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Are Cross-Domain Mappings Psychologically Deep, but Conceptually Shallow? What is Still Left to Test for Conceptual Metaphor Theory

This article assesses two objections directed at Conceptual Metaphor Theory: (1) it is circular in that it only provides linguistic evidence for the psychological reality of cross-domain mappings, intended to explain the empirical reality of metaphorical expressions in language; (2) it does not support the conclusion that the massive existence of metaphorical expressions in language reflects the metaphorical structuring of abstract concepts. It is my aim to disentangle these objections. Evidence abounds that makes the first objection obsolete, proving the psychological reality of cross-domain mappings. However, this does not imply that abstract concepts are metaphorically structured: experiments that prove objection (1) wrong cannot be invoked to reject objection (2). Some even tend to justify it.

Keywords: Conceptual Metaphor Theory, cross-domain mappings, metaphorically structured concepts.

Traditionally, George Lakoff and Mark Johnson’s conceptual metaphor theory has met with two general objections.

First, even though it rests critically on the psychological reality of metaphorical mappings and, thus, the metaphorical structuring of countless concepts, it does not provide any – i.e. any non-linguistic – evidence for its claim to this effect. Hence the well-known rejection via its alleged circularity: the metaphorical nature of the mind is employed to explain the massive and systematic existence of metaphorical expressions in language; in turn, the latter are used as evidence for the psychological reality of metaphorical cross-domain mappings (Murphy 1996, 1997).

Next – following from the first objection –that people happen to talk in metaphorical terms about such and such does not imply that they actually think metaphorically or in any significant way construct their concepts of, say, ‘death’, ‘love’, ‘argument’, or ‘affection’ metaphorically. When they talk about ‘love’ in terms of ‘departure’ or ‘affection’ in terms of ‘warmth’, it may simply be a conventional manner of speaking (Murphy 1996, 1997; Keysar et al. 2000)

The simple point I would like to make in this paper is that, whereas the first objection has been proven obsolete, the second still raises intriguing questions – even though it seems to follow from the first. In my view, thirty plus years after its birth, CMT should rest its case regarding the first objection and consider giving way on the second. Let me briefly develop this.
1. THE PSYCHOLOGICAL REALITY OF CROSS-DOMAIN MAPPINGS

Since 2000, Lera Boroditsky and Daniel Casasanto (Boroditsky 2000, Boroditsky & Ramscar 2002, Casasanto 2009, Casasanto & Boroditsky 2008, Casasanto et al. 2010, Gentner & Boroditsky 2002, Matlock et al. 2004, Merritt et al. 2010) have conducted a series of experiments with a view to testing the psychological reality of cross-domain mappings. In her 2000 paper, Boroditsky establishes that spatial primes significantly affect individuals’ reasoning about time: people’s answers to the ambiguous target question ‘next Wednesday’s meeting has been moved forward two days. When will it be held?’ are contingent on the spatial schema with which they are primed. Primed with an ego-moving spatial schema, more than 70% of all subjects in these studies chose the corresponding ego-moving temporal schema and thought the meeting would be held on Friday – vice versa for priming with an object-moving and corresponding time-moving schema.

In the same vein, Casasanto, and colleagues (Casasanto, Fotakopoulou and Boroditsky 2010; see also Merritt et al. 2010) have established the influence of spatial representations on judgments about temporal phenomena: people are shown lines of different lengths and durations on a computer screen and asked to assess either their length or duration. It turns out that the spatial extension of the line affects the assessment of its duration, whereas the inverse is not the case: increased duration does not influence judgment of the figure’s spatial extent.

Results like these – and many others referenced above – are obviously predictable within conceptual metaphor theory, which claims that the (abstract) domain of time is systematically structured by schemata and relations imported from the (far more concrete) domain of space. Since the concept of time, by and large, has been organized by spatial structure, it comes as no surprise that temporal reasoning is systematically affected by spatial primes or co-occurring spatial representations. Two things are important here. First, the evidence that Boroditsky and Casasanto provide for the psychological reality of cross-domain mappings from space to time is non-linguistic: primes affect reasoning or judgment about time; the effect does not simply surface in linguistic expressions about such matters. The critics of CMT (e.g. McGlone 2007), who relentlessly demand that CMT be supported by non-linguistic evidence, are well answered: purely perceived – or represented – spatial schemata or properties affect reasoning or judgment about time.

