

cómo? (Por ejemplo, la tabla de la página 101 es un enigma si se le hurta al lector la pregunta completa. Así, para la combinación $\langle j, t \rangle$, esta pregunta ha de ser: “¿Qué valor tiene el enunciado ‘Él es John Hawthorne’ cuando es John Hawthorne quien está sentado al extremo de la mesa y al proferir ‘Él’ el hablante señala a Ted Sider?” La parte en cursiva de la pregunta es la que habitualmente no se proporciona.)

En segundo lugar, está la cuestión de si la teoría semántica ha de avanzar bajo la guía de principios metafísicos o siguiendo el dictado de normas que regulen las competencias comunicativas de los hablantes de la lengua. Puede que haya maneras distintas de hacer semántica, pero no va de suyo que la primera opción sea la correcta. En cuanto a los detalles técnicos, porque la versión del bidimensionalismo de Stalnaker es compatible con algunas de las exigencias de la Ortodoxia PKK. Así, la tesis principal de *RD*, que la semántica bidimensional supone una vuelta al Descriptivismo en semántica, no es correcta en todas las versiones. Al final, permanece la duda de cuándo deja de ser benigno el bidimensionalismo benigno. Y en lo referente a la filosofía del proyecto de Stalnaker, porque la objeción de que este proyecto no pertenece a la semántica, sino a la pragmática, revela a un Soames más centrado en la lógica y la semántica que en la filosofía. Los problemas del significado, cree firmemente, no tienen que ver con lo que los hablantes aseveran con sus enunciados, sino con lo que éstos significan. Se sigue de ello que el proyecto de reemplazar la pregunta de qué proposición expresa un enunciado por la pregunta de qué contribución puede hacerse con ese enunciado en un cierto estadio conversacional está fuera de lugar. La convicción filosófica que parece estar por debajo de tal actitud, que sólo se entrevé hacia el final de la obra, es la de la primacía del lenguaje público: el hablante no crea el lenguaje ni le dota de significado, sino que se incorpora a algo que le antecede. Sin embargo, esta tesis, que sintoniza bien con la Ortodoxia PKK, es compatible con el bidimensionalismo de Stalnaker. Esta importante discusión, que en el fondo remite al problema de si compete a la metafísica tutelar a la semántica, no se aborda en *RD*. Por ello, no está claro que la crítica de Soames inquiete a un filósofo con inclinaciones pragmáticas.

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MICHAEL STREVENs. 2009. *Depth. An account of scientific explanations*. Cambridge: Harvard University Press.

Depth is a contribution to the debate on scientific explanation. There is indeed a long tradition in this area, originated in the seminal works of Carl Hempel and Paul Oppenheim and carried on by eminent scholars such as Wesley Salmon, Philip Kitcher or Bas van Fraassen, to name just a few. The conceptualisation and analysis of explanation has seen various phases and approaches: from a pure formal treatment in terms of logical arguments, to its closeness to a statistical model measuring relevance relations, up to pragmatic approaches. Yet, at the beginning of the seventh decade, expla-

nation is not a dead issue. There is still a lot to be clarified and discussed, and Strevens positively adds to it.

The Author proposes a novel account of scientific explanation—the ‘kairctic account’ – that aims to incorporate many of the advantages of previous accounts and at the same time overcoming well-known problems. The book title (*Depth*), certainly suggestive, makes reference to one particular aspect of Strevens’ account of explanation. However, we have to dive *deep* in the book to discover that *depth* is the characteristic of explanation that Strevens considers to be most fundamental.

Strevens’ exposes his own views on scientific explanation and compares them to other accounts (both traditional and more recent ones) with expertise. Strevens intercalates presentation and critical discussion of traditional accounts of explanation to his own views. The book is organised into five parts. In the first part Strevens introduces the notions of causal explanation and of explanatory relevance, paying attention to existing and competing accounts such as the probabilistic, counterfactual, and manipulationist. The second part develops in the detail Strevens’ own approach to explanation, namely the ‘kairctic account of difference-making’. Part three deals with the explanation of laws and regularities, whilst part four is devoted to probabilistic explanation with special attention to the ‘kairctic’ explanation of frequencies of single outcomes. In the last, fifth, part Strevens discusses explanation in some special sciences such as biology and economics.

