

## Conference Report

### **“Explanation, Prediction, and Confirmation in the Social Sciences: Realm and Limits” Workshop of the Program “The Philosophy of Science in a European Perspective”**

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The University of Amsterdam was the place chosen for the analysis on “Explanation, Prediction, and Confirmation in the Social Sciences: Realm and Limits”. This workshop of the European Science Foundation has developed the contents of the program “The Philosophy of Science in a European Perspective” (PSE). The conference was organized by team C, devoted to “Philosophy of the Cultural and Social Sciences”. The team was built up as a network of European scholars to foster intellectual exchange across Europe. It consists of university professors from ten European countries interested in the foundational and methodological debate on the cultural and social sciences. Well-known European philosophers of science were also invited to the workshop, which took place on 26-27 October 2009 at the Faculty of Economics and Business.

#### **1. Structure and Characteristics of the Workshop**

At the beginning of the workshop, the leader of the team (Wenceslao J. Gonzalez) offered the context of the conference and its structure, and the chairperson of the steering committee of PSE (Maria Carla Galavotti) focused attention on the program as a whole. The workshop was structured in four sections: 1) from rational explanation to diversity of scientific explanations; 2) from explanation to interpretation; 3) explanations within the social sciences; and 4) from explanation to prediction. In addition, a junior meeting developed other topics related to the aspects discussed in the previous sections.

Within the first section, the papers presented were “Normativity is the Key to the Difference Between the Human and the Natural Sciences”, Wolfgang Spohn (Konstanz, Germany), and “From Physics to Sociology: The Differences in Scientific Explanation”, Giuliano Di Bernardo (Trento, Italy). In the second section the presentations were “Higher-level Interdisciplinarity by Methodological Scheme-interpretationism. Against Methodological Separatism Between Natural, Social and Human Sciences”, Hans Lenk (Karlsruhe, Germany), and “Explanation and Interpretation in the Sciences of Man”, Jan Faye (Copenhagen, Denmark). In the third section the topics discussed were “Historical Narratives, Evidence, and Explanations”, Paolo Garbolino (Venice, Italy), and “Explanations in Social Sciences: Mechanisms without Laws?”, Amparo Gomez (La Laguna, Spain).

After the first day, the papers of the fourth section were “Holistic Social Causation and Explanation”, Raimo Tuomela (Helsinki, Finland); “Evidence Outside the Laboratory”, Marcel Boumans (Amsterdam, The Netherlands); “Imagination and Explanation in History”, Peter Kemp (Aarhus, Denmark); and “Prediction in Economics and Complexity: The Role of Parsimonious Factors”, Wenceslao J. Gonzalez (A Coruña, Spain). Thereafter, the junior meeting had several contributed papers: “Causal and Narrative Explanations in History”, Eugen Zelenak (Ruzomberok, Slovakia); “Inadequacy of Description for Social Sciences and the Sciences of Artificial: The Case of the Sciences of Communication”, Paula Neira (Santiago de Compostela, Spain); and “Prediction and Prescription in the Science of the Artificial: Information Science and Complexity”, Maria G. Bonome (A Coruña, Spain).

Underlying this structure was a set of characteristics connected to the initial ideas of the program PSE in the second year—in a five year plan—which were conceived around two central topics: (i) the methodological controversy on explanation and description in the cultural sciences, which affects social anthropology and historical sciences; and (ii) the problems of the realm and limits of explanation and prediction in the social sciences,

which have a clear relevance in economics as well as repercussions in other social sciences.

These initial issues for the research of team C were clearly enlarged in the final topics of the workshop. This richer plan was possible thanks to the suggestions made by the team leader and the proposals received from the invited speakers and the members of the junior meeting. Thus, the analysis was made around four main topics of the sections mentioned above on explanation, prediction, and confirmation in the social sciences. Furthermore, these topics were discussed not only in the realm of the “traditional cultural and social sciences” but also in the sphere of the new ones, such as the sciences of communication and information science.

Following this enlarged study of the realm and limits of the social sciences made in the workshop, some quite interesting aspects arose: a) normativity as the key to the difference between the human and the natural sciences; b) the role of interpretation in the methodology of the social sciences; c) the issue of laws and mechanisms in the explanations in the social sciences; d) the characteristics of the evidence outside the laboratory; and e) the relation between the sciences of the artificial and the social sciences regarding prediction and prescription.

A key aspect of this workshop has been that each speaker had a written version of his or her paper. This made the workshop more valuable and facilitated the discussions, which were very lively from the first paper on. The final results have been excellent, and the number of participants was very commendable for this kind of discussions. Furthermore, the amicable atmosphere during the days of the workshop extended the discussions to additional moments outside the conference center.

## **2. Description of the Scientific Content and Discussion at the Event**

According to the internal structure of the program of this workshop, the scientific contents moved from “explanation” to “prediction”, connected in both cases with “confirmation”. These topics are at the core of historical debates on the *scientific character* of the cultural and social sciences, which have been constantly compared with the natural sciences. Nowadays, attempts at a simple unification of models of both groups of sciences — social and natural— have been dismissed in favor of more sophisticated epistemological and methodological options.

