The Cut Operator (!)

- Sometimes we need a way of preventing Prolog finding all solutions.
- The `cut` operator is a built-in predicate that prevents backtracking.
- It violates the declarative reading of a Prolog program.
- Use it VERY sparingly!!
Backtracking

lectures(adnan, Subject), studies(Student, Subject)?

Subject = 4418
Student = jane

Subject = 9518
Student = jack
Cut Prunes the Search

- Prevents backtracking to goals left of the cut by throwing away remaining choice points

\[ \text{lectures(adnan, Subject), !, studies(Student, Subject)}? \]
Example

overdue(Today, Title, CatNo, MemFamily) :-
    loan(CatNo, MemNo, _, DueDate),
    later(Today, DueDate), !,
    book(CatNo, Title, _),
    member(MemNo, name(MemFamily, _), _).
Controlling Execution

Some methods for controlling execution in Prolog:

- Ordering of clauses (facts and rules)
- Ordering of subgoals within a rule
- Cut (!) operator

Use each with care