

# Embodiment and Body Metaphors

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## Abstract

Der Artikel stellt den Zusammenhang zwischen Körpermetaphorik und der Embodiment-These in Frage. Als erstes werde ich einige Gründe für die Unklarheiten im Gebrauch des Begriffs „embodiment“ (wie auch „embodied mind“ und „embodied cognition“) darlegen und zeigen, wie weit oder wie eng eine für die Kognitive Linguistik fruchtbare Definition sein sollte. Als zweites werde ich nach dem Status einer bestimmten Form von empirischer Evidenz fragen, die häufig als Argument für die Wichtigkeit von „embodiment“ angeführt wird: Körpermetaphorik. Ich benutze empirische Studien, die sowohl Alltagssprache, Medien- und wissenschaftlichen Diskurs einschließen, um zu zeigen, dass Körpermetaphorik mehr als eine einfache Übertragung von einer konkreten zu einer abstrakteren Domäne sein kann. Daher kann das Auftreten von Metaphern, bei denen Körperteile auf einen anderen Bereich übertragen werden, nicht ohne weiteres als Beweis der Embodiment-These gewertet werden. Ich plädiere für einen sorgsam Gebrauch des Begriffs „Körper“ und für die Suche nach mehr empirischer Evidenz für die Grundlage von Metaphern und „grundlegenden Erfahrungen“.

This article calls into question the connection between metaphors using the body or body parts as domains in metaphoric mappings, and the notion of embodiment. First, I will outline some reasons for the confusion with the term “embodiment” (as well as “embodied mind”, and “embodied cognition”), and explain how wide or narrow a useful definition for Cognitive Linguistics should be. Second, I ask for the status of a piece of empirical evidence which is frequently used as an argument for the importance of embodiment: body metaphors. I use empirical studies including research on everyday language, media and scientific discourse to show that there is more to those body metaphors than a simple mapping from one concrete domain onto another more abstract one. Thus, occurrences of metaphors where body parts are mapped onto other domains cannot be directly used as a proof of the embodiment hypothesis. I argue for a careful use of the term “body” and for the search of more empirical evidence for the grounding of metaphors and “basic experiences”.

## 1. What is embodiment?

During the last two decades, the notion of embodiment is of growing importance in Cognitive Linguistics. Perhaps the most comprehensive definition and explanation of “embodiment” and “embodied mind” in Cognitive Linguistics is found in Lakoff and Johnson’s *Philosophy in the Flesh* (1999).<sup>1</sup> Lakoff & Johnson (L&J) claim that a major finding of Cognitive Science is the fact that the mind is inherently embodied. They explain this “embodied mind” as follows:

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<sup>1</sup> For a more general definition including the meanings of “embodied cognition” in developmental psychology and robotics/artificial intelligence, see Cowart (2004).

“Reason is not disembodied, as the tradition has largely held, but arises from the nature of our brains, bodies, and bodily experience. This is not just the innocuous and obvious claim that we need a body to reason; rather, it is the striking claim that the very structure of reason itself comes from the details of our embodiment. The same neural and cognitive mechanisms that allow us to perceive and move around also create our conceptual systems and modes of reason. Thus, to understand reason we must understand the details of our visual system, our motor system, and the general mechanisms of neural binding. In summary, reason is not, in any way, a transcendent feature of the universe or of disembodied mind. Instead, it is shaped crucially by the peculiarities of our human bodies, by the remarkable details of the neural structure of our brains, and the specifics of our everyday functioning in the world.” (Lakoff & Johnson 1999:4)

In this sketch of the “embodied mind” are hidden at least two different definitions of embodiment. The first sense is the one that has become the common sense definition in Cognitive Linguistics: that the functioning of our bodies is crucial for the structure of our conceptual system. Our conceptual system is, as L&J (1980, 1999) and many other Cognitive Linguists claim, mirrored in language patterns, for example systematic use of metaphor. It is another question how one wants to understand “body”. It is of course possible to treat every kind of behaviour as the interaction of a body in an environment. Thus, every experience we make could be called “embodied”. But this would make the notion of the body trivial and we were better off with just calling it “experience” and nothing else. If one doesn’t want the notion of embodiment to be a trivial one, which would lead to a non-falsifiable theory, “body” needs a narrower definition.

But there’s also another aspect of “embodiment” in the passage from L&J above: Cognition is embodied in the sense that it is inseparably linked to brain processes. This second sense can cause confusion because in that sense also every aspect of cognition must be “embodied”. Thus, although this is very important for the Cognitive Sciences, this claim is trivial except for the explicit exclusion of an idealistic view of the mind, as Jordan Zlatev (2003) pointed out.

