

```

1  signature PARRAY_PAIR = sig
2      (* type t *)
3      type t = ('a * 'b) parray
4
5      (* uncommenting causes a syntax error: *)
6      (* [./util.pml:6.2] Error: syntax error; try deleting "exception" *)
7      (* exception UnequalLengths *)
8
9      val fromPairPArray : ('a * 'b) parray -> t
10
11     val zip : 'a parray * 'b parray -> t
12     val compare : ('a * 'a -> order) * ('b * 'b -> order) -> t * t -> order
13
14     val zipEq : 'a parray * 'b parray -> t
15 end
16
17
18 structure PArrayPair : PARRAY_PAIR = struct
19 type t = ('a * 'b) parray
20
21 exception UnequalLengths
22
23 fun fromPairPArray xs : t =
24     xs
25
26 fun shortest (xs : t, ys : t) : int =
27     Int.min(PArray.length xs,
28             PArray.length ys)
29
30
31 fun shortestRange (xs : t, ys : t) : int parray =
32     (* TODO: is this reevaluated at every step? also, is it preferable
33     to use a list here? *)
34
35     [| 0 to shortest (xs, ys) |]
36
37 fun zip (xs, ys) : t =
38     (* TODO: is shortestRange reevaluated at every step? *)
39     [| (xs ! i, ys ! i) | i in shortestRange (xs, ys) |]
40
41
42 fun zipEq (xs, ys) : t =
43     if PArray.length xs <> PArray.length ys then
44         raise UnequalLengths

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```

45     else
46         zip (xs, ys)
47
48 fun compare (comp : ('a * 'a) -> order, comp' : ('b * 'b) -> order) =
49     fn (xs : t, ys : t) =>
50         let
51             fun comparePair ((one : 'a, two : 'b),
52                             (one' : 'a, two' : 'b)) : (order * order) =
53                 (comp (one, one'), comp' (two, two'))
54
55             fun selectUnequal (ord : order, ord' : order) : order =
56                 (case (ord, ord')
57                  of (EQUAL, LESS) => LESS
58                   | (EQUAL, MORE) => MORE
59                   | (LESS, _) => LESS
60                   | (MORE, _) => MORE
61                   | (_, _) => EQUAL)
62
63             val compared : (order * order) parray =
64                 [| comparePair (xs ! i, ys ! i) | i in shortestRange(xs, ys) |]
65
66             val asOrders =
67                 [| selectUnequal x | x in compared |]
68         in
69             PArray.reduce selectUnequal EQUAL asOrders
70         end
71     end
72 end

```

foo.txt

```

[./util.pml:49.19-20] Error: arity mismatch for t<2946>
[./util.pml:49.11-12] Error: arity mismatch for t<2946>
[./util.pml:42.22-23] Error: arity mismatch for t<2946>
[./util.pml:37.20-21] Error: arity mismatch for t<2946>
[./util.pml:31.33-34] Error: arity mismatch for t<2946>
[./util.pml:31.25-26] Error: arity mismatch for t<2946>
[./util.pml:26.28-29] Error: arity mismatch for t<2946>
[./util.pml:26.20-21] Error: arity mismatch for t<2946>
[./util.pml:23.25-26] Error: arity mismatch for t<2946>
[./util.pml:14.39-15.0] Error: arity mismatch for t<2940>
[./util.pml:12.63-64] Error: arity mismatch for t<2940>
[./util.pml:12.59-60] Error: arity mismatch for t<2940>
[./util.pml:11.37-12.0] Error: arity mismatch for t<2940>
[./util.pml:9.43-10.0] Error: arity mismatch for t<2940>

```
