19/11/24

Unification in First-Order Logic

② Key Conditions

i) Same predicate symbol: The predicate symbols in the expressions must match

ii) Same number of arguments: The expressions must have an equal number of arguments.

iii) Variable conflict resolution: variables cannot take multiple conflicting values.

iv) No conflicting function symbols: Different function symbols cannot unify.

Examples:

① Expression A: Knows(f(x,y), g(x))
Expression B: Knows(f(Alice, Bob), g(z))

Steps:

i) By comparing the Predicates we arrive that: Both are Knows

ii) Consider f(x,y) → f(Alice, Bob)
x = Alice, y = Bob.

g(x) → g(z)

z = Alice (since x = Alice)

Date __/__/__
Page _____

iii) x = Alice
y = Bob
z = Alice

iv) Unified Expression
Knows (f (Alice, Bob), g (Alice))

Proceed