

can potentially act as an actual force if social outcomes were to be pushed off the equilibrium path. As interesting as Pettit's piece is, and though it deals with the relationship between the plausibility of assumptions and the predictions of the model, it only provides the reader with less than a taste of the active discussions around the role of modelling in economics and social science.

More generally, modelling practices in the social sciences and their related epistemological puzzles is an area that receives less attention in the volume than one would have expected. Models are not only a topic of obvious and growing interest to practically all social science practitioners, but also a rare locus where philosophers of the social sciences collaborate with fellow philosophers of science. Though a few pieces dealing with the interpretation of economic models are suggested as further reading, perhaps a full article, or more ambitiously, a whole section on the subject could have been part of this volume. Volumes like this one, regardless, may always be liable of not being inclusive enough. As another example, Guala's last article in this section, showing how rational choice theory and experiments were combined in the construction of the market for airwave spectrum by the US Federal Communication Commission is a piece that offers, among other things, a captivating look at the status of game theory as a technology, but perhaps offers too small a window for the reader to look into the burgeoning area of experimental social science.

The next part in the Reader starts off with Lukes' classical piece on Methodological Individualism and is followed by more recent pieces by Van Hees and Sawyer on the possibility or desirability of reductionism.

The sixth section of the volume deals first with conventions through one of Lewis' texts and Gilbert's critique of his concept. A text by Searle on institutional facts that offers an introduction to his social ontology is also included. Bicchieri's introductory chapter to her opus on norms completes the section, which provides an accessible introduction to the matter, connecting nicely with the last part of the book, devoted to cultural evolution including articles by Dawkins, Sperber, Richerson and Boyd, and an example of evolutionary game theory by Alexander and Skyrms.

Once again, the arrival of the Philosophy of Social Science Reader is great news to the discipline, both because it provides an excellent outlook to those interested in it, and because it attests how exciting the field has become in the last years.

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MAURICIO SUÁREZ, ed. 2011. *Probabilities, Causes, and Propensities in Physics*. Dordrecht: Springer.

In *Probabilities, Causes, and Propensities in Physics*, Mauricio Suárez collects eleven interesting, challenging, and far-reaching essays about probability, causality, and propensities as they pertain to modern physics. All the essays are from eminent philosopher of physics and science, and each is of a very high calibre. Whilst the essays are quite

technical, the book's main aims are, as Suárez aptly puts it, "conceptual, philosophical and methodological." (Suárez 2011, 1). The essays form chapters, and are organized thematically in three parts, I: Probabilities, II: Causes, III: Propensities. Suárez supplements the essays qua chapters with a first chapter, "Four Theses on Probabilities, Causes, Propensities". (For reasons which will become clear, I return to Suárez's first chapter after I have reviewed the others.)

Part I, Probabilities, consists of three essays. In the first, "Probability and Time Symmetry in Classical Markov Processes", Guido Bacciagaluppi investigates the possibility of describing time-directed phenomena by formally time-symmetric stochastic processes. Bacciagaluppi argues that such processes are capable of describing time-directed phenomena, and he uses classical Markov processes as a framework for the discussion. In the second, "Probability Assignments and the Principle of Indifference. An Examination of Two Eliminative Strategies", Sorin Bangu critiques two attempts to dispense of the Principle of Indifference (PI): the 'Poincaré-Reichenbach' strategy and the 'Gillies' strategy. Of course, there are well-known seeming paradoxes generated by PI, yet the principle is useful in dealing with many probabilistic problems. Roughly, the 'Poincaré-Reichenbach' strategy is an eliminativist one, in that it aims to show that PI is not needed in just those problems where its application 'works'. Bangu argues that this strategy is unsuccessful because it either tacitly assumes the principle or makes recourse to other assumptions which are in no less need of justification than the principle. The 'Gillies' strategy is to relegate PI to that of one having only a heuristic value in generating probabilistic hypotheses; crucially, according to Gillies the principle cannot be used to justify such hypotheses. Bangu argues that Gillies' attempt to justify such hypotheses by appeals to statistical tests is fall foul of the very same kinds of objections which motivated the elimination of PI in the first place. Thus PI is not successfully eliminated by either strategy, concludes Bangu. In the final chapter of part I, 'Why Typicality Does Not Explain the Approach to Equilibrium', Roman Frigg considers recent attempts to explain why thermodynamic systems tend towards equilibrium in terms of 'typicality'. Frigg argues that these attempts are unsuccessful. Frigg distinguishes three different ways in which typicality is invoked in such explanations. Two are shown to be unsuccessful because they fail to take the dynamics of a system into account; the third fails for mathematical reasons. Frigg then broadens the discussion and indicates four problems which any future explanation of the approach to equilibrium based on typicality must solve.

In part II, Causes, there are four essays. In "From Metaphysics to Physics and Back: the Example of Causation" Frederico Laudisa discusses the possibility of providing causal accounts of quantum mechanics. He argues that one must have an unambiguous interpretation of quantum mechanics, in particular one which clearly specifies the ontology of the theory, before one can determine whether the theory can be said to have a causal structure. Laudisa then examines GRWian and Bohmian quantum mechanics, indicating, with special reference to the EPR correlations, the difficulties of providing a causal account of these interpretations. Next, in "On Explanation in Retro-causal Interpretations of Quantum Mechanics", Joseph Berkovitz examines the challenges which causal loops pose for retro-causal interpretations of

quantum mechanics. Specifically, Berkovitz considers whether such loops undermine the predictive and explanatory power of various local retro-causal models of the EPR experiment. Berkovitz is extremely careful in his conclusions, but, in broad terms, it seems that causal loops are indeed detrimental for these kinds of models. In the third essay of part II, “Causal Completeness in General Probability Theories”, Balazs Gyenis and Miklós Rédei provide a precise definition of a generalization of Reichenbach’s notion of common cause, and of causal completeness of general probability theories. They then go on to recall some recent results, and open problems, pertaining to causal completeness. The final essay in this part, “Causal Markov, Robustness and the Quantum Correlations” by Mauricio Suárez and Iñaki San Pedro, concerns the relationship between the robustness condition and the Causal Markov condition (CMC). Suárez and San Pedro show how robustness follows from CMC in conjunction with other assumptions. They then consider EPR correlations, and argue that the question of causality apropos these correlations is best investigated in terms of CMC.

