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Emergence and The Problem of Observation

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ABSTRACT

Baas (1993,1996,1997) presents a formal framework for explaining emergence in category-theoretic terms. On this scheme, emergence denotes the generation of higher-level stuctures (or emergent-wholes) as a consequence of interactions between lower-level structures such that properties associated with higher-level structure are non-observable at lower-levels. Two kinds of emergence are distinguished: (1) deductive or computational emergence and (2) observational or non-computational emergence. In the former, a procedure (algorithm) for determining emergent properties associated with higher-level structures from the components and interactions at lower phenomenal levels can be specified; for the latter, this is impossible. (Baas (1993) cites the existence of Gödel sentences in support of observational emergence.) On this framework, emergence is held to be largely an epistemological phenomenon since it is primarily concerned with issues of observation and only derivatively concerned with issues of production. (In this respect, the theory of autopoietic systems (Maturana,80) is the natural counterpart to the above scheme.)

While the framework appears to constitute a step forward in the direction of formalizing the concept of emergence, it is, in reality, highly problematic since the observer is included as an intrinsic and irreducible component in the formalism. This poses a problem because questions relating to the ontology of the observer remain largely unresolved. For example, is consciousness a necessary condition for observation ? If this is indeed the case, as Searle (1992,1995) appears to hold, the above framework solves the `hard problem' (Chalmers,96) by discharging it, since it then follows that consciousness must be ontologically primitive. However, materialist emergentists (such as Baas) are committed to an evolutionary view in which consciousness appears relatively late in the phenomenal hierarchy, certainly after the emergence of matter and life. Hence, classical emergentists cannot assert that consciousness and matter (assumed to be non-experiential) were historically contemporaneous. The alternative is to maintain that consciousness is merely a contingent phenomenon associated with the observational acts of higher-order systemic structures (such as human beings). According to Emmeche (1992), the environment of a system can readily assume the role of the observer: on this view, (natural-) selection is a sufficient condition for observation; qualia (subjective experiences) or what-it-is-likeness (Nagel,79) are regarded as non-causal (or epiphenomenal). However, there are two problems with this position: firstly, the epistemological problem of whether selection in the absence of volitional-experience is a meaningful concept; and secondly, assuming this is indeed the case, the ontological problem of how a non-experiential (or ontologically-objective) substrate can generate an experiential (or ontologically-subjective) emergent, viz. the `hard problem’.

In this paper, it is maintained that a commitment to panexperientialism (as against crude panpsychism) constitutes a necessary condition for epistemological and ontological closure in emergentist frameworks. The formal framework for emergence introduced in (Ali,97) is modified so as to incorporate Baas' scheme using a synthesis of Whiteheadian (1978) organicism and Mead's (1932) social conception of emergence; the former necessitates transcending the duality of chance and necessity characteristic of automata-theory in favour of experiential-volition, while the latter allows for the specification of the environment as an observer defined in terms of an emergent network of individuals.