FIRST ORDER LOGIC FORWARD REASONING / FORWARD CHAINING

function FOL-Fc-ASK (KB, α) returns a substitution or false

inputs : KB, the knowledge base, a set of first - order definite clauses α, the query, an atomic sentence.

local variables: new, the new sentences inferred on each iteration.

repeat unit until new is empty
    new $\leftarrow$ { }
    for each rule in KB do
        ($p_1 \wedge \dots \wedge p_n \Rightarrow q$) $\leftarrow$ STANDARDIZE-VARIABLES (rule)

        for each θ such that SUBST (θ, $p_1 \wedge \dots \wedge p_n$)
           = SUBST(θ, $p_1' \wedge \dots \wedge p_n'$) for some
           $p_1', \dots, p_n'$ in KB
           $q' \leftarrow$ SUBST (θ, q)
           if q' does not unify with some sentence already in KB or new then
               add q' to new
               $\phi \leftarrow$ UNIFY (q', α)
               if ϕ is not fail then return ϕ
    add new to KB
return false.

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