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Confidence in R2

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# History

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# Scope

This document gives a rationale why one can have high confidence using the dynamic analysis tool R2 for closing coverage gaps in C source code.

# Description of the Functionality of R2

R2 is a dynamic analysis tool for C source code, implemented in the functional language Haskell. Based on the abstract syntax tree of C code, it performs a depth-first search over all control flow paths through a C function, including called subfunctions. All decision conditions (like if, while, for, conditional expressions etc.) on the way through the code are collected and a corresponding SMTLIB2 model is constructed. This model is passed on to a SMT solver (currently Z3) in order to find solutions, which are then collected by R2.

# Summary