Backtracking

- If we reach a point where a goal cannot be matched, or the body of a rule cannot be matched, we backtrack to the most recent spot where a choice of matching a particular fact or rule was made. We then try to match a different fact or rule. If this fails we go back to the next previous place where a choice was made and try a different match there. We try alternatives until we are able to solve all the goals in our query or until all possible choices have been tried and found to fail. If this happens, we answer “false” the query can’t be solved.

- As we try to match facts and rules we try them in their order of definition.
fun(X) :- red(X), car(X).

fun(X) :- blue(X), bike(X).

/* database of red items */
red(apple).
red(pen).
red(car).

/* database of cars */
car(honda).
car(toyota).

/* database of blue items */
blue(flower).
blue(sky).
blue(giant).

/* database of bike */
bike(merida).
bike(giant).

?- fun(X).
Recursion

✧ Repeatedly execute some operation till a certain point is reached or over a whole data structure

✧ Have a first fact that acts as the base case followed by some rule(s) that performs some recursive operation