[In what follows, references to “Smith” refer to Vernon Smith; references to Adam Smith are specifically stated as such.]

Vernon Smith is a Nobel Prize winning experimental economist (2002, shared with Daniel Kahneman.) His book *Rationality in Economics: Constructivist and Ecological Forms* (Cambridge University Press, 2007) describes a late career shift in how he viewed economic theory and practice.

Smith came to understand and deeply appreciate that the unpredicted results he was seeing in game theory experiments were the result of a different order of social rationality that already had been understood well not only by F.A. Hayek, but by the thinkers of the Scottish Enlightenment. A significant influence on Smith’s thought was Hayek’s distinction between “constructivist rationality” and “ecological rationality” (*The Fatal Conceit*, 1988;) the fatal conceit is “the idea that the ability to acquire skills stems from reason” (Smith, p. 9.) Smith stated openly that the different forms were there to be understood all along; he and others just had to become ready to see it (p. xvi;) part of the book “provides the conceptual foundation for these two rational orders” (p. 7.)

Constructivist rationality is “the deliberate use of reason to analyze and prescribe actions judged to be better than alternative feasible actions;” within institutions, “constructivism involves the deliberate design of rule systems to achieve desirable performance” (Smith, p. 2.) Constructivism emerged in the 17th century with the work of René Descartes, Sir Francis Bacon, and Thomas Hobbes, “who believed and argued that all worthwhile social institutions were and should be created by conscious deductive processes of human reason;” in the 19th century, Jeremy Bentham and John Stuart Mill were leading constructivists (Smith, p. 26.) Constructivism remains the hallmark of modernist rationalism that seeks to bring everything within its design and order, whether technically, socially, politically, or economically.

In contrast with constructivism, ecological rationality is “an ecological system, designed by no one mind, that emerges out of cultural and biological evolutionary processes—home-grown principles of action, norms, traditions, and ‘morality’;” the behavior of individuals, markets, institutions, or other social systems of groups of individuals “is ecologically rational to the degree that it is adapted to the structure of its environment” (Smith, p. 36.) Hayek had argued that there are limits to what human rationality can bring about; much of the social order that made individual action effective was due to the preservation of practices that had led to the dominance of the group, and thus not from deliberate constructivist design.

The difference in the two systems of rationality is based on two different types of reason, closely related to different forms of knowledge. Constructivist rationality is based on a foundationalist epistemology that is able to cognitively grasp reality, understand it, and act upon it. In contrast, ecological rationality recognizes that much of our knowledge of how to do things is outside of our conscious awareness; Smith cited Hayek that “If we stopped doing everything for which we do not know the reason, or for which we cannot provide a justification … we would probably soon be dead” (*The Fatal Conceit*, p. 68.) Smith continued, drawing from Hayek, that no one can express in thoughts, much less words, everything that she knows, and even does not know but might use to choose an action (Smith, p. 32.) Smith drew as well from Michael Polanyi’s epistemology,

citing his distinction between “subsidiary awareness” and “focal awareness.” While focusing on the piece he is playing, a pianist’s focal awareness is on the piece he is playing, and he has a subsidiary awareness of what his fingers are doing; if he shifts his focus to what his fingers are doing, he will probably trip up (Polanyi, *Personal Knowledge*, 1962, p. 56, cited in Smith, p. 13.)

The economics connection is that the classical (dating from the late 18th century) and neoclassical (dating from the late 19th century) economic models of the last two centuries have focused on the constructivist model of economic agents as rational and self-interested, with perfect knowledge, who seek equilibrium conditions in resource distribution through markets. With the emergence of experimental economics in the second half of the 20th century, agents in controlled game experiments began to show different outcomes than those predicted by neoclassical theory, and equilibrium was attained by naïve agents under conditions of much less than perfect knowledge and rationality.

These two systems are not exclusive; they are related, and both are evident in markets. For example, business decisions are constructivist; whether or not they work in the market is subject to ecological processes beyond the constructivist control. In evolutionary terms, Smith stated that, roughly, constructivist rationalism provides variation, while ecological rationalism provides selection (Smith, p. 38.) Smith saw rational analysis through game theory as useful to understand and reconstruct the emergent ecological forms, enabling us to better understand how emergent systems work “that are created from human interactions but not by deliberate human design” (p. 37.)

In part II, I will briefly consider the implications of game theory results for ecological rationality in economics and market/society integration.