

Examples of unification:

1. `takingCourse(X, progLang)` and `takingCourse(maurice, Y)`

solution: $X \rightarrow \text{maurice}, Y \rightarrow \text{progLang}$

2. `takingCourse(X, Z)` and `takingCourse(maurice, Y)`

solution: $X \rightarrow \text{maurice}, Y \rightarrow Z$ (OR $Y \rightarrow \text{progLang}, Z \rightarrow \text{progLang}$ – but that wouldn't be the most general unifier)

3. `takingCourse(matt, progLang)` and `takingCourse(maurice, Y)`

solution: fail

4. `takingCourse([A|B],X)` and `takingCourse([maurice,asir,sophie], Y)`

Solution: $A \rightarrow \text{maurice}, B \rightarrow [\text{asir}, \text{sophie}], X \rightarrow Y$

Note: a formal algorithm for unifying any two expressions exists. However, the algorithm is quadratic in the size of the expressions being unified. Therefore, most Prolog implementations use a simplified version of the unification algorithm, which can sometimes produce incorrect results.