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# Introduction

## Embodiment via body parts

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### 1. The goal of the volume

All of the chapters in this volume contribute to the main theme “embodiment via body parts”. In cognitive science, the term ‘embodiment’ refers to “understanding the role of an agent’s own body in its everyday, situated cognition”, namely how our bodies influence the ways we think and speak (Gibbs 2006: 1). The embodiment perspective, which transcends traditional disciplinary boundaries, focuses on the co-evolution between minds and bodies, and on the whole behaving organism in its natural context in which individual humans interact in and across groups (Semin & Smith 2008b). The human body is composed of both external body parts and internal body organs, and it is an organizational system with different components playing different physical, physiological, and even social functions. The contribution of individual bodily components to and the specific roles each plays in embodiment in various cultures, as manifested in their respective languages, are the questions that this volume seeks to address.

In a study of body parts in Chinese expressions of emotion, published in a special issue of *Pragmatics & Cognition* on “The Body in Description of Emotion” (Enfield & Wierzbicka 2002), Yu (2002) suggests that the explicit use of body-part terminology in emotion expressions is the tip of the iceberg, which is a good place to start if we want to know more about the whole submerged beneath the sea. This suggestion applies not only to the study of human emotion, but also to the study of human cognition in general. Here the “whole submerged beneath the sea” refers to “the body in the mind” (Johnson 1987), “the culture in the mind” (Shore 1996), and “the culture in the body” (Maalej 2004, 2007, 2008), all of which are important theses in the studies of the embodied and culturally situated nature of human cognition, and of the relationship between body, mind, and culture.

In the academic context of Cognitive Linguistics, this volume intends to advance the intellectual momentum created by the recent publication of the twin

volumes on body, language, and mind (Ziemke et al. 2007; Frank et al. 2008), and of a volume devoted to the study of conceptualizations of internal body organs across various cultures and languages (Sharifian et al. 2008). In particular, the present volume complements the latter. The chapters in Sharifian et al. (2008) focus on internal organs, especially the heart and the liver, in contrast to the head (or brain), as the perceived centers of feeling, thought, or cognition at large in numerous cultures and languages. Sharifian and his collaborators divide their chapters into three sections, based on whether the languages studies show abdomen-centering, heart-centering, and/or head-centering conceptualizations of the mind. Thus, the “abdomen-centering” languages include Basque (Ibarretxe-Antuñano 2008), Indonesian (Siahaan 2008), Kuuk Thaayorre (Gaby 2008), and Malay (Goddard 2008); the “heart-centering” languages include Chinese (Yu 2008a), Japanese (Ikegami 2008; Occhi 2008), and Korean (Yoon 2008); and the dualistic “heart/head-centering” languages include Dutch (Foolen 2008), English (Geeraerts & Gevaert 2008; Niemeier 2008), Northeastern Neo-Aramaic (Wolk 2008), Persian (Sharifian 2008a), and Tunisian Arabic (Maalej 2008). The volume makes a collective attempt to explore (i) the ways in which internal body organs have been employed in different languages to conceptualize human experiences such as emotions and/or workings of the mind, and (ii) the cultural models that appear to account for the observed similarities as well as differences in the various conceptualizations of internal body organs (see also Yu 2009a, for a book-length study of the cultural conceptualization of the heart in Chinese).

The contributors to the present volume attempt to address the roles of individual body parts, especially external body parts but some internal body organs as well, in the embodied conceptualization of emotions, mental faculties, character traits, cultural values, etc., in a variety of languages and cultures. In particular, the following issues are addressed:

1. Which individual part of the body is deployed to conceptualize which emotion, character trait, mental faculty, cultural value?
2. What imaginative structure(s) (e.g. metaphor, metonymy, image schema) is/are implemented in the conceptualization?
3. Do different cultures use the same body part to conceptualize the same emotion, character trait, mental faculty, cultural value?
4. What possible implications emerge for mainstream embodiment theory?

It is hoped that the present volume will contribute to the understanding of embodied cognition in general and its specific manifestations in various cultures and languages. Before we present the chapters of the volume, we provide an overview of the literature on embodiment and a section on metaphor and metonymy-related theoretical issues.

## 2. Embodiment: An overview

The literature on embodiment has grown impressively, comprising both monographs and specialized edited volumes (e.g. Berdayes et al. 2004; Blackman 2008; Csordas 1994; Frank et al. 2008; Gallapher 2005; Gibbs 2006; Johnson 1987, 2007; Krois et al. 2007; Lakoff & Johnson 1999; Lakoff & Núñez 2000; Semin & Smith 2008a; Sharifian et al. 2008; Slingerland 2008; Varela et al. 1991; Weiss & Haber 1999; Ziemke et al. 2007; Yu 2009b), as well as single journal articles and book chapters (e.g. Anderson 2003; Gibbs 1999a, 2003; Maalej 2004, 2007, 2008; Núñez 1999; Rohrer 2006, 2007a, 2007b; Sinha & Jensen de López 2000; Thompson & Varela 2001; Violi 2004, 2008; Wilson 2002; Ziemke 2003). This literature has produced views of embodiment ranging from the physiological and cultural to the neural and even robotic dimensions (e.g. Kövecses 2005; Lakoff & Johnson 1999; Lakoff & Kövecses 1987; Maalej 2004, 2007, 2008; Sinha & Jansen 2000; Svensson & Ziemke 2004).

A good starting point for our discussion of embodiment is Ziemke and Frank (2007: 1), who characterize it as “the bodily and sensorimotor basis of phenomena such as *meaning*, *mind*, *cognition* and *language*”. Evidence of embodiment can be found at least in language (as we see in the use of body parts terms in the conceptualization of many target domains discussed in this book) and this linguistic evidence can be used for talking about the embodied nature of mind, cognition, and culture, as demonstrated by the chapters in the present volume.

If the existence of embodiment as a researchable topic is uncontroversial, the theory of embodiment does not yet offer a uniform framework. By its very nature cognitive science is multidisciplinary, and thus there are various competing theoretical paradigms within the field. Is it a weakness of a nascent theory that a variety of conceptions exist? The answer is definitely: No. It took the first generation of computationalist cognitive science some time to consolidate, i.e. to establish itself as a theory organized around the concept of the computational mind. We believe that, analogously, the second generation of embodied cognitive science needs time to mature. At present, the theory is struggling to develop adequate concepts, conceptions, and precise formulations whenever arguments and counterarguments arise. Ziemke and Frank (2007: 5), for instance, evaluate the state of embodiment theory as follows: “the current situation might also provoke comparisons with soap bubbles that are destined to burst sooner or later if there is nothing under the surface to hold them together”. This is the nature of theory: hypothesis testing, trial-and-error, discarding old views, adopting new paradigms, and so on. Therefore, diversity of views is often a sign of the good health of a growing discipline.

