Preface

Aims and scope of the workshop

Information for real-life AI applications is usually pervaded by uncertainty and subject to change, thus demands non-classical reasoning approaches. At the same time, psychological findings indicate that human reasoning cannot be completely described by classical logical systems. Sources of explanations are incomplete knowledge, incorrect beliefs, or inconsistencies. A wide range of reasoning mechanisms has to be considered, such as analogical or defeasible reasoning, possibly in combination with machine learning methods. The field of knowledge representation and reasoning offers a rich palette of methods for uncertain reasoning both to describe human reasoning and to model AI approaches.

The aim of this series of workshops is to address recent challenges and to present novel approaches to uncertain reasoning and belief change in their broad senses, and in particular provide a forum for research work linking different paradigms of reasoning. A special focus is on papers that provide a base for connecting formal-logical models of knowledge representation and cognitive models of reasoning and learning, addressing formal and experimental or heuristic issues. Previous events of the Workshop on "Formal and Cognitive Reasoning" and joint workshops took place in Dresden (2015), Bremen (2016), Dortmund (2017), Berlin (2018), Kassel (2019), Bamberg (2020, online), and Berlin (2021, online).

Organization of the Workshop

As in the past, the workshop Formal and Cognitive Reasoning (FCR-2022) at KI-2022, the 45th German Conference on Artificial Intelligence, was organized jointly by the GI special interest groups *Wissensrepräsentation und Schließen* and *Kognition*. The FCR workshop series emerged from two separate workshop series, namely Dynamics of Knowledge and Belief (DKB) and KI & Kognition (KIK). This volume contains the papers presented at the FCR-2022 workshop held on 19-Sep-2022. The KI-2022 conference and all its workshops were expected to take place in Trier, Germany. However, because of the corona pandemic all were turned into fully virtual events. Each FCR submission was reviewed by at least two program committee members, but most of them by three reviewers. The committee decided to accept nine papers for presentation. In consequence, the workshop hosted contributions with diverse topics. We are grateful to Sébastien Konieczny for enriching the program by a very inspiring talk.

Acknowledgments

The organizers of this workshop would like to thank the organizers of the KI 2022 conference in Trier for their excellent support. We also would like to thank the members of the program committee for their help in selecting and improving the submitted papers, and finally all participants of the workshop for their contributions. Our wish is that new inspirations and collaborations between the contributing disciplines will emerge from this workshop.

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