

AI - Lab4 Code

```
import random
class Variable:
    def __init__(self,value):
        self.value = value
    def __eq__(self, other):
        return self.value == other.value
class Constant:
    def __init__(self,value):
        self.value = value
    def __eq__(self, other):
        return self.value == other.value
class Rel:
    def __init__(self,name,args):
        #This is a list
        self.name = name
        self.value = str(self.name)+str([i.value for i in args])
        self.args = args

def Unify(L1,L2,testset):
    """
    L1 and L2 are Rel types, variables or constants
    """
    #If both are variable or constants
    if(isinstance(L1,Variable) or isinstance(L2,Variable) or
    isinstance(L1,Constant) or isinstance(L2,Constant)):
        if L1 == L2:
            return None
        elif isinstance(L1,Variable):
            if isinstance(L2,Variable):
                print("Both mismatching variables")
                return False
            else:
                if L1.value not in testset.values():
                    return [L2,L1]
                else:
                    print("Ambigious Variable")
                    return False
        elif isinstance(L2,Variable):
            if isinstance(L1,Variable):
                print("Both mismatching variables")
                return False
            else:
                if L2.value not in testset.values():
                    return [L1,L2]
                else:
                    print("Ambigious Variable")
```

```

        return False
    else:
        print("Mismatch")
        return False

#Ensuring the functions are the same
elif L1.name != L2.name:
    print("Relation Mismatch")
    return False
#Ensuring the functions have the same number of arguments
elif len(L1.args) != len(L2.args):
    print("length does not match")
    return False

SUBSET = {}

for i in range(len(L1.args)):
    S = Unify(L1.args[i],L2.args[i],SUBSET)
    if S==False:
        return False
    if S != None:
        SUBSET[S[0].value] = S[1].value

return SUBSET

if __name__ == "__main__":

    print(Unify(Rel("Knows",[Constant("Raj"),Variable("X")]),Rel("Knows",[Variable("Y"),
    Rel("Sister",[Variable("Y")])]),{}))
    print()

    print(Unify(Rel("Knows",[Constant("Raj"),Variable("X")]),Rel("Knows",[Variable("Y"),
    Constant("Seeta")]),{}))
    print()

    print(Unify(Rel("Knows",[Constant("Raj"),Variable("X")]),Rel("Knows",[Variable("X"),
    Constant("Seeta")]),{}))

```

'''

OUTPUT:-

```
{'Raj': 'Y', "Sister['Y']": 'X'}
```

```
{'Raj': 'Y', 'Seeta': 'X'}
```

Ambiguous Variable
False

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