WHY CLOJURESCRIPT?

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Why ClojureScript?

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What is ClojureScript?

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What is ClojureScript?

Lisp
Functional
Dynamically-typed
Compiled

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Lisp

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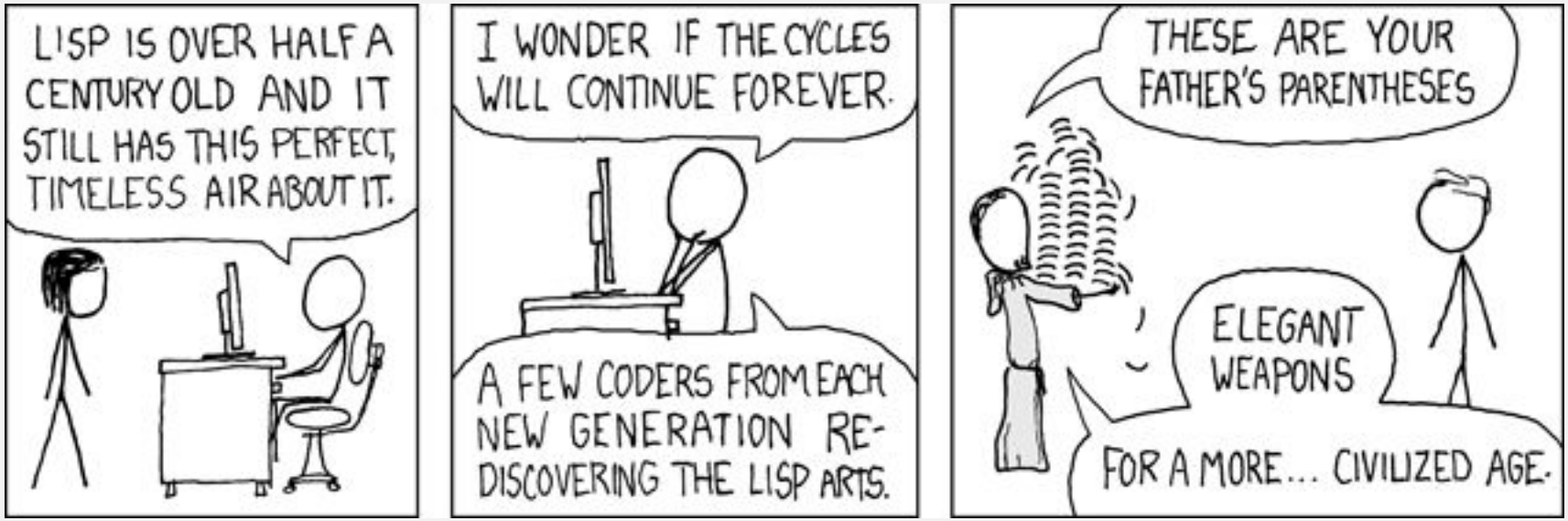

Mandatory XKCD

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LISt Processing

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Lisp in a Nutshell

JavaScript `func(arg1, arg2)`

ClojureScript `(func arg1 arg2)`

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Lisp in a Nutshell

```
(+ 1 2 3 4)
```

```
(if true
  "Yes"
  "No")
```

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Lisp is Homoiconic

(Code as Data)

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Lisp is Homoiconic

Code: `for, function, if, else, etc`
Data: `[], {}`

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Lisp is Homoiconic

```
(def my-list (list 1 2 3))
(map
 (fn [i] (+ i 1))
 my-list)
```

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Lisp is Homoiconic

Code as Data

Easy for Machine

Easy for Human

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Lisp is Extensible

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Macro

Function	Macro
Input Data	Input Raw Code
Evaluate Code	Manipulate Code
Runtime	Before Runtime

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Macro

```
(defmacro hello [name]
`(js/alert ~(str "Hello, " name)))

(macroexpand '(hello "New user"))
;=> (js/alert "Hello, New user")
```

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Compile v. Run time optimization

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Functional

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JavaScript
The Definitive Guide
O'REILLY
David Flanagan
Unearthing the Excellence in JavaScript
JavaScript:
The Good Parts
O'REILLY
YAHOO! PRESS
Douglas Crockford

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React is functional

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Immutable.js

```
const { Map } = require('immutable')
const map1 = Map({ a: 1, b: 2, c: 3 })
const map2 = map1.set('b', 50)
map1.get('b') // 2
map2.get('b') // 50

// Convert to JS Object
map1.toObject()
map2.toObject()
```

```
(def map1 {:a 1 :b 2 :c 3})
(def map2 (assoc map1 :b 50)
(:b map1) ; 2
(:b map2) ; 50
```

