fleischer 1975, p. 106; Coseriu 1977; Bauer 1978, p. 159; Booij 2002, p. 143).

4.3 Adjectival bahuvrihis

If *red-head* denotes a person who has a red head (by virtue of having red hair)³, and the word *person* or some affix with a similar meaning is understood, then there is an apparently intermediate step where the compound is used as a modifier and the head noun is present. In this particular case, this would give *red-head person*, which is not, as it happens, good English, since the adjectival form *red-headed* is preferred. Nevertheless, in Chitimacha († Gulf) we find an equivalent structure where *po: ko: gamkin* ‘herb + long + stem = golden-rod’ (Swadesh 1946, p. 336). The Sanskrit word *bahuvrihi* itself seems to have first been an adjective and then become a noun (Killingley and Killingley 1995, p. 47), and there are many cases where adjective and noun or noun and noun compounds apparently similar to the bahuvrihis listed above are used as adjectives and not as nouns. These are termed ‘adjectival bahuvrihis’ here, though some alternative terminology might be preferable. Examples are given in Table 5. It should be noted that although the words presented in Table 5 all function as adjectives, the word-classes of the

² <www.linz.govt.nz/core/surveysystem/cadastraldata/index.html> accessed 17 Sept 2007.

³ Interestingly, but parenthetically, the literal equivalent of *red-head* in Seediq refers to red hats, and means ‘Japanese’, referring to the hats once worn by occupying Japanese troops (Holmer 1996, p. 77).

Table 5 Adjectival bahuvrihis

Language	Form	Element gloss	Meaning	Source
Basque (Basque)	txori-buru	bird + head	Bird-headed	Saltarelli (1988, p. 263)
Cantonese (Sino-Tibetan, Chinese)	hāk sām	black + heart	Malicious	Matthews and Yip (1994, p. 50)
Finnish (Uralic, Finnic)	partasuu	beard + mouth	Bearded	Sulkala & Karjalainen (1992, p. 361)
Indonesian (Austronesian, Malayo-Polynesian)	darah dingin	blood + cold	Sadistic	Barli Bram (p.c.)
Japanese (Japanese)	atsu-niku	thick + flesh	Fat-faced	Hinds (1986, p. 368)
Kashmiri (Indo-European, Indo-Iranian)	darī z'u:th	beard + long	Long-bearded	Wali and Koul (1997, p. 287)
Persian (Indo-European, Indo-Iranian)	kām-hærfi	little + speech	Quiet	Mahootian (1997, p. 284)
Vietnamese (Austro-Asiatic, Mon-Khmer)	có tiếng	have + fame	Famous	Nguyễn (1997, p. 75)

Table 6 Verbal bahuvrihis

Language	Form	Element gloss	Meaning	Source
Samoan (Austronesian, Malayo-Polynesian)	isu mamafa	nose + heavy	Have a cold	Mosel and Hovdhaugen (1992, p. 300)
Thai (Tai-Kadai, Kam-Tai)	dii cay	good + heart ^a	Be glad	Iwasaki and Ingkaphirom (2005, p. 42)
Tzutujil (Mayan, Quichean-Mamean)	b'ojchi7xik	cotton + mouth	Woo	Dayley (1985, p. 136)

^a Contrast with *heart + good* 'kind', which may not be exocentric

constituent words vary quite considerably; what is important is that the head is not an adjective.

4.4 Verbal bahuvrihi

In a similar way, a compound which does not contain a verb can be used verbally. This type seems to be quite rare. Typically, the meaning is 'to have ~' where the swung dash indicates the meaning of the compound, and it is that possessive element which allows these to be classified as bahuvrihis (Table 6). In some cases it is not entirely clear whether this classification is fully appropriate. Is Tzutujil (Mayan, Quichean-Mamean) *kolwachixik* 'basket+face = wake up quickly' a relevant example or not? I have not included this one, since the image remains obscure to me, but

have included an apparently parallel case where I can see the image rather more clearly.

4.5 Summary

Bahuvrihi compounds are a robust type of exocentric compound, found in various sub-types in a large number of languages. Without a very much larger corpus it is not possible to draw conclusions about the genetic and/or typological distribution of the various sub-types, though it seems clear that some sub-types are much more widespread than others.

5 Synthetic compounds

The term ‘synthetic compound’ is reserved in English for compounds like *bus-driver* which have a verbal base with an affix and an argument of the verb as the modifying element. These are different from primary compounds like *desk-lamp* in that their interpretation is narrowly constrained by the grammatical relations that hold between the elements. In a number of languages, exocentric compounds which seem to fulfil the same function do not carry the final suffix, but are made up of a verb and an argument of that verb. Though Bisetto and Scalise (2005, p. 320) argue that the *pickpocket* type are not synthetic compounds, Marchand (1969, p. 16) argues that the similarity of English constructions like *watch-maker* and *pickpocket* suggests that their structure should be seen as parallel, and that *pickpocket* has a zero morph where *watch-maker* has the overt *-er* suffix.⁴ While I am more reluctant to posit zero morphs than is Marchand, the parallel seems to me to be irrefutable, and I thus extend the terminology of ‘synthetic compound’ to this type. Examples of the structures are given in Table 7.

