

Interprocedural Verification

Procedures $\longrightarrow$ Location stack $\longrightarrow$ Further state space explosion

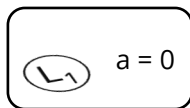


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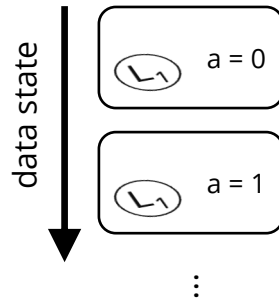


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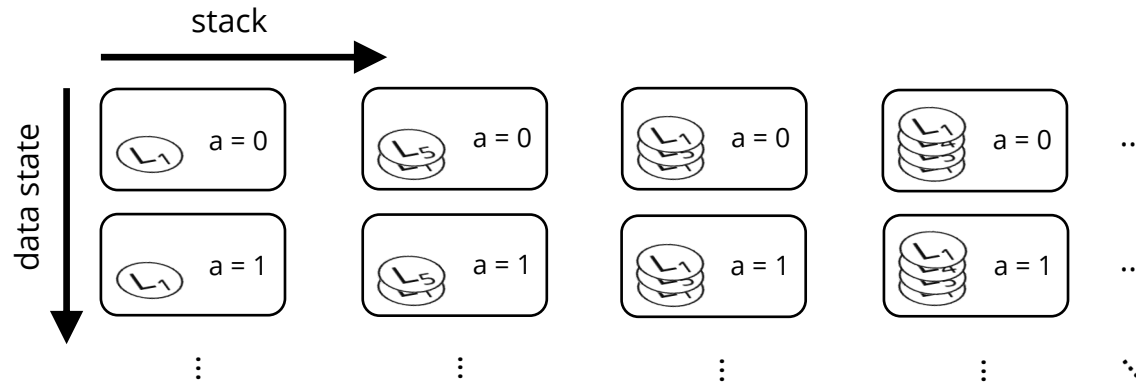


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Interprocedural Verification

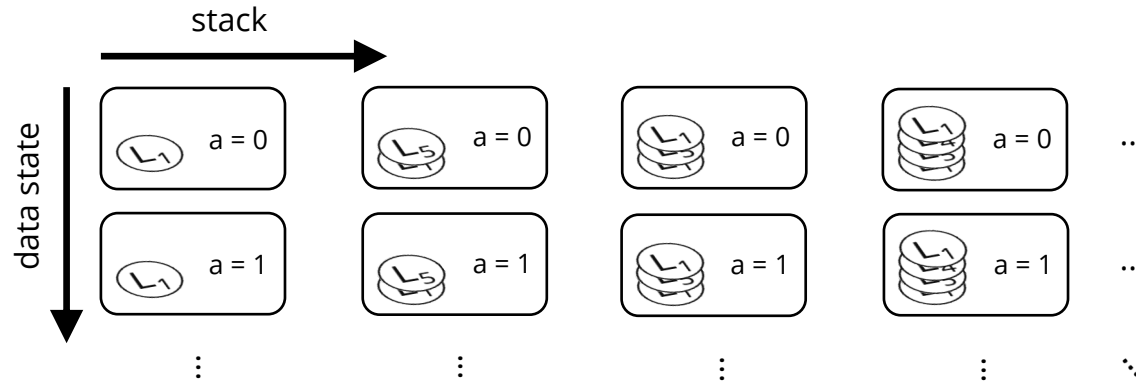
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Interprocedural Verification

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My work:

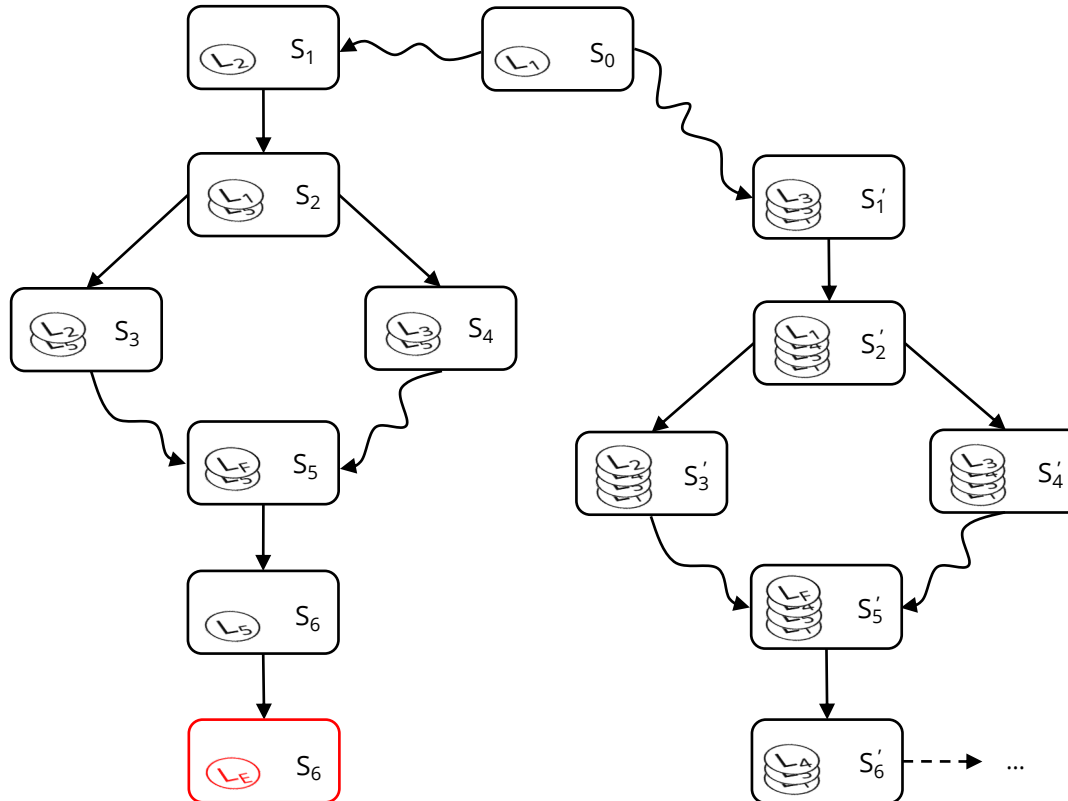
Reduce the abstract state-space of procedural programs by **applying abstraction to location stacks** in order to **improve the efficiency of verification**.



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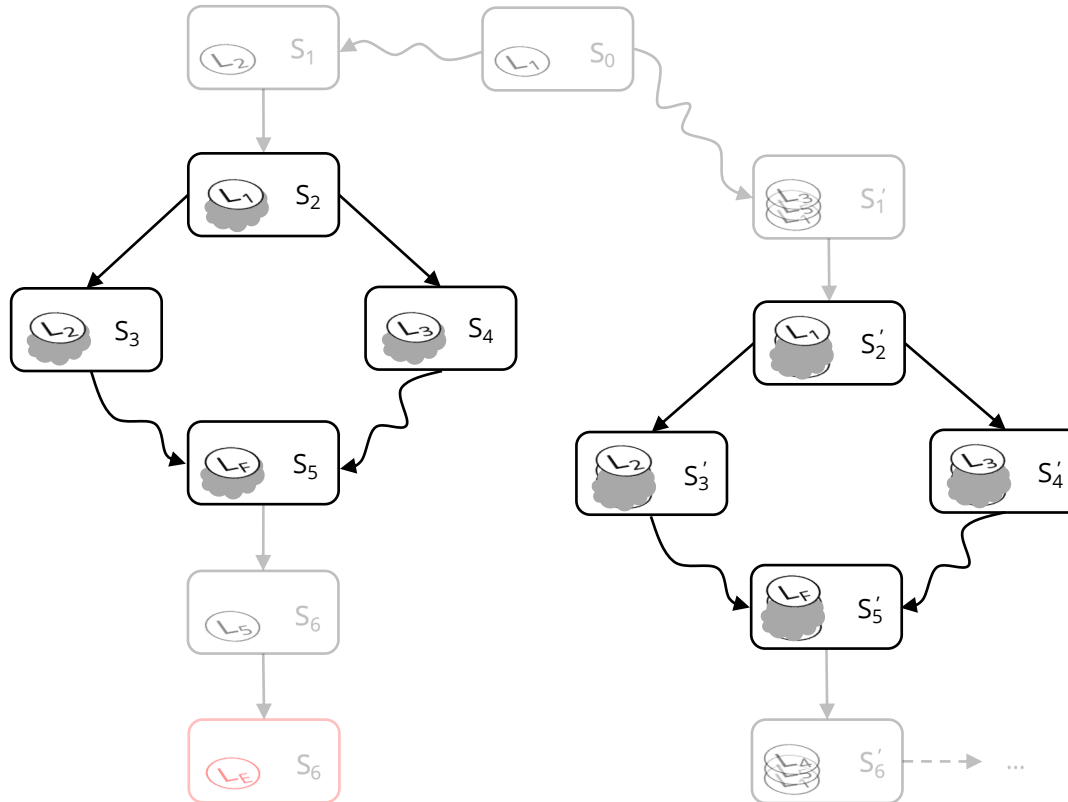
Stack Abstraction