As a central philosophical underpinning of Cognitive Linguistics, the embodiment thesis challenges Cartesian dualism in Western philosophy, which has long

kept mind and body apart in matters of meaning, imagination, and reasoning (Johnson 1987; Lakoff 1987; Lakoff & Johnson 1999; Sinha & Jensen de López 2000). This thesis “stresses the continuity and motivating character of the relationship between pre- or non-linguistic bodily experience, and cognition; and seeks deep explanatory principles in human neurobiology” (Sinha & Jensen de López 2000: 18). Ever since Johnson (1987) and Lakoff (1987) introduced the embodiment thesis to Cognitive Linguistics over two decades ago, the term *embodiment* has acquired various meanings that sometimes have very little in common. For instance, Lakoff and Johnson (1999) distinguish neural, phenomenological, and cognitive unconscious levels of embodiment, which seem to serve as universals of cognitive processing. Violi (2004) discusses various formulations of the embodiment thesis, ranging from a weak to a strong version. Núñez (1999) distinguishes trivial, material, and full embodiment. Wilson (2002) reviews six views of embodied cognition whereas Ziemke (2003) offers yet another six types of embodiment. Rohrer warns against three dogmas of embodiment (2006) and identifies twelve dimensions of embodiment in the cognitive science literature (2007). Maalej (2004, 2007, 2008) studies culture-specific and culturally tainted embodiment, in addition to physiological embodiment.

Johnson (1987: xxxvi) is among the first contemporary philosophers to point to the importance of the body in concepts and conceptualization, stressing the need for “putting the body back into the mind”. Lakoff (1987: 267) characterizes embodiment as “our collective biological capacities and our physical and social experiences as beings functioning in our environment”. In order not to shift from one extreme (mind) position to another (body), Lakoff and Johnson (1980, 1999) argue for ‘experientialism’ (and its variants ‘experiential realism’ and ‘embodied realism’), where experience is always an interactive process, involving neural and physiological constraints from the organism as well as characteristic affordances from the environment. Lakoff and Johnson (1980: 57) acknowledge the cultural basis of experience, claiming that “*every* experience takes place within a vast background of cultural presuppositions” (emphasis in the original). They have not, however, systematized this stance in their studies because they were more concerned with conceptual and “physical” aspects of physiological embodiment.

Sinha and Jensen de López (2000: 20) claim that despite its many virtues and its superiority to its formalist rival, the embodiment thesis “has failed to pay sufficient attention to the importance of culture and society in human cognition, in the motivation of linguistic structure, and in the acquisition of language”. To remedy what they see as a weakness of the embodiment thesis, they propose “an extended conception of embodiment” that is no longer restricted to the “humanly corporeal” (22), characterizing it in line with “aspects and features of the experientially or ecologically significant, noncorporeal world” (24). Such a conception of

‘cultural embodiment’ is exemplified by an analysis of cross-cultural data that account for the differences in the acquisition of containment by Zapotec, Danish, and English children “in terms of language ‘entrenching’ cognitive differences induced by cultural embodiment and cultural practice” (37). What is especially significant in their study is that they show how cultural behaviors shape habitual patterns of language, whereby the socio-cultural dimension shapes the “cognitive unconscious” (the psychological dimension of embodiment) in ways that could be measured using psychological methodologies. They, therefore, offer a complementary view that socio-cultural factors impact mind and language.

Gibbs (1999a: 153) also argues for a view that stresses the interaction between mind, body, and culture:

Scholars cannot, and should not assume, that mind, body, and culture can somehow be independently portioned out of human behavior as it is only appropriate to study particular “interactions” between thought, language, and culture, respectively. Theories of human conceptual systems should be inherently cultural in that the cognition which occurs when the body meets the world is inextricably culturally-based.

The reason that people from the same community share more or less the same conceptualizations is evidence that, although it is found in individual minds, cognition is a property of cultural groups. That is, an emergent cultural cognition is heterogeneously distributed across the minds in a cultural group (Sharifian 2003, 2008b).

Underscoring the role of culture in shaping the embodied mind, Gibbs (2006: 13) argues that “bodies are not culture-free objects, because all aspects of embodied experience are shaped by cultural processes”. He points out that a long-standing belief in Western cultures is that human bodies, as defined by the boundaries of skin, are separate from, and independent of, the external world. This belief in the person-world dualism is now rejected by many philosophers and cognitive scientists who advocate that human beings should “be understood, and scientifically studied, in terms of organism-environment mutuality and reciprocity” (16). The physical environment in which people and their bodies move and function is imbued with culture. Therefore, “the body system [...] offers insightful analysis for understanding cultural systems” (36). The body has different symbolic properties in different cultural contexts, with many elementary embodied experiences shaped by local cultural knowledge and practice. Research on embodied cognition should explore the linkages between embodiment and cultural meaning since people actually instill different cultural meanings into bodily processes in changing cultural contexts:

Rather than being a biological given, embodiment is a category of sociocultural analysis, often revealing complex dimensions of the interactions between bodies and personhood. [...] Culture does not just inform embodied experience; embodied experience is itself culturally constituted. (Gibbs 2006: 37)

This, of course, does not mean that people in different cultures have different physiologies, but rather that they think, understand, and interpret their bodily experiences differently. Bodily experience, which differs from physiological mechanisms, “cannot, therefore, be defined universally, but is always deeply influenced by cultural variation” and “shaped by cultural practices that resist simple biological explanation” (Gibbs 2006: 39). Gibbs (2006) concludes that one way to integrate the role of cultural activity into a theory of embodied cognition is to recognize, and study, different levels of embodiment in thought, language, and action” (39) such as the three levels of embodiment proposed by Lakoff and Johnson (1999).

As Rohrer (2006) points out, the embodiment hypothesis is especially associated with a particular strand of Cognitive Linguistics, i.e. the cognitive semantic approach to the study of metaphor and metonymy, known as Conceptual Metaphor Theory (CMT), which can be traced back to its origin in Lakoff and Johnson’s seminal book *Metaphors We Live By* (1980). The experiential basis of conceptual metaphors is both bodily and cultural. Our mind is embodied in such a way that our conceptual systems draw largely upon the peculiarities of our body and the specifics of our physical and cultural environment (e.g. Gibbs 1994, 1999a, 2003, 2008; Johnson 1987, 1999, 2007; Kövecses 2005; Lakoff 1987, 1993; Lakoff & Johnson 1980, 1999; Yu 2008b, 2008c). Our body plays a crucial role in our meaning and understanding, and our interaction in and with the physical and cultural world defines the contours of what is meaningful to us and determines the ways of our understanding (Gibbs 1994, 1999a; Johnson 1987, 1999; Yu 2008b). It follows that human meaning and understanding are in part metaphorical mappings from the concrete to the abstract. It also follows that our body, with its experiences and functions, is a potentially universal source domain for metaphorical mappings onto more abstract domains. This is because humans, despite their racial or ethnic peculiarities, have the same basic body structure, and all share some common bodily experiences and functions, which fundamentally define them as human beings.