In some instances the argument of the verb is not a noun. Some examples are given in Table 8.

In some cases the synthetic compound does not create an agentive reading, but a nominalisation reading, parallel to English synthetic compounds like *map-reading*. In these cases the modifier may not be a nominal argument, but may be adverbial, like English *over-eating*. Some examples are provided in Table 9.

There are also examples where the synthetic compound is an adjective rather than a noun. An example is given in Table 10.

⁴ Dieter Kastovsky points out to me that this analysis is not present in the first edition of Marchand’s book, and has kindly given me a copy of a paper he [Kastovsky] wrote for Marchand in 1962, suggesting the analysis with zero. Although, in the spirit of the times, Marchand does not acknowledge Kastovsky’s contribution to this specific analysis, it seems that credit for it is due to Kastovsky.

Table 7 Verb + Noun synthetic compounds

Language	Form	Element gloss	Meaning	Source
Babungo (Niger-Congo, Atlantic-Congo)	mè-vəlú'	swallow + eggs	Snake sp.	Schaub (1985, p. 249)
English (Indo-European, Germanic)	pick + pocket			
Fongbe (Niger-Congo, Atlantic-Congo)	tà-blá	head + tie	Bandanna	Lefebvre and Brousseau (2002, p. 230)
French (Indo-European, Italic)	porte-clefs	carry + keys	Key-ring; jailer	
Italian (Indo-European, Italic)	porta-cenere	carry + ash	Ashtray	Maiden and Robustelli (2000, p. 33)
Japanese (Japanese)	tsume-kiri	nail + cut	Nail-clipper	Hinds (1986, p. 366)
Kiowa (Na-Dene, Athapaskan)	kʔól-pʰä:	neck + be tied	Necklace	Watkins (1984, p. 77)
Kunama (Nilo-Saharan)	barasa- ¹ guura	horse + makes go	Horseman	Bender (1996, p. 12)
Meithei (Sino-Tibetan, Tibeto-Burman)	sínjǝŋ	wood + enter	Axe	Chelliah (1997, p. 262)

Table 8 Verb + Adjective/Verb synthetic compounds

Language	Form	Element gloss	Meaning	Source
Damana (Chibchan, Aruak)	mənzisa-kuaga	viscous + appear	Gum	Trillos Amaya (1999, p. 71)
Greek (Indo-European, Greek)	polígrafos	much + write	Duplicating machine	Mackridge (1985, p. 327)
Italian (Indo-European, Italic)	lascia-passare	permit + to pass	A pass	Maiden and Robustelli (2000, p. 33)

Table 9 Synthetic compounds with no agentive reading

Language	Form	Element gloss	Meaning	Source
Greek (Indo-European, Greek)	poli domo	town + I con- struct	Town-planning	Mackridge (1985, p. 328)
Japanese (Japanese)	haya-dachi	early + depart	Early departure	Hinds (1986, p. 368)
Korean (Isolate)	sal-in	kill + person	Manslaughter	Sohn (1994, p. 414)

Table 10 Adjectival synthetics

Language	Form	Element gloss	Meaning	Source
Turkish (Altaic, Turkic)	dal bastı	branch + it pressed	Fine and large (of cherries)	Lewis (1967, p. 234)

6 Co-compounds

As Bisetto and Scalise (2005) point out, the endocentric/exocentric division cross-cuts the division between determinative and coordinative compounds. There are several different types of compound where the denotatum is not a hyponym of either of the co-ordinated elements, sometimes because the co-ordinated elements are merely examples of a type, sometimes because the denotatum belongs to a different word-class. The various types are exemplified in what follows.

6.1 Class-maintaining exocentric co-compounds

In these examples, co-ordinated nouns give a word which is used as a noun, and so on, but the compound is not a hyponym of either element. Typically, the constituents individually denote examples of the denotatum of the compound. Accordingly these are called co-hyponymic compounds (Bauer 2006) or superordinate compounds (Pandharipande 1997), depending on whether the constituents or the overall compound is taken as the source of the name, or collective compounds (Wälchli 2005, p. 141). These can be found with nouns or verbs (Tables 11 and 12).

Table 11 Nominal exocentric class-maintaining co-compounds

Language	Form	Element gloss	Meaning	Source
Chantyal (Sino-Tibetan-Tibeto-Burman)	nfiə tʃiara	milk + buttermilk	Dairy products	Noonan (2003, p. 328)
Kashmiri (Indo-European, Indo-Iranian)	athī khər	hand + feet	Body	Wali and Koul (1997, P. 285)
Mandarin (Sino-Tibetan, Chinese)	huā mù	flower + tree	Vegetation	Li and Thompson (1981, p. 50)
Meithei (Sino-Tibetan, Tibeto-Burman)	mítná	eye + nose	Organs	Chelliah (1997, p. 262)
Punjabi (Indo-European, Indo-Iranian)	múú-nakk	mouth + nose	Face	Bhatia (1993, p. 320)
Vietnamese (Austro-Asiatic, Mon-Khmer)	bàn-ghế	table + chair	Furniture	Nguyễn (1997, p. 67)

