ABSTRACT: Before a system can collapse, it first must have grown and developed gradients that moved it to a position away from a baseline from which it can collapse. These gradients can be thermodynamic, organizational, structural, or functional, etc. The collapse phase of complex dynamical systems is one stage of a continuous cycle that includes growth, conservation, collapse, and reorganization. This talk focuses on two aspects of that cycle: 1) the thermodynamic orientors that track the development of system gradients (i.e., complexity) ; and, 2) the hierarchical distinction of collapse at incremental, adaptive, and transformative scales. The response and recovery times and conditions differ depending on the severity of collapse. Awareness of these orientors and response functions should help in managing complex dynamic systems. While collapse poses challenges to the existing organization of the system, it also provides opportunities for new configurations and possibilities. Ecological systems provide a particularly useful model given their long-term success at managing and expanding complexity within environmental constraints.

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