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The relevance of emotion for language and linguistics

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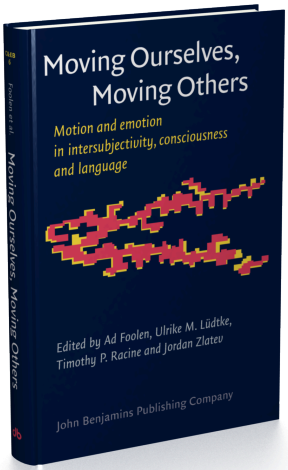

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The relevance of emotion for language and linguistics is considered from three perspectives: (a) the conceptualization of emotions, (b) the expression of emotions and (c) the grounding of language. As to the conceptualization perspective, research on the emotional lexicon is discussed. Not only content words (N, V, A), but also prepositions are relevant (*to long for, hate against*). From the expression perspective, it is claimed that the expression of emotions takes place on all linguistic levels: phonological, morphological, lexical, syntactic, and on the level of figurative language use (metaphor and metonymy). 'Grounding' of language in emotion means that emotion is one of the preconditions for the functioning of language (emotion is part of the embodied grounding) and for its coming into existence, both ontogenetically and phylogenetically.

Keywords: language; emotion; conceptualization; expression; figurative language; grounding; embodiment

1. Introduction

In Cognitive Linguistics, it is a basic assumption that language and cognition interact. The way human cognition works has an influence on the structure of human language, and language influences human cognition. How strong the latter relation holds, is a question that dominates discussions concerning research in linguistic relativity, see, for example, Slobin (1996), Pinker (1997), Majid et al. (2004), and Casasanto (2008). Cognition, in its turn, interacts with emotion (Damasio 1994). If cognition is strongly connected to both language and emotion, how should we see, then, the relation between language and emotion? There are four possibilities:

– There is no direct connection between language and emotion: cognition stands as an intermediate between them (emotion is conceptualized in cognition and cognition is reflected in language, for example in the lexical differentiation between emotions),

- Language has a direct connection to emotion (emotion can be expressed in a direct way in verbal utterances),
- Language has both a direct and an indirect link to emotion (language reflects conceptualization of emotion *and* expresses emotion),
- The relation between language and emotion varies, depending on the types of emotion. For example: A belief-dependent emotion like surprise is typically expressed in language, whereas anger or fear is only conceptualized in language but expressed in non-verbal ways.

In previous work (Foolen 1997), I proposed that the third option holds: People have the ability to *conceptualize* emotions, not only their own, but also those of others, and in this respect cognition serves as intermediate between language and emotion. But a speaker also has the possibility of expressing his/her own emotions directly via language, resulting in expressive (also called emotive or affective) language. To illustrate the difference: One can become aware of one's emotions and say *I find that food disgusting* or one can express the same emotion directly by uttering *yuk!* These two different ways of communicating the same feeling differ semiotically in a fundamental way: the first one is symbolic, using words with relatively context-independent meaning (the indexicals *I* and *that* need of course context to be interpreted), and the second is a 'symptom', a reflex, showing that the speaker in the here-and-now has a specific emotion (disgust). Emotional interjections are prototypical cases of emotive/expressive language, but there are many other forms, for example exclamative sentence types or constructions like 'an N of an N' (*a bear of a man*, *a castle of a house,* etc. cf. Foolen 2004).

In the present chapter, the distinction between conceptualization and expression is taken as a point of departure. It will be argued that not only the conceptualization of emotion (Section 2) but also expression of emotion (section 3) is a natural function of language. In Section 4, special attention will be paid to figurative speech in relation to emotion. I will argue that the expressive function of emotional figurative speech (*I nearly exploded*) is as important as its conceptualizing function. In Section 5, the foundational role that emotion plays in processing language and in its ontogenetic and phylogenetic development will be discussed, and Section 6 contains some concluding remarks.

2. Conceptualization of emotions: Fluidity and relational properties

With nouns like *love, anger, surprise*, we can talk about emotions. But other parts of speech also contain words that pertain to emotions, in particular verbs (*to love, hate, fear*) and adjectives (*happy, sad, angry*). In what follows, we will have a look at nouns and verbs, leaving out adjectives, but we will add prepositions, as they

play a role in the relational (*love for something*) aspects of the conceptualization of emotions.

