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Introduction: Thirty Years After

This issue of the Journal of Cognitive Semiotics presents a constructive, critical assessment of Conceptual Metaphors Theory (CMT) thirty years after its first introduction. Many characterizations and polemical caricatures of CMT portray it as a reductionist approach: an armchair preconception that language and conceptual formations in general are (just) the expression of more primitive and fixed pre-linguistic experiential structures, which are due to having a body in a physical environment. The papers here sketch a more nuanced view of CMT: i) experiential structures depend on *culturally and socially* embodied processes; ii) experiential structures are resources for conceptualization, locally deployed in flexible ways, with the potential of evolving over time; iii) rigorous philosophical, empirical, and experimental research are all essential in developing CMT, while more theory-driven hypothesis testing, relying on corpora and experimental settings, is strongly needed.

CMT has proved a tipping point in the development of cognitive linguistics and cognitive semiotics. The 1979 publication of *Metaphor and Thought* (Ortony 1993 [1979]), quickly followed by *Metaphors We Live By* (Lakoff & Johnson 1980), revolutionized the fields of literary, linguistic, and – more generally – cognitive studies (for recent reviews, see Gibbs 2008, 2011). By highlighting how a large part of one's linguistic expressions and abstract conceptual domains are structured by bodily experience, CMT has strongly pushed an embodied perspective on cognition (Gibbs 2006).

In the thirty years since the introduction of CMT, many debates have arisen and much development has occurred: endless explorations of conceptual metaphors in diverse domains of human cognition and expression; attempts at better investigating the cultural, cognitive, and neural mechanisms that underlie conceptual metaphors (Brandt 2013, Fauconnier & Turner 2003, Feldman *et al.* 2009, Gallese & Lakoff 2005); and, finally, attempts to expand and articulate the domains of experience that ground conceptual metaphors (Adamson 2007; Fusaroli 2011; Fusaroli, Demuru & Borghi 2012; Tylén *et al.* 2013). We therefore felt the need to critically assess the current state of CMT, to highlight both the critiques it faces and the vitality it shows. What is at stake in 2013 in studying conceptual metaphors? Has understanding of conceptual metaphors changed? What are the theoretical and analytical myths to avoid? Which are the hot new topics in the field?

In this introduction, we provide a short primer to CMT, followed by critical discussion of the three broad areas covered by the articles: (a) social and cultural dimensions of embodied human experience, (b) the many time scales at play in cognitive processes, and (c) empirical and

experimental challenges to CMT. These areas strongly emphasize the vitality of the CMT enterprise, the need for increased epistemological debate and – crucially – the need for a more empirically informed, dynamic view of metaphorical projections, as embedded in larger social and cognitive processes.

1. A PRIMER ON CONCEPTUAL METAPHORS

CMT is not simply the study of linguistic metaphors; it aims at tackling crucial cognitive problems: e.g., how do people understand abstract domains such as morality, politics, and mathematics? How are they able to understand language and each other? CMT offers a deceptively simple answer: it is thanks to bodily experience, approximately shared across humans and metaphorically projected onto abstract domains, making them understandable.

Lakoff and Johnson's initial focus was on how talking about abstract domains is based strongly on more concrete domains of experience (e.g., MIND IS A CONTAINER). Nevertheless, the theory quickly developed into a more general approach to meaning and cognition (*cf.* the symbol grounding problem: Harnad 1990). By learning to interact with the environment and control one's body, each human infant directly acquires meaningful experiential structures including *kinesthetic image schemas*. Kinesthetic image schemas are specific, recurring action paths formed through time in people's everyday interaction with the world around them (Evans & Green 2006: 176). For example, the CONTAINER schema structures people's regularly recurring experiences of putting objects into, and taking them out of, a bounded area. They experience the tactile version of this when handling physical containers; they experience it visually as they track the movement of an object into or out of some bounded area or container. It is experience in all its sensorial richness, meaningful by virtue of one's embodiment that forms the basis of many of one's most fundamental concepts. The universal character of kinesthetic structuring follows from such 'gross patterns' of human experience as 'our vertical orientation, the nature of our bodies as containers and as wholes with parts', etc. (Lakoff 1987: 303). Image schemas are bodily motivated by relatively abstract conceptual representations that act as regularities to orient future experiences.

