Expressions can have types that include type variables, standing for an arbitrary type.

Lowercase identifiers starting with a lowercase letter prefixed by an apostrophe.

```
let funcname (p1 : pt1) ... (pn : ptn) : rest = ...
```

The parens are essential.

The requirement that only immutable values can be truly polymorphic.

That means the expression is fully evaluated (including the binding of type variables) and cannot be modified through assignment.

If the type variables are not bound in the expression they become unknown types, written `'_a`. They represent a *single* still-unknown type. Hence the resulting expression is not truly polymorphic.

immutable values.

To preserve correct typing in a language that allows side-effects.

There is no mechanism for controlling purity of the function being applied.

Use *eta expansion*, the creation of an anonymous function that wraps the desired expression.

```
fun p -> someExpression p
```

- It complicates type inference. Some method will be needed for identifying the correct function in an expression that can uses overloaded functions ambiguously. That method may be uncomputable.
- Programmer confusion.

Comma-separated values, not necessarily surrounded by parens.

The types are written $*$-separated.

Decomposition of an aggregate type using pattern matching.

```
# let a, b = 1, 2;;
val a : int = 1
val b : int = 2
```

- Use pattern matching.
- For a 2-tuple use `fst` and `snd`.

`;`-separated values surrounded by square brackets.

Both to prepend to a list and to pattern match the head of a list.

With the type parameter preceding the main type.

```
string list
'a list (* polymorphic *)
```

A list of pairs, used as a simple associative map.

```
List.assoc 'a -> ('a * 'b)
```
looks for the associated element or raises `Not_found`.

A function is tail recursive if all recursive calls are returned by the function without any additional computation.

Tail recursive functions are preferred over general recursive functions as they can be optimized by the compiler to avoid consuming additional stack space. (They are rewritten as loops).

... in reverse, to benefit from constant-time cons.

The final result will be reversed with `List.rev`.