While the body and bodily experiences are potentially universal source domains for conceptual metaphors structuring abstract concepts, cultural models set up specific perspectives from which certain parts of the body and certain aspects of bodily experience are viewed as especially salient and meaningful in the understanding of those abstract concepts (Gibbs 1999a; Yu 2008b, 2008c, 2009b). That is, cultural models have an interpretative function in viewing the body and its role in grounding metaphor: They may interpret the same embodied experience differently and attach different values to the same bodily experiences or the same parts of the body. Thus, it is possible that, in different cultures and languages, different body parts or bodily experiences are mapped onto the same abstract concepts. Conversely, the same body parts or bodily experiences are selected to map onto and structure different abstract concepts. The convergence and divergence of these



kinds, therefore, give rise to varied conceptual metonymies and metaphors in different languages (Kövecses 2005; Yu 2008b, 2008c, 2009b).

### 3. Metaphor and metonymy revisited

It is important to note that embodiment is necessarily mediated through metaphoric mappings that link a source domain with a target domain. It is now common knowledge in Conceptual Metaphor Theory (CMT) that “our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature” (Lakoff & Johnson 1980: 3). However, the study of this conceptual system residing in cognition can only be indirect since this system is not open to direct observation. So, “language is an important source of evidence for what that system is like” (3).

CMT accords preeminence to the conceptual dimension of metaphor, arguing that “metaphors as linguistic expressions are possible precisely because there are metaphors in a person’s conceptual system” (Lakoff & Johnson 1980: 6). This direction (conceptual metaphor → linguistic expression) is taken when people produce linguistic metaphors, i.e., it is precisely conceptual metaphors residing in cognition and making up the conceptual systems in a given culture that allow for the linguistic expression of these concepts. At the level of linguistic analysis, however, the opposite route is taken (linguistic expression → conceptual metaphor), whereby the stock of linguistic expressions of conceptual metaphors is studied to gain insights into cognition and conceptual systems. As linguists, however, we should bear in mind that it is not always safe to infer how people think from the way they talk (see e.g. Gibbs 2007). As Casasanto’s (2009) study shows, for instance, linguistic metaphors reveal only a subset of conceptual metaphors that appear to structure our conceptual systems. Nevertheless, “even when linguistic metaphors fail to predict the exact relationships revealed by behavioral tests”, they “point to important links between the source and target domains” and, as such, serve “as a source of *hypotheses* about the structure of abstract concepts” for further linguistic and extra-linguistic studies (143).

Cognitive linguists often study linguistic metaphors so conventionalized that they are usually called “dead metaphors”. Lakoff and Turner (1989) argue that it is a mistake to think of this stock of linguistic expressions as dead metaphors, claiming that “those that are most alive and most deeply entrenched, efficient, and powerful are those that are so automatic as to be unconscious and effortless” (129). In other words, the stock of “dead” metaphors (such as those in idioms) is actually alive, because it is the fodder which sustains the conceptual system in particular and cognition in general. Thus, CMT makes the distinction between dead and



live/poetic metaphor redundant, showing that the “dead metaphor theory” is guilty of the confusion between metaphors that are conventional and part of our cognitive system, and historical metaphors that no longer exist (Lakoff & Turner 1989: 128–129). Contrary to Black’s (1993) claim that “a so-called dead metaphor is not a metaphor at all” (25), Turner (1991, 1996) demonstrates the link between conventional everyday metaphors and poetic metaphors in literature, where the latter are based on and are extensions of the former.

Turning now to the relation between metaphor and metonymy, classical rhetoric made a clear distinction between the two. In a functionalist framework, Jakobson (1956) maintained this traditional distinction. Based on studies of aphasic patients suffering from similarity vs. contiguity disorders, he concluded that metaphor is a figure of similarity and metonymy a figure of contiguity.

In Cognitive Linguistics the relation between metonymy and metaphor has been investigated in more detail. Current studies focus on the interaction between the two tropes of thought and language. In an important work, Goossens (2002) shows how metonymy and metaphor interact with each other in complex ways in natural language. He calls this phenomenon ‘metaphonymy’.

Other significant contributions to the study of metaphor and metonymy within a Cognitive Linguistics framework are found in Barcelona (2000a), Dirven and Pörings (2002), Panther and Radden (1999a). For an adequate characterization of metaphor and metonymy the chapters in these three volumes propose such central notions as conceptual domain (including subdomain, matrix domain, and domain matrix), idealized cognitive model (ICM), conceptual frame, and conceptual integration (e.g. Barcelona 2000b, 2000c, 2002; Croft 2002; Dirven 2002; Geeraerts 2002; Grady & Johnson 2002; Radden & Kövecses 1999; Ruiz de Mendoza Ibáñez 2000; Ruiz de Mendoza Ibáñez & Díez Velasco 2002; Turner & Fauconnier 2002).

Three claims regarding the relationship between metaphor and metonymy that are relevant to this volume emerge from the above studies: First, metonymy is seen not merely as a matter of linguistic substitution, but rather as a cognitive phenomenon more fundamental than metaphor and underlying much of our ordinary thinking (e.g. Barcelona 2000b; Gibbs 1999b; Panther & Radden 1999b; Radden & Kövecses 1999; Ruiz de Mendoza Ibáñez 2000; Panther & Thornburg 2003, 2007; Panther 2006). Second, and following from the first point, many metaphors are motivated conceptually by metonymies, which are more immediately grounded in experience (e.g. Barcelona 2000b, 2000c; Niemeier 2000; Radden 2000; Taylor 2002). Third, the boundary between metaphor and metonymy is fuzzy, i.e., they form a continuum (e.g. Barcelona 2000b, 2000c; Dirven 2002; Geeraerts 2002; Goossens 2000, 2002; Niemeier 2000; Radden 2000; Ruiz de Mendoza Ibáñez 2000).

In the light of the above views, it is suggested that metonymy often serves as the link between bodily experience and metaphor in the mapping process from concrete experience to abstract concepts: bodily experience → metonymy → metaphor → abstract concepts (Yu 2008c). As suggested by the word *embodiment* itself, the core of embodiment is the human body. In this volume, the studies focus on specific parts of the body and the associated bodily experiences, and examine how cultures project them, via such cognitive mechanisms as metonymy and metaphor, onto more abstract domains in understanding emotions, character traits, mental faculties, and cultural values, and how this imaginative process of embodiment in human cognition is manifested in the respective languages. It seems that embodiment, as a fundamental cognitive process, is a multifaceted concept. On the one hand, it is rooted in the body; on the other hand, it is motivated by culture. There seems to be a continuum between “physiological embodiment” and “cultural embodiment” (see Maalej 2004, 2007, 2008), which is parallel in relationship to the continuum between metonymy and metaphor. The complex relations between body and culture in embodiment, cast as the interactions between metonymy and metaphor, often leave their traces in language. We are interested in discovering how body interacts with culture as manifested in language in order to gain a deeper understanding of cognition.

