

Embodied and Situated Cognition: from Phenomenology to Neuroscience and Artificial Intelligence

EXTENDED COMPUTATIONAL SYSTEMS AND EXTENDED MINDS

Marcin Miłkowski
Section of Logic and Cognitive Science
Institute of Sociology and Philosophy
Polish Academy of Sciences

One of the most common objection to the claim that the boundaries of the mind extend into the world is that in principle, everything could become part of the mind. If someone could use the World Wide Web for her cognitive purposes, then the Web becomes a part of her mind, and so do various other information transmission systems. The most counterintuitive upshot of that is the fact that any individual mind would comprise all culture, and that leads to some form of extreme Hegelianism where billions of minds actually include and share every possible cultural information at the same time, and become the single Spirit as there is no way to individuate them (the skull is not enough, after all).

Yet there is a real difference between using something as a cognitive tool (or even a cognitive extension) and incorporating it in the cognitive system. Intuitively, it seems that decoupling the tool shouldn't stop the cognitive system from functioning, although it could make it much less efficient. Removing the part from a system however should make the system fail to perform some of the functions (of course, some form of fail over behavior is possible but this means using existing resources for a new purpose). This difference should be accounted for in the computational theory of mind such as Extended Mind model.

In this presentation, I will show criteria for individuating physical computational systems, and ascribing computations to physical systems. The basic idea is to use relative interaction frequency to describe the difference between a part of a system and a tool.

By applying the results to cognitive systems, I will show a way to improve on Clark's and Chalmers' Active Externalism. No mind would embody all information systems it could potentially gain access to, and the individuating criteria wouldn't lump all individual minds into a single one.