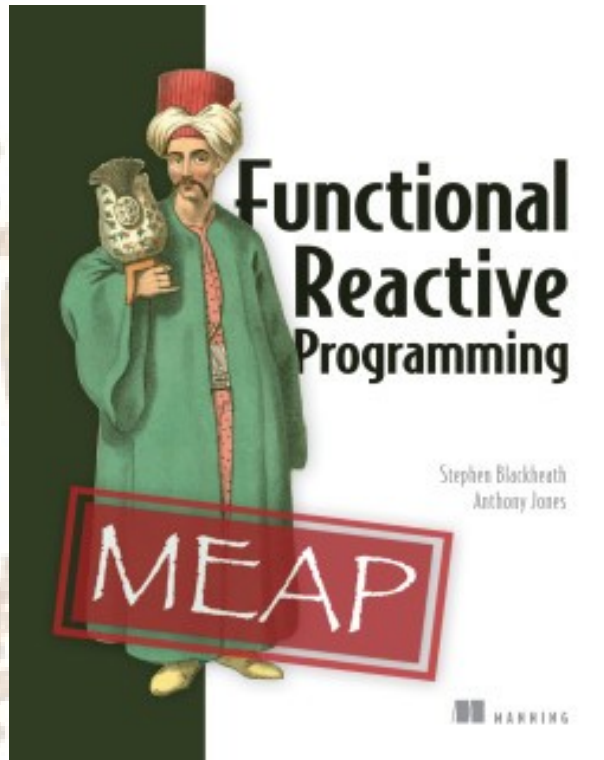




Secrets of the FRP Masters

The why and how of
Functional Reactive Programming

Stephen Blackheath



Manning Publications

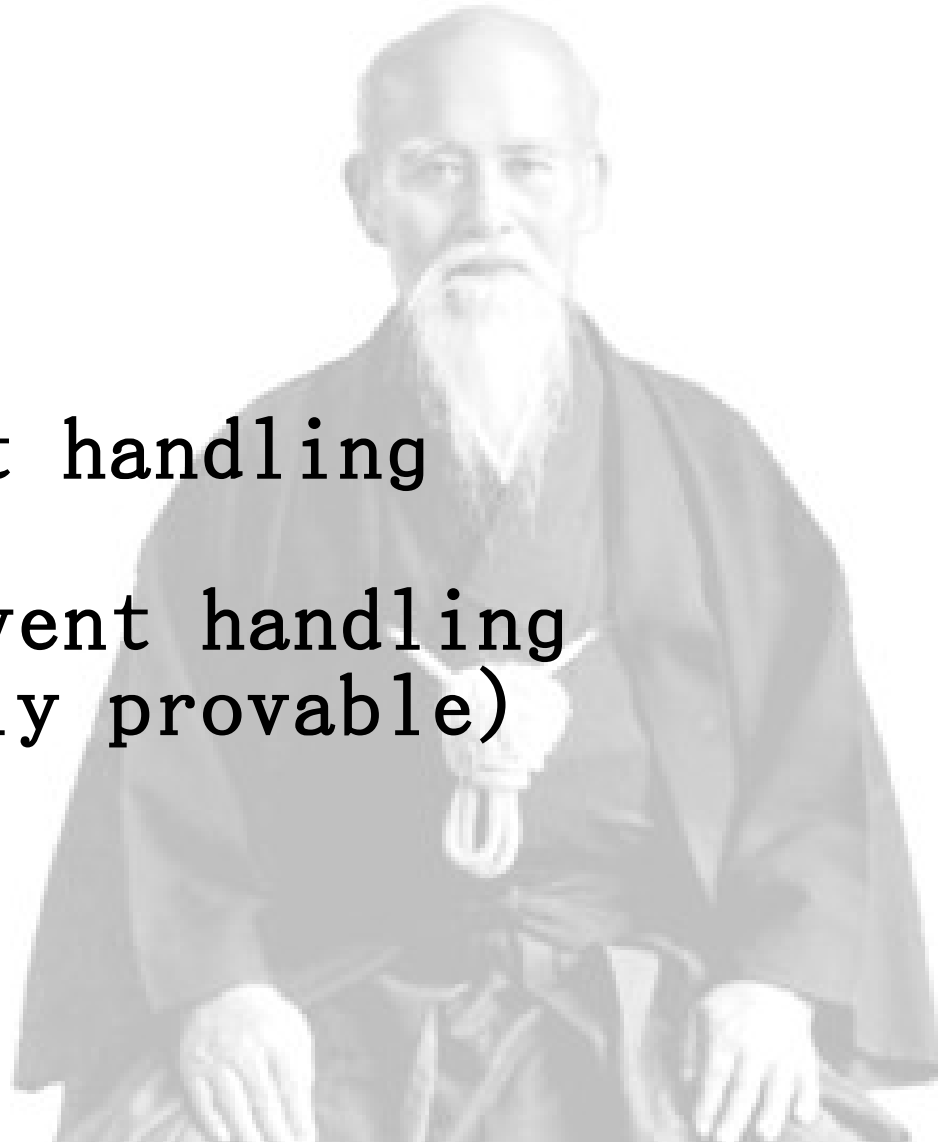
Why FRP?