#### 4. The contributions to this volume

Gibbs (2006: 9) suggests that the key feature of the “embodiment premise” is “the idea that understanding the embodied nature of human cognition demands that researchers specifically look for possible mind-body and language-body connections”. The utilization of body-part terms in expressing human conceptualizations of emotions, thought, reason, character traits, cultural values, etc., represents important language-body connections that reflect mind-body connections (see e.g. Yu 2009b, which collects a series of studies in Chinese). Following Gibbs’ dictum, each of the ten chapters in this volume deals with body parts and how different languages and cultures refer to them in profiling emotions, character traits, mental faculties, and cultural values, yielding mostly “culturally driven embodiment” (Maalej 2004). Roughly, the contributions focus on either a single body part (the majority of contributions) or more than one body part (external and/or internal ones). Nevertheless, we have organized the chapters into three parts according to geographic region of the languages and cultures investigated. Part 1 includes European perspectives on body parts, covering Danish, English, Estonian, German (compared to Indonesian), Modern Greek, and Spanish. Part 2 focuses on East Asian perspectives on body parts from Chinese and Japanese. Part 3 concerns

itself with Middle Eastern and North African perspectives on body parts, including mainly Arabic, Persian, and Turkish.

The first part covering European perspectives on body parts has four chapters, the first of which is **Sophia Marmaridou's** contribution "The relevance of embodiment in lexical and collocational meaning: The case of *prosopo* 'face' in Modern Greek".<sup>1</sup> Marmaridou shows that the embodiment hypothesis is significant in two ways. First, it accounts for the interaction of the conceptual metaphor NON-PHYSICAL IS PHYSICAL and the cultural model of the fragmented self in motivating the polysemy of Modern Greek *prosopo* with various positive and negative connotations of adjectives in collocations, in which *prosopo*, the human face, exhibits not only embodied personhood, psychological, and social aspects of the self (such as emotion, character, and social standing), but also spatial orientation. Second, on the basis of the participation of *prosopo* in frequent collocations, the embodiment hypothesis explains the experiential motivation of grammatical collocations, which suggests that *prosopo* acquires aspects of collocational meaning.

In "Dynamic body parts in Estonian figurative descriptions of emotion" **Ene Vainik** demonstrates, first, that in Estonian figurative descriptions there is no specialization of body parts for expressing particular emotions. Instead, there is a continuum of more or less exploitable body parts, internal and external, and more diversely described emotions. In contrast to the internal body parts and fluids such as the heart, blood, and nerves, the external and movable parts of the body such as the head and its subparts (the eyes, the mouth, the nose) and hands are more heavily exploited for the purpose of emotion expression. For Vainik the multiple bodily manifestations of emotions provide a basis for conceptualizing emotions themselves. Second, she finds a strong positive correlation between the types of cognitive mappings (metonymy, metaphonymy, and metaphor) and the bodily manifestations on which the conceptualizations are based (observable symptoms, bodily sensations, and imaginary events), which depend more on the conceptualizer's perspective than on the type of body parts (internal vs. external) profiled in the figurative emotion expressions in Estonian. Third, the axiological value of the description depends, Vainik claims, not only on the subjective value of the described emotions but also on the attribution of the value as seen from the observer's and describer's viewpoint, suggesting that in the figurative descriptions of emotions via dynamic, observable body parts, activation and evaluation are independent characteristics of emotions that can combine in different ways.

1. Throughout the volume, italics are used to represent lexical items (i.e. form-meaning pairs), single quotation marks are used for lexical meanings, generally when the focus is on a lexical item in a particular language. Small capitals are used for metaphors, metonymies, cognitive models, image schemas, and the like, and also in cross-linguistic comparisons of body part conceptualizations.

In “Contrasting body parts: Metaphors and metonymies of MOUTH in Danish, English, and Spanish” Uwe Kjær Nissen takes a cross-linguistic and cross-cultural perspective and demonstrates that nonliteral uses of *mouth* in English, and its counterparts *boca* in Spanish and *mund* in Danish are pervasive in all three. His study clearly supports the view that metonymy and metaphor, which link mappings of mind and body, are powerful tools for generating figurative expressions and that these expressions, although not entirely predictable, are motivated by bodily experiences. Nissen strongly advocates the comparison of Indo-European languages, already subject to analysis by the cognitive linguistic community, with non-Indo-European languages since, although metaphorization and metonymization are frequently based on physiological embodiment, these processes are also influenced by cultural differences, as revealed by his comparison of the three languages that are relatively close to one another.

The last chapter in the European grouping is “HEAD and EYE in German and Indonesian figurative uses” by Poppy Siahaan. In her comparative study she investigates the figurative extensions of the two source concepts HEAD and EYE in the two genetically unrelated languages German and Indonesian. Her data provide evidence that a given source concept often targets the same conceptual domain in both languages (e.g. (human) LEADER OF CHARACTER TRAITS); yet her study also reveals interesting language-specific distinctions. Using a corpus-based quantitative approach, Siahaan reveals that the metaphoric and metonymic extensions differ strikingly in frequency of occurrence in her corpus. Her findings show that German speakers have a preference for the function of *Kopf* ‘head’ and *Auge* ‘eye’ while Indonesian speakers have a preference for the position of *kepala* ‘head’ and the appearance or shape of *mata* ‘eye’.

The East Asian section of the book, Part 2, includes three chapters, one on Chinese and two on Japanese. In his chapter “Speech organs and linguistic activity/function in Chinese”, Ning Yu studies the Chinese cultural ways of understanding speech and language based on the metonymic chain from speech organ to language proposed by Radden (2004): speech organ → speaking → speech → language. Yu analyzes Chinese terms for such speech organs as *she* ‘tongue’, *chi* ‘teeth’, *chun* ‘lips’, and *zui* or *kou* ‘mouth’ as they are used metonymically and metaphorically in conventionalized expressions referring to more abstract linguistic action and function. The study focuses on three metonymies, SPEECH ORGAN FOR SPEAKING, SPEECH ORGAN FOR SPEECH, and SPEECH ORGAN FOR LANGUAGE. Yu finds that the first two metonymies are richly manifested in a large number of conventionalized expressions. Yet, the metonymy SPEECH ORGAN FOR LANGUAGE, widely attested across languages (Radden 2004), is not realized lexically in Chinese. What is particularly interesting is the fact that in Chinese, SPEECH ORGAN FOR LANGUAGE, while not manifested in its lexicon, is nevertheless realized in its

ideographic writing system as radical components of the characters. That is, the Chinese characters representing ‘language’ and ‘speech’ all contain the ‘mouth’ radical in them. This finding provides an interesting and telling example of how the general cognitive principle of embodiment can be realized in and embraced by a culture-specific environment.