Table 12 Verbal exocentric class-maintaining co-compounds

Language	Form	Element gloss	Meaning	Source
Hungarian (Uralic, Finno-Ugric)	fúr-farag	drill + carve	Engage in manual work	Kenesi et al. (1998, p. 375)
Kanuri (Nilo-Saharan, Saharan)	lenəməré	you go + come	Way to and fro	Lukas (1937, p. 15)
Mandarin (Sino-Tibetan, Chinese)	hū xī	exhale + inhale	Breathe	Li and Thompson (1981, p. 48)
Meithei (Sino-Tibetan, Tibeto-Burman)	čáthók	eat + drink	Dine	Chelliah (1997, p. 262)

Table 13 Nominal compounds built from the coordination of adjectives

Language	Form	Element gloss	Meaning	Source
Khmer (Austro-Asiatic, Mon-Khmer)	khəh trəw	wrong + right	Morality	Ourn and Haiman (2000, p. 484)
Mandarin (Sino-Tibetan, Chinese)	lěng rè	cold + hot	Temperature	Li and Thompson (1981, p. 81)
Old Uyghur (Altaic, Turkic)	ulug-i kičig-i	big-its + little-its	Size	Wälchli (2005, p. 138)
Tibetan (Sino-Tibetan, Tibeto-Burman)	(no transcription) ^a	big + small	Size	Goldstein (1991, p. 331)
Turkana (Nilo-Saharan, E. Sudanic)	ŋi-kari-məjəŋ	thin + old	The Karimojong tribe	Dimmendaal (1983, p. 294)

^a This source does not provide a transcription of the relevant word, only the Tibetan orthographic form

6.2 Class-changing exocentric co-compounds

Class-changing exocentric co-compounds look like the class-maintaining ones, but the compound as a unit belongs to a different part of speech. The most common examples I have here are of co-ordinated adjectives being used as a noun. Examples are given in Table 13.

On occasions, other word-classes may be involved, as illustrated in Table 14.

7 Transposition

In some cases we find compounds whose meaning is clear but where the compound simply functions as a member of an unexpected word-class. These look like instances of conversion or transposition. The elements of the compound may be coordinated or subordinated. Examples are given in Table 15.

Table 14 Other class-changing exocentrics

Language	Form	Element gloss	Meaning	Source
Damana (Chibchan, Aruak)	tua kuaga	to see + to live	Visible	Trillos Amaya (1999, p. 72)
French (Indo-European, Italic)	savoir-vivre	to know + to live	Good breeding	
Korean (Isolate)	neks-epsta	soul + lack	Absent-minded	Sohn (1994, p. 427)
Margi (Afro-Asiatic, Chadic)	màlà + ási + ú + tém	woman + comes home + from + fishing ^a	Wild cat (with a strong smell)	Hoffmann (1963, p. 52)
Turkish (Altaic, Turkic)	kaptı kaçtı	it snatched + it fled	Small private bus	Lewis (1967, p. 23); Kornfilt (1997, 478)
Turkish (Altaic, Turkic)	vurdum duymaz	I hit + he does not feel	Thick-skinned	Lewis (1967, p. 235)

^a This is a complete sentence used as a noun, and should probably not be classified as a compound but as a rank-shifted sentence. It is, however, classified as a compound in my source

Table 15 Exocentrics due to transposition

Language	Form	Element gloss	Meaning	Source
Korean (Isolate)	caymi-issta	interest + exist	Interesting	Sohn (1994, p. 413)
Swahili (Niger- Congo, Atlantic- Congo)	ujauzito	come + heavy	Pregnancy	Maina (1987, p. 2)
Tibetan (Sino- Tibetan, Tibeto-Burman)	(no transcription)	know + know ^a	Knowledge	Goldstein (1991, p. 332)
Tibetan (Sino-Tibetan, Tibeto-Burman)	(no transcription)	clear + show	Demonstration	Goldstein (1991, p. 332)

^a The elements are synonyms rather than a reduplicated form

8 Metaphoric compounds

There are some apparently exocentric compounds which name an entity to which the denotatum of the compound is compared. As is the case with the bahuvrihi compounds discussed above (Sect. 4.2), this mode of interpretation does not depend on the construction being a compound: if you use the word *pig* to refer to a person, we do not say that there is an exocentric lexeme. Accordingly, as argued earlier, these compounds should probably be considered to be endocentric compounds used metaphorically, rather than exocentric compounds. Nonetheless, they form a recognisable group, and are included for completeness. Some examples are provided in Table 16.

