Wintersemester 2006/2007 Bernd Neumann

Übungen zur Vorlesung: Wissensbasierte Systeme

Blatt 4

Exercise 4.1:

Modify the depth-bound meta-interpreter (below) so that

a) the bound is on the total length of the proof, where the length is the total number of instances of base-level atoms that appear in the proof.

b) different base-level atoms can incur different costs on the bound. For example, most atoms could have zero cost, and some atoms could incur a positive cost.

Depth-bounded meta-interpreter:

bprove(true, D).
bprove((A & B), D) <- bprove(A, D) ∧ (bprove(B, D).
bprove(H, D) <- D ≥ 0 ∧ D1 is D-1 ∧ (H <= B) ∧ bprove(B, D1)

Exercise 4.2:

The following rules are designed to determine whether a person P has achieved a score S of at least 50 in at least two exercises E.

scored-high-twice(P) <= E1 ≠ E2 ∧ scored-high(P, E1) ∧ scored-high(P, E2).
scored-high(P, E) <= score(P, E, S) ∧ S ≥ 50.

These are the facts about Anton:

score(anton, exercise1, 63).
score(anton, exercise2, 47).
score(anton, exercise3, 73).

Determine the derivation tree using the top-down procedure for the Unique Name Assumption for the query

?scored-high-twice(anton).

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