COMMENT

Wringing the Perceptual Rags: Reply to IJzerman and Koole (2011)

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We (Landau, Meier, & Keefer, 2010) reviewed a growing body of research demonstrating metaphors' far-reaching influence on social information processing. In their commentary, IJzerman and Koole (2011) claimed that we devoted insufficient attention to the origin of metaphors, and they reviewed research showing that bodily, social, and cultural experiences constrain metaphor development. Given the focus of our article and the tone of our admittedly cursory treatment of metaphors' origins, we view IJzerman and Koole's commentary less as a critique and more as a valuable extension of our analysis. We elaborate on this extension and address three related issues raised in the comment: metaphors and representational format, the explanatory value of a metaphor-enriched perspective over the embodied cognition perspective, and the direction of metaphoric mappings between concrete and abstract concepts.

Keywords: conceptual metaphor, embodied cognition, social cognition, representational format

In our review of metaphor research in social psychology (Landau, Meier, & Keefer, 2010), we argued that metaphor is an important part of the conceptual system that people use to make sense of the social world. More specifically, we claimed that because many concepts that are central to social life are inherently abstract and difficult to grasp, people routinely rely on metaphors to understand (and not just talk about) those concepts in terms of semantically remote concepts that are more concrete and relatively easier to comprehend. This metaphor-enriched perspective on social cognition was intended to complement the traditional view, which holds that people make sense of a given social stimulus using schematic knowledge of similar stimuli.

In their comment, IJzerman and Koole (2011) agreed that it is important to consider how metaphors influence social cognition, but they contend that we devoted too little attention to the origin of social–cognitive metaphors, particularly the ways in which metaphor development is constrained by bodily, social, and cultural experiences. We wrote the target article with a concentration on how metaphors influence social information processing, not on how they originate. However, we did stress that the origin of metaphors is an important topic that warrants serious empirical study; furthermore, whenever we speculated on the factors that constrain metaphor development, we relied on the very same theoretical stance indicated in IJzerman and Koole's comment. Therefore, we view the research on metaphor constraints reviewed in the comment to be a valuable extension of our analysis that complements, rather than challenges, our efforts to highlight met-

aphor's important role in shaping social thought and attitudes. Before elaborating on this point, we address three related issues raised in the comment.

Metaphors and Representational Format

IJzerman and Koole (2011) accurately characterized our depiction of metaphor as exerting a top-down influence on social information processing. Whereas the mainstream schema view holds that people process information about a social stimulus using their knowledge of similar stimuli, we proposed that they also rely on their knowledge of dissimilar concepts and experiences that have an analogous structure. From there, IJzerman and Koole (2011) made an additional move: "[Landau et al. claimed that] metaphoric knowledge is derived from source concepts that 'represent commonplace, schematic knowledge about the attributes of familiar referents and the relations among those attributes' (p. 1046). Thus, conceptual metaphors are assumed to operate in the same manner *and use the same representational format as traditional schemas* [emphasis added] even if metaphors represent a case in which the properties of the 'schema' are borrowed from a semantically unrelated domain" (p. 363).

Here IJzerman and Koole (2011) characterized us as assuming that source concepts (the concrete concepts used to make sense of more abstract concepts) are represented in memory in an abstract format, dissociated from the brain's modal systems for sensations, motor action, and so forth. However, our analysis carries no such assumption. Indeed, the very next clause of our quoted sentence above is as follows: "derived from routine interactions with the physical and social world" (Landau et al., 2010, p. 1046). We believe it is quite likely that many source concepts are represented in modality-specific formats. We merely add that bodily experiences are more than isolated tingles and gesticulations: People also have structured knowledge about how their bodily states and actions relate to each other and to the world, or what Lakoff and Johnson (1980) called "experiential gestalts" (p. 70). Moreover,

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we claim that it is through the mechanism of metaphor that people can apply that structured knowledge to conceptualize analogous properties of dissimilar, relatively more abstract concepts.