Now – and this is the second point – it is one thing that people’s concept of time is associated with their concept of space – important parts of its structure have been mapped from the spatial domain – and that this correlation can be systematically attested. It is quite another whether their concept of time is spatial through and through: that is to say, whether on-line processing of temporal relations requires new activation of the spatial domain and conceptual mappings from that domain onto the temporal domain. An alternative hypothesis would be to hold what Boroditsky (2000) – after Murphy (1996) – calls the weak-structuring view, according to which temporal structure is clearly spatial in its origin but has become entrenched and inherent in the temporal domain, so that metaphorical mappings need not be re-executed each time one ponders temporal relations like, say,
‘does X come before Y?’ or ‘how far is Christmas behind us?’ From an orthodox CMT view – or the strong-structuring view – mappings are indeed made afresh, so that understanding conventionalized expressions like ‘she’s a warm person’, ‘I feel low’, or ‘we are approaching the deadline’ rests on actual conceptual cross-domain mappings. This is what made Lakoff and Johnson – in their somewhat lyrical days – consider metaphor as something like a cognitive sense. Just as people redo their perceptual structuring every time they interact visually with the world, they redo the cross-domain mappings every time they conceptualize their experiences of the world:

It is as though the ability to comprehend experience through metaphor were a sense, like seeing or touching or hearing with metaphors providing the only ways to perceive and experience much of the world. Metaphor is much a part of our functioning as our sense of touch, and as precious (Lakoff and Johnson 1980: 239).

One of the important upshots of Boroditsky’s experiments is that, even though one can prove the psychological reality of conceptual mappings, this does not imply that abstract concepts are metaphorical through and through; one’s concept of time may well recruit spatial structure, but it can still be accessed without actual import of spatial schemata. In short, its inherent structure is not necessarily reducible to its spatial origin. Boroditsky (2000) has, indeed, put these alternatives to the test. If – she claims – the strong-structuring view is right, and conceptual mappings continuously underpin one’s processing of an abstract concept like time, then the conceptual structure of ‘time’ is co-extensive with the conceptual structure of ‘space’. Since spatial structure is both in the spatial and temporal domain, one can predict that temporal primes – involving originally spatial schemata – should affect spatial reasoning to the same extent that spatial primes are shown to affect temporal reasoning. If, on the other hand, the weak-structuring view is right, then the conceptual structure of ‘time’ has been conventionalized and become autonomous; therefore, it can be accessed independently of its spatial origin. In that case, temporal primes do not affect spatial reasoning. Boroditsky’s results support the latter view – and, thus, seem to falsify the strong-structuring view.

In a sense, these findings bring one full circle: it may, indeed, be that a wealth of conventionalized metaphorical expressions – allegedly riding on a restricted number of conceptual metaphors – just are ways of using language to refer to certain concepts, as critics of CMT have been claiming these last almost thirty years. Let me give a couple of reasons why this may be so, and why this does not affect the cognitive reality of conceptual mappings.

If the lexical fields of temperature and degrees of affection are correlated, is that – in correspondence with Christopher Johnson’s conflation hypothesis (Johnson 1997, Grady 2005, Lakoff & Johnson 1999) – due to systematic co-occurrence of feelings of physical warmth and feelings of affection in earliest infancy, or is it because this is the way people talk about affective (or uncaring) people? In other words, are these mappings conceptually deep, or is this the kind of thing children hear: the plain use of language and the lexical associations they get accustomed to and therefore reproduce? In short, does one reconstruct cross-domain mappings from scratch: call that the ontogeny hypothesis of conceptual metaphor; or does one take on the tools that the linguistic community offers,
to get a communicative grip on things like affection, death, love, quantity, and so on: call that the linguistic phylogeny hypothesis of conventionalized metaphors? As Raymond Gibbs (2013, *this volume*) rightly remarks, the alternative linguistic hypothesis is not an argument in and of itself so long as the right experimental devices have not been designed to test it. However, this also goes for the more complex conflation hypothesis, which claims that one does not simply (or only?) acquire these systematic ways of expressing oneself by interacting with a linguistic community and its systematic ways of expressing itself; rather, one does so on the grounds of a systematic set of experiences and the ensuing cross-domain mappings laid down in earliest childhood. To my knowledge, this hypothesis has never been tested.

