

It's all (position:) relative:

# Linguistic Relativity and Programming Languages

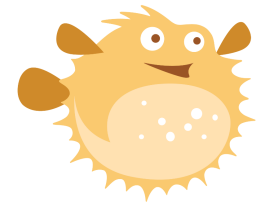
Jenna Zeigen  
BrooklynJS, May 2014

[bit.ly/bk-js](https://bit.ly/bk-js)

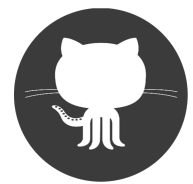
Hacker School Fall 2012



Front-End Engineer at Bitly



zeigenvector

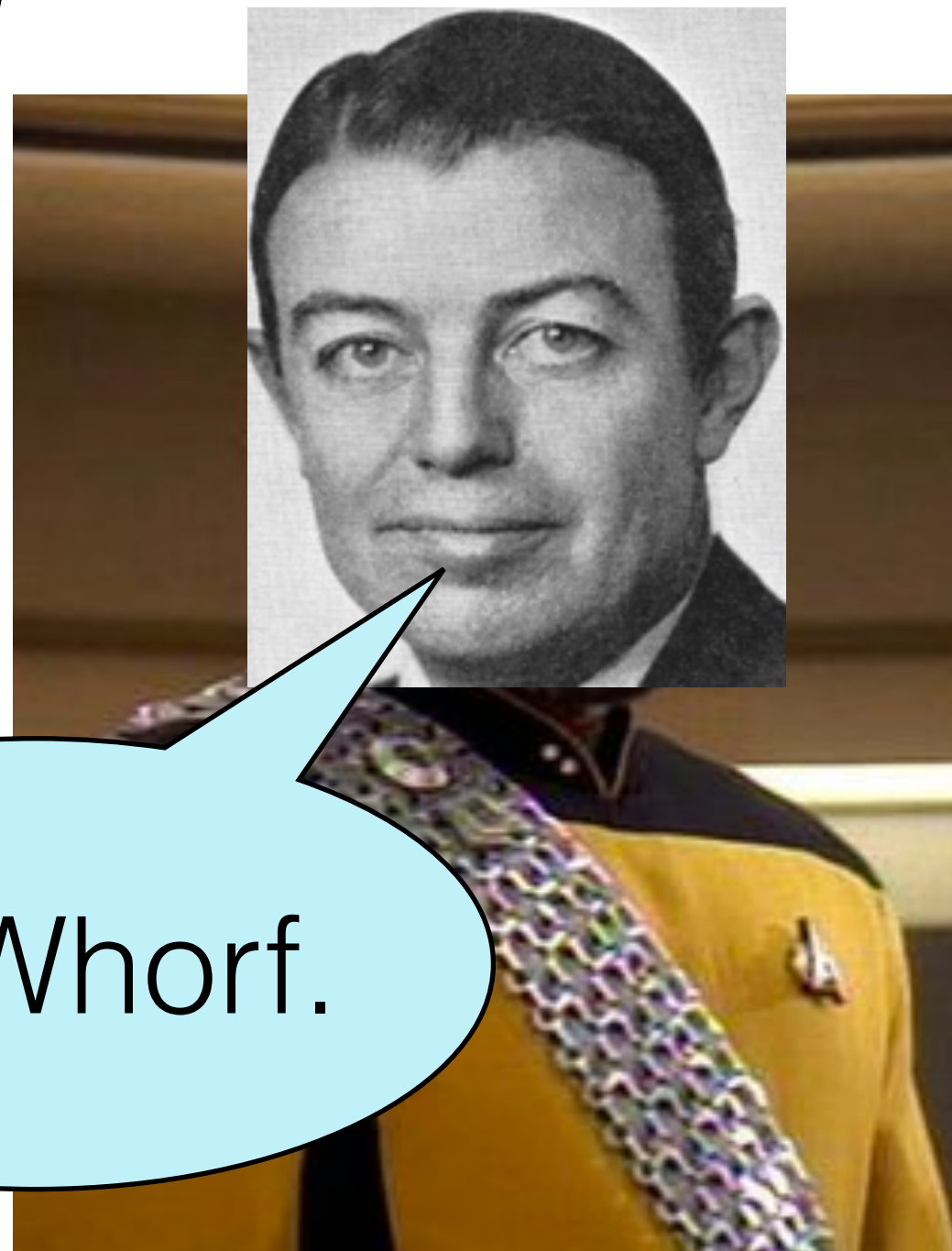


jennazee

I'm Sapir.



I'm Whorf.



# Sapir-Whorf Hypothesis

The languages you speak  
{determine | influence} the way  
you think.

# Sapir-Whorf Hypothesis

The languages you speak  
~~{determine |~~ influence} the way  
you think.

But what about the

JavaScripts

? ? ? ? ? ? ? ? ? ? ? ?

Proposal: The programming languages we know **strongly influence** the way we think about programming.



Programming languages create and manipulate the space, rather than just describe it.

“Programming languages, because they were designed for the purpose of directing computers, offer important advantages as **tools of thought**. Not only are they universal..., but they are also **executable** and **unambiguous**.”

*Kenneth Iverson, “Notation as a Tool of Thought” (1979)*

([bit.ly/Iverson-NotationAsToolOfThought](https://bit.ly/Iverson-NotationAsToolOfThought))

# Blub Paradox



Some  
programming languages  
are more powerful than  
others.

*Paul Graham, “Beating the Averages” (2003)*

([bit.ly/blub-paradox](http://bit.ly/blub-paradox))

# Blub Paradox

“Some programming languages are more powerful than others.”

