Title: Integrated Information Theory, Emergence and Causal Exclusion

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Abstract:

Integrated Information Theory of Consciousness (IIT) measures, with a quantity called Integrated Conceptual Information (Φ), to what extent a system of interconnected mechanisms exists intrinsically as an irreducible conscious whole. If it does, the system is a complex. In turn, conscious experience itself is postulated to be identical to a Maximally Irreducible Conceptual Structure (MICS) specified by the complex. Its components are concepts, informationally/causally integrated functions mapping constrained probability distributions of potential past states to potential future states of the mechanisms of the complex. In this contribution I try to show first, why the theory is, metaphysically, ontological emergentism, not panpsychism, because, among other things, it postulates that conscious wholes, while being dependent on their parts, nonetheless exist irreducibly over and above their components. I then argue that IIT faces two causal exclusion problems. In the first, the causal efficacy of the complex is threatened by the causal efficacy of its parts. In the second, the causal contribution of the MICS, and with it, of consciousness itself, is threatened by the mechanical causality of the complex. Finally, I show how IIT can, by itself, overcome the first problem, quantifying how the causal power at the macro level can surpass the power of the micro, and thus how the causal closure of the micro-mechanical can fail. In contrast, the second problem requires digging more deeply into the nature of the MICS and of causation. I will argue that a close relative to C.B. Martin and J. Heil’s powerful qualities view, H.H. Mørch’s phenomenal powers, together with Molnar’s analysis of effects as combinations of contributory manifestations of powers, are able to explain how the MICS, and thus consciousness, being essentially a unified structure of past and future potentials (powers), could actually cause the state of the system at the next time step.