
Cognitive lexicography of emotion terms

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Abstract

At a glance, lexicography and cognitive linguistics are two branches of linguistics that do not seem to have a lot in common. While the lexicography of English on the one hand has followed established principles for decades or even centuries, cognitive linguistics on the other hand only emerged a few decades ago. But since the systematic description of the language is the basis for lexicography, linguistics also has a significant influence on the latter (cf. Béjoint 2010). I furthermore argue that it would be especially beneficial to use cognitive linguistics as a new basis for lexicography, - leading to something called 'cognitive lexicography' - since this new branch of linguistics tries to explain how humans perceive and conceptualise the world and has provided the basis for an entire new conception of semantics. A description of language in dictionaries based on cognitive linguistics would therefore be more realistic (cf. Geeraerts 2007) and more tangible. This is demonstrated here for emotion terms, which are generally hard to define. Emotion terms have received a fair amount of treatment in literature (cf. Kövecses 2000), but dictionary definitions of emotion terms are usually vague and circular. For this class of abstract nouns, a new lexicographic defining format has been developed which is not only based on traditional principles of lexicography, but also on cognitive linguistic semantic information concerning emotion terms, for example the prototypical emotion scenario and metaphors and metonymies (cf. Kövecses 2000). Definitions of the nine basic emotions terms anger, disgust, hate, fear, sadness, desire, love, happiness and joy written in this new format were scrutinised in a user study whereby test subjects had to name the correct term for a given definition. It has been demonstrated that definitions following this new cognitive linguistic defining scheme yield significantly better results compared to traditional dictionary definitions.

1. Lexicography and cognitive linguistics

The lexicography of English looks back on a rich tradition: Dictionaries in the form we know them today began to emerge in the 17th century; Robert Cawdrey's *A Table Alphabeticall* (1604), Samuel Johnson's *Dictionary of the English Language* (1755) or James Murray's editorship to the *Oxford English Dictionary* (1884) are only a few of the grand milestones of lexicography. A new category of dictionaries, those for non-native speakers, appeared in the middle of the 20th century, when A.S. Hornby wrote the first edition of *The Oxford Advanced Learner's Dictionary* (henceforth abbreviated OALD), which was tailor made to meet the needs of the language learner, especially in the area of definitions, examples and information regarding syntax (cf. Béjoint 2010: 50-189, Cowie 1999: 14-52, Landau 2001: 43-90). Five major learner's dictionaries compete on the market today.

Cognitive linguistics, on the other hand, is a comparatively new branch of linguistics, the beginnings of which date back only a few decades. Turning away from structuralist and especially generativist linguistic paradigms, cognitive linguistics tries to describe language according to how humans perceive and conceptualize the world; language itself is seen not as an isolated faculty, but relates to the world (cf. Croft and Cruse 2004: 1-4). Perception, experience and attention are all crucial to the description of language via associations and attributes, which in turn mirror what is going on in our minds while we process language (cf. Ungerer & Schmid 2006: 1-4).

Although lexicography and cognitive linguistics do not seem to have much in common, I argue that it may be fruitful to try and combine the disciplines. Lexicography builds on fixed principles regarding dictionary writing which were established decades or even centuries ago

and which have prevailed, but the time may be ripe to build on a new basis for these principles, namely cognitive linguistics. Linguistics as such has always influenced lexicography (cf. Béjoint 2010: 269); lexicography is sometimes also viewed as an applied branch of linguistics and both “work on the same object, language” (Béjoint 2010: 262). An applied branch such as learner lexicography, which tries to explain language in a way that non-native speakers can easily understand it, may especially profit from a linguistic theory that is interested in how humans store, conceptualize and retrieve this language in the first place. As Béjoint (2010: 269) observes, “(...) lexicography can only progress if it takes into account the work of linguists, their methods, their questions and their answers.” And it may be time for lexicography to look at a new set of questions and answers, which is what I would like to demonstrate in this paper.

2. The idea behind cognitive lexicography

English monolingual learner lexicography follows certain conventions regarding dictionary writing (cf. Svensén 2009); linguistics offers scientific input to this description of language. But although a relationship between the branches is clearly visible, it has not always been amicable. According to Geeraerts (cf. 1997), linguistics and lexicography have developed independently of one another in the course of the 20th century.

The idea behind what I call ‘cognitive lexicography’ is not to change all lexicographic practice. What would seem much more fruitful is for lexicography to take into account theories of cognitive linguistics and incorporate concepts and findings into existing lexicographic principles. What I would like to propose is to use cognitive linguistics as a new basis and profit from its findings. Geeraerts (2007: 1168) also mentions that

(...) what Cognitive Linguistics seems to offer to lexicography is a conception of semantic structure that is perhaps in a number of respects more realistic than what many other semantic theories (...) can provide.

