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Forward Reasoning Algorithm

function FOL-FC-ASK (KB, α) returns a subset of
inputs: KB, the knowledge base, a set of
FOL clauses α ,
of the query, an abductive set

local variable s: new, the new sentences
on each iteration

repeat until new is empty

new $\leftarrow \{ \}$

for each rule in KB do

$(p_1, \dots, p_n \rightarrow q) \leftarrow s \cup \{\text{rule}\}$

for each θ such that $\text{subset}(\theta, p_1, \dots, p_n)$
 $= \text{subset}(\theta, p_1, \dots, p_n)$

for some p'_1, \dots, p'_n in KB

$q' \leftarrow \text{subset}(\theta, q)$

if q' does not unify with some
sentence already in KB or new
then

add q' to new

$\phi \leftarrow \text{unify}(q', \alpha)$

if ϕ is not fail then
return ϕ

add new to KB

return false

Scanned with