Preface

Aims and scope of the workshop

Information for real-life AI applications is usually pervaded by uncertainty and subject to change, and thus requires the investigation and design of systems going beyond classical knowledge representation and reasoning. 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), Berlin (2021, online), Trier (2022, online), and Berlin (2023).

Organization of the Workshop

As in the past, the workshop Formal and Cognitive Reasoning (FCR-2024) at KI-2024, the 47th German Conference on Artificial Intelligence, was organized jointly by the GI special interest group *Wissensrepräsentation und Schließen* and by the GI special interest group *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-2024 workshop held on 23-Sep-2024. The KI-2024 conference and all its workshops took place in Würzburg, Germany. At least three program committee members reviewed each of the seven FCR submissions. The committee decided to accept six papers for presentation. In consequence, the workshop hosted contributions with diverse topics. We are grateful to Oliver Kutz (Free University of Bozen-Bolzano, Italy) for enriching the program with a very inspiring talk "The Perceptron and the Tooth: A new Family of Logics for Cognitive Modelling".

Acknowledgments

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