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Author of <u>Frontend Architecture for Design Systems</u> (fea.pub)

@micahgodbolt micah.codes





ROAD RUNNER RULES

Or More What You'd Call Guidelines of a Design System





EMERY: 4 YEARS OLD

"Daddy, can I have a flower?"

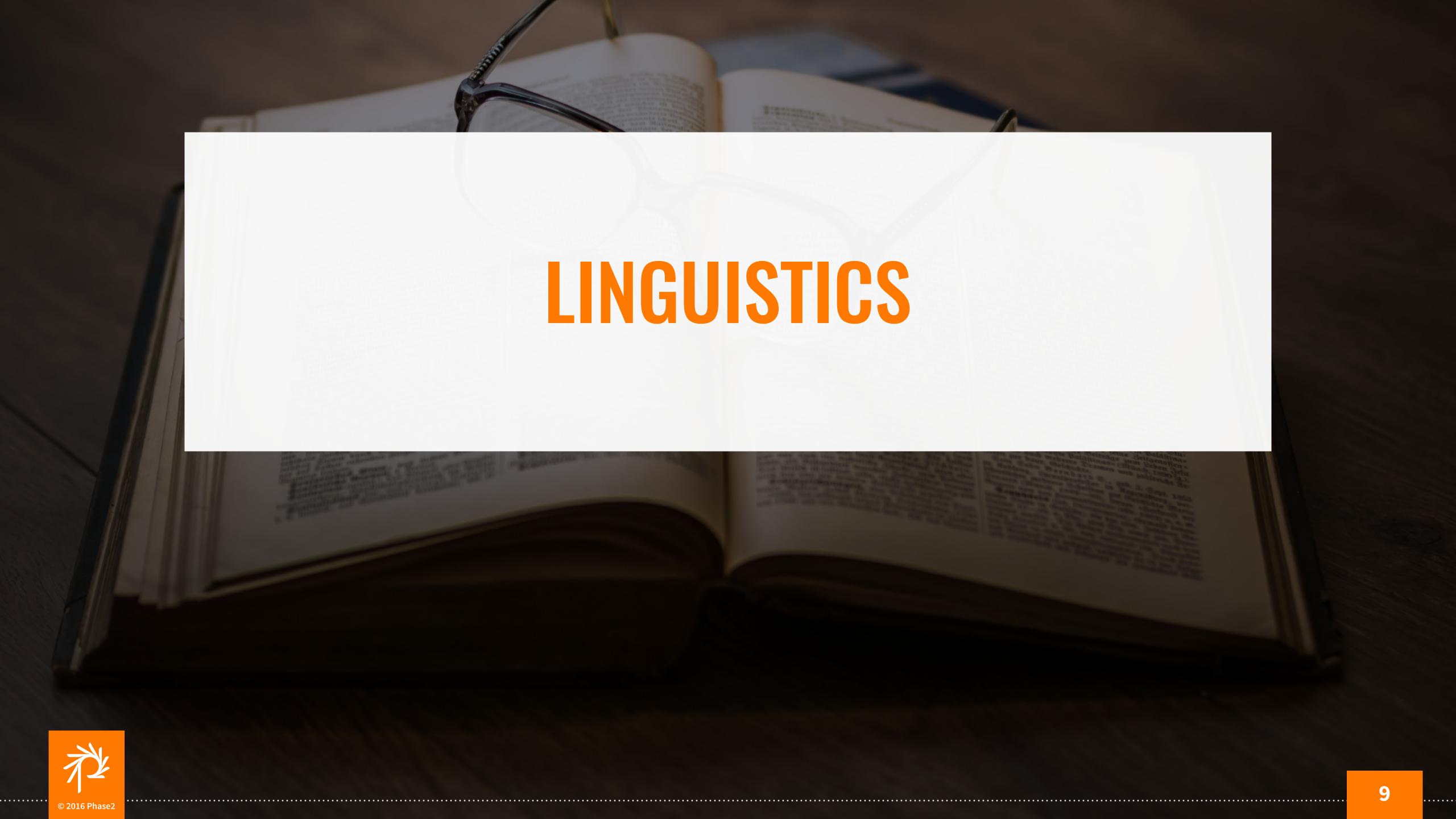
"I want a flower, now!"

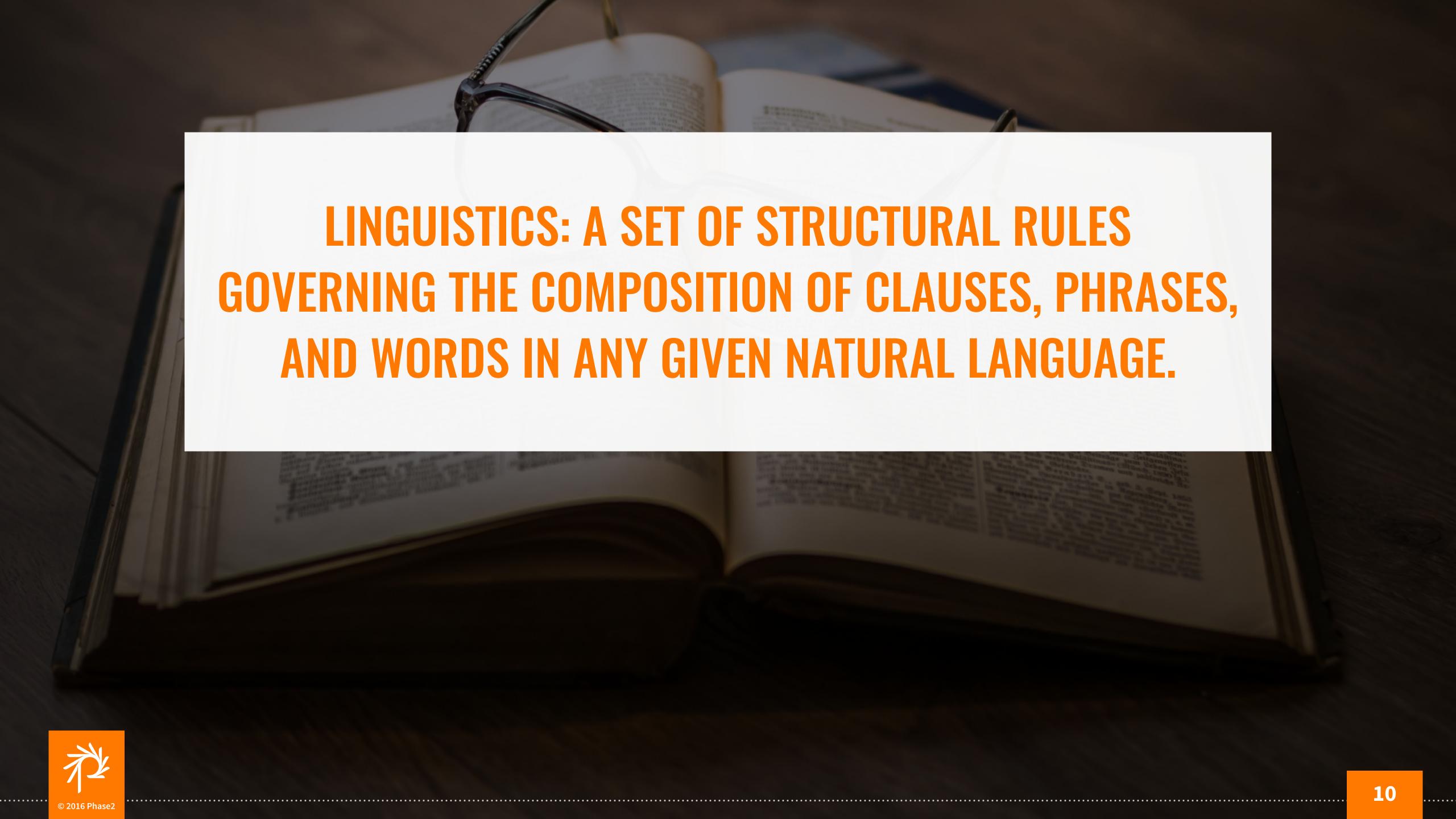
"This flower looks beautiful."