Another source of confusion in using the term “embodiment” is a lack of differentiation from conceptual metaphor theory. One of the most important books in that field – Lakoff & Johnson’s *Metaphors we live by* (1980) – mentions experiential gestalts which are based on the nature of our bodies, our interactions with our physical environment and our interactions with other people within our culture. These experiential gestalts serve as the grounding of conceptual metaphors (Lakoff & Johnson 1980: 117). This theoretical claim has been fleshed out by Johnson (1987) who developed the idea of these experiential gestalts as “image schemata” or “embodied schemata” – these terms are used interchangeably (Johnson 1987:

23). An image schema is “a recurrent pattern, shape, and regularity in, or of, these ongoing ordering activities. These patterns emerge as meaningful structures for us chiefly at the level of our bodily movements through space, our manipulation of objects, and our perceptual interactions” (Johnson 1987: 29). Johnson claims that image/embodied schemata structure our perceptions, images and events. Johnson sees evidence for this in art and culture, but mainly in language – especially metaphoric patterns in language. Thus, the notion of embodiment, as it was developed in Johnson’s *The Body in the Mind* and in other studies, and the ideas of conceptual metaphor theory are closely connected. But they don’t have to be necessarily the same. On the one hand, embodiment is clearly more than conceptual metaphor theory because it offers much more: A framework to study the mind and how cognition evolves in general (Varela/Thompson/Rosch 1991), and a theory that overcomes the paradoxes of materialism and idealism by giving way to a philosophy of embodied realism (Lakoff & Johnson 1999). On the other hand, it is less than conceptual metaphor theory because for that theory it is not necessary to claim that every conceptual metaphor is embodied. Nevertheless, empirical evidence for conceptual metaphor theory is often treated as empirical evidence for embodiment as well. Thus, in consequence embodiment is often taken as the ultimate explanation for all kinds of mapping, metaphor, analogy or blending.

Now there seems to be a new twist in the embodiment discussion. Sometimes the phenomenon of body metaphors is taken as another argument for the ubiquity of embodied experience. (Kövecses 2002: 16, Yu 2004: 677-678, 682), or body metaphors themselves are even classified as embodiment (Musolff 2004: 60).

To avoid a loss of meaning of “embodiment” by making it totally polysemous I argue for a use of the term in Cognitive Linguistics in only the first sense: Embodiment means that parts of our conceptual system and therefore some aspects of our language are structured by the features of our bodies and the functioning of our bodies in everyday life. This definition is still fuzzy and can include different sorts of embodiment (Ziemke 2003).

Conceptual metaphors don’t have to be necessarily grounded in bodily experience, although that might be true in many cases.<sup>2</sup> But there is no need for this theoretical claim. Instead, it should be an empirical question how certain metaphors are grounded. Therefore we need a

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<sup>2</sup> I am aware of the fact that from a materialist point of view every kind of experience emerges somehow from the functioning of our brains – therefore a certain aspect of “body” is by definition included in every experience. This might be an important philosophical point for the Cognitive Sciences. But as I have argued above, for Cognitive Linguistics this understanding of “body” and “embodiment” is trivial because it includes everything and excludes nothing. Therefore it is not useful to make any differences in the field of language and concepts.

restricted use of theoretical terms like “embodiment”. If “embodiment” is used in that restricted meaning, the question is if the existence of body metaphors is indeed closely connected to embodiment. If yes, the question whether it supports or contradicts the embodiment thesis is no longer a trivial one – and it calls for empirical investigation.

To investigate the use of body metaphors in different contexts I use the empirical studies of Hänke (2004, 2005), Musolff (2004), Pauwels & Simon-Vandenberg (1995), Stibbe (1999, 2001), Nerlich/Hamilton/Rowe (2002), Wallis & Nerlich (forthcoming), and Goschler (2005) which use German and/or English corpora. This eclectic collection of data which are collected from different studies is absolutely not complete. I just want to point out some aspects of how body metaphors are used, what kind of hints they give for the notion of embodiment, and which problems can occur when these data are interpreted as a proof of the embodiment thesis.

The first thing that comes to mind when looking at body metaphors is that they occur in several varieties. The first type of body metaphor uses body parts and body organs to describe other things such as communication, or complex things like teams and groups, cities, nations, or technological facilities. Thus, in these metaphors certain parts of the body are source domain to describe other things.

The second type of these metaphors uses different domains (like people, machines, plants, manufactures) to describe the body or bodily functions and body organs. Thus, the body is target domain, being metaphorized in terms of technology or other domains.

There are also metaphors which somehow refer to body parts and physical states, mostly denoting a kind of feeling or emotion. In these cases it is hard to decide if these are actual metaphors, and if yes, what represents a source and what a target domain.

