Anti-unification: Applications and Recent Results

David Cerna*
Institute of Computer Science
Czech Academy of Sciences
Prague, Czech Republic

Abstract

Unification[1] is a process by which two symbolic expressions may be identified through variable replacement. Anti-unification (generalization)[4, 5], on the other hand, is a process that derives from a set of symbolic expressions a new symbolic expression possessing certain commonalities shared between its members. In this talk we will discuss the basics of anti-unification, applications of the concept and some recent results concerning anti-unification over equational theories and higher order anti-unification. For example, the existence of equational theories over which anti-unification is *nullary*[3], and a generic framework for particular variants of higher order anti-unification[2].

References

[1] Franz Baader, Wayne Snyder, Paliath Narendran, Manfred Schmidt-Schauß and Klaus U. Schulz. Unification Theory. *Handbook of Automated Reasoning (in 2 volumes)*, 445-532, Elsevier and MIT Press, 2001.

[2] David M. Cerna and Temur Kutsia. A Generic Framework for Higher-Order Generalizations. In *4th International Conference on Formal Structures for Computation and Deduction (FSCD 2019), Leibniz International Proceedings in Informatics (LIPIcs)*, volume 131, 10:1–10:19, 2019.

[3] David M. Cerna. Anti-unification and the theory of semirings. *Theoretical Computer Science,* volume, 848, pages 133-139, 2020.

[4] Gordon D. Plotkin. A note on inductive generalization. *Machine Intel.*, volume 5(1), pages 153-163, 1970.

[5] John C. Reynolds. Transformational systems and the algebraic structure of atomic formulas. *Machine Intel.*, volume 5(1), pages 135-151, 1970.

*e-mail: dcerna@cs.cas.cz