

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

A Complex Lens for Economics, or: About Ants and their Anthill

This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/127733> since

Terms of use:

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)

© Copyright JASSS



Methodological Cognitivism: Vol. 1: Mind, Rationality, and Society

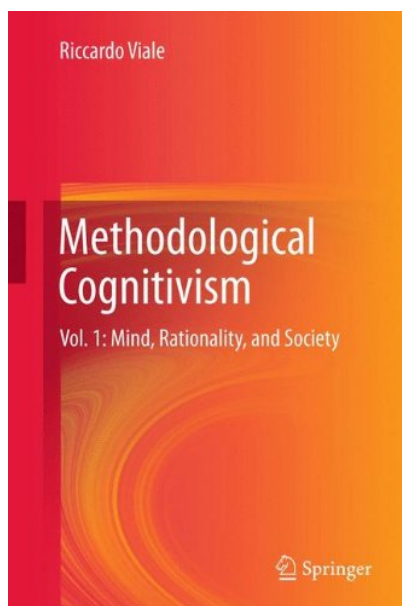
Viale, Riccardo

Springer-Verlag: Berlin, 2012

ISBN 9783642247422 (hb)

Reviewed by **Pietro Terna**

University of Turin



This book is a must read for JASSS readers as it helps to contemplate a different way to build social science models compared to economics and the idea of full rationality and optimisation. Following Hayek's in his footsteps (Hayek 1952; see also Takahashi and Egashira 2013), this book reminds us that human and social sciences are branches of the cognitive theory of mind. Let us consider economics and the famous Joan Robinson's sentence, which criticised "utility" for being a circular concept: «*Utility* is a metaphysical concept of impregnable circularity; *utility* is

the quality in commodities that makes individuals want to buy them, and the fact that individuals want to buy commodities shows that they have *utility*» (Robinson 1962, 53). Despite this strong and explicit dismissal of the concept, the mantra of utility maximization has dominated economics and its offshoots in other fields of human sciences.

This book provides a different perspective, classical but refreshing at the same time. Riccardo Viale introduced himself in this book as the pioneer of cognitivism. This is true as he is also the inventor of the term *Cognitive Economics*, which means an «extreme attempt to overcome the

epistemological bottlenecks of experimental economics and the scientific bottlenecks of behavioural economics. Only a reformulation of the theory of economic action according to the best models of neurocognitive sciences can stimulate positive economics and its realistic and empirical goals» (p. viii).

Apart from general insights, this book has several interesting contents also for agent-based modelers: it provides a clear perspective for cognition analysis in social sciences and a behavioral neuroeconomics synthesis, useful to derive new bases for social simulation research.

As regards to the cognition analysis in social sciences, we can recall, as an example, the *minimal model of the social actor and rationality of beliefs* (p. 111), where we can find clear hints to build the agents of our model with a meaningful representation of their action as related to their beliefs. The advantage is that this can be easily imported in agent-based models, exploiting the BDI (beliefs, desires, intentions) architectures implemented also in NetLogo (Sakellariou *et al.* 2008).

Considering behavioral neuroeconomics, the book mainly revolves around neuroeconomics and behavioral finance, but this is not a limit. Let me remind here a key passage: «Why is it important to start from the discovery of mirror neurons to introduce the issue of neuroeconomics? Because one of the most important cognitive functions of economic behaviour is the attempt to understand what we can expect from other people» (p. 242). Working in the field of agent-based models, this is an important hint!

Finally, back to Galileo: «It is a mistake to think that the formal modelling of the phenomena excludes a realist representation of them. Galileo can teach us something on this subject. He always looked for a realistic representation of physical phenomena and tried to represent them beyond the external appearances. [...] Therefore it is possible to be realistic and, at the same time, to use mathematical modelling. The mistake is to become prisoners of our formal models and to separate them from reality. The mathematics is only a language to represent what exists in the external world»(p. 178).

As agent-based models are both a form of mathematics and realistic representations of the world, this book is food for thought for anyone interested in social simulation and the modeling of socioeconomic phenomena.



References

HAYEK, F. (1952). *The Sensory Order: An Inquiry into the Foundations of Theoretical Psychology*. Chicago: The University of Chicago Press

ROBINSON, J. (1962). *Economic Philosophy*. Chicago: Aldin Pub. Co.

SAKELLARIOU, I., Kefalas, P. and Stamatopoulou, I. (2008). "Enhancing NetLogo to Simulate BDI Communicating Agents". In J. Darzentas *et al.* (Eds.). *Proceedings of 5th Hellenic Conference on Artificial Intelligence*. SETN 08, LNAI 5138, Berlin: Springer-Verlag, 263–275. On line at:
http://users.uom.gr/~iliass/projects/NetLogo/Papers/Extending_NetLogo_SETN08_SVerlag_Camera_ready.pdf

TAKAHASHI, T. and Egashira S. (2013). "Hayek's sensory order, gestalt neuroeconomics, and quantum psychophysics". In R. Frantz and R. Leeson (Eds.). *Hayek and Behavioral Economics*. London: Palgrave Macmillan, 177–196.