Thomas Fuchs

Advanced Rails AJAX techniques

wollzelle

Thomas Fuchs

- wollzelle
- Core team member of Ruby on Rails
- *script.aculo.us*
- mir.aculo.us

wollzelle

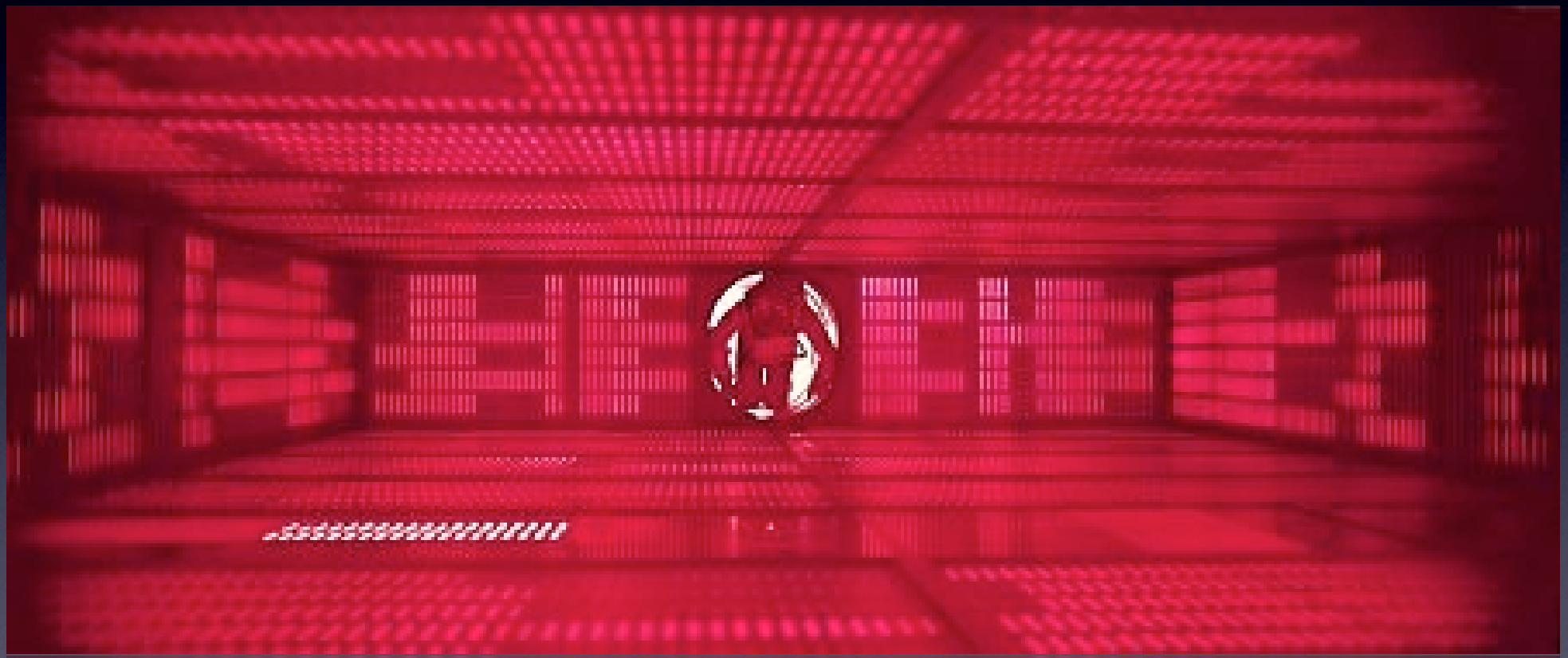
- Branding/Design/Web
- fluxiom (yes, we'll get to see it)
- http://www.wollzelle.com/

