

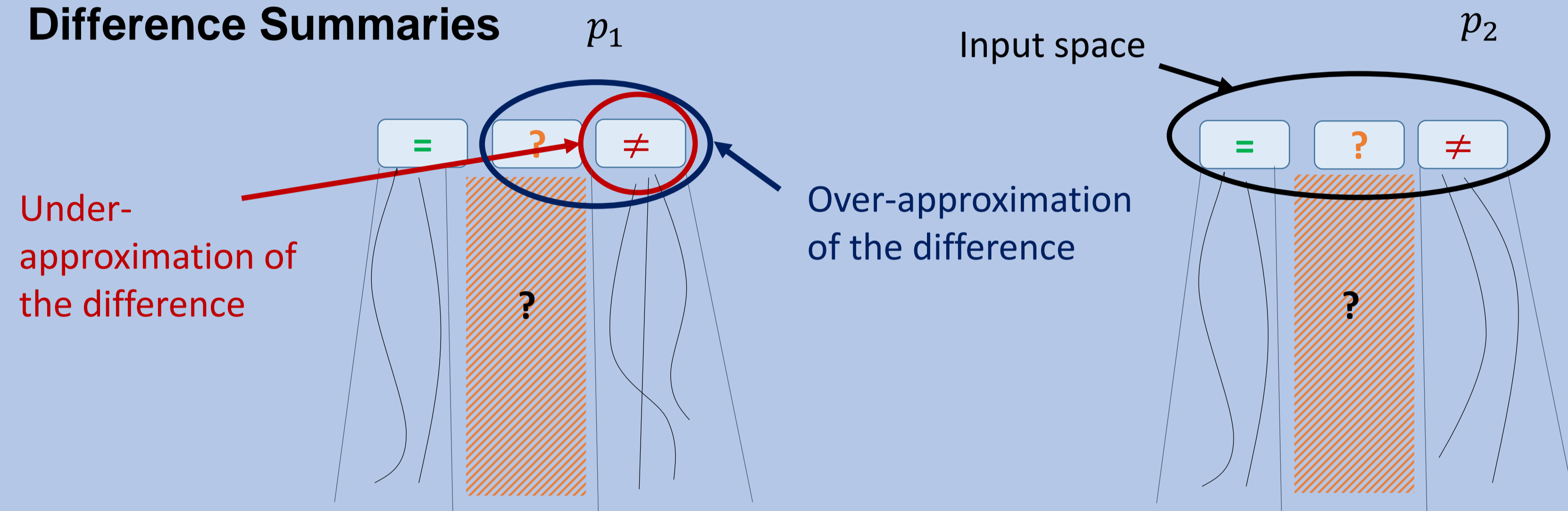
Modular Demand-Driven Analysis of Semantic Difference for Program Versions

Anna Trostanetski, Orna Grumberg and Daniel Kroening
Computer Science Department, Technion

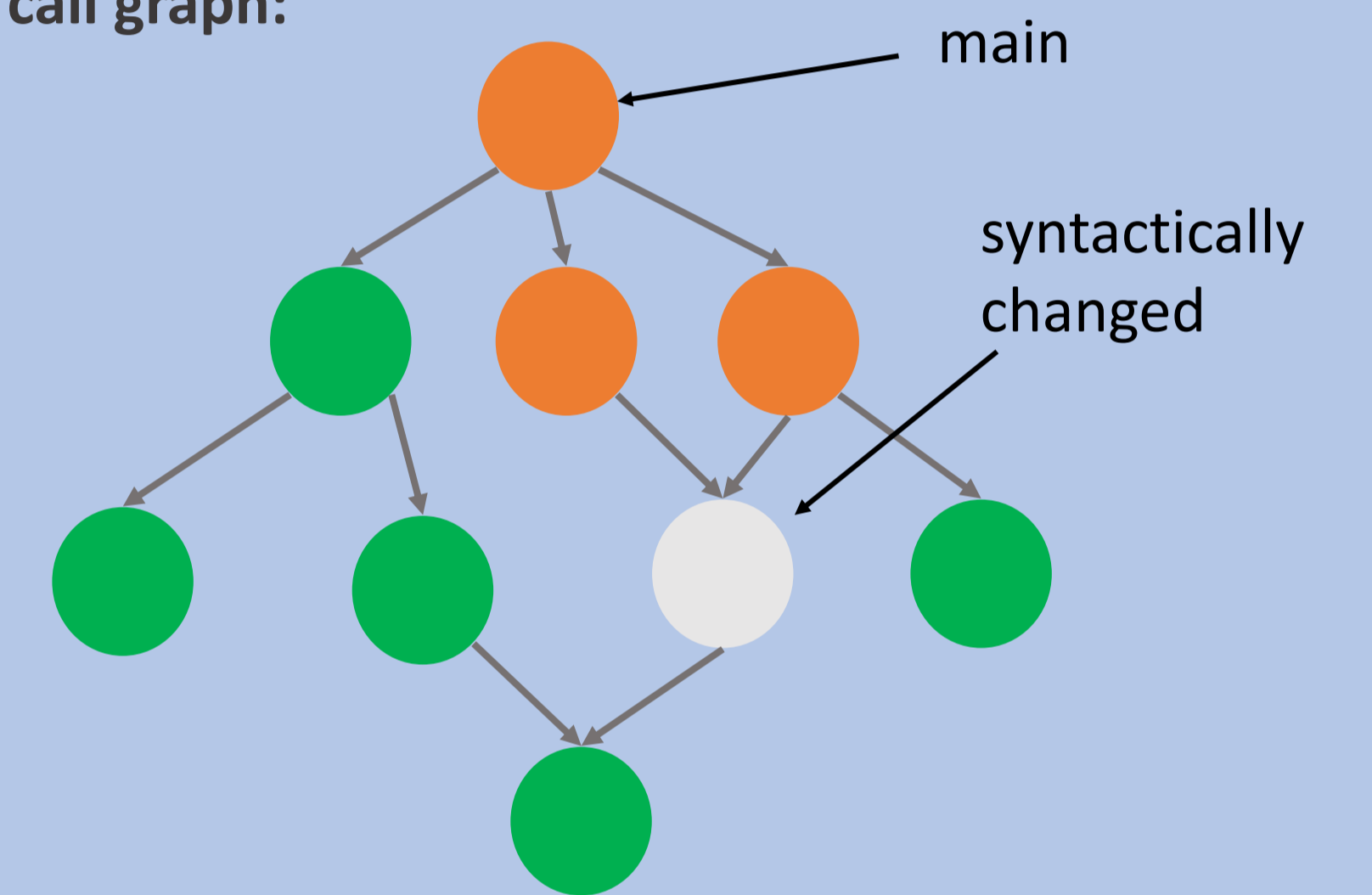
Programs often change and evolve, raising the following interesting question: **how the behavior of the program change?**