What *would* corroborate the linguistic phylogeny hypothesis? Two sets of empirical evidence could be used to drive home its claims. The first, interestingly, again confirms the psychological reality of cross-domain mappings. In a series of experiments, Casasanto (2009a/b; Casasanto & Boroditsky 2008; ) has proven that specific properties of the body – in this case, being right- or left-handed – and the consequently different ways of interacting with immediate objects in egocentric space affect judgment of positive and negative value. Right-handers tend to assign positive value to elements in the rightmost part of their surrounding space – inversely for left-handers. These correlations seem to rest on what Casasanto considers a conceptual metaphor: ‘Dominant Side is Good’ (Casasanto 2009b: 358). Now, first, this metaphor – one can call it so for sake of argument – cannot be explained in terms of linguistic exposure, because expressions and idioms in English systematically correlate good with ‘right’. In other words, one has a systematically attested correlation or cross-domain mapping between space associated to dominant side and preference, and the evidence is clearly not linguistic. On the other hand, the experiments also show that left-handers pick up and use available, shallow, conventional metaphorical expressions associating ‘right’ and ‘good’, independently of the deep conceptual metaphor ‘Dominant Side Is Good’ that governs their non-linguistic reasoning. In this case, it would not make much sense to claim that the use of metaphorical expressions or idioms involving ‘right’ elicit fresh conceptual mappings between space and value.

2. To what extent are concepts metaphorically structured?

Findings such as these – along with those Boroditsky has provided – seem to have consequences for one of CMT’s main claims to fame: namely, that abstract concepts are, by and large, structured by metaphorical mappings. If Boroditsky is right in saying that people have autonomous access to the conceptual structure of ‘time’, then structure from the spatial domain does not – or does no longer – inform the concept of time, even though it affects reasoning about time. Similarly, the mappings attested in Casasanto’s 2009b paper do not reveal anything about the structure of the concept ‘good’ in and of itself, but rather something about preferences and their correlations with the dominant side of egocentric space. ‘Dominant Side is Good’ explains why people favor certain things relative to their location in space, not what they know or think about goodness. Exactly the same kind of
argument could be advanced with regard to another of Casasanto’s experiments (2009a), which attests
the existence of cross-domain mappings between space (‘proximity’) and similarity. Casasanto shows
that subjects considering the similarity between pairs of abstract concepts such as ‘faith’, ‘hope’,
‘love’, ‘trust’, ‘justice’, and so on are influenced by the spatial distance between the words
representing them on a computer screen: the closer they are, the more similar they are considered to
be. Again: if this attests the existence of systematic cross-domain mappings between ‘similarity’ and
‘space’, this is not – in and of itself – evidence for the existence of a conceptual metaphor ‘Similarity
is Proximity’ (that is, for the existence of a concept of similarity structured in terms of spatial
proximity). The mappings driving the judgments of similarity may simply derive from a heuristic: ‘all
other things being equal, things close to each other tend to be alike’. The heuristic is reinforced both
by language and plain experience: items that cluster tend to look alike; but it need not inform one’s
concept of similarity. Rules of thumb are not concepts.

Two things should be said about this. The first concerns the origin and motivation of a systematic
set of metaphorical expressions. The second concerns the difference – famously championed by
Wittgenstein – between knowing something and saying what it is.

