

Possibilities and Paradox: An Introduction to Modal and Many-Valued Logic.
By J.C. BEALL and BAS C. VAN FRAASSEN.
Oxford University Press, 2003. xv + 233 pp. \$29.95 paper

Non-classical logics play a prominent role in many areas of philosophy nowadays—philosophy of mind, metaphysics, and philosophy of language, to mention a few. Unfortunately, much of the discussion of non-classical systems has been confined to highly specialized publications and has therefore been inaccessible to the philosophy undergraduate student. Until recently, there were only a few books on the market suitable for the beginner (one of them is Graham Priest’s excellent *An Introduction to Non-Classical Logic*, Cambridge University Press, 2001). Given the importance of the topic, another good textbook on non-classical logics would be very welcome.

Beall and van Fraassen have helped to fill this gap in the current literature with their new and detailed introduction to modal and many-valued logics. *Possibilities and Paradox* exposes, in an accessible way, the basic concepts and techniques of a variety of non-classical systems, including standard modal, conditional, intuitionistic, relevance, and paraconsistent logic. All that is required from the reader is familiarity with elementary classical logic. The stated aim of the book “is to give students a basic grounding in philosophical logic, in a way that connects with motivations they derive from elsewhere in philosophy” (p. ix). Indeed the text is very successful in achieving this goal: it covers a wide range of technical material without neglecting philosophical issues associated with the development of such systems. Like any good textbook, it contains a helpful bibliography and suggestions for further reading. The reader also finds a number of exercises, whose solutions will eventually be available on the book’s website. (A link to this can be found at <http://webware.princeton.edu/vanfraas/>.) All these features ensure that the book will benefit both undergraduate and graduate students with a basic understanding of classical logic. It will also be of use to professional philosophers interested in learning more about modal and many-valued logics.

The text consists in twelve well-organized chapters and is divided into four parts. The first part introduces non-classical logics and provides a revision of technical material required for subsequent chapters. Part Two is devoted to modality. It begins with a discussion of standard modal logics (K, T, D, S4, and S5) and then examines some variations on them, including non-normal modal logics. Here we are also presented with other related systems such as counterfactual and intuitionistic logic. Part Three introduces a variety of many-valued logics and languages. Among the several systems examined in this section are First Degree Entailment, Strong Kleene, the Logic of Paradox, Supervaluational logic, and infinite-valued logics. This part of the book also shows how the Sorites and the Liar Paradoxes can provide motivations for developing some of these logics. Part four is dedicated

to meta-theory. While this is technically the most sophisticated part of the book, it does an excellent job of clarifying the relationships among several of the logics and languages discussed in previous chapters. For instance, here we find a completeness proof template that can be applied to most of the logical systems presented in the book. Thus, meta-theoretical results are seen to contribute to a unified approach to logic.

There is another level at which we find a unified approach to logic. Beall and van Fraassen repeatedly stress that the notion of validity is the same irrespective of the language we are dealing with: “the concept of premisses validly implying a certain conclusion is general, not language specific” (p. ix). This unifying thread will be much appreciated by the readers of this text, for it is easy to feel at sea among the variety of disparate looking systems that constitute modern logic. In sum, *Possibilities and Paradox* is a very good book that will be of great benefit to anyone interested in acquiring competence in the fascinating area of modal and many-valued logic.

Universidade Federal de Santa Catarina

Juliana Weingaertner