

Design, Front-end | March 21, 2024

What a component isn't



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at Solve it once
@SolveItOnceLLC

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MidCamp /*Midwest Drupal Camp*/ 2024

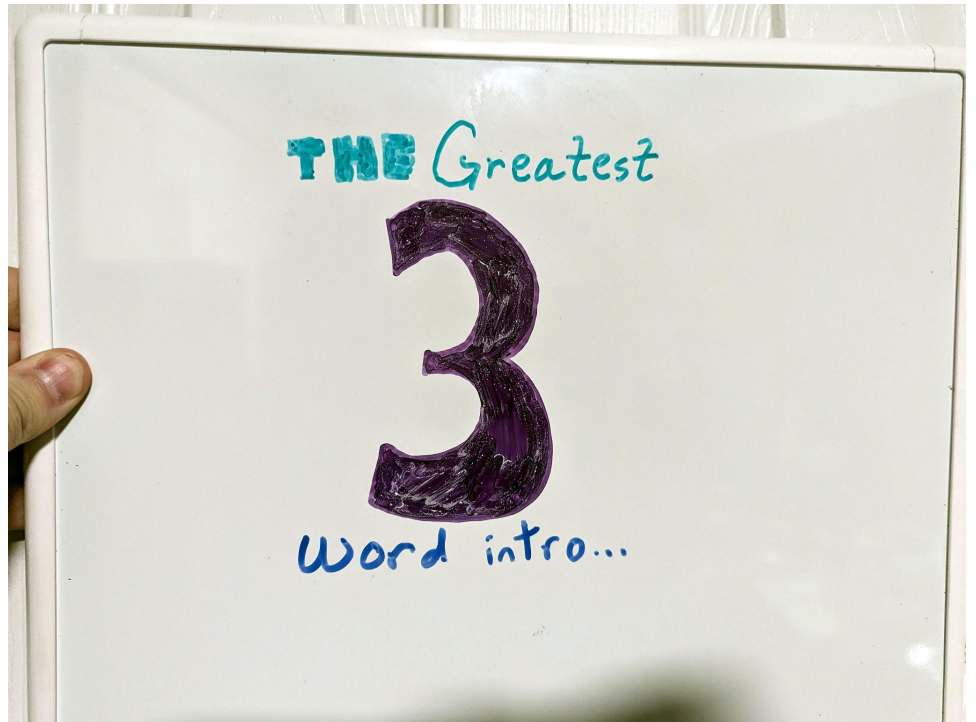
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Ok, let's get started. Hi everybody, I'm Brad.

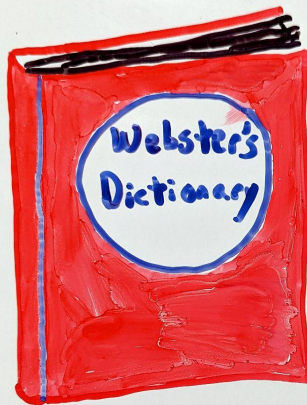
In rehearsal I got through all 68 slides in about 25 minutes, so I encourage you to speak up with questions or comments whenever the mood strikes!