Weak  
language

Blub (average)



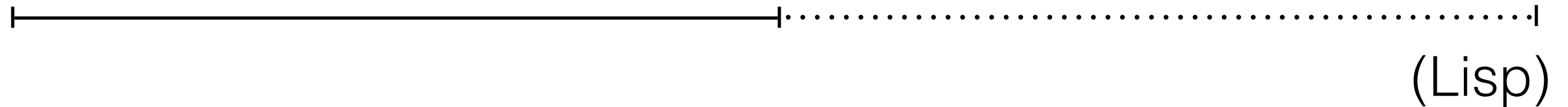
# Blub Paradox

“Some programming languages are more powerful than others.”

Weak  
language

Blub (average)

Super strong  
language!



# Blub Paradox

“I look at [Python, Java, C, and Perl].  
How can you get anything done in  
them, I think, without macros?”

*Paul Graham, “Beating the Averages” (2003)*

([bit.ly/blub-paradox](http://bit.ly/blub-paradox))

# Blub Paradox

“They're satisfied with whatever language they happen to use, because it **dictates** the way they think about programs.”

*Paul Graham, “Beating the Averages” (2003)*

([bit.ly/blub-paradox](http://bit.ly/blub-paradox))

# Blub Paradox

“I know this from my own experience, as a high school kid writing programs in Basic. That language didn't even support recursion... but I didn't miss it at the time. I thought in **Basic**.”

*Paul Graham, “Beating the Averages” (2003)*

([bit.ly/blub-paradox](http://bit.ly/blub-paradox))



# Scarred for life?

“It is practically impossible to teach good programming to students that have had a prior exposure to BASIC: as potential programmers they are **mentally mutilated beyond hope** of regeneration.”

*-Dijkstra, “How do we tell truths that might hurt” (1975)*

(<http://bit.ly/dijkstra-truths>)

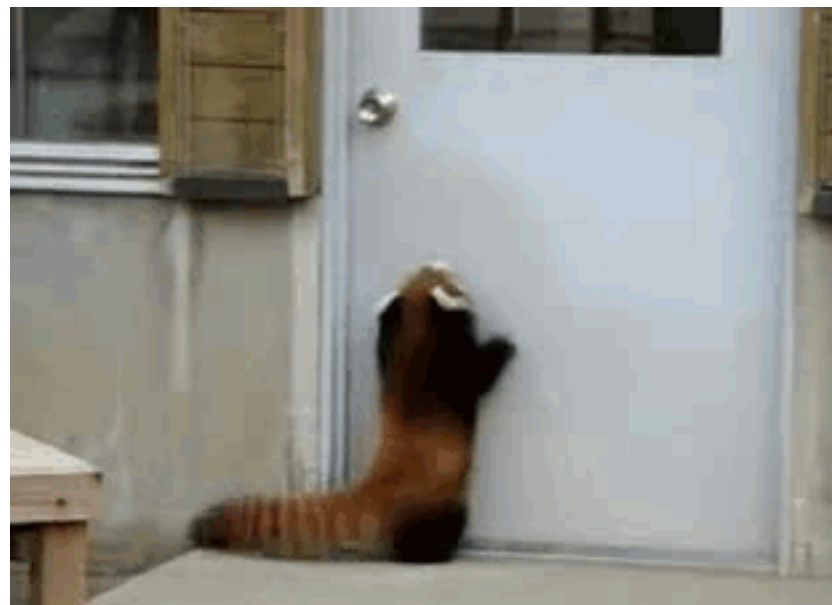
**MENTALLY MUTILATED**



**BEYOND HOPE?!?11/?**

[memegenerator.net](http://memegenerator.net)

We are only “constrained” by the constructs and idioms of the most powerful programming language we know, not the languages themselves.



(<http://bit.ly/cutest-red-panda>)

1. We can learn more (powerful) programming languages and how to program in them idiomatically.

Humans can learn.

iteration

Humans can learn.

iteration

list comprehension

Humans can learn.

iteration

list comprehension

map

2. We can implement the constructs of more powerful languages as libraries in whatever language we use.



# Code can make things.

“Sweet.js brings the hygienic macros of languages like Scheme and Rust to JavaScript. Macros allow you to...craft the language you’ve always wanted.”

The screenshot shows the GitHub repository page for `mozilla/sweet.js`. The repository is public and has 2,141 stars and 116 forks. It features 1,102 commits, 8 branches, 17 releases, and 23 contributors. A recent pull request #316 from `natefaubion/macroclass-where` is highlighted, authored by `disnet` 4 days ago. The latest commit is `bc28a4244b`. The repository description is "Sweeten your JavaScript. <http://sweetjs.org>". The right sidebar shows links to Code, Issues (45), Pull Requests (4), Wiki, and Pulse.

GitHub navigation bar: This repository, Search or type a command, Explore, Gist, Blog, Help, jennazee, +, -, ✂, ↗

PUBLIC **mozilla / sweet.js** Watch 131 Star 2,141 Fork 116

Sweeten your JavaScript. <http://sweetjs.org>

1,102 commits 8 branches 17 releases 23 contributors

branch: master sweet.js / +

Merge pull request #316 from natefaubion/macroclass-where ...

**disnet** authored 4 days ago latest commit `bc28a4244b`

_layouts	cleaning up	8 months ago
bin	updating the build	10 months ago

Code Issues 45 Pull Requests 4 Wiki Pulse

3. Programming languages themselves can change if we want them to.

Synthetic languages can be changed

iteration

map

Synthetic languages can be changed

iteration

map

array comprehension

generators



or

Learn new languages, find cool things, bring them back, and share!

[bit.ly/bk-js](http://bit.ly/bk-js)

Questions?



zeigenvector

or

Find me downstairs at beer.js!

