

## Forests and Trees

Recently browsing the winter 2009 issue of the alumni magazine of a prestigious private university, I was struck by how much of the research reported about almost any phenomenon you could name was seeking a singular cause at the lowest possible level of complexity. The current economic crisis, for example, is being traced to the neural circuits that process individual risk-taking behaviors of bankers; but the article in question failed to attend to the cultural, institutional and regulatory contexts in which those risks are embedded. I certainly don't want to argue against all reductionism. There are all sorts of phenomena that are best understood in such terms, from genetic-based diseases to a range of individual human behaviors. I only want to challenge the presupposition that what is essential to understanding any particular phenomenon is by definition found through the isolation of the smallest units at the "simplest" level. Alas, simplicity is rarely that simple.

Economic behavior is a good place to start our analysis. Many economists do seem to believe that there is a deep underlying structure of individual-level human economic rationality from which universal laws can be derived. The problem here is that individual decisions do not aggregate very well across time and space. Collectively we end up with something very different from what was intended by any particular individual. In particular, small differences in initial economic conditions in one place can have dramatic effects on final outcomes elsewhere because of the dynamics of decision-making over time and place. Such complexity is what has made predicting possible future economic conditions in any particular place so difficult. Recall the apocryphal story of King Richard III of England who lost his crown at Bosworth Field in 1494 for want of a nail in the shoe of his horse. A trivial factor due to the deficiencies of a blacksmith

unnoticed at the moment it mattered most determined the victor.

Whatever you think about this anecdote, at least appreciating the possibility of complexity is a possible place to begin considering the impact of seemingly trivial things. The next step might be to think of ways of dealing with it. One way of doing so comes from evolutionary biology where recent work on social insects suggests the importance of thinking in terms of processes of "multilevel selection" rather than reducing everything to the genetic level of selection. Another approach is to reinstate systems thinking to help understand how complexity actually works. In the face of economic globalization there are ever more interactions among geographically distant systems and across scales. (J. Liu et al. "Complexity of Coupled Human and Natural Systems," *Science* 14 September 2007, 1513-16). As a result, I think that the most interesting and useful work currently underway on environmental change involves coupling human and natural systems as complex adaptive systems. If traditional ecological research typically excludes human impact, and social-science research often ignores natural processes beyond those that humans are presumed to be affecting, coupled research attempts to bring the connections and reciprocal effects into focus.

"Emergence" is the word that best describes the idea that forests are not just trees. In this view, persons, for example, are not isolated selves. The world the self lives in is an inter-subjective and interactive one in which people are literally made in conversation, learning, reading, and thinking. This conception extends well beyond the view that sociality is simply an artifact of individuals pursuing

self-interest in relation to others that is presumably universal in character. So, what lights up the functional MRI in brain studies is not simply endogenous to the brain but is also the by-product of what the brain in question has previously been exposed to: its necessary sociality.

Words like "culture," and "mediating" concepts like "habitus" and "place," if themselves often problematic, have been invented to deal with this reality. They imply that human behavior is at least partly affected by learning from other humans by means of teaching, imitation, and other types of social transmission. Beyond the issues of complexity and

non-linearity in how the world is studied I have invoked above, therefore, there is an even profounder sense in which even the simplest units we posit, individuals, genes, etc., are not that simple.

This is not the same as saying that forests make the trees. That has been the mistake of those sociological holisms which insist on seeing social totalities, such as super-organic cultures, as pre-existing the parts. Perhaps the biggest problem facing anti-reductionism is to avoid falling into the holistic trap. Both holism and individualism/reductionism offer congenial and reassuring narratives about the nature of reality. The issue is not primarily about challenging dogmatic attitudes towards reasons and causes as being totally "lower order" or "higher order," although that is certainly part of it. Rather, it lies in failing to see that forests and trees both are and are not the same thing. This is precisely where the need for geography comes in. ■



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