

COMP 410
Fall 2025

Unification in Prolog

For each of the unification attempts below, state:

- Whether or not the unification succeeds
- If the unification succeeds, state the values of each variable

1.) $1 = 1$

2.) $1 = 2$

3.) $x = 27$

4.) $1 = x$

5.) $x = \text{foo}$

6.) $\text{foo} = \text{bar}$

7.) $1 = \text{baz}$

8.) $\text{foo}(1) = \text{foo}(1)$

9.) $\text{foo}(1) = \text{foo}(2)$

10.) $\text{foo}(X) = \text{foo}(1)$

11.) $\text{foo}(1) = \text{foo}(X)$

12.) $\text{foo}(1) = \text{foo}(1, 2)$

13.) $\text{foo}(X, Y) = \text{foo}(1)$

14.) $\text{foo}(X, Y) = \text{foo}(1, 2)$

15.) $\text{foo}(1, Y) = \text{foo}(X, 2)$

16.) $\text{foo}(1, 2) = \text{foo}(X, X)$

17.) $\text{foo}(\text{bar}(X), Y) = \text{foo}(Z, \text{bar})$

18.) $\text{foo}(\text{bar}(X), \text{foo}(Y)) = \text{foo}(\text{foo}(1), \text{foo}(2))$

19.) $\text{foo}(\text{bar}(X), \text{foo}(2)) = \text{foo}(\text{bar}(3), \text{foo}(Y))$

20.) $\text{foo}(\text{bar}(X), X) = \text{foo}(Y, 2)$

21.) $\text{foo}(1, \text{foo}(2, \text{foo}(3, \text{bar}))) = \text{foo}(1, \text{foo}(2, \text{foo}(\text{bar})))$