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CONTEMPORARY AUSTRALIAN RESEARCH IN LOGIC

INTRODUCTION

Australia is a country with a small population and an even smaller number of logicians. (There are, for example, only sixteen universities with philosophy departments in the whole country.) Despite this, the research produced in logic by Australians over the last 25 years has been notable in both quantity and quality. Why this is, we will not speculate here. However, when Jean Paul van Bendegem offered us the chance of producing a special edition of *Logique et Analyse*, we thought that this would be an excellent opportunity to provide a snapshot of the work on logic in Australia.

We made a call for papers about mid-way through 1993 and asked for them to be sent by the end of February 1994. It is a mark of the health of the research in Australia that we received so many very good papers in such a short time. Probably, few of the contributors would claim that their paper in this issue is one of their best — and this is hardly to be expected in the circumstances. But just because of that, the articles in the collection present an accurate picture of contemporary research in logic in Australia, and clearly demonstrate its breath and its strength.

The majority of logicians working in Australia are Australian-trained and Australian-born, though by no means all: Australia has expatriated many of its best students for overseas training, and has in turn attracted a good number of overseas scholars to settle in this country. What, then, is distinctive about Australian logic, if anything?

All of the papers in this volume take their departure from a dominant motivational idea, typically of a philosophical sort. This derives partly from the preponderance of contributors from a philosophy department or with primary philosophical training (again there are notable exceptions). It also derives partly from the nature of the subject itself. While both logic and mathematics employ formal methods which generate interest in formal structures for their own sake, logic takes its departure from inferential relationships deriving from, and possibly determinative of, central and problematic philosophical concepts. A good number of papers in this volume can be classified as primarily philosophical in orientation: e.g., those of Humberstone, Hyde, Meyer-Martin, O'Hair, Petersen, Priest, Staines, Sylvan.

One thing which characterises a significant amount of Australian logic has been an interest in non-classical logic. Having said this, we hasten to acknowledge the number of papers herein which (more or less) fall on the classical side of this divide: Bunder, Hamblin-Staines, Hinckfuss, O'Hair, Slater, Taylor-Hazen. Nonetheless, it is noticeable how many papers treat formal and philosophical aspects of inconsistency, incompleteness, paradoxes and paraconsistent logics: Brady, James, Cole and Mortensen, Petersen, Priest, Restall, Slaney, Sylvan.

With the advent of computers, it was inevitable that logicians would move rapidly to exploit their capacities; and that, in turn, computer scientists would be attracted to logical problems. It is very noticeable how (potentially) machine-friendly twentieth-century logic was, even well before the advent of electronic computers. In the words of Meyer, computer science scratches many of the same itches that logic does. In this volume we see the computational aspects of logic represented in the papers of Jeavons-Crossley, Peppas-Foo-Williams, Slaney.

One must not, of course, neglect the application of logic to the study of mathematical theories. A glance at the *Journal of Symbolic Logic* might give the (mistaken) impression that this is the principal role of logic, and that the logic for this purpose is classical. Still, the study of mathematical theories is undoubtedly an important application for logic. But we wish to draw attention to the growing application of non-classical logics, especially paraconsistent logics, to this area, represented here by the papers of James and Restall.

We would like to thank all those who have contributed to the volume, and especially Jean Paul van Bendegem for making it possible. We dedicate this volume to Len Goddard, whose arrival in Australia provided a major, perhaps the major, impetus for research into modern logic here; whose school in Armidale trained a generation of Australian logicians; and whose attitudes set the tone of so much research here, both in its interest in non-classical logic and in its open-minded spirit of investigation.

Chris Mortensen Graham Priest