To illustrate, we note that people have commonplace, structured knowledge about gripping objects. They know, for instance, that an object can fall away if one's grip on it is too loose. Through metaphor, people can apply that knowledge to understand the act of comprehension itself ("If I don't get a better *grasp* on quantum physics, it will *slip away* completely"). Notice that nowhere in this account is it assumed that knowledge about gripping is represented amodally. In short, nothing precludes a concept from being represented modally while at the same time possessing a structure that, by means of metaphor, constrains processing of a dissimilar concept in a top-down manner.

We hasten to point out, however, that metaphors can involve source concepts that are likely to be represented in abstract format. For example, an adolescent might conceptualize being in trouble with his parents using his semantic knowledge about courtroom proceedings ("Dad *reached a verdict* and *issued a sentence* before I could *argue my case*"). Thus, a metaphor-enriched perspective explains how people use structured knowledge of bodily states *and* abstract concepts to process information about semantically remote concepts.

Embodied Cognition as a Rival Account?

IJzerman and Koole (2011) proceeded to argue that the embodied cognition perspective (e.g., Barsalou, 2008; Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005) offers a compelling and parsimonious account of the findings we reviewed without the need to consider metaphor as a unique mechanism underlying social cognition (contrasting somewhat with their earlier acknowledgement of metaphor's significance). Briefly, the embodied cognition perspective posits that when people process information about a concept they simulate, or re-enact, the bodily states that are derived from prior experiences with category members corresponding to that concept. In the target article, we argued that the embodied cognition perspective explains the link between conceptual processing and representations of bodily states in cases where those bodily states are likely to occur regularly during interactions with concept-relevant stimuli (e.g., thinking about the concept of happiness simulates the facial muscular activity that typically attends spontaneous expressions of happiness; Niedenthal, Winkielman, Mondillon, & Vermeulen, 2009).

Overlooking metaphor would be a mistake for at least two reasons. First, we note the obvious point that, without considering metaphor, we and IJzerman and Koole (2011) would be unaware of the many social concepts that are constrained by bodily states (e.g., *agreeableness* and *physical warmth*, *morality* and *cleanliness*, *power* and *verticality*). Second, and more importantly, many of our reviewed findings showed that manipulating bodily states has metaphor-consistent effects on the processing of an abstract concept even when those bodily states are unlikely to be part of the recurring experiences associated with that concept.

In the target article, we illustrated this point using a study by Williams and Bargh (2008) on the link between spatial distance and emotional intimacy. Briefly, participants in that study who drew dots far apart (vs. close together) on a two-dimensional grid perceived a weaker emotional bond with their family members.

We have no doubt that people's concept of emotional distance is rich with representations of bodily states that occur regularly during interpersonal encounters; we suspect, however, that drawing dots on graph paper is not likely to be one of them. Thus, although it is difficult to interpret this finding as the simulation of a recurring bodily state, it makes perfect sense if we posit a conceptual metaphor between the embodied concept of spatial distance and the abstract concept of emotional intimacy.

More broadly, we do not view the embodied cognition perspective and the metaphor-enriched perspective as mutually exclusive. Both theories emphasize that processing abstract concepts can involve representations of bodily states and actions, but they offer distinct accounts of how those embodied representations are used. For the embodied cognition perspective, they are included as part of a given concept, whereas for the metaphor-enriched perspective they serve as analogs for understanding other, dissimilar concepts. As a result, embodied simulations and metaphors can have distinct influences on social information processing. Ultimately we stand by our statement in the target article that "there is good reason to believe that processing an abstract concept can involve both the simulation of bodily states related to that concept and metaphoric mappings between that concept and concepts derived from embodied experience" (p. 1054).

Can Metaphors Map Structure in the Direction of Abstract to Concrete Concepts?

Classical perspectives on metaphor (Lakoff & Johnson, 1980) posit that metaphors map structure directionally from a concrete concept to a relatively more abstract concept. For example, knowledge about darkness can structure one's understanding of depression, but knowledge of depression is not conventionally used to structure one's understanding of darkness. Most of the findings we reviewed support this proposed mapping direction by showing that manipulating a concrete concept influences how people think about a relatively more abstract concept. IJzerman and Koole (2011) argued that this perspective is challenged by findings showing that similar effects can occur in the opposite direction. We raised this very issue in the target article (see Footnote 1), and we agree that it presents a difficult problem for the traditional characterization of conceptual metaphor.