**Tomokazu Nagai** and **Masako K. Hiraga**’s chapter “Inner and outer body parts: The case of *hara* ‘belly’ and *koshi* ‘lower back’ in Japanese” analyzes and seeks to clarify the relationship between the outer body and inner body parts as sources of motivation for metonymy and metaphor. They argue that *hara* as an internal body part correlates with metaphor, and expresses figurative meanings having to do with mental and spiritual stability while *koshi*, an external body part, correlates with metonymy, and expresses figurative meanings having to do with attitude and behavior. To test the validity of this premise, the authors examine verbal and adjectival combinations with *koshi* and *hara* to explicate in detail the tropic interplay between metonymy and metaphor in generating figurative meanings. The authors consider also non-human entities and events that can be partially seen as having inner and outer body parts, and discover that the metaphoric productivity of *hara* becomes weaker, giving rise to metonymic extensions while *koshi* appears to be more productive with respect to metaphoric rather than metonymic extensions. The authors conclude with a hypothesis: the tropic motivation of the inner and outer body parts may reverse when their meanings have been extended so that they are used to describe things and events in the external world – a claim to be tested in future research.

The second chapter on Japanese is “A cultural-linguistic look at Japanese ‘eye’ expressions” by **Debra J. Occhi**. Her data show that ‘eye’ expressions in Japanese characterize this body part as both an arbiter, capable of judging and measuring across several variables, and as an object of evaluation. The metaphors *EYE AS MIND* and *EYE AS PERSON* are attested in various sets of data. Notably, the eye is conceptualized in Japanese as the locus of distinctions in the social hierarchy schema, distinctions that govern both linguistic and non-linguistic behavior. The eye is also salient in Japanese expressions of character traits and emotions; gender norms are also revealed through certain ‘eye’-related expressions. Data from Japanese robustly support the notions of physiological, cultural, and culturally tainted embodiment that has been outlined in Maalej (2004).

The third and last grouping of the volume, Part 3, contains three chapters on Middle Eastern and North African perspectives on body parts. **Farzad Sharifian**’s contribution “Conceptualizations of *cheshm* ‘eye’ in Persian” undertakes a contrastive study of body part terms expressing emotions in Persian and English. The main argument of the chapter is that in contemporary Persian this body part and the act of perception appear to be associated mainly with emotions, feelings,

personality traits, attention, intuition, knowing, and to a limited extent, with thinking. The analysis of Persian expressions containing the body-part term *cheshm* do not reflect UNDERSTANDING IS SEEING as a dominant conceptualization in everyday use of language by Persian speakers. The findings of this study, along with those of other studies, point to the role of language as a “memory bank” and “archive” for cultural conceptualizations.

In “Figurative dimensions of *3ayn* ‘eye’ in Tunisian Arabic” Zouheir A. Maalej analyzes the role of ‘eye’ as a cognitive source for an embodied cultural model constituted by imaginative structures such as image schemas, metaphors, and metonymies. This cultural model shares with English, Chinese (Yu 2003b, 2004), and Persian (Sharifian, this volume) cultures the means by which mental faculties (THINKING/UNDERSTANDING/KNOWING IS SEEING) are conceptualized via vision. Regarding emotions, the eye functions metaphorically as a container for love, desire, and guilt, in keeping with the image schema THE BODY IS A CONTAINER FOR EMOTIONS. Moreover, the eye is conceptualized as a metaphorical source for the emotions themselves: love, desire, anger, and envy. In short, with emotions the eye seems to waver between being a container for love and loved ones, and a dangerous object or perceptual organ that is easy to manipulate. Similar to emotions, character traits are also referenced by ‘eye’ metaphors in Tunisian Arabic. For example, the conceptualization of ambition exploits properties of the eye such as size, spaciousness, and depth. Conceptualizations of naiveté and alertness metaphorically expand the CLOSED-OPEN image schematic structure of the eye.

The last chapter in this perspective and in the volume is titled “The apocalypse happens when the feet take the position of the head: Figurative uses of ‘head’ and ‘feet’ in Turkish” by Mustafa Aksan. This author addresses the embodiment of social stratification in Turkish, in which verticality is exploited through the schematic organization (UP-DOWN) of the two body parts of *baş* ‘head’ and *ayak* ‘foot’ as located at the opposite ends of the body. The head profiles the cultural metonymies HEAD FOR ORDER, HEAD FOR RULER, HEAD FOR TALENT. The foot profiles conceptual metaphors such as LESS IS DOWN, LOW STATUS IS DOWN, and BEING SUBJECT TO CONTROL OR FORCE IS DOWN. The author discusses cases where terms for ‘head’ and ‘feet’ combine in a number of metonymies and metaphors. In such expressions, the contrast on a VERTICALITY scale based on particular locations of body parts is used to conceptualize contrast in social stratification.

The grouping of chapters in this volume is motivated, quite obviously, by the geographic location of the languages and cultures studied. Alternatively, the chapters could have been arranged according to the body part concepts themselves. For instance, two chapters study ‘head’ in three languages (German, Indonesian, and Turkish), two chapters study ‘mouth’ in four languages (Chinese, Danish, English, and Spanish), and four chapters study ‘eye’ in five languages (German, Indonesian,



Japanese, Persian, and Tunisian Arabic). While the chapters investigating the same body parts do so from different perspectives, all the chapters in this volume emphasize the intricate interplay between body and culture (embodiment) in generating metonymies and metaphors to express central aspects of the human condition such as emotions, character traits, mental faculties, and cultural values. As mentioned above, we align ourselves with the view that metonymy and metaphor form a continuum (e.g. Barcelona 2000b, 2000c). This continuum seems to correlate with another continuum between two types of embodiment, the physiological and the cultural (Maalej 2004, 2007, 2008). While metonymy tends to exhibit a more physiologically grounded kind of embodiment, metaphor, which is often metonymically based, tends to create a more culturally oriented kind of embodiment. Thus, when we talk about embodiment, we always mean “embodiment via body and culture.”