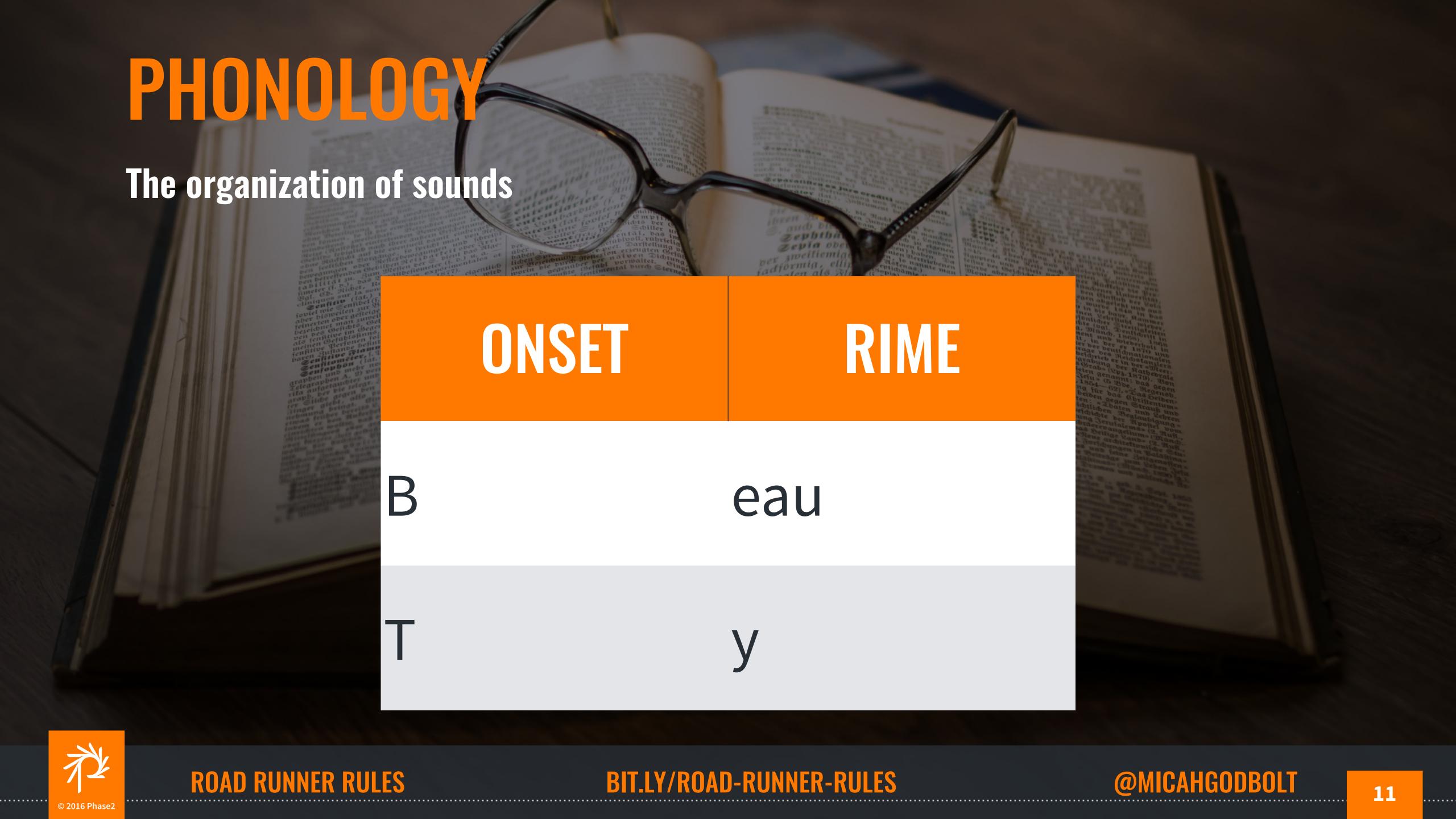




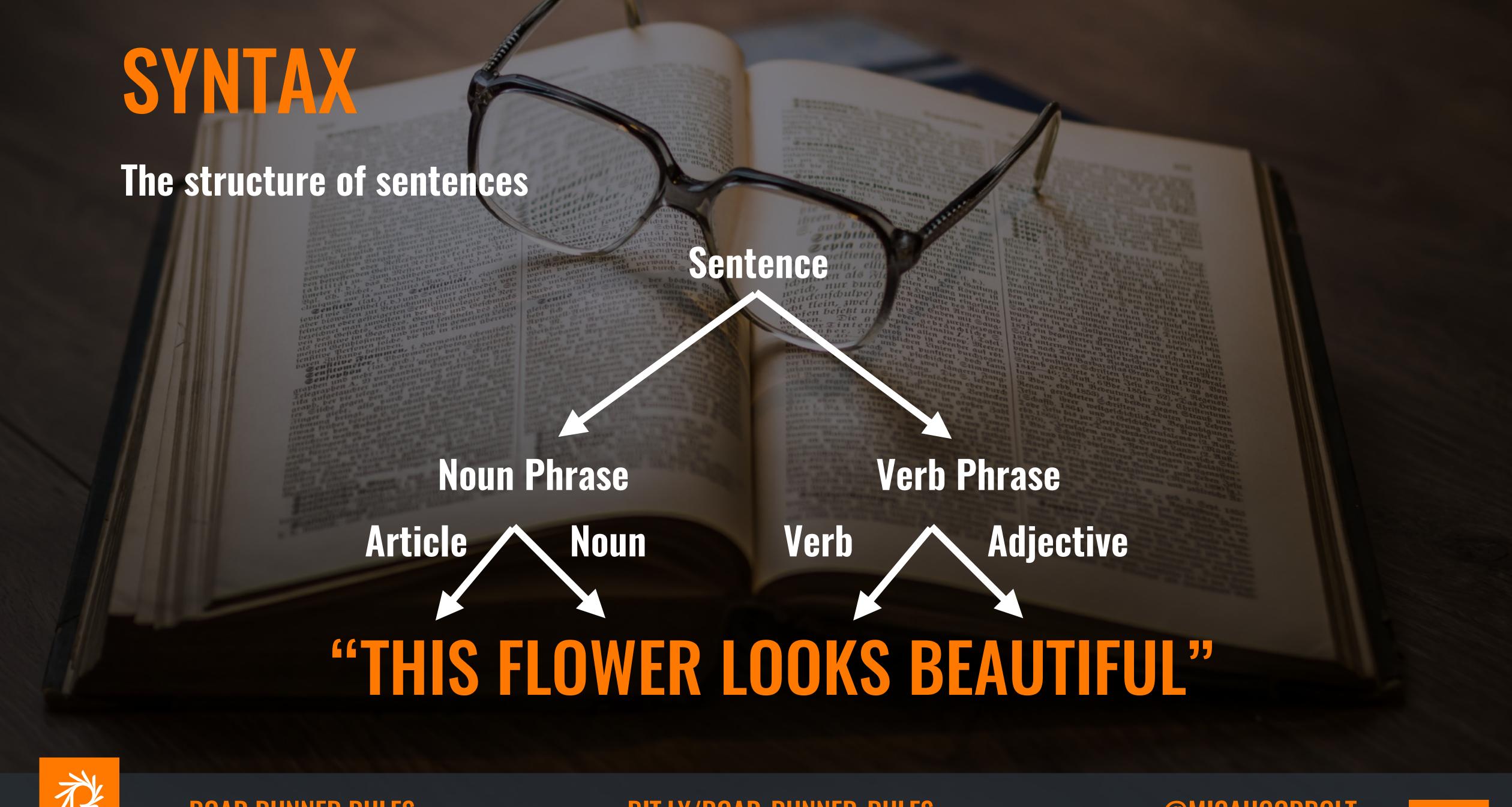


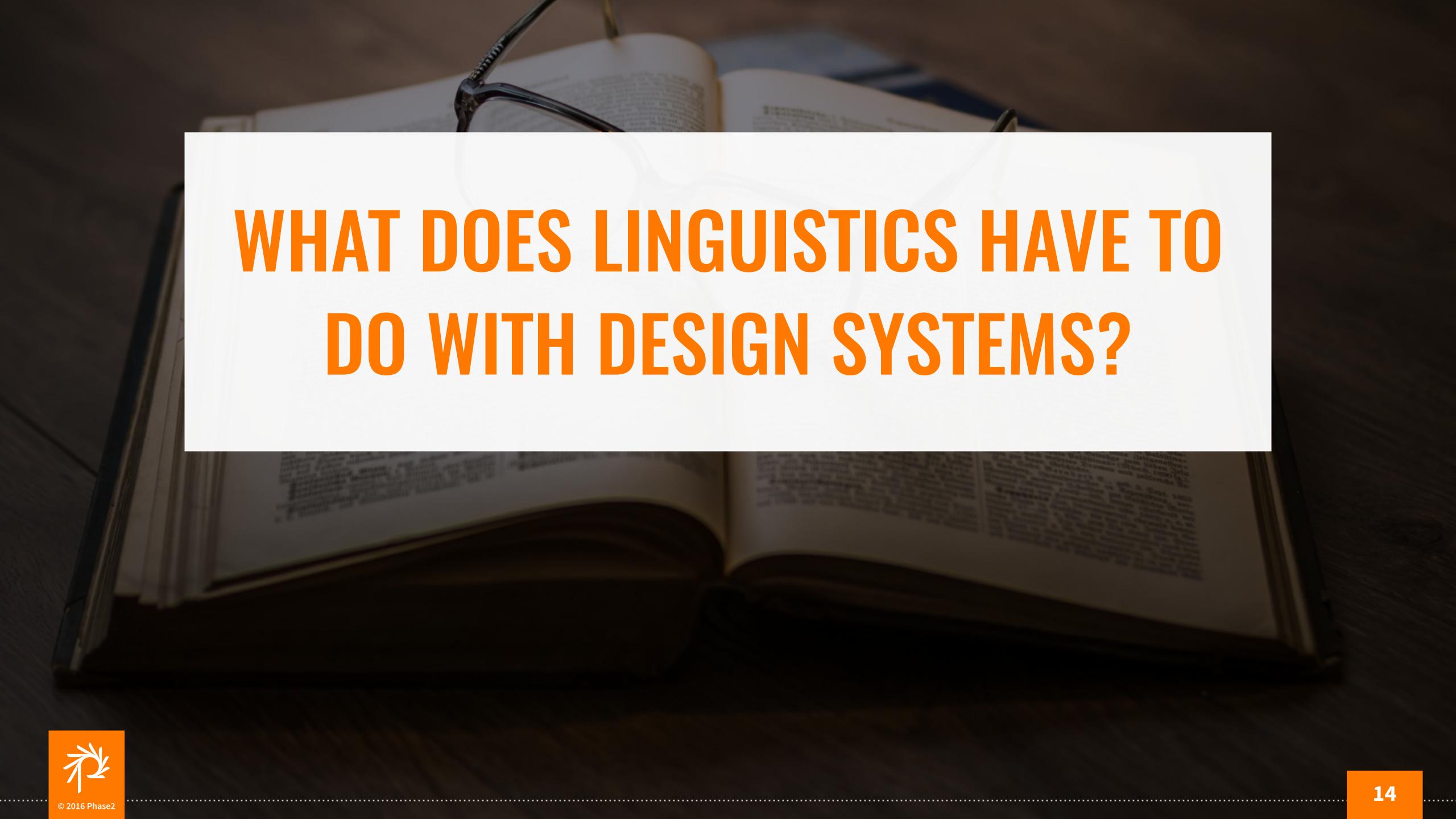












WHAT IF WE DID A SCIENTIFIC STUDY OF A VISUAL LANGUAGE



A SYSTEM OF COMMUNICATION USING VISUAL ELEMENTS

WIKIPEDIA.ORG/WIKI/VISUAL_LANGUAGE



A SHARED VOCABULARY FOR DESIGN

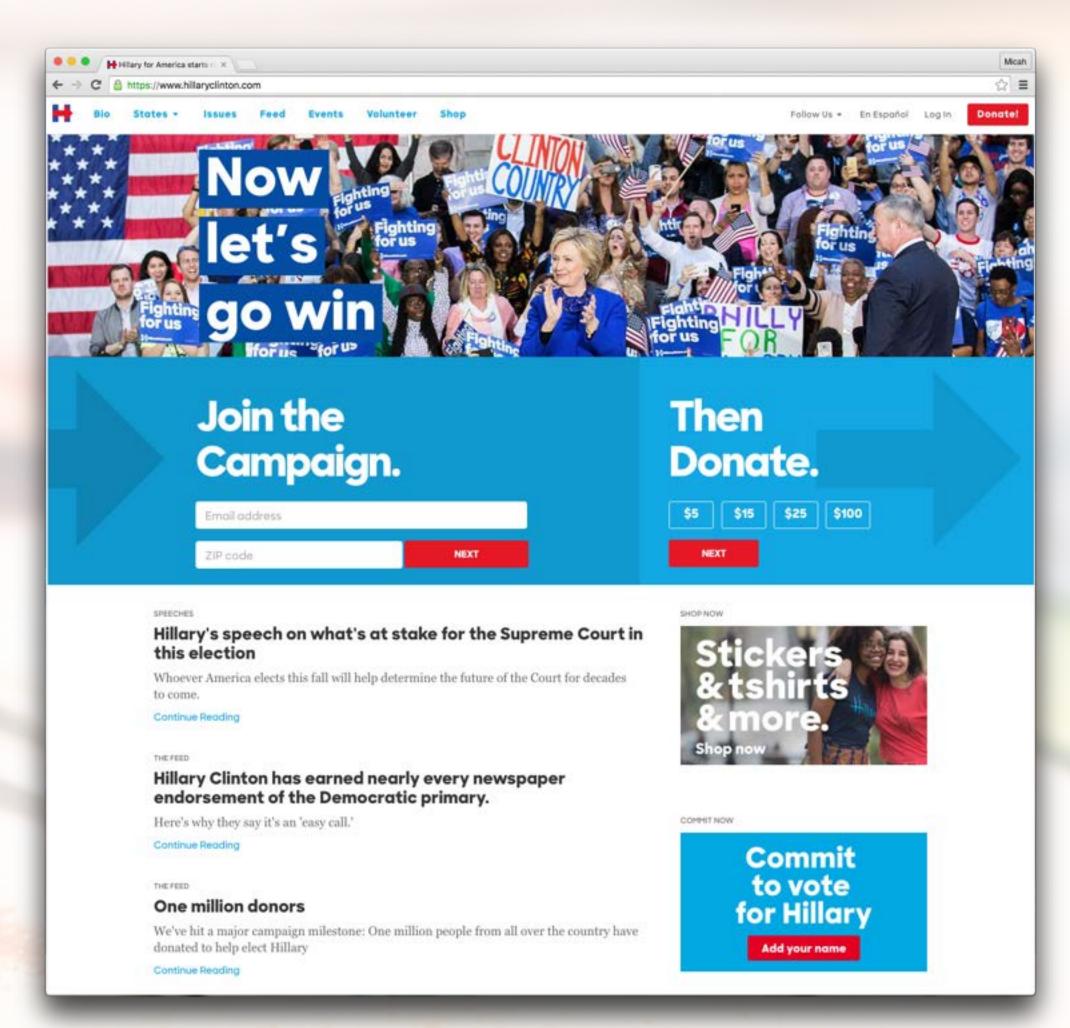
WWW.IBM.COM/DESIGN/LANGUAGE



THEY BOTH HAVE A COMMON GOAL

Communicating Ideas

- Trust
- Value
- Reliability
- Authority



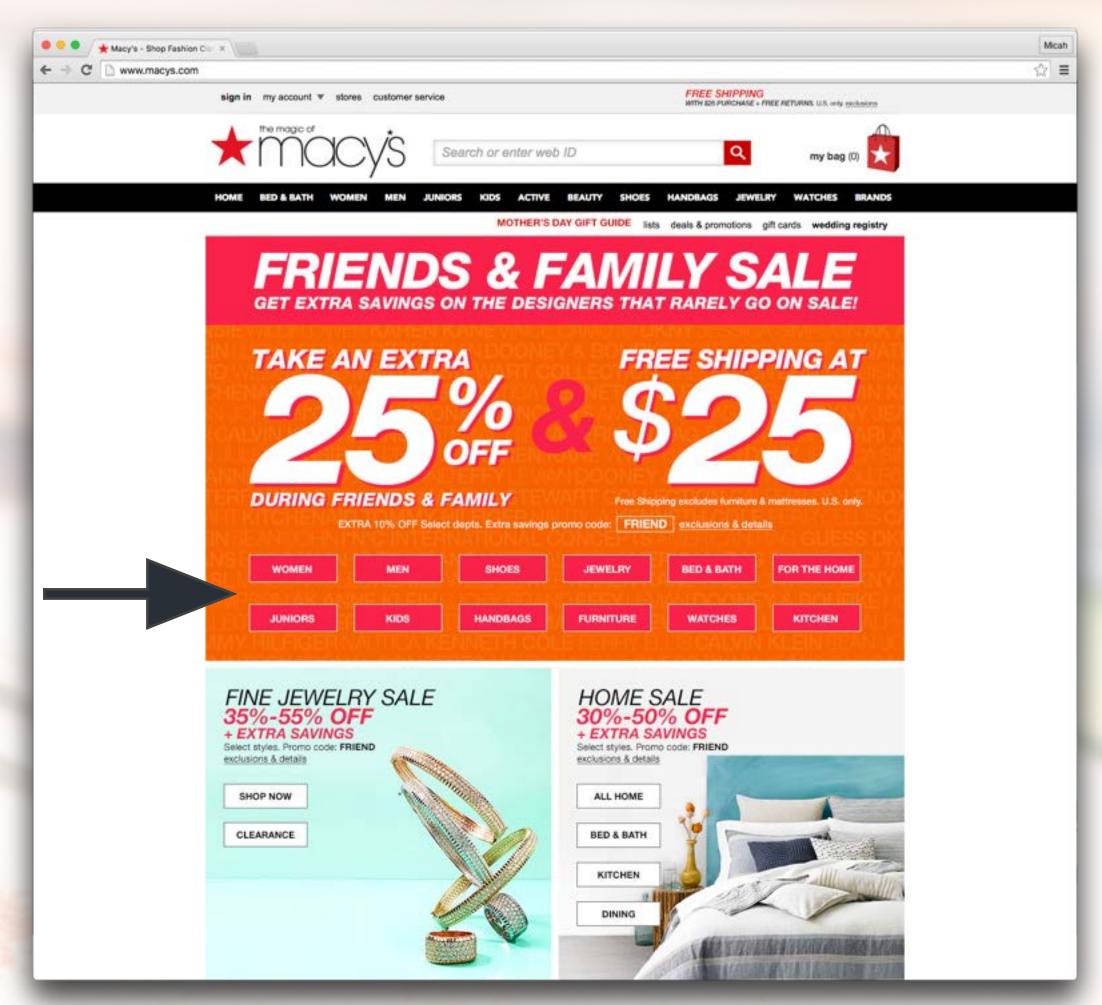
HTTPSH/TWWWWWWANYELDOWN.COM/



THEY BOTH HAVE A COMMON GOAL

Communicating Intention

- Click here
- Read this first
- Use this for navigation
- Go here for help

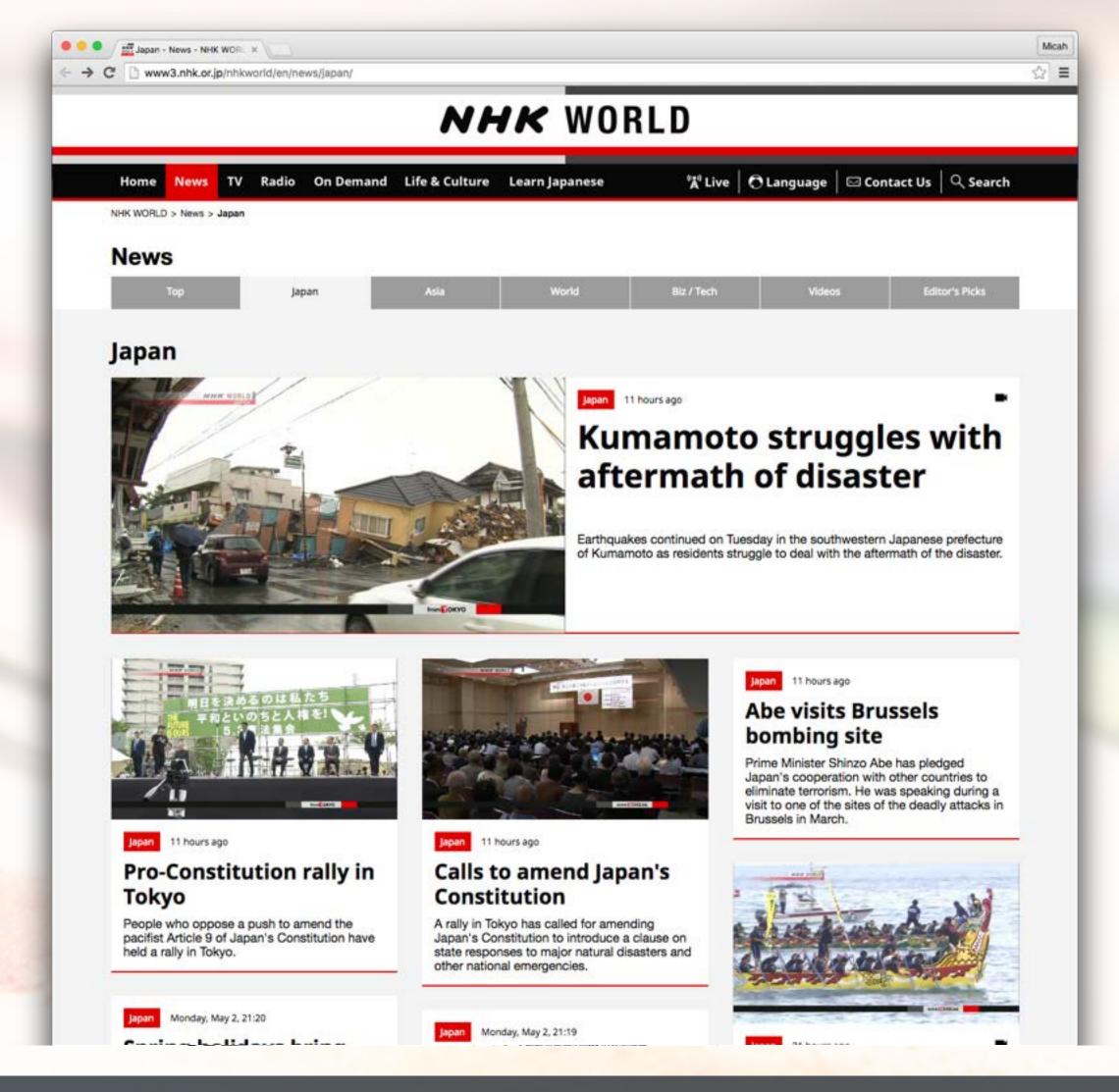


HITTES://WWW.NREDYSACOUM

THEY BOTH SHARE COMMON TRAITS

Dialects

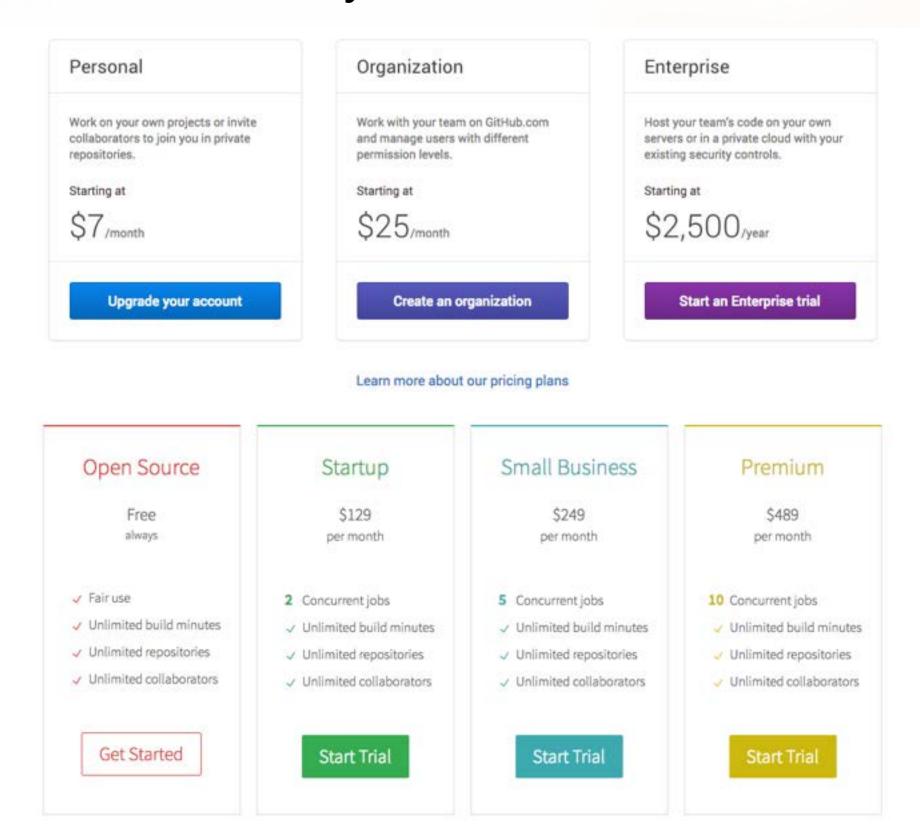
- Word Length
- Information Density
- Power Colors

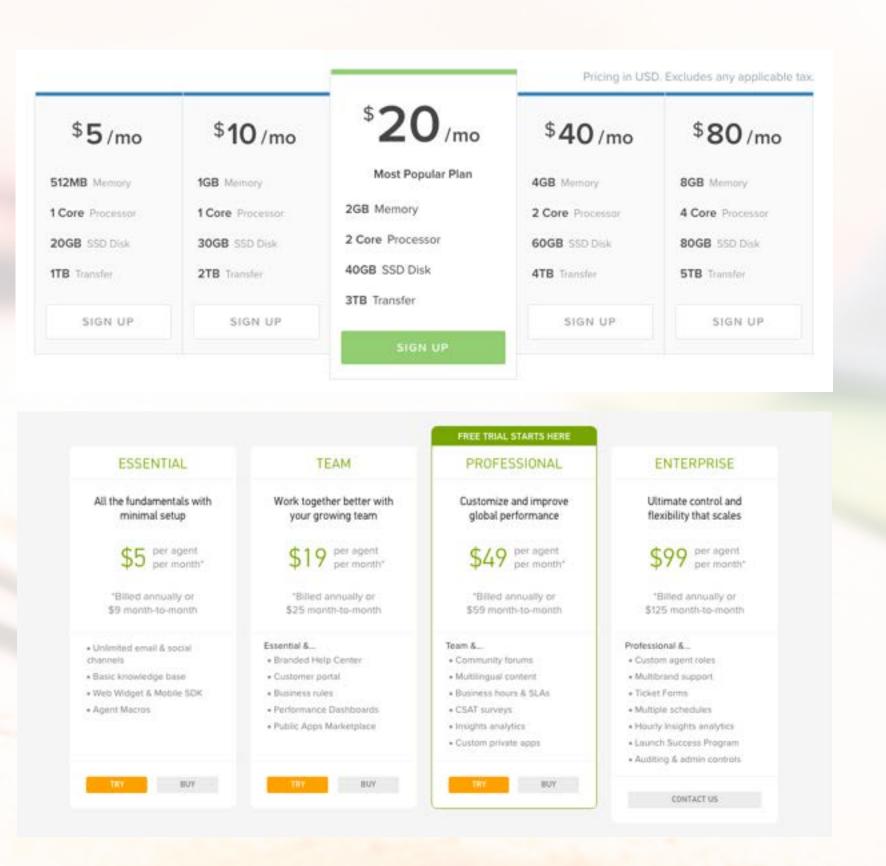


THEY BOTH SHARE COMMON TRAITS

Jargon

Price Quality Matrix