2.1 Nouns

Wierzbicka (1999) and others have shown that languages differ in the way they cut up the emotional field. German distinguishes between *Eifersucht* and *Neid* where Dutch uses *jaloezie* ('jealousy, envy') for both. The difference in German has to do with what the other person has that the experiencer of the emotion would also like to have: a relation with someone else (*Eifersucht*) or a certain material possession (*Neid*). Greek seems to lack an expression for 'frustration' (Pavlenko 2008) and the African language Dholuo (Nilo-Saharan, Nilotic) has a word *maof*, which is "the feeling of desiring to see relatives and friends that have not been seen for too long and is by extension transferred to other things" (Omondi 1997: 97). Do such differences between languages have an effect on how speakers perceive or experience their own and other's feelings? Yes, according to Lindquist (2009), who calls this view a 'constructivist view on emotion'. And Colombetti (2009: 20) defends this view as follows: "Labels for emotions have causal force. They can act as catalysts for a complex of feelings that may otherwise go unnoticed. Also, they can channel and structure expressive resources towards a specific type of experience".

It might very well be that there is more lexical variation between languages in the emotional field than in the field of concrete objects, as the distinctions between emotions are less clearly given in advance (more fluid) then, say, in the field of animals or artifacts. As Daneš (2004: 31) states it: "Perhaps it would be more adequate to use the metaphor of a field or space of fluctuating fuzzy elementary emotional states, i.e. a 'diffused continuum' … with relatively 'condensed islands', more or less different in various cultures and identified by them by means of particular labels." This opens up interesting possibilities to compare the emotional vocabularies of languages, cf. Dem'jankov et al. (2004) and Dziwirek & Lewandowska-Tomaszczyk (2010), who found, for example, that in English, the distinction between positive and negative emotions is salient, whereas in Polish the inside-outside distinction plays an important role in categorizing emotions.

Within one language, the conceptualization of emotions can develop through time (cf. Bloem this volume). An early diachronic study (on anger) is Geeraerts & Grondelaers (1995). More recently, Fabiszak & Hebda (2010) looked at pride in medieval English, Trim (2010) studied the degree of salience of different metaphorical models for love in English, and Tissari (2010) looked at word pairs like happiness-sadness, love-hate, hope-fear, pride-shame, calmness-anxiety, and excitement-respect in Early Modern (ca. 1500–1700) and Present-Day English. Such linguistic studies are a prerequisite for interdisciplinary studies on the impact of language on the (varied) experience of feelings.

2.2 Verbs

Emotions may share with snow and colors the lack of sharp distinctions, but one clear difference has to do with temporal complexity: Emotions are processes, they begin, get stronger and fade away (cf. Zlatev et al. this volume), and this aspect is conceptualized in a natural way with verbs, being 'process words'. In emotion verbs, four different 'roles' are involved: Causes ('that noise' in *that noise irritates me*), Experiencers (the person who experiences the emotion, like *me* in the example just given), Targets, like *that sound* in *I hate that sound*, and (bodily) Effects (trembling in *he trembled with fear*).

There is a whole line of research on mental verbs (psych verbs) (cf. Croft 1993; Jackendoff 2007: Chapter 7), in which the central question is how we can explain the variable distribution of the semantic roles of Cause, Experiencer, and Effect over the syntactic subject, object, and predicate. West-Germanic languages have at least 3 classes of mental verbs: (1) Causative verbs: *That noise irritates / frightens me*, where the Cause is subject and the Experiencer is direct object; a passive paraphrase is possible (*I am frightened by that noise*), (2) Unaccusative verbs, which don't allow a causative paraphrase or a passive. The Experiencer object has the syntactic role of indirect object. German has a dative here (*Das gefällt mir*, 'that pleases me'), whereas it has accusative in combination with verbs mentioned under 1 (*Das beängstigt mich*, 'that frightens me'), and (3) Experiencer-subject verbs: *I like/hate/fear that sound*.

Three questions are relevant here:

i. Can we predict which feelings are conceptualized by which pattern? If there is a pattern, it is not absolute, as some feelings can occur in two patterns: *That animal frightens me* versus *I fear that animal*; *that pleases me* versus *I like that*. Moreover, we see changes through time with the same verb, where the Experiencer shifts position from object to subject, cf. the Dutch examples in (1) and (2).

(1) a. *Dat irriteert mij*
That irritates me
'That irritates me'

b. *Ik irriteer mij daaraan*
I irritate me thereon
'That irritates me'

(2) Behalve aan de regels rond tijdelijke aanstellingen irriteren docenten uit het wetenschappelijk onderwijs zich aan regels over urenregistratie.
(Vox 15:9, April 2, 2009, p. 6)

'Besides about regulations concerning temporary appointments academic teachers are annoyed [literally: 'irritate themselves'] about rules dealing with the administration of working hours.'

ii. Can we say that the emotional relation is conceptualized differently in the three different verb-argument patterns? Can we say, for example, that if the Experiencer is positioned in the subject position, the construction implies some control of the Experiencer over the emotion? There is no empirical evidence available, however, pro or contra such claims.
iii. Do different ways of conceptualizing emotional processes have an impact on the way the emotions are experienced? If one believes in the constructivist view on emotion, the answer is 'yes'. But empirical proof of this position will be hard to provide.

