ABSTRACTS

C4.5 Philosophy of the Cognitive and Behavioural Sciences

Motleys, Capacities, and the Mark of the Cognitive
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It is a widespread assumption on the debate about Extended Cognition that some of the challenges it faces ought to be settled by appealing to a mark of the cognitive (Rowlands 2009, Wheeler 2011, Adams and Aizawa 2008). The parity considerations used to foil the idea of Extended Cognition lead to well known quarrels about the adequate measure of functional grain at which differences and similarities between biological en external processes are relevant. If we set the criterion too strict, we endorse the biochauvinistic prejudices that Extended Cognition intends to dispel. If we set the criterion too wide, we face the threat of an absurd cognitive bloat. These problems would seem to vanish if we could provide a substantive mark of the cognitive. Such an account would demarcate the realm of the cognitive. If processes involving the manipulation of extraorganismic resources satisfied such a mark, there would be nothing left to quarrel.

In the first part of the paper, I argue that we shouldn’t hope for a neutral mark of the cognitive that can settle the debate, as it would lead us to a question begging stalemate. But Extended Cognition doesn’t really need a Mark of the Cognitive. Dropping that requirement would seem to render Extended Cognition vulnerable to an objection raised by Ruppert. He argues that the heterogeneous motley of elements, structures and processes that Extended Cognition embraces delivers a cluttered “unscientific” kind that would make the cognitive science lose its grip on the intended explanatory target (Rupert 2004, Adams and Aizawa 2008). In the second part of the paper, I consider this objection and argue that it rests on ungrounded assumptions about scientific explanations. It does pose a reasonable challenge, but it falls short on its attempt that Extended Cognition can’t get off the ground.

The explanatory payoffs of the thesis of multiple realization in cognitive neuroscience
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Assuming that we have an articulated stable higher-level theory and a theory pitched toward the lower-level of organization of the target system, the doctrine of multiple realization claims that there are one-to-many mappings from the unified (or homogeneous) higher-level properties to the heterogeneous lower-level properties of the system. Within philosophy, the multiple realization doctrine has been traditionally taken to license a pretty strong thesis about the autonomy of psychology from neurobiology and to set an antireductionist agenda for cognitive science in general (Putnam 1965; Fodor 1974). However, critics of multiple realization have contested the strong anti-reductionist consequences of the thesis. Their objections targeted both the conceptual arguments for multiple realization (Sober 1999) and the lack of empirical support for the doctrine within cognitive neuroscience (Bechtel and Mundale 1999).

In response, I argue that current scientific research provides ample support for the multiple realization thesis in both biology and cognitive neuroscience. Drawing a comparison between the degeneracy thesis and the multiple realization thesis allows us to refine some of the features and implications of adopting multiple realization as a viable research hypothesis in cognitive neuroscience (Figdor 2009).

In order to illustrate the methodological and explanatory payoffs of the multiple realization thesis I rely on research on the phenomenon of recovery of language functions after brain damage. This case study illustrates that the collaboration between different cognitive modeling paradigms (the
lesion-deficit model, functional imaging studies of normal adult subjects and developmental models of brain function recovery) provides ample support for the multiple realization or degeneracy of higher-level cognitive functions. In this context, I show how the thesis of multiple realization promotes a pluralist methodology which generates hybrid (or mixed-level) explanatory strategies for explaining the properties and behaviors exhibited by complex biological systems at higher (and more abstract) levels of organization (Richardson 2009).