Thus, the whole system of body metaphors is much more complex than a simple justification of the embodiment thesis. Scholars who argue that body metaphors are a proof of the embodiment thesis often focus on metaphors with the body as source domain. But apparently, mapping can occur in different directions. So here is an old question of metaphor theory: What is mapped on what, and in which direction? Are really only concrete things mapped on abstract ones?<sup>3</sup> To get a new view on the question of the directionality and the grounding of

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<sup>3</sup> One of the basic claims of Conceptual Metaphor Theory is that mostly in metaphors mapping occurs from a concrete onto an abstract domain. This claim is known as unidirectionality thesis. Other scholars have pointed out that mapping can occur in different directions, but the direction from concrete to abstract is preferred and more frequent in discourse. This is called the asymmetry of metaphors. There has been some work which presents considerable empirical evidence for this claim (Jäkel 1999, Sweetser 1990).

metaphors I want to look at how body metaphors can be systematized. Further, I want to address the question of whether body metaphors support or contradict the embodiment thesis as outlined by L&J.

## 2. Body as source domain

The first type of body metaphors seems to support a major claim of contemporary Conceptual Metaphor Theory: The body is here mapped on more abstract things like

- machines and computers (Hänke 2004, 2005, Jakob 1991)
- communities: teams, parties, cities, nations (Musolff 2004)
- communication (Pauwels/Simon-Vandenbergen 1995)

This list is by no means exhaustive, but it includes some domains where body metaphors are quite frequent. In the next section I am going to describe some of these metaphors in more detail.

### 2.1. Machines and computers

Computers – and machines in general – are often described in bodily metaphors or anthropomorphisms (Hänke 2004, 2005). There are two main aspects of these metaphors: First, metaphors that map psychological qualities like intentions, emotions, memory, and intelligence on the computer.

The second aspect is the mapping of the body and its functions on the computer. Hänke (2004, 2005) points out some major source domains for these metaphors: Life and death (1), diseases and cure (2), strength (3), being fat or skinny (4), eating (5), and sleep (6). He also describes some other domains like work and communication, which are not body metaphors in a narrow sense and are therefore not discussed here.

Hänke (2004, 2005) presents examples like these:

- (1) ...erhöhen die **Lebensdauer** der Server–Hardware drastisch... (Hänke 2004: 77)  
(...increase drastically the **life span** of the server hardware...)
- (2) Sie möchten sich (...) über den **Gesundheitszustand** von Windows informieren... (Hänke 2004: 79)  
(You want to inform yourself about the **state of health** of Windows...)
- (3) Noch sind P4-Systeme **stärker** als Athlon-64-PCs. (Hänke 2004: 85)  
(P4 systems are still **stronger** than Athlon-64-PCs.)
- (4) Das Open-Source-Programm Gnucleus 2.0.0.6 wirkt auf Anhieb sehr **schlank**... (Hänke 2005: 46)

(The open source program Gnucleus 2.0.0.6 appears very *slim* at the first sight...)

- (5) Opera, Apples Safari und der KDE-Browser *verdauen* ebenfalls die meisten CSS-Layouts ohne Probleme. (Hänke 2004: 86)  
(Opera, Apples Safari, and the KDE browser *digest* the most CSS layouts without problems, too.)
- (6) ...kann es dabei Probleme geben – zum Beispiel, dass der PC nicht „*aufwacht*“.  
(Hänke 2004: 87)  
(...problems can occur – for example that the PC does not „*wake up*“.)

This kind of mapping bodily qualities on technological things is not restricted on the computer, as Jakob (1991) shows. Personification or anthropomorphisms for machines seem to be rather frequent. Mostly, there are psychological and physical aspects included.

## 2.2. Nations

Nations, as well as cities and all human and political communities, are often metaphorically conceptualized as persons or bodies. Charteris-Black (2004) notes a high frequency of body part metaphors in American Presidential Speeches:

“These are quite high frequency in the corpus and are perhaps best considered as blends of metaphor and metonymy based on some familiar relations of correspondence of particular parts of the body with particular actions. The *hand* is metonymically associated with all types of physical action, the *heart* with feeling, the *head* with thinking and the *eyes* with seeing (and metaphorically with understanding).” (Charteris-Black 2004: 105)

Especially the *heart* is an important source domain, sometimes just meaning something like *centre*, as in:

- (7) We saw the process [of reunification] at work most vividly, in the *heart* of Europe...  
(Musolff 2004: 63)

Sometimes it can also mean a central unit in actions, therefore taking the heart metaphor more seriously, sometimes even inventing other internal body parts like *arteries*, like in:

- (8) Britain may be advised that it can't be at the *heart* of Europe if it is detached from its *arteries*. (Musolff 2004: 66)

Sometimes also the domains *disease/illness* or more general the state of health are included in those metaphors (Musolff 2004: 59). Thus, we have a similar picture for nations as for computers: Certain body parts – here especially the heart – are mapped on the target domain, other bodily features (like hair, skin) not while also diseases, illness and health seem to play a major role.