- Composable event handling



Why FRP?

- Composable event handling
- Compositional event handling
(mathematically provable)

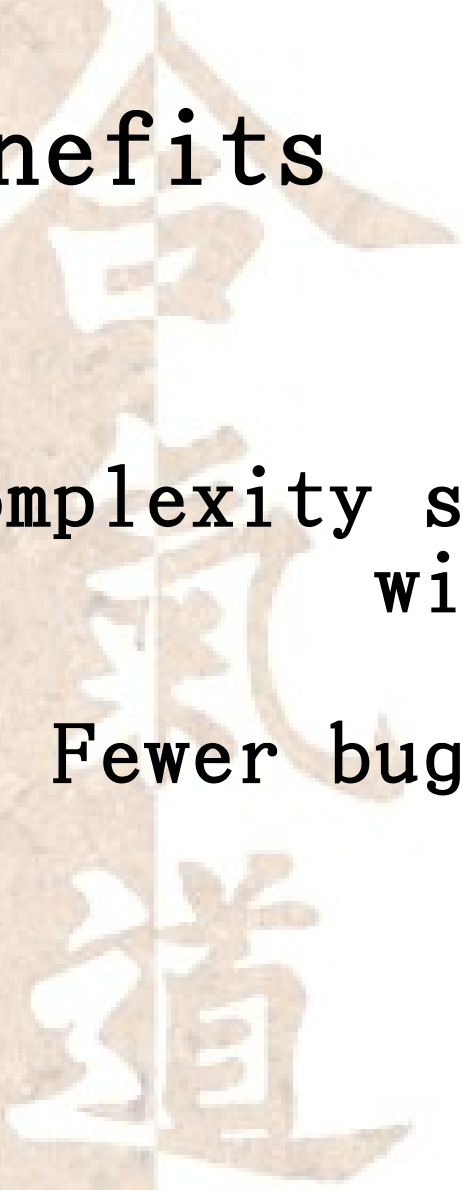
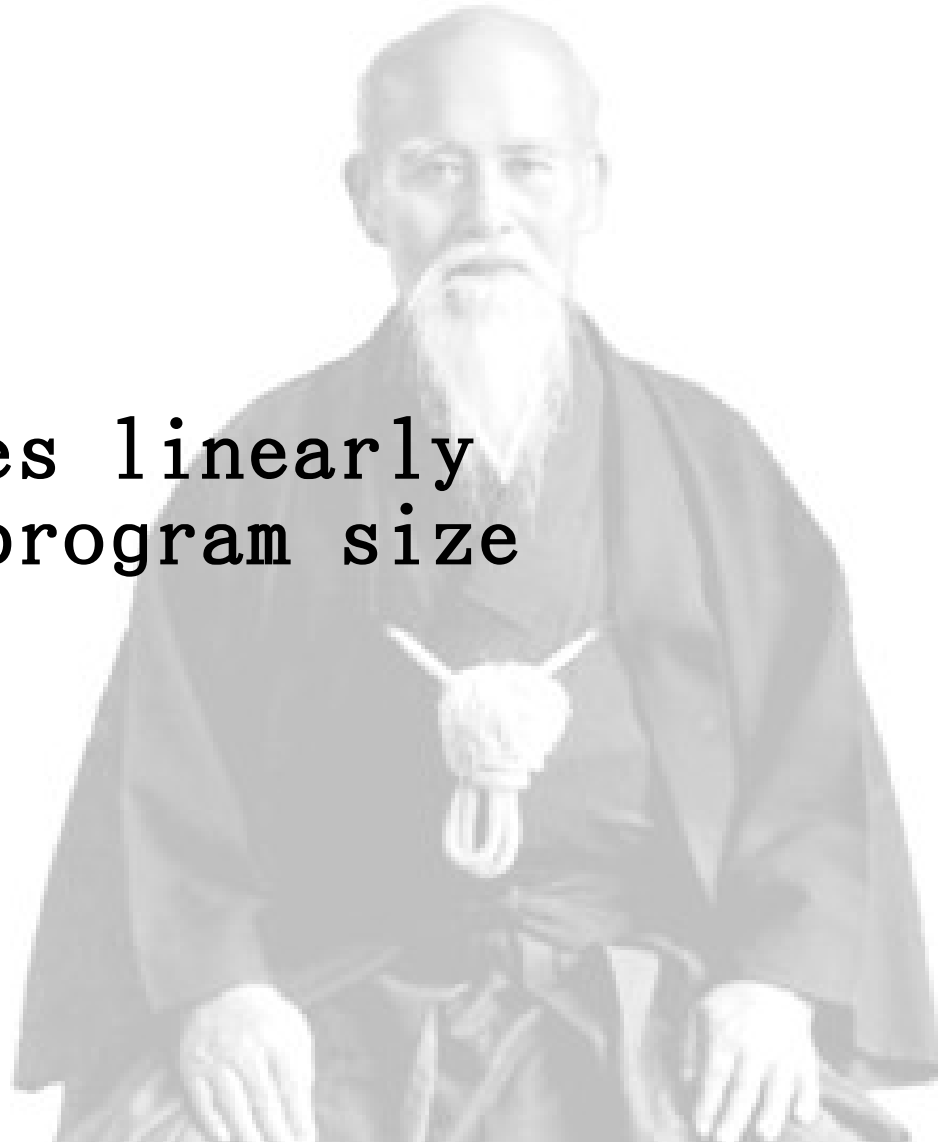


