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Analysing exocentric compounds in English: a case for creativity*

1 Introduction

Since the vast majority of English compounds is endocentric (Bloomfield 1933), linguistic literature has a tendency to mention exocentric combinations only peripherally (if they are mentioned at all), and views these constructions as semantically non-transparent (see for example Dirven & Verspoor 1998; Jespersen 1954; Katamba 1993; Levi 1978; Marchand 1960; Selkirk 1982; Spencer 1991). The present paper takes a close look at these much-ignored constructions and claims that "exocentric" or "non-transparent" compounds are just as easily analysable as endocentric compounds. With the help of cognitive linguistic "tools" such as metaphor, metonymy and blending among others, their meaning becomes analysable and transparent. Thus there is no need for the traditional distinction between the two categories: all we are dealing with is a more imaginative word formation process. Therefore I suggest using the term "creative compound" for metaphorical and/or metonymical noun–noun combinations.

2 Endocentric and exocentric compounds

Bloomfield (1933) suggests two main approaches for the classification of compounds: the analysis of the relation of the members to each other and the analysis of the relation of the compound as a whole to its members. Here I will concentrate on the second line of analysis, which raises the issue of endo- and exocentricity. Bloomfield applies these terms for both syntactic and semantic criteria. In the former case, a compound can be classified as endocentric if the compound has the same grammatical function as the head member: in *blackbird* the compound has the function of a noun, just like its head member, *bird*. However, *turnkey* is exocentric because the head member is a verb while the compound belongs to the category of nouns. In the latter case, a compound is semantically endocentric if the head element specifies the class of entities to which the compound belongs: thus *armchair* is endocentric because it is a kind of chair, while *bluestocking* is exocentric because it does not denote a kind of stocking (but refers to a 'well educated woman').

The notion of headedness is a significant issue in the discussion of compounds in the work of generative morphologists as well, such as Williams (1981) or Selkirk (1982). Similarly to phrases in X-bar syntax, words also have heads. It is a general assumption that the majority of English compounds follow the Right-Hand Head Rule (Williams 1981), which defines the head of a morphologically complex construction as the right-hand member, and accordingly, English compounds are

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endocentric from both a syntactic and a semantic point of view. There are, of course, exceptions that fail to abide by these suppositions, such as exocentric or left-headed constructions. Selkirk nevertheless does devote a couple of pages to the idiosyncratic nature of exocentric compounds—though the author looks upon this linguistic phenomenon as exceptional when she wishes to examine "the *few cases* of exocentric (nonheaded) compounds in English" (1982 : 23, italics mine). Selkirk does not go into the explanation of the semantics of these constructions at all; she proposes instead special rules in the semantic component of English grammar by which exocentric compounds can be interpreted.

Katamba (1993) criticises Selkirk (1982) for introducing the idea of separate semantic rules to interpret exocentric compounds. He argues instead for a simple listing of the meanings. In Katamba's view, both idioms and exocentric compounds are listemes with regard to their semantics — which is opaque, i.e., not subject to compositionality. This is the reason why, according to the author, exocentric compounds are used much less frequently than endocentric ones in the creation of new words. However, if the semantics of exocentric compounds is opaque then why bother with using them at all? It would be more evident — following Katamba's line of reasoning—to denote things only with semantically endocentric compounds. Yet the simple fact that English *does* have such constructions implies that either English speakers like to invent dim and murky terms when creating a new word for public access or that the meaning of exocentric compounds is not as opaque as it seems.

3 Transparent and non-transparent compounds

Dirven and Verspoor (1998) discuss the semantics of compounds from a more flexible perspective. They leave behind the traditional categorisation of endo- and exocentricity (in fact, these terms do not even turn up in the text); instead the authors argue for a cline of transparency on which compounds can be placed on the basis of the transparency of their meaning. At the fully productive (and transparent) end of the continuum, both parts of the compound and the semantic link between them "are unequivocally analysable and hence immediately transparent" (Dirven & Verspoor 1998 : 60), such as *apple tree*. In the case of partially transparent expressions, the components are still analysable but the semantic link is less apparent to see which subcategory the meaning of the compound involves, such as *blackbird*, which does not denote a black type of bird but a bird species. At the other end of the continuum lie non-transparent expressions which Dirven and Verspoor also call "darkened compounds": in these cases, the authors claim, metaphorical or metonymical processes are involved in the meaning of the constructions, as in the case of *red tape*, which does not describe a kind of tape but refers to long and irritating bureaucratic procedure.

