

# Datatypes and Trees

## 1 Pattern-matching

Pattern matching allows you to select conditions neatly, without the need for many if statements. The syntax is most clearly seen through an example:

```
factorial : int -> int
```

```
let rec factorial a =  
  match a with  
  | 1 -> 1  
  | _ -> a * factorial (a - 1)
```

The pattern `_` is used as a "wild card" as it can match anything. OCaml will warn you if your list of patterns is not exhaustive. Note that all of the expressions that the patterns are matched to must have the same type and thus, this is the type of the whole expression.