Table 16 Metaphoric compounds

Language	Form	Element gloss	Meaning	Source
English (Canadian) (Indo-European, Germanic)	moose + milk		Drink made of rum and cream	Harris (1989, p. 63)
German (Indo- European, Germanic)	Back-fisch	bake + fish ^a	Teenager	Fleischer (1975, p. 108)
Mandarin (Sino- Tibetan, Chinese)	tiān qì	heaven + breath	Weather	Li and Thompson (1981, p. 47)
Urarina (Isolate)	ahāaori- kwitçana	turtle + blood	Birth mark	Olawsky (2006, p. 427)

^a The etymology of this word is obscure, with various hypotheses being advanced, some of which relate the first element not to the verb meaning 'bake' but to an element cognate with English *back* also found in Danish *bag-bord* 'port side'. I nevertheless let the example stand, despite its opacity (see Sect. 9 below)

9 Lexicalised and otherwise obscure exocentrics

Compounds tend to become opaque over time, both phonologically opaque and semantically opaque. Where the opacity is phonological, it is often impossible to tell that the structure was originally a compound (as in English *husband*). Where the phonology remains transparent, but the semantics is no longer transparent, analysable compounds may cease to be obviously endocentric (if they were originally) or the motivation for their form may be lost. Thus the reason why blackmail is called *blackmail* is no longer clear to modern speakers of English without some overt teaching. Opacity can also arise when the reason for the form rests on some imagery whose interpretation may no longer be obvious. The relation between the form *greenhorn* and the meaning 'inexperienced person' may be obscure to those who are not familiar with the niceties of cattle breeding. In principle such problems of interpretation should be expected in every class of compound (and not just in exocentric compounds). In some instances the examples may be expected to look exocentric even if they were formed as endocentrics, and this may be difficult or impossible to determine.

As an example, consider the word meaning 'climate' in a number of Indo-European languages. In Persian this takes the form *ab-o-hæva* 'water-LINK-air' (Mahootian 1997, p. 282), in Punjabi *vaa-paaNii* 'wind-water' (Bhatia 1993, p. 320), in Kashmiri *a:b hava:* 'water-air' (Wali and Koul 1997, p. 285). While it is clear that wind, water and air are contributors to the climate, it is not clear precisely what relationship is perceived here (or, indeed, whether the relationship is always still perceived). The construction looks exocentric (a climate is neither a type of wind, nor a type of water, nor a type of air), but it is hard to classify it. Some further examples are given in Table 17.

Table 17 Opaque exocentrics of various types

Language	Form	Element gloss	Meaning	Source
Cantonese (Sino-Tibetan, Chinese)	haap-chou	sip + vinegar	Be jealous	Matthews and Yi (1994, p. 51)
Damana (Chibchan, Aruak)	se-kuizhi	cold + to live	Marble	Trillos Amaya (1999, p. 71)
Hindi (Indo-European, Indo-Iranian)	lal-pārī	red + fairy	Wine	Kachru (2006, p. 123)
Indonesian (Austronesian, Malayo-Polynesian)	cuci mata	wash + eye	Windowshop	Barli Bram (p.c.)
Kolyma Yukaghir (Yukaghir)	epie-n-čekčil'	grandmother + ATTR + foreman	Ladybird	Maslova (2003, p. 135)
Persian (Indo-European, Indo-Iranian)	sær-o-seda	head-LINK-noise	Fuss	Mahootian (1997, p. 282)
Punjabi (Indo-European, Indo-Iranian)	hukkaa-paaNii	hukkah + water	Acceptability	Bhatia (1993, p. 320)
Tibetan (Sino-Tibetan, Tibeto-Burman)	(no transcription)	government + private	Everything	Goldstein (1991, p. 330)

10 Geographical and genetic patterning

When taking data from such sources as the ones I have used for this discussion, it is impossible to know whether all the possibilities for any given language have been exhausted or not. As noted earlier, many descriptions of English do not discuss examples like those in (1). It is far from clear that descriptions in handbooks mention exocentric compounds where they exist—often, no doubt, because exocentrics are a relatively minor pattern in the language concerned. All this means that it is dangerous to make too much of any geographical and/or genetic patterns that seem to emerge from the data. However, we do know that co-compounds have an uneven geographical distribution (Wälchli 2005), and the types of co-compound which are exocentric are equally restricted in this regard.

It is clear that exocentric compounds are found in most regions of the world: examples have been given from all inhabited continents here. It may be that some languages do not have them, either because they do not have compounds (Eskimo languages, for example), or because they do not have exocentrics specifically (Athpare, perhaps; see Ebert 1997). However, the discovery of some exocentric compounds even in such languages would not be particularly unexpected, given the range of languages in which the expression of concepts which could naturally be expressed by means of exocentric compounds is widespread. It also seems to be the case that exocentric

compounds may exist as a minor option in languages which otherwise use endocentric compounds (Yimas, Indonesian), sometimes not mentioned (e.g. Sneddon 1996 does not mention exocentrics in Indonesian) or scarcely mentioned (Foley 1991 gives a single example in Yimas) in the standard descriptions, but nevertheless found in those languages.

11 Exocentrics as major or minor patterns

As reported above, Dressler (2006) argues that exocentric compounds are a marked option in regard to endocentric compounds: endocentric compounds occur in more languages and more frequently in languages which have both endocentric and exocentric compounds. In general, that seems to be true. Many languages have exocentric nouns, for example, but only endocentric compounds in other word-classes or, as discussed above, relatively rare exocentric compounds alongside relatively common endocentrics. Guevara and Scalise (2009) find that across some 3000 compounds from twenty languages approximately 69% are endocentric and only 8% exocentric.⁵ While these numbers are concerned with a rather different notion of rarity, they make a point about the predominance of endocentrics.

