Seminário de Teoria da Computação

General Abelian Groups Unification

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10:00 Horas

Sala: MAT B - térreo do MAT

Abstract.

In this talk we will discuss results on the unification problem modulo the equational theory *AGh* of free abelian groups with homomorphism. We begin with the elementary case and gradually discuss the evolution of the study and solutions given by researchers over the decades.

Finally we present, with some details, the solution given by Zhiqiang Liu in his PhD dissertation (see [3]). There, he solved the general case for free abelian groups by means of inference rules and give some additional rules for efficiency on computing a complete set of unifiers that is small as possible. This result on an inference system that is mostly deterministic, i.e., non-deterministic rules is not often applied.

References

[1] Baader, Franz. - Unification in Commutative Theories *Institut für Mathematische und Datenverarbeitung (Informatik), 1989 Academic Press*

[2] D. Lankford; G. Butler and B. Brady - Abelian Group Unification Algorithms for Elementary Terms *American Mathematical Society, 1984*

[3] Liu, Zhiqiang - Dealing Efficiently with Exclusive OR, Abelian Groups and Homomorphism in Cryptographic Protocol Analysis PhD Thesis, 2012 *Department of Mathematics and Computer Science - Clarkson University*