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## PROCESS AND EMERGENCE: NORMATIVE FUNCTION AND REPRESENTATION

**ABSTRACT.** Kim's argument appears to render causally efficacious emergence impossible: Hume's argument appears to render normative emergence impossible, and, in its general form, it precludes any emergence at all. I argue that both of these barriers can be overcome, and, in fact, that they each constitute reductions of their respective underlying presuppositions. In particular, causally efficacious ontological emergence can be modeled, but only within a process metaphysics, thus avoiding Kim's argument, and making use of non-abbreviatory forms of definition, thus avoiding Hume's argument. I illustrate these points with models of the emergent nature of normative function and of representation.

### 1. BACKGROUND

Tensions between naturalism and normativity are of ancient provenance. We can find them, for example, in Plato and Aristotle's analogy between perception and the impression left by a signet ring in wax: Wax impressions are factual; How do they acquire the normativity of representational content? How could they represent falsely?

With Descartes, such tensions become expressed in a fundamental metaphysical split between two kinds of substances, one of the factual, non-normative world, and one of the mental, normative (and intensional) world. Some, such as Hobbes, attempted to account for the world only in terms of the factual realm, and Hume argued that the normative could not be recovered from strictly factual, empirical, grounds – 'ought' could not be derived from 'is'.

This diremption between fact and norm has been generally accepted since Hume, sometimes yielding an anti-naturalism, such as with Kant and Frege, and sometimes yielding an anti-normative naturalism, as with Quine. In any case, we seem to be faced with a small set of unattractive alternatives: (1) an anti-naturalistic dualism of fact and norm, (2) attempting to account for the world with a pan-normative idealism, (3) a rejection of normativity yielding an identification of naturalism and physicalism. Kant introduced the two realm, fact and norm, framework in reaction to Hume,<sup>1</sup> and logical positivism was the last failed attempt at making good



on this approach. Idealisms are not prominent in today's scene, but remain a temptation, even if hidden, such as in some versions of contemporary linguistic idealism. The austere rejection of normativity in favor of a strictly factual world has become the dominant contemporary view since Quine, though it is seldom realized how deeply this fails to account, *scientifically* account, for normative, mental, phenomena.<sup>2</sup>

There is a fourth possibility: naturalistic emergence. If norms were emergent from non-normative phenomena, that could unify the factual and normative world, thus transcending the trilemma. But ontological emergence encounters serious problems, so serious that they have been taken to be fatal by many, if not most. Nevertheless, I argue that emergence is the required dissolution of this aporia, but that an acceptable model of emergence itself requires fundamental shifts elsewhere. In particular, it requires a shift from a substance or particle metaphysics to a process metaphysics.

### 1.1. *Process and science*

This shift has strong historical support. Every science has passed through a phase in which it considered its basic subject matter to be some sort of substance or structure. Fire was identified with phlogiston; heat with caloric; and life with vital fluid. Every science has passed beyond that phase, recognizing its subject matter as being some sort of process: combustion in the case of fire; random thermal motion in the case of heat; and certain kinds of far from thermodynamic equilibrium systems in the case of life.

The exception to this historical pattern are sciences and philosophies of mind. Mind is still approached from within a substance and structure framework of background presuppositions. This is well illustrated with the case of representation: perceptual representations are construed, for example, as consisting of transduced encodings of the light in the retina, but this process of 'transduction', and how it could yield normative representations, is just as mysterious in this technologically updated version of wax impressions as it was in the original. The account, that is, is still caught in the strictly factual, and cannot account for normativity.<sup>3</sup>

## 2. CHALLENGES TO EMERGENCE

I will address and critique two fundamental challenges to emergence, one metaphysical and one logical. These challenges, I argue, are fundamental and valid, but unsound. In fact, diagnosing them yields two basic false assumptions which, when corrected, point the way toward a legitimate approach to emergence. Within this metaphysical and logical framework,

then, I address two primary forms of normative emergence, function and representation.

### 2.1. *Metaphysics: Particles and process*

New substances cannot emerge. Only combinations or organizations are possible. Furthermore, if all is substance, or, in its contemporary atomistic form, if all is particles, then all causal power is resident in that basic substance or particle level. In particular, there is no emergent causal power.

Kim (1989, 1990, 1991, 1992a, b, 1993a, b, 1997) has developed these basic points into a subtle and sophisticated argument against emergence. In effect, his arguments pose a dilemma: either naturalism is false, or genuine emergence does not exist:

- If higher level phenomena are not supervenient on lower levels, then we have some sort of dualism and naturalism is false.
- If higher level phenomena *are* supervenient, then all causality is resident in the lowest level supervenience base of fundamental particles, whatever they may turn out to be. In particular, no genuine higher level causal powers can be emergent. All causality is located in the fundamental particles.<sup>4</sup>

In this view, higher level causal regularities are just the working out of the causal dance of the particles within whatever configuration they have with each other. Higher level organization, which is the usual purported locus for emergent causal power, is merely the stage on which the basic particles engage in their causal interactions. Therefore, all higher level phenomena are causally epiphenomenal, and causally efficacious emergence does not occur.<sup>5</sup>

The crucial center of this argument depends on the fact that particles participate in organization, but do not themselves have organization. Thus, the presumed locus of causal power, in this framework, is something that has no organization. Consequently, organization is not a legitimate locus of causal power. The emergence assumption that new causal power can emerge in new organization would require breaking the monopoly of causal power that is held by things that have no organization.

There is, however, a strong rejoinder to this argument: there are no particles. First, a pure particle metaphysics has serious coherence problems because dimension zero particles would have zero probability of ever encountering each other. Worse (for a particle model), however, is that our best contemporary physics argues that there are no particles (Brown and Harré 1998; Cao 1999; Davies, 1984; Huggett, 2000; Saunders and Brown 1991; Weinberg, 1977, 1995, 1996, 2000). Instead, everything is quantum fields. What appear as particle interactions are instead quantized

Process Theories

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