### 2.1. Description: New Lines of Research

This workshop has been working along these new lines. In these novel approaches, although there are differences between the social and natural sciences, they share a genuine common interest in explanation and prediction. Thus, several papers (those written by Wolfgang Spohn, Giuliano Di Bernardo, Jan Faye, Paolo Garbolino, Amparo Gomez, Raimo Tuomela, ...) have drawn attention to epistemological, methodological and ontological differences between the social and natural sciences. At the same time, other papers (such as Hans Lenk’s contribution) have emphasized the common features of all sciences, arguing against methodological separatism.

In this regard, the usual methodological dispute “explanation” versus “description” is solved in favor of the denial that *description* could be good enough in order to have “science.” Moreover, this view has been extended to maintain the inadequacy of description not only for the social sciences but also for the sciences of the artificial, taking into account the case of the sciences of communication (Paula Neira). These scientific undertakings require “explanation” when they are basic sciences, but these disciplines also need prediction when they are applied sciences.

The realm and limits of explanation and prediction in the social sciences raised other methodological questions that have also been discussed in this workshop. (i) There is a twofold problem in “scientific

explanations” in the social sciences: their characteristics in order to be genuinely “scientific,” and the kind of explanations to be developed in this sphere (causal, non-causal, etc.). (ii) Social scientists—including Nobel Prize laureates— deeply disagree about the possibility of elaborating scientific predictions in the realm of human affairs due to the difficulty of tackling future phenomena.

A large amount of attention was paid to the twofold problem in “scientific explanations” from different angles: a) the need for a revision of the kind of explanations used in the social sciences (Amparo Gomez); b) the comparison with other intellectual procedures, such as interpretation (Jan Faye) or imagination (Peter Kemp); c) the type of causal approach used in some explanations when there is a historical component (Eugen Zelenak); d) the role of holistic causation regarding social events (Raimo Tuomela); etc.

Prediction is a key issue in the social sciences, where it is commonly associated with complexity. The realm and limits of prediction are crucial topics for applied sciences, such as economics, sociology or social psychology. The workshop has analyzed the methodological problem of prediction in economics, considering the complexity of economic phenomena (Wenceslao J. Gonzalez). This approach was based on the point of view of the parsimonious factors, which included some new aspects in comparison with Herbert Simon’s approach.

The importance of prediction increases when it is connected to prescription, as is the case in economics and other sciences of the artificial, such as information science (Maria G. Bonome). This case study has been another novelty of the workshop, which has enlarged the boundaries of discussion of the philosophy of the social sciences dealing with new disciplines.

To sum up, the workshop at the University of Amsterdam was witness to discussions on central aspects of explanation and prediction in the social sciences as well as on the problems related to confirmation (Marcel

Boumans). The following topics received special attention: first, the need for revision of the models used for explanation in the social sciences; second, the role of methodological dichotomies such as explanation and interpretation or causal and narrative explanations; third, the social dimension of causation, which adds new elements to the controversy between holism and methodological individualism; and fourth, a new vision on scientific prediction in those disciplines that are both social sciences and sciences of the artificial (economics, information science).

## 2.2. Some Contents on Explanation and Prediction

Within the analysis made in the workshop, there are some contents on explanation and prediction which can be emphasized. These highlight the diversity of aspects considered in the papers. Some of them are indicated here following a criteria of degree of generality: a) the kind of approach to be used for scientific explanations in the social sciences; b) the present methodological view on the *Erklären—Verstehen* controversy; c) the role of causal explanation in this realm; d) the case of historical explanation; and e) contributions made in scientific prediction, analyzing economics, information science, and the sciences of communication.

a) Several characterizations of scientific explanation have been considered for the social sciences. In this regard, some argued that a *pragmatic approach* to explanation is most suitable for evidential reasoning, given the role empirical and common sense generalizations play in the explanation of historical events (Paolo Garbolino). In addition, the traditional gap between the natural sciences and social sciences can be filled insofar as there are common features between biological explanations and sociological explanations. Both share an analysis of complex phenomena and some common factors insofar as the social agents are also biological beings (Giuliano Di Bernardo).

b) On the *Erklären—Verstehen* controversy the present methodological view was highlighted by Hans Lenk: the opposition can be overcome at a metamethodological level. Nevertheless, between the natural sciences and the social sciences there remains a methodological difference that was also emphasized: there is normativity used by human agents in the sciences where human agents make decisions (psychology, history, linguistics, etc.). Thus, social explanations are related to rational actions according to norms instead of empirical laws (Wolfgang Spohn).

c) Causal explanation of social events received special attention in various papers (such as Raimo Tuomela's paper). The analysis followed several lines: (i) the case of causal explanations based on laws when they are understood as propensities; (ii) some generalizations of common sense used for idealized models that might be considered as explanations; (iii) the causal explanation of singular cases, when they are effects due to a specific causal mechanism that cannot be generalized.

On the one hand, when a causal explanation is adopted in the social sciences, the notion of "cause" is not always understood in the same way. In economics there are clear differences between Clive G. Granger's views and other perspectives. In psychology there are also differences in "causation" in connection with the links between reasons, actions and causes. And, on the other hand, when causal explanations are connected to laws in the social sciences, the issue is how to characterize those laws. Nancy Cartwright sees two poles in the social laws: in some cases, they are ideal and formal laws; and in other cases, they are phenomenological laws and low level ones.

d) Historical explanation was analyzed in several ways. This is a case in which analytical philosophy and hermeneutical tradition have worked for years. In this regard, two main proposals were put forward in the workshop: (i) the complementarity between causal and narrative explanations is possible insofar as the latter can identify causes or causal links (Eugen

Zelenak); and (ii) the bridge between “explanation” and “understanding” can be built when imagination has a specific role in history (Peter Kemp).

e) Prediction was used to enlarge the realm of analysis. Thus, in the case of economics, prediction was connected with complexity and the importance of the parsimonious factors in order to deal with complex economic predictions (Wenceslao J. Gonzalez). In the sciences of the communication, prediction is an initially descriptive element in basic science that might be used to prove that the sciences of the communication cannot be purely descriptive, insofar as they are applied sciences (Paula Neira). In the information science, which is a science of the artificial as well as a social science, the designs combine prediction and prescription in order to deal with complex phenomena (Maria G. Bonome).

### **2.3. Main Lines of the Discussions**

Taking into account the elements above —the description of the new lines of research and the central contents on explanation and prediction—, the main lines of the discussions during the presentations can be summarized as follows:

— Models of scientific explanation in the social sciences have been examined in many ways. On the one hand, the existence of differences with explanations in the natural sciences was pointed out in terms of normativity (related to rational actions), compatibility with “understanding”, and complementarity with narrativeness (at least, in the case of history). But, on the other hand, there are still differences between three main methodological approaches: a) social explanations are distinct from natural explanations insofar as human actions are normative and related to human decision making; b) social explanations share a common ground with natural explanations because both share causal explanations, although there are diverse possibilities (causalism in terms of mechanisms, causalism seen from processes, causalism as statistical regularities, ...); c) social explanation

should be seen in a dualistic framework (causality and narrativeness, causality and interpretation, etc.).

— Methodological dichotomies such as “explanation/understanding” have been looked at in new ways: (i) understanding can have a role in the natural sciences; (ii) the dichotomy might be between some sort of scientific disciplines instead of sitting between the natural sciences and the social sciences; (iii) the kind of confirmation connected with “explanation/understanding” depends on the phenomena considered, the features attributed to “scientific laws” and the possibility of causal connections without a lawlike structure.

— Causal models in the social sciences have been discussed. There are several aspects that have been considered: (i) the notion of “cause” and its relation to conditions, capacities, etc. as well as its possible character in terms of “propensities”; (ii) the status of the causes in the human world: either in the individual realm of action or in the sphere of the social events; and (iii) the kind of interaction between individual causes and holistic causes in the field of the social sciences.

— Complexity was discussed regarding scientific prediction in economics. But the analysis was larger than that. (i) Complexity was also considered in other contexts, because it affects basic science as well as applied science. (ii) Complexity is relevant for the study of prediction in the social sciences and in the sciences of the artificial, mainly in the area of economics but it can have also repercussions for other sciences of design such as information science and the sciences of communication. (iii) The parsimonious factors are especially relevant for reducing the extent of the complexity and can contribute to solve the unreliability of economic predictions.

### **3. Assessment of the Results and Impact of the Event on the Future Direction of the Field**

One big advantage of evaluating the results of a workshop is the availability of the complete version of the papers. Each speaker made his or her paper available for the participants, and some of them have expressed their appreciation of this. Of the rich number of results from the workshop, there are some that should be emphasized because I think that they will have repercussions on the future direction of research in the field.

1) New directions on social explanations. The logico-methodological approach has been abandoned in favor of pragmatic views sensitive to the context and focused on a why-question. This seems to break the elbowroom of the former kind of explanations and gives more possibilities to explanations in the social sciences both causal and non-causal ones.

2) A renewed emphasis on causal explanations in the realm of the social sciences. This gives solid grounds for a methodological convergence between the natural sciences and the social sciences. Thus, the discussion is no longer the possibility of “causal explanations” on human actions and social events but rather what kind of causal explanation fits the phenomena studied.

3) Recent conceptions on mechanism have been revised in favor of a notion of “general mechanism” referring to social facts that allow explanations understood in terms of tendencies.

4) Former dichotomies, such as *Erklären-Verstehen*, have been revised in two directions: a) understanding has a role in the natural sciences, even though it has different features from the case of cultural sciences; and b) the use of metamethodological criteria shows that the differences is between disciplines rather than between “blocks” of disciplines such as “natural” and “social” sciences.

5) The analyses made on the relation between the social sciences and the sciences of the artificial in the cases of economics, communication sciences and information science constitute a real contribution to the field.

They enlarge the range of topics discussed and they shed new light on very important issues such as prediction and prescription.

**Scientific Committee:** Steering Committee, Leader and Co-leader of Team C ("Philosophy of the Cultural and Social Sciences").

**Organizing Committee:** Wenceslao J. Gonzalez, Marcel Boumans, Amparo Gomez, Maria G. Bonome, Paula Neira.