

Comment and Question For Charlie Lowney

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Charlie Lowney's paper "Body-Knowing and Neural Networks: Is a computer's ability to learn human skills a victory for reductionism?" draws together an array of topics and themes that he has been working on over the last several years. I don't promise that this list is comprehensive but it, hopefully, touches some matters important to Charlie. He is interested in the operation of neural networks and the promise of connectionist models. He outlines how machine learning pattern recognition seems to be akin to some of the things Polanyi suggested about tacit knowing at a time when ideas about neural networks were no more than a theory. He discusses "body-knowing" as this is acquired in martial arts training and seems to function as a hierarchy of "dual controlled" levels of habit. This picks up some of his earlier interests in Merleau-Ponty and Polanyi and the ways in which Dreyfus and Taylor use Merleau-Ponty, but could, in Lowney's view, have profitably taken more interest in Polanyi. He is interested in showing how Harry Collins' approach to AI raises some interesting questions but fundamentally is an approach of a sociologist of science who overlooks some of the "dual control," ontological (metaphysical) notions central to Polanyi and to a deep understanding of contemporary machine learning AI. Finally, Lowney is interested in linking ideas discussed in dynamic systems theory with some of Polanyi's ideas about "dual controlled" systems and how they change in relation to "telic fields," and in connecting all of this with the operation of contemporary neural networks.

The word I have scrupulously avoid in my summary is the word "emergence" (or "emergent") which is for Polanyi and Lowney a key notion. **What did Polanyi mean by "emergence" (and "emergent") and what does Lowney think, 50 years after Polanyi's death in an era of machine learning, that "emergence" (and "emergent") means?**

Let me prime the pump by suggesting several different notions in Polanyi and in Lowney:

1. Emergence¹: From the time Polanyi hired Marjorie Grene in 1950 to run down views of biologists dissenting from the prevailing New Synthesis, we know Polanyi thought the New Synthesis was an overly reductionist account that ignored important questions such as what is life and questions about anthropogenesis. Emergence¹ is concerned with how forms of life

(biotic comprehensive entities) become more complex in evolutionary history. This seems to have involved, Polanyi (first suggests in PK IV and develops further later), the emergence of a hierarchy of “dual controlled” levels in which higher principles emerge and operate in margins left open by lower levels of control.

2. Emergence²: This seems to be primarily concerned with ideas, and thus it seems to apply primarily to human beings, biosocial creatures with extensive tacit powers and articulate cultures. We are always embedded in a particular niche, however. Polanyi seems to think human beings have the potential to be responsible and to take up what seems to be our peculiar vocation concerned with inquiry into the Real. He holds out the possibility that we might create a society of explorers serving transcendent ideals and this might again make us at home in the universe. Polanyi’s discussion of Emergence¹ and Emergence² is woven together in confusing ways.

3. Emergence³: This is concerned with machines or, more broadly, with the class of artifacts Polanyi calls “contrivances.” Contrivances, according to Polanyi, are hierarchical “dual controlled” artifacts. And now contrivances include machines that learn and recognize patterns in a fine-grained way far beyond the capacity of human beings. Charlie has interestingly noted the ways in which some of the ideas of dynamic systems theory can be linked to Polanyi’s notions about “telic fields” to help us understand the coming of smart contrivances. But it is not altogether clear how and if smart contrivance can and will evolve in our biosocial history.

NB: Although these AI contrivances do hold enormous positive potential to expand articulate culture, they are presently used in our market society primarily to sell us things we often don’t really need and in China they are used for social control. Yesterday, Amazon suspended temporarily the sale of such contrivances to police departments in the US presumably.