## References

- Anderson, M. L. (2003). Embodied cognition: A field guide. *Artificial Intelligence*, 149, 91–130.
- Barcelona, A. (Ed.). (2000a). *Metaphor and metonymy at the crossroads: A cognitive perspective*. Berlin and New York: Mouton de Gruyter.
- Barcelona, A. (2000b). Introduction: The cognitive theory of metaphor and metonymy. In A. Barcelona (Ed.), *Metaphor and metonymy at the crossroads: A cognitive perspective* (pp. 1–28). Berlin and New York: Mouton de Gruyter.
- Barcelona, A. (2000c). On the plausibility of claiming a metonymic motivation for conceptual metaphor. In A. Barcelona (Ed.), *Metaphor and metonymy at the crossroads: A cognitive perspective* (pp. 31–58). Berlin and New York: Mouton de Gruyter.
- Barcelona, A. (2002). Clarifying and applying the notions of metaphor and metonymy within cognitive linguistics: An update. In R. Dirven & R. Pörings (Eds.), *Metaphor and metonymy in comparison and contrast* (pp. 207–277). Berlin and New York: Mouton de Gruyter.
- Berdayes, V., Esposito, L., & Murphy, J. W. (Eds.). (2004). *The Body in human inquiry: Interdisciplinary explorations of embodiment*. Cresskill, NJ: Hampton Press.
- Black, M. (1993). More about metaphor. In A. Ortony (Ed.), *Metaphor and thought* (2 ed.) (pp. 19–43). Cambridge: Cambridge University Press.
- Blackman, L. (2008). *The body*. Oxford and New York: Berg.
- Casasanto, D. (2009). When is a linguistic metaphor a conceptual metaphor? In V. Evans & S. Pourcel (Eds.), *New directions in cognitive linguistics* (pp. 127–145). Amsterdam and Philadelphia: John Benjamins.
- Croft, W. (2002). The role of domains in the interpretation of metaphors and metonymies. In R. Dirven & R. Pörings (Eds.), *Metaphor and metonymy in comparison and contrast* (pp. 161–205). Berlin and New York: Mouton de Gruyter.
- Csordas, T. J. (Ed.). (1994). *Embodiment and experience: The existential ground of culture and self*. Cambridge: Cambridge University Press.



- Dirven, R. (2002). Metonymy and metaphor: Different mental strategies and conceptualization. In R. Dirven & R. Pörings (Eds.), *Metaphor and metonymy in comparison and contrast* (pp. 75–111). Berlin and New York: Mouton de Gruyter.
- Dirven, R., & Pörings, R. (Eds.). (2002). *Metaphor and metonymy in comparison and contrast*. Berlin and New York: Mouton de Gruyter.
- Enfield, N., & Wierzbicka, A. (Eds.). (2002). Special issue on the body in description of emotion. *Pragmatics and Cognition*, 10 (1/2).
- Foolen, A. (2008). The heart as a source of semiosis: The case of Dutch. In F. Sharifian, R. Dirven, N. Yu, & S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across cultures and languages* (pp. 373–394). Berlin and New York: Mouton de Gruyter.
- Frank, R. M., Dirven, R., Ziemke, T., & Bernárdez, E. (Eds.). (2008). *Body, language, and mind (Vol. 2): Sociocultural situatedness*. Berlin and New York: Mouton de Gruyter.
- Gaby, A. (2008). Gut feelings: Locating intellect, emotion and life force in the Thaayorre body. In F. Sharifian, R. Dirven, N. Yu, & S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across cultures and languages* (pp. 27–44). Berlin and New York: Mouton de Gruyter.
- Gallagher, S. (2005). *How the body shapes the mind*. Oxford and New York: Oxford University Press.
- Geeraerts, D. (2002). The interaction of metaphor and metonymy in composite expressions. In R. Dirven & R. Pörings (Eds.), *Metaphor and metonymy in comparison and contrast* (pp. 435–465). Berlin and New York: Mouton de Gruyter.
- Geeraerts, D., & Gevaert, C. (2008). Hearts and (angry) minds in Old English. In F. Sharifian, R. Dirven, N. Yu, & S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across cultures and languages* (pp. 319–347). Berlin and New York: Mouton de Gruyter.
- Gibbs, R. W. (1994). *The poetics of mind: Figurative thought, language, and understanding*. Cambridge: Cambridge University Press.
- Gibbs, R. W. (1999a). Moving metaphor out of the head and into the cultural world. In R. Gibbs & G. Steen (Eds.), *Metaphor in cognitive linguistics* (pp. 145–166). Amsterdam and Philadelphia: John Benjamins.
- Gibbs, R. W. (1999b). Speaking and thinking with metonymy. In K.-U. Panther & G. Radden (Eds.), *Metonymy in language and thought* (pp. 61–76). Amsterdam and Philadelphia: John Benjamins.
- Gibbs, R. W. (2003). Embodied experience and linguistic meaning. *Brain and Language*, 84, 1–15.
- Gibbs, R. W. (2006). *Embodiment and cognitive science*. Cambridge: Cambridge University Press.
- Gibbs, R. W. (2007). Why cognitive linguists should care more about empirical methods. In M. Gonzalez-Marquez, I. Mittelberg, S. Coulson & M. Spivey (Eds.), *Methods in cognitive linguistics* (pp. 2–18). Amsterdam and Philadelphia: John Benjamins.
- Gibbs, R. W. (2008). Metaphor and thought: The state of the art. In R. W. Gibbs (Ed.), *The Cambridge handbook of metaphor and thought* (pp. 3–13). Cambridge: Cambridge University Press.
- Goddard, C. (2008). Contrastive semantics and cultural psychology: English heart vs. Malay hati 'liver'. In F. Sharifian, R. Dirven, N. Yu, and S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across cultures and languages* (pp. 75–102). Berlin and New York: Mouton de Gruyter.