There are two main problems with Dirven and Verspoor's (1998) analysis. Firstly, their definitions of the various degrees of transparency are very vague indeed. When *is* a semantic link "unequivocally analysable" in the case of transparent compounds? Are there certain semantic relations which are more transparent than others? If yes, what are these? Needless to say, the problem also arises in the case of partially transparent compounds. When does a transparent compound become partially transparent? In my view, partial transparency might involve some sort of meaning specialisation or generalisation, thus *ashtray* is not really a tray, nor a tray for ashes, but a specific kind of 'tray' for cigarette ashes. *Attaché case*, on the other hand, could be an example for a partially transparent compound where generalisation of meaning occurs: it is not a case used by attachés only, but by many people in all sorts of white-collar professions.

The second problem of their analysis is more serious and inexcusable. The authors state that non-transparent or darkened compounds are metaphorical or metonymical: yet such a claim is at odds with their explanation of *information highway* (metaphorically referring to the internet), which they see as "easily analysable" (Dirven & Verspoor 1998 : 60) on the basis that the metaphorical meaning of *highway* is linked to the source domain of *traffic* through the target domain *information*, and with the help of our cultural knowledge we know the cultural background to which the word refers to. The juxtaposition is the following: if a metaphorical expression is easily analysable indeed, as the authors rightly claim, then why should such a compound be placed at the non-transparent end of the continuum? The answer, in my view, is that there is no need for us to do so in the first place. If metaphor and metonymy are everyday processes of thought, as Lakoff and Johnson (1980) say they are, then metaphorical and metonymical compounds are just as normal and everyday constructions—and just as transparent—as nonmetaphorical or nonmetonymical ones.

4 Methodology

If metaphorical and metonymical compound expressions are taken as transparent constructions, then this presupposition implies that their meaning is analysable. The next main concern is how to proceed in their analysis. Langacker (1987 : 450) maintains that linguistic phenomena are more likely to show partial compositionality than to be fully compositional. Composite structures—such as noun–noun compounds—do follow conventional patterns of composition, that is, the relation that they bear to their components is not random, nor arbitrary. Yet composite structures are not constructed out of their components, nor are they "consistently or fully predictable" (Langacker 2000 : 16): "Rather than *constituting* a composite structure, the component structures *correspond* to certain facets of it, offering some degree of *motivation* for expressing the composite conception in the manner chosen" (*ibid.*, italics as the original).

Constructions such as *black bird* (meaning 'a bird that is black') belong to the group of fully compositional items, in such cases the composite expression has a "regular composite function" where the two components A and B combine on the basis of a regular syntactic rule (ADJ + N) to give the composite element C (which is then "algorithmically derivable from A + B by an associated rule of semantic interpretation"). Thus the composite construction can be expressed as the following: C = [AB]. However, *blackbird* (meaning a bird species) shows partial compositionality because even though the composite structure C is a combination of the meanings of its components, it has undergone a specification of meaning since it refers to a specific type of black bird. Therefore, *blackbird* can be expressed by the formula C = [ABX], where X marks a specialisation of the meaning of the components.

A composite structure such as *blackboard* is also partially compositional, though in a different sense as *blackbird*. Here the meaning of the composite construction is extended to refer to boards which are not black in colour but can also be green or blue for example. Thus *blackboard* can be neither a board, nor necessary *black* in the prototypical sense of the words. Accordingly, *blackboard* can be formalised as C = [A'B'], where A' and B' refer to the non-prototypical use of the respective words. In Langacker's view, when a new linguistic expression is coined, it is interpreted with a quite rich contextual and specified meaning, therefore C $\neq$ [AB]. As the form gets to be established, some of this extra meaning is retained and that is the reason why most composite expressions have a conventionalised meaning that is more specific than their compositional value.

Jar lid is an example of a regular pattern in English compounding, a sequence also observable in e.g., *milk carton*, *salad oil*, *door knob*, *pencil eraser*—to name but a few. Phonologically, both *jar* and *lid* are words, while at the semantic pole each is a noun by profiling a thing. *Jar* profiles a specific kind of container, while *lid* designates the cover for a container of an unspecified nature. The composite structure *jar lid* consists phonologically of a two-word sequence, while semantically it profiles the cover for a jar in particular. In a construction, the component and composite structures are linked by correspondences—these specify how the components are integrated to form the composite structure (e.g., the semantic correspondences of *jar lid* equate the unspecified container evoked by *lid* to the specific container profiled by *jar*). In a typical construction, one component is schematic with respect to the composite structure as a whole: while both the schematic component and the composite structure construe the scene in the same fashion, particularly in regard to profiling, they differ in the level of specificity: the composite structure is more specific with regards to the thing that it profiles (*jar lid* is more specific than *lid*). The schematic component is called the profile determinant (since it has the same profile as the composite whole). In the case of *jar lid*, *lid* will function as the profile determinant, as this is the constituent that construes the same scene as the composite structure (Langacker 2000 : 16–18).