The tools

JavaScript, as seen by the browser

Source: http://www.pollux.franken.de/KNF/

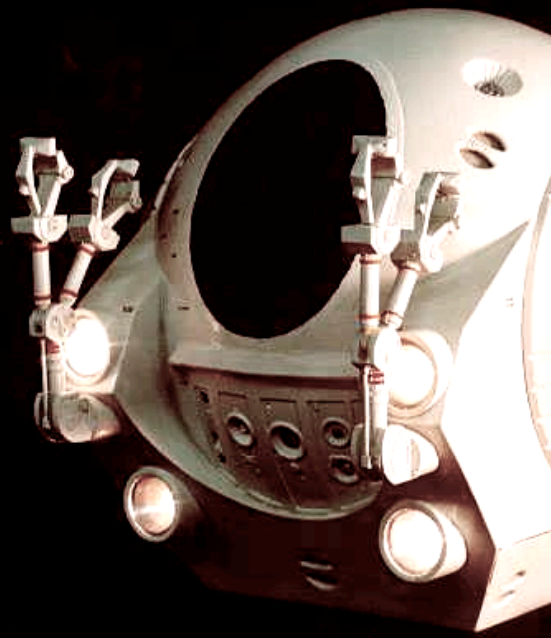
JavaScript, as seen by the developer



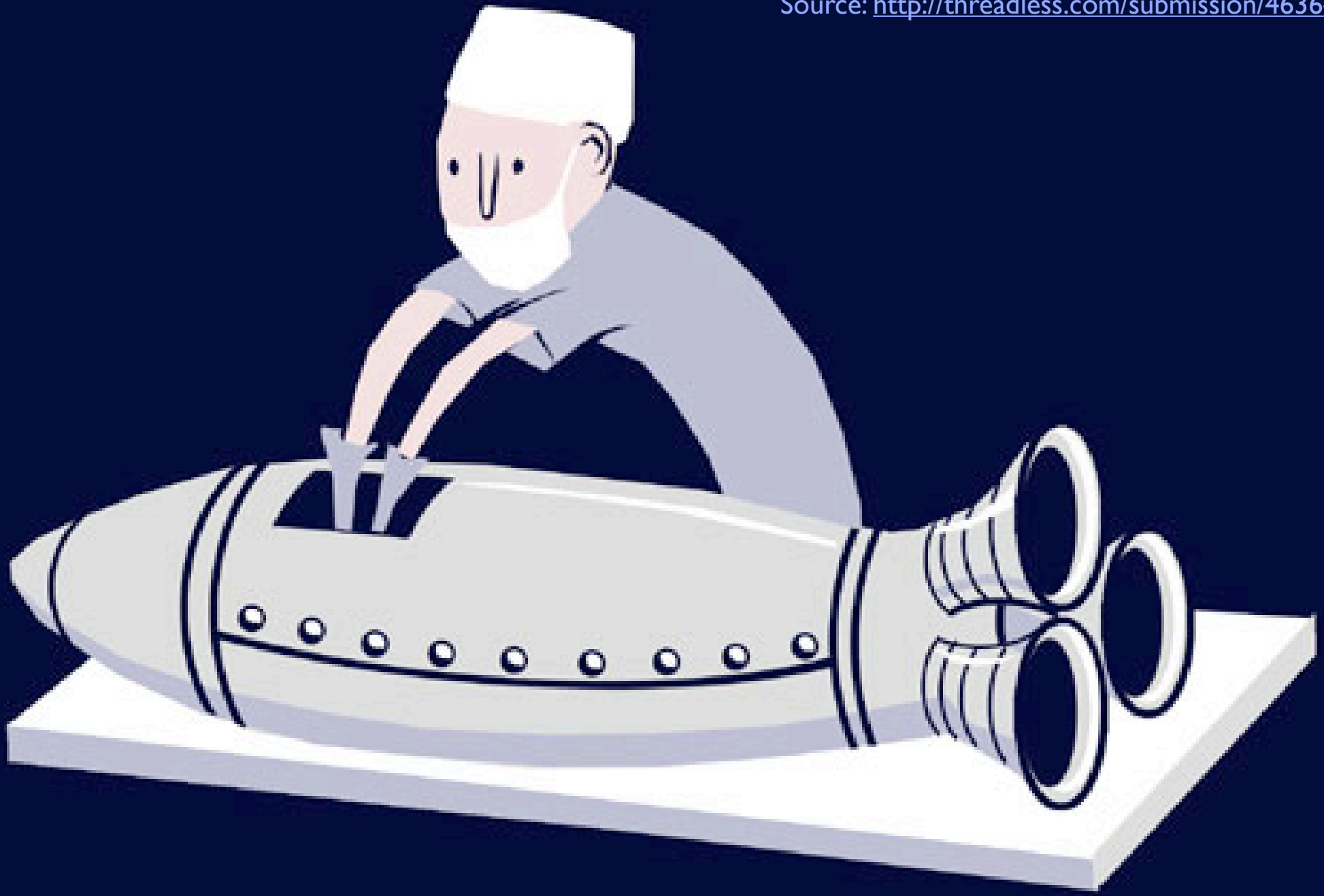
From 2001: A Space Odyssey

Concentrate on
your application…

…and not on
browser bugs.



Source: http://threadless.com/submission/46364/It



IT'S NOT ROCKET SURGERY...

1.5

JavaScript,
minus the „WTF?“

AJAX

Enumerables

$ and $$

```
$$('p.hint').each(function(e){
  e.hide();
});
```

Direct Element extensions

Prototype 1.4

```
if(Element.visible('blah'))
  Element.hide('blah');
```

vs

Prototype 1.5

```
if($('blah').visible())
  $('blah').hide();
```

Events

script.aculo.us

1.6

Visual effects

Drag and Drop

Ready-to-use controls

Plus some extras

JavaScript unit testing, DOM Builder

On-the-fly JavaScript: Rails JavaScript Templates

Rails Ajax: A History

Last Spike of the CPR - Craigellachie, British Columbia, Canada
Courtesy of the National Library and Archives of Canada

