**COMP 333**

**Summer 2021**

**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

true

2.) 1 = 2

true

3.) X = 27

X = 21

4.) 1 = X

X = 1

5.) X = foo

X = foo

6.) foo = bar

false

7.) 1 = baz

false

8.) foo(1) = foo(1)

true

9.) foo(1) = foo(2)

false

10.) foo(X) = foo(1)

X = 1

11.) foo(1) = foo(X)

X = 1

12.) foo(1) = foo(1, 2)

false

13.) foo(X, Y) = foo(1)

false

14.) foo(X, Y) = foo(1, 2)

X = 1, Y = 2

15.) foo(1, Y) = foo(X, 2)

X = 1, Y = 2

16.) foo(1, 2) = foo(X, X)

false

17.) foo(bar(X), Y) = foo(Z, bar)

Y = bar, Z = bar(X)

18.) foo(bar(X), foo(Y)) = foo(foo(1), foo(2))

false

19.) foo(bar(X), foo(2)) = foo(bar(3), foo(Y))

X = 3, Y = 2

20.) foo(bar(X), X) = foo(Y, 2)

X = 2, Y = bar(2)

21.) foo(1, foo(2, foo(3, bar))) = foo(1, foo(2, foo(bar))) false