Warren (1992), though not working in a cognitive linguistic paradigm, examines noun–noun combinations of the "exocentric" sort with the help of metaphor and metonymy. In her view, *hammerhead* ('a stubborn person') is an example of a metaphor within a metonymy ("metaphor-in-metonymy"), where the hammer metaphorically refers to something hard, and the compound as a whole is a PART FOR WHOLE metonymy (the head is used to refer to the whole person). There are also cases where metonymy works within a metaphor ("metonymy-in-metaphor"), as in *clockwork orange* ('a person made into an automaton'): for one, the hero of the novel *Clockwork Orange* is in a metonymical relationship with the text itself (PLACE FOR PERSON), secondly there is also a metaphor at work where a person is likened to a machine.

While Warren's (1992) analyses are elegant solutions to uncovering the meaning of the constructions (and she can also be acclaimed for pointing out a very significant characteristic of these expressions: namely that metaphor and metonymy can *both* act simultaneously upon the meaning of the compound), metaphor and metonymy are just one part of the issue at hand. In many metaphorical and metonymical noun–noun combinations, the resulting overall meaning is very similar to the emergent structure of blended spaces (Fauconnier & Turner 1998). Thus conceptual blending theory has been put to use to try and explain how people combine concepts in order to yield new ones in the form of compound expressions. Significant work has been carried out by Fauconnier & Turner (1998, 2002) and Coulson (2000), who boldly called for the establishing of a semantic theory which could explain less prototypical cases as well: "the goal is to formulate an account of conceptual combination that is general enough to encompass both compositional and noncompositional phenomena" (125).

Coulson (2000) relies on conceptual blending theory in explaining the meaning of several compound expressions. Although the author discusses each example in elaborate detail, there are a number of questions which are not addressed and which, I believe, apply to all the examples of Coulson's. First, she does not explain what relation is there between input spaces and the composite elements of the compound. At first glance it seems that an input space is correlated to one of the elements in the compound: for example, *petfish* has two input spaces, each being one of the composite expressions of the compound (*pet* and *fish* in *petfish*). However, her other example, *caffeine headache*, has three input spaces: *headache*, *counterfactual* [scenario], *caffeine*. In a further example, when analysing *hot lid*, the input spaces do not correlate with the elements of the compound at all but are more abstract entities: *temperature* and *container*.

The second issue which needs to be raised regarding Coulson's analyses are the elements and relations get listed in the input spaces. What elements and relations should we list under an input space? According to Coulson (2000 : 129), "[f]rames associated with each of the component nouns are evoked in the input spaces of the network." However, this methodology leaves substantial leeway for the linguist to include data based on subjective selective criteria. A further problem is posed with the use of the relations themselves, which are similar in concept to the transformational and early generativist accounts of compound expressions. While a relation such as "Swims (Fish)" in the *petfish* example seems to be easy to understand ("the fish swims"); the relations "Hot (Substance) Solid/Liquid/Gas" or "Lid (Sturdy, Plastic)" in the *hot lid* analysis are more difficult to grasp.

The problems encountered so far might imply that the analysis of metaphorical and/or metonymical expressions lead linguists into a dead-end street. This is not so, however. In an analysis of adjective–noun combinations, Sweetser (1999 : 131) suggests that "the variability and complexity of these [both adjective–noun and noun–noun combinations] constructions' interpretation suggests that a variety of mechanisms may be involved in their semantic interpretation". What this means is that the analysis of such compounds requires not only metaphor and metonymy, nor just blending theory, but other cognitive linguistic "tools" also, such as frames, active zone, profiling and construal. Sweetser (1999 : 145) points out that by the application of mental spaces in semantic structure, we get metaphor and metonymy "for free": there is no need to create separate mechanisms by which a component in a composite structure profiles a metaphorical (or metonymical) domain.

5 An example: analysis of *firedog*

Firedog ('one of a pair of iron supports for burning logs in a fireplace', LDOCE) exemplifies a creative compound where the profile determinant, *dog*, is understood metaphorically, and the modifier *fire* is used in its non-metaphorical sense. At first sight, it is difficult to perceive any sort of similarity between dogs and iron supports, but the function of the object in question leads to the solution. The iron supports guard the logs in a fireplace from falling out; this guarding function is brought in parallel to a dog, which is often used to guard a house, a property, sheep, etc. Thus it is the similarity between the function of a dog and the iron supports that give rise to the compound's metaphorical profile determiner.

