

Re3ver: Reverse and Verify

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April 13, 2026

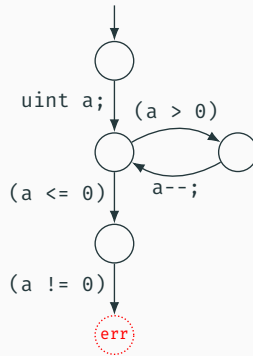
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Re3ver: reverse ↯ 3 verify
pronounced *retriever*

reverse the input program → verify it

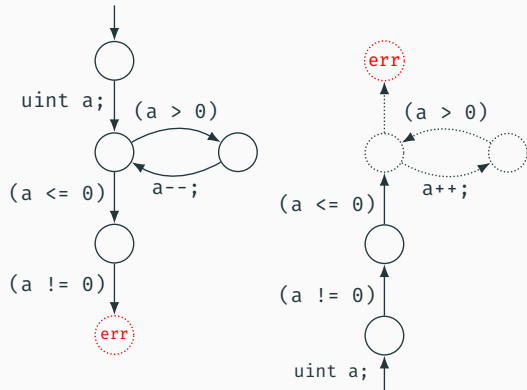
Why reverse programs?

- concerned with **error reachability**
- common technique:
forward direction – start from initial state



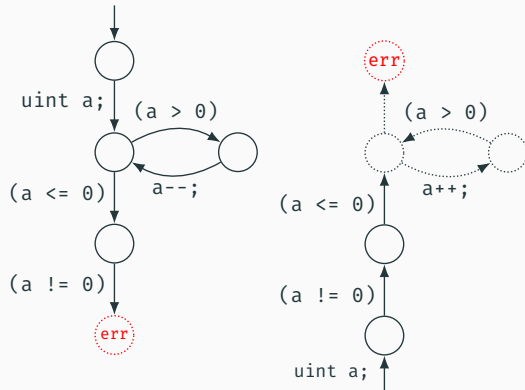
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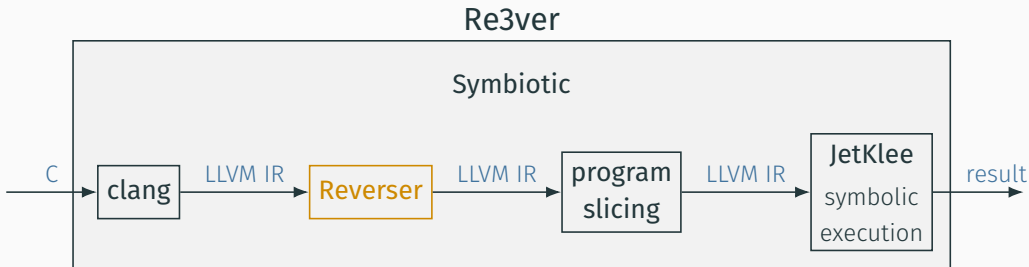
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Instead of implementing backward verification techniques, **reverse the input program**.

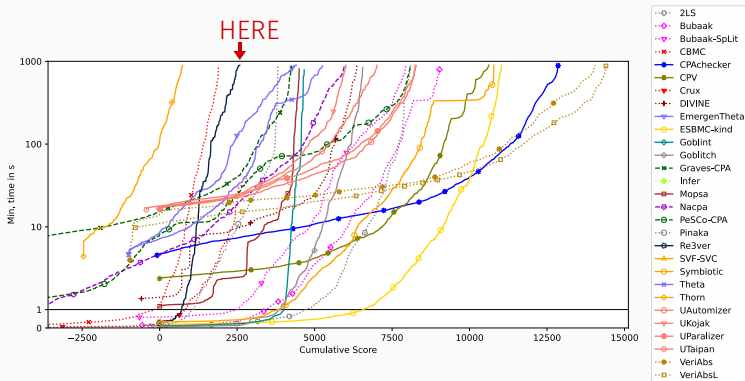
Re3ver = Reverser + Symbiotic

- Reverser: standalone tool that reverses LLVM IR programs
- Symbiotic: provides everything else



Re3ver in SV-COMP

- C.ReachSafety category
- designed to show the potential of program reversing, not to win



Solved 138 tasks not solved by Symbiotic, 774 in total.

(Symbiotic runs a wider portfolio of techniques than Re3ver)