IJzerman and Koole (2011) proceeded to argue that the embodied cognition perspective can more readily accommodate these findings. We are not yet convinced of this point. Consider Zhong and Leonardelli's (2008) finding that contemplating social exclusion (vs. acceptance) decreases perceived room temperature. This finding undoubtedly demonstrates a mental link between an abstract concept and bodily sensations. We urge caution, however, before concluding that this thereby brings the finding under the explanatory aegis of the embodied cognition perspective. The important question to keep in mind is, What accounts for this systematic link?

The embodied cognition perspective suggests that for participants in this study, cold sensations were regularly correlated with past experiences of social exclusion and were therefore simulated when an episode of exclusion was brought to mind. How likely is it, however, that common experiences of social exclusion, such as having one's viewpoints criticized by members of one's group, regularly involve cold sensations? We can speculate about a few

such instances, such as being kicked out of the bowling club into the cold night air, but would these correlations be regular and salient enough for the majority of participants to account for this finding as the result of embodied simulation?

Obviously we cannot rule out this possibility without additional research. Our point is simply that the metaphor perspective presents a viable alternative account according to which a metaphor between the embodied concept of warm–cold and the abstract concept of inclusion–exclusion allows people to think and talk about events and experiences that are not necessarily directly tied to temperature sensations (e.g., "I got a *chilly* reception at the conference when I dared critique the embodied cognition perspective"; "My friends are starting to *warm up* to her").

Nevertheless, IJzerman and Koole (2011) correctly pointed out that the issue of mapping direction challenges accepted views of conceptual metaphor. For them, the solution seems to lie in abandoning consideration of metaphor, whereas we hold out the hope that future research can resolve this issue while preserving the benefits of a metaphor-enriched perspective on social cognition.

Scaffolding

Where do social–cognitive metaphors come from? IJzerman and Koole (2011) characterized us as portraying individuals as constructing idiosyncratic metaphors by means of "creative leaps." We believe this characterization reflects a serious misinterpretation of our words. We trust that readers will plainly see that our target article neither stated nor implied that idiosyncratic creative leaps are the primary source of common metaphors. Rather, our discussion of creativity (located prior to the Conclusion; Landau et al., 2010, p. 1062) focused specifically on how metaphors are occasionally used to make novel discoveries in the context of artistic and scientific activity. We described this type of metaphor use as a special case that is continuous with, but meaningfully distinct from, metaphor use in everyday social thought.

In fact, whenever we speculated on the origins of metaphor we relied on the very same scaffolding theories that IJzerman and Koole (2011) have advocated. Briefly, scaffolding theories posit that developmentally early, nonmetaphoric associations between social experiences and interactions with the physical world form the basis for metaphoric conceptions of those experiences later in development (see Williams, Huang, & Bargh, 2009). Accordingly, when we speculated about the origin of metaphors of physical distance (e.g., "I think I'm *moving away* from jazz these days"), we said the following:

> In their normal interactions with the physical world, people tend to approach desired objects and pull them toward the self, whereas they distance themselves from undesirable objects or push them away from the self . . . . people use knowledge of these physical interactions to conceptualize positive valence as toward/close and negative valence as away/distant, even with relation to abstract concepts that do not literally exist in space. (Landau et al., 2010, p. 1049)

Indeed, perhaps the best way we can reply to IJzerman and Koole's (2011) critique that we did not sufficiently emphasize the importance of scaffolding in constraining metaphor development is to beg the reader's patience and further quote the target article:

> Theories of scaffolding stand to offer novel insights into the developmental origins of the schemas and metaphors that people use in

social information processing. These insights could augment mainstream social cognitive perspectives, which broadly characterize schemas as the cumulative product of personal experiences and socialization influences without due consideration of the specific details of this process. A metaphor-enriched perspective is highly compatible with a scaffolding view in offering a window into how people's internal bodily states and routine interactions with the physical world constrain their creation of social meaning. Future research should combine these perspectives to conduct a focused study of the developmental origins of certain patterns in social thought and attitudes. (Landau et al., 2010, p. 1062)

Given our sentiment at the close of this quote, we greatly appreciate IJzerman and Koole's (2011) stimulating review of empirical findings demonstrating the diverse bodily, social, and cultural factors that constrain metaphor development and use. This is precisely the type of work that we had in mind but that fell outside the scope of our target article, which once again focused on highlighting metaphors' far-reaching influence on social information processing.