### 2.3. Communication

Pauwels and Simon-Vandenberg (1995) describe metaphors for linguistic action using body parts as the source domain. They make a distinction between the use of body parts that are actually involved in communication, and the occurrence of other body parts in the metaphors. In the first kind of metaphors the *mouth*, *tongue*, and *throat* and the actions of *eating* and *breathing* are prominent, as in the expression *thrust something down someone's throat*, *chew the fat*, *eat one's words* or *waste one's breath* (Pauwel & Simon-Vandenberg 1995: 36-37).

The other type of metaphors mentioned by Pauwel & Simon-Vandenberg includes other body parts or bodily functions such as nonverbal communication (*pat on the back*), sensory perception (*poke one's nose into something*). Beside also fighting, physical punishment, restricted movement, the manipulation of objects and walking are pointed out as possible source domains (Pauwel/Simon-Vandenberg 1995: 39-40). Pauwel & Simon-Vandenberg assume that there are more basic concepts on which these body metaphors are grounded, such as container, movement, and force, which have been described by Johnson (1987) as the grounding experiences of metaphors.

The notions of *heart* and *brain* or *head* as well as *life/death*, *diseases/health* play dominant roles in metaphors for computers and nations. Metaphors for linguistic action as presented by Pauwel & Simon-Vandenberg (1995) also use body parts as source domain, but here other domains like mouth, tongue, throat, sensory perception and different (bodily) actions like fighting, moving, and manipulating objects are dominant. That means that in all these metaphors not the whole body is the source domain, but only certain aspects of it. For example, the heart is frequently mapped on the central processing unit of a computer, and certain aspects of the human mind as memory are mapped on the hard disk, but other parts of the body like extremities, other internal body organs like lungs, stomach or spleen, or external body features like hair or skin are not mapped on other parts of the computer. The same goes for nations and other communities.

It is also important to note that the most of these source domains – for example life and death – can also be target domains themselves. Lakoff & Johnson (1980) claim some conceptual metaphors for life and death (like LIFE IS A JOURNEY or DEATH IS A THIEF – a kind of path metaphor and a kind of personification). Some bodily domains seem to be almost always structured via metaphoric mappings. I will describe two of them in the next section.

### 3. Body as target domain

The second type of metaphors already mentioned before is metaphors where the body itself is target domain. In these metaphors are used to describe bodily functions. Some of them were used as source domain in the first type of body metaphors. These are for example:

- Diseases/Illness (Stibbe 1999, 2001, Wallis & Nerlich forthcoming, Nerlich/Hamilton/Rowe 2002)
- Brain processes (Goschler 2005)

#### 3.1. Diseases

Most of our understanding of diseases seems to be structured through certain metaphors. For example, many diseases caused by viruses or bacteria can be described in terms of war. This has been shown for scientific discourse (especially in history, see for example Sarasin 2003, Sarasin 2004, Goschler 2003), but it is also dominant in contemporary media discourse, as has been shown for HIV/AIDS (Sontag 1988)<sup>4</sup> as well as foot-and-mouth-disease<sup>5</sup> (Stibbe 2001, Nerlich/Hamilton/Rowe 2002) and epidemics in general (Stibbe 1999). Wallis, Hamilton, and Rowe point out the use of war terms like *enemy*, *battle group*, *convoys*, *spies* as well as to *control*, *combat*, *defeat*, *eradicate*, *annihilate*, *exterminate*, and *wipe out* (Nerlich/Hamilton/Rowe 2002). Thus, foot-and-mouth-disease and the actions against it are described in terms of war, as in this characterisation of the disease by a farmer:

- (9) ...a powerful *enemy* ... (whose) *foot soldiers* are beyond number and its capacity for harm beyond imagination (Stibbe 2001: 2)

Diseases are metaphorized as enemies which can be human (then it would be a form of personification) or as natural or even supernatural forces.

Although the source domain “war” is very prominent it should be noted that also path- and journey-metaphors are quite frequent, especially in the context of an individual suffering and recovering, where people use expressions like “*the road to recovery*” or “*back on the right track*” (Nerlich/Hamilton/Rowe 2002: 98).

Wallis & Nerlich (forthcoming) also analysed metaphors used in the media for another infectious disease: Severe Acute Respiratory Syndrome (SARS). They found that in this case war metaphors were rarely used. Instead, the metaphor of the disease as a killer was highly

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<sup>4</sup> This essay is not a linguistic study but a critique of social and medical discourse.