Whenever one tries to grasp an abstract notion, one tends to project image schemas and basic concepts onto it metaphorically, so as to have a basic structure on which to rely for understanding and reasoning. Trying to understand and use the notion of 'mind', for instance, one might employ the container schema: people put ideas into each other's minds; people have empty minds, according to the metaphorical conceptual formulation describable as MIND AS CONTAINER. A conceptual metaphor is the projection of basic experiential structure from concrete domains of experience such as objects, movements, and spatial orientation to abstract domains of experience such as mathematics and morality. Through repeated metaphorical mappings, the human experiential domain expands to new areas and still remains easily understandable and shareable, thanks to people's shared basic embodied experience.

CMT quickly gave rise to two main directions of research: the mapping of existing metaphorical conceptual structures and the attempt to ground CMT in the growing field of cognitive neuroscience. The first produced an ever increasing number of studies displaying evidence of and mapping out image schemas and conceptual metaphors in the most diverse domains of human experience and expression, including mathematics (Lakoff & Núñez 2000), political discourse (Lakoff 2002, 2006), literature (Lakoff & Turner 1989) pictorial representations and comics (Eerden 2009; Forceville 1998, 2005, 2006; Refaie 2003; Rothenberg 2008; Shinohara & Matsunaka 2009), videos (Fahlenbrach 2005, 2007), sign languages for the deaf (Taub 2001; Wilcox 1993), and cultural knowledge encoded as body *habitus* or action structure (Bailey *et al.* 1998; Casasanto 2009a; Kimmel 2005, 2012). The second gave rise to cognitive models of cross-domain mappings (Brandt 2013, Fauconnier & Turner 2003) and the neural theory of language (Feldman *et al.* 2009, Gallese & Lakoff 2005, Lakoff 2008, Lakoff & Johnson 1999).

2. DEVELOPMENT AND CRITIQUES

Such overwhelming success soon brought critics (Haser 2005, McGlone 2007, Pinker 2007, Rakova 2003). Even within the CMT community, the most accurate analyses highlighted the need to revise some of the theory's initial tenets. Despite CMT being open from the start to the role of language and culture (Johnson 1987, Lakoff & Johnson 1980), the dominant characterizations of CMT portrayed conceptual metaphors as highly stable '*fixed* patterns of ontological correspondences across domains' (Lakoff 1993: 220) strongly defined by the experiential structure of an isolated infant interacting with a physical environment.

Building on thirty years of research on CMT, the articles in this issue present more nuanced views. They portray a plurality of perspectives, both in their degree of agreement with CMT and in their methods: philosophical conceptual analysis (Faur, Leezenberg, Pawelec), corpus linguistics (Allan, Deignan & Cameron, Mouton, Sauciuc), visual analysis (Nino & Serventi), gesture analysis (Cienki), historical linguistics (Allan, Mouton), or experimental studies (Bundgaard, Sauciuc). An overall picture emerges: i) basic experiences include social and cultural dimensions; ii) linguistic and conceptual metaphors are not fixed but emerge, develop, and are flexibly deployed on different time scales; iii) empirical research plays a crucial role in understanding how this happens.

2.1 The social and cultural dimensions of experience

Much research has been devoted lately to the social and cultural motivations of embodied experience (Fusaroli, Granelli & Paolucci 2011; Menary *in press*; Morgagni 2011, 2012; Ziemke *et al.* 2007), as well as to conceptual and linguistic structures (Fusaroli, Demuru & Borghi 2012, Fusaroli & Tylén 2012, Loreto & Steels 2007, Steels 2012, Tylén *et al.* 2013, Ziemke *et al.* 2007, Zlatev 2008). The perspective that emerges is that one's body and one's basic sensorimotor skills, which constitute a crucial structure for most of one's cognitive processes, are – in important ways – intersubjectively

