

Preface

Aims and Scope of the Workshop

Information for real life AI applications is usually pervaded by uncertainty and subject to change, and thus demands for 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 mechanism 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. We put a special focus on papers from both fields that provide a base for connecting formal-logical models of knowledge representation and cognitive models of reasoning and learning, addressing formal as well as experimental or heuristic issues. Previous events of the Workshop on Formal and Cognitive Reasoning took place in Dresden (2015), Bremen (2016), Dortmund (2017), Berlin (2018), and Kassel (2019).

Organization of the Workshop

As in the past, the workshop *Formal and Cognitive Reasoning* (FCR-2020) at KI-2020, the 43rd German Conference on Artificial Intelligence, was organized jointly by the GI special interest groups *Wissensrepräsentation und Schließen* and *Kognition*. Because of the success of this joint workshop series, we will use solely the single acronym FCR. The 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-2020 workshop held on 22-Sep-2020. The KI-2020 conference and all its workshops were expected to take place in Bamberg, Germany. However, because of the corona pandemic all were turned into fully virtual events – as so many events in 2020.

There were eight submissions to the workshop. Each submission was reviewed by two program committee members. The committee decided to accept six papers for presentation. In consequence, the workshop hosted contributions with diverse topics such as artificial mental states, automated reasoning, belief revision, consciousness, description logics, natural language understanding, norms and defeasibility.

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Christoph Beierle, Marco Ragni, Frieder Stolzenburg, Matthias Thimm

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