

A Brief Introduction to Program Analysis

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What is Program Analysis?

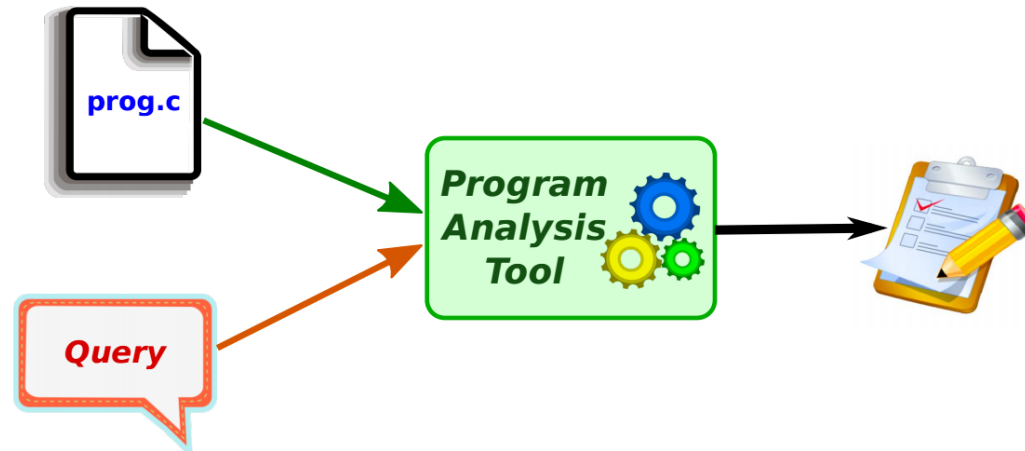
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Applications of Program Analysis

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- Program correctness

Types of Program Analysis

- Static program analysis

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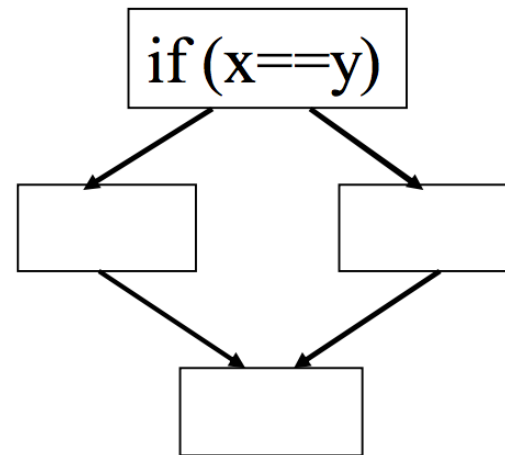
- Static program analysis
- Dynamic program analysis



