Dataflow matrix machines and V-values
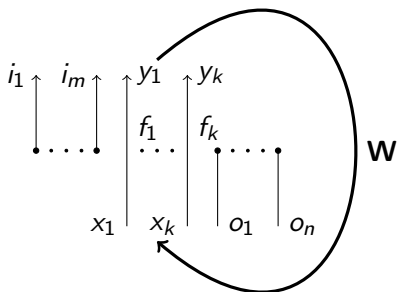
Michael Bukatin and Jon Anthony
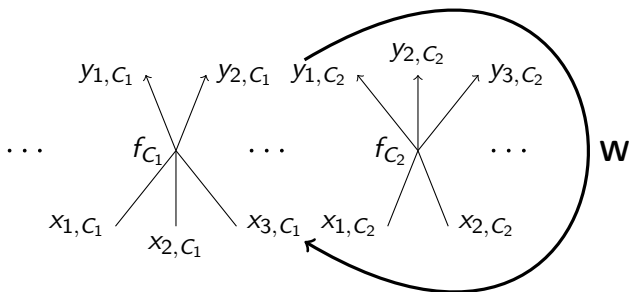
`https://github.com/jsa-aerial/DMM`

July 13, 2017 lightning talk at
`https://www.meetup.com/Boston-Clojure-Group/events/240535773/`
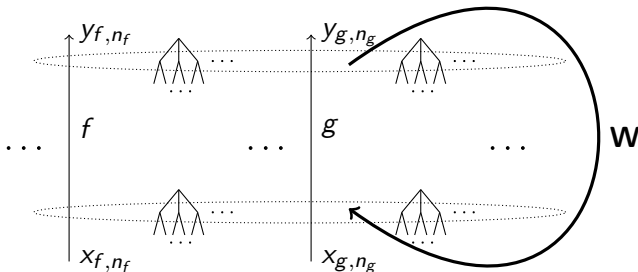
Recurrent neural networks

Dataflow matrix machines

Dataflow matrix machines
based on streams of V-values and variadic neurons

Examples

```
{:number 3.5, :foo {:number 2, :bar 7},
 :baz {:foo {:bar -4}}} ; a V-value
```

Activation function for a variadic neuron:

```
(defn accum [input]
   {:single (rec-map-sum (input :accum) (input :delta))})

(def v-accum (var accum)) ; a neuron type
```

Making neuron {v-accum :self} an accumulator:

```
{v-accum {:self {:accum
 {v-accum {:self {:single 1}}}}}}
```

Links

Paper (in preparation): `https://github.com/jsa-aerial/DMM/blob/master/doc/dmm-and-v-values-manuscript.pdf`

Quil-controlled DMMs: `https://github.com/jsa-aerial/DMM/tree/master/examples/dmm/quil-controlled`