Some theories of cognitive linguistics, for example prototype theory, are already widely used in the writing of definitions; lexicographers, however, are not aware of it or decide for whichever reason not to mention it (cf. also Hanks 1987: 118 on definitions that state what is typically the case in contrast to necessary conditions). Cognitive linguistics, especially the use of prototype theory, frame semantics, and conceptual metaphor can further fruitfully be applied to a range of lexicographic principles. What I propose here is a new cognitive defining structure for one class of abstract nouns, namely emotion terms.

3. Cognitive lexicography applied: the case of emotion terms

3.1 *Emotion terms*

The semantic description of emotion terms has received a fair amount of cognitive linguistic attention; among other scholars, Johnson-Laird & Oatley, Wierzbicka and Kövecses have devoted themselves to this field. Johnson-Laird and Oatley (cf. 1989) decompose the semantic field into Basic Emotions and a few more emotion types which build on these basic emotions, postulating that emotions fulfil communicative functions. Wierzbicka (cf. 1992) describes emotion terms with the help of semantic primitives such as ‘do’, ‘good’, ‘bad’, ‘happen’,

'know', which are universal in language since they are non-technical and can be understood intuitively (cf. 1992: 541) and which serve to render emotion terms in forms of prototypical scenarios. Kövecses (cf. 2000) puts the role of metaphors in the centre of the description of emotion terms. And finally, the FrameNet project has also created a 'feeling'-frame in order to describe the components of emotions.

This semantic description offered by linguistics, however, stands in sharp contrast to dictionary definitions of basic emotion terms. There is no doubt about the difficulty to define emotion concepts. This is probably due to what Johnson-Laird and Oatley mean when they say that basic emotions are an "unanalysable primitive experience" (1989: 93) and that emotions in general cannot be communicated, since "[I]f you were 'emotion-blind' and unable to experience emotions, then you would have no idea what it was like to feel, say, sadness." (1989: 90). But dictionary definitions of emotion terms also "show a considerable degree of vagueness and circularity" (Ungerer & Schmid 2006: 133) and seem to be accepted to be vague, as Ungerer & Schmid (2006: 25) also state:

Dictionary definitions are written for a practical purpose and not with a systematic linguistic or cognitive analysis in mind. Lexicographers can afford to skip some properties that are to be taken for granted (...).

A few examples from OALD8 prove this point: *joy* in OALD8 is defined by 'a feeling of great happiness', whereas *happiness* itself is not even entered in the dictionary but can only be found as a composite noun in the entry of *happy*, the definition of which reads 'feeling or showing pleasure'. The same holds true for *sadness*, which is defined as 'the feeling of being sad'. The situation is similar in other monolingual learner's dictionaries on the market. This, however, is the point where I suggest following up on the FrameNet approach and on Kövecses's approach in order to offer definitions of basic emotions terms closer to cognitive linguistic insights.

3.2 A new cognitive defining structure

In order to render emotion terms unambiguously and, so to speak, "cognitively" in dictionary definitions, a new defining structure is needed, which will be outlined here for the nine basic emotions *anger, disgust, hate, fear, sadness, desire, love, happiness, joy*.

This new defining structure is based on two cognitive descriptions of how to grasp emotions: these are the feeling frame developed by the FrameNet project (cf. FrameNet online) and Kövecses' prototypical emotion scenario (cf. 2000: 127-129). The feeling frame developed by FrameNet postulates an emotion or emotional state, an experiencer, and an evaluation of the emotional state for an emotion. Kövecses' prototypical emotion scenario is a five-stage model consisting of cause of emotion, the emotion, an attempt at control, a loss thereof and a response (cf. 2000: 129). In my approach, these two descriptions of emotion are combined with the classical defining format of analytical definitions for nouns with a *genus proximum* and a *differentia specifica* (cf. Svensén 2009: 218ff), where the *differentia specifica* takes the form of a when-definition. The *genus proximum* is the superordinate 'feeling' (often premodified); the *differentia specifica* is a two-fold when-definition consisting of a cause for the emotion and a reaction to it (cf. Kövecses 2000). The table below illustrates this scheme:

Table 1. A cognitive defining structure for basic emotion terms.