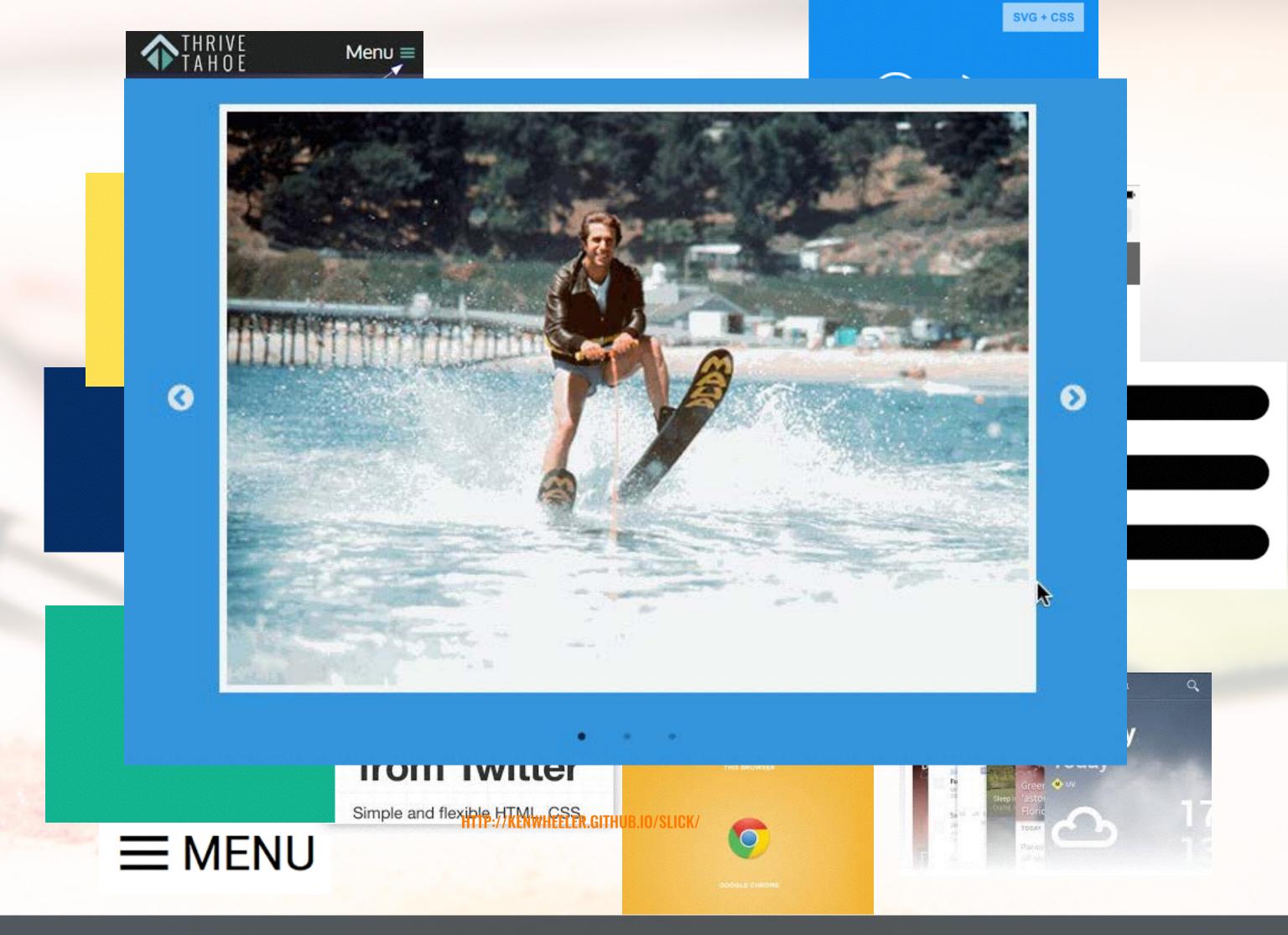




THEY BOTH SHARE COMMON TRAITS

Slang

- Carousel Navigation
- Hamburger Menu



BOTH CAN BE BROKEN DOWN INTO SMALLER UNITS



"PHONOLOGY" OF VISUAL LANGUAGE

The organization of "sounds"

Layout

- Balance
- Proportion

Typography

- Weight
- Scale

Iconography

- Interface
- Ornamental

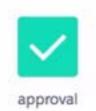














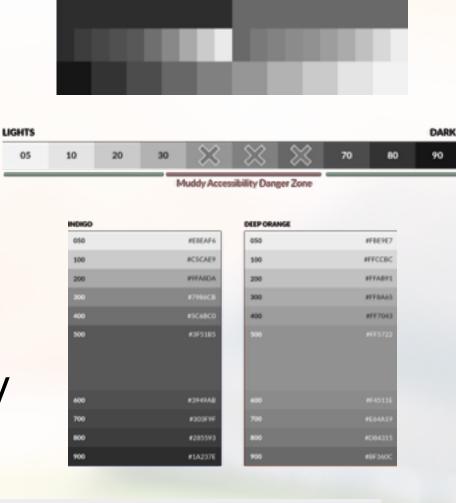


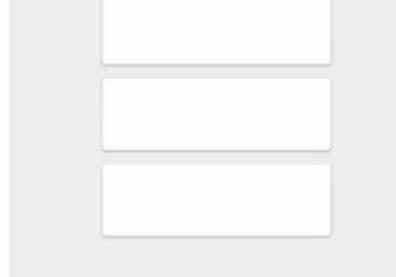
Color

- Palettes
- Tints/Shades
- Contrast/Accessibility

Animation

- Types
- Speed
- Appropriate Uses





HTTPS://MEDIUM.COM/EIGHTSHAPES-LLC/COLOR-IN-DESIGN-SYSTEMS-A1C80F65FA3 HTTPS://WWW.LIGHTNINGDESIGNSYSTEM.COM/RESOURCES/ICONS

HTTPS://WWW.IBM.COM/DESIGN/LANGUAGE/FRAMEWORK/VISUAL/LAYOUT HTTP://WWW.GOOGLE.COM/DESIGN/SPEC/ANIMATION/RESPONSIVE-INTERACTION.HTMI

"MORPHOLOGY" OF VISUAL LANGUAGE

The structure and composition of "words"

Create a Password



SUBMIT -

"MORPHOLOGY" OF VISUAL LANGUAGE

The structure and composition of "words"

