The Embodied Mind: Perspectives and Limitations

27-28 October 2010, Nijmegen, NL

Poster Abstracts

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Radboud University
Nijmegen

The Embodied Mind: Perspectives and Limitations, 27-28 October 2010

Location
Aula of the Radboud University Nijmegen, Comeniuslaan 2, Nijmegen

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Sponsors
Koninklijke Nederlandse Akademie van Wetenschappen
Donders Institute for Brain, Cognition and Behaviour

it, but when clear preference exists, the balance shift should be slower and/or less extreme. We investigated whether the strength of a person's opinion about an ethical statement influences the implicit bodily response towards that statement.

Twenty-one undergraduate psychology students indicated whether they agreed or disagreed with 65 ethical statements, which differed with regard to the extent to which people agree with them, according to a norming study. Subjects read the statements while standing on the Wii Balance Board and responded by shifting their body slightly to the right or the left depending on whether they agreed or disagreed with the statement (with direction counterbalanced across subjects). Next, subjects indicated for the same 65 statements whether they agreed or disagreed with the statements, and also indicated the strength of their (dis)agreement (on a 5 point scale).

Results reveal a surprisingly strong correlation between the degree of agreement (r = .89) and disagreement (r = .82) and the size of the balance shift. Thus, the extent to which people agree with a statement affects the strength of their balance shift, even though this is task-irrelevant, and not an artifact of response time. Our current analyses focus on characteristics of the response path that indicate competition between the two response alternatives and that provide further insight in the link between opinion strength and body balance.

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Task-dependency in the activation of visual representations during language comprehension. Rommers, J., Huettig, F. & Meyer, A. S. Max Planck Institute for Psycholinguistics, Nijmegen (joost.rommers@mpi.nl)

Vision has been argued to interact with language so strongly that conceptual processing during language comprehension can consist of re-enactments of states in the visual system (e.g., Barsalou, 1999; Prinz, 2002), and evidence in favor of this view has accumulated in recent years. Yet, a key question is whether visual representations are instrumental or epiphenomenal to language comprehension. One window into this issue is the investigation of task context: Is the recruitment of visual representations automatic or task-dependent? In three experiments, participants named objects (e.g., a pencil in horizontal orientation) or carried out a picture verification task after reading a sentence about the object. In some items the orientation of the object matched or mismatched with the orientation implied in the sentence (e.g., John put the pencil in the drawer vs. John put the pencil in the cup), as in an earlier study by Stanfield and Zwaan (2001). In other items the shape of the object (e.g., a sitting eagle) matched or mismatched with the shape implied in the sentence (e.g., The ranger saw the eagle in the nest vs. The ranger saw the eagle in the sky), as in Zwaan, Stanfield, and Yaxley (2002). The materials from Pecher, Dantzig, Zwaan, and Zeelenberg (2009) were used.

All three experiments failed to show significant effects of implied orientation, but for implied shape, we obtained clear evidence of task-dependency. In Experiment 1, participants named an object after reading a sentence. No significant effect of implied shape on naming latencies was obtained. Experiment 2 used a sentence-picture verification task (Stanfield & Zwaan, 2001; Zwaan, Stanfield, & Yaxley, 2002) in which participants indicated for each picture whether or not it had been mentioned in the preceding sentence. The decision latencies were faster when the shape of the object matched the shape implied by the sentence than when it mismatched. The fact that implied shape mattered only in the verification task and not in the naming task suggests that visual representations are activated in a task-dependent manner rather than automatically. It could be that naming latencies are

not a sensitive enough measure, but Experiment 3 ruled out this interpretation. Participants were explicitly instructed to generate visual images of the situation described in each sentence before naming the picture, and again an effect of implied shape was obtained. These results suggest that people may generate visual representations when comprehending language, but not do so automatically, contrary to theories postulating that all representations include a perceptual or motor component (Prinz, 2002).

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Heavy objects in a spatial description are better memorized that light objects. Gyselinck, V. University Paris Descartes (valerie.gyselinck@parisdescartes.fr)

When they understand a spatial description, subjects are usually engaged in some imagery processes. These images help them construct an accurate spatial model of the configuration described. In the embodied cognition theoretical framework, the claim is that people understand linguistic descriptions of actions by mentally simulating these actions, just like people understand directly observed actions by others through mental simulation. A growing number of studies indeed indicate that the comprehension of action sentences may involve some motor resonance (e.g. Glenberg & Kaschak, 2002 ; Zwaan & Taylor, 2006).

In two experiments, we explored the hypothesis that describing manipulations on objects located in a room might reinforce the memory trace of the object and of its location, whereas non-action sentences would not. This effect could be evidenced on memory measures after reading the descriptions (recognition test of objects) and on a test of the spatial representation built (map drawing of the room with the objects). We predicted that the motor resonance effect would cause a difference as a function of the weight of the object to be manipulated and also as a function of the manipulation performed. Subjects where presented short descriptions of rooms in a building. Several objects, either heavy or light (e.g. bronze statue or statue in bamboo) where located in the room and the protagonist (the reader) was described as manipulating the object (e.g. lift up vs dust) or not (read a label). At the end of reading, a recognition test of the 8 objects was proposed and the subject had to draw a map of the room. Results showed essentially an effect of the weight of objects, the heaviest objects leading to better memory than the lightest.

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An Embodied Approach to Epistemic Validation in Language Comprehension. Isberner, M. & Richter, T. University of Kassel (maj-britt.isberner@uni-koeln.de)

According to the embodied view of language comprehension (Zwaan, 2004), comprehension involves a perceptual simulation of the linguistic content. This view has interesting implications for the validation of linguistic information. Given that plausible information should be easier to simulate than implausible information, we assume that comprehenders routinely judge the plausibility of incoming information based on the difficulty of the perceptual simulation. We tested the hypothesis that this plausibility judgment automatically trig-