

Spontaneous Order. How Norms, Institutions, and Innovations Emerge from the Bottom Up

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H. Peyton Young, *Spontaneous Order. How Norms, Institutions, and Innovations Emerge from the Bottom Up*. Oxford University Press, 2024.

For most of the readers of this journal the idea of spontaneous order will be part and parcel of their (academic) thought, from Mandeville's 'private vices, public benefits', through Smith's 'invisible hand', to Hayek's ideas on emergence and unintended consequences. Yet other scholars are less impressed, or find it less important, especially those working in econometrics, macroeconomics and game theory. Enter H. Peyton Young, James Meade Professor of Economics Emeritus at Oxford University and Senior Research Fellow at Nuffield College Oxford. In his book he brings together his work on evolutionary game theory and its wider applications, challenging mainstream game theory and its assumptions by showing the validity of the idea of spontaneous order.

The book is a collection of previously published articles, some co-authored, with a clear general introduction and additional introductions to the chapters and parts of the book. The central question is 'whether the actions of many dispersed agents, acting with limited information and bounded rationality, coalesce into a coherent form of social order'. Should that be the case, follow-up questions concern the kind of order that emerges and the time it takes to get to such a situation. Peyton Young utilizes a stochastic dynamical systems approach, arguing that 'the idiosyncratic behavior of individuals, influenced by random shocks, can still be systematically characterized while some orderly states are more likely to merge than others'.

In the introduction Peyton Young makes clear he is indebted to Smith, Hayek and Michael Polanyi, embracing their findings that 'institutional arrangements that coalesce through a process of discovery and adaptation may often yield superior results'. This applies beyond economics, so also to law, language formation and scientific knowledge, while in the book it is even applied to the installation of offshore windfarms in relation to weather patterns!

Throughout the book he targets the assumptions underlying the Nash equilibrium, or the idea in evolutionary game theory that no player could gain by changing their own strategy, holding all other player's strategies fixed. In line with Hayek, Peyton Young criticizes modern scientific practices, where theory is directed towards the design of policies and organizational arrangements, erroneously seeing individuals as rational and forward-looking actors, who have a correct understanding of the social and institutional environments they operate in. This completely overlooks the question about the origins of common knowledge and the (im)possibility of rational expectations, given the Hayekian insight about the individual lack of, or at best partial, knowledge. Also, Peyton Young challenges the assumption in game theory and economics

that systems move towards equilibrium, pointing out that the question how systems would get to that point from out-of-equilibrium conditions is often overlooked.

Peyton Young maintains that these erroneous assumptions are still the foundation of the mainstream standard in economic research, while there is limited research that challenges this. His antidote consists of ‘a mathematical framework for analyzing the out-of-equilibrium dynamics of economic and social systems, and for characterizing the likelihood with which the different outcomes will be realized’. He applies game theoretical assumptions about individual (strategic) behavior to empirical testing in laboratory and field circumstances. This leads to a list of seven characteristics of his theory of spontaneous order: disequilibrium dynamics; fragmentary knowledge; adaptation (of behavior); stochastic variation; long-run selection (states that emerge are likely to correspond to stable norms or institutions); local conformity, global diversity; and speed of convergence (more rapidly than often assumed). These are explored in the three parts of the book.

The first part of the book applies the theory to the evolution of social norms, and economic and social institutions. For example, the spontaneous emergence of bargaining norms, which Peyton Young shows are unlikely to depend on players knowing precisely about the other party’s risk aversion or their degree of impatience, as conventional bargaining theory assumes. Instead, it is more realistic to assume different levels of rationality in actors, different amounts of information and the heterogeneous distribution of time preferences and other characteristics.

The second part digs into various forms of individual learning behavior and its implications for long-run aggregate behavior, addressing questions such as: ‘how much knowledge do subjects need for equilibrium to occur’, or ‘are there low rationality adaptive rules that lead to equilibrium even when subjects have little or no knowledge of others behavior?’ Peyton Young shows that the assumption that people know about the actions of others in real life multi-actor situations, and respond accordingly (the idea of ‘myopic best responders’) is not plausible. More simple and intuitive learning rules are more relevant, such as trial-and-error-learning.

The third part applies the evolutionary approach to the adoption of social and economic innovations, which is often decentralized, undirected and bottom-up. Focusing on the pace of adoption processes Peyton Young finds that this depends on the structures of the social networks involved, the potential gain associated with the switch from one practice to the other, individual motivation, and the amount of behavioral heterogeneity in the population.

The book has two faces. The general argument is set out very clearly and can easily be followed by non-specialists, especially those with some knowledge of the idea of spontaneous order. Yet its main target audience are the highly specialized academics working with game theory, which includes economists and econometricians. Here lies the main strength of the book, because it shows the value of Hayekian insights while speaking to them in their own language and fighting the battle on their own turf, to put it in martial terms. This is probably the best one can do to convince the members of this group to adjust their unrealistic assumptions about individuals, rationality, information processing and the formation of social orders. Peyton Youngs deserves praise for doing that!