Rails Ajax: A History

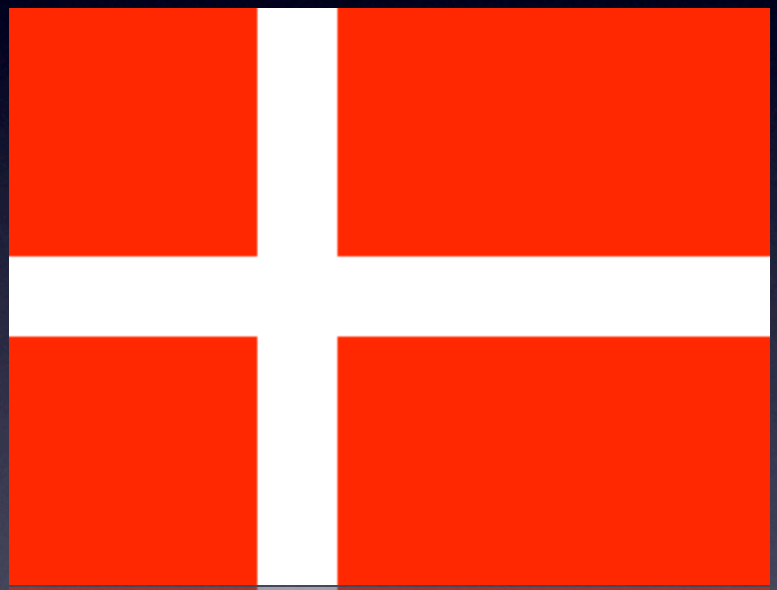
Ideas to make the web snappier	Late 20th century
Prototype 1.0, Rails Helpers	Rails 0.11, March 22, 2005
Prototype 1.3, script.aculo.us 1.0	Rails 0.13, July 6, 2005
Prototype 1.4, script.aculo.us 1.5	Rails 1.0, December 13, 2005
Rails JavaScript templates, Prototype 1.5, script.aculo.us 1.6	Rails 1.1, March 28, 2006

In just one year

Ruby on Rails
RJS Templates

No JavaScript programming necessary

(might have something to do with David)



Danish flag

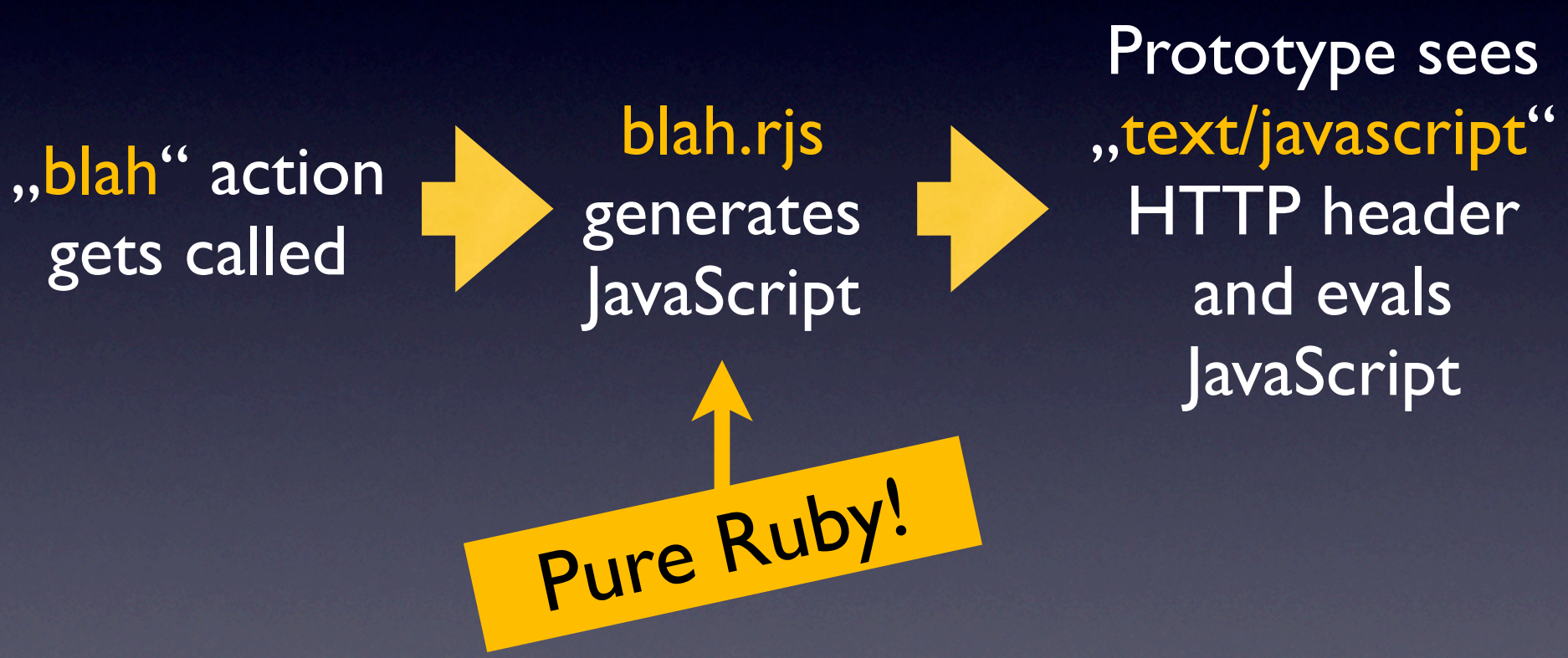
Say it in Ruby

```ruby
page[:cart].update render(:partial => 'cart')

page.select('p.hint').each do |hint|
  hint.visualEffect :highlight
end
```

generates JavaScript:

```javascript
$("cart").update("...rendered partial...");

$$("p.hint").each(
  function(value, index){
    value.visualEffect("highlight");
  }
);
```

What it does


„blah“ action gets called
blah.rjs generates JavaScript
Prototype sees „text/javascript“ HTTP header and evals JavaScript
Pure Ruby!

Of course, just think of it as magic.