This is shown in sometimes surprising ways. It has been suggested, for instance, that exocentric compounds are not productive in English. This is the implication of Jackendoff's (1975, p. 657) suggestion that all constructions of this type must be listed, because 'there is no way for a non-speaker of English to know that a *redhead* is a kind of person, but that a *blackhead* is a kind of pimple.' While I do not accept this conclusion, the fact that it can be put forward indicates a very great difference between exocentrics and endocentrics, which must be viewed as productive in English.

Nevertheless, there are languages in which exocentrics appear to be the dominant pattern. Turkana and Kayardild are the clearest examples of this. Kayardild does have endocentric compounds, but exocentrics are said to be the norm (Evans 1995); Turkana has virtually no endocentrics, although it does have other constructions which appear to fulfil a similar function (Dimmendaal 1983). Only exocentric compounds seem to be discussed in Holmer's (1996) grammar of Seediq (Austronesian, Atayalic). There do not appear to be large numbers of such languages, and there are no obvious genetic or geographical patterns in their occurrence, but the fact that they exist at all is of interest.

12 Are exocentrics really exocentric?

I have dealt with co-compounds as a separate group here (Sect. 6), but the class-maintaining and the class-changing sub-groups appear to behave in

⁵ I am grateful to a referee for this data.

rather different ways from the semantic point of view. The class-changing cases seem to fit under the general pattern described for the transposition group, discussed above, while the class-maintaining ones provide examples of metonymy: flower and tree are items closely related with the vegetation that the Mandarin compound actually denotes (see Table 11). Accordingly, we can say that there are very few main patterns of exocentric compound cross-linguistically. I have already argued that one of these patterns, the metaphorical compound, should be seen as an endocentric compound which is interpreted metaphorically rather than as a genuine exocentric. And I have hinted above that alternative analyses are available for some of the other patterns. We can consider each of these in turn.

Bahuvrihi compounds, it has been suggested above, can be seen as words (which happen to be compounds) interpreted by the figure of synecdoche. If we do not wish to argue that when we say *All hands on deck!* we have an exocentric noun *hand* because it means ‘person who has hands’, we should not need to suggest that *birdbrain* is an exocentric form, either. Jespersen (1942, p. 149) comes to the same conclusion: ‘[Bahuvrihis] must be classed simply as instances of the stylistic trick called *pars pro toto*’.

As mentioned earlier, Marchand (1969, p. 16) argues that the similarity of English constructions like *watch-maker* and *pickpocket* suggests that their structure should be seen as parallel, and that *pickpocket* has a zero morph where *watch-maker* has the overt *-er* suffix. If we follow this logic, it means that so-called exocentric synthetic compounds should be seen as instances of zero-derivation. This raises an important, but perhaps ultimately unanswerable, question of whether a zero-morph is the same as exocentricity. The two tend to be used in different contexts in linguistic descriptions, but in both cases the element which determines the actual class or sub-class of the output word has no overt representation. This might suggest that any exocentricity can be reinterpreted as involving some kind of zero. If this is the case, then the choice between the two interpretations may depend on the analyst’s theoretical stance toward multiple zeroes.

The last major pattern discussed in this paper also illustrates the same point. It has been termed ‘transposition’ here, and for most analysts ‘transposition’ and ‘zero-derivation’ are, in the absence of overt marking of the change of status, alternative terms for the same thing. The reason that I have distinguished here is not because I wish to dispute this general understanding, but because there is a difference between the two situations which it seems worth signalling. In the transposition cases, all that is unpredictable is the word-class of the compound. In the synthetic cases, however, the process of forming an exocentric adds an agentive⁶ element to the meaning: a *pickpocket* is ‘an agent who picks pockets’. If we look away from the terminology, though, we have another possible analysis with a zero which can replace the exocentric

⁶ The use of ‘agentive’ here is lax. Sometimes it is an instrument, as in French *porte-monnaie* ‘carry money = coin purse’, sometimes it may fulfil some other semantic role. The real generalisation is that this is the first argument of the verb which appears in the compound.

Table 18 Summary of types

Type	Analysis with zero available?	Possible figure
Bahuvrihi	Not usually	Synecdoche
Synthetic	Yes	Metonymy
Co-compounds		
Class-maintaining	No	Metonymy
Class-changing	Yes	Metonymy
Transposition	Yes	Metonymy
Metaphoric	Not usually	Metaphor

analysis. Thus we can agree with Coseriu (1977, p. 50), but on the basis of a bigger data-base and on the basis of a survey of more types, that ‘[es] gibt... aber überhaupt keine Exozentrika, sondern ausschließlich Endozentrika: *Dickkopf* ist ein Kompositum von genau demselben Typ wie *Rotwein*’ [there are absolutely no exocentrics, only endocentrics: *fathead* is a compound of precisely the same type as *blackbird*; my translation LB].