2.1 Origin and efficiency

As suggested above, concepts may originally be structured by means of cross-domain mappings
without the mappings being in play when people – from some point in time forward – access those
concepts. This is what Bowdle and Gentner (2005) dub The Career of Metaphor hypothesis. There
may be good experiential reasons for expressions that elaborate on the ‘Affection Is Warmth’
metaphor to come about: after all, it is ‘cooler’ to feel warm than the contrary. The same goes for the
whole paraphernalia of expressions related to conceptual metaphors such as ‘Up Is Good’ and ‘Up Is
More’. CMT may be a very good theory about how and why systematic sets of expressions emerge,
and the degrees to which their structure is relative to the embodied nature of human cognition. No
other theory on the market is capable of explaining key features of such sets: first and foremost, their
asymmetry. That does not make it a theory of actual conceptual structure or an accurate account of the
cognitive processes involved in accessing conceptual structure.

2.2 Knowing \( X \), saying \( X \)

The simple idea is that one may have systematic ways of talking about something that do not reflect
one’s concept of the thing, but simply serve as a means to referring to the thing and one’s concept of
it. Imagine that depression is a state that is different from sorrow or other sorts of mal de vivre and
that the word ‘depression’ specifically refers to that state, just as the words ‘joy’ or ‘love’ refer to
other states. In what sense should the metaphorical origins of the word inform or reflect one’s
knowledge about the state? A simple – or simpler – claim would be that, when one uses that word,
one refers to one’s own knowledge, and the lay knowledge of one’s linguistic community, about what
characterizes the states one designates with that name – just as one does when one says that someone ‘feels down these days’ or ‘has a warm smile’. This seems to be corroborated by the data from Gabriela Sauciuc’s (2013, this volume) study, where subjects from six countries were given a free-listing task. They were asked to mention as many examples of the superordinate category ‘emotion’ as they could within two minutes; subsequently, they were asked to select the three exemplars from their list that best represent the category, then select the one exemplar that best represents the category. Finally, in a reasoning task, they were asked to motivate their choice of best exemplar. The concept of emotion in CMT is something like the paragon of an abstract domain that is claimed to be almost fully structured by metaphors: ‘emotion concepts emerge from metaphors’ (Kövecses 1990: 4; quoted by Sauciuc, this volume). Therefore, it is interesting to establish to what degree subjects resort to metaphorical expressions while talking and reasoning about emotion. Only 3.7% of Sauciuc’s data rests on conceptual metaphor – 8.2% if one includes expressions that have been coded as debatably metaphorical. These results are astonishing from the point of view of CMT: the conceptual grip people have on emotion is supposed to be, by and large, conveyed by metaphor. Arguably, the correct conclusion is that the degree to which metaphors structure one’s concept of emotions is clearly overstated. People’s lay concepts of emotion are, as Sauciuc’s study shows, structured beyond any atomistic definition of what emotion is per se – which is, of course, difficult to say and may, therefore, trigger metaphorical conceptualizations. These concepts integrate prototypical representations of situations that may elicit one or another emotion, along with the actors and interactions involved; the physical, behavioral, and mental effects such emotions have; and so on: all sorts of things and features directly accessed – and readily communicable – as one’s stock knowledge of what a given emotion is. It is against the backdrop of this knowledge and conceptual structure that one may say that expressions resting on conceptual mappings – from, say, the temperature domain to the domain of affection – are ways of speaking that do not reflect the structure of one’s concepts.

3. Concluding remarks

My claim is that the question of the psychological reality of cross-domain mappings should be disentangled from the question of how one’s concepts are structured. It seems as if CMT has inferred from the existence of a pervasive type of processing – cross-domain mapping – and from systematic mappings between domains to the conclusion that the concepts evoked by such domains are metaphorically structured. This does not followWhat was the case for the metaphorical structure hypothesis also holds true for the cross-domain mapping hypothesis: both are empirical claims that cannot be corroborated by simple linguistic expressions. Those expressions reveal something about the way people speak but not how their concepts are structured. Sauciuc’s findings suggest that emotion concepts, at least, are not metaphorically structured. A major challenge for CMT is to put one of its main hypotheses to the test and show whether Sauciuc’s findings are confined to the emotion domain – or whether metaphors, rather than being principles for the organization of abstract contents,
are best considered communicative devices that help people say better what they already know their concepts are about.

REFERENCES


