

Repairing flaws in abstractions near the goal can arbitrarily improve performance.

New Refinement Strategies for Cartesian Abstractions

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Motivation

- CEGAR repeatedly finds counterexamples
 - I.e., abstract plans that *fail* for the concrete task
 - Repairing the flaw by *splitting* a state
- Previously: choose an *arbitrary* optimal abstract plan

Contribution

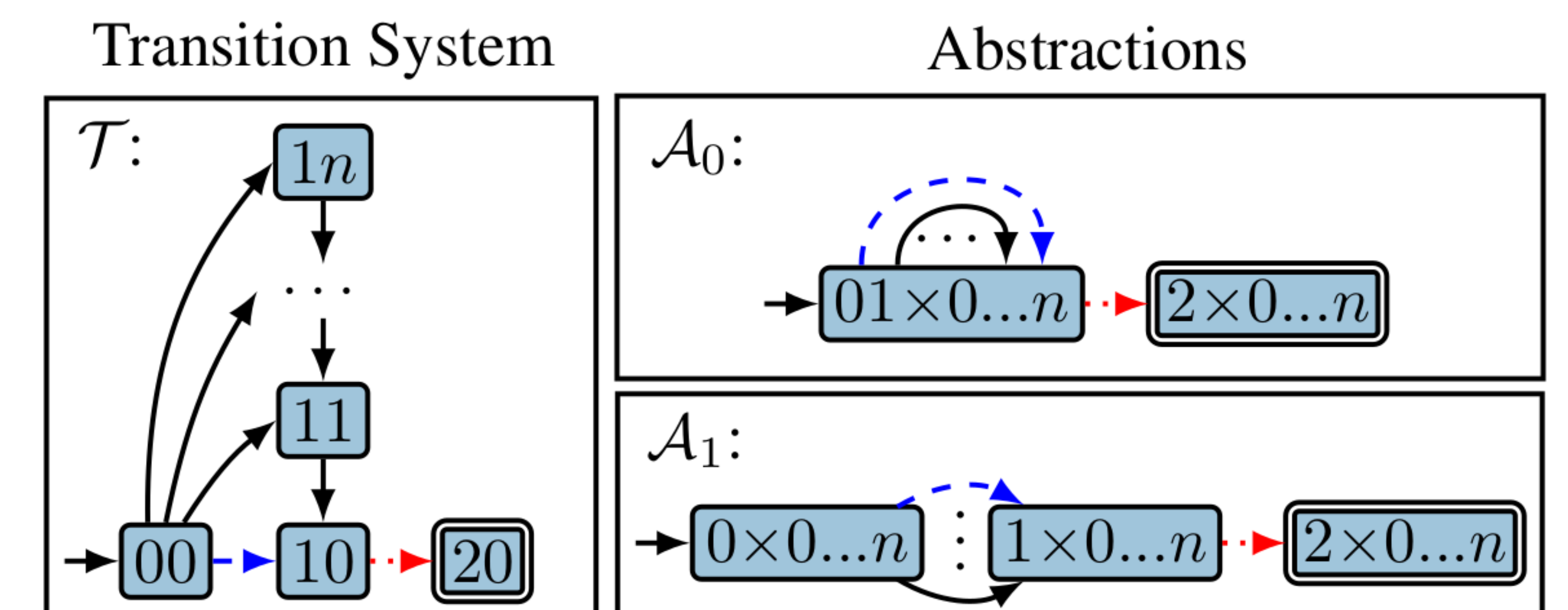
- Consider *all* optimal abstract plans
- New refinement strategies = *flaw* + *split* selection strategies

Results

- Refine states *close to the goal*
- Split states such that *multiple flaws* are repaired at once
- Can *arbitrarily* improve performance in theory and practice

Example

- The only optimal plan is (dashed-blue, dotted-red)
- Repairing “bad” abstract plans with solid-black actions
- ↔ Arbitrarily larger abstractions



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