# Preface

The topic of argumentation, already studied in Antique philosophy, has seen major innovations since the advent of the computer age. Software exists for the creation and evaluation of arguments in high-stake situations, such as medical diagnosis and crime investigation; formal systems help appreciate the role of value judgments underlying opposing positions; and one can enter in argumentative dialogues as if playing a computer game.

Since its start in 2006, the biannual conference series on Computational Models of Argument (COMMA) has been a successful forum for researchers studying argumentation using formal and computational tools. In September 2006, the University of Liverpool organised the first edition. In May 2008, the second was held in France, hosted by the Institut de Recherche en Informatique de Toulouse (IRIT). The third edition was organised by the University of Brescia, and held in Desenzano del Garda, Italy, in September 2010. In 2012, the fourth edition of COMMA is held from September 10–12 in Vienna, Austria.

Argumentation can be studied from many angles. One can aim for the building of smart software (the artificial systems perspective), or for a better understanding of the intricacies of human argument (the natural systems perspective), or for the development of an elegant mathematical model of argument (the theoretical systems perspective). Progress in argumentation research is driven by the cross-fertilization and gradual integration of achievements in each of the perspectives (Figure 1).

These perspectives, and more, are present at the conference. The invited speakers at the conference are representatives of this diversity: Trevor Bench-Capon, a philosopher turned computer scientist studying legal applications; Erik Krabbe, who connects two millenia of insights about argument and dialogue, both informal and formal; and Keith Stenning, an experimental psychologist inspired by nonmonotonic logic and artificial intelligence.

The success of the field is illustrated by the increasing number of submissions: in 2006, around 50; in 2008, 60; in 2010, 67; this year, 76. In order to stimulate interaction between researchers with theoretical and practical research aims, in

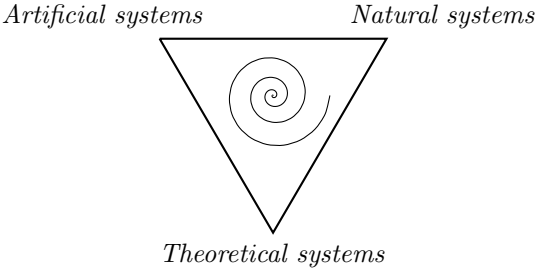


**Figure 1.** Perspectives on argumentation research

this fourth edition of COMMA, papers could be submitted both for the regular track and for the innovative applications track, the latter new in this edition. We received 65 regular track papers and 11 innovative applications track papers. 28 of them were accepted as full papers, and 17 as short papers. To further emphasise the importance of implemented systems, we also called for system demonstrations; 13 were accepted for the conference, 3 of them associated with another paper in the proceedings, and 10 described in an extended abstract.

The selection of papers and demonstrations was made on the basis of the scholarly reviews and discussion by the members of the Program Committee and additional reviewers. We thank them all for their hard work. Special thanks go to Adam Wyner for his excellent work as demonstrations coordinator. Finally, we are particularly grateful to all people who helped us in organizing COMMA 2012, in particular Eva Nedoma, Markus Pichlmair, and Friedrich Slivovsky.

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