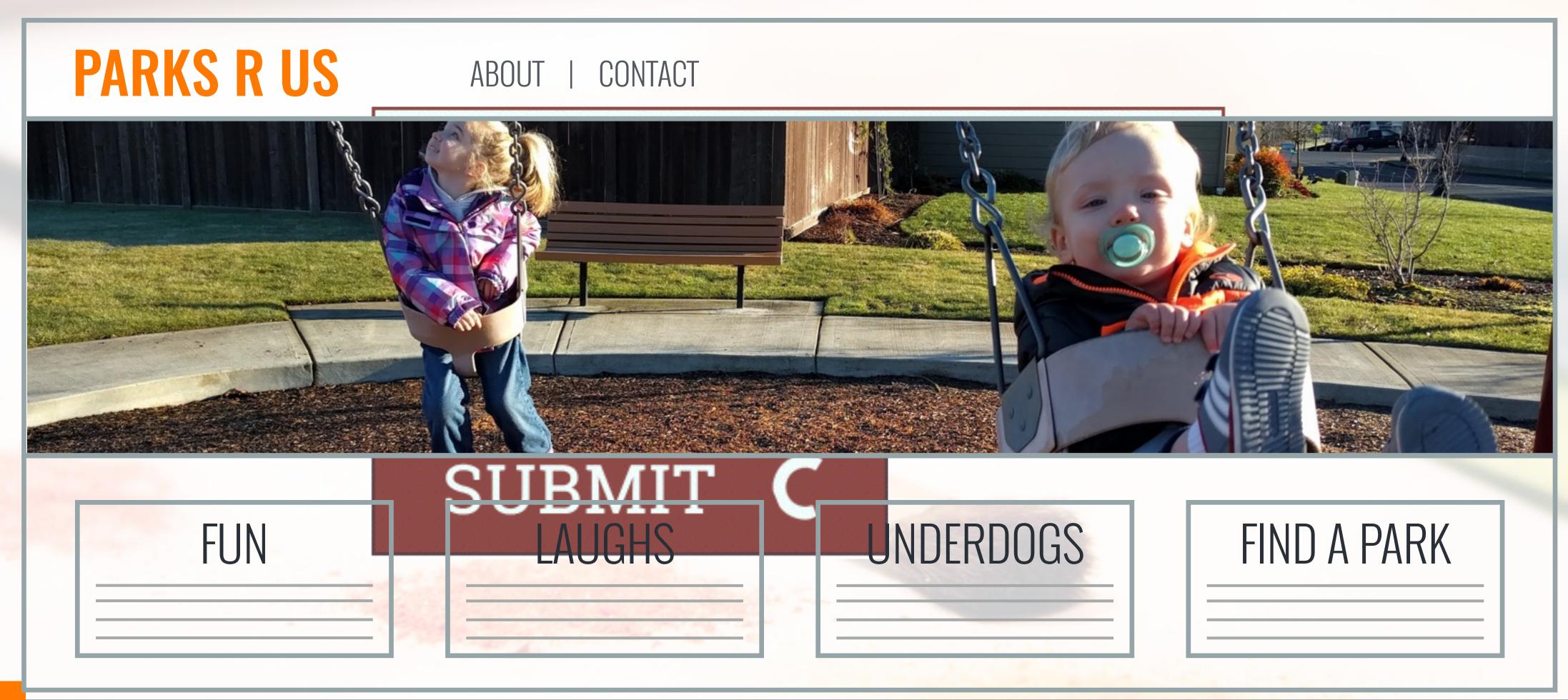
Create a Password



SUBMIT C

"SYNTAX" OF VISUAL LANGUAGE

The structure of sentences



"SYNTAX" OF VISUAL LANGUAGE

SEARCH THE SITE

ENTER KEYWORD

SEARCH





DESTGN SYSTEM
DESTGN SYSTEM
COUNTIES: A SET OF STRUCTURAL RULES
GOVERNING THE COMPOSITION OF CLAUSES, PHRASES,
AND WORDS IN ANY GIVEN MATURAL LANGUAGE.
VISUAL







Josh Riggs @joshriggs · Apr 5 @micahgodbolt what *is* a design system, in your own words?



Micah Godbolt @micahgodbolt

A Design System is a set of rules and assets that define how to express everything a visual language needs to say cc/@joshriggs

Methodologies

OOCSS (Object Oriented CSS)

Two Main Principles

- 1. Separation of structure and skin
- 2. Separation of container and content

```
<div class="toggle simple">
  <div class="toggle-control open">
    <h1 class="toggle-title">
      Title 1
    </h1>
  </div>
  <div class="toggle-details open">
 </div>
```

Methodologies

SMACSS (Scaleable Modular Architecture for CSS)

Folder Structure

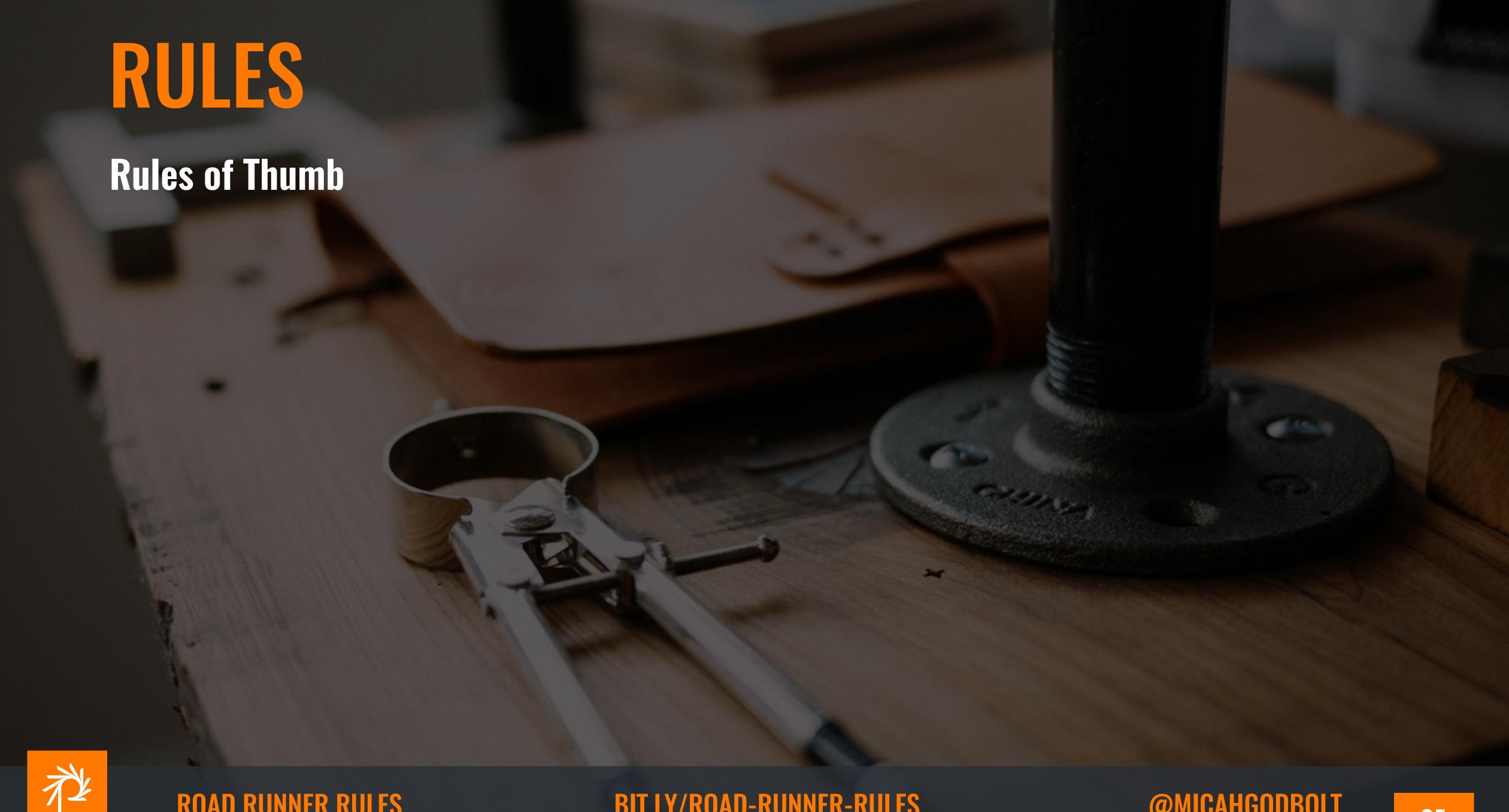
- 1. Base
- 2. Layout
- 3. Module
- 4. State
- 5. Theme

Methodologies

BEM (Block Element Modifier)

```
<div class="toggle toggle--simple">
 <div class="toggle control toggle control--active">
   <h2 class="toggle title">Title 1</h2>
 </div>
 <div class="toggle details toggle details--active">
 </div>
```





Rules of Thumb

Single Source of Truth

```
.blog-feed h1 {
<section class="blog-feed">
  <h1>Our Blog</h1>
                                   color: red;
  <article>
                                   font-size: 32px;
    <h1 class="title">
    A Blog Title
   </hl>
                                 article .title {
                                   font-size: 26px;
  </article>
                                   line-height: 1.2;
 /section>
```



Rules of Thumb

Single Responsibility Principle

```
<section class="blog-feed">
    <h2 class="headline"></h2
</section>

<footer>
    <h2 class="headline"></h2>
</footer>
```

```
headline
 color: red;
 font-size: 28px;
.blog-feed .headline {
 text-transform: uppercase;
```

Rules of Thumb

Flat CSS Selectors

```
.about-contact .hero1 .container
> section.features-quarter
> section.f-contact h3 {
   color: red;
}
.about-contact .hero1 .container
> section.features-quarter
> section.f-contact h3.active {
   color: white;
```



Rules of Thumb

Flat CSS Selectors

```
.about-contact__title {
  color: red;
}
.about-contact__title--active {
  color: white;
}
```

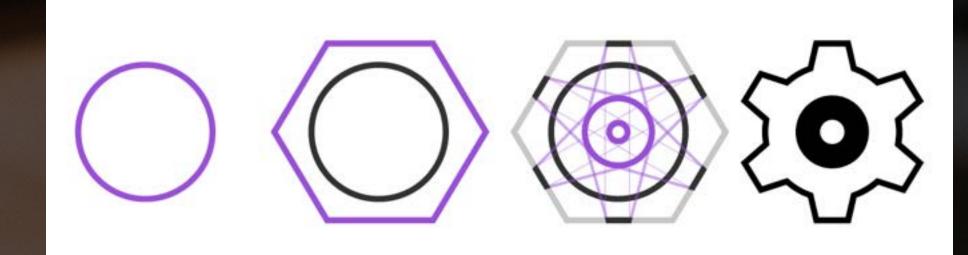


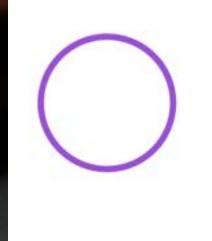


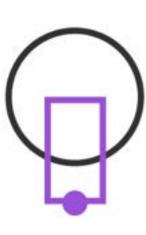


Asset Guidelines

How to create icons

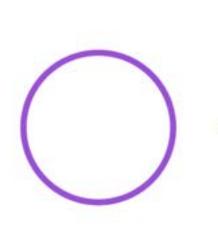


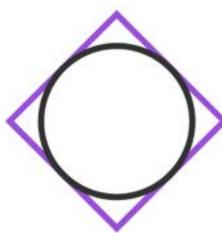


















Asset Guidelines

Photography dos and don'ts



✓ Natural body language



Pleasantly happy



✓ Cool hued lighting



In a dense setting, have a focal point in the foreground and a shallow depth of field



X Without feeling too posed



X Not overly or inexplicably happy



X Not warm hued lighting



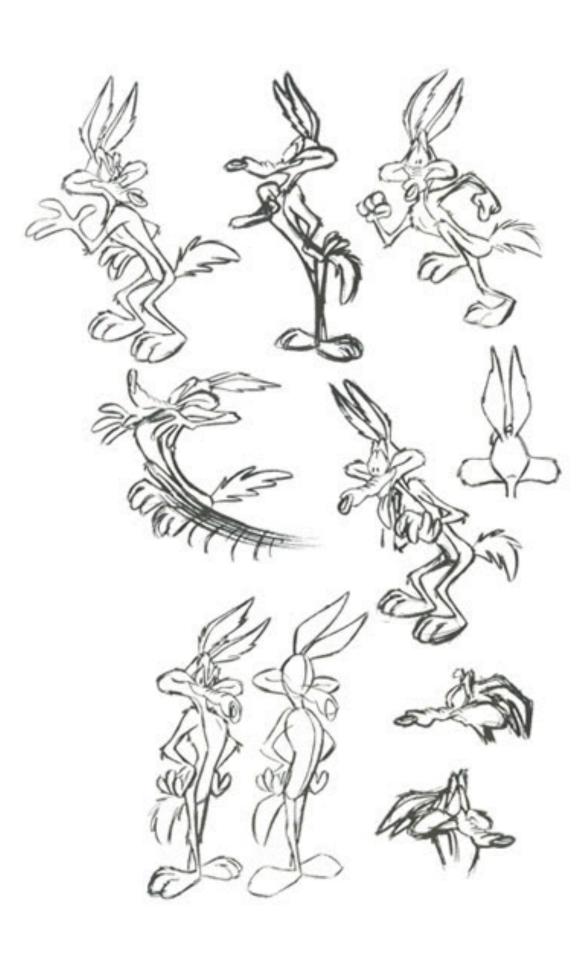
X Rather than multiple equally-weighted figures

HTTPS://DESIGN.ATLASSIAN.COM/BRAND/PHOTOGRAPHY

Custom Rules

- Visible
- Agreed Upon
- Actionable

- 1. The Road Runner cannot harm the Coyote except by going "beep beep"
- 2.No outside force can harm the Coyote only his own ineptitude or the failure of Acme products.
- 3.The Coyote could stop anytime if he were not a fanatic. (Repeat: "A fanatic is one who redoubles his effort when he has forgotten his aim." — George Santayana)."
- 4.No dialogue ever, except "beep-beep!"
- 5. The Road Runner must stay on the road otherwise, logically, he would not be called Road Runner.
- 6.All action must be confined to the natural environment of the two characters — the southwest American desert.
- 7.All materials tools, weapons, or mechanical conveniences must be obtained from the Acme Corporation.
- 8.Whenever possible, make gravity the Coyote's greatest enemy.
- 9. The Coyote is always more humiliated than harmed by his failures.