Techniques Static Analysis

- Control-flow

```
if (x==y)  
then { ... }  
else { ... }  
....
```



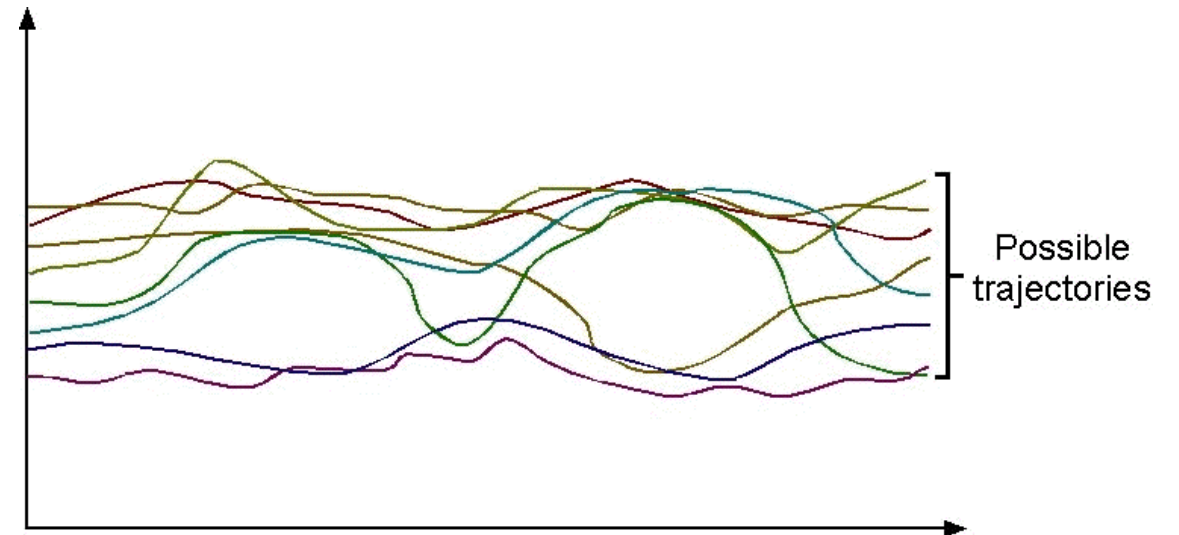
Control Flow Analysis

Techniques Static Analysis

- Control-flow
- Data-flow analysis

Techniques Static Analysis

- Control-flow
- Data-flow analysis
- Abstract interpretation



Techniques Static Analysis

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- Type systems

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Techniques Static Analysis

- Control-flow
- Data-flow analysis
- Abstract interpretation
- Type systems
- Effect systems
- Model checking

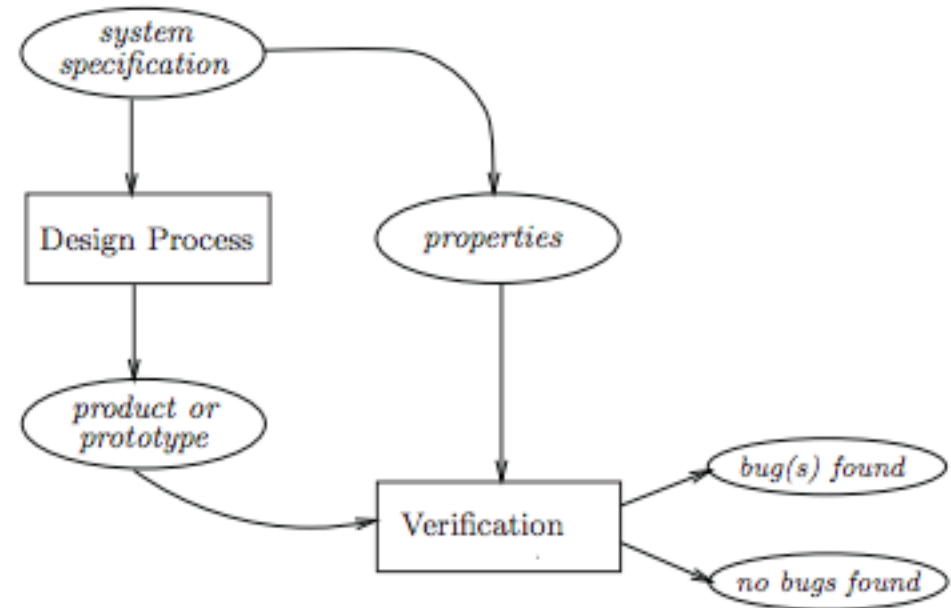


Figure 1.2: Schematic view of an a posteriori system verification.

Dynamic Program Analysis

- Testing

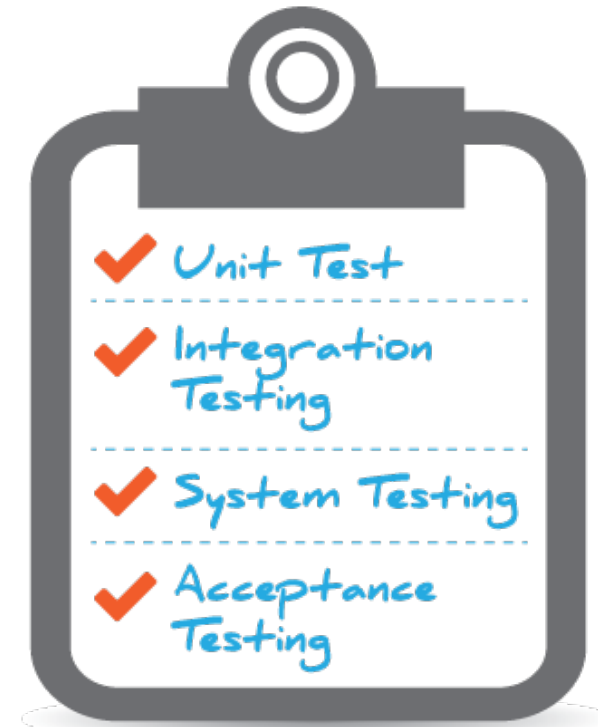


ILLUSTRATION BY SEGUE TECHNOLOGIES

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THANKS!