An alternative to the zero-analysis given here is that these exocentrics are really cases of metonymy. Metonymy has been suggested by many as a way of analysing exocentrics (see, for example, Booij 2002, p. 143, Benczes 2006). Here I am suggesting that a possible analysis sees all exocentrics as endocentrics interpreted by figures of speech, but not necessarily as the same figure of speech in every case. This is summarised in Table 18.

If that were all there is to say, we could indeed conclude that there are no exocentrics, or at least, that there is always an alternative analysis for anything that is classified as an exocentric. The trouble is that it is not clear that this survey, which has covered the major types found across a range of languages, has captured all the relevant categories. It may be that there are other categories which have not been covered here, and which might not be so amenable to an alternative analysis.

It is certainly the case that there are other types. In English we find superficial compounds like *before-tax* acting as attributes (see (1) above). If *before-tax* is seen as some kind of adjective (though that does not follow from the fact that it is used exclusively in attributive position), the fact that it is made up of a preposition and a noun means that it is an exocentric construction. At this point we need to recall the *Wortbildung::Wortgebildetheit* distinction. If we analyse the current state of affairs, *before-tax* is an exocentric compound, but it was probably not created that way. In terms of the formation of the unit, it is probably a rank-shifted piece of syntax, just as the modifier in *give-me-the-money-or-I’ll-blow-your-brains-out scenarios* (Stephen Solomita, *Force of Nature*, New York: Putnam, 1989) is a sentence used as word. There are many more such types in English (see Bauer 2007), and they are rarely discussed in descriptions of English. In principle there might be similar cases in any of the languages that has been considered here, without the types being important enough in any language to appear to create a category of exocentric compound.

There is one problem of which I am aware with the arguments I am presenting here. In a language like French, it seems that exocentrics gain masculine gender by virtue of being exocentrics: *rouge-gorge* ‘red throat = robin’ is masculine despite the feminine noun *gorge* ‘throat’ because *rouge-gorge* is an exocentric compound. If the gender arises from the construction, as is the general explanation, then that construction cannot just be synecdoche, since *une voile* ‘a sail’ remains feminine even when referring to a ship. If the relevant construction is a synecdochic compound, this is not saying much that is different from saying that the relevant construction is an exocentric compound. Indeed, since compounds like *gratte-ciel* ‘scratch sky = sky-scraper’, *pour-boire* ‘for to_drink = tip’, *savoir-faire* ‘to_know to_do = savoir-faire’ with different patterns, also take the default masculine gender, the notion of exocentric compound may be more unifying in French than alternatives. While such alternatives clearly exist, this kind of evidence provides evidence for the reality of a class of exocentrics in French, not only as a class which can be analysed, but probably as a class of words which can be productively formed. For Coseriu (1977) even these are ‘antonomastic’ and endocentric; there is nonetheless more reason to see these as exocentric and different from endocentrics than there is in most cases of so-called exocentricity.

13 Conclusion

A small number of major types of exocentric compound have been illustrated from a range of the world’s languages. Although the details vary slightly from language to language, it seems that these are the major types of exocentric compound. It is surprising that so few fundamental types should be found of a construction which is basically defined as the remainder after a coherent set of compounds (the hyponymic set) is removed (see Scalise and Guevara 2006, p. 192 on exocentrics as a remnant group). This widespread cross-linguistic agreement is the major finding of this paper. It has been shown that for every such case there is an analysis whereby it is not necessary to say that we are dealing with an exocentric compound. Because we cannot be sure what has been missed in the descriptions or in the interpretation of those descriptions, it may seem slightly premature to conclude that there is no such thing as an exocentric compound. However, we do have sufficient information to suggest that the following hypothesis may be sustainable: in very few languages is the formation of exocentric compounds a productive method of word-formation. This allows for the situation where it may be necessary to analyse the result of word-formation processes as exocentric compounds, even though the formation process has been something else.

Finally, and more or less as a postscript, it may be worth noting that nearly all of the languages which are discussed here as having ‘exocentric’ synthetics, like the French *gratte-ciel* ‘scratch + sky = skyscraper’ either have the possibility of NA ordering or have borrowed the structure from another language that does. English borrowed the type from French, which has NA constructions. This is

probably not an absolute universal, given the Japanese example cited earlier, but it may provide an interesting starting point for further research.