2.3 Prepositions

NPs that refer to emotions often occur together with a preposition: P + emotion (*in love*) or emotion + P (*love for something*). The prepositions link the emotion to a Cause or a Target, or they indicate that the Experiencer is in the state of that emotion (cf. Dirven 1997; Osmond 1997; Radden 1998).

Vardi (2008) analyzed the use of prepositions in relation to emotion words, comparing Dutch and Hebrew prepositions. One of her findings was that Dutch emotions are more often conceptualized as companions, using the preposition *met* 'with': *met blijdschap*, 'with joy', where Hebrew used *in*, *be-simxa*, 'in gladness', where the emotion is conceptualized as a container. When we compare Dutch with English, however, we see cases where English conceptualizes the emotional cause as a 'companion', as implied by the preposition *with*: *to tremble with fear, pale with fear* whereas Dutch uses the 'source'-like preposition *van*: *bleek van angst,* lit. 'pale from fear', *trillen van woede* lit. 'tremble from anger'. It thus seems that languages differ in their construal of the relation between emotions and their Cause.

Besides nouns, verbs, and prepositions, languages use adjectives (*sad, happy, angry*, etc.) and adverbs (*luckily, sadly,* etc.) in the lexicalization of emotions. Only on the basis of a full description of the vocabulary of specific languages (cf. Vainik 2004 on the Estonian emotion vocabulary) may a balanced comparison between languages be possible in the future. Such descriptions should preferably be based on real language use, i.e. corpus data, as has been done, for example, in Oster's (2010) study on fear in English.

3. Expressive linguistic forms

In linguistics, expressive linguistic forms have been studied less intensively than the conceptual-descriptive emotional vocabulary. This is probably due to the rational orientation of traditional linguistics, elegantly formulated in Sapir (1921: 38–39): "Ideation reigns supreme in language, (…) volition and emotion come in as distinctly

secondary factors". And Sapir (1921: 217) repeats his position by the end of the book: "[T]he emotional aspect of our psychic life is but meagerly expressed in the build of language".

However, when one starts to look for expressive forms in language structure, one quickly discovers that there is more than what Sapir and the linguistic tradition assumed. I mentioned already emotional interjections and the construction exemplified by the phrase *a bear of a man*. Expressive linguistic forms can be found on all linguistic levels, as the following short overview shows.

- Prosody, see for example Wendt (2007) and Hancil (2009).
- There is expressive morphology, for example diminutives. Taylor (1989: 144 ff.) analyzes the different connotations of the diminutive in Italian and in other languages (cf. also Steriopolo 2008 on Russian diminutives). In Dutch, the suffix – *sel* often implies a negative evaluation (*schrijf-sel*, 'a bad piece of writing').
- Interjections like *wow*, and intensifiers like *terribly, horribly,* etc. often have an emotive effect (cf. Jing-Schmidt 2007).
- On the lexical level there is connotation (emotion-laden words): a word with referential meaning evokes, at the same time, certain feelings (*cancer*, *death*). With euphemism, we try to save the referential meaning and get rid of the (negative) feelings: *Afro-American, rest in peace*, etc.
- Many constructions have expressive meaning, like the *a bear of a man*-construction, the 'Incredulity response construction': Dutch *Hij en lezen*?, 'He and read?' (cf. Lambrecht 1990), the *nandao*-interrogation in Chinese (Jing-Schmidt 2008), dependent clauses used independently (cf. Evans 2007, who called this phenomenon 'insubordination'), like *To think that I once was a millionaire!* and the Dutch examples in (5).

(5) a. *Vuil dat het was!*
dirty that it was
'It was terribly dirty!'

b. *Dat je dat durft*!
That you that dare
'I am amazed that you dare to do that!'

c. *En of ik het durf*!
And whether I it dare
'For sure I dare to do that!!'

