

Preface

The present issue of the *Annals of Mathematics and Artificial Intelligence* is devoted to the First International Workshop on Deontic Logic in Computer Science (DEON'91 for short), which was held in Amsterdam on December 11–13, 1991. The initiative of DEON'91 was taken in order to bring together a number of researchers who apply deontic logic in their particular area of computer science and related disciplines. Thus we focused on an interdisciplinary exchange of ideas where computer science and artificial intelligence constitute the connecting links between the various areas.

Deontic logic is a branch of modal logic to reason about normative versus non-normative behaviour by means of modal operators such as ought, permitted and forbidden. Originating from philosophy, where it is used to formalize (reasoning about) notions in ethics and philosophy of law, it has recently become apparent that also a more profane application of deontic logic can be found in certain areas of computer science and artificial intelligence. The reason for this is that it provides an adequate tool for specifying what *should* happen in some system even if this does not actually happen, and the system thus exhibits *illegal* behaviour. Moreover, it also provides means to specify what should happen if such illegal behaviour occurs. This kind of specification is often called for in (computer science) practice. For example, deontic logic may be employed in the description/specification of information systems, office systems, fault-tolerant systems, security policies and natural language processing. Furthermore, from the roots mentioned above its use in legal expert systems seems obvious as well.

In this special issue, we have selected a number of paper that were presented at DEON'91, on the basis of quality and scope of the *Annals*, focusing on formal approaches. We believe that this selection gives a fair idea of the wide spectrum of possible uses of deontic logic in computer science, and AI in particular.

J.-J. Ch. Meyer and R.J. Wieringa
Editors
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