

PROPOSED PRINCIPLES OF ECONOMICS: BIO-SYMMETRY AND HIERARCHIC SYMMETRY

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ABSTRACT

The word “symmetry” has a special meaning in the hard sciences. We start by examining the technical meaning in that context, reviewing the role it has played in the hard sciences, abstracting the implications, and considering the wider possibilities for application. We then place the disciplines of sociology and economics into the context of a ladder of sciences, in which each level of the ladder is more complex and more inclusive than the lower rungs, with sociology and economics occupying the second-from-top and top rungs on the ladder. In that context we examine two proposed symmetries for social and economic systems, as follows:

By the principle of biosymmetry, the problems of anthropocentrism and externalities are resolved. The concept of an economic system is redefined in a non-anthropocentric fashion, opening the door for a Copernican-like revolution in economic world view. We start with the recent but well-studied concept of anthroposphere, and identify three non-overlapping key components: the biologically human components, the human technosphere and the human noosphere. We name it as a specific example of a more general concept which we call phenosphere, and show how each species has an economy having all three key components dependent on its phenotype. Finally, we relate the collection of resulting inter-species economies using concepts well-studied in ecology such as parasitism, commensalism and mutualism.

By the principle of hierarchic symmetry a methodology is proposed to transport the wealth of scientific concepts from the hard sciences into a new science-based economic theory. The concept of universal dynamic is explored, and a prototype framework for organizing and categorizing universal dynamics is presented. Two examples that link thermodynamics to economic phenomena are presented, along with the agent-based models that enabled their study.

Keywords: principles of science, ladder of sciences, gauge theories, universal dynamics, econodynamic framework.