Functional Reactive Programming

in ClojureScript with Flapjax

@alandipert

FRP

- Programming paradigm

  - Set of language and/or library features

- Key Ideas

  - **Time-varying values**
    Event stream reference types

  - **Stream composition**
    Work with events like seqs

    - ...instead of callbacks (or watches)

Existing Things

- .NET Rx

- FrTime

- Elm

- JavaScript

  - Arrowlets

  - **Flapjax**

Where FRP Helps

- events: user, DOM, scheduled/periodic
  - generation, consumption
  - conditional propagation, fusion, filtering
  - "wiring"
- ~~structural composition, templating~~
- ~~css~~

DEMO

Future Work

- Port to ClojureScript!

  - Separate browser bits from propagation algorithm

  - Wire arbitrary events in ClojureJVM too

  - EventStream/Behavior implement ISeq?

- Implementation pieces

  - Topological sort

  - "delay" a la Prolog cut to halt propagation

  - Expose "wiring" itself as data

Thanks!

- @alandipert

- https://github.com/alandipert/flapjax-demo

- http://www.flapjax-lang.org/