Detect covering by abstracting the bottom of the stack away



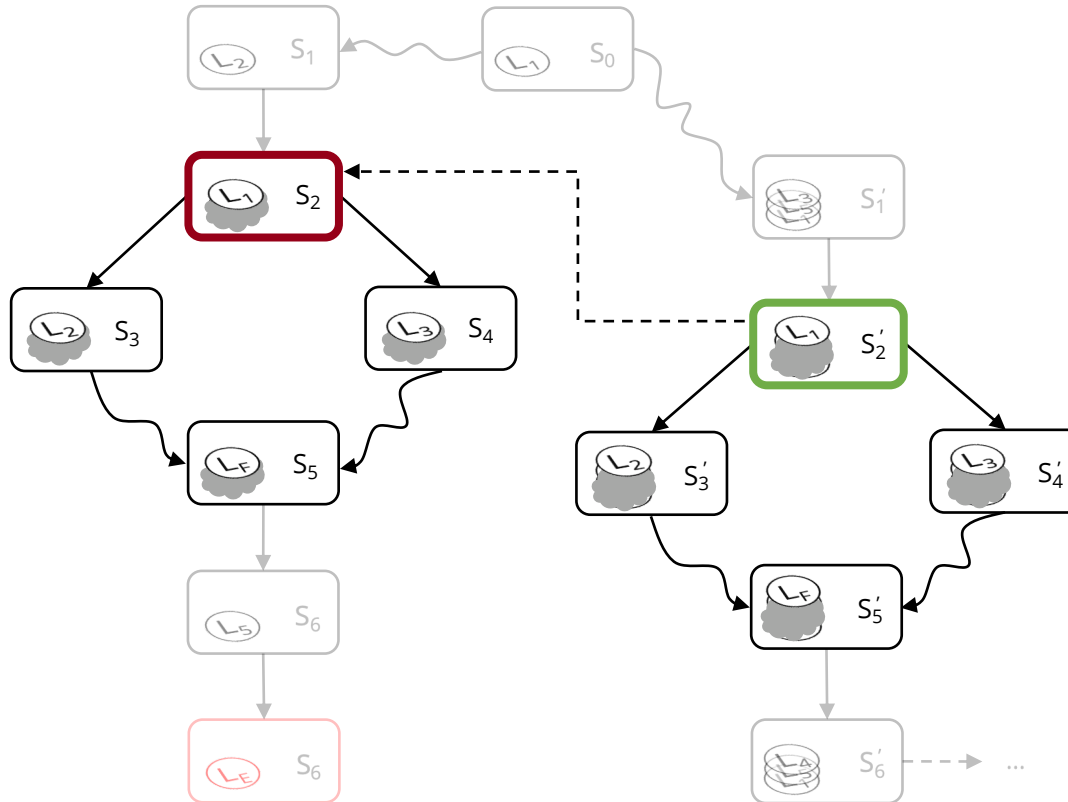
Stack Abstraction

Detect covering by abstracting the bottom of the stack away



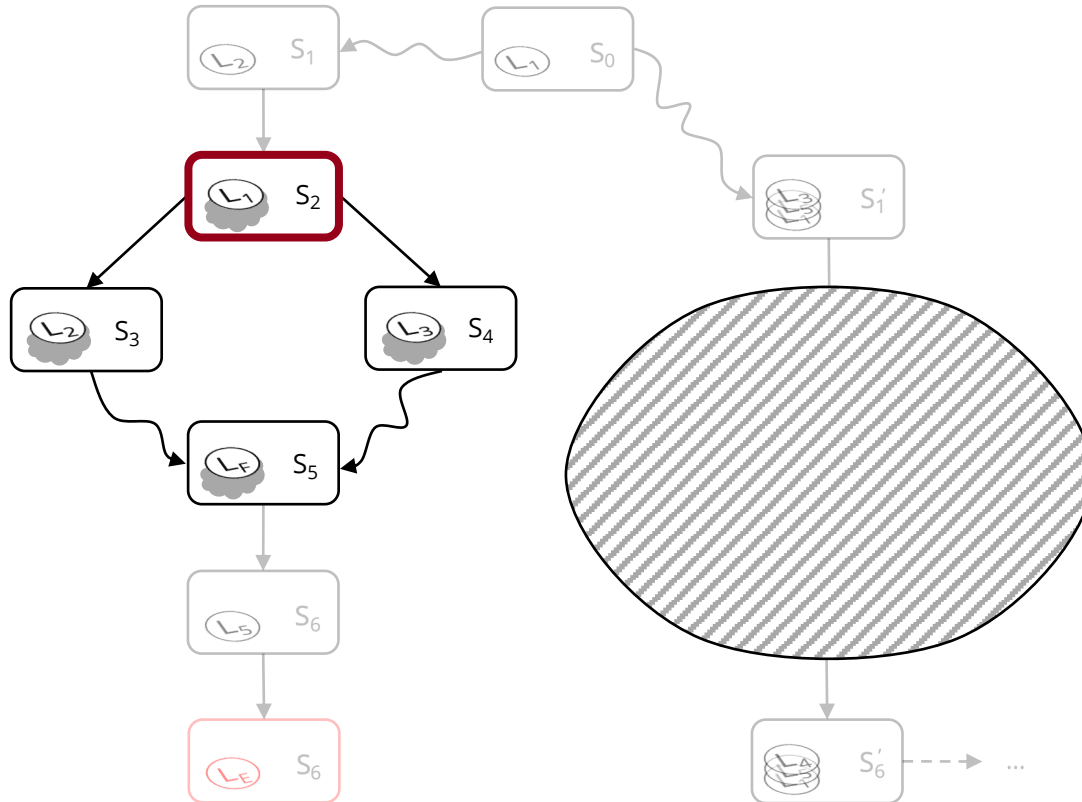
Stack Abstraction

Detect covering by abstracting the bottom of the stack away