To the extent that expressive linguistic forms have been studied at all, this was mainly based on constructed examples and intuitive judgments. More recently, however, the study of expressive language forms has found a stronger empirical basis in

conversational analysis, cf. Selting (2010), who studied how affectivity is managed in interaction by using swear words, short utterances, and specific vocal phonetic-prosodic cues. Whereas conversational analysis uses a qualitative method, taking an in-depth look at limited data, corpus analysis prefers a quantifying approach, see for example Bednarek (2008) and Potts & Schwarz (2008). In this latter study, a corpus of 100,000 reviews was put together; half were book reviews on Amazon.com and half were hotel reviews taken from the website Tripadvisor.com. In each review, the book or hotel was graded (from 1 to 5 "stars"). Potts & Schwarz checked the distribution of the exclamative '*what a …*' across the reviews. The distribution showed a nice U-curve: high for the 5 star reviews, going down for the middle values and going up again for the low values. In a second step, they let the computer search for expressions that correlated with '*what a …*', in order to detect other expressive forms. Correlations were found with universal quantifiers like *ever, absolutely, all*, and interjections like *wow*. Potts & Schwarz also searched for forms with a reversed U-shape distribution, forms that were typically used in the reviews with average ratings (3 stars). Potts & Schwarz called these 'Unexclamatives'. Here, they found forms like *pretty, some, decent, mostly, quite,* and *basic*.

Cultures vary in the degree of emotional expressivity, verbally and non-verbally, as anthropological research has shown (cf. Wilce 2009). This raises the question of the impact of behavior on 'inner life', a Whorfian-type of question, now applied to language use in relation to emotion. Wilce (2009: 9) proposes to "historicize our treatment of the language-culture-emotion nexus. … [H]istorians of emotion have quite exclusively focused on macroforces … to the neglect of fine-grained analyses of language deployed in real-time interaction."

With respect to expressive linguistic forms, there is still a lot of descriptive work to do. The more descriptive results become available, the more interesting questions of a general character can be raised, such as the following.

1. How specific are the emotions that are connected with expressive linguistic forms? Do we have love- or fear-constructions, or only constructions which indicate 'emotional involvement', leaving it to the context to determine which emotion is intended. A possible answer could be that interjections and lexical connotations imply specific emotions (disgust, love, fear), and that morphological and syntactic means convey schematic aspects of emotions: positive or negative attitude, or still more general: involvement, without positive or negative polarity.
2. Are there formal characteristics that differentiate expressive from non-expressive forms? Here the notion of 'markedness' seems useful (see Battistella 1996). At least some of the expressive forms are marked in relation to the unmarked non-expressive forms. Take, for example the *a bear of a man*-construction. Normally,

> in NPs of the form *a N of a N*, the first noun is the head of the construction, like in *a wheel of a car*, which is about a wheel. But *a bear of a man* is about a man. Another example of marked language use is insubordination (Evans 2007). Normally, subordinate clauses are dependent on a main clause, but in the examples given in (5), they are used independently.

In the end, we would like to embed the descriptive work on expressive forms and the more general questions just stated in a theoretical framework. In Cognitive Grammar, a few remarks have been made that could be expanded into an integrated part of the theory. As to connotation, Taylor (2002: 202) states that "[o]n the Cognitive Grammar view, 'connotation' is not a distinct (and secondary) level of meaning, but is fully incorporated into the semantic structure of a word". He illustrates this with a comparison of the connotations of *bachelor* and *spinster*. The derogatory connotation of the latter word can be explained against the domain-specific knowledge against which *bachelor* and *spinster* are understood.

Langacker (2008) devotes a short Section (13.2.4, p. 475–477) to, what he calls, 'Expressives'. He uses 'expressives' as a cover term for interactive routine formulas like *hi, thanks, yes*, and expressive forms like *damn, wow*. They all involve, in Langacker's model, subjective construal (p. 476):

> What do expressives profile? Perhaps nothing, at least in a narrow sense of the term. An expression's profile is the onstage focus of attention, objectively construed by definition. But at least from the standpoint of the speaker, expressives are not about viewing and describing onstage content. In using one, the speaker is either performing a social action or vocally manifesting an experience – rather than *describing* a scenario, he *enacts a role* in it. For the speaker, then, the action or experience is subjectively construed.

The distinction between objective and subjective construal is also relevant for other linguistic phenomena like descriptive versus performative use of speech act verbs, indirect versus direct speech, and modal auxiliaries (see Verstraete 2001). In performative utterances, direct speech, and utterances with subjective modal auxiliaries, the speaker is personally involved or committed, like in emotion-based expressive ways of speaking. Following this line of research, expressive language use could be studied in the broader perspective of subjectification and intersubjectification in language (cf. Davidse, Vandelanotte & Cuyckens 2010).