<sup>5</sup> Although this is an animal disease, the metaphors used in the media seem to be very similar to those used to speak about human diseases like AIDS.

frequent, especially in the context of the local and human impact of SARS, and the individual responses to the disease. Besides, there were the usual metaphors of control that framed much of the discussion about the institutional and national impact (Wallis & Nerlich forthcoming: 17). In connection with the topic of the infectious character of SARS, container metaphors were often used (Wallis & Nerlich forthcoming: 15).

That shows that diseases are often metaphorized. Personification is frequent and sometimes they are the basis of more elaborated metaphors using armies, weapons, and war-related terms in general as source domains. Besides, path- and container metaphors can be found.

But most metaphors which have the body as target domains are not a simple reversal of the body metaphors where the body is source domain and mapped on abstract things. The reasons for the diseases mentioned above are often not at all perceptible. Only the symptoms can be directly experienced. The bodily functions and the body organs which are metaphorized are mostly not directly perceptible as well, like blood circulation or digestion, which are mostly described in mechanical terms (pumps, mills and the like), or the heart and kidneys, which can be described as a pump or a motor or a filtering machine. Even more “abstract” in this sense are brain processes which are discussed in the next section.

### 3.2. Brain processes and structures

In the discourse about the human brain we find reification/spatialization – mostly as container or path metaphors – and personification as well. Furthermore, there are a lot of technological metaphors used to describe the brain. Some of them are computer metaphors, but most of them refer to more abstract electronic things like *wires*, *switches*, or *circuits*. Besides, also mechanical metaphors occur quite often, with things like *floodgates*, *doors* (obviously in close connection with container metaphors), and *toothed wheels* as source domains. There has been much attention on these metaphors by historians of science, because the changes in technology are often seen as the reason for a change in metaphorization and therefore in theories about the brain (Draaisma 1999).

I give some examples from my own empirical work on brain metaphors (Goschler 2005):

- (10) ...wie sich die im Gehirn **eintreffenden Informationen** – die Sinnesreize – von den wieder **herauskommenden Signalen** – der Reaktion – unterscheiden. (Goschler 2005: 26)  
(...how the **incoming information** – the sensual stimuli – are different from the **outgoing information** – the reaction.)

- (11) Das Gehirn *mag* ungewisse Situationen überhaupt nicht. (Goschler 2005: 27)  
(The brain doesn't *like* uncertain situations.)
- (12) ...ein „*Kurzschluss*“ mit dem [...] höheren Farbzentrum ... (Goschler 2005: 27)  
(...a “*short circuit*” with the [...] higher color-center...)

Although brain processes are very complicated and poorly understood and in this sense “abstract”, some interesting interactions between relatively “simple” domains can be found. For instance, there has been a lot of work on the understanding-is-seeing-metaphor (Lakoff & Johnson 1980: 48, 103-104, Danesi 1990, Dundes 1972, Jäkel 1995, Sweetser 1990), which seems to structure a good deal of our understanding of “understanding”. But in the corpus used here (a popular science magazine), these metaphors are not very frequent. Instead, because of the focus of the magazine on explaining brain processes, we find a lot of metaphors for seeing and vision itself, including a lot of reification, container-, and path-goal-metaphors, but also some technological ones (very dominant is for example PROCESSING PERCEPTIONS IS COMPUTATION or THE EYES ARE CAMERAS). That shows that for the direction of metaphors it is very important what kind of problem is focussed. Thus, which domain is structured via metaphor depends highly on how one looks at a certain domain and how detailed descriptions ought to be.

In general, the metaphors for the brain seem to have much in common with the bodily domain “diseases”: Spatial metaphors (path-goal-schema, container-metaphors) are ubiquitous as well as personification. The differences occur in more complex metaphors with source domains like books (for certain parts of the memory, for example the *mental lexicon*), communities (of neurons or brain regions) as in (13) and different forms of human interaction – communication (14), working together (15) – and machines (16).

- (13) *Population* von Neuronen (Gehirn und Geist (GG) 2/02, 84, 85)  
(*population* of neurons)
- (14) Da alle Neurone [...] über elektrische Impulse *miteinander kommunizieren*... (GG 4/02, 69)  
(Because all neurons [...] *communicate with each other* via electrical impulses ...)
- (15) Wenn diese Neurone in Gruppen *zusammenarbeiten*... (GG 2/03, 83)  
(When these neurons *work together* in groups...)
- (16) Diese *Deutungsmaschine* liegt in unserer linken Hemisphäre und arbeitet mit beispielloser Effizienz. (GG 3/03, 22)  
(This *interpretation machine* lies in our left hemisphere and works with unprecedented efficiency...)