In part III, Propensities, we encounter the final three essays of the collection. In the first, “Do Dispositions and Propensities Have a Roles in the Ontology of Quantum Mechanics? Some Critical Remarks”, Mauro Dorato considers the role of dispositions and propensities in quantum mechanics. The bulk of the essay is dedicated to defending the following conditional: if there are dispositions in the quantum world, then they are at home in collapse theories. He also argues that in no-collapse theories, dispositions are dispensable. Next, in “Is the Quantum World Composed of Propensitons?”, Nicholas Maxwell articulates and motivates his Propensitons Quantum Theory. Maxwell contends that the fundamental problem with orthodox quantum theory (OQT) is its failure to solve the wave/particle duality problem. His theory is both irreducibly indeterministic and realist, and posits a new kind of entity, propensitons. He goes on to argue that this theory recovers the empirical success, whilst avoiding the problems, of OQT. In the final chapter, “Derivative Dispositions and Multiple Generative Levels”, Ian J. Thompson is concerned with providing a conceptual framework for different kinds of dispositions in physics. In particular, Thompson introduces the notion of derivative dispositions—roughly dispositions which are nested and how they lead to multiple generative levels, where, again roughly, the manifestation of the higher-level dispositions is itself dispositional.

Clearly the essays cover a lot of interesting material. What is most laudable about the book, therefore, is Suárez’s first chapter. Here he crisply, yet critically, summarizes the main points made in each essay, and introduces four theses which tie these essays together. These are (and I paraphrase): (i) an emphasis on taking probabilities in physics to be objective features of the world; (ii) an emphasis on the importance of transitions probabilities; (iii) a reluctance to interpret all objective probabilities in any one of the traditional ways; (iv) a general tendency to identify (uncover) various causal commitments or presuppositions in foundational physics. Whilst some of these might be a matter of slight imputation on Suárez’s behalf (for example, transition probabilities only explicitly feature, excepting Suárez’s own first chapter, in Bacciagaluppi’s essay) I whole-heartedly agree with his conclusion that “[t]he book demonstrates that work in

the foundations physics calls for deep and sustained philosophical reflection on such issues” (Suárez 2011, 36).

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FRANCISCO VÁZQUEZ GARCÍA & RICHARD CLEMINSON. 2011. *Los invisibles. Una historia de la homosexualidad masculina en España, 1850-1939*. Granada: Comares.

En los últimos años los estudios históricos y culturales sobre la homosexualidad en España han experimentado un crecimiento notable. Sin embargo, la mayor parte de los trabajos se han centrado en la homosexualidad masculina (la femenina todavía no ha merecido la suficiente atención) y han abordado los años de la transición, con algunas prospecciones hacia el franquismo.

La publicación en castellano de *Los invisibles* de los profesores Francisco Vázquez y Richard Cleminson, acomete el estudio de la homosexualidad masculina en España en el periodo comprendido entre mediados del siglo XIX y el inicio de la Guerra Civil, cubriendo, así un marco cronológico muy escasamente estudiado. El libro, publicado originalmente en 2007 en inglés, se ha ampliado notablemente y actualizado la bibliografía secundaria (*Los invisibles. A History of male homosexuality in Spain, 1850-1939*. Cardiff: University of Wales Press, 2007). La amplia trayectoria de los autores como historiadores de la sexualidad es una garantía para emprender la lectura de este complejo libro, excelentemente escrito y con un apoyo abrumador de fuentes impresas de carácter médico, judicial, psiquiátrico y literario.

El punto de partida de *Los invisibles* es impecable. Los autores plantean la existencia de dos grandes corrientes que abordan la historia de la homosexualidad: la esencialista y la construccionista. Ambas tienen puntos fuertes y debilidades en la interpretación histórica de la homosexualidad. La primera estaría más vinculada a la lucha por la reivindicación de los derechos políticos y por la afirmación de la propia identidad, mientras que la segunda, negaría la naturaleza especial de los homosexuales, afirmando que la homosexualidad sería un hecho institucional “un tipo de subjetividad forjada a partir del lenguaje y la acción humana” (p. 7). Nuestros autores se sitúan en la estela del contruccionismo pero matizado. Siguiendo la propuesta del nominalismo dinámico de Ian Hacking, rechazan la “forma meramente discursiva del construccionismo social” interpretando de manera dinámica la “relación entre subjetividad, discurso y control” tomando en cuenta los “efectos materiales y las consecuencias para la realidad de los que son identificados homosexuales”. Ser homosexual no sería sólo “llenar un hueco discursivo o adoptar un rol cultural, sino además sufrir las consecuencias de ser etiquetado y de etiquetarse asimismo como semejante clase de individuo” (p. 8).

Desde esta perspectiva, proponen una revisión de una cierta visión teleológica de la homosexualidad, deudora de las tesis de Michel Foucault. Dicha visión entrañaría una interpretación en la que la figura del sodomita daría paso a la del invertido y ésta a la del homosexual, como “si las etapas conducentes a su creación estuvieran inexorable-