4. Abstractness of emotions in relation to figurative speech

Besides fluid boundaries between different emotions (i.e. more color-like than object-like), and besides more relational complexity than in colors or animals (there are Causes, Experiencers, Targets and Effects involved), there is a third property that

makes emotion a favored object of cognitive linguistic study, namely the often claimed "abstractness" of emotions. Lakoff & Johnson (1980) have argued that abstract entities are often conceptualized with the help of metaphor. Abstractness is, however, a controversial notion. One possible view is that something is abstract if it cannot be perceived by one of the five senses with which we perceive 'the outer world'. In this perspective, emotions are indeed abstract: We perceive them 'within', not with the eyes, ears, etc. although an emotion can have effects in the body which then become perceivable by the senses.

It has been claimed (Kövecses 1990) that the property of abstractness explains the abundant use of figurative speech (in particular metaphor) in discourse about emotions. In this view, we need the figurative descriptions because otherwise it would be difficult to talk about such abstract phenomena like emotions. This would explain the use of expressions like *He exploded*, where anger is seen as a fluid in a container, Dutch *hij was in de wolken*, lit. 'he was in the clouds' ('he was very happy'), etc. And as emotions are strongly linked with the body, it comes as no surprise that many of the figurative expressions for emotions are metonymical in character, using body parts and inner organs to refer to emotions: *My knees trembled*, *his eyes narrowed, my heart sank into my boots*, Dutch *mijn haar stond recht overeind* 'my hair stood straight'. These are cases of 'effect for cause' metonymy.

A special group of 'somatisms' (bodily based figurative language) is related to the fact that feelings are typically seen as located in an inner organ, for example the (inner) ear, the heart, the bladder, cf. (3), and the liver (Malay *hati*), cf. (4).

(3) *Ik voel het aan mijn water* (Dutch)
I feel it in my water [i.e. urine in the bladder]
'I have an intuition about this'

(4) a. *Sakit hati* (Malay)
Aches liver ('It hurts')

b. *Bagai hempedu lekat di hati*
'As the spleen stick to the liver' (referring to deep affection)

In many languages the heart is a rich source of semiosis, in particular for emotions (cf. Foolen 2008): *my heart pounded in my throat,* Dutch *m'n hart zonk me in de schoenen*, lit. 'my heart sank into my shoes', *mijn hart sloeg over van vreugde*, lit. 'my heart missed a beat out of joy' ('my heart missed a beat'), etc. Again: the physiological effect stands metonymically for the emotional cause.

But is it really the case, that we *need* these figures of speech to talk about emotions because, due to their abstractness, we don't have direct language for the emotions? We have nouns, like *fear, hate, love*, etc. and verbs and prepositions to conceptualize emotional processes. So why use the figurative ways of talking about emotions?

Barsalou & Wiemer-Hastings (2005: 133) raise this question with respect to abstract concepts in general:

> Some theorists have argued that the meanings of abstract concepts are grounded in concrete domains (…). For example, the abstract concept ANGER is grounded in concrete phenomena, such as boiling water exploding out of a closed pot. We agree that metaphors often augment the meanings of abstract concepts, and make certain aspects of their conceptual content salient (…). Nevertheless, direct experience of abstract concepts appears central to their content. (…) One reason is that people have considerable amounts of direct experience with abstract concepts (…). Direct experience of abstract concepts is important for another reason. A concrete metaphor can not be mapped into an abstract concept, if the abstract concept doesn't have its own structure (…). If an abstract concept has no structure based on direct experience, the concrete metaphor would have nothing to map into.

In the same perspective, Crawford (2009) argues against Lakoff & Johnson (1980)'s claim that the use of the physical domain to conceptualize the emotional domain is motivated by the concreteness of the former and the abstractness of the latter. According to Crawford (2009: 136)

> [O]ur cognition about affect seems to be on firmer ground than our cognition about its source domains, such as space. For example, people are remarkably good at remembering the affective tone of their experiences, even when many details of those experiences have been forgotten. In addition, perception of location, brightness and size is subject to a variety of biases and context effects, which suggests that these may not be such a stable foundation for grounding affect.

I agree with Crawford when she concludes (p. 137) that "[g]iven the qualitative difference between affect and the physical domain used to describe it, to order them in terms of which is more or less abstract, primary, or sharply delineated, is to oversimplify. A more promising approach might be to consider what advantages these source domains offer the representation of affect".

What are then, in Crawford's view, the advantages of the physical source domains to represent affect? "Affect may capitalize on source domains such as space and brightness because they provide powerful ways to represent and manipulate information for the self and for others (…). Spatial cognition in particular is often recruited to support reasoning about non-spatial information. (…) Thus we may think of affect in terms of other physical dimensions not because affect is abstract or poorly delineated and has no clear representation of its own, but because doing so allows us to exploit advantages that these dimensions have for reasoning and communicating". A similar function of "motion-emotion" metaphors is suggested by Zlatev et al. (this volume).