Thus, different body functions are themselves often described via metaphor, using spatial metaphors and personification, books and writing, and machines as source domains. These

metaphors are, other than the metaphors using the body as source domain, very often metaphors which are invented by scientists and used in scientific discourse. So, this seems to be even more support for the notion of mapping concrete on abstract things. But whereas the meaning of “abstract” as the non-perceptible seems clear, the question arises, what is meant by “concrete” here? The source domain in the above cited metaphors are mostly cultural artefacts like books, writing, manufactures, machines, or complex unities like populations or communities. These domains are maybe perceptible, but note that especially communities and computers were the domains we had as “abstract” things and target domains in the first type of metaphors.

#### **4. Body and soul: Body as source and target domain?**

There is another type of metaphors in which body parts and bodily states are used. With these metaphors, however, the categorization used above (body as source or target domain) seems not to fit smoothly. Instead, metonymic and metaphorical relations seem to overlap and it is not clear whether the body is source or target domain here. These are everyday expressions which have to do with body parts and emotions. These metaphors were studied in great detail by Zoltán Kövecses (1986, 1990, 2000 and 2002) and have been discussed since decades by a large number of scholars.

Metaphors used to describe emotions are not easy to analyze in terms of source and target domains. There are metaphors used in everyday language like “My *blood boiled.*”, “My *head* seemed to *burst.*” or “I got all *numb.*”

Apparently, these utterances are used to describe certain mental and physical states. But it is not that clear what is mapped on what. Let’s have a more detailed look at the first example: “Boiling blood” is not a physical state we can experience. There are two possible explanations: This is a metonymy that refers to a physical state (a feeling of heat, red face and the like) meaning also the corresponding mental state, but it is an exaggeration. This explanation would – by adding the notion of a metonymic basis for certain metaphors – stay within the theoretical claim that bodily experiences structure abstract things. This position is explained by Kövecses (2002: 95-98). According to Kövecses we have the very basic experiences “of a fluid inside the body; we experience heat or lack of heat in certain parts of the body; we also feel pressure when angry” (Kövecses 2002: 98). I think it is not clear at all if the experience of fluid in the body is basic – or if it is part of our knowledge that we acquire during our life in a culture, and which is the same kind of knowledge that we have about

fluids in containers in general, which is the basis of the second possible explanation: This explanation is that we have a metaphor which refers to a mainly mental state by using a body metaphor which is not grounded in bodily experience but on one of the more abstract metaphors like ANGER IS HOT FLUID IN A CONTAINER, which Kövecses (2002: 95) claims to be a conceptual metaphor which has its corresponding linguistic expression in sentences like *My blood boiled*. If we accept this, the question arises if we can speak of a mapping of a concrete on an abstract domain. The mapping seems even counterintuitive, because anger is a very basic human experience: So why structure it via metaphor? Lakoff & Johnson (1999: 70) argue that emotions like love are indeed basic experiences, but their structure is not very rich, so there is a need for metaphoric structuring. Still, it does not seem to support the claim of mapping from concrete to abstract domains grounded on bodily experiences.

In these examples it is difficult to claim a mapping from a bodily domain on an abstract domain. These are, however, very common everyday expressions. Furthermore, these are not so called one-shot-metaphors. They seem highly systematic and appear across languages – for example the ANGER IS HOT FLUID IN A CONTAINER metaphor has corresponding expressions in English, Hungarian, Chinese, Zulu, Polish, Wolof, and Tahitian (Kövecses 2002: 165). Heart metaphors for emotions occur across cultures and languages as well. How does this go with the claim that the body and bodily experiences are the grounding of metaphors? It is appealing to claim bodily experiences as grounding and thus create a convincing answer to the question why these metaphors occur systematically and in different languages. But despite the appeal for this explanation: Is there enough empirical evidence for it? I will discuss these and the other types of body metaphors in the next section.

## **5. Body metaphors, conceptual metaphor theory, and embodiment**

Are metaphors using the body as source domain a proof of the embodiment thesis?

The directionality seems clear in these examples: things like communities and machines are described in bodily terms – but note that on the other hand in history you can find a lot of metaphors describing the body as a machine or a community (mostly nations) (Sarasin 2001). They are also found in contemporary scientific discourse as in the examples of *populations of neurons working together*.

The examples with the body as source domain support the idea of using directly perceptible domains (body parts and organs and physical features like strength/weakness, disease/health)

to structure more abstract things (like parts of the computer or computer programmes, human and political communities, communication), and therefore support one of the major claims of conceptual metaphor theory. Since the source domain is indeed the body, one could argue that “concrete experiences” here means the same as “bodily experiences” and thus, in this case the claims of conceptual metaphor theory and the embodiment thesis are roughly the same – but only in this special case of body metaphors!

