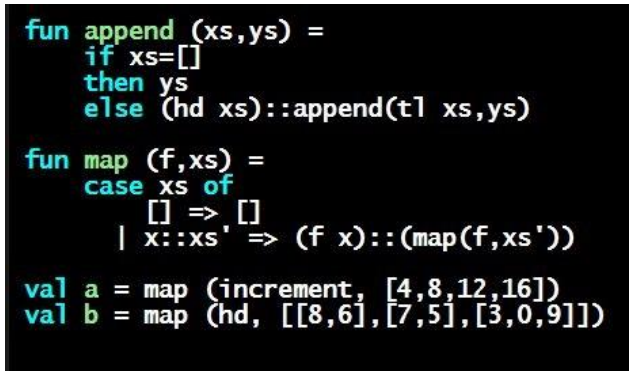

Programming Languages

Dan Grossman

Optional: Function Patterns

Yet more pattern-matching

[Your instructor has never preferred this style, but others like it and you are welcome to use it]

```
datatype exp = Constant of int
             | Negate   of exp
             | Add      of exp * exp
             | Multiply of exp * exp

fun eval (Constant i) = i
  | eval (Add(e1,e2)) = (eval e1) + (eval e2)
  | eval (Negate e1)  = ~ (eval e1)
  | eval (Multiply(e1,e2)) = (eval e1) + (eval e2)
```

Nothing more powerful

In general

```
fun f x =
  case x of
    p1 => e1
  | p2 => e2
   …
```

Can be written as

```
fun f p1 = e1
  | f p2 = e2
  …
  | f pn = en
```

If you prefer (assuming **x** is not used in any branch)