Crawford's functional explanation of the use of figurative speech to conceptualize affect and communicate about it might be right or partly right, but in my view, there is another functional explanation which might even have more explanatory value, namely the need for expressivity. Emotions are typically not a neutral topic of conversation. When we talk about emotions, in particular when we talk about our own emotions that we have felt in critical situations, we are emotionally involved, and this stimulates the use of expressive language. Crawford (2009: 130), referring to Ortony & Fainsilber (1989), states: "Metaphors are used in discourse about any topic, but they appear to be especially frequent when the topic is emotional, and their frequency increases with emotional intensity".

If it is true that involved speech contains much figurative language, then we may infer that figurative speech has expressive value. Why does figurative speech have this property? Here, my answer would be: Strong images, like that of an explosion, evoke emotions because part of the representation of explosions in memory is strongly emotional. When there is an explosion, we typically get scared. So via the image (of an explosion), we become conscious of the emotion, with the consequence that physical reactions are stimulated: the word *explosion* →image of an explosion →feeling of fear → impulse to run away.

With *somatic* figurative (metonymic) speech, like trembling knees or cold feet, the link to emotional consciousness might be even more direct: when emotion correlates with certain physical symptoms, then talking about those physical symptoms stimulates the motor image of trembling knees and this, in its turn, stimulates the conscious perception of the emotion. This is a kind of James-Lange reasoning (proposed by William James & Carl Lange): bodily experience is primary and the mental feeling is caused by it.

The view defended here, namely that the use of figurative speech contributes to expressive language has already been hinted at by Fussell & Moss (1998) and more recently by Cameron (2008: 13): "Affect is fundamental to why and how people use metaphor (…). This being so, the affective cannot be just added on to the conceptual but should be seen as a driving force in the use and evolution of metaphors through real-time talk."

Simone Schnall (2005), discussing this issue, refers to Gibbs et al. (2002), when she writes: "Gibbs and colleagues (2002) noted that figurative expressions such as *I totally exploded* are understood differently than literal expressions such as *I was totally angry.* One reason why metaphors are so powerful in emotion language is because they have the potential to evoke vivid accounts that tap into actual physical experience, such as the experience of emotion. (…) Figurative expressions of specific emotions reflect aspects of the bodily experience of those emotions."

The general argument of this section is, then: Figurative speech is often used in relation to emotions. It has been claimed that we do this because emotions are

"abstract" and hard to talk about without metaphor and metonymy. Without denying the role of figurative speech in the conceptualization of emotions, I would like to stress its expressive function here. Emotions belong to the class of non-neutral referents, about which one often talks in an involved way. Figurative speech contributes to involvement. Types of language use that aim at emotional effects, such as literature or product advertisement, will typically contain figurative speech in a higher frequency than texts that have purely rational purposes (news reports, academic lectures, or instructions for the use of a machine, for example).

5. Language and emotion in the perspective of grounded cognition

In its first years, Cognitive Linguistics was inspired by studies in cognitive psychology like those of Rosch (1973) on prototype effects in categorization processes. These ideas proved to be productive for the analysis of linguistic meaning. It seems that Cognitive Linguistics has to face, for a second time, a development in cognitive psychology, namely the new ideas about embodied cognition, cf. Lakoff & Johnson (1999) for a contribution from linguistics to this new line of research. What is embodied cognition, or grounded cognition, as Barsalou (2008) calls it? In Barsalou's view, cognitive processing of conceptual knowledge does not take place in a separate conceptual part of the brain, dealing with 'abstract knowledge'. Neuro-imaging studies show that when people process knowledge about animals, visual areas are especially active, and when people process artifacts, motor areas become active (as if one wants to use the ball, knife, bike, or other artifact in an activity). "Similarly, when people process foods conceptually, gustatory areas become active." (Barsalou 2008: 627).

In recent years, embodiment views on processing information have been extended to the processing of linguistic information. Words are not processed in a nicely encapsulated mental lexicon. When participants simply read the word for an action, the motor system becomes active to represent its meaning (cf. Pulvermüller 2005; Pulvermüller & Fadiga 2010). Thus, not only areas in the brain are stimulated, the stimulation continues outside of the brain, in the body. When you hear a description of a good meal, sometimes your saliva glands are activated, cf. the Dutch expression *het water loopt me in de mond*, lit. 'the water runs in my mouth' ('I would like to eat it'). And when you hear about 'walking', one can measure activation in your feet, which is, luckily, 'deactivated' by the brain, otherwise we would act out everything we say and hear. Speech-accompanying gestures embody (part of) the content that supports successful communication.