- Goossens, L. (2000). Patterns of meaning extension, “parallel chaining,” subjectification, and modal shifts. In A. Barcelona (Ed.), *Metaphor and metonymy at the crossroads: A cognitive perspective* (pp. 149–169). Berlin and New York: Mouton de Gruyter.
- Goossens, L. (2002). Metaphtonymy: The interaction of metaphor and metonymy in expressions for linguistic action. In R. Dirven & R. Pörings (Eds.), *Metaphor and metonymy in comparison and contrast* (pp. 349–377). Berlin and New York: Mouton de Gruyter.
- Grady, J., & Johnson, C. (2002). Converging evidence for the notions of *subscene* and *primary scene*. In R. Dirven & R. Pörings (Eds.), *Metaphor and metonymy in comparison and contrast* (pp. 533–554). Berlin and New York: Mouton de Gruyter.
- Ibarretxe-Antuñano, I. (2008). Guts, heart and liver: The conceptualization of internal organs in Basque. In F. Sharifian, R. Dirven, N. Yu, and S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across cultures and languages* (pp. 103–128). Berlin and New York: Mouton de Gruyter.
- Ikegami, Y. (2008). The heart: What It means to the Japanese speakers. In F. Sharifian, R. Dirven, N. Yu, and S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across cultures and languages* (pp. 169–189). Berlin and New York: Mouton de Gruyter.
- Jakobson, R. (1956). Two aspects of language and two types of aphasic disturbances. In R. Jakobson & M. Halle, *Fundamentals of language* (pp. 55–82). The Hague: Mouton.
- Johnson, M. (1987). *The body in the mind: The bodily basis of meaning, imagination, and reason*. Chicago: University of Chicago Press.
- Johnson, M. (1999). Embodied reason. In G. Weiss & H. F. Haber (Eds.), *Perspectives on embodiment: The intersections of nature and culture* (pp. 81–102). New York: Routledge.
- Johnson, M. (2007). *The meaning of the body: Aesthetics of human understanding*. Chicago: University of Chicago Press.
- Kövecses, Z. (2005). *Metaphor in culture: Universality and variation*. Cambridge: Cambridge University Press.
- Krois, J. M., Rosengren, M., Steidele, A., & Westerkamp, D. (Eds.). (2007). *Embodiment in cognition and culture*. Amsterdam and Philadelphia: John Benjamins.
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago/London: The University of Chicago Press.
- Lakoff, G. (1987). *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago: University of Chicago Press.
- Lakoff, G., & Turner, M. (1989). *More than cool reason: A field guide to poetic metaphor*. Chicago/London: The University of Chicago Press.
- Lakoff, G. (1993). The contemporary theory of metaphor. In A. Ortony (Ed.), *Metaphor and thought* (2nd ed.) (pp. 202–251). Cambridge: Cambridge University Press.
- Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to western thought*. New York: Basic Books.
- Lakoff, G., & Kövecses, Z. (1987). The cognitive model of anger inherent in American English. In D. Holland & N. Quinn (Eds.), *Cultural models in language and thought* (pp. 195–221). Cambridge: Cambridge University Press.
- Lakoff, G., & Núñez, R. (2000). *Where mathematics comes from: How the embodied mind brings mathematics into being*. New York: Basic Books.
- Maalej, Z. (2004). Figurative language in anger expressions in Tunisian Arabic: An extended view of embodiment. *Metaphor and Symbol*, 19(1), 51–75.

- Maalej, Z. (2007). The embodiment of fear expressions in Tunisian Arabic: Theoretical and practical implications. In F. Sharifian & G. B. Palmer (Eds.), *Applied cultural linguistics: Implications for second language learning and intercultural communication* (pp. 87–104). Amsterdam and Philadelphia: John Benjamins.
- Maalej, Z. (2008). The heart and cultural embodiment in Tunisian Arabic. In F. Sharifian, R. Dirven, N. Yu, and S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across cultures and languages* (pp. 395–428). Berlin and New York: Mouton de Gruyter.
- Niemeier, S. (2000). Straight from the heart – metonymic and metaphorical explorations. In A. Barcelona (Ed.), *Metaphor and metonymy at the crossroads: A cognitive perspective* (pp. 195–213). Berlin and New York: Mouton de Gruyter.
- Niemeier, S. (2008). To be in control: Kind-hearted and cool-headed. The head-heart dichotomy in English. In F. Sharifian, R. Dirven, N. Yu, & S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across cultures and languages* (pp. 349–372). Berlin and New York: Mouton de Gruyter.
- Núñez, R. (1999). Could the future taste purple? Reclaiming mind, body and cognition. *Journal of Consciousness Studies*, 6(11/12), 41–60.
- Occhi, D. J. (2008). How to have a HEART in Japanese. In F. Sharifian, R. Dirven, N. Yu, & S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of heart and other internal body organs across cultures and languages*. Berlin and New York: Mouton de Gruyter.
- Panther, K.-U. (2006). Metonymy as a usage event. In G. Kristiansen, M. Achard, R. Dirven, & F. J. Ruiz de Mendoza Ibáñez (Eds.), *Cognitive linguistics: Current applications and future perspectives* (pp. 147–185). Berlin and New York: Mouton de Gruyter.
- Panther, K.-U., & Radden, G. (Eds.). (1999a). *Metonymy in language and thought*. Amsterdam and Philadelphia: John Benjamins.
- Panther, K.-U., & Radden, G. (1999b). Introduction. In K.-U. Panther & G. Radden (Eds.), *Metonymy in language and thought* (pp. 1–14). Amsterdam and Philadelphia: John Benjamins.
- Panther, K.-U., & Thornburg, L. (2003). Introduction: On the nature of conceptual metonymy. In K.-U. Panther & L. Thornburg (Eds.), *Metonymy and pragmatic inferencing* (pp. 1–20). Amsterdam and Philadelphia: John Benjamins.
- Panther, K.-U., & Thornburg, L. (2007). Metonymy. In D. Geeraerts & H. Cuyckens (Eds.), *The Oxford handbook of cognitive linguistics* (236–263). Oxford: Oxford University Press.
- Radden, G. (2000). How metonymic are metaphors? In A. Barcelona (Ed.), *Metaphor and metonymy at the crossroads: A cognitive perspective* (pp. 93–108). Berlin and New York: Mouton de Gruyter.
- Radden, G. (2004). The metonymic folk model of language. In B. Lewandowska-Tomaszczyk & A. Kwiatkowska (Eds.), *Imagery in language* (pp. 543–565). Bern: Peter-Lang.
- Radden, G., & Kövecses, Z. (1999). Towards a theory of metonymy. In K.-U. Panther & G. Radden (Eds.), *Metonymy in language and thought* (pp. 17–59). Amsterdam and Philadelphia: John Benjamins.
- Rohrer, T. (2006). Three dogmas of embodiment: Cognitive linguistics as a cognitive science. In G. Kristiansen, M. Achard, R. Driven, & F. J. Ruiz de Mendoza Ibáñez (Eds.), *Cognitive linguistics: Current applications and future perspectives* (pp. 119–146). Berlin and New York: Mouton de Gruyter.