Sam Stephenson, author of Prototype

replace

Replaces complete element

```
page.replace :list, render(:partial => 'list')
```

```
Element.replace("list", "<ul id=\"list\">\n…
```

replace_html

Replaces contents of an element

```
page.replace_html :list, render(:partial => 'list')
```

same as

```
page[:list].update render(:partial => 'list')
```

Staying DRY

```
page[:list].reload
```

Refreshes contents of element „list“ with the partial of the same name

equivalent to

```
page.replace_html :list, render(:partial => 'list')
```

insert_html

Insert content at specific positions within an element

```
page.insert_html(
  :bottom, :list, "<li id=\"i_2\">Item from RJS</li>")
page.sortable :list
```

page.sortable re-inits the sortable list so the newly added item is recognized

select

CSS selector-based loops

```
page.select('p.hint').each do |hint|
  hint.visual_effect :highlight
end
```

```
$$("p.hint").each(function(value, index) {
value.visualEffect("highlight");
});
```

select

advanced Prototype enumerables

```
page.select('p.hint').pluck('t', 'offsetTop')
```

creates a JavaScript „t“ variable, containing the result

select
advanced Prototype enumerables

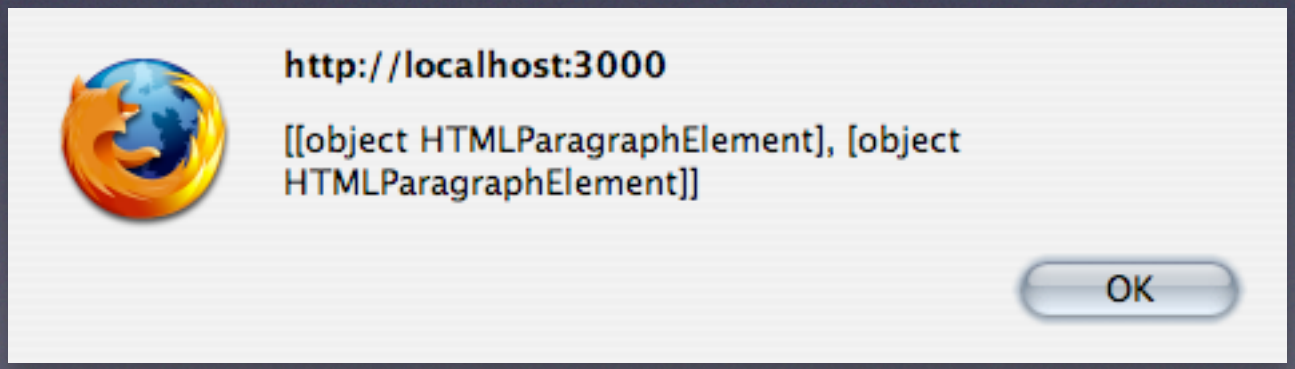
```
page.select('p.hint').find_all('h') do
  page << "value.visible()"
end
```

creates „h“ variable, containing an Array of elements (that are visible)

select

using Prototype to inspect stuff

```
page.select('p.hint').find_all('h') do
  page << "value.visible()"
end

page << "alert(h.inspect())"
```



<<

Reuse plain JavaScript

```
page << "(3).times( function(){ alert('Ho!') });"
```

delay

```
page.delay(5.seconds) do
  page[:blah].visualEffect :puff
end

page.delay(15.seconds) do
  page.select('p.hint').each do |element|
    element.visualEffect :fade
  end
end
```

Prototype/script.aculo.us Element extensions

```
page[:blah].set_style :backgroundColor => '#f00'
page[:blah].set_opacity 0.5
```

```
$("blah").setStyle({"backgroundColor": "#f00"});
$("blah").setOpacity(0.5);
```

Chains

Hide the first element that
is a „P“ and has a class „hint“:

```
page.select('p.hint').first.hide
```

script.aculo.us

Visual Effects

```
page[:blah].visual_effect(
  :pulsate, :duration => 4.seconds)
```

:appear, :fade, :slide_up, :slide_down,
:blind_up, :blind_down, :pulsate, :switch_off,
:puff and more

(or DIY)

script.aculo.us

Drag & Drop

```
page.draggable :blah

page.drop_receiving :blah,
   :url => { :action => 'do_something' }

page.sortable :list,
   :url => { :action => 'do_something' }
```

Call your own

RJS `page.abra_cadabra.simsalabim`

JavaScript `AbraCadabra.simsalabim();`

render :update
(controller-based)

```
def update
  render(:update) do |page|
    page.hide :cart
  end
end
```

RJS helpers

Helper:

```
module SomeHelper
  def ajaxy_stuff
    page.hide :blah
  end
end
```

Call in .rjs:

```
page.ajaxy_stuff
```

redirect_to

```
def redirect
  render(:update) do |page|
    page.redirect_to 'http://www.rubyonrails.org/'
  end
end
```

(takes url_for syntax)