Embodied grounding also takes place when words with *emotional* meaning are used. Psycholinguistic research has shown that processing emotion-laden words differs from processing 'neutral' words (cf. Scott 2009). Emotion-laden words activate the limbic system, the complex of emotional centers in the brain, in particular in the

right hemisphere, which is strong in processing prosody, gesture, and emotion words (words with a connotation). Landis (2006) performed experiments with emotion-laden words (*fear, kill, pain, dead, love, hate, rage, weep, slap, stab, rape, nude*) versus non-emotional words (*time, view, form, half, fact, main, pile, unit, span, core, dual, gist*). When presented in the left visual field, and thus processed in the right hemisphere, there was an advantage for emotion-laden words: they were processed (recognized) more quickly than non-emotional words. This shows that the right hemisphere plays a role in the processing of emotional words. Apparently, the resonance between the connotation of the word and the emotional part of the brain speeds up the processing. Landis also reports that aphasic patients with lesions in the left hemisphere displayed a characteristic pattern: "When shown a non-emotional word, patients often struggled when trying with effort to articulate the word. (…) When emotional words were presented the reaction was very different, patients frequently smiled, leant back and pronounced the word without the slightest hesitation" (p. 824).

Another ingenious experiment on processing emotional language is that of Glenberg et al. (2005). They showed that the positive or negative emotional state of a subject plays a role when processing sentences with emotional content. Subjects had to read pleasant and unpleasant sentences on a computer screen. Sentences with pleasant content were, for example: "The college president announces your name, and you proudly step onto the stage", and "You and your lover embrace after a long separation". Unpleasant sentences were "The police car rapidly pulls up behind you, siren blaring" and "Your supervisor frowns as he hands you the sealed envelope". Subjects had to judge whether the sentence was pleasant or unpleasant by pressing a button for pleasant or the one for unpleasant.

But how to induce a positive or negative emotional state in the subjects? Here the experimenters used embodiment theory in an ingenious way. The reasoning is as follows: When a person is happy, he will smile, when he is unhappy, he will frown. As emotions are strongly connected with bodily posture and facial expression, the causing chain might also work the other way around ("facial feedback hypothesis"). As Darwin (1872/2009: 333) remarked: "The free expression by outward signs of an emotion intensifies it. On the other hand, the repression, as far as this is possible, of all outward signs softens our emotions." Glenberg et al. implemented this idea in the so-called pen task: subjects had to hold a pen between their teeth or between their lips while reading the sentences. The teeth condition produced a smile and via that smile a happy feeling, whereas the lips condition caused a frown and through that unhappy feeling. The results supported the supposed causal link from body to emotion: Under the teeth condition, the sentences with pleasant content were judged more quickly than the unpleasant sentences and in the lips condition the result was reversed. Resonance between mood and sentence content facilitated judgment on pleasantness, non-resonance took an extra step (establishing the difference) to get to the right judgment.

The experiment also shows that sentence content is not a purely cognitive content (as has often been assumed implicitly in linguistics), the content is automatically loaded with emotion, and this emotion plays a role in the processing of the sentence. These findings are in accordance with statements that can be found already in Osgood et al. (1957: 21): "[S]timuli from several modalities, visual, auditory, emotional and verbal, may have shared significances of meanings – cross-modality stimulus equivalence."

Recently, the grounding of emotional words has become a topic of interest in second language acquisition research, cf. Pavlenko (2008). The first (L1) and second (L2) language differ in the strength of their link to emotions, both on the level of the language in general and on the level of individual words. It has often been reported informally that people who acquire a second language later in life and speak it rather well, nevertheless feel that it is easier for them to talk about emotional issues in their first language. This observation is reflected in experiments. In general, L2 words take more processing time in experimental tasks than L1 words (in a lexical decision task, etc.); however, the difference between L1 and L2 is even stronger when emotion-laden words are involved. Apparently, the L1 emotional words have strong links with the emotional system, which facilitates processing, whereas the L2 words do not. This difference between L1 and L2 may be caused by the way they were learned. L2 is often learned in a more rational context (school), with the consequence that it takes time (years may be) for L2 emotion words to get linked to the emotional system. Harris et al. (2003) have shown the differential impact of emotion words in L1 and L2 by measuring skin conductance by which one can measure how well electricity is conducted between two electrodes on the skin. In general, emotional "agitation" leads to stronger skin conductance. Subjects had to read taboo words and reprimands in L1 and L2 and showed stronger skin conductance for the L1 words. Processing words, in this case emotion words, is, apparently not an isolated, encapsulated, process.

