Gyorgy Turan

University of Illinois at Chicago, USA

and Hungarian Academy of Sciences

Horn formulas: approximate minimization and

Horn formulas form an expressive and tractable fragment of propositional logic, and can be viewed as a basic model for knowledge bases. We discuss two problems that are motivated by such applications.

The minimization problem is to find an shortest formula equivalent to a given formula. This problem is known to be computationally hard in general. Thus one can try to find algorithms that provide approximately minimal formulas, and to prove that approximate minimization is also hard. We discuss results of both kinds.

The revision, or update problem is to revise a Horn knowledge base if new information is obtained which is inconsistent with the original one. The standard AGM framework assumes that the underlying logic contains full propositional logic. Recent work shows how to adapt this framework to the Horn case. We give an overview of this ongoing research.

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