The main idea defended in the book is that explanation has to do with a special kind of *difference-making*. The reader should be sidetracked immediately. It is not the counterfactual difference-making advocated especially by Jim Woodward that is developed in *Depth*, but a difference-making cashed out in terms of *explanatory* relevance, in turn explicated in terms of *causal* relevance. Strevens names his account *kairctic*, a neologism freely adapted from the Greek word ‘kairos’, to mean something along the lines ‘at the right place’ or ‘at the right moment’ and thus to mean that something is explained to the extent that the cause is put ‘in the right place or at the right moment’ in order to be causally (and thereby explanatory) relevant to the effect. In other words, causes do not explain because had they not been, the effect would not have occurred either (a Lewisian kind of explanation), nor because they are part of a chain of counterfactual dependence allowing to answer ‘what-if-things-had-been-different-questions’ (a Woodwardian kind of explanation). Causes explain because, when you go *deep* down in the structure of the phenomenon to be explained, you will find the event-cause there, where it has to be, namely at the ‘right place’, such that it makes a difference.

Depth is a highly informative book for those looking at explanation for the first time as the key terms and concepts are thoroughly defined and put in context properly. This does not mean, however, that *Depth* is a simple textbook on scientific explanation. Quite to the contrary, it is a complex and articulated original account made accessible and comparable with traditional accounts thanks to its modular structure and its careful discussions of the existing literature. Strevens also provides a very good critical examination of the main accounts of explanation, which makes it a suitable tool for postgraduate teaching, for instance. The writing is simple, without losing precision,

clear and easy to follow. The architecture of the book is sophisticated without being obscure. The table of contents, the bibliography, and the index have been carefully prepared. This is an aspect not to be underestimated, given the size of the book and the amount of information presented there.

Strevens aims to give an account spanning various domains – from laymen explanations to physics and biological explanation – with some acknowledged omissions. In fact, some problems proper to higher-level sciences that have not been addressed on purpose include the following: functional explanation in biology and in the special sciences, explanation in history, explanatory role of representations in psychology. It then remains an open question to what extent the kairetic account does justice to the complexity of ‘real’ scientific explanation, if the account is tested against highly simplified scientific examples and ordinary cases such as the explanation of the exact orbit of the planet Mars over the course of the year, of the death of Rasputin, of the cannonball breaking a window.

Depth sets up an interesting and promising research agenda that looks at a non-counterfactual difference-making criterion for explanation. Nevertheless, the discussion appears at times to be somewhat disconnected from real scientific practice. For instance, in chapter 3 (p. 70) a causal model is defined as a set of statements entailing occurrence of event. This is at variance with the conception of causal model statisticians, computer scientists, and social scientists may have. It would be therefore important to work towards bridging Strevens’ conception to the current scientific understanding of ‘causal model’. Or, to give another example, the pragmatic approach to black boxing developed in chapter 5 (p. 158ff) neglects the widespread use of simulation techniques in many scientific domains. Instead, a major task for any account of explanation nowadays is to spell out the relations between explanation and simulation. The next item of the agenda, it is to be hoped, is the extension of this work to cases closer to scientific practice, namely to the *difficult* cases that science struggles to explain.

There is a more general point to make, though. From a certain philosophy of science perspective, namely of those who think that any accounts of explanation, causation, probability or the like originate from a thorough understanding and examination of the scientific practice and are developed with the goal of positively participating into the scientific enterprise, Strevens’ approach may appear incomplete. The sciences, in fact, explicitly appear only at the very end and any tests for the relevance of the theses thereby defended for the scientific practice is left as homework for the reader.

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