HTML:

Raw Markup

```
EXAMPLE
 Dropdown ▼
  Action
  Another action
  Something else here
                                                                                    Copy
<div class="dropdown">
 <button class="btn btn-default dropdown-toggle" type="button" id="dropdownMenu1" data-</pre>
toggle="dropdown" aria-haspopup="true" aria-expanded="true">
   Dropdown
   <span class="caret"></span>
 </button>
 <a href="#">Action</a>
   <a href="#">Another action</a>
   <a href="#">Something else here</a>
   role="separator" class="divider">
   <a href="#">Separated link</a>
 </div>
```

HTTP://GETBOOTSTRAP.COM/COMPONENTS/



HTML:

Templates

```
<article { attributes.addClass(classes) } }>
 <mark class="hidden" data-comment-timestamp="{{ new indicator timestamp }}">
 </mark>
 <footer class="comment meta">
   {{ user picture }}
   {{ submitted }}
   {% if parent %}
     {{ parent }}
   {% endif %}
   {{ permalink }}
 </footer>
 <div{{ content attributes.addClass('content') }}>
   {% if title %}
     {{ title prefix }}
     <h3{{ title attributes }}>{{ title }}</h3>
     {{ title suffix }}
   {% endif %}
   {{ content }}
 </div>
 'article>
```

HTTPS://GITHUB.COM/DRUPAL/DRUPAL COMMENT.HTML.TWIG



HTML:

API



Moulin Rouge in Paris

Immortalised in the posters of Toulouse-Lautrec and later on screen by Baz Luhrmann, the Moulin Rouge twinkles beneath a 1925 replica of

Card with image

= ui_component('cards/card', properties: {as_below})

```
url: "#",
title: "Moulin Rouge in Paris",
description: "Immortalised in the posters of Toulouse-Lautrec and later on screen by Baz Luhrmann, the Moulin R
image_alt: "",
image_url: "http://cache.graphicslib.viator.com/graphicslib/thumbs674x446/5022/SITours/moulin-rouge-show-paris-
fixed?: true
}
```



Destination

Ko Pha-Ngan

In the family of southern Gulf islands, Ko Pha-Ngan sits in the crystal sea between Ko Samui, its business-savvy older brother, and little Ko Tao, the spunky younger brother full of dive-centric energy.

Card with kind, context text and context pin

= ui_component('cards/card', properties: {as_below})

```
url: "#",
kind: "destination",
context_pin: true,
context_text: "Destination",
title: "Ko Pha-Ngan",
description: "In the family of southern Gulf islands, Ko Pha-Ngan sits in the crystal sea between Ko Samui, its
fixed?: true
}
```

HTTPS://RIZZO.LONELYPLANET.COM/STYLEGUIDE/UI-COMPONENTS/CARDS

Linked Assets:

- CSS
- JavaScript
- Fonts
- Images/SVGs





Bower
A package manager for the web





Build Assets:

- Sass
- JavaScript Modules
- Task Runners



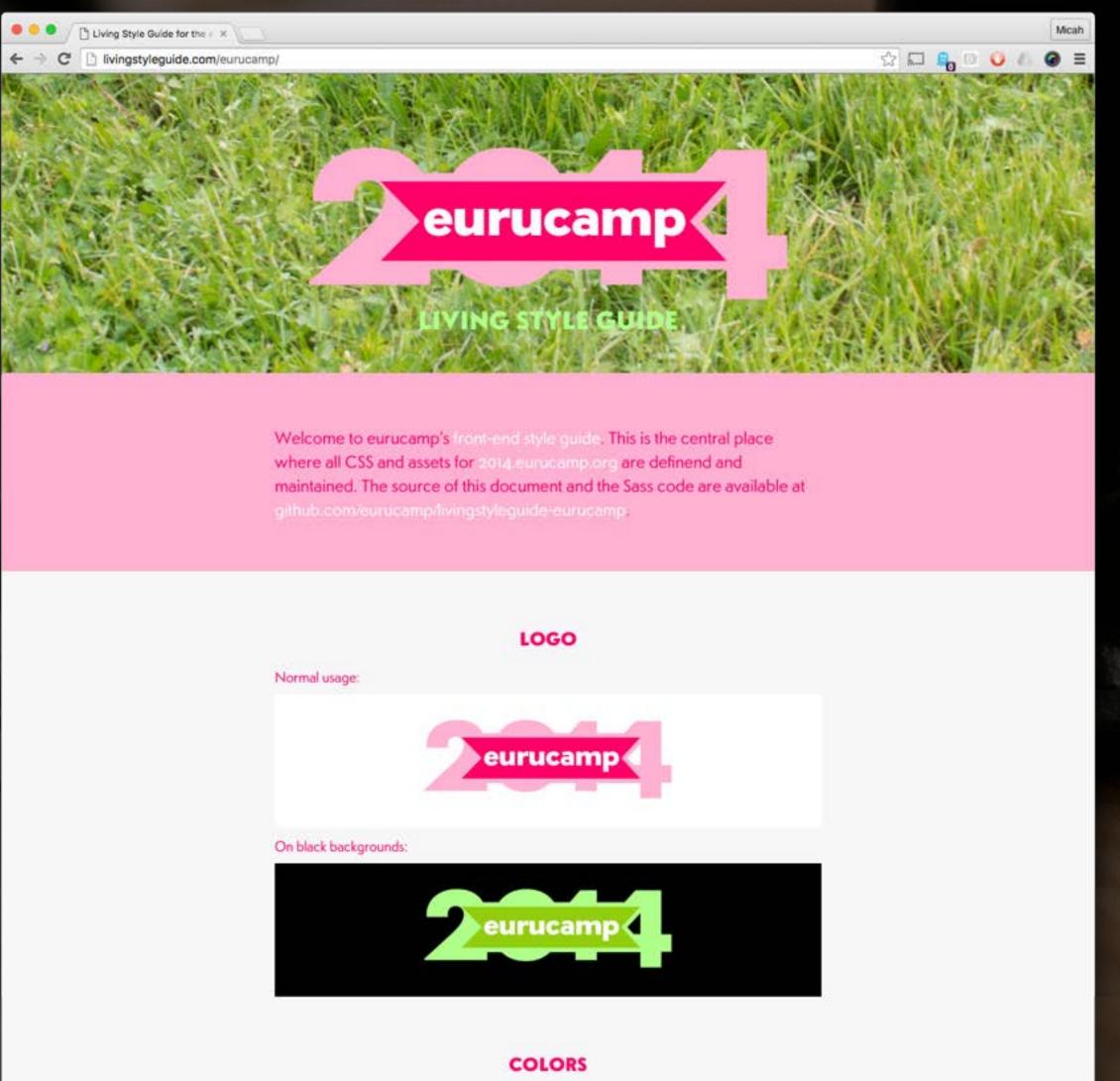




DELIVERING A DESIGN SYSTEM

Style Guides

- KSS
- Living Style Guide
- Hologram





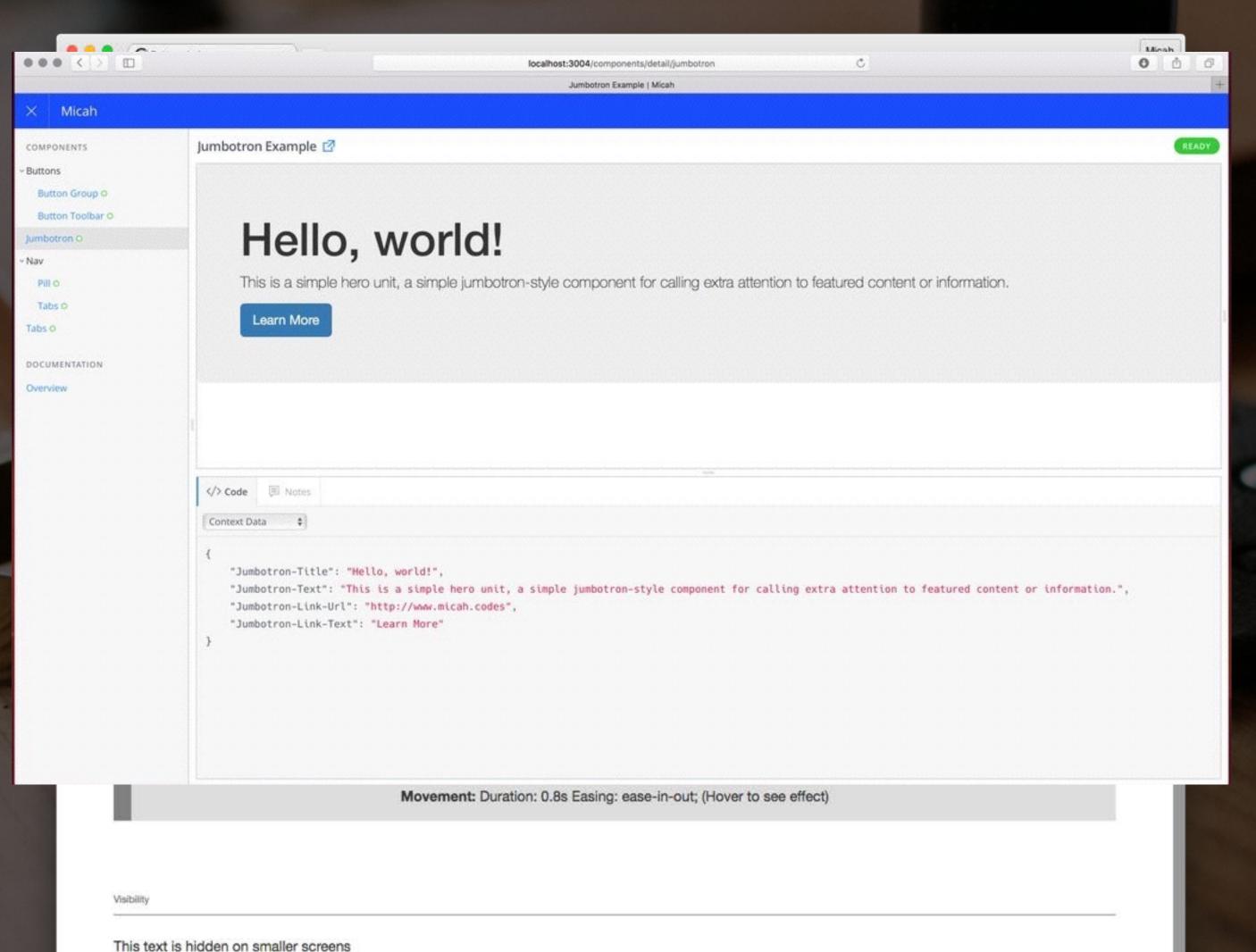
HTTPS://TRULIA.GITHUB.IO/HOLOGRAM/

HTTP://WARPSPIRE.COM/KSS/

DELIVERING A DESIGN SYSTEM

Pattern Libraries:

