The Value of Non-Attachment in Complex Adaptive System Behavior

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A system employing self-monitoring and adaptive control to maintain itself in a configuration that would otherwise be unstable is said to be virtually stable. The energy expended in maintaining this state is compensated by the advantage gained in increased behavioral flexibility in the face of random environmental perturbations. While periodic perturbations can be dealt with through genetic adaptation or habituation, response to random fluctuations must be dealt with as they arise. In several earlier papers (Voorhees, 2008, 2009, Voorhees, Senez, Keeler, & Connors, 2008) a population model is used to explore conditions in which maintaining a virtually stable state provides sufficient advantage to overcome the extra effort required (in terms, for example, of expensive neural control systems). In this paper we consider the importance and limitations of virtual stability for managing complex systems, and the evolutionary advantage the capacity to maintain virtually stable states provides. In particular, we discuss the dichotomy between the advantage afforded by maintaining a state of non-commitment in social situations and the natural social distrust of opportunism.