$$\text{reduce}(+;0) \circ \text{map}(*) \circ \text{zip}(\mathbf{y}) \circ \mathbf{x}$$

4.e

$$\text{reduce}(+;0) \circ \text{part-reduce}(+;0) \circ \text{map}(*) \circ \text{zip}(\mathbf{y}) \circ \mathbf{x}$$

4.e

$$\text{reduce}(+;0) \circ \text{outerJoin} n \circ \text{map}(\text{part-reduce}(+;0)) \circ \text{outerSplit} n \circ \text{map}(*) \circ \text{zip}(\mathbf{y}) \circ \mathbf{x}$$

4.d

$$\text{reduce}(+;0) \circ \text{outerJoin} n \circ \text{map}(\text{part-reduce}(+;0)) \circ \text{outerSplit} n \circ \text{outerJoin} n \circ \text{map}(\text{map}(*)) \circ \text{outerSplit} n \circ \text{zip}(\mathbf{y}) \circ \mathbf{x}$$

4.g

$$\text{reduce}(+;0) \circ \text{outerJoin} n \circ \text{map}(\text{part-reduce}(+;0)) \circ \text{map}(\text{map}(*)) \circ \text{outerSplit} n \circ \text{zip}(\mathbf{y}) \circ \mathbf{x}$$

4.h

$$\text{reduce}(+;0) \circ \text{outerJoin} n \circ \text{map}(\text{part-reduce}(+;0) \circ \text{map}(*)) \circ \text{outerSplit} n \circ \text{zip}(\mathbf{y}) \circ \mathbf{x}$$

4.e/5.b **5.a**

$$\text{reduce}(+;0) \circ \text{outerJoin} n \circ \text{map}(\text{reduce-seq}(+;0) \circ \text{map-seq}(*)) \circ \text{outerSplit} n \circ \text{zip}(\mathbf{y}) \circ \mathbf{x}$$

4.h

$$\text{reduce}(+;0) \circ \text{outerJoin} n \circ \text{map}(\text{reduce-seq}(\lambda\ \text{lacc},<a,b>: acc+a*b;0)) \circ \text{outerSplit} n \circ \text{zip}(\mathbf{y}) \circ \mathbf{x}$$