

Advances and Challenges in the Development and Application of Forgetting Tools (Abstract)

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Forgetting is a content extraction method for formal knowledge bases. Because knowledge not only consists of what is explicitly stated in the knowledge base but also of what can be inferred, knowledge extraction is a challenging problem. Forgetting attempts to create a compact and faithful representation of the stored knowledge over a user-specified signature by performing inferences on the symbols not in this signature. The result is a restricted view of the knowledge base that is equivalent to the original knowledge base without using any of the specified forgetting symbols and can be used as a stand-alone knowledge base. Forgetting views are often easier to navigate, analyse and query. We can also use forgetting to transform a logical theory or a formula into a uniform interpolant. It is useful for equivalent reduction of second-order formulae to formulae in first-order logic and provides a method to automate modal correspondence theory. Another application of forgetting is abductive reasoning, which is useful for ontology formation and ontology repair. Yet another application is logical difference computation between two ontologies.

In this presentation I gave an overview of our work on the development and application of forgetting methods for description and modal logics. After an introduction to the idea of forgetting and two forms of forgetting (deductive and semantic forgetting), I discussed current advances and challenges in automating and applying forgetting.

A selection of references: [3, 4, 6, 8, 7, 12, 13, 11, 2, 5, 1, 9, 10].

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