Besides the examples from corpus data presented here, there has been an exciting study by Frank Boers (1999), who combined experimental and corpus linguistic methods to find more empirical evidence for the psychological reality of the source domain *body*. He showed that in winter, when things like diseases and health become more important for people and they are more likely to be on their minds, health- and illness-metaphors are significantly more often used in a corpus consisting of newspaper articles about economy. This clearly shows that everyday experiences can influence our use of certain metaphoric structuring. This is, however, not necessarily only the case for bodily experiences.

Are metaphors with body as target domain an argument against the embodiment thesis?

With these examples, it gets much more complicated. Obviously, here are things mapped onto body functions. These bodily (mal)functions like diseases and brain processes, however, are not always perceptible as the above mentioned body parts and physical features. Instead, they are often subject of scientific investigation. That these things are structured by metaphors corresponds with the claim of conceptual metaphor theory that non-perceptible things have to be structured metaphorically. Spatial metaphors (container and path metaphors) and personification are very important ways to describe these aspects of our bodies. The interesting fact is, however, that the bodily functions are also often structured by metaphors with source domains which at first seem rather abstract and complex: War, communities, books and writing, machines. These domains are more cultural than bodily (always assuming that the term “body” should not be used for all kinds of human interaction with an environment).

Although these metaphors are directional, reverse mappings are not impossible – war as a disease, machines as bodies or persons (Jakob 1991) are indeed well described, but that does not mean they are frequent in corpora.

How are these metaphors grounded? Although these complex metaphors that refer to cultural, technological, or scientific inventions might rely on more basic metaphors (as Grady (1997)

has convincingly argued for the metaphor THEORIES ARE BUILDINGS), more than just bodily experience seems to be involved here. Thus, these metaphors are not necessarily an argument against the claim that metaphors are grounded in bodily experience, but they show that this is not the whole story. First, the occurrence of a body term in a metaphor does not necessarily mean that “body” is the concrete domain. It can be a more or less abstract domain, depending on the level of description. Second, bodily experience alone is not a convincing ground for highly complex metaphors.

The third type of metaphors discussed above seems to be somewhat difficult to classify in terms of source and target domains. Here are two domains, the body and emotions, involved. It seems that in most cases physical states are used to talk about a mental state that is connected with certain physical features (like blood pressure, rapid pulse, heat, red face, dizziness, and the like). It is not obvious which domain is directly perceptible and which not. These metaphors are another example for my observation that it is in most cases not easy to tell which grounding experience is basic and which is not.

The discussed examples, which are admittedly cursory, show nevertheless a serious problem for the analysis of metaphors, for conceptual metaphor theory, and for an uncritical assumption of bodily experiences as the grounding of conceptual metaphors. Apparently, the body can itself be metaphorically structured. There are some examples where one domain is mapped onto another, and vice versa. The *memory* of a computer and a human is an example where this is systematically the case. However, although almost every mapping can theoretically occur in different directions, it does not mean that they are always actually used. So, that does not necessarily mean that we have to give up the notion of directionality (or, more carefully, the asymmetry) of metaphor. Although the body can be source domain and target domain as well, you can not just “turn around” most of the metaphors. This is because different aspects of body, body parts, or body functions are focussed. The directionality of metaphor is not only dependent on the domains involved, but on the level of explanation that is required. Some domains can be “simple” in an everyday understanding, but very complicated and abstract in science. For example, the domain “seeing” seems to be a basic bodily domain grounded in bodily experience when you look at examples like “*I see what you mean.*” This is not the case if you want to explain the bodily process of seeing and vision, because there one has to use other metaphors to describe this bodily function. In scientific discourse, vision is often described as *visual stimuli forcing their way into the visual cortex, where they are computed*. This phenomenon came into attention because I am discussing

examples from different empirical studies. This causes an admittedly peculiar blend of data from everyday language and scientific discourse.<sup>6</sup>

That shows another problem quite clearly. There does not exist a simple domain as “body” (just as there is no simple domain „love“, „anger“ or „building“). Some “bodily” aspects are mapped in metaphors of the first type while others are focussed on in metaphors as the second type. The difficulties increase in emotion metaphors where it is hard to decide what is source and what is target domain. That means that the body as a whole bunch of different concepts is not necessarily a basic domain – even though we can have basic experiences with it (just like with love, anger, and buildings).

But how can we claim the grounding of metaphors in bodily experiences, if some things that have to do with the body are not directly perceptible and not primary domains at all?