NEW COGNITIVE DEFINING STRUCTURE	definiens (headword)	genus proximum	when-differentia specifica	
	emotion term	emotion / emotional state (CDE1)	cause / situation (CDE2)	reaction (CDE3)

In this three-fold structure with *genus proximum* and *differentia specifica*, three slots arise for the concrete defining task, called ‘cognitive defining elements (CDE)’, which are filled with cognitive linguistic information on emotion terms. These CDEs consist of metaphors and metonymies of emotions (cf. Kövecses 2000, e.g. ‘ANGER IS HOT FLUID IN A CONTAINER’), semantic primitives or prototypical scenarios (cf. Wierzbicka 1992), or prototypical instances of emotion experience. Every CDE may take one or several realisations of cognitive linguistic information. The following table exemplifies this for the term *anger*:

Table 2. Cognitive defining structure exemplified.

genus-proximum {+ CDE1}
when-differentiae-specifica with cognitive defining elements: <div style="text-align: right;"> {CDE2 – cause / situation} {CDE3 – reaction} </div>
anger. a bad feeling rising in you when you think sth or sb’s behaviour is unfair or unjustified and you would immediately like to do sth about it; it might be hard to suppress this wish to do sth, you might act in an unfriendly way, get red in the face or shout.

Following these new principles, my definitions fulfil the criteria of offering cognitive semantic information; at the same time, they follow conventional lexicographic practice and come closer to the ideal of folk definitions (cf. Stock 1988). The following table lists the definitions for the nine basic emotions:

Table 3. Cognitive definitions of basic emotion terms.

anger	a bad feeling rising in you when you think sth or sb’s behaviour is unfair or unjustified and you would immediately like to do sth about it; it might be hard to suppress this wish to do sth, you might act in an unfriendly way, get red in the face or shout.
disgust	an extremely bad and unpleasant feeling making you feel sick and turn away when you see sth that either smells or feels very bad or sth that you consider morally wrong; you would like to get away from it and not have anything to do with it.
hate	the bad and burning feeling when you dislike sth or sb very much because sb treats you badly or is your enemy; you might be upset, full of this feeling and not be able to help it.
fear	the bad and threatening feeling slowly coming up inside you when you think sth bad is going to happen and you are in danger, e.g. when you are alone in the dark or otherwise helpless; it might make your heart beat faster, make you tremble and shiver or want to run away.
sadness	the bad feeling that brings you down when sth has happened that you do not want to be that way or when you lose sb you like a lot; it makes your heart feel heavy and might make you cry.
desire	the good and motivating feeling when you desperately want to have sth (e.g. in a shop

	window) or feel sexually attracted to sb; it may magically draw you to sth/sb and make you feel excited.
love	the strong, warm feeling when you see or think of sb whom you like very much and who is close to you, e.g. a member of your family, a friend or the person you want to spend your life with; it makes you feel good when you're together with this person, you may want to hug this person.
happiness	the good and vital feeling when everything in your life is the way you want it and you don't have any problems; it might make you feel as if you were in heaven, you smile and everything is ok.
joy	the extremely good feeling when something wonderful has happened, e.g. a wedding proposal or the birth of a child; it fills your heart and might make you sing or jump up and down.

3.3 Study on basic emotion terms

3.3.1 *Outline of the study.* In order to test the efficiency of my cognitive definitions for basic emotion terms, I conducted a user-study in the form of a naming task. Test subjects were given questionnaires in which they found definitions for the nine basic emotions and for nine distractor terms of other abstract nouns, for all of which they had to provide the appropriate noun. Test subjects in the target group ($N_1 = 25$) were given the above 'cognitive definitions' (abbreviated 'CogDef'); test subjects in the control group ($N_2 = 25$) received definitions from LDOCE5 (see table 4 in appendix 1); these dictionary definitions were left unaltered with the exception of deleting synonyms and antonyms and rectifying circularity. The distractors were further randomly chosen from abstract nouns denoting states and qualities (*ambition, beauty, courage, honesty, childhood, freedom, hunger, pain, time*), the definitions of which for the target group were also written according to the model outlined above in order to keep the target group questionnaires uniform. The questionnaires were all randomised. The hypothesis of the study was that cognitive definitions lead to better dictionary performance since they trigger the corresponding concept more easily due to their cognitive defining structure and elements. The subsequent null hypothesis is that there is no statistically significant difference between the two groups.

3.3.2 *Discussion of results.* The results prove the hypothesis. As can be seen from figure 1 below, cognitive definitions yielded better performance results in seven out of nine instances. (The poor result of *desire* has to be ascribed to a faulty definition which could not be rectified in time.) The definitions for *anger, disgust* and *hate* are especially successful, more so than those of LDOCE. The definitions of *disgust* and of *love* can be seen as the most successful ones. (For all answers given for each emotion term, please refer to table 5 in appendix 2.)

