Seminario di Epistemologia storica

Venerdì 7 febbraio 2020, h. 14.30
Aula Enzo Paci

Voir venir les choses est
le meilleur moyen de les expliquer
P.J.F. Turpin

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Towards a computational history of science: The dynamics of socio-epistemic networks

The exploding amount of available historical data provides intriguing possibilities as well as major challenges to historians of science. In the last years a number of quantitative methods have been developed in order to analyze historical data. At the same time new analytical frameworks needs to be developed in order to bring together quantitative methods with the more traditional historians' toolkit. The present talk has a twofold aim. The first one is to briefly review the major quantitative approaches that have been developed in historical analysis with special reference to research questions in the history of science. Those include distant reading, topic modeling, network analysis, and machine-learning techniques.

The second part of the talk will focus on applications of social network analysis to the evolution of scientific systems developed by the Department 1 of the Max Planck Institute for the History of Science. Building on the advances in network theory and social network analysis, the methodology aims at uncovering the dynamical transformations of intra- and inter-connections within and between different layers of the scientific enterprise, from its social dimension to the material condition of knowledge production, up to conceptual transformations. In order to create a unified conceptual framework we define knowledge networks as being composed of three different layers: the social network, the semiotic network, and the semantic network. The first is defined as the collection of relations involving individuals and institutions. The semiotic network is defined as the collection of the material or formal representations of knowledge. The semantic network is the collection of knowledge elements and their relations. We call the interlinked set of these three levels *socio-epistemic networks*. As an illustration of this methodology results drawn from my own work jointly pursued with Dirk Wintergrün, Jürgen Renn and others will be presented.