Maybe we have to go back to the notion of experience, and leave the body out for a moment. Surely, a lot of our experiences have to do with our bodies and their interaction with the environment. But maybe this is not the case for all experiences. Social, cultural, and scientific experiences are a major part of our lives (see also Gibbs 1999). We have to take these aspects into account as well – without calling them “embodied”. Jordan Zlatev (1997) uses the term “situated embodiment” to express that these two aspects – bodily and cultural<sup>7</sup> experiences – are interwoven in the grounding of language competence and language use in general. That should be also the case for metaphors. This is supported by the huge amount of metaphors with source domains like persons and personal actions (in personification), communities, books and writing, machines, computers, and other technical devices. Some of them also might be grounded on more basic experiences and basic schemata as up/down-orientation, containment, force dynamics, path-goal and others. Lakoff & Johnson (1999) have argued that this is also the case for science. But nevertheless also elaborated metaphors with much less concrete source domains structure our concepts. Changes in those metaphoric structures can cause major changes in science, culture, and politics. These changes are not to be found in changes of bodily experiences in the more specific sense I suggested for discussion. Also, they don’t provide an explanation for differences across languages. Bodily experiences should

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<sup>6</sup> I cannot make any claims on the frequency of certain mappings and their directionality. It would be an interesting research project to study the occurrences of such metaphors in large corpora.

<sup>7</sup> „Cultural“ here seems to imply language-systematic aspects which occur in language use, see Zlatev (1997).

not change very quickly and should be more or less similar in different cultures. This is where culture comes in (Gibbs 1999, Yu 2004).<sup>8</sup>

It is also important to keep in mind that it is not always obvious what exactly our body is and how we perceive it. Whole branches in the humanities try to explain the cultural construction of the human body. Especially the post-modern discussion about the body has influenced disciplines like sociology, cultural and gender studies as well as the history of biology and medicine. There is a discussion about whether culture is a super-structure built “upon a foundational and ultimately determining biology” (Fox 1999: 2), or if “culture is all and nature an irrelevance” (Fox 1999: 2). These two positions are labelled as the realist vs. the constructivist view on nature and body. Some scholars question this division between nature and culture altogether, claiming that “culture and nature are more intricately associated, in ways which cannot be reduced to notions of base and superstructure” (Fox 1999: 2). Thus, in this view the body is not the ultimate grounding of experience, but rather a complicated construction that emerges from bodily and cultural practices. Lakoff & Johnson’s “embodied realism” (Lakoff & Johnson 1999) tries to overcome the division between realism, idealism, and constructivism as well, but has not questioned the division between the biological and the cultural body. Therefore, the body is taken as given.

Thus, there are some empirical facts and some theoretical problems which suggest that not every thing that has to do with our bodies is necessarily a direct experience, and not every experience has to be embodied, either. My suggestions for further discussion of embodiment in Cognitive Linguistics are these:

One has to be clear about what “embodiment” and also what exactly “body” means. Some of the confusions are caused by slack definitions. I have outlined this already at the beginning of this article.

The notion of the directionality of metaphors is not as clear as it may seem at first sight. Interaction between domains can be found, especially in a diachronic view. The reason for this could be that domains are not just abstract or concrete. It depends on how closely you look at a domain. Thus, it also has to be clarified what is meant by “domain”. Maybe this

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<sup>8</sup> In Cognitive Linguistics, two positions about the connection between culture and body seem obvious: The first one adds cultural to bodily experiences, the other one assumes that culture shapes the way we make use of our bodily experiences and which aspects are more salient than others. In other disciplines like cultural and gender studies, culture is seen as the basic influence that makes the perception of the own body possible in the first place. I cannot discuss these positions in detail here.

depends on the metaphor and the discourse in which it is used. It seems that “domain” is by no means a static “thing” that can be taken as given.

Therefore, it has to be carefully explored how metaphors are grounded. The notion of *body* is not enough to make a primary and direct experience. As linguists, we can look for things that are not metaphorized. Some very basic metaphors and schemas like path-goal-schema, force, container metaphors, orientational metaphor (up-down, front-back) have been described in great detail (Johnson 1987). A large part of the metaphors including body parts or body functions I have discussed in this article are based on these kinds of metaphors or schemas. Maybe these are good candidates for the grounding of other metaphors. They all seem to be connected with bodily experiences, but in a way they are also very abstract. This means, that we have to be also careful with the terms “abstract” and “concrete”. It is not always obvious what is concrete and what is abstract. Maybe this problem is not even solvable by linguists using only linguistic data.

There is one more theoretical problem to the method of using linguistic data to make inferences about concepts and experiences. Language is a system on its own. It is used in interpersonal communication, and therefore it relies on norms and conventions (for a more detailed critique and further suggestions see Zlatev (in press)). That means that although it makes sense to assume a reason (like experience) for systematic metaphors in language, language does not directly mirror personal experiences and beliefs. Instead, language (as a system) might reflect interpersonal and cultural things, which are sometimes very old and conventionalized in language (Gibbs 1999). So it is hard to decide how much we can conclude from research of linguistic data. Empirical evidence from child developmental psychology, psycholinguistics, and Cognitive Science in general should be considered. To make valid claims about the psychological reality of basic experiences, one has to go deeper than analyzing metaphors in language.

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