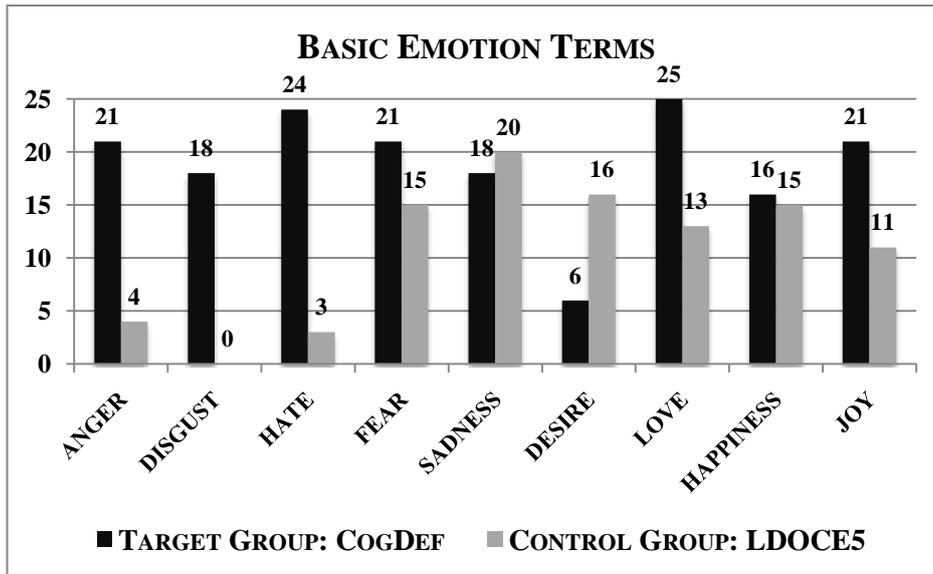


Figure 1. Results of user study.

The results of target and control group measured with χ^2 -test for each emotion term are statistically significant for all definitions except *sadness* and *happiness*, with a probability for the rejection of the null hypothesis of more than 99%, in the case of *fear* of more than 90% (for exact χ^2 -values and p-levels, please also refer to table 5). The average of correctly mentioned target items per questionnaire is 6.80 for the target group and 3.88 for the control group with a standard deviance of 1.32 for the target group and of 1.56 for the control group. The χ^2 -value for the sum of all correctly mentioned target items (170 for the target group compared to 97 for the control group) is 49.08, which is also statistically highly significant with $p < 0.001$.

If we take a closer look at one of the definitions whose results for the absolute number of correctly mentioned target items are not statistically significant, here *happiness* (figure 2 below), we can see that if the target item *happiness* had not been mentioned, three different other results were given in the target group compared to six other results in the control group. In both groups, *satisfaction* comes in second place, but was mentioned in a much higher proportion in the target group. And test subjects of the control group also gave no answer or answers that did not make sense (for example *amazement*). Therefore I still regard the cognitive definition as more successful. Similar results were obtained in many instances for the other emotion terms.

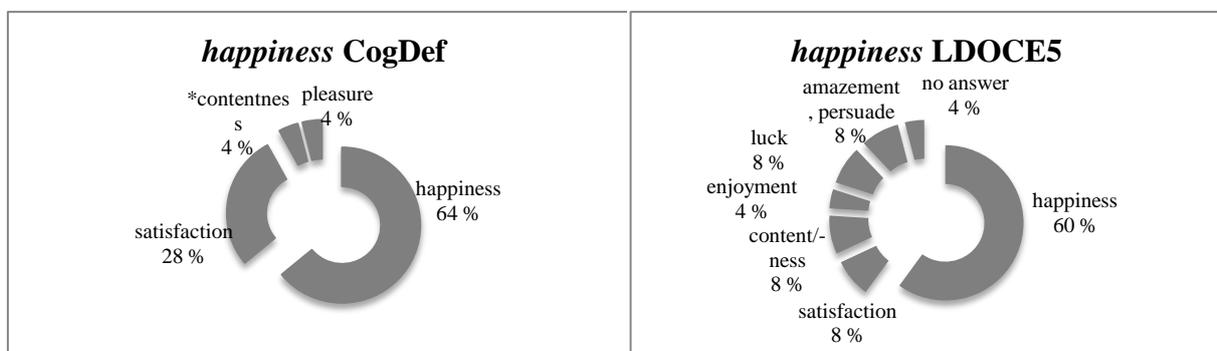


Figure 2. A comparison of the given answers for *happiness*.