However, the question still remains why *fire* is chosen in the compound as the modifying element, instead of e.g., *iron* as in *irondog*, or *log* as in *logdog* (and the list could probably go on). I believe that the answer lies once again in the basis of the perceived similarity between a dog and the iron supports, i.e., the guarding function. The modifying element is selected with this similarity in the background, and it helps the language user to work out the meaning of the construction. *Irondog* is not such a good candidate for denoting the iron supports used before a fireplace, because the modifying element concentrates on the material from which the object is made out of, and does not hint at its function (and thereby the similarity that the metaphorical profile determinant is based on).

Logdog would seem to be a much better choice, because the iron supports guard the logs from falling out, and even though the guarding function does surface in *logdog*, it is nevertheless chosen over *firedog* for a number of reasons. For one, *logdog* does not hint at the purpose of the logs, namely to have a fire. Secondly, as Radden and Kövecses (1999: 32) argue, a substance such as fire is characterised by being unbounded. However, fire may be metonymically conceived of as an object and is then construed as a bounded entity that can be constituted of logs for example. In this case, the conceptual metonymy OBJECT FOR MATERIAL CONSTITUTING THE OBJECT is at work, where fire stands for the burning logs. Thirdly, a further metonymy could be at work in the modifying *fire* element of the compound, namely CONTENTS FOR CONTAINER (Radden & Kövecses 1999 : 41), where the fire (i.e., the content) stands for the fireplace (the container).

According to Ryder (1994 : 84), a process that is called "constraining" effects the language user when a new compound is formed, which means that already existing compound patterns influence the structure of a novel construction. Ryder illustrates this with an example from the dog world — which is highly relevant for the analysis of *firedog*. Ryder proposes that if a new type of dog is bred by Georgians, that looks like a cat, to be used for hunting squirrels, then it is more probable that this dog would be called a *squirrel hound* (on the pattern of *bulldog*), as opposed to *Georgian hound* (on the pattern of *German shepherd*) and *cat hound* (on the pattern of *mule deer*). The reason for the selection of *squirrel hound* over the others is that the speaker is influenced by the most common type of linguistic template used for the naming of dogs — in this case what they are used for (as opposed to where they have been bred or what other animal they resemble). The same happens in *firedog* as well: the language user is influenced by compounds denoting dogs which have *dog* in the profile determinant position and an element in the modifying position that clarifies the function of the dog: e.g., *sheepdog*, a dog that is used for guarding sheep; or *watchdog*, a dog used for guarding property. On the basis of this pattern, a *firedog* can only denote 'a "dog" that guards fires'.

At the same time, the language user might also be influenced by compounds that have *fire* in the modifying position: such as *fire brigade*, *fire door*, *fireman*, *fire truck*, etc. As Ryder (1994) argues, there are certain "core words" that participate in a large number of compounds and which are restricted to either a modifier position (such as *sea* as in *sea bed*, *seafood*, etc.) or a head position (e.g., *house* as in *greenhouse*, *tree house*, etc.). There are core words that possess "absolute cue reliability": this means that the core word contributes the same meaning regardless of what it is paired with. *Fire* can also be considered as a core word restricted to both a modifier position (as above) and a head position (cf. *camp fire*, *forest fire*).[1] When used in the modifier position, *fire* compounds denote an entity whose role is to prevent or fight fires (as in *fire brigade* or *fireman*) — this linguistic template might have influenced the selection of *fire* before *dog* in *firedog*, to mean an object that prevents the spread of fire.

6 Conclusion

This paper argues that the difference between endocentric compounds such as *apple tree* and exocentric compounds such as *red tape* is not transparency, but creativity: the latter represents a type of nominal construction that has been created by a more imaginative word formation process. Such compounds are not unanalysable, nor semantically opaque: in fact, they are just as transparent as their endocentric counterparts. The paper proposes that the analyses of these expressions require various cognitive linguistic tools, such as metaphor, metonymy, blending, profile determinacy, schema theory and construal. It analyses the meaning of a metaphorical compound, *firedog*, in order to show that such a construction follows normal compound-formation patterns, that is, semantic schemas which operate in the majority of English compound nouns. However, what makes *firedog* less ordinary and slightly non-prototypical is that the viewing arrangement follows a metaphorical path: the right-hand member profiles an entity that is understood metaphorically.

[1] When *fire* is in the head position, it has absolute cue reliability. However, when it is in the modifier position, the picture is more complex: a *firescreen* is a screen that is put before a fire to protect people from getting burnt; a *firefly* has a tail that shines in the dark; a *firebug* is a person who likes to start fires deliberately; while a *fire cracker* is a small firework that explodes loudly (all the examples are from LDOCE).

Needless to say, *firedog* is just one subtype within the various creative patterns of compound-formation. The nature of the other, less-prototypical patterns is a further question.

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