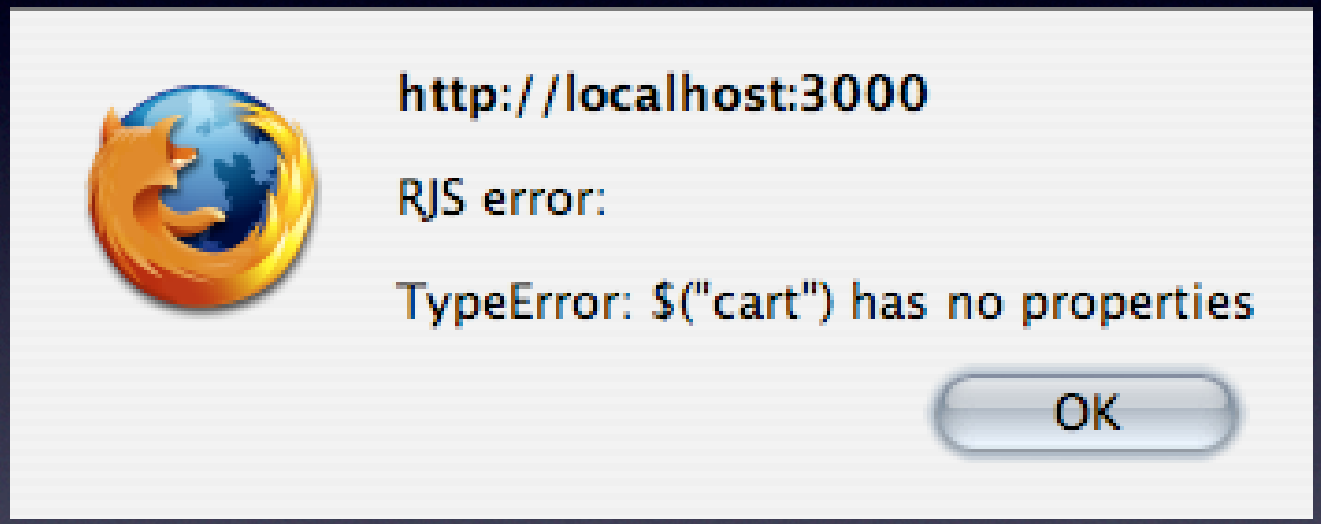
respond_to

```
def redirect
  respond_to do |type|
    type.html do
      redirect_to "http://www.rubyonrails.org/"
    end
    type.js do
      render(:update) do |page|
        page.redirect_to "http://www.rubyonrails.org/"
      end
    end
  end
end
```

one action for Ajax…

…and non-Ajax calls

Helpful hints, built-in



config/environments/development.rb:

```
config.action_view.debug_rjs = true
```

API Documentation

ActionView::Helpers::PrototypeHelper

and

ActionView::Helpers::PrototypeHelper::
JavaScriptGenerator::GeneratorMethods

What about debugging?

No rocket surgery,
either.

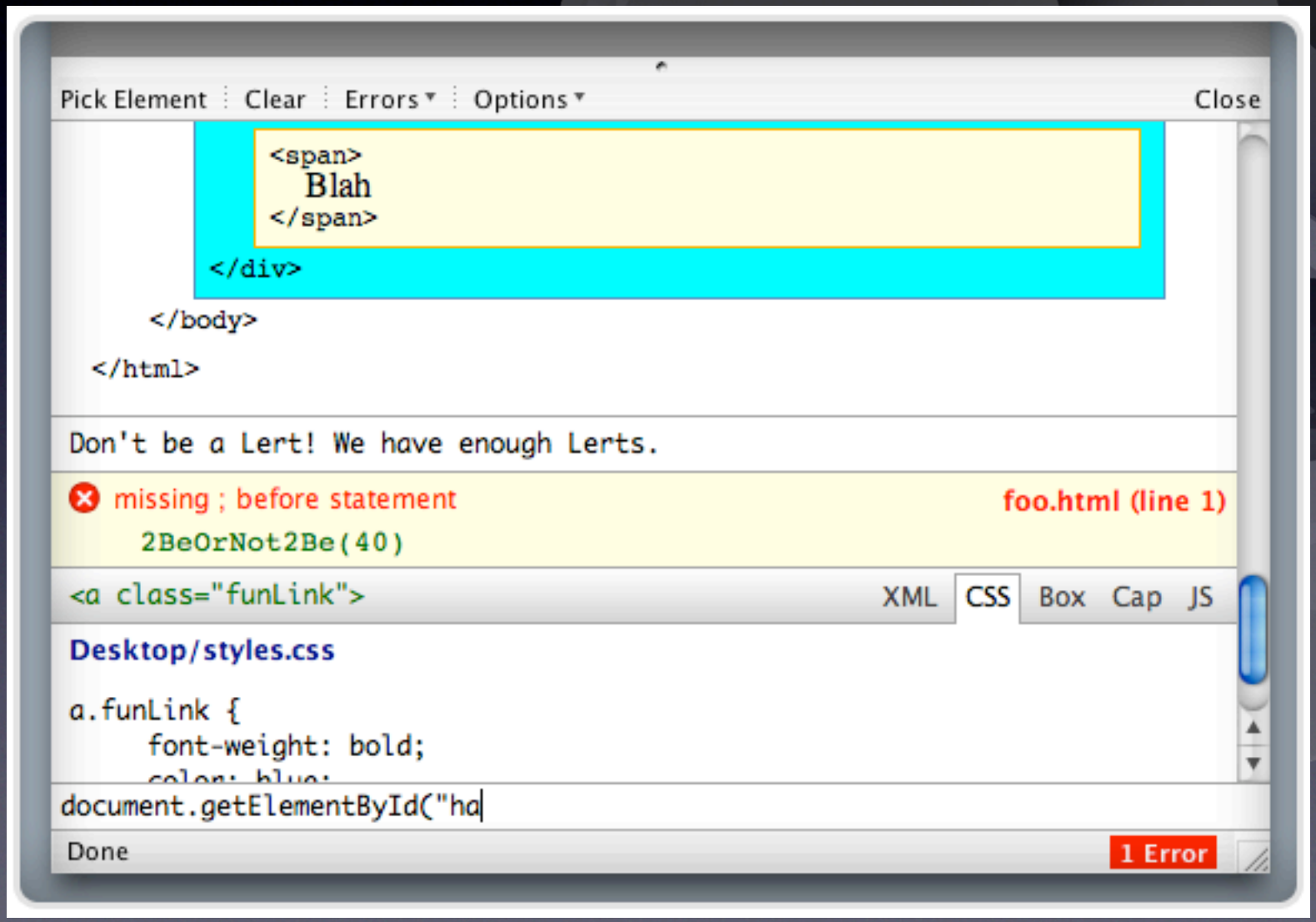
The first rule of AJAX debugging:

Use Firefox

The second rule of AJAX debugging: Use Firefox

+Extensions

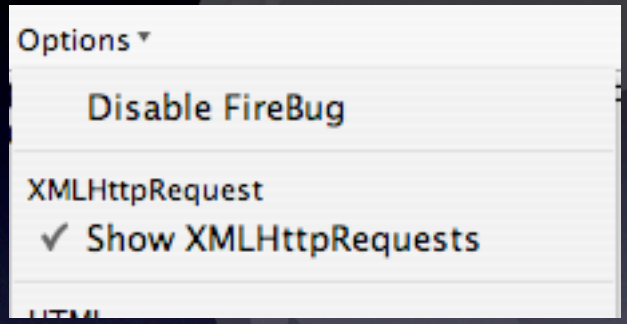
Firebug


Pick Element
Clear
Errors
Options
Close

Blah

</body>
</html>
Don't be a Lert! We have enough Lerts.
missing ; before statement
foo.html (line 1)
2BeOrNot2Be(40)
<a class="funLink">
XML
CSS
Box
Cap
JS
Desktop/styles.css
a.funLink {
font-weight: bold;
document.getElementById("ha
Done
1 Error

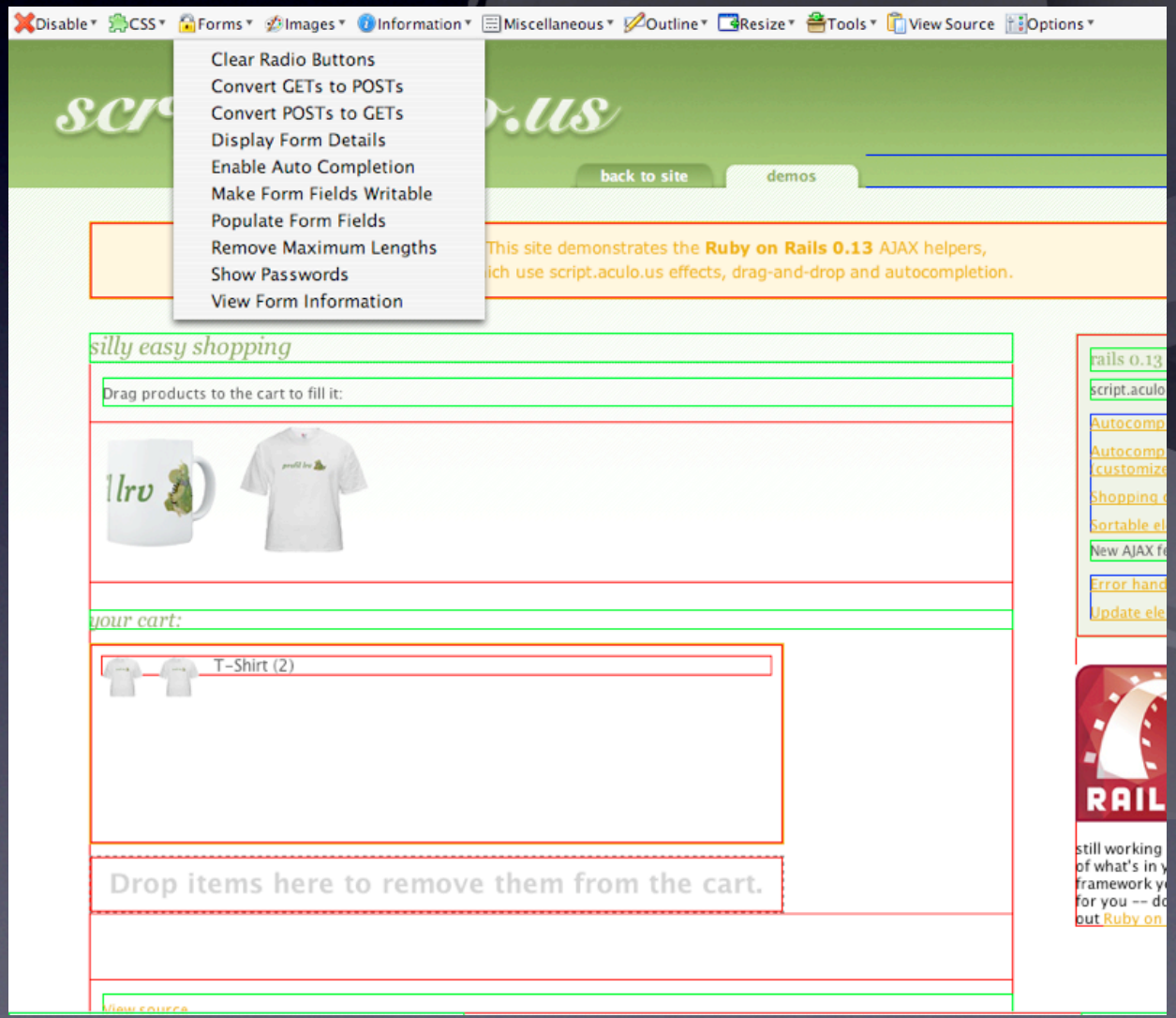
Firebug



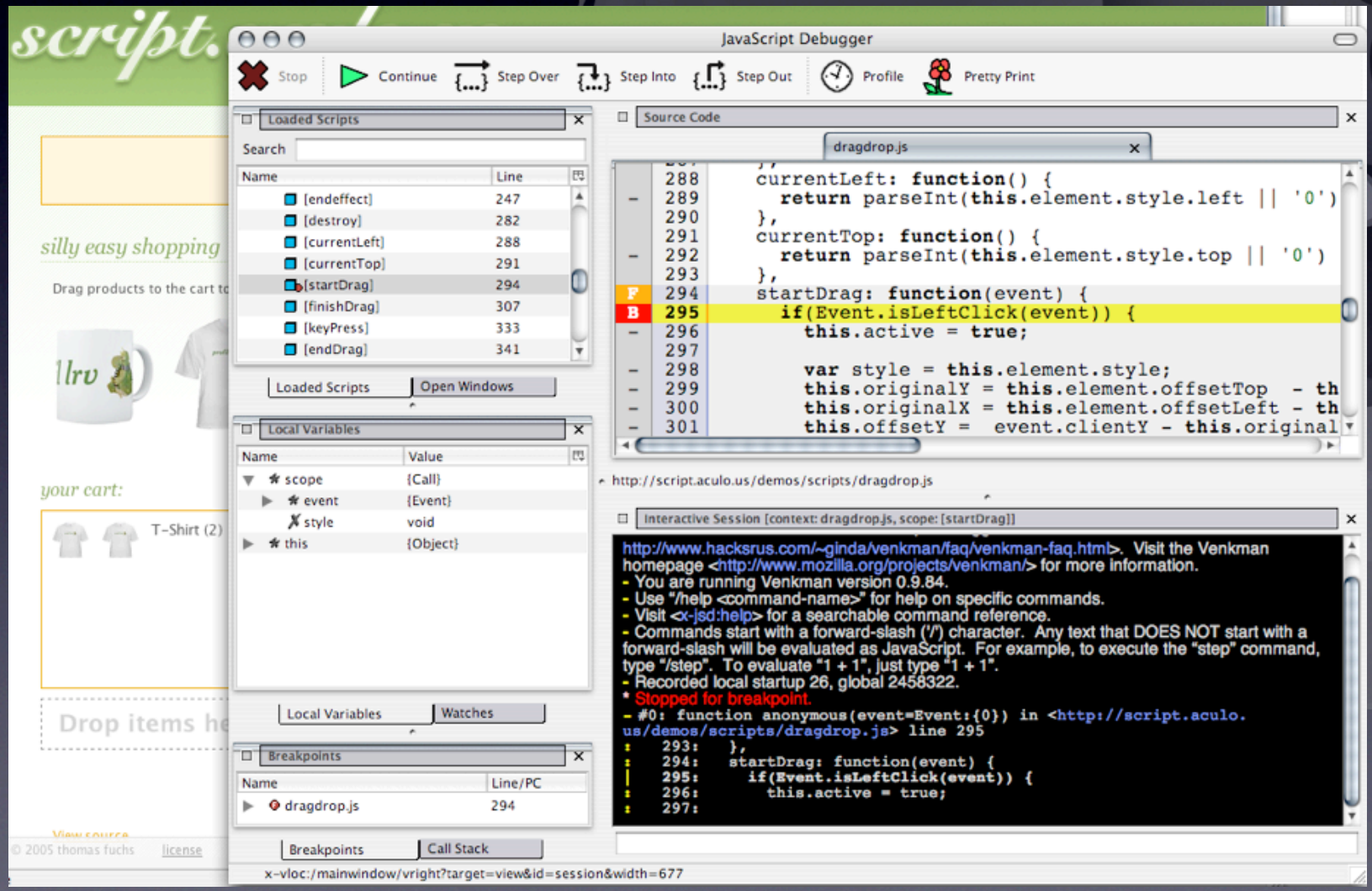
post http://localhost:3000/logtest/update Post Response

```
try {
$("list").replace("<ul id=\"list\">\n  <li id=\"i_1\">item 1</li>\
$$("p.hint").each(function(value, index) {
value.visualEffect("highlight");
});
var h = $$("p.hint").findAll(function(value, index) {
return value.visible();
});
$$("p.hint").first().hide();
new Draggable("blah", {});
```

