

AI.py - C:/Users/DELL/AI.py (3.11.9)

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```
def unify(x, y, theta=None):
    if theta is None:
        theta = {}
    if x == y:
        return theta
    elif isinstance(x, str) and x.islower():
        return unify_var(x, y, theta)
    elif isinstance(y, str) and y.islower():
        return unify_var(y, x, theta)
    elif isinstance(x, list) and isinstance(y, list) and len(x) == len(y):
        for xi, yi in zip(x, y):
            theta = unify(xi, yi, theta)
            if theta is None:
                return None
        return theta
    else:
        return None

def unify_var(var, x, theta):
    if var in theta:
        return unify(theta[var], x, theta)
    elif x in theta:
        return unify(var, theta[x], theta)
    else:
        theta[var] = x
        return theta

def resolution(kb, query):
    for clause in kb:
        if len(clause) == 1: # fact
            if unify(clause[0], query) is not None:
                return True

    for clause in kb:
        if len(clause) > 1:
            theta = unify(clause[-1], query)
            if theta is not None:
                premises = clause[:-1]
                if all(resolution(kb, premise) for premise in premises):
                    return True
```

```

        if unify(Clause[0], query) is not None:
            return True

for clause in kb:
    if len(clause) > 1:
        theta = unify(clause[-1], query)
        if theta is not None:
            |
            premises = clause[:-1]
            if all(resolution(kb, premise) for premise in premises):
                return True
return False

knowledge_base = [
    ["Human", "John"],
    ["Human", "John", ["Mortal", "John"]]
]

query = ["Mortal", "John"]

if resolution(knowledge_base, query):
    print("Query is resolved: John is Mortal")
else:
    print("Query could not be resolved")

```

IDLE Shell 3.11.9

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Python 3.11.9 (tags/v3.11.9:de54cf5, Apr 2 2024, 10:12:12) [MSC v.1938 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.

```
>>>  
= RESTART: C:/Users/DELL/AI.py  
Query is resolved: John is Mortal  
>>>|
```