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Control as causation in biological systems

One of the most important forms of causation in biological organisms is control. The root of this form of causation is linked to the ideas of "power" (capacity to modify a given state of things for a goal) and "agent" (source of causation). In fact, these two ideas constitute two complementary aspects of the same question, since such capacity becomes effective when a process is triggered by an agent; and the process is "useful" (or at least, intended to be "useful") according to a goal of the agent. Here I will discuss two questions. First, how a set of material elements, just following physical and chemical laws, can get organized in such a way as to generate a mechanism of control; and second, how control in biological systems is not only their central form of causation, but it is in addition constitutive of their identity. My central argument will be that the gap between the ideas of natural law and control can be explained through the formation of a closed loop of processes driven by constraints where the constraints are themselves generated and maintained.