- Fractal
- Pattern Lab



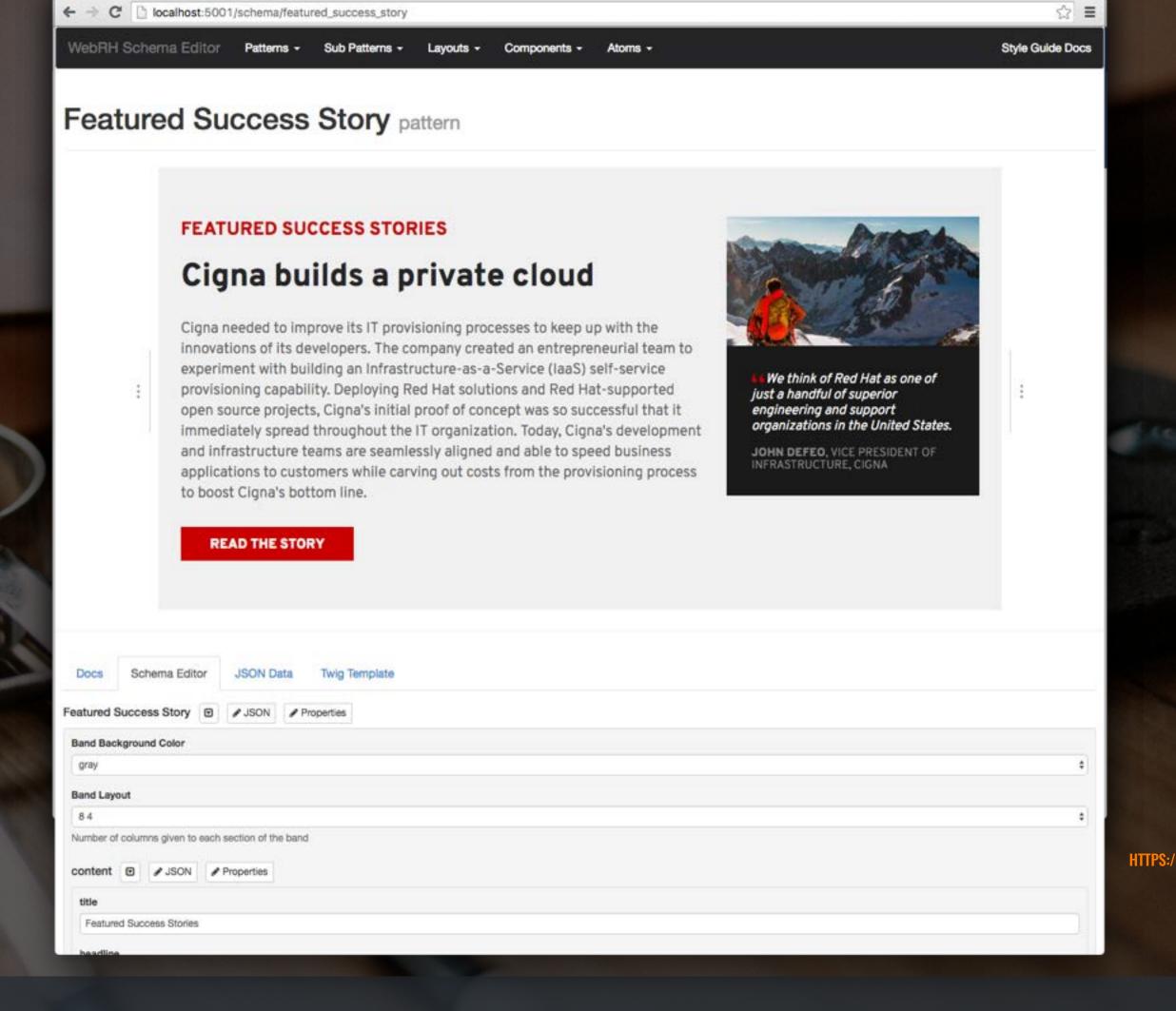


DELIVERING A DESIGN SYSTEM

● ● ● | ☐ localhost:5001/schema/fc: ×

Roll Your Own

- Lightening Design System
- Rizzo (Lonely Planet)
- Pattern Kit





DESIGN SYSTEMS

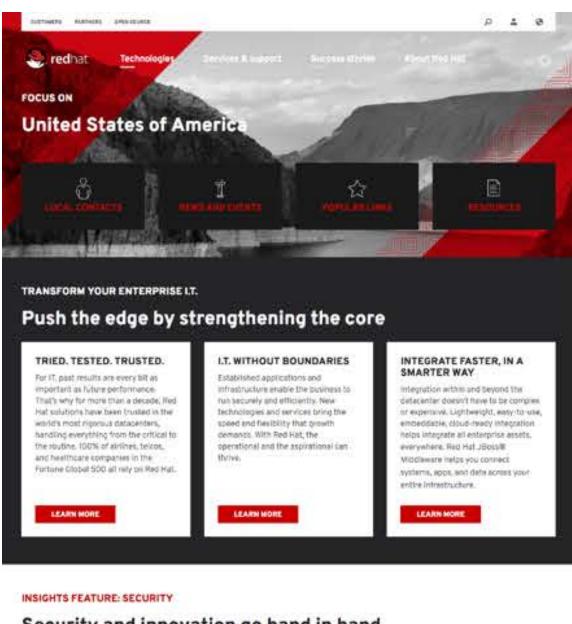
A Design System is a set of rules and assets...



DESIGN SYSTEMS

...define how to express everything a visual language needs to say

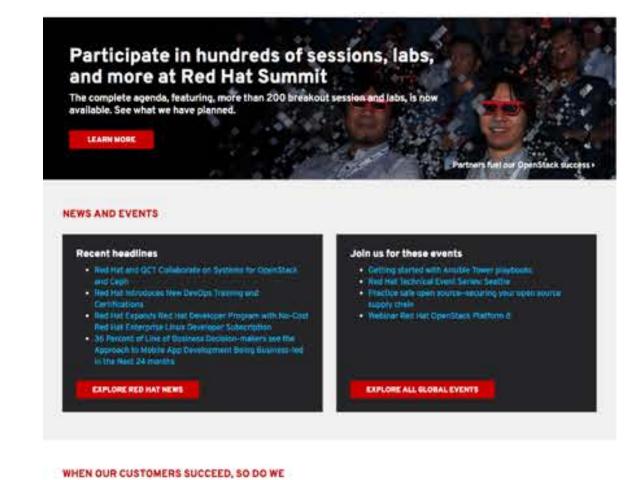




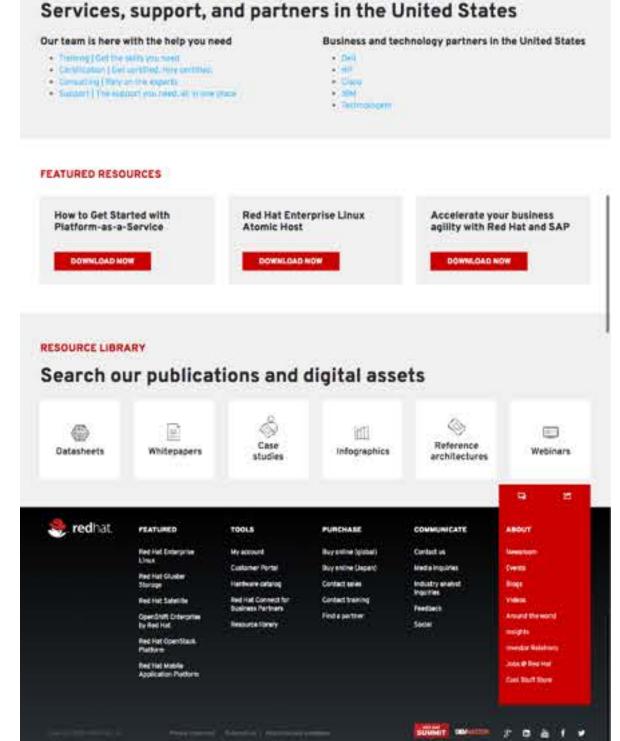
Security and innovation go hand in hand

No one can serve IT security issues alone: Connecting with a community and solving problems together is the future of technology. Wather than refyling on one company or organization to create a secure solution, open technology allows, government and the private sector to work together for create their ideal secure environments.

LEARN MORE ABOUT RED HAT AND OPEN SOURCE SECURITY



Learn directly from our customers, partners, and solution experts EXPLORE ALL VIDEOS LOCAL CONTACTS Your team in the United States CORPORATE HEADQUARTERS Join the conversation Raleigh, NC 27601 United States ¥ Red that heres. C+1919-754-4080 the first victors iii +1 9/9-800-3804 Ted two GLOBAL LOCATIONS f meeting 8º Beatlet Connect with us -POPULAR LINKS





WHEN OUR CUSTOMERS SUCCEED, SO DO WE





Booz | Allen | Hamilton













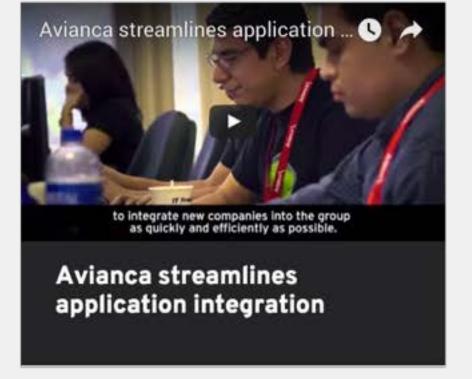
EXPLORE ALL SUCCESS STORIES

VIDEOS

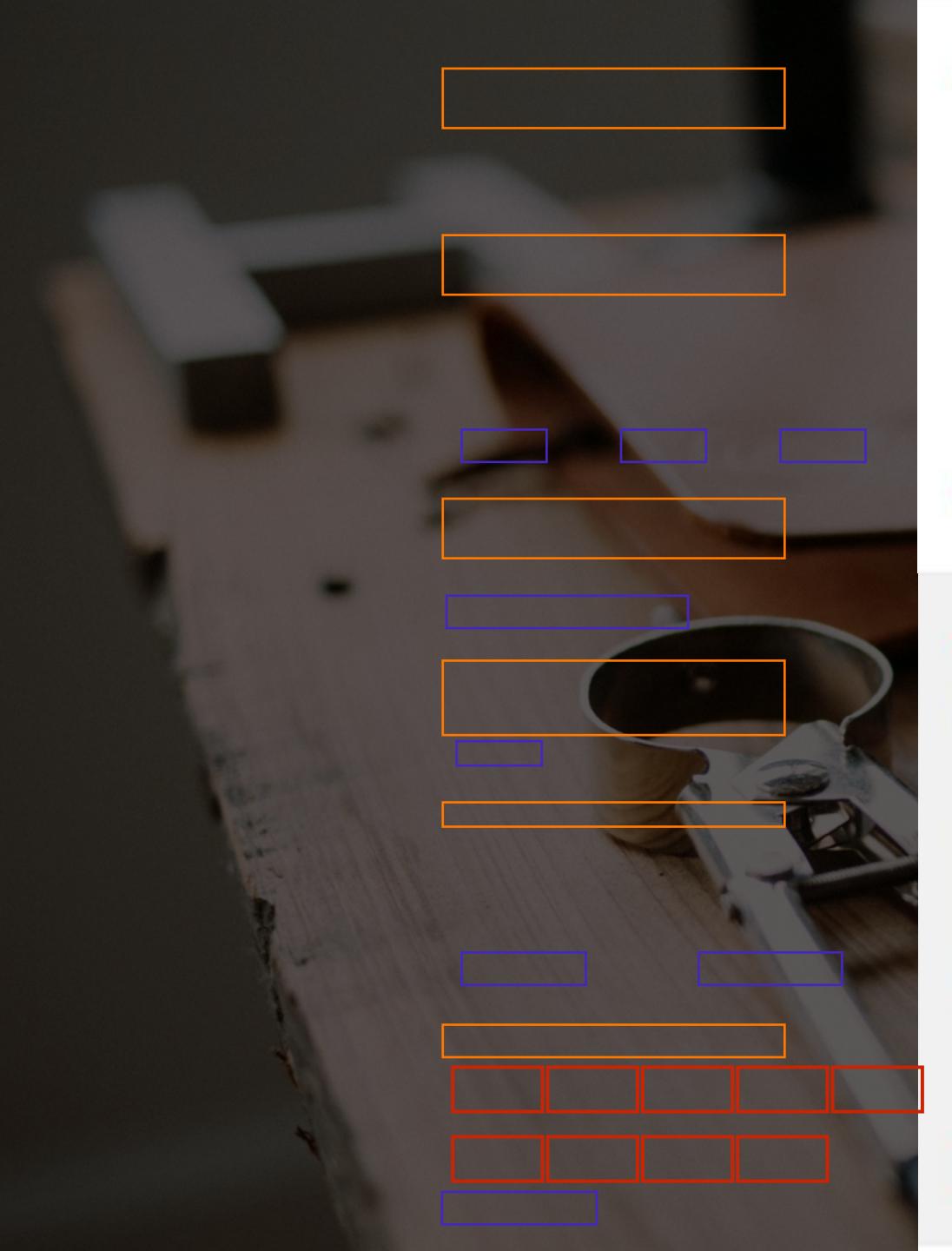
Learn directly from our customers, partners, and solution experts