In Cognitive Linguistics, it has been argued that language (structures and meanings, in short: constructions) should be grounded in cognition, cf. Croft & Cruse (2004: 3), who refer to Langacker's slogan 'grammar is conceptualization'. Cognition, in its turn, has been increasingly considered as being grounded in motion and action, cf. Fischer & Zwaan (2008). The present chapter is in agreement with this view, but proposes that, besides motion, a second foundational pillar must be added, namely emotion, to get a balanced, solid grounding of the higher functions of cognition and language. In recent literature, the foundational role of emotion is explicitly acknowledged.

Vigliocco et al. (2009) support the core assumption of embodied cognition theories "that the representation and processing of semantic information automatically recruits, in some form or other, the same neural systems that are engaged during perception and action". But at the same time, they emphasize "the role of affective, or emotional, information as another type of experiential information that is foundational

(i.e. primary and necessary) in learning and representing meanings, especially for abstract words" (p. 220). From their review of experimental research they conclude (p. 228) "that the primarily subcortical system engaged in processing emotion from non-verbal stimuli (i.e. faces) is also engaged in processing emotional valence of words. This suggests interactions between language processing and the limbic system along similar lines as it has been argued above for sensory-motor system, thus, supporting the idea of a foundational role of affect".

From an ontogenetic perspective, Doan (2010: 1071) states this view as follows:

> While there is very little research examining how affective understanding in the first year of life may facilitate language acquisition, these studies are suggestive in pushing the idea that since emotion is such a fundamental mechanism for communication in early life, it may lay the foundations for language acquisition in the first year. Affect, whether expressed in language, or through behavioural interactions between mother and child, may facilitate children's understanding through the mechanism of engagement.

Finally, we may take a short look at phylogeny. From this perspective, motion has been identified as an important basis for the origin of language, cf. Arbib (2005: 34): "[B]rain mechanisms supporting language evolved from the mirror system for grasping in the common ancestor of monkey and human, with its capacity to generate and recognize a set of manual actions". Increasingly, the role of social cognition in human evolution is acknowledged, and in that perspective, the foundational role of emotion for language comes in perspective, cf. Tomasello (2008: 210): "[T]he desire to cultivate affiliations with others forms the basis for one of the three basic motives in the cooperation model of human communication: the desire to share emotions and/or attitudes with others." (the two other motives are requesting and informing, which have a more practical orientation). In summary: In early humans, motion (action) and emotion were important ingredients of practical and social life and both were strong stimuli, or even necessary prerequisites, for language to emerge.

6. Conclusion

Shanahan (2007: 2) states that "the more formal kinds of understanding we have developed in the last half-century and more largely ignore the fact that feelings inform language as much as the cognitive features that have come to dominate the study of it." The preceding sections have made clear, I hope, that emotion gradually receives its proper place in research on linguistic meaning. The way emotions "inform language" is at least threefold, as I have tried to show in this chapter. Emotions are (a) conceptualized in languages by a variety of word forms, with "literal" and figurative meaning, (b) can be

expressed in a more direct way by prosody, morphology, syntactic constructions and by the use of figurative speech, and (c) are foundational for processing language and its ontogenetic and phylogenetic genesis and development.

I conclude with the question whether insights from research on the relation between language and emotions can be transferred to practical contexts. I mention a few areas where such insights could be relevant:

- Language teaching: if the link to emotion is relevant for learning to speak a language, the L2 should be taught in ways that allow emotional involvement, cf. Schumann (1997).
- Psychotherapy: The use of an L2 might protect, in an early phase of therapy, against evoking too strong emotions related to traumatic experiences. Switching to L1 later in the therapy can have a 'breakthrough' effect (cf. Pavlenko 2005).
- Alexythymia (from the Greek a = lack, lexis = word, thymos = emotion). Alexithymic people are hardly able to talk about their emotions, neither with direct vocabulary nor in figurative or other expressive speech.
- Product advertisement: Putoni et al. (2009) showed that advertisement in L1 and L2 have a differential emotional impact. International firms should think twice before automatically choosing English as the one and only language for advertisements across the world.
- Intercultural communication, cf. Dem'jankov et al. (2004:177): "The use of 'emotional formulae' in negotiations is efficient to different degrees in different European and non-European societies."

The 'emotional revolution' that took place in psychology 15 years ago, has finally reached linguistics. I hope to have shown that linguistics cannot neglect the emotions anymore and, for that matter, that emotion research cannot neglect linguistics. Deeper insight in the relation between language and emotion can only be reached if the interdisciplinary contacts that have been signaled in this chapter are strengthened in future research.

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