Changes are small, programs are big
Can our work be **O(change)** instead of **O(program)**?

Difference Summaries

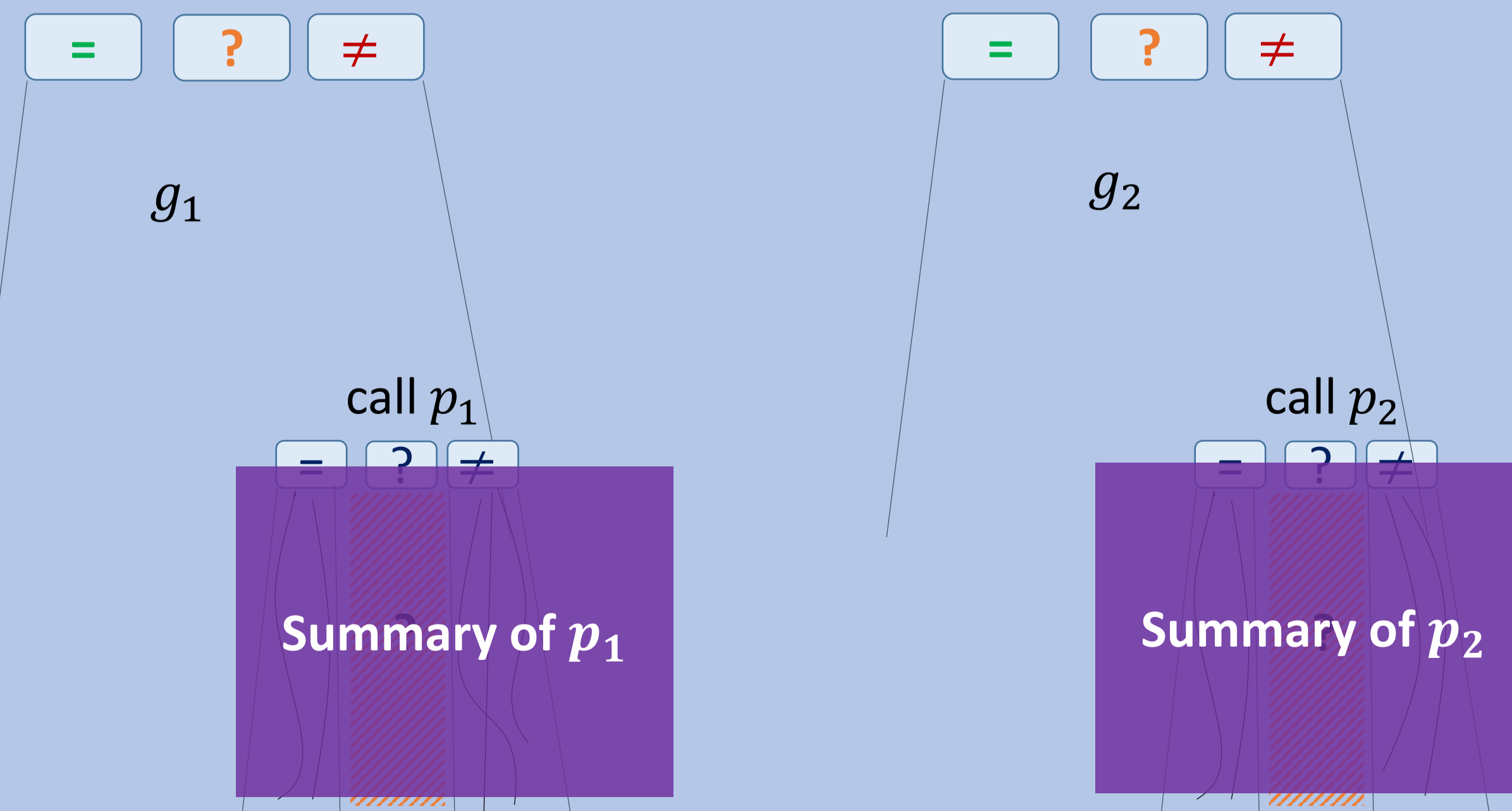


call graph:



We work bottom up from the syntactically changed procedures towards the main procedures, using the summaries.

...But what if we didn't cover all paths?
We use individual and common uninterpreted functions as **abstraction**.



Symbolic Execution and Finite Paths:

$$R_{\pi}(x) = x \geq 0 \wedge x - 1 \geq 1 \\ \equiv x \geq 2$$