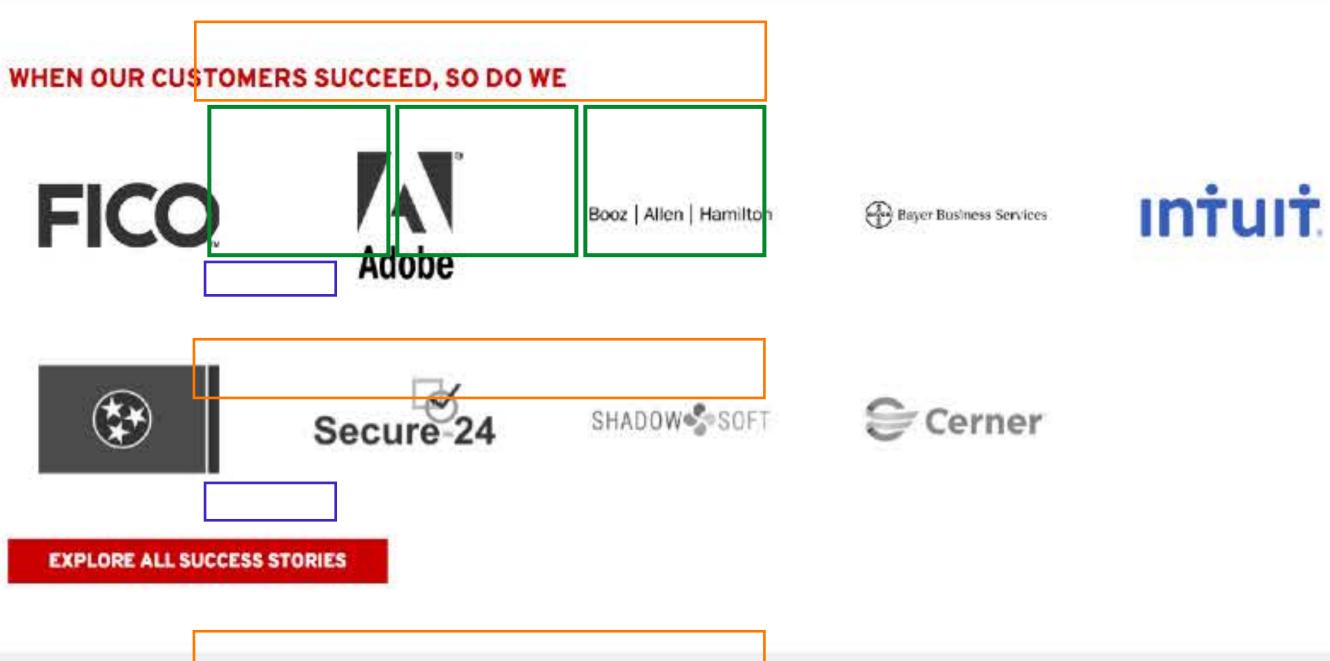






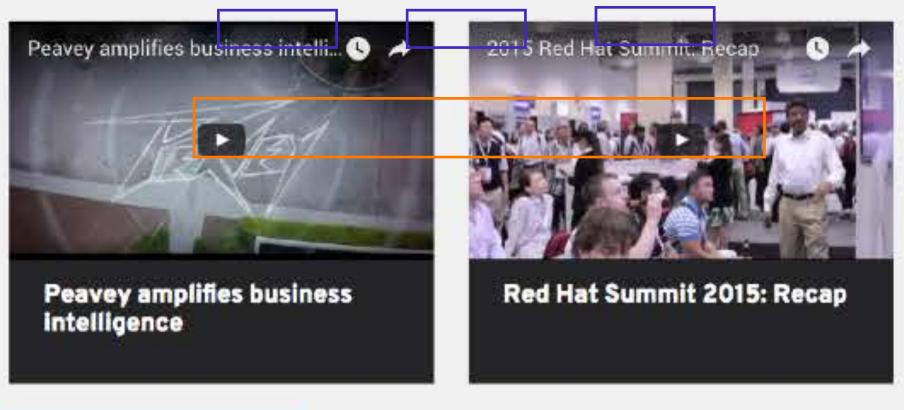
EXPLORE ALL VIDEOS

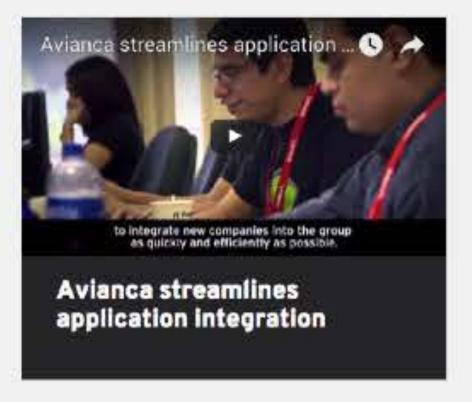




VIDEOS

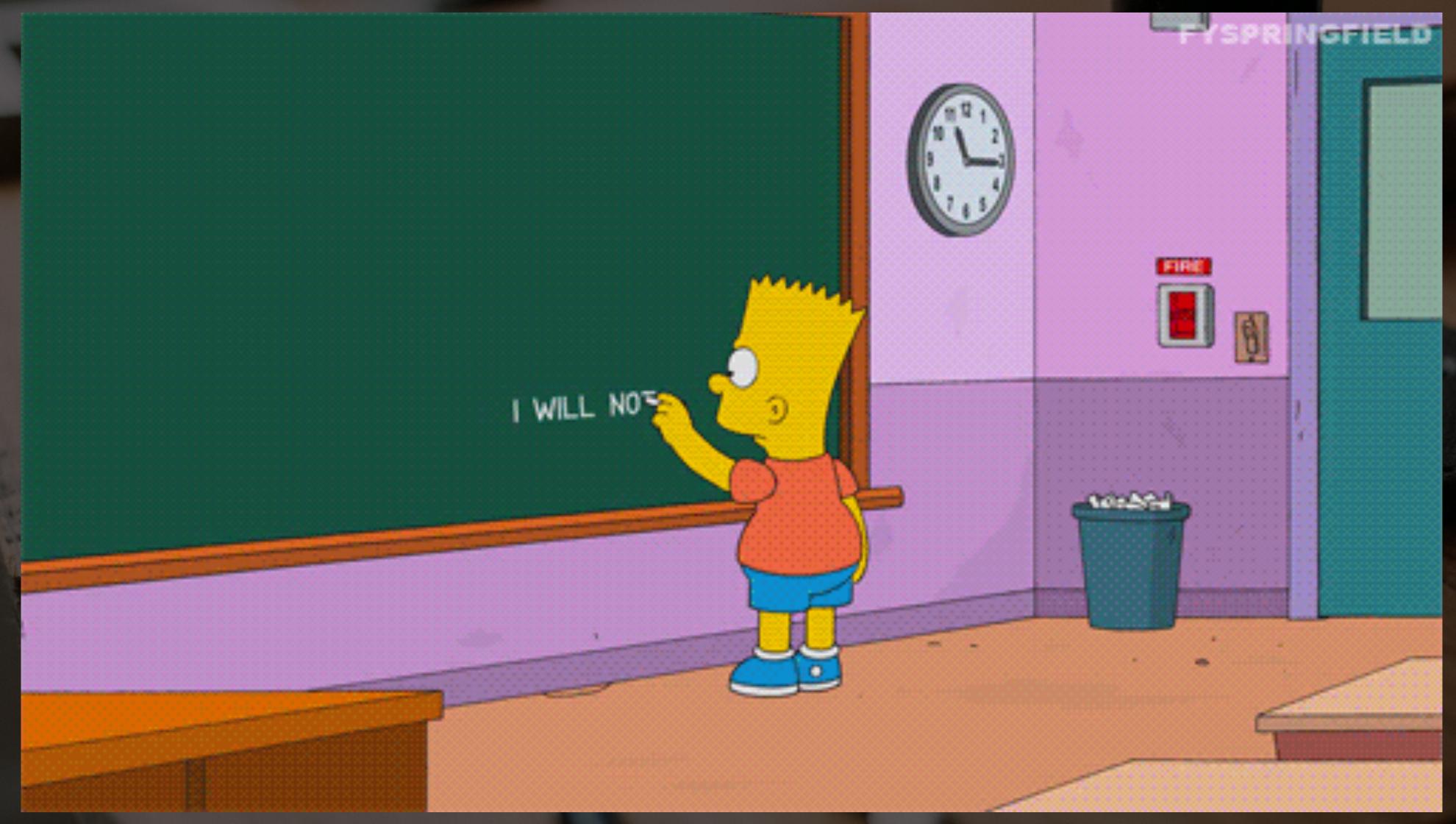
Learn directly from our customers, partners, and solution experts





EXPLORE ALL VIDEOS

DESIGN SYSTEMS ARE THE FUTURE OF THE WEB



One more thing...

HOW DO WE GET OUR DESIGN SYSTEM INTO DRUPAL?



HOW DO WE GET OUR DESIGN SYSTEM INTO DRUPAL?

Why haven't we already done this?





