

# **The embodiment of perception: A case for semantic level representations**

**Paul Hemeren**

School of Humanities and Informatics

University of Skövde, Sweden

[paul.hemeren@his.se](mailto:paul.hemeren@his.se)

## **Abstract**

Embodied perception can be viewed in terms of the fundamental role the body and its representation play in (human) perception. I suggest that a further aspect of embodied perception is the role of high level semantic representations. This level of representation is adaptive in the sense that it allows us to prepare for action and supports interaction with objects and other individuals. Behavioral data and data from neuroimaging studies indicate a functional role for high level representations. One area of research where the semantic level of representation is quite clear is the perception of biological motion using point-light displays. People easily see the actions represented in these displays as well as seeing other non-explicitly represented information. Research on mirror neurons, for example, shows that our bodies and action representations are used as templates and simulations in order to understand the potential for action and interaction. Within attention, a recent theory, Reverse Hierarchy Theory (Hochstein & Ahissar, 2002), proposes that explicit visual perception begins with high level processing in the visual hierarchy. Explicit visual processing is the result of implicit processing of feedforward mechanisms in low-level vision. This endows humans with the ability to de-couple representations from the situations that trigger them. It also allows us to use the representations 'off-line' to predict the consequences of planned actions in terms of their potential sensorymotor effects.