**The
greatest
3-word
intro...**

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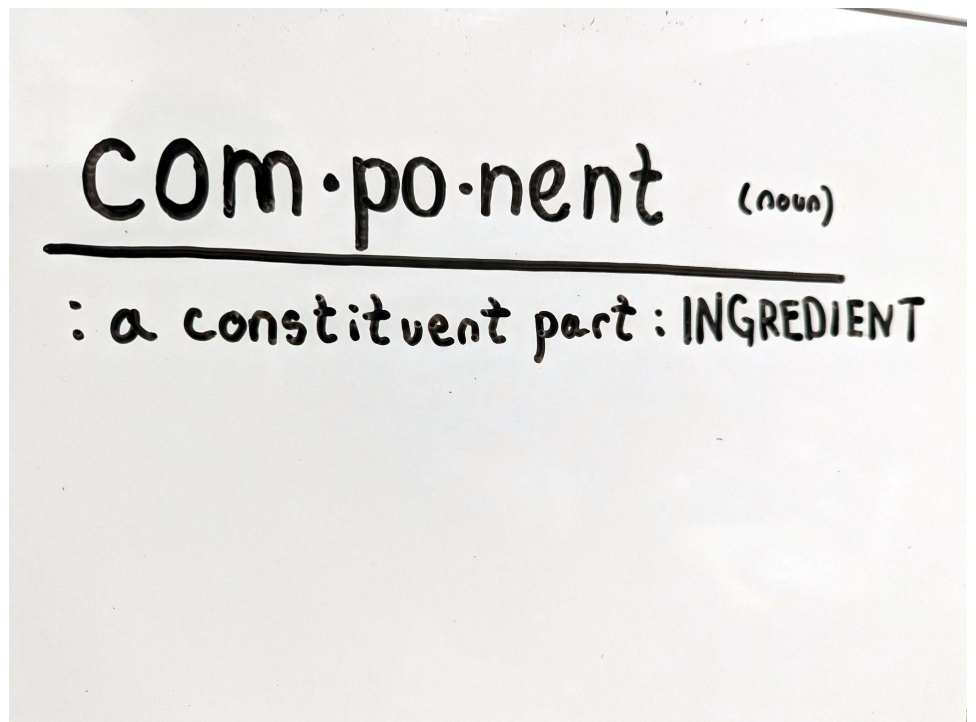
**Webster's
Dictionary
defines...**



defines

**A
component
is a part of
a whole**

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This is a very general definition, as lots of things are parts of a larger whole, so we must mean something more specific when it comes to web work. Or do we?

**Spoiler
alert: the
zebra did it**

∴ Therefore

A component **isn't**
most of the other words
in the dictionary

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Therefore, a component is **not** most of the other words in the dictionary.

Questions?



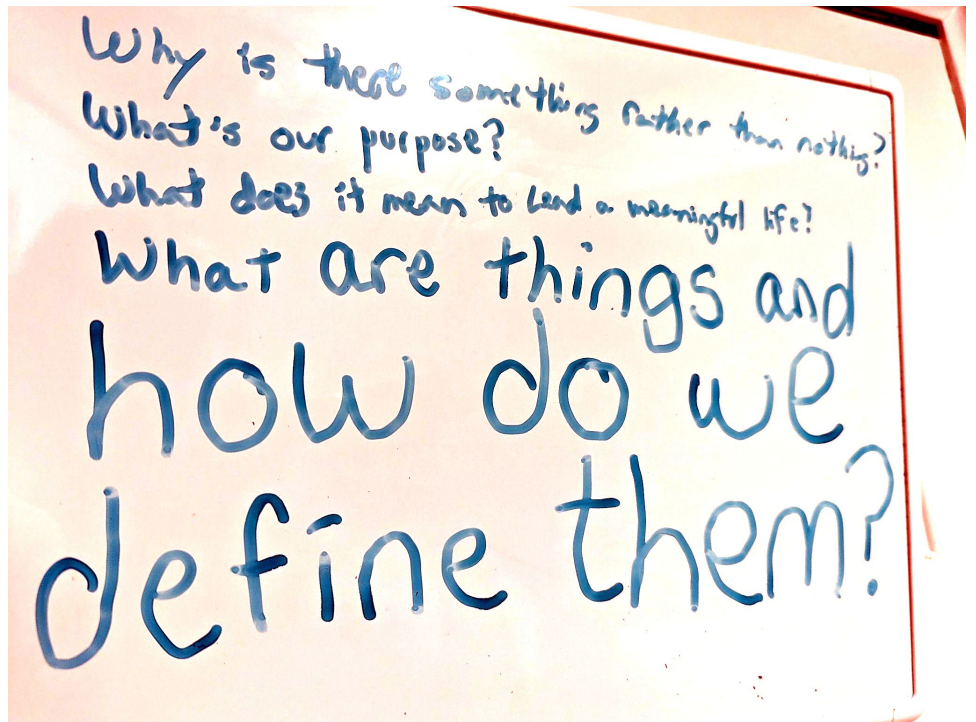
THANKS
I appreciate your time today

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Thanks! I appreciate your time today.
Classic misdirect

