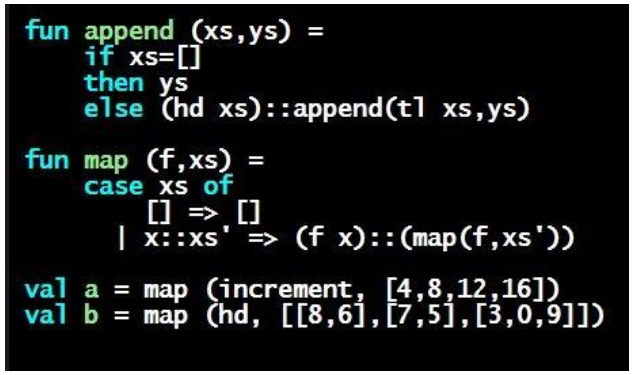

Programming Languages

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Currying Wrapup

More combining functions

- What if you want to curry a tupled function or vice-versa?
- What if a function's arguments are in the wrong order for the partial application you want?

Naturally, it is easy to write higher-order wrapper functions

  – And their types are neat logical formulas

```
fun other_curry1 f = fn x => fn y => f y x
fun other_curry2 f x y = f y x
fun curry f x y = f (x,y)
fun uncurry f (x,y) = f x y
```

Efficiency

So which is faster: tupling or currying multiple-arguments?

- They are both constant-time operations, so it doesn't matter in most of your code – "plenty fast"
  - Don't program against an *implementation* until it matters!

- For the small (zero?) part where efficiency matters:
  - It turns out SML/NJ compiles tuples more efficiently
  - But many other functional-language implementations do better with currying (OCaml, F#, Haskell)
    - So currying is the "normal thing" and programmers read `t1 -> t2 -> t3 -> t4` as a 3-argument function that also allows partial application