distributed. Emotional and interactional rhythms in early infancy are crucial in shaping cognitive development (Di Paolo & De Jaegher 2012, Raczaszek-Leonardi *et al.* 2013, Vasudevi Reddy 2008, Trevarthen 2012, Violi 2012). Narrative frames and other sociocultural practices play a crucial role in defining a shared structure for cognition in general (Gallagher 2005, Gallagher & Hutto 2008, Hutto 2008, Raczaszek-Leonardi *et al.* 2013) and – in particular for joint attention – pointing and re-enactment of both successful and unsuccessful acts (Donald 2001, Sinha 2009). Social dynamics of interaction strongly motivate categorization and conceptual structures (Baronchelli *et al.* 2012, Baronchelli *et al.* 2010, Fay *et al.* 2010, Garrod & Doherty 1994, Gong *et al.* 2012).

Accordingly, the experiential bases of conceptual metaphors as they are deployed and stabilized in language and other expressive behaviors should be reconceived as deeply shaped by interpersonal social and cultural dynamics along the lines proposed by e.g. Leezenberg (*this volume*) and Caballero & Ibarretxe (*this volume*). Leezenberg suggests that experience and cognitive processes are not to be reductively located within individuals; on the contrary, they participate in larger distributed social and linguistic practices (Fusaroli, Gangopadhyay & Tylén *in press*; Fusaroli, Raczaszek-Leonardi & Tylén *in press*; Hutchins 2011).

2.2 The time-scales of conceptual metaphors

As the contributors to this volume point out, it is not enough to introduce social and cultural dynamics among the pre-linguistic experiential structures that motivate conceptual metaphors. Extensive analyses of the use of conceptual metaphors in context by Brandt, Deignan and Cameron, and Evans show that conceptual metaphors are like a bundle of conditions to be enacted locally in a context continuously reshaped by that context. Similarly, Faur, Pawelec, and Steen highlight how conceptual metaphor use in context tends to be much more creative than CMT's original formulation would lead one to think, involving both deliberate thought and creative effort. These flexible, dynamic aspects of conceptual metaphor do not solely concern superficial contextual use of such metaphor; they force one to reconceive the very stability of conceptual metaphor. Allan and Mouton adopt an historical perspective to observe how metaphorical conceptual formations and their linguistic expressions – far from being fixed patterns – are born, evolve, and die. Together, these findings fully bring CMT into a dynamic perspective on cognition, where experiential patterns constitute slowly evolving constraints for fast evolving, ongoing, context-sensitive cognitive processes (Dale *et al.* 2013; Fusaroli, Bahrami, Olsen, Rees, Frith, Roepstorff & Tylén 2012; Larsen-Freeman & Cameron 2008; Spivey 2007; Tylén *et al.* 2013).

2.3 Empirical and experimental research on conceptual metaphors

Gibbs (*this volume*) offers a useful analysis of many critiques to which CMT has been exposed. Among his suggestions is that CMT research should become more empirical, explicitly putting its assumptions and positions to the test. The Pragglejazz method (Pragglejazz Group 2007) offers a

welcome development in this direction, aimed at establishing explicit criteria for identifying metaphors. Explicit criteria and reproducibility of analysis are ever more crucial as CMT is increasingly applied to large corpora and non-verbal domains: e.g., gesture (Cienki *this volume*), visual artifacts (Nino & Serventi *this volume*), and even tango dancing (Kimmel 2012). These analyses support a nuanced version of CMT where conceptual metaphors are but one motivation for linguistic behavior such that they consist of dynamically evolving conceptual patterns shaped by cultural practices and contexts.