**Jk. What
are things
and how do
we define
them?**

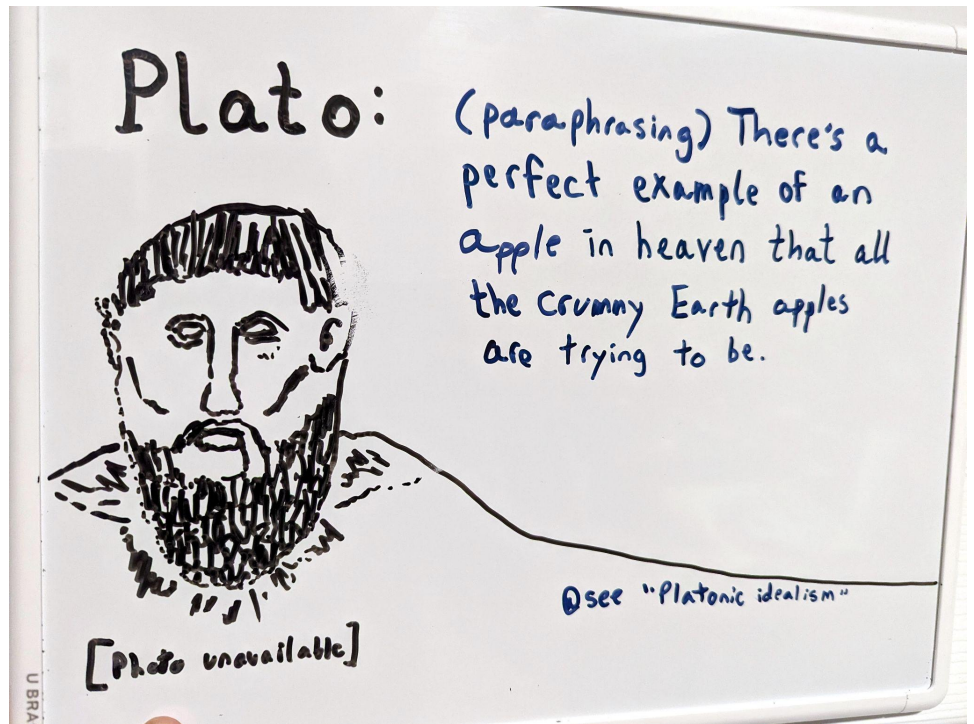
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Why is there something rather than nothing?
What's our purpose?
What does it mean to lead a meaningful life?
What are things and how do we define them?

