

PREFACE

More than two millennia ago Greek philosophers realized that vagueness poses a challenge to logic: if you remove a single grain of sand from a heap of sand you are still left with a heap of sand, or so it seems. But if this sentence is just as true as the assertion that a million properly arranged sand grains make a heap of sand, then iterative applications of the most basic laws of logic—instantiation and modus ponens—lead us to the conclusion that even a single grain of sand and actually also no sand at all make a heap. This well known sorites paradox does not allude to any strange properties specific to heaps, of course. The same kind of reasoning seduces us to conclude that we are forever young and always old, tall and short, fat and skinny, all at the same time. Just initiate a corresponding sorites series with an innocuous statement referring to a case where the truthful application of the chosen predicate is uncontroversial and add an inductive premise that states that an imperceptible small change in respect to the relevant predicate never turns a true statement into a false one.

The sorites paradox and other phenomena related to the fact that natural language is intrinsically vague have engendered an almost insurmountably large amount of literature on formal models of reasoning with vague language. On our count at least ten monographs and paper collections that focus on theories of vagueness have appeared in the last decade alone. The enterprise that led to the volume that you are now holding in your hands started in early 2007, when we, a group of logicians and computer scientists in Barcelona, Prague, and Vienna, became aware of a call for project proposals in the programme *Modelling Intelligent Interaction - Logic in the Humanities, Social and Computational Sciences (LogICCC)*, of the European Science Foundation (ESF). Our proposal *Logical Models of Reasoning with Vague Information (LoMoReVI)*, granted in May 2008, was mainly motivated by two insights:

- Contemporary formal logic, in particular, mathematical fuzzy logic, provides a rich toolbox for designing and assembling models of reasoning with vague predicates and propositions.
- Fuzzy logic alone is not sufficient for modeling vagueness at a level that matches the many subtle aspects of vague language use that have emerged from philosophical and linguistic research on this topic.

Correspondingly it has been our aim from the very onset to actively seek interaction with experts on theoretical and empirical aspects of vagueness and related language phenomena. We thus were glad to see that a sister *LogICCC* project *Vagueness, Approximation, and Granularity* would take up mainly linguistic and psychological research challenges related to vagueness.

The majority of the fifteen papers collected in this volume originated with presentations at a conference in Čejkovice, Czech Republic, 14–17 September 2009, that bore the same title as our collaborative research project (CRP): “Logical Models of Reasoning with Vague Information (LoMoReVI)”. Incidentally, this event was the first in an impressive series of inter-CRP activities sponsored by ESF to foster the exchange of ideas

and collaboration within the Eurocores programme *LogICCC*. A number of additional experts that have not attended the conference have also been invited to contribute. As already mentioned, this book is not the only recent publication on the fascinating topic of vagueness. However, we want to emphasize two features that enhance the attractiveness of this volume.

- In accordance with the broad array of challenges provided by the phenomenon of vagueness, we strive at interdisciplinarity. The list of contributors includes philosophers, linguists, logicians, mathematicians, and computer scientists.
- All papers have not only been peer reviewed, but are accompanied here by comments of other experts. These comments and the replies by the authors document intensive debates at the frontier of contemporary research—in some cases by crossing and reflecting on disciplinary boundaries.

We hope that these features, jointly with the high quality of the papers, render this book interesting and useful beyond merely documenting research related to *LoMoReVI*.

Any project of this kind, in particular when so many people are involved in it, incurs various debts to colleagues, friends, and families. Indeed this book has only been made possible by the generous assistance of many individuals and funding institutions. We are sincerely grateful and hope to be forgiven for not providing a complete list of people we feel indebted to here. However we certainly want to acknowledge explicitly the funding by ESF, that not only supported the *LoMoReVI* project¹ but also provided specific grants for the mentioned *LoMoReVI* conference as well as for this publication. In this context we also thank Dr Eva Hoogland and her team at ESF, who provided impressively effective and always friendly support throughout the whole project. More specific to this publication, we want to express our gratitude to all authors of papers and of comments on papers. All contributions to this volume have been peer reviewed; and while most of the referees also appear as authors, we also want to thank the following additional reviewers: Maria Aloni, Alan Bale, Pilar Dellunde, Alice Kyburg, Jonathan Lawry, George Metcalfe, Carles Noguera, Graham Priest, and Friedrich Slivovsky. Last but not least we wish to thank to Karel Chvalovský, Petra Ivaničová, Eva Pospíšilová, and Jane Spurr for administrative and technical support.

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