Why FRP?

- Composable event handling
- Compositional event handling
(mathematically provable)
- Complete language for stateful logic

Benefits

- Complexity scales linearly
with program size
- => Fewer bugs



How does it work?

➤ Program = data flow

Inputs



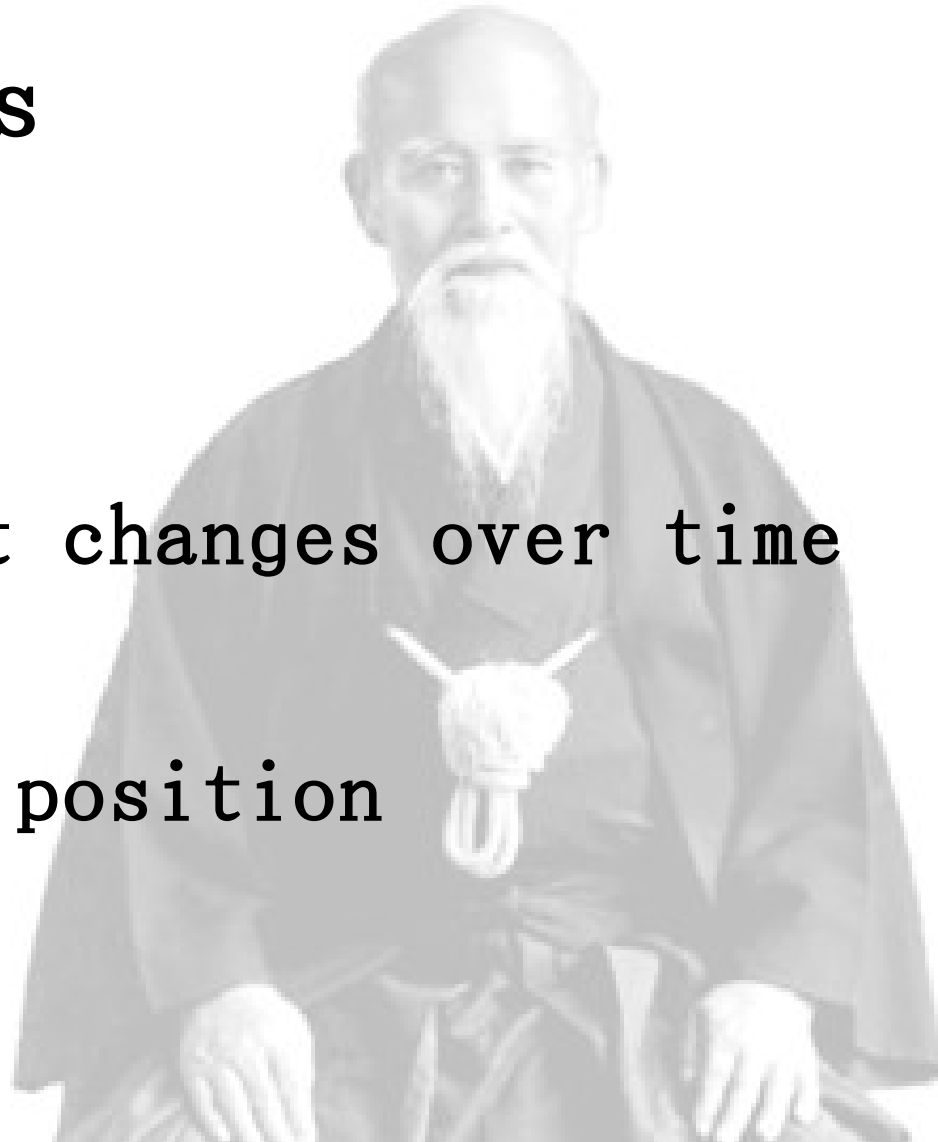
Logic
+
State

Outputs



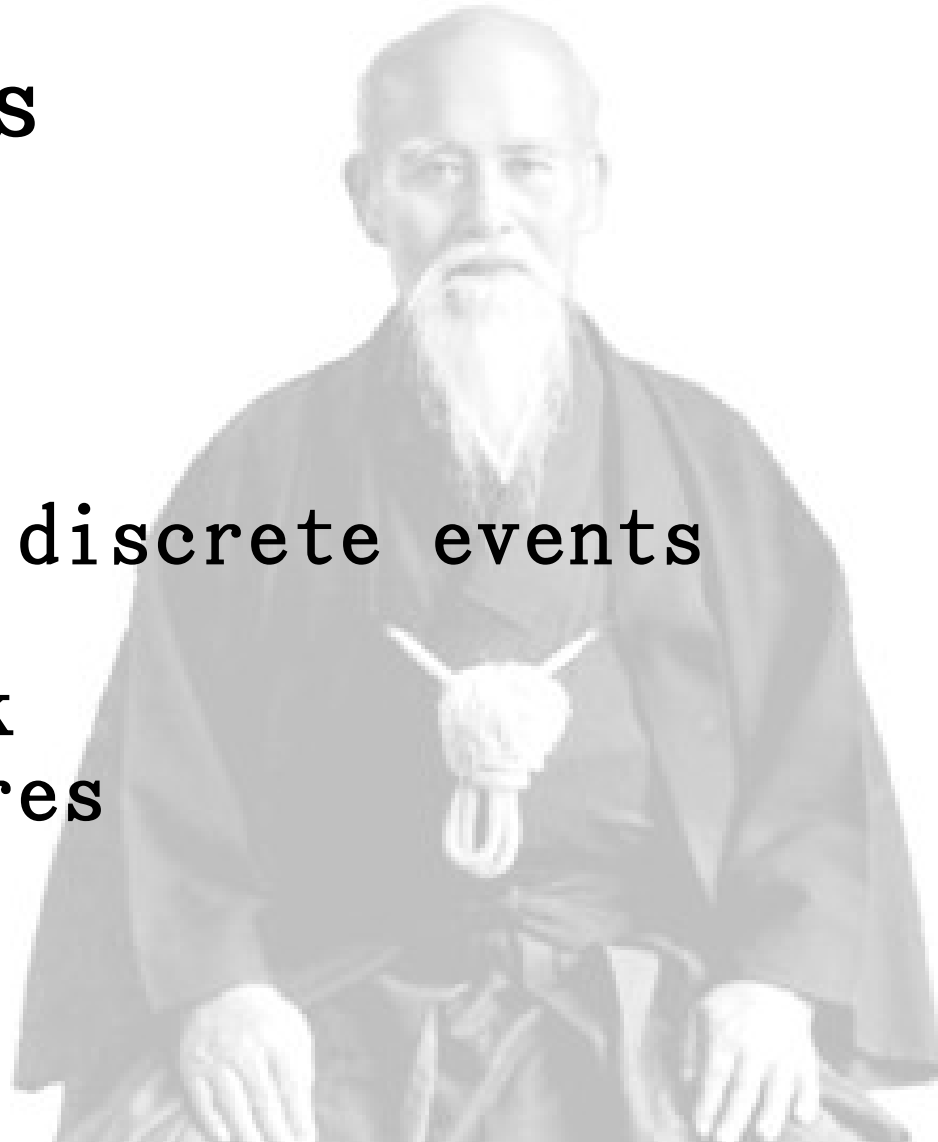
Two data types

- Cell
a value that changes over time
- e. g. time
space ship position
- = state



Two data types

- Stream
a stream of discrete events
- e. g. mouse click
timer expires