Platonic idealism is a metaphysical starting point for understanding things

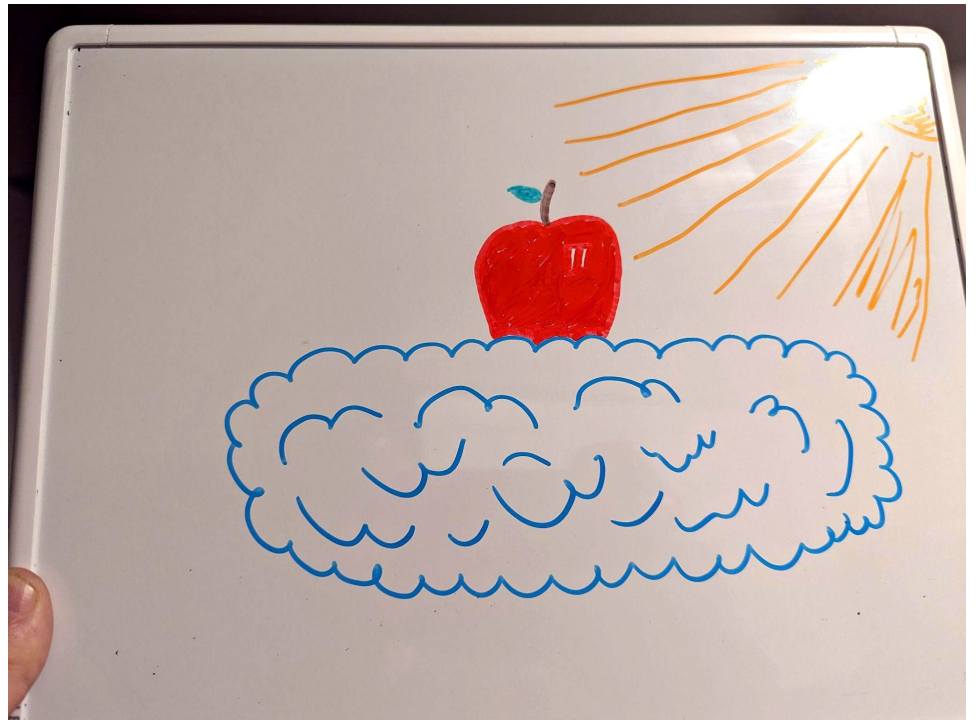
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Plato: (paraphrasing) There's a perfect example of an apple in heaven that all the crummy Earth apples are trying to be.
@see "Platonic idealism"

The archetypal apple

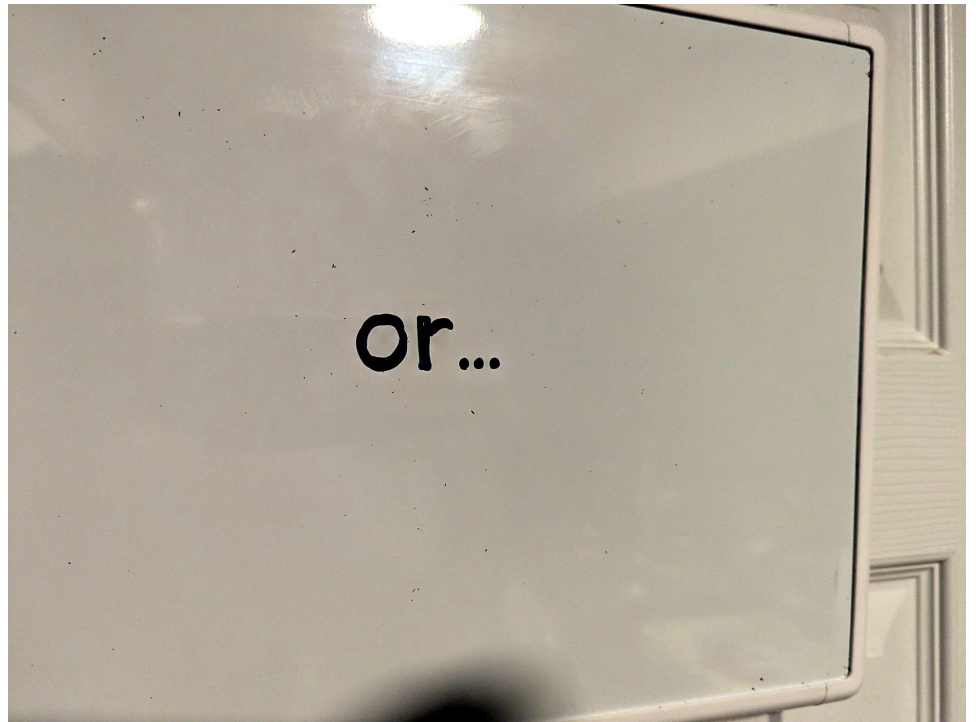
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Some of the earliest thought on the nature of our world and how we can conceptualize objects and concepts leads inextricably to there being an apple in a spirit realm.

