

Representing, Manipulating and Optimizing Reversible Circuits

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June 8-11, 2015

Reversible Computing

The “obvious” intersection between quantum computing and programming languages is reversible computing.

Representing Reversible Circuits

truth table, matrix, reed muller expansion, product of cycles, decision diagram, etc.

A Syntactic Theory

Ideally want a notation that is easy to write by programmers and that is easy to mechanically manipulate for reasoning and optimizing of circuits.

Syntactic calculi good

Theseus?

A Calculus of Permutations