Absynth*

Bounded Expectations: Resource Analysis for Probabilistic Programs

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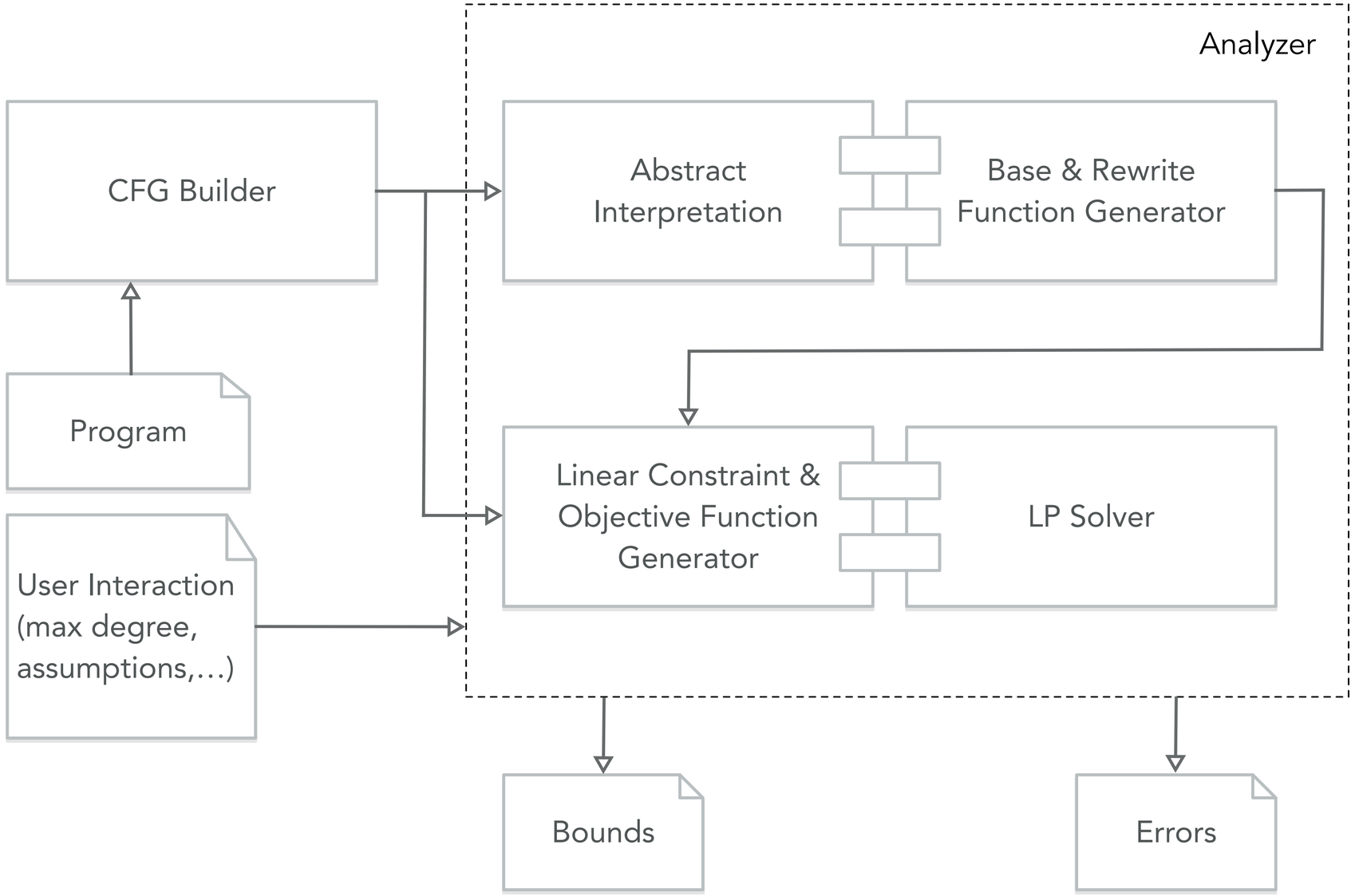
Dagstuhl Seminar 17291

*the name originally comes from Tom Reps. **Absynth** is built based on **Patis**



Absynth Architecture

Base Functions

$$M := \mathbf{1} \mid x \mid M_1 \cdot M_2 \mid \max(0, P)$$

Potential & Rewrite Functions

$$P := k \cdot M \mid P_1 + P_2$$

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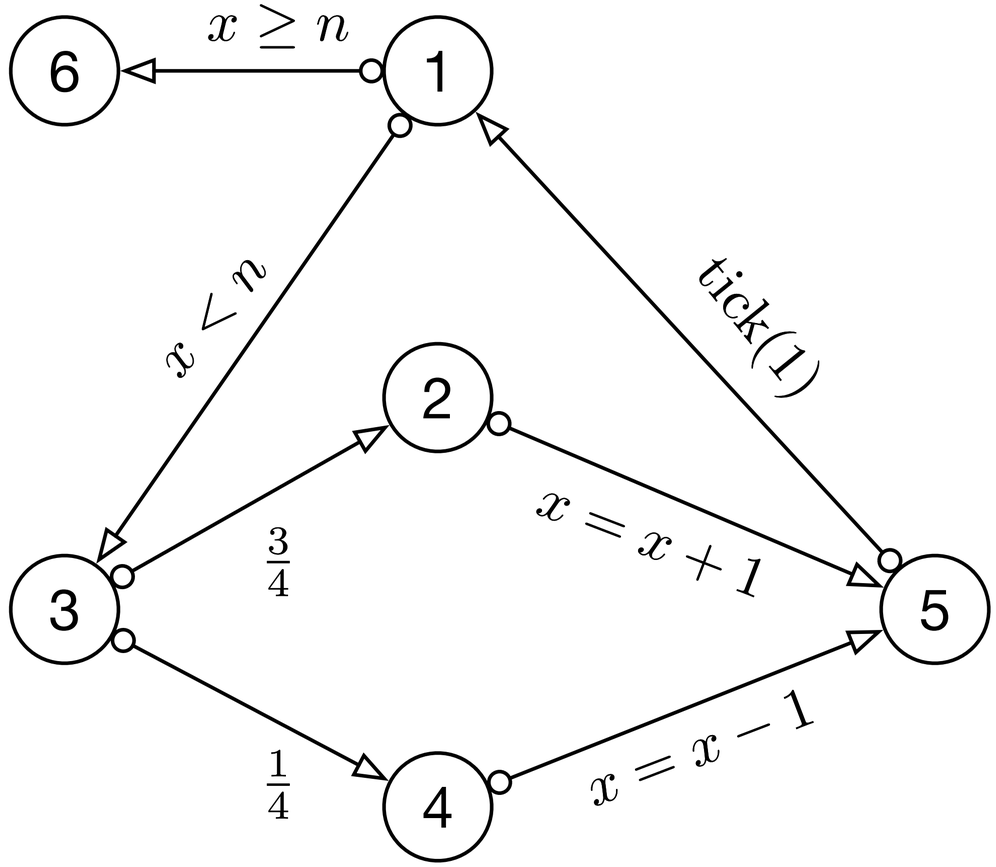
1 while (x < n) {
2    x = x + 1
3    [3/4]
4    x = x - 1;
5    tick(1);
6 } //termination point
```



c1 [p] c2 : probabilistic branching

id = e bop R : sampling assignment

R is probability distribution

if * c1 else c2 : non-deterministic choice