**There *are*
other ideas
in this
space**

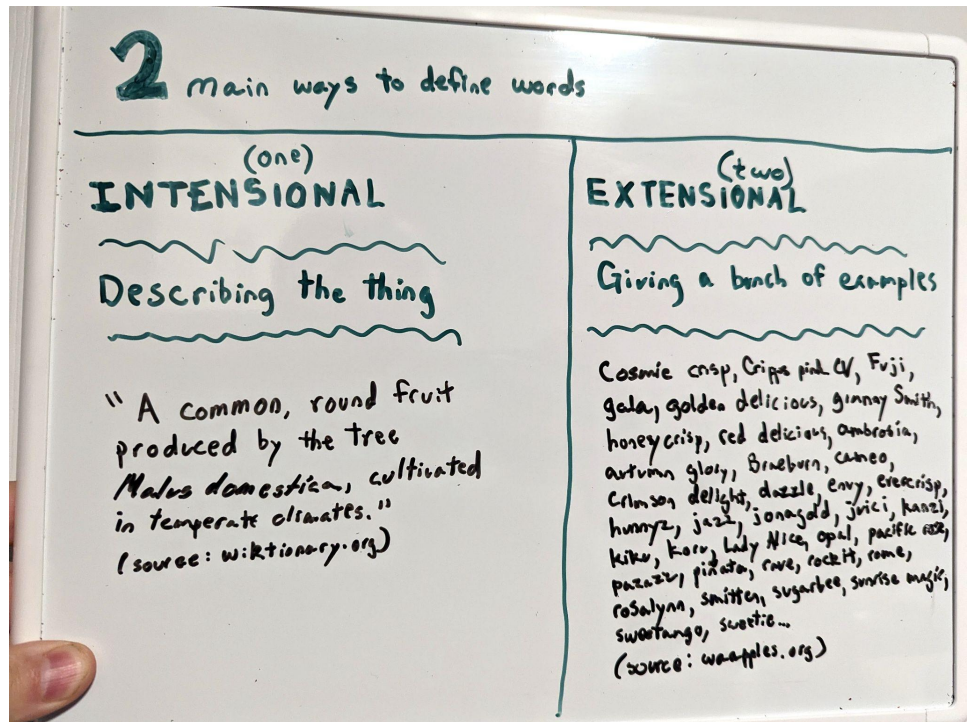
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However, some time has passed since Plato, and other folks have weighed in.

You can define words with **descriptions** or **sets of examples**

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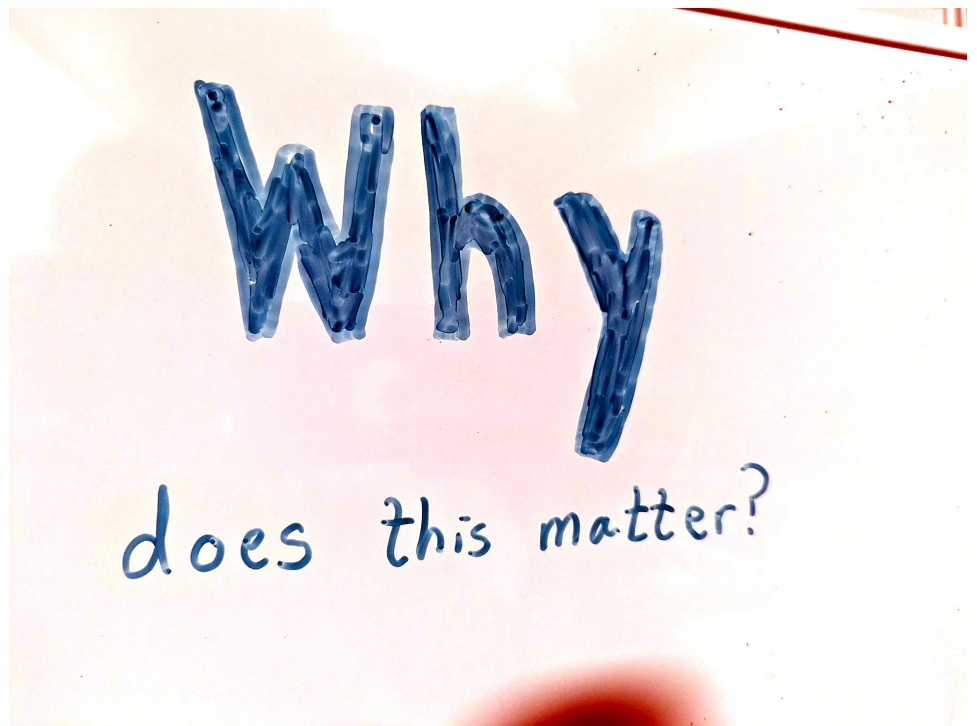
The main concept from this wall of text is that you can try to describe a thing or concept
or
try to give enough examples that the description is implied.