4. Closing remarks

What I hope to have shown in this paper is that the application of cognitive linguistics for lexicography seems to be a very fruitful approach. A follow-up study with complex emotion terms will hopefully confirm the above findings. Other areas of lexicography, such as the arrangement of polysemous entries of prepositions (cf. also Adamska 2008 or Geeraerts 1990 and 2001) or a new macrostructure based on frame semantics, still await treatment. All in all, I hope that cognitive linguistics will become an integral part of and hence enrich English monolingual learner lexicography in the future.

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Appendix 1: Definitions from LDOCE5 used in the study

Table 4. Definitions from LDOCE5.

anger	a strong feeling of wanting to hurt or to criticize someone because they have done something bad to you or been unkind to you
disgust	(1) a strong feeling of dislike, annoyance, or disapproval (2) a very strong feeling of dislike that almost makes you sick, caused by something unpleasant
hate	an angry unpleasant feeling that someone has when they hate someone and want to harm them
fear	the feeling you get when you are afraid or worried that something bad is going to happen
sadness	the state of feeling not happy, especially because something unpleasant has happened
desire	(1) a strong hope or wish (2) a strong wish to have sex with someone
love	a strong feeling of caring about someone, especially a member of your family or a close friend
happiness	the state of having feelings of pleasure, for example because something good has happened to you or you are very satisfied with your life
joy	great happiness and pleasure

Appendix 2: Results of the study (with number of occurrences and statistic data)

Table 5. Complete results of the study.

Target	target result	other results of the same semantic field	unrelated results	no answer	χ^2 -value & level of probability	
anger CogDef	anger	rage (1)	confrontation (1)	no answer	$\chi^2 = 23.12$ $p < 0.001$	
	21	1	1	2		
anger LDOCE5	anger	rage (3), vendetta (1), revenge / vengeance (12)	jealousy (1), scorn (1), complaint (1)	no answer		
	4	16	3	2		
disgust CogDef	disgust	dislike (1)	bad mood (1), awkward (1)	no answer		$\chi^2 = 28.13$ $p < 0.001$
	18	1	2	4		
disgust LDOCE5	disgust	hate (21)	contempt (1), ignorance (1)	no answer		
	0	21	2	2		
hate CogDef	hate	-----	sickness (1)	no answer	$\chi^2 = 35.51$ $p < 0.001$	
	24	0	1	0		
hate LDOCE5	hate	*haterate/*hateress (3), anger (8), rage (4), aggression/aggressiveness (4), *adversion (1), hostility (1)	vicious (1)	no answer		
	3	21	1	0		
fear CogDef	fear	anxiety (2), *frightness (1)	-----	no answer		$\chi^2 = 3.57$ $p < 0.10$
	21	3	0	1		

fear LDOCE5	fear	anxiety (2), angst (1), insecurity (1)	hindsight (1), sorrow (1)	no answer	
	15	4	2	4	
sadness CogDef	sadness	grief (4), unhappiness (1)	anger (1)	no answer	$\chi^2 = 0.44$ statistically not significant
	18	5	1	1	
sadness LDOCE5	sadness	grief (1), disappointment (2)	-----	no answer	
	20	3	0	2	
desire CogDef	desire	attraction (2), eager (1), craving (1), addiction (1), interest (1), passion (3), lust (1)	excitement (1), affection (2)	no answer	$\chi^2 = 8.12$ $p < 0.01$
	6	10	3	6	
desire LDOCE5	desire	lust (4), *hornity/libido (2)	-----	no answer	
	16	6	0	3	
love CogDef	love	-----	-----	no answer	$\chi^2 = 15.79$ $p < 0.001$
	25	0	0	0	
love LDOCE5	love	affection (2), sympathy (1), care (1)	worry (2), occupation (1)	no answer	
	13	4	3	5	
happiness CogDef	happiness	satisfaction (7), *contentness (1)	pleasure (1)	no answer	$\chi^2 = 0.08$ statistically not significant
	16	8	1	0	
happiness LDOCE5	happiness	satisfaction (2), content/*-ness (2), enjoyment (1), luck (2)	amazement (1), persuade (1)	no answer	
	15	7	2	1	
joy CogDef	joy	excitement (1), enthusiasm (2)	-----	no answer	$\chi^2 = 8.69$ $p < 0.01$
	21	3	0	1	
joy LDOCE5	joy	euphoria (1), elation (1), rapture (1), enjoyment (1), satisfaction (3), gladness (1), luck (2)	fun (2)	no answer	
	11	10	2	2	