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The book is a short introduction to five non-classical logics (temporal, modal, conditional, relevantistic, and intuitionistic). In its 153 pages it has room for several items that students and non-specialists will thank: the philosophical motivations of the technical developments are treated; some useful suggestions for further readings are given (in particular, the reader is provided with sources of “second opinions”); and a number of technical proofs of the main results are given or at least sketched, leaving nonetheless to the reader the option of skipping them. Understandably, the book has not room for any compilation of “end-of-chapter problem sets” (sometimes offered as a complement to logic textbooks); it also has to neglect a systematic history of the different non-classical developments; and, finally, as a general rule, the technical results have preeminence over the discussion of the philosophical issues that underlie or are raised by them.

Although the author wants to separate the study of philosophical logic (concerned, just like classical logic, with valid forms of argument) from the philosophy of logic (concerned, it appears, with some presuppositions that are not relevant to the development of logic: see pages 2-3), the book can nevertheless be considered to contain some philosophy of logic in a wider sense, since the author not only offers a description of the different non-classical logics and a compilation of the main technical results, but he also (and “unashamedly”: see page viii) addresses a number of substantive philosophical questions concerning them.

After a first chapter containing a survey of Classical Logic (pp. 1-12), Chapter

Two is devoted to Temporal Logic (pp. 13-39). First, the author substantiates the choice for what he calls the “autonomous approach to temporal logic”, in contrast with the possibility of treating temporal distinctions by means of classical predicate logic. Then, the temporal non-truth-functional operators are introduced, the axioms and primitive rules for the minimal temporal logic are presented, some further non-primitive rules are proved, and some examples of theorems are provided and proved. Next, an extension of the minimal system is proposed, as a step “towards the temporal logic of classical physics”. A brief section on the reduction of tenses follows, and a longer section on quantified temporal logic closes the chapter, with an assessment of the unsatisfactory situation concerning this particular development.

Chapter Three focuses on Modal Logic (pp. 40-70). As a preface, the author first offers some explanations concerning the use of Kripke models and the intuitive content of the accessibility relation, and then a taxonomy of modality is presented, mainly aimed at warning the reader against the “doubtless” notion of metaphysical necessity. Next, the minimal modal logic K and the series of the main increasingly strong systems are presented, with a brief proof of soundness. Next, after a short section on the reduction of modalities, two long sections are devoted to the proofs of completeness and decidability. Three pages are devoted to the philosophical question about “the correct” modal system. Again, a brief section on quantification closes the chapter, with only a concise mention to Quine’s critique and a negative verdict on the current state of modal predicate logic.

Chapter Four deals with Conditional Logic (pp. 71-98), and concentrates mainly on indicative conditionals. After an outline of the Gricean attempt to save the classical account from objections, the non-classical theories are presented both in the traditional probabilistic form and in a novel model-theoretic form. The translation of the probabilistic language into “qualitative” terms is made by means of the notion of “degree of belief”, which is given sense by the further notion of “remoteness from credibility”, which in its turn is technically treated by means of the model-theoretic apparatus. Both the notions of probabilistic validity and model-theoretic validity are defined, and counterexamples are given to some classically valid rules of inference. Conditional deductions are defined and exemplified, and the deduction procedure is proved to be sound and complete. Almost four pages are devoted to the philosophical question about “the correct” logic of indicative conditionals, with a defense of the material conditional analysis in terms of conventional implicatures and shifting of standards. Two brief sections close the chapter, on counterfactual and weak conditionals.

Chapter Five is devoted to Relevantistic Logic (pp. 99-120). Burgess coins

the label “relevantistic” as a generic name covering three alternative ways of rejecting “the Lewis deduction”, by rejecting either disjunction introduction, or disjunctive syllogism, or transitivity of entailment. Topic logic is briefly considered, but the proposal of preserving classical logic by appeal to topic-relatedness is dismissed as insufficient. Then a “perfectibility” criterion of entailment is examined, and the failure of transitivity in this account is assessed. The standard relevantistic accounts of entailment are examined, with a distinction between a “first degree” and a “purely implicational” fragment: that is, the relevantistic account of truth-functional connectives is separated from the relevantistic account of “implication”. The longest section is devoted to the analysis of the “purely implicational” fragment of relevantistic logic, which interprets “implication” as a non-noninterference conditional, such as “if A, then B for that reason”. Since the author repeatedly emphasizes the indispensability in mathematical practice of the three classical rules at issue, he explores two options available for the relevantistic. First, some moderate proposals of application of relevantistic logics to extra-mathematical domains are presented as a curiosity. Second, the dialetheist alternative to orthodox mathematics is hastily described and dismissed. Burgess criticism to relevantistic logics ends by showing that either the “first degree” fragment is incompatible with the “purely implicational” one, or the resulting combined system is undecidable and uninterpretable in a natural heuristic way.

Chapter Six deals with Intuitionistic Logic (pp. 121-142). As far as sentential logic is concerned, the Heyting axiomatization is presented, with proofs of some basic theorems and a whole section devoted to the interpretation of double-negation and to the relation between intuitionistic and classical sets of theorems. Gödel’s modal interpretation is presented (and illuminated by means of the notion of Kripke model), and then the proof of soundness and that of completeness are offered. Also, two intermediate systems are briefly described, and finally a system of intuitionistic predicate logic is presented, with the corresponding extension of the notion of Kripke model and a brief remark about the undecidability of intuitionistic monadic predicate logic. A final section on completeness, at first seeming to find some promise in the notion of lawless choice sequence, ends nevertheless with a pessimistic diagnosis of the situation.

In sum, the book offers a fairly accessible survey of a selected group of non-classical logical systems and their metalogical properties. A number of typographical errors that should be corrected have been pointed out by L. Humberstone in a previous review: *The Bulletin of Symbolic Logic* 16/3 (2010) 411-413. A double use will be possible, both as a textbook for a course on non-classical logics, and as a guide for non-specialists who need an introduction to the sub-

ject: in fact, the work is mainly intended to equip the reader to follow basic applications in analytic philosophy (p. vii). In my opinion, it can also be a good starting point for exploring philosophical questions about logic, importantly by pondering the reasons for Burgess sympathies and antipathies.

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