

**Thermodynamics as the science of complexity in Ilya Prigogine and Isabelle Stengers’  
*Order out of chaos* (1979).  
Is thermodynamics really able to help social sciences?**

Emanuel BERTRAND

*Centre Alexandre-Koyré, UMR 8560 (CNRS/EHESS/MNHN) ; ESPCI Paris*

In 1979, Ilya Prigogine and Isabelle Stengers published a French bestseller, *La Nouvelle Alliance. Métamorphose de la science* (Gallimard), mainly about philosophy and history of physics. The Belgian theoretical physicist and chemist Prigogine had won the Nobel Prize in chemistry two years earlier, and Stengers was still working on her doctoral thesis in philosophy of science, under his supervision. This book, translated in English in 1984 as *Order out of Chaos. Man’s New Dialogue with Nature* (Bantam Books), is both dense and complex, and includes rigorous technical developments. Focusing on both dynamics and thermodynamics, the authors propose a grand narrative for the historical evolution of European physics - from the works of Newton to the emergence of relativity and quantum mechanics. They also describe the recent developments in thermodynamics, insisting on the work conducted in Prigogine’s group at Brussels’ University. In particular, the authors attribute to out-of-equilibrium thermodynamics a very extensive interpretative power. For them, thermodynamics can be used outside its physics context of elaboration, and can be very helpful to interpret and model a great range of ecological, economic, social and even psychological phenomena.