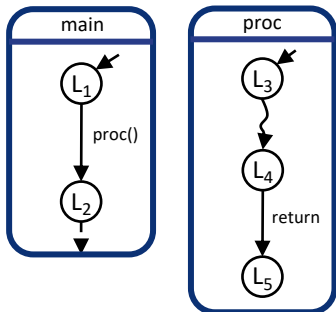


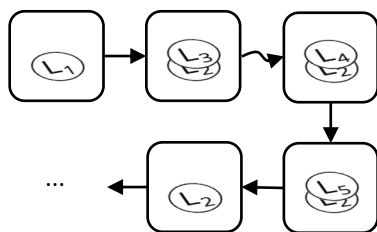
Interprocedural Verification

Verification of programs with procedures:
Location stack is part of the program state

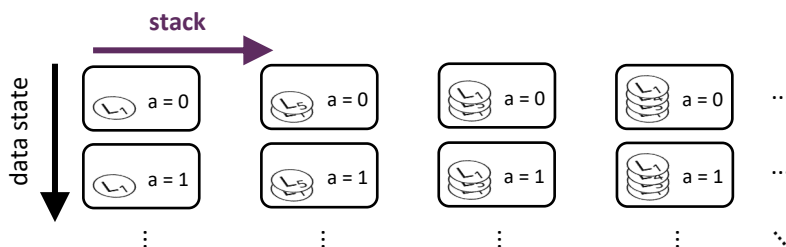
CFA (Control Flow Automata)



ARG with stacks (Abstract Reachability Graph)



Challenge: further state-space explosion

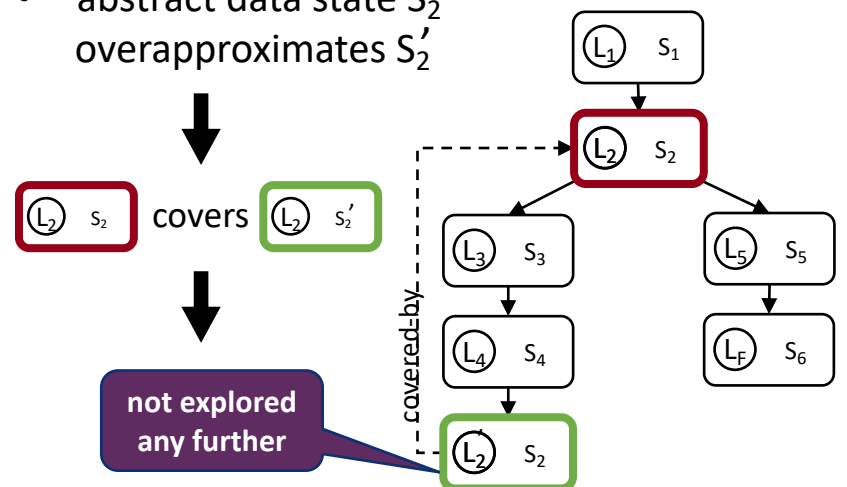


Abstraction-Based Verification

Abstract state: overapproximation of a set of concrete program states.

Covering: reduces size of state-space

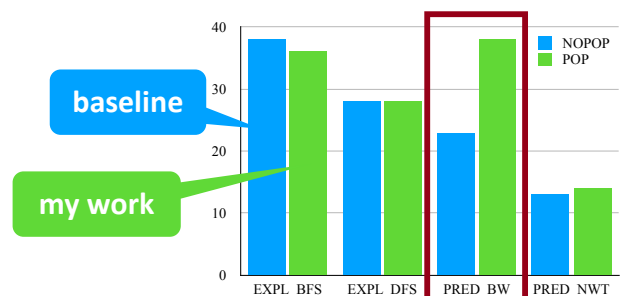
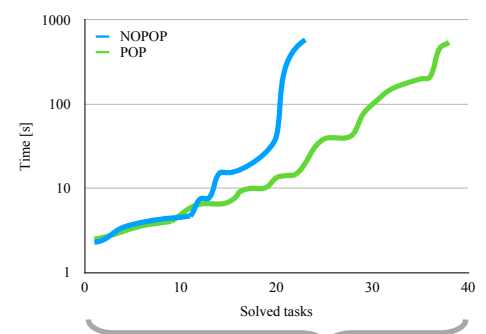
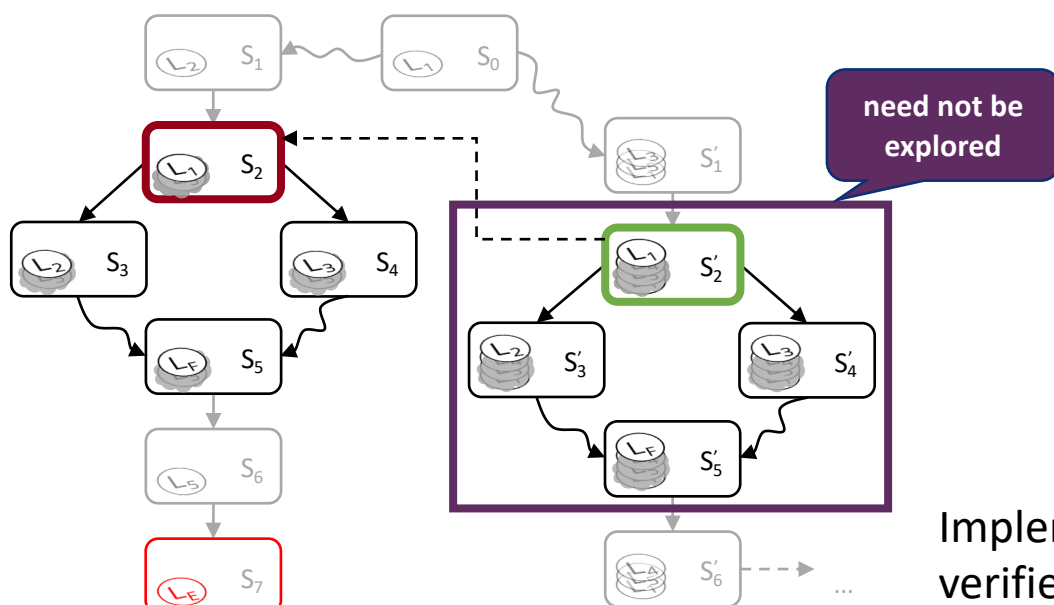
- same locations
- abstract data state S_2' overapproximates S_2



Extending Covering by Applying Abstraction to Location Stacks

Novel reduction technique for interprocedural verification:

- **covering:** overapproximation only until procedure returns
- done by **abstracting the bottom of the location stack** away
- exploration continues after the procedure call



Implementation in **theta**: 65% more verified tasks with predicate abstraction