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```
const user1 = {
 firstName: "John",
 lastName: "Doe"
}

const user2 = user;
user2.firstName = "Jane";


user1 === user2 // true
```

```
(def user1 {:first-name "John"
            :last-name "Doe"})

(def user2
 (merge
  user1
  {:first-name "Jane"}))


(= user1 user2) ;; false
```

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```
const styles = {
 container: {
   flex: 1,
   alignItems: 'center',
   justifyContent: 'center'
 },
 text: {
   fontSize: 32
 }
};
<View style={styles.container}>
 <Text style={styles.text}>
   Hello, World!
 </Text>
</View>
```

```
(def styles
 {:container {:flex 1
              :align-items "center"
              :justify-content "center"}
  :text {:font-size 32}})


[rn/view {:style (:container styles)}
  [rn/text {:style (:text styles)}
   "Hello, World!"]]
```

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Compiled

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Google Closure Compiler

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Google Closure Compiler

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Google Closure Compiler

```
function hello(name) {
 alert('Hello, ' + name);
}
hello('New user');
```

```
alert("Hello, New user");
```

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Google Closure Compiler Limitations

Not well-documented

Subset of JS only

Type annotation

Statically access property in object

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JS is the biggest compile-to-JS language

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JS Interop

```
alert('Hello World');
```

```
(js/alert "Hello World")
```

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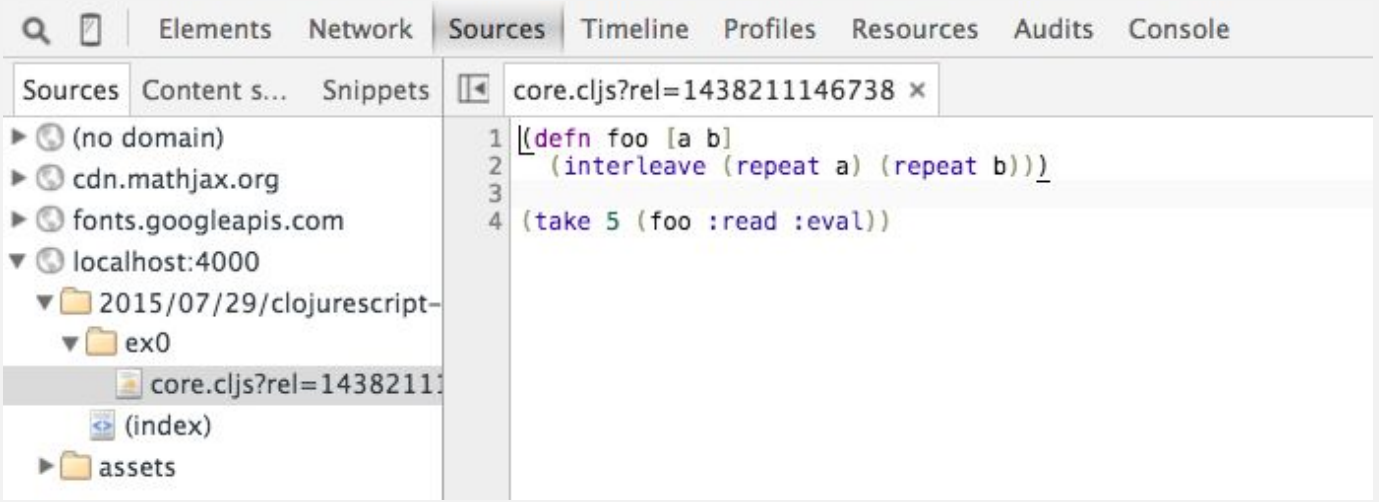
Source Map