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References

- Aikhenvald, A. (1995). *Bare*. München and Newcastle: Lincom Europa.
- Amaya, T. M. (1999). *Damana*. München and Newcastle: Lincom Europa.
- Bauer, L. (1978). *The grammar of nominal compounding*. Odense: Odense University Press.
- Bauer, L. (1983). *English Word-formation*. Cambridge: Cambridge University Press.
- Bauer, L. (2006). Compound. In K. Brown (Ed.), *The encyclopedia of language and linguistics* (2nd edn., Vol. 2, pp. 719–726). Oxford: Elsevier.
- Bauer, L. (2007). Apparently exocentric attributives in English. Paper Presented at the Second International Conference on the Linguistics of Contemporary English, Toulouse, July 2007.
- Bauer, L. (2008). Les composés exocentriques de l'anglais. In D. Amiot (Ed.), *La composition dans une perspective typologique* (pp. 35–47). Arras: Artois Presses Université.
- Benczes, R. (2006). *Creative compounding in English*. Amsterdam and Philadelphia: Benjamins.
- Bender, L. M. (1996). *Kunama*. München and Newcastle: Lincom Europa.
- Berger, H. (1998). *Die Burushaski-Sprache von Hunza und Nager*. Wiesbaden: Harrassowitz.
- Bhatia, T. K. (1993). *Punjabi*. London and New York: Routledge.
- Bisetto, A., & Scalise, S. (2005). The classification of compounds. *Lingue e Linguaggio*, 4, 319–332.
- Bloomfield, L. (1933). *Language*. London: Allen and Unwin.
- Booij, G. (2002). *The Morphology of Dutch*. Oxford: Oxford University Press.
- Booij, G. (2007). *The Grammar of words* (2nd edn.) Oxford: Oxford University Press.
- Carstairs-McCarthy, A. (2002). *An introduction to English morphology*. Edinburgh: Edinburgh University Press.
- Chelliah, S. L. (1997). *A grammar of Meithei*. Berlin and New York: Mouton de Gruyter.
- Coseriu, E. (1977). Inhaltliche Wortbildungslehre (am Beispiel des Typs *coupe-papier*). In H. E. Brekle & D. Kastovsky (Eds.), *Perspektiven der Wortbildungsforschung* (pp. 46–61). Bonn: Grundmann.
- Crowley, T. (1982). *The Paamese language of Vanuatu*. Canberra: Pacific Linguistics.
- Crowley, T. (1998). *An Erromangan (Sye) grammar*. Honolulu: University of Hawai'i Press.
- Cruttenden, A. (2001). *Gimson's pronunciation of English* (6th edn.). London: Arnold.
- Dayley, J. P. (1985). *Tzutujil grammar*. Berkeley: University of California Press.
- Dimmendaal, G. J. (1983). *The Turkana language*. Dordrecht and Cinnaminson, NJ: Foris.
- Di Sciullo, A. M. Williams, E. (1987). *On the definition of word*. Cambridge, MA: MIT Press.
- Dokulil, Miloš (1968). Zur Theorie der Wortbildung. *Wissenschaftliche Zeitschrift der Karl-Marx-Universität Leipzig*, Gesellschafts- und sprachwissenschaftliche Reihe, 17, 203–211.
- Dressler, W. U. (2006). Compound types. In G. Libben, & G. Jarema (Eds.), *The representation and processing of compound words* (pp. 23–44). Oxford: Oxford University Press.
- Ebert, K. (1997). *A grammar of Athpare*. München: Lincom Europa.
- Evans, N. D. (1995). *A grammar of Kayardild*. Berlin and New York: Mouton de Gruyter.
- Fabb, N. (1998). Compounding. In A. Spencer, & A. M. Zwicky (Eds.), *The handbook of morphology* (pp. 66–83). Oxford and Malden MA: Blackwell.
- Fleischer, W. (1975). *Wortbildung der deutschen Gegenwartssprache*. 4. Auflage. Tübingen: Niemeyer.
- Foley, W. A. (1991). *The Yimas Language of New Guinea*. Stanford: Stanford University Press.
- Goldstein, M.C. (1991). *Essentials of modern literary Tibetan*. New Delhi: Munshiram Manoharlal.
- Gordon, R.G., Jr. (Ed.). (2005). *Ethnologue: Languages of the World* (15th ed.). Dallas, Tex.: SIL International. Online version: <http://www.ethnologue.com/>. Accessed 24 November 2008.
- Gruzdeva, E. (1998). *Nivkh*. München and Newcastle: Lincom Europa.
- Guevara, E., & Scalise, S. (2009). Searching for universals in compounding. In S. Scalise, E. Magni, & A. Bisetto (Eds.), *Universals of language today* (pp. 101–128). Berlin: Springer.

