

Offline

Enumerate all binary operators

Discard most non-associative operators with cheap tests

Discard non-elementary operators

Z3: prove associativity, deduce identity, deduce commutativity

Precomputed tables of ~10,000 elementary associative operators for each scalar type

Compile-time

Halide update definition

Decompose into subgraphs

Expression matching

Factored update definition

