

CS 603: Programming Languages

Lecture 33

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Overview

- Questions on MP?
- Prolog Semantics continued (starting at p. 453 of text)
 - Procedural Interpretation

Procedural Version, Final Version

Given database $D = C_1, \dots, C_n$ and query g_1, \dots, g_m , we need to find Π such that $D \vdash \hat{\Pi}(g_1), \dots, \hat{\Pi}(g_m)$

If $m = 0$

Trivial—identity substitution

If $m = 1$

Satisfy query g , by examining in order C_i . If a clause is found, say $G = H_1, \dots, H_k$ with substitutions Π and Π' making $\hat{\Pi}(g) = \hat{\Pi}'(G)$, attempt to satisfy $\Pi'(H_1), \dots, \Pi'(H_k)$. If this fails, continue from C_{i+1} looking for an applicable clause; if none is found, then g can't be satisfied.

Procedural Version, Final Version

If $m > 1$

To satisfy multiple goals, such as might arise from trying to satisfy $\hat{\square}'(H_1), \dots, \hat{\square}'(H_k)$, use the following rule:

$$\frac{D \vdash \hat{\square}_1(g_1) \quad D \vdash \hat{\square}'(\hat{\square}_1(g_2)), \dots, \hat{\square}'(\hat{\square}_1(g_m))}{D \vdash (\hat{\square}' \circ \hat{\square}_1)(g_1), \dots, (\hat{\square}' \cdot \hat{\square}_1)(g_m)}$$