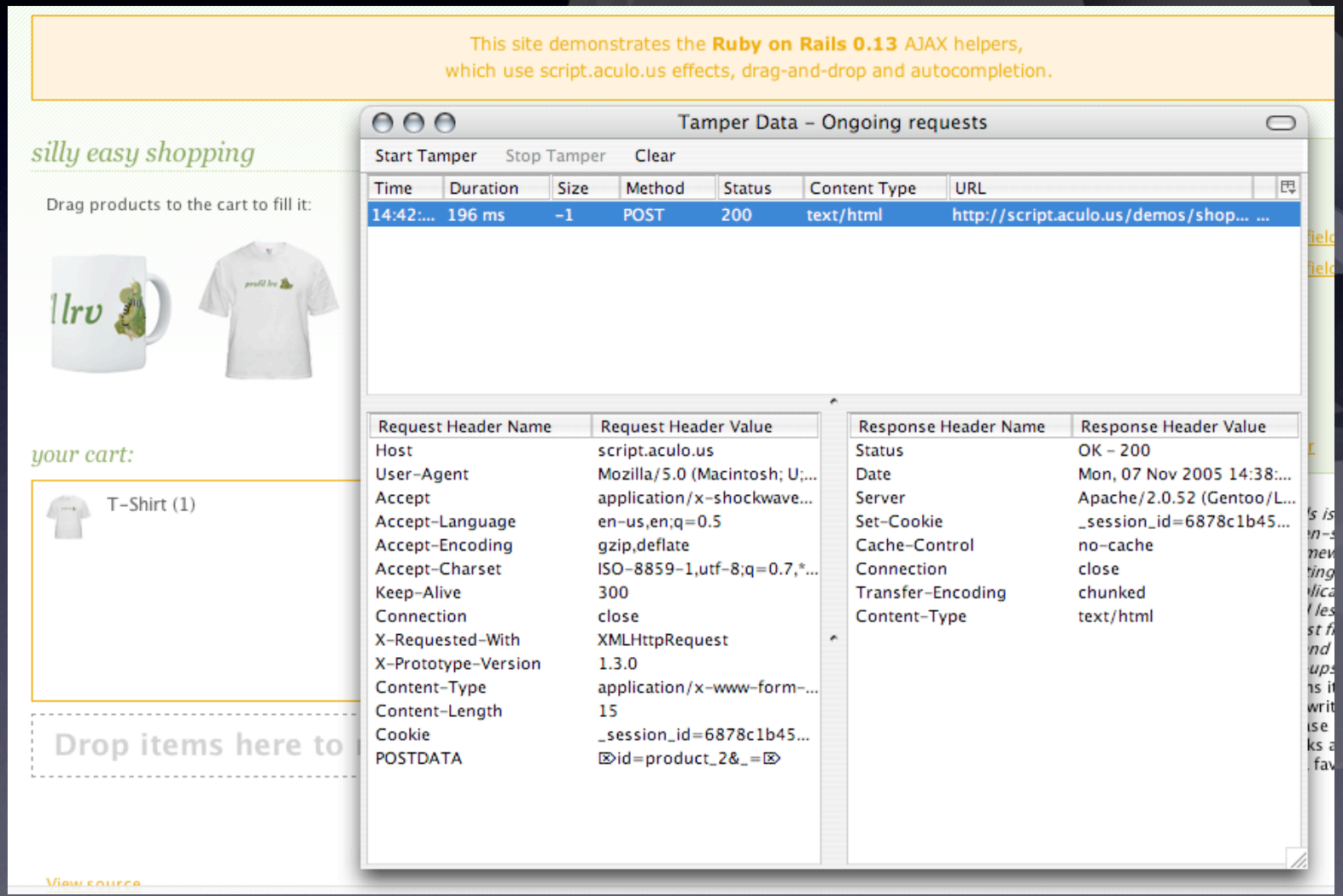
Web Developer Extension



Venkman JavaScript Debugger



Tamperdata


This site demonstrates the Ruby on Rails 0.13 AJAX helpers,
which use script.aculo.us effects, drag-and-drop and autocompletion.
silly easy shopping
Drag products to the cart to fill it:
your cart:
T-Shirt (1)
Drop items here to
Tamper Data - Ongoing requests
Start Tamper
Stop Tamper
Clear
Time
Duration
Size
Method
Status
Content Type
URL
14:42:...
196 ms
-1
POST
200
text/html
http://script.aculo.us/demos/shop...
Request Header Name
Request Header Value
Host
script.aculo.us
User-Agent
Mozilla/5.0 (Macintosh; U;...
Accept
application/x-shockwave...
Accept-Language
en-us,en;q=0.5
Accept-Encoding
gzip,deflate
Accept-Charset
ISO-8859-1,utf-8;q=0.7,*...
Keep-Alive
300
Connection
close
X-Requested-With
XMLHttpRequest
X-Prototype-Version
1.3.0
Content-Type
application/x-www-form-...
Content-Length
15
Cookie
_session_id=6878c1b45...
POSTDATA
id=product_2&_=
Response Header Name
Response Header Value
Status
OK - 200
Date
Mon, 07 Nov 2005 14:38:...
Server
Apache/2.0.52 (Gentoo/L...
Set-Cookie
_session_id=6878c1b45...
Cache-Control
no-cache
Connection
close
Transfer-Encoding
chunked
Content-Type
text/html

The third rule:

Test with all browsers you want to support

Safari Web Inspector

Microsoft Script Debugger for IE

- http://blogs.msdn.com/ie/archive/2004/10/26/247912.aspx

„It‘s more like Web 3.0“

blog.fluxiom.com

Launching April 2006

www.fluxiom.com