Meanwhile, experimental research is confirming basic intuitions of CMT while likewise highlighting the need for a more nuanced perspective. Gibbs' pioneering empirical work (Gibbs 1994, 2000, 2003; Gibbs & Cameron 2008; Gibbs & Colston 1995; Gibbs & Tendahl 2006) was quickly followed by e.g. (Boroditsky 2001; Boroditsky & Ramscar 2002; Casasanto 2009a/b; Casasanto & Jasmin 2010; Gibbs 2008; Gibbs & Matlock 1999; Glenberg & Kaschak 2002; Matlock *et al.* 2003, 2005; Thibodeau & Durgin 2008; Torralbo *et al.* 2006). These studies provides extended evidence that people understand certain domains in terms of other domains in a way that runs deeper than language: e.g., cumulative psycholinguistic, gesture and low-level psychophysical tests have persuasively established that people talk and think about time in terms of space and motion, but not *vice versa*.

At the same time, they add new dimensions to the understanding of conceptual metaphor. They suggest that people do not simply think about time in terms of space, but that different linguistic profiling of such projections – e.g., space as one dimensional (linear) as opposed to three dimensional – strongly impacts the way they think about time. In other words, the linguistic expression of conceptual metaphors feeds back on those metaphors (Casasanto 2009b). Other experiments bring into question the strength of metaphorical conceptual mapping (e.g., Chen 2007) – even showing behaviour that is at odds with the underlying metaphors (Casasanto 2008a/b, Casasanto & Boroditsky 2008). Far from denigrating the importance of CMT, collectively these studies question the possibility of understanding conceptual metaphors simply by analyzing linguistic patterns. They call for more extensive integration of CMT into a complex framework of social and cognitive dynamics.

2.4 Between metaphors, semiotics and cognition

CMT displays an interesting trajectory within the general epistemological development of cognitive science as it moves from cognitivism to connectionism and embodiment to embracing a fully dynamic, socially-situated perspective on cognitive processes (Fusaroli & Paolucci 2011, Menary 2010b). CMT was born from the attempt to move beyond a traditional, strongly representationalist form of cognitivism to embrace connectionist ideas of neural networks structured by bottom-up perceptual learning (Guignard 2011, Rastier 2011). The idea of an innate, universal generative grammar (Hauser *et al.* 2002) was replaced by pre-representational sensorimotor image schemas dependent on contingencies of the human body (Hampe 2005, Johnson 1987). This led to an initial

emphasis on universal (or quasi-universal) conceptual structures: i.e., roughly invariant across individuals sharing common bodily and environmental structures. This gave rise to notions such as *primary metaphor*, *scheme*, *frame*, and *prototype*, deeply motivated by structures of the individual body: the primary source of all experience (Ziemke *et al.* 2007, Zlatev 2007).

Many of the papers in this issue question both the stability and universality of embodied experience and its expression in image schemas and conceptual metaphors. Already from the cradle, human experience is deeply social: shaped by cultural traditions (Reddy 2008, Sinha 2009, Zlatev 2008). The bottom-up learning principles of connectionism do not discriminate between bodily, environmental, and social invariants (Clark 1997, 2008). It is not surprising that conceptual metaphors vary across time and culture, motivated by different experiential invariants. Many of these papers highlight the creative epistemic use of metaphors. By expressing conceptual metaphors, exploring their consequences, recombining them, and modifying them, one increases one's knowledge, shapes new behaviours, and changes the cognitive environment in which cognitive processes take place. Far from just being the expression of a physically reductionist, solipsistic embodied experience, conceptual metaphors become resources, which are evolved and deployed in a distributed cognitive arena.

These new – albeit still tentative – developments in CMT resonate strongly with dynamic, extended, distributed, and enactive perspectives in cognitive science (Alac 2011; Chemero 2009; Clark 1997, 2008; Hutchins 1995, 2005; Maturana & Varela 1980, 1987; Menary 2010a; Noë 2002, 2004, 2009, 2012; O'Regan & Noë 2001; Spivey 2007). The individual is recast as a permeable cognitive system coupled from the start with its environment and with individual and cultural practices. Conceptual metaphors are recast as dynamic invariants of these distributed systems (Raczaszek-Leonardi and Kelso 2008): statistical constraints to experience and thought interacting with other cognitive structures liable to be used as resources and to slowly evolve over time. The contributions to this issue provide ample and varied insight to proceed further on an exciting direction for CMT and cognitive science.

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