Credit: David Nolen

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REPL Driven Development

Read Eval Print Loop

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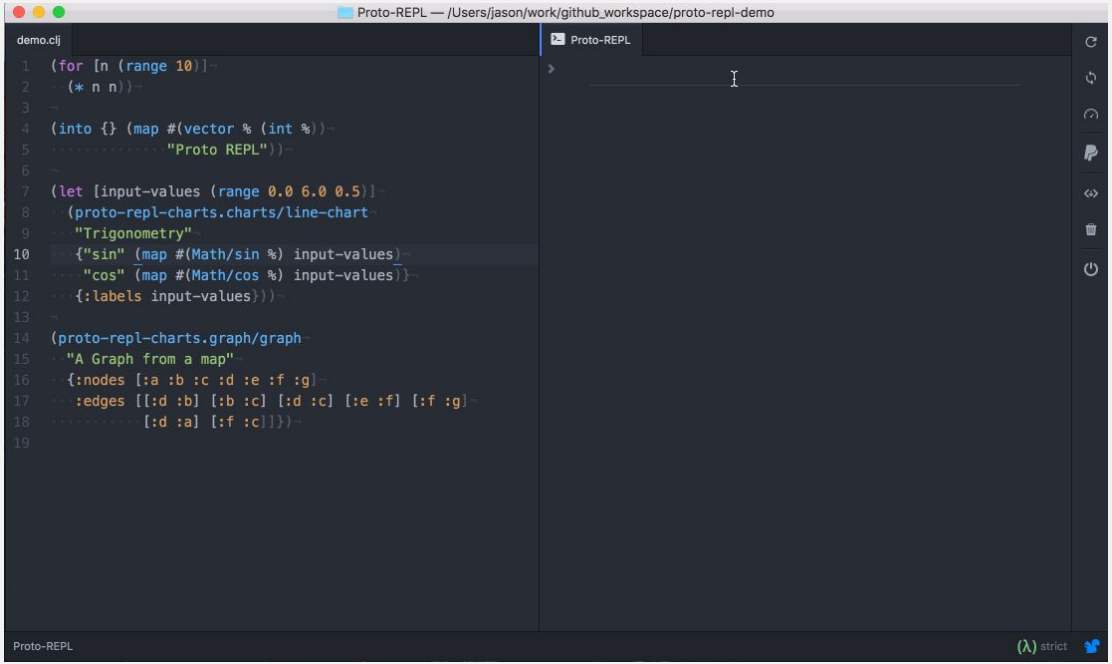
REPL Driven Development



Credit: Proto REPL

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How to get started?

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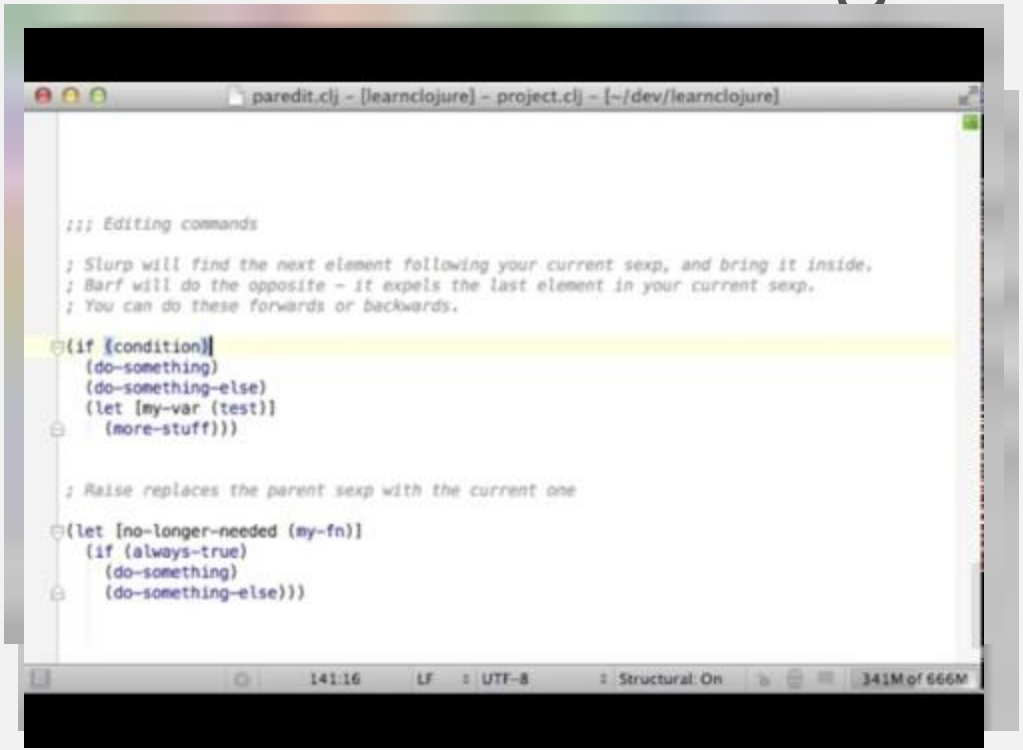
Structural Editing



Credit: cursive-ide.com

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How to get started?

Structural Editing

Clojure for the Brave and True

“Simple Made Easy” talk

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