- Rohrer, T. (2007a). The body in space: Dimensions of embodiment. In T. Ziemke, J. Zlatev, & R. M. Frank (Eds.), *Body, Language and Mind (Vol. 1): Embodiment* (pp. 339–377). Berlin and New York: Mouton de Gruyter.
- Rohrer, T. (2007b). Embodiment and experientialism. In D. Geeraerts & H. Cuyckens (Eds.), *The Oxford handbook of cognitive linguistics* (pp. 25–47). Oxford and New York: Oxford University Press.
- Ruiz de Mendoza Ibáñez, F. J. (2000). The role of mappings and domains in understanding metonymy. In A. Barcelona (Ed.), *Metaphor and metonymy at the crossroads: A cognitive perspective* (pp. 109–132). Berlin and New York: Mouton de Gruyter.
- Ruiz de Mendoza Ibáñez, F. J., & Díez Velasco, O. I. (2002). Patterns of conceptual interaction. In R. Dirven & R. Pörings (Eds.), *Metaphor and metonymy in comparison and contrast* (pp. 489–332). Berlin and New York: Mouton de Gruyter.
- Semin, G. R., & Smith, E. R. (2008a). *Embodiment grounding: Social cognitive, affective, and neuroscientific approaches*. Cambridge: Cambridge University Press.
- Semin, G. R., & Smith, E. R. (2008b). Introducing embodied grounding. In G. R. Semin & E. R. Smith (Eds.), *Embodiment grounding: Social cognitive, affective, and neuroscientific approaches* (pp. 1–5). Cambridge: Cambridge University Press.
- Sharifian, F. (2003). On cultural conceptualizations. *Journal of Cognition and Culture*, 3, 187–207.
- Sharifian, F. (2008a). Conceptualisations of Del ‘heart-stomach’ and other internal body organs in Persian. In F. Sharifian, R. Dirven, N. Yu, and S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of heart and other internal body organs across cultures and languages* (pp. 247–265). Berlin and New York: Mouton de Gruyter.
- Sharifian, F. (2008b). Distributed, emergent cultural cognition, conceptualization and language. In R. M. Frank, R. Dirven, T. Ziemke, & E. Bernárdez (Eds.), *Body, language, and mind (Vol. 2): Sociocultural situatedness* (pp. 109–136). Berlin and New York: Mouton de Gruyter.
- Sharifian, F., Dirven, R., Yu, N., & Niemeier, S. (Eds.). (2008). *Culture, body, and language: Conceptualization of heart and other internal body organs across languages and cultures*. Berlin and New York: Mouton de Gruyter.
- Shore, B. (1996). *Culture in mind: Cognition, culture, and the problem of meaning*. New York and Oxford: Oxford University Press.
- Siahaan, P. (2008). Did he break your heart or your liver? A contrastive study on metaphorical concepts from the source domain organ in English and in Indonesian. In F. Sharifian, R. Dirven, N. Yu, and S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of heart and other internal body organs across cultures and languages* (pp. 45–74). Berlin and New York: Mouton de Gruyter.
- Sinha, C., & Jensen de López, K. (2000). Language, culture and the embodiment of spatial cognition. *Cognitive Linguistics*, 11(1/2), 17–41.
- Slingerland, E. (2008). *What science offers the humanities: Integrating body and culture*. Cambridge: Cambridge University Press.
- Svensson, H., & Ziemke, T. (2004). Making sense of embodiment: Simulation theories and the sharing of neural circuitry between sensorimotor and cognitive processes. Retrieved on 30-05-06 from <http://www.cogsci.northwestern.edu/cogsci2004/papers/paper364.pdf>.
- Taylor, J. (2002). Category extension by metonymy and metaphor. In R. Dirven & R. Pörings (Eds.), *Metaphor and metonymy in comparison and contrast* (pp. 323–347). Berlin and New York: Mouton de Gruyter.

- Thompson, E., & Varela, F. J. (2001). Radical embodiment: Neural dynamics and consciousness. *Trends in Cognitive Sciences*, 5(10), 418–425.
- Turner, M. (1991). *Reading minds: The study of English in the age of cognitive science*. Princeton: Princeton University Press.
- Turner, M. (1996). *The literary mind: The origins of thought and language*. New York and Oxford: Oxford University Press.
- Turner, M., & Fauconnier, G. (2002). Metaphor, metonymy, and binding. In R. Dirven & R. Pörings (Eds.), *Metaphor and metonymy in comparison and contrast* (pp. 469–487). Berlin and New York: Mouton de Gruyter.
- Varela, F. J., Thompson, E., & Rosch, E. (1991). *The embodied mind: Cognitive science and human experience*. Cambridge, MA: The MIT Press.
- Violi, P. (2004). Embodiment at the crossroads between cognition and semiosis. *Recherches en Communication*, 19, 199–217.
- Violi, P. (2008). Beyond the body: Towards a full embodied semiosis. In R. M. Frank, R. Dirven, T. Ziemke, & E. Bernárdez (Eds.), *Body, language, and mind (Vol. 2): Sociocultural situatedness* (pp. 53–76). Berlin and New York: Mouton de Gruyter.
- Weiss, G., & Haber, H. F. (Eds.). (1999). *Perspectives on embodiment: The intersections of nature and culture*. New York: Routledge.
- Wilson, M. (2002). Six views of embodied cognition. *Psychonomic Bulletin and Review*, 9, 625–636.
- Wolk, D. P. (2008). Expressions concerning the ‘heart’ libbā in Northeastern Neo-Aramaic in relation to a Classical Syriac model of the temperaments. In F. Sharifian, R. Dirven, N. Yu, and S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across languages and cultures* (pp. 267–317). Berlin and New York: Mouton de Gruyter.
- Yoon, K. (2008). The Korean conceptualization of heart: An indigenous perspective. In F. Sharifian, R. Dirven, N. Yu, & S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across languages and cultures* (pp. 213–243). Berlin and New York: Mouton de Gruyter.
- Yu, N. (2002). Body and emotion: Body parts in Chinese expression of emotion. *Pragmatics and Cognition*, 10(1/2), 341–367.
- Yu, N. (2003b). Chinese metaphors of thinking. *Cognitive Linguistics*, 14(2/3), 141–165.
- Yu, N. (2004). The eyes for sight and mind. *Journal of Pragmatics*, 36, 663–686.
- Yu, N. (2008a). The Chinese heart as the central faculty of cognition. In F. Sharifian, R. Dirven, N. Yu, and S. Niemeier (Eds.), *Culture, body, and language: Conceptualizations of internal body organs across languages and cultures* (pp. 131–168). Berlin and New York: Mouton de Gruyter.
- Yu, N. (2008b). Metaphor from body and culture. In R. W. Gibbs (Ed.), *The Cambridge handbook of metaphor and thought* (pp. 247–261). Cambridge: Cambridge University Press.
- Yu, N. (2008c). The relationship between metaphor, body and culture. In R. M. Frank, R. Dirven, T. Ziemke, & E. Bernárdez (Eds.), *Body, language, and mind (Vol. 2): Sociocultural situatedness* (pp. 387–407). Berlin and New York: Mouton de Gruyter.
- Yu, N. (2009a). *The Chinese heart in a cognitive perspective: Culture, body, and language*. Berlin and New York: Mouton de Gruyter.
- Yu, N. (2009b). *From body to meaning in culture: Papers on cognitive semantic studies of Chinese*. Amsterdam and Philadelphia: John Benjamins.

- Ziemke, T. (2003). What's that thing called embodiment? In R. Alterman, & D. Kirsh (Eds.), *Proceedings of the 25th annual meeting of the Cognitive Science Society* (pp. 1305–1310). Mahwah, NJ: Lawrence Erlbaum.
- Ziemke, T., Zlatev, J., & Frank, R. M. (Eds.). (2007). *Body, language and mind (Vol. 1): Embodiment*. Berlin and New York: Mouton de Gruyter.
- Ziemke, T., & Frank, R. M. (2007). Introduction: The body eclectic. In T. Ziemke, J. Zlatev, & R. M. Frank (Eds.), *Body, language and mind (Vol. 1): Embodiment*. (pp. 1–13). Berlin and New York: Mouton de Gruyter.