Model



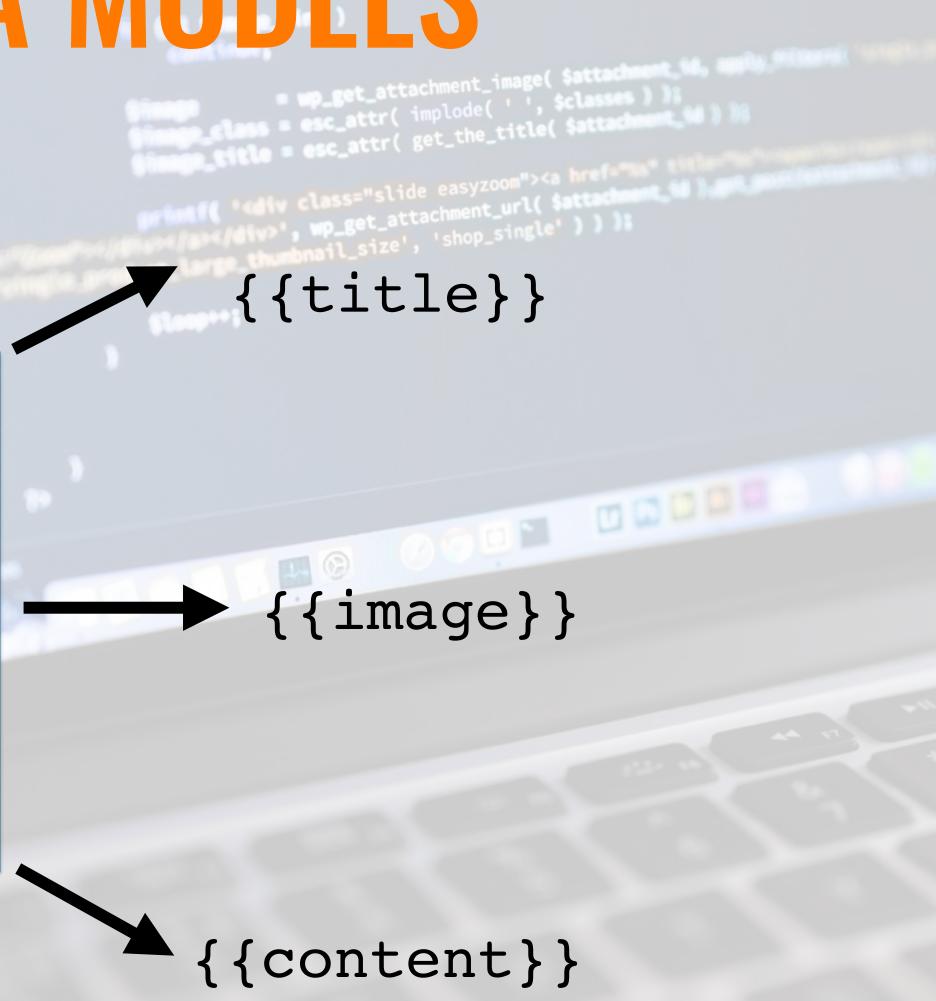
\$title

<h1>Title</h1>

DIRTY DATA MODELS

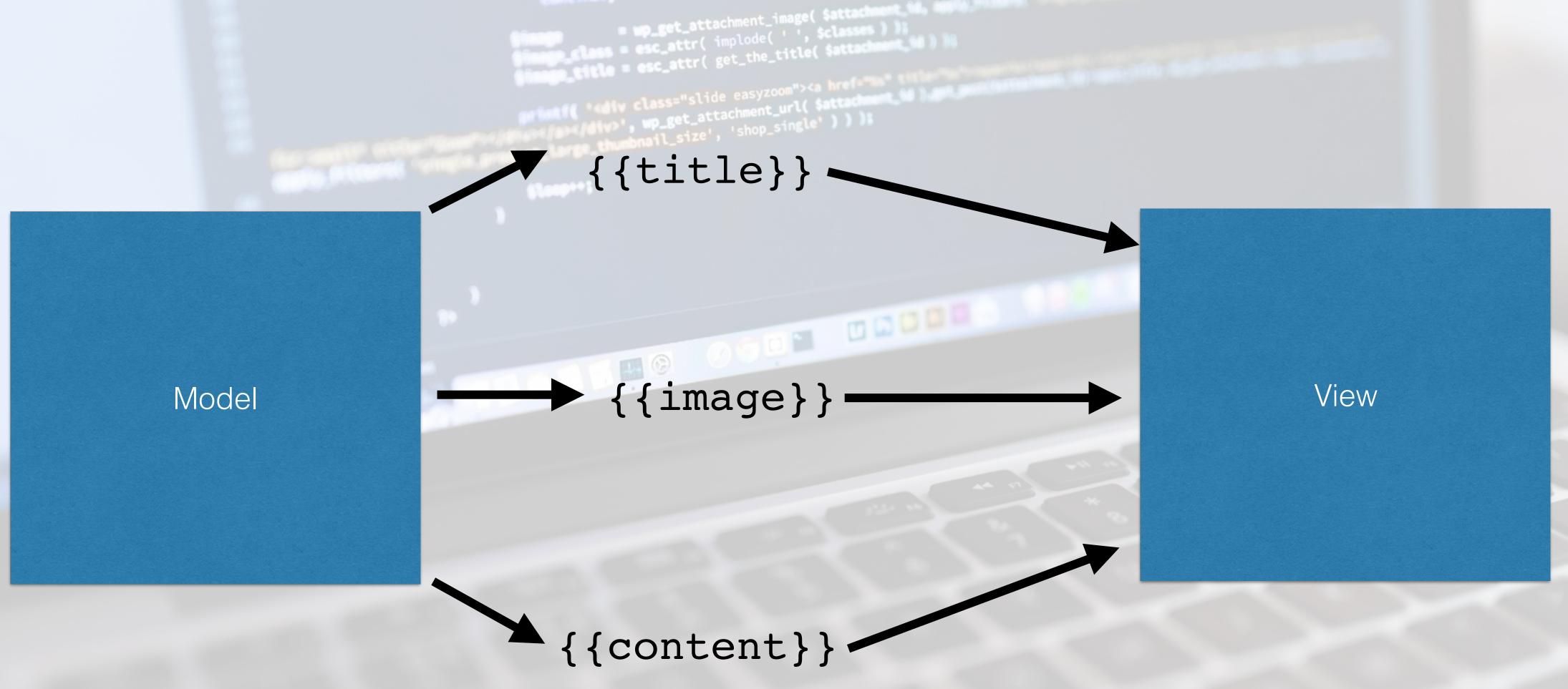
Solved by D8

Model





TYRANNY OF THE MODEL VIEW PARADIGM

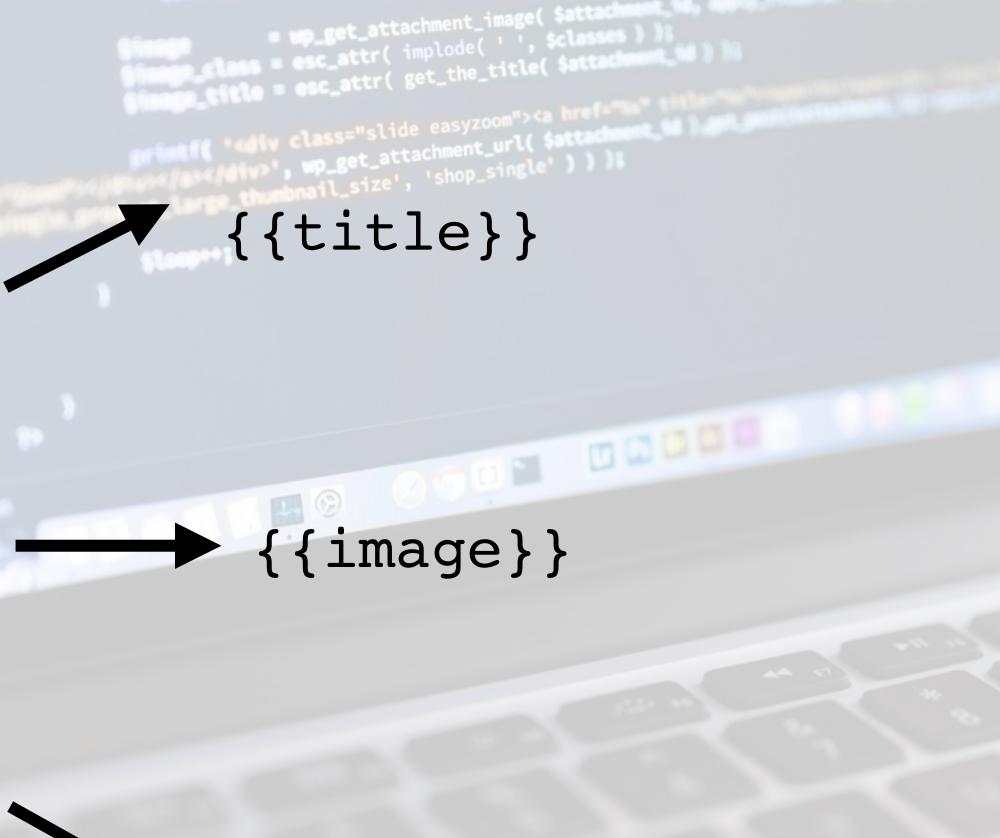




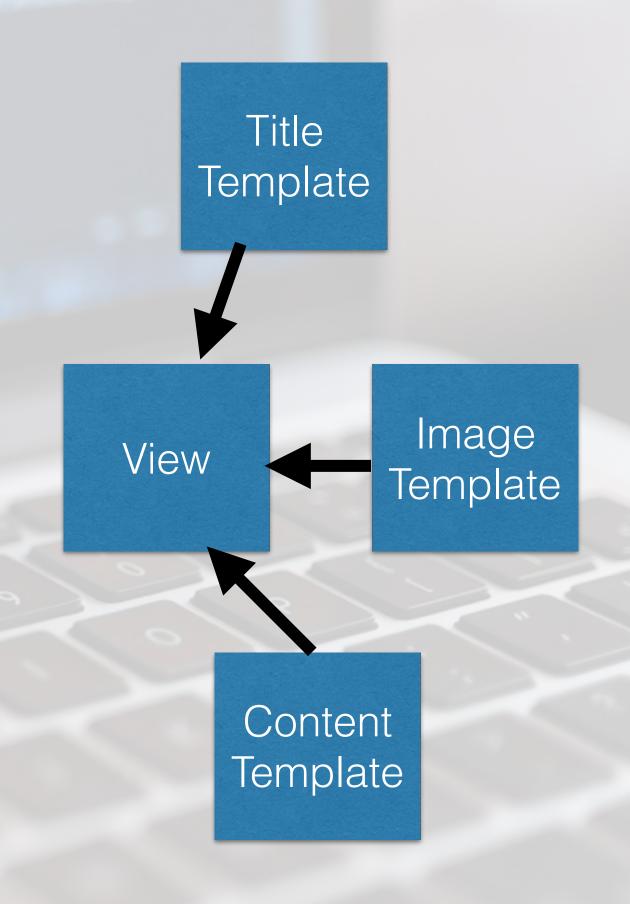
TYRANNY OF THE MODEL VIEW PARADIGM

Enter Atomic Design

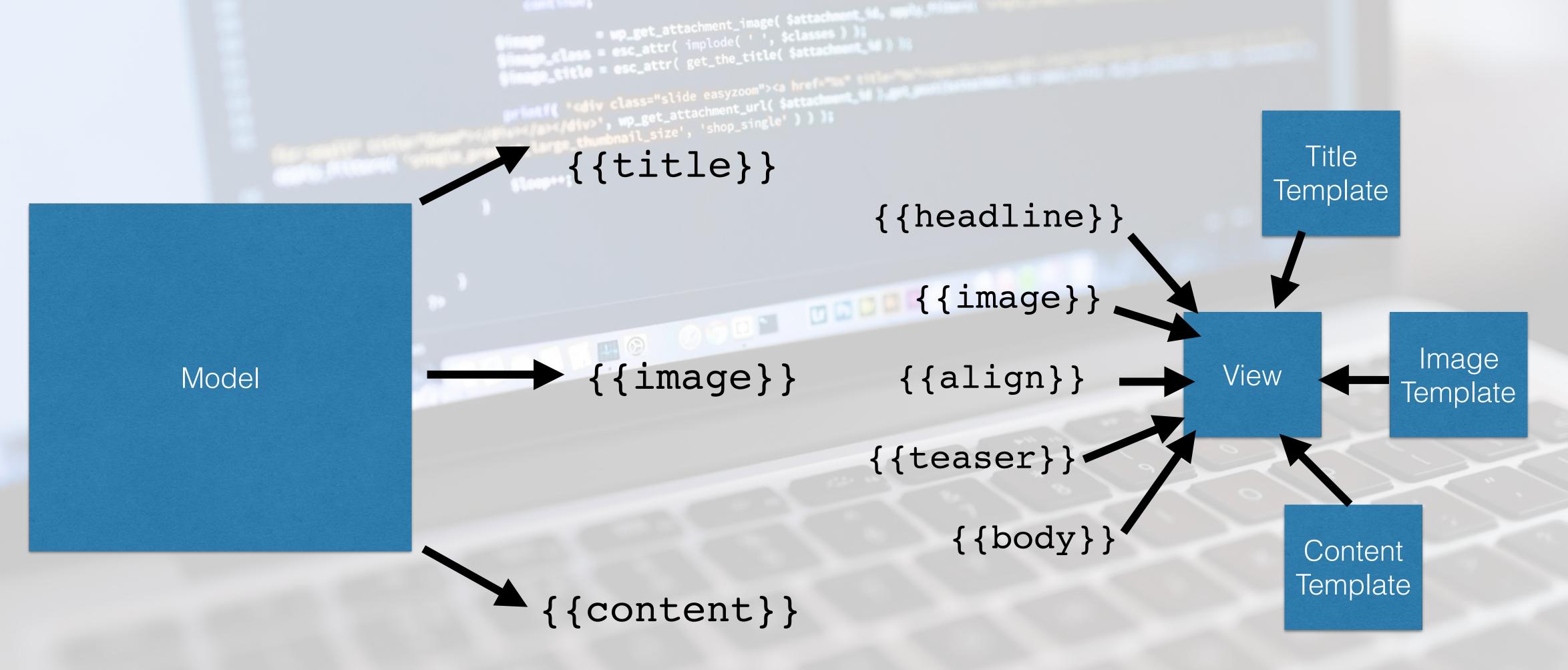
Model



{{content}}

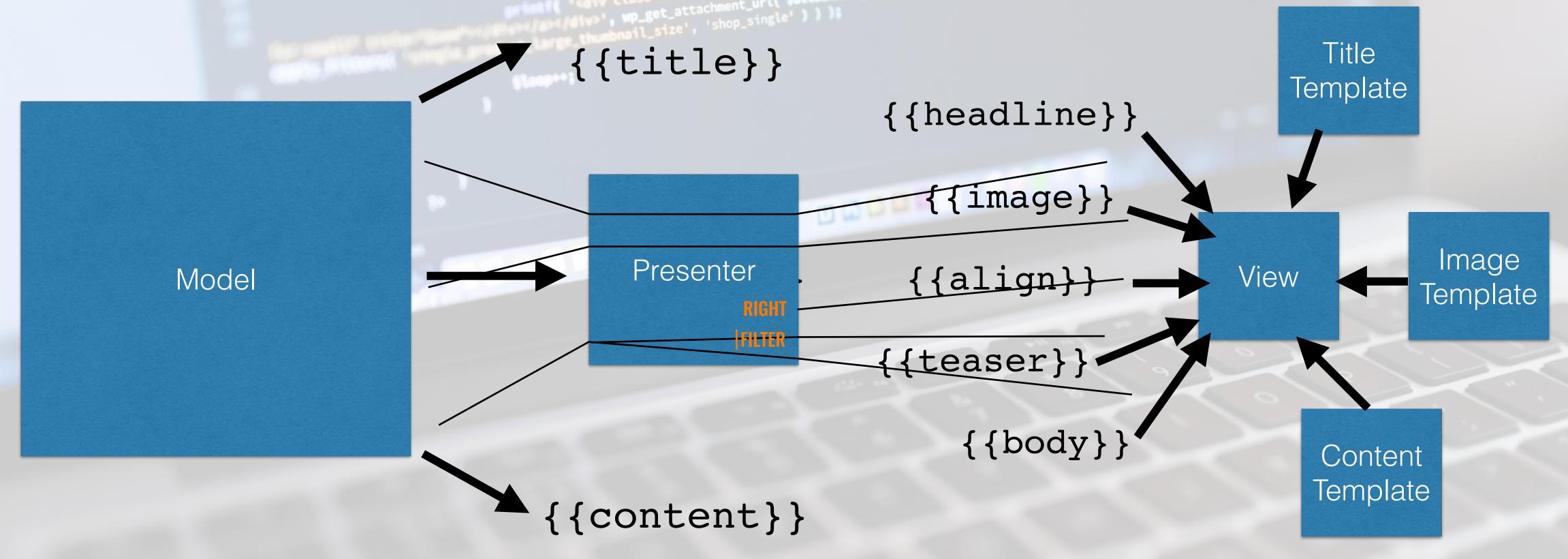


MODEL AND VIEW DON'T SPEAK THE SAME LANGUAGE



MODEL AND VIEW DON'T SPEAK THE SAME LANGUAGE

Say hello to the Presenter



A Basic Presenter

```
{% extends 'card.twig' %}
{% block body %}
  {% include 'title.twig' with {'headline': title} only %}
  {% include 'image.twig' with {
    'image': image,
    'align': 'right'}
  only %}
  {% include 'content.twig' with {
    'teaser': content|truncate(35),
    'body': content}
  only %}
{% endblock %}
```

Including the Title

```
get_attachment_image()

esc_attr{ implode() | Sclass |

esc_attr{ {timplode() |

esc_attr[ {timp
```

{% include 'title.twig' with {'headline': title} only %}

{{headline}}

Including the Image

```
{% include 'image.twig' with {
   'image': image,
   'align': 'right'}
only %}
```

Including the Content

```
{% include 'content.twig' with {
   'body': content,
   'teaser': content|truncate(35)}
only %}
```

Using Extends: Keeping the presenter pure

```
{% extends 'card.twig' %}

{% block body %}
...
{% endblock %}
```

```
{# card.twig #}
<div class="card">
{% block body %}

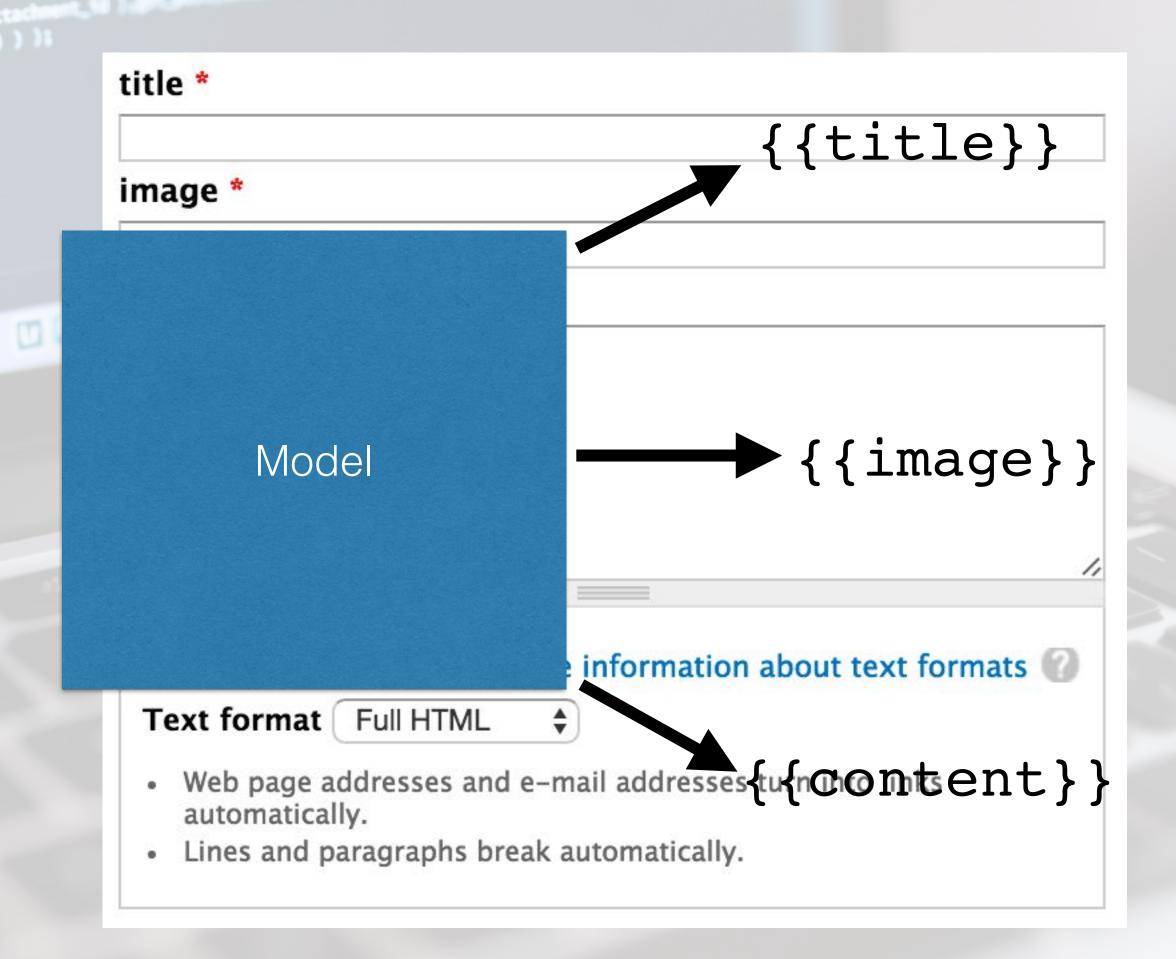
{% endblock %}
</div>
```

A Basic Presenter

```
{% extends 'card.twig' %}
{% block body %}
  {% include 'title.twig' with {'headline': title} only %}
  {% include 'image.twig' with {
    'image': image,
    'align': 'right'}
  only %}
  {% include 'content.twig' with {
    'teaser': content|truncate(35),
    'body': content}
  only %}
{% endblock %}
```

Defining the Model: Creating an API

```
"type": "object",
"properties": {
    "title": {
      "type": "string",
    "image": {
     "type": "string",
    "content": {
      "type": "string",
      "format": "html"
"required": ["title", "image", "content"]
```



INTRODUCING PATTERN BUILDER

- Prototype your entire design system in a static environment
 - JSON Schemas
 - Twig
- Import your MVP into D7 with a single Drush command.
 - Creates a Paragraph bundle for each Model
 - Combine Paragraphs to make new content types
- Render your clean Model through standard Twig templates

INTRODUCING PATTERN BUILDER

Come to room 291 right after this talk for a BOF/demo!

drupal.org/project/patternbuilder github.com/patternbuilder



So How Was It? - Tell Us What You Think