If you describe something with too little detail then your definition of an apple might accidentally include pears. But if you describe too tightly then speckled green apples might get the boot. It's a tough balancing act.

Similarly, a few examples might lead your reader to a murky understanding, whereas a huge list of examples could be overwhelming and unhelpful.

**Yes,
eventually
this will be
about
components
(I think)**

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What does the definition of the word definition have to do with what a component is or isn't? Why does this matter?

Is a hot dog
a sandwich?
A taco?
Pieces of
bread at
Earth's
antipodes?
Three pieces
of bread?
Two?

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If you've ever argued about whether a hot dog is a sandwich – an exercise we probably don't have time to cover this hour but could pick up during the unconference – you know where both intensional and extensional definitions fall apart.

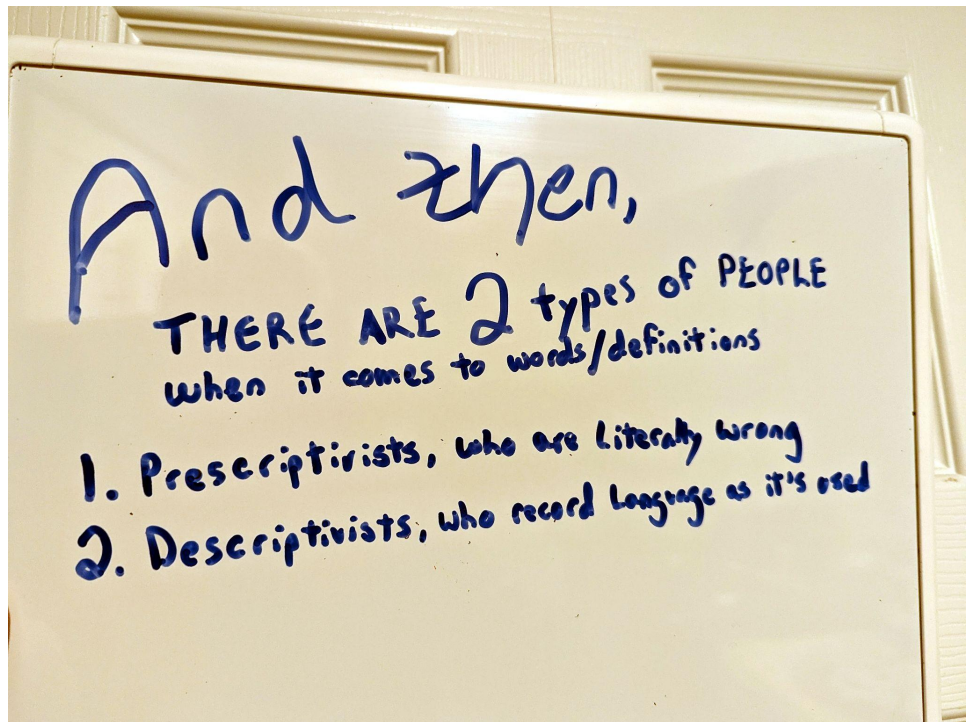
A description of everything we culturally think of as a sandwich is almost impossible to get into a sweet spot.