- Harris, B.P. (1989). Metaphor as a productive process in the formation of nominal compounds: Canadian English. *Pacific Coast Philology* 62–71. (Available from JSTOR <http://www.jstor.org/view/00787469/ap040025/04a00120/>. Accessed 19 Sept 2007.)
- Haspelmath, M. (1993). *A grammar of Lezgian*. Berlin and New York: Mouton de Gruyter.
- Haspelmath, M. (2002). *Understanding Morphology*. London: Arnold.
- Hinds, J. (1986). *Japanese*. London: Croom Helm.
- Hoffmann, C. (1963). *A grammar of the Margi language*. London: Oxford University Press.
- Hojjer, H. (1946a). Chiricahua Apache. In H. Hojjer (Ed.), *Linguistic structures of Native America* (pp. 55–84). New York: Viking Fund.
- Hojjer, H. (1946b). Tonkawa. In H. Hojjer (Ed.), *Linguistic structures of native America* (pp. 289–311). New York: Viking Fund.
- Holmer, A. J. (1996). *A parametric grammar of Seediq*. Lund: Lund University Press.
- Iwasaki, S., & Ingkaphirom, P. (2005). *A reference grammar of Thai*. Cambridge: Cambridge University Press.
- Jackendoff, R. (1975). Morphological and semantic regularities in the lexicon. *Language*, 51, 639–671.
- Jespersen, O. (1942). *A modern English grammar on Historical Principles: VI: Morphology*. London: Allen & Unwin and Copenhagen: Munksgaard.
- Kachru, Y. (2006). *Hindi*. Amsterdam and Philadelphia: Benjamins.
- Katamba, F., & Stonham, J. (2006). *Morphology* (2nd ed.). Basingstoke: Palgrave.
- Kenesei, I., Vago, R. M., & Fenyvesi, A. (1998). *Hungarian*. London and New York: Routledge.
- Killingley, S.-Y., & Killingley, D. (1995). *Sanskrit*. München and Newcastle: Lincom Europa.
- Kimball, G. D. (1985). A descriptive grammar of Koasati. Unpublished PhD dissertation, Tulane University.
- Kornfilt, J. (1997). *Turkish*. London and New York: Routledge.
- Kouwenberg, S., & Murray, E. (1994). *Papiamentu*. München and Newcastle: Lincom Europa.
- Lefebvre, C., & Brousseau, A.-M. (2002). *A grammar of Fongbe*. Berlin and New York: Mouton de Gruyter.
- Lewis, G. L. (1967). *Turkish grammar*. Oxford: Oxford University Press.
- Li, C. N., & Thompson, S. A. (1981). *Mandarin Chinese*. Berkeley: University of California Press.
- Lukas, J. (1937). A study of the Kanuri language. Oxford: Oxford University Press. (Reprinted in facsimile by Dawsons, London, 1967).
- Mackridge, P. (1985). *The modern Greek language*. Oxford: Oxford University Press.
- Mahootian, S. (1997). *Persian*. London and New York: Routledge.
- Maiden, M., & Robustelli, C. (2000). *A reference grammar of modern Italian*. London: Arnold.
- Maina, S. J. (1987). Principles adopted for the enrichment of Kiswahili language. *New Language Planning Newsletter*, 2(2), 1–3.
- Marchand, H. (1969). *The categories and types of present-day English word-formation* (2nd ed.). Munich: Beck.
- Maslova, E. (2003). *A grammar of Kolyma Yukaghir*. Berlin and New York: Mouton de Gruyter.
- Matthews, S., & Yip, V. (1994). *Cantonese: A comprehensive grammar*. London and New York: Routledge.
- Mithun, M. (1999). *The languages of North America*. Cambridge: Cambridge University Press.
- Mosel, U., & Hovdhaugen, E. (1992). *Samoan reference grammar*. Oslo: Scandinavian Universities Press.
- Nguy n,  -H. (1997). *Vietnamese*. Amsterdam and Philadelphia: Benjamins.
- Noonan, M. (2003). Chantyal. In G. Thurgood & R. J. LaPolla (Eds.), *The Sino-Tibetan languages* (pp. 315–335). London and New York: Routledge.
- Olawsky, K. J. (2006). *A grammar of Urarina*. Berlin and New York: Mouton de Gruyter.
- Ourn, N., & Haiman, J. (2000). Symmetrical compounds in Khmer. *Studies in Language*, 24, 483–514.
- Pandharipande, R. V. (1997). *Marathi*. London and New York: Routledge.
- Plag, I. (2003). *Word-formation in English*. Cambridge: Cambridge University Press.
- Saltarelli, M. (1988). *Basque*. London: Croom Helm.
- Scalise, S., & Guevara, E. (2006). Exocentric compounding in a typological framework. *Lingue e Linguaggio*, 2, 185–206.
- Schaub, W. (1985). *Babungo*. London: Croom Helm.
- Sch nefeld, D. (2005). Zero-derivation—functional change—metonymy. In L. Bauer, & S. Valera (Eds.), *Approaches to Conversion/Zero-Derivation* (pp. 131–157). M nster: Waxmann.
- Selkirk, E. O. (1982). *The syntax of words*. Cambridge, MA: MIT Press.

- Sneddon, J. N. (1996). *Indonesian reference grammar*. St Leonards, NSW: Allen and Unwin.
- Sohn, H.-M. (1994). *Korean*. London and New York: Routledge.
- Søgaard, A. (2004). Compounding theories and linguistic diversity. In Z. Frajzyngier, A. Hodges, & D. S. Rood (Eds.), *Linguistic diversity and linguistic theories* (pp. 319–337). Amsterdam and Philadelphia: Benjamins.
- Sulkala, H., & Karjalainen, M. (1992). *Finnish*. London and New York: Routledge.
- Swadesh, M. (1946). Chitimacha. In H. Hoijer (Ed.), *Linguistic structures of native America* (pp. 312–336). New York: Viking Fund.
- Wälchli, B. (2005). *Co-compounds and natural coordination*. Oxford: Oxford University Press.
- Wali, K., & Koul, O. N. (1997). *Kashmiri*. London and New York: Routledge.
- Watkins, L. (1984). *A grammar of Kiowa*. Lincoln and London: University of Nebraska Press.