

Beyond Script

Implementing A Language For The Web

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For Meredith, Tobias and all the people who cope with me. Your undying support will not be forgotten.

Except where otherwise indicated, this thesis is my own original work.

Veit Heller
June 17, 2016

Abstract

The modern web is comprised of an abundance of very different beasts. Technologies that powered the first versions of the World Wide Web, such as HTML, CSS and JavaScript, and relatively new conceptions like TypeScript, CoffeScript, PureScript, ClojureScript, Elm, LASS, SCSS, Jade and Emscripten - to name but a few - are shaping the internet as we know it. There is a flaw that many of the new technologies have in common, as different as they may look and feel - they are mere preprocessors. In the end, it all boils down to the classic technologies again and we are left with the same programming we have been doing for the last twenty years.

This thesis presents a port of the zepto programming language to the web. It aims to work as seamlessly with existing technologies as possible.

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1. Introduction

Controlling complexity is the
essence of computer
programming.

(B. Kernighan)

1.1. Motivation

JavaScript has, since its inception, attracted a lot of controversy. This is rooted in various aspects of its design, from prototypal inheritance to operator precedence. Prototypal inheritance has the reputation of being counter-intuitive, though it is older than JavaScript, the first commonly known programming language that implements prototypal objects being Self.

* things get better * es 6 and es7 thank god * a lot of research funneled into it * still a fundamental rethinking might be necessary

1.2. Purpose of this work

1.3. Structure of this work

2. Motivation

Practicality beats purity.

(T. Peters—*The Zen of Python*)

A common saying among programming language designers is that every programmer has written their own implementation of Lisp. There are a lot of different implementations of Lisp

3. Implementation

It always takes longer than you
expect, even when you take into
account Hofstadter's Law.

(Hofstadter's Law)

Intermediate Representation (IR) Abstract Syntax Tree (AST)

4. Outlook

When I'm working on a problem,
I never think about beauty. I
think only how to solve the
problem. But when I have
finished, if the solution is not
beautiful, I know it is wrong.

(R. Buckminster Fuller)

5. Conclusion

5.1. Summary of contributions

Some bollocks

I did some bollocks, and it was pretty interesting.

Some other bollocks

Really, if you think about it, I did a whole other lot of bollocks as well.

A. An appendix

Put any appendices here—they are just like regular chapters, except they follow the `\appendix` directive.

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