```
1: Procedure Unify(t1,t2)
2:          Inputs
3:                  t1,t2: atoms Output
4:                  most general unifier of t1 and t2 if it exists or ⊥ otherwise

5:          Local
6:                  E: a set of equality statements
7:                  S: substitution
8:          E ←{t1=t2}

9:          S={}
10:         while (E≠{})
11:                  select and remove x=y from E
12:                  if (y is not identical to x) then
13:                          if (x is a variable) then
14:                                  replace x with y everywhere in E and S
15:                                  S←{x/y}∪S

16:                          else if (y is a variable) then
17:                                  replace y with x everywhere in E and S
18:                                  S←{y/x}∪S

19:                          else if (x is f(x1,...,xn) and y is f(y1,...,yn)) then
20:                                  E←E∪{x1=y1,...,xn=yn}

21:                          else
22:                                  return ⊥

23:          return S
```

Example Suppose we want to unify p(X,Y,Y) with p(a,Z,b). Initially E is {p(X,Y,Y)=p(a,Z,b)}. The first time through the while loop, E becomes {X=a,Y=Z,Y=b}. Suppose X=a is selected next. Then S becomes {X/a} and E becomes {Y=Z,Y=b}. Suppose Y=Z is selected. Then Y is replaced by Z in S and E. S becomes {X/a,Y/Z} and E becomes {Z=b}. Finally Z=b is selected, Z is replaced by b, S becomes {X/a,Y/b,Z/b}, and E becomes empty. The substitution {X/a,Y/b,Z/b} is returned as an MGU.