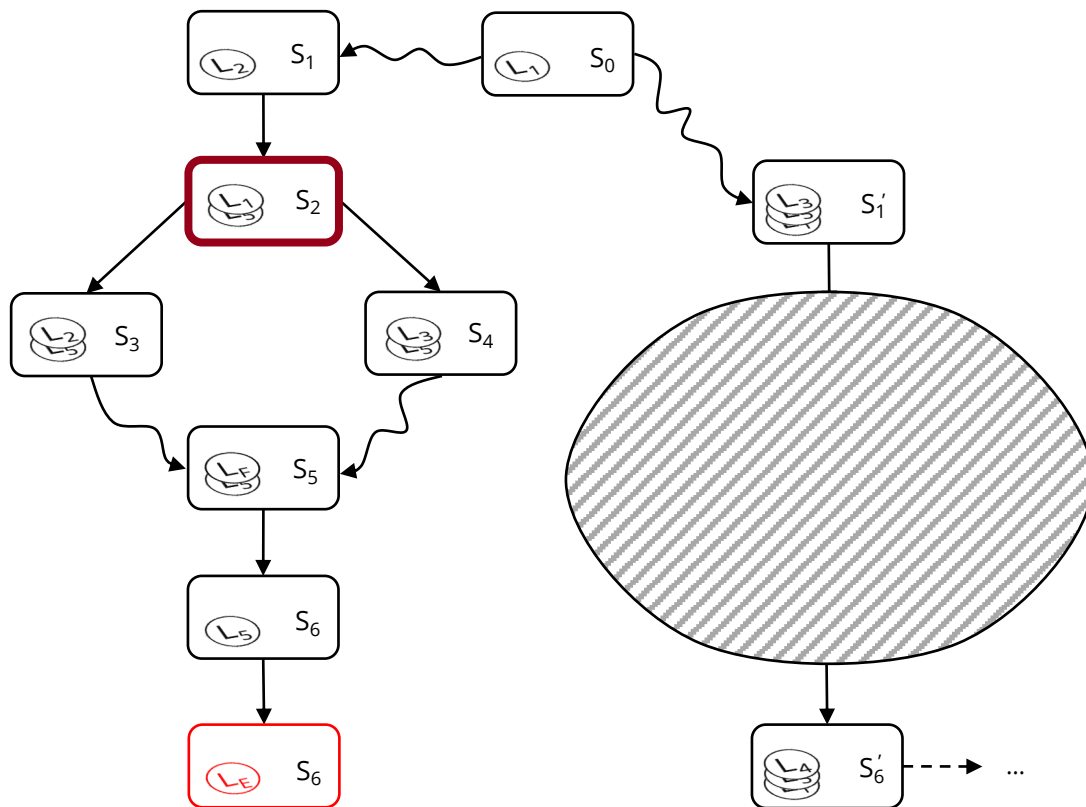
Stack Abstraction

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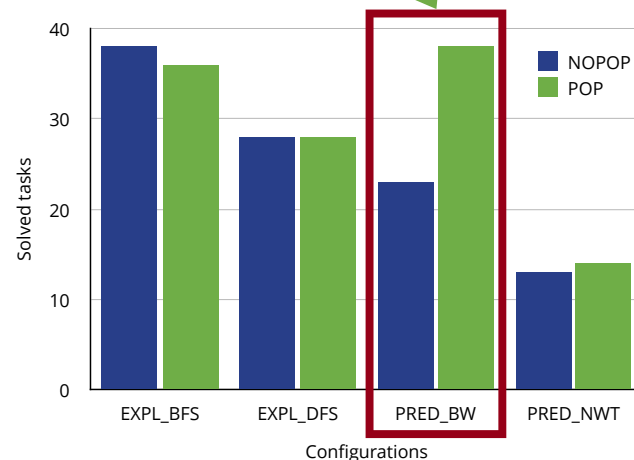


Stack Abstraction

Detect covering by abstracting the bottom of the stack away



65% improvement
with predicate abstraction



Implementation in **Theta**