MODIFIED RECONSTRUCTABILITY ANALYSIS FOR MANY-VALUED LOGIC FUNCTIONS

- Anas Al-Rabadi and Martin Zwick

Abstract

A novel many-valued decomposition is presented using the framework of Reconstructability Analysis. In previous work, modified Recontructability Analysis (MRA) was applied to Boolean functions, where it was shown that most Boolean functions not decomposable using conventional Reconstructability Analysis (CRA) are decomposable using MRA. Also, it was previously shown that whenever decomposition exists in both MRA and CRA, MRA yields simpler or equal complexity decompositions. In this paper, lossless set-theoretic MRA is extended to many-valued logic functions, and logic structures that correspond to such decomposition are developed.