Despite our agreement with IJzerman and Koole (2011) that scaffolding is an excellent candidate for a theory of the origins of metaphor, we want to close by pointing out that a great deal of work remains to be done before this theory comes to maturity. Briefly, scaffolding is not merely embodied cognition; by definition, it involves some additional process whereby bodily and social experiences are used to construct a higher level representation – in this case, a metaphoric understanding of an abstract concept.

Consider, for example, the notion that people's experiences with cleanliness and their disgust reactions to filth form the cognitive basis for the otherwise abstract concept of moral purity (Rozin, Haidt, & McCauley, 2000). A scaffolding view would posit that at some point in the individual's cognitive development, a nonmetaphoric association between filth and disgust acquires a secondary, symbolic significance— that is, it becomes partially detached from direct embodied experience—and in this way enables the person to express his or her disgust toward a range of stimuli that are not physically filthy (e.g., cheating on a test, not returning a found wallet, looking at pornography). In our target article, we reviewed findings that are consistent with this ontogenetic story in that they show that filth experiences produce metaphor-consistent effects on moral judgments (e.g., Schnall, Haidt, Clore, & Jordan, 2008), but to our knowledge no research lays bare the process by which this metaphor is built on the scaffolding of bodily experiences.

In sum, IJzerman and Koole (2011) have gone a long way to help build a useful theory of metaphors' origins by surveying research on the diverse "perceptual rags" that constrain people's representations of abstract concepts. The challenge for future research is to explicate the process by which those perceptual rags are transformed into metaphorical riches.

References

Barsalou, L. W. (2008). Grounded cognition. *Annual Review of Psychology, 59,* 617–645. doi:10.1146/annurev.psych.59.103006.093639

IJzerman, H., & Koole, S. L. (2011). From perceptual rags to metaphoric riches—Bodily, social, and cultural constraints on sociocognitive metaphors: Comment on Landau, Meier, and Keefer (2010). *Psychological Bulletin, 137,* 362–365. doi:10.1037/a0022373

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by.* Chicago, IL: University of Chicago Press.

Landau, M. J., Meier, B. P., & Keefer, L. A. (2010). A metaphor-enriched

social cognition. *Psychological Bulletin, 136,* 1045–1067. doi:10.1037/a0020970

Niedenthal, P. M., Barsalou, L. W., Winkielman, P., Krauth-Gruber, S., & Ric, F. (2005). Embodiment in attitudes, social perception, and emotion. *Personality and Social Psychology Review, 9,* 184–211. doi:10.1207/s15327957pspr0903_1

Niedenthal, P. M., Winkielman, P., Mondillon, L., & Vermeulen, N. (2009). Embodiment of emotion concepts. *Journal of Personality and Social Psychology, 96,* 1120–1136. doi:10.1037/a0015574

Rozin, P., Haidt, J., & McCauley, C. R. (2000). Disgust. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (2nd ed., pp. 637–653). New York: Guilford Press.

Schnall, S., Haidt, J., Clore, G. L., & Jordan, A. H. (2008). Disgust as an embodied moral agent. *Personality and Social Psychology Bulletin, 34,* 1096–1109. doi:10.1177/0146167208317771

Williams, L. E., & Bargh, J. A. (2008). Keeping one's distance: The influence of spatial distance cues on affect and evaluation. *Psychological Science, 19,* 302–308. doi:10.1111/j.14679280.2008.02084.x

Williams, L. E., Huang, J. Y., & Bargh, J. A. (2009). The scaffolded mind: Higher mental processes are grounded in early experience of the physical world. *European Journal of Social Psychology, 39,* 1257–1267. doi:10.1002/ejsp.665

Zhong, C., & Leonardelli, G. J. (2008). Cold and lonely: Does social exclusion feel literally cold? *Psychological Science, 19,* 838–842. doi:10.1111/j.1467-9280.2008.02165.x

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