- = state change

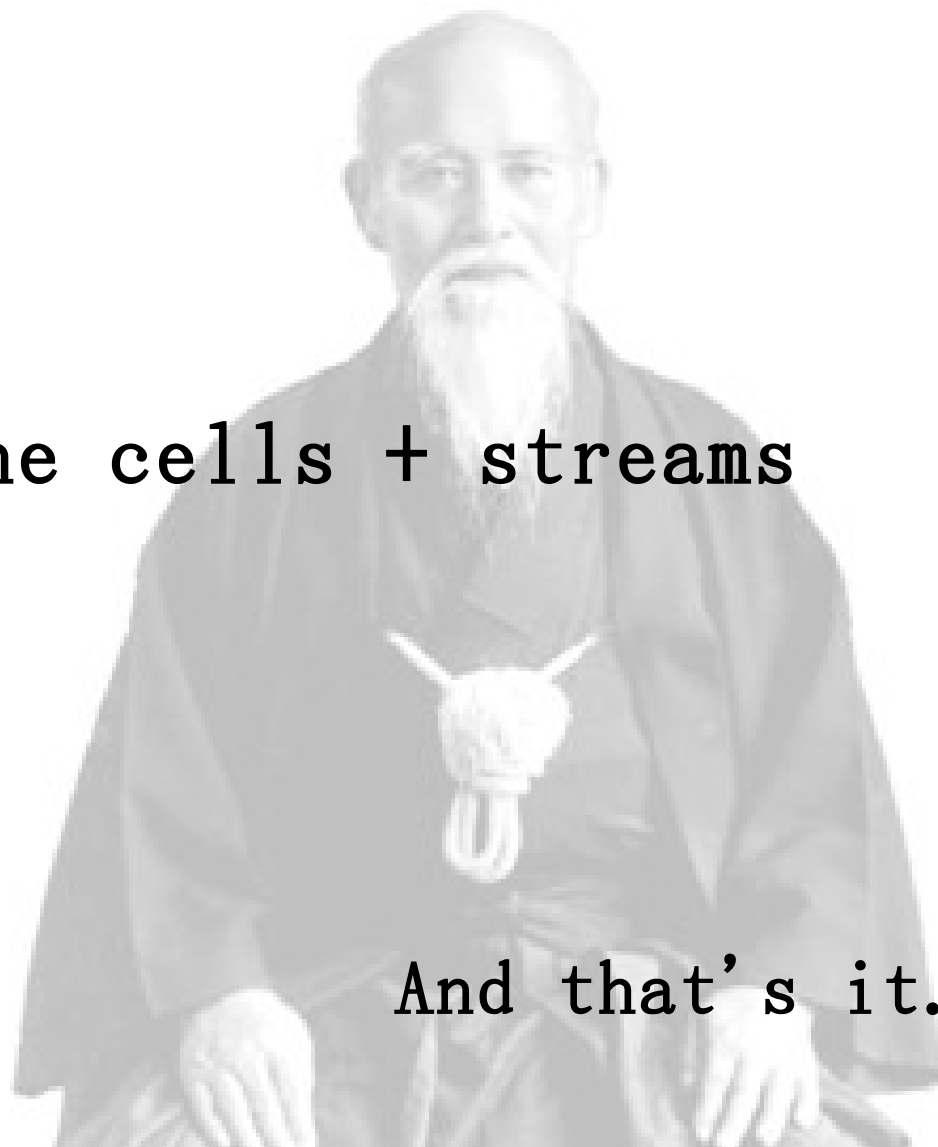


Composing

6 ways to combine cells + streams

- map/lift
- merge
- snapshot
- filter
- sample
- switch

And that's it.



And...

➤ Continuous time model



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