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Dispositions, capacities and mutual manifestation: An "Aristotelian" approach

Abstract

As a thought-experiment I will discuss the following mutual-manifestation paradigm for the relationship between stimulus and response:

Response = capacity x stimulus

Consequently, if either the capacity or the stimulus is zero (absent), the response will be zero (absent), which makes sense *if you regard the capacity and the stimulus as mutual-manifestation partners*. Further, I will combine this with a dispositional paradigm in line with Mumford & Anjum. Namely, I will regard responses as *dispositions* that may be added up vectorially into a composite or *total* response:

$Total\ response = capacity_1 \times stimuli_1 + \dots + capacity_n \times stimuli_n = r_1 + \dots + r_n$

Thus we are combining a *multiplicative* mutual-manifestation paradigm with an *additive* dispositional paradigm. Finally, also in line with Mumford & Anjum, I will regard stimuli and responses as *displacements* $d\Omega$ within a quality-space Ω . Accordingly we could write, for some quality U , the total response as:

$$dU = capacity_1 \times dS_1 + \dots + capacity_n \times dS_n$$

In terms of *causality* this expression could be understood as a statement to the effect that all the stimuli $\{dS_\alpha\}$ together cause dU in virtue of being combined with the pertinent capacities. In terms of *realism* I would suggest an Aristotelian ontology referring to the *nature* of objects/systems where, specifically, the capacities can be understood as pertaining to natures (acting as "formal causes"), while the stimuli can be understood as constituting "efficient causes." I will argue that on such a model, Aristotelian realism about natures could be combined with modern physical terminology, suggesting that Aristotelian ontology may be detached from pre-modern physics, and reattached to modern physics.