And we CANNOT trust some dictionary-maker to decide if a taco is a sandwich FOR US.

What we're exploring here today doesn't have clear-cut answers. You can give your opinion, but in a lot of cases you'll be taking my FLIMSY word for it. And I'm an unreliable narrator!

It's remarkable that we're so serious about us primates making mouth noises

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Additionally, there are two schools of thought about how dictionaries should work:

1. Prescriptivists, who think the dictionary is the source of truth, and language evolution is more-or-less incorrect usage. They desperately want there to not be grey areas about components, sandwiches, or apples
2. Descriptivists, who correctly believe the dictionary should reflect language how we use it. They know language is messy and it changes over time. They're up for a good hot dog debate

I recommend
about 15%
linguistic
nihilism

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So, DISCLAIMER:

If we can agree on
anything today, language
could shift right under us
tomorrow.

Which is cool!

So, disclaimer:

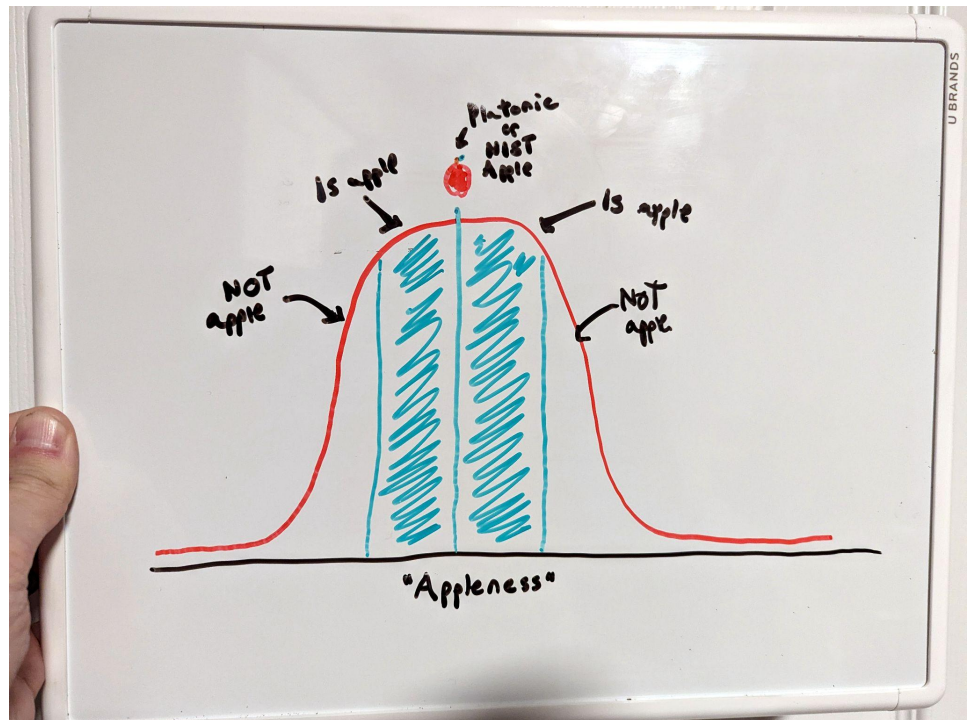
I am not a lawyer and this is not legal advice, but... if we can agree on anything today, language could shift right under us tomorrow.

And us descriptivists can take it all in stride! Prescriptivists might not like it so much.

'Appleness' is a normal distribution

(for some definitions of 'normal')

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