Simplicity in Practice
WHAT I'M TRYING TO DO IS REALLY SIMPLE. IT SHOULDN'T BE HARD.

ALL COMPUTERS ARE JUST CAREFULLY ORGANIZED SAND. EVERYTHING IS HARD UNTIL SOMEONE MAKES IT EASY.

MAYBE I SHOULD TURN THIS ONE BACK INTO SAND. I'LL FIND A BLOWTORCH.
“Words, words, words.”

– Hamlet, Act 2 Scene 2
simple, adj.

- one fold/braid
- one role, task, concept, dimension
- antonym: complex, interleaved, of many parts
- objective measure
easy, adj.

- near at hand
- familiar
- antonym: hard, requiring effort
- relative measure
(< easy simple)
simplicity is necessary

simplicity isn’t sufficient
a small example
“Never define global, stateful vars”

– Wise Opinionated Clojure Programmers
(def uri "datomic:dev://localhost:4334/my-db")
(def conn (d/connect uri))

- complects:
  - namespaces with runtime application state
  - compilation with app initialization
“What do I do instead?”

“Just create a single object representing your application’s state, which you construct explicitly at initialization time and pass around to the rest of your program”
Did you just tell me to go fuck myself?

I believe I did, Bob.
(defrecord DB [uri]
  component/Lifecycle
  (start [:config] (d/connect uri)))

(defn system [config]
  (component/system-map
   :config config
   :db (->DB (-> config :db :uri)))))

https://github.com/stuartsierra/component
“We're writers.”

–Bruce Eckel, 2009
code

• functions
• data
• execution flow

stories

• setting
• characters
• plot
interest
clarity
comprehension
collaboration
revisiting terms
\( f(easy, simple) \)
Development Speed

- Emphasizing ease gives early speed
- Ignoring complexity will slow you down over the long haul
- On throwaway or trivial projects, nothing much matters

– Rich Hickey, Simple Made Easy
ease

simplicity
simple  wieldy  easy
wieldy, adj.

formal definition

• capable of easily ‘wielding’ one's body or limbs, or a weapon, etc.; vigorous, active, agile, nimble.

• easily wielded, controlled, or handled; manageable; handy.

• requiring strength to wield, heavy or bulky; wielded with force, powerful.

Oxford English Dictionary
wieldy, adj.

programmer definition

• manageable, handy, powerful
  • easy ∩ simple

• pertaining to developer experience
  • powerful and fun

• relational measure
benefits

- flexibility
- codebase size
- development speed
- developer morale
- developer improvement
“I should be sorry if I only entertained them, I wish to make them better.”

–George Frideric Handel
Wieldy Code

Good Programmer
simple, unwieldy

[{
  :db/id #db/id[:db.part/db]
  :db/ident :artist/name
  :db/valueType :db.type/string
  :db/cardinality :db.cardinality/one
  :db/fulltext true
  :db/index true
  :db/doc "The artist's name"
  :db.install/_attribute :db.part/db
}]

[{
  :db/id #db/id[:db.part/db]
  :db/ident :artist/country
  :db/valueType :db.type/ref
  :db/cardinality :db.cardinality/one
  :db/doc "The artist's country of origin"
  :db.install/_attribute :db.part/db
}]
easy, unwieldy

(jdbc/with-connection db
  (jdbc/insert-records :language_authors
    {::first_name "Rich" :last_name "Hickey"}
    {::first_name "Larry" :last_name "Wall"})))
recontextualization

- To reinterpret or refresh (an idea, work of art, etc.) by placing it in a new or different context.
three kinds of documentation
reference \rightarrow simple
tutorial \rightarrow easy
conceptual \rightarrow wieldy
reference style

• terse

• complete

• no context

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**sorted-set-by**

function

Usage: `(sorted-set-by comparator & keys)`

Returns a new sorted set with supplied keys, using the supplied comparator. Any equal keys are handled as if by repeated uses of conj.

Added in Clojure version 1.1

*Source*
tutorial style

- task-oriented
- longform
- concepts are doled out on demand
conceptual style

1. problem statement
2. concepts
3. common usage examples
4. pointers to reference documentation
5. roughly 1 page

i.e. telling the story
so I know a new word

what now?