Explanatory Pluralism

Explaining phenomena is one of the main activities in which scientists engage. This book proposes a new philosophical theory of scientific explanation by developing and defending the position of explanatory pluralism with the help of the notion of "explanatory games". Mantzavinos provides a descriptive account of the explanatory activity of scientists in different domains and shows how they differ from commonsensical explanations offered in everyday life by ordinary people and also from explanations offered in religious contexts. He also shows how an evaluation and a critical appraisal of explanations put forward in different social arenas can take place on the basis of different values. *Explanatory Pluralism* provides solutions to all important descriptive and normative problems of the philosophical theory of explanation as illustrated in sophisticated case studies from economics and medicine but also from mythology and religion.

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Στήν μητέρα μου Νίκη

πού μ' ἔμαθε ν' ἀγαπῶ τά γράμματα

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Preface and Acknowledgments

The *Alte Burse* is a wonderful dusky pink building with a symmetrical facade in Tübingen. Built in 1480, it is the domicile of the Philosophy Department. It borders the *Tübinger Stift* in the west where Hegel, Schelling and Hölderlin passed their years as students and the *Hölderlinturm* in the east where Hölderlin spent the last years of his life. The two separate entrances to the *Alte Burse*, which can be reached through two separate staircases built in opposite directions to each other, show how a lively philosophical dispute can leave its track on a building. This architectonic peculiarity goes back to the early modern *Universalienstreit*, which led, in Tübingen, to the erection of a wall in the building that separated the *Alte Burse* in two halves and so created a separate entrance respectively for the two "ways", the Via antiqua and the Via moderna, left for the "Nominalists" and right for the "Realists". The wall was removed only during the Reformation when conflicts of a more rebellious character broke out. But the two entrances remained, a memorial to the irreconcilable controversy between two competing approaches to what constitutes scientific knowledge, a controversy which has taken new turns and manifestations during the centuries and still calls for arbitration today.

Hörsaal X overlooking the Neckar River is the focal point of the intellectual activity in the *Alte Burse* today. It was in this room that I attended in the *Sommersemester* 1991 the Hauptseminar on Popper's "Logik der Forschung" offered by Professor Keuth which also included the analysis of Hempel's "Aspects of Scientific Explanation". The discussions on scientific explanation in this room, overlooking the Platanenallee on the Neckarinsel, have had a lasting impression on me. Although I have turned my attention to

other problems over the years, I have always retained a keen interest in explanation as the core theoretical activity in science. About a decade ago, I set out to develop my own theory of explanation which has taken preliminary shape in my essay entitled "Explanatory Games", published in the *Journal of Philosophy* in 2013. The present book contains a more complete treatment of my proposal on how to think about the core theoretical activity, explanation.

I cannot pretend that my endeavour has been a successful one, if judged according to what I originally set out to accomplish. The contrary is the case. What I set out to accomplish was to develop my own model of explanation which would ideally share the positive features of the Popper-Hempel view: rigour, simplicity and universal scope. But, through the years, it has become increasingly clear to me that the development of such a unitary model of explanation would be yet another philosophical fiction vis-à-vis the actual explanatory activities in which scientists engage. And that in the end, it would share the fate of all such philosophical fictions: to be – rightly – ignored. I gradually became aware, thus, that the main task to be accomplished was to develop a general framework capable of accounting for the plurality and variety of explanatory activities in science and in everyday life. The philosophical theory that I offer in this book consists of my proposal of how *this* task can be best accomplished.

Over the years many people whom I would like to thank have influenced my thinking on the problems that I deal with in the book. The original influence has come from Herbert Keuth and Hans Albert in exchanges in Tübingen and Heidelberg. I have received decisive impulses from Philip Kitcher in many discussions that we have had in Germany, the United States and in Greece. I am very grateful for his kindness and encouragement, which have been invaluable during all the stages of the development of the book. I owe special thanks to Sandra Mitchell – my acquaintance with her integrative pluralism through her writings and through our personal exchanges has been

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Drawing of the Heart by Leonardo Da Vinci" from the *Royal Collection Trust*, as Figure 7 the image of "Plate II from Hieronymus Fabricius ab Aquapendente, De Venarum Ostiolis, 1603" from *TheMitralValve.org*, as Figure 8 the image of "Figures 1–2 from Folding Leaf in Harvey's Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus from the 1628 edition, Frankfurt: Sumptibus Guilielmi Fitzeri" also from *TheMitralValve.org*, and as Figure 9 the image of "Malpighi Marcello, De Pulmonibus (1661/1929, p. 11) showing the Lungs of a Frog with a Cross Sectional Microscopic View" from the *Wellcome Trust*.

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Athens, 29 December 2015