ESC/Java

project review

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What is Extended Static Checking?

Checks for:

- null-dereference errors
- array bounds errors
- type cast errors
- race conditions
- dead locks
- ...

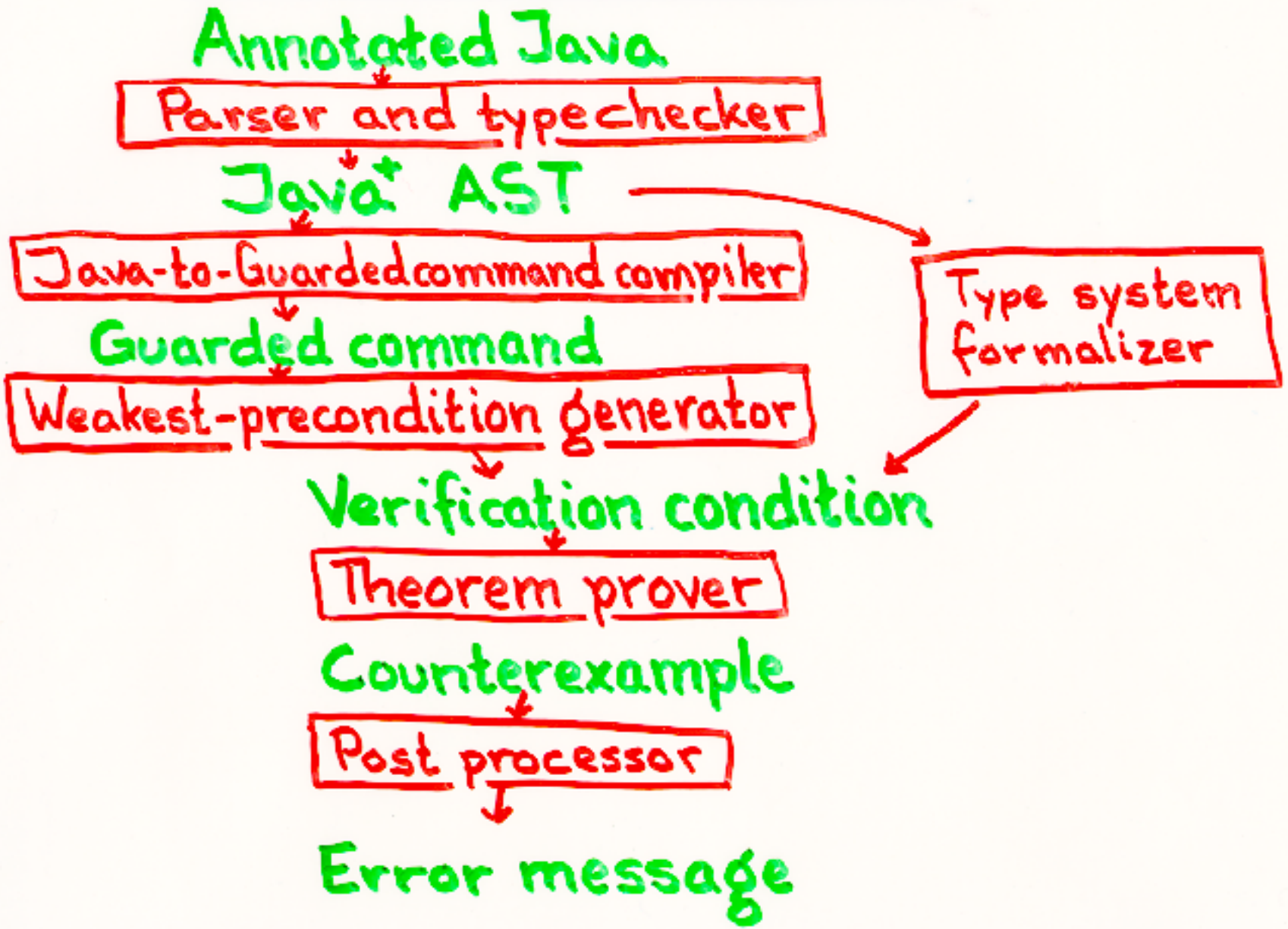
ESC/Java Goal

Deploy ESC technology in checher that lay programmers are eager to use.

Research required

- Formalize Java semantics
- Tool should be easy to use, reliable
- Simple annotations, new checks
- Performance (space, time, variability)
- Where to give up on soundness and completeness
- Enhanced error reporting

How the checker works



Achievements

- Java parser and type checker implemented
- Logic of ESC/Java defined
- Java-to-guarded command translation defined

(· Theorem prover, from ESC/Modula-3)

In progress

- Parse and type check annotations
- Definition of annotation translation
- Implementation of Java-to-verification condition

Upcoming targets

- April 1 : checker we can use
- May 31: checker SRC can use