→ Unification algorithm in FOL

Algorithm: Unify (Ψ_1, Ψ_2)

Step 1 : if Ψ_1 (or) Ψ_2 is a variable (or) constant, then:
a) if Ψ_1 (or) Ψ_2 are identical, then return NIL.
b) Else if Ψ_1 is a variable,
a. then if Ψ_1 occurs in Ψ_2 then return FAILURE
b. Else return (Ψ_1 / Ψ_2),
c) Else if Ψ_2 is a variable,
a. if Ψ_2 occurs in Ψ_1 then return failure
b. Else return { (Ψ_1 / Ψ_2) }.
d) Else return failure.

Step 2 : if the initial predicate symbol in Ψ_1 and Ψ_2 are not same, then return failure.

Step 3 : if Ψ_1 & Ψ_2 have different number of arguments, then return failure.

Step 4 : set substitution set (SUBST) to NIL.

Step 5 : for i=1 to the number of elements in Ψ_1.
a) call unify function with the i^{th} element of Ψ_1 and the i^{th} element of Ψ_2, and put result into S.
b) if S = failure then return failure.
c) if S ≠ NIL then do,
a. Apply S to the remainder of both L1 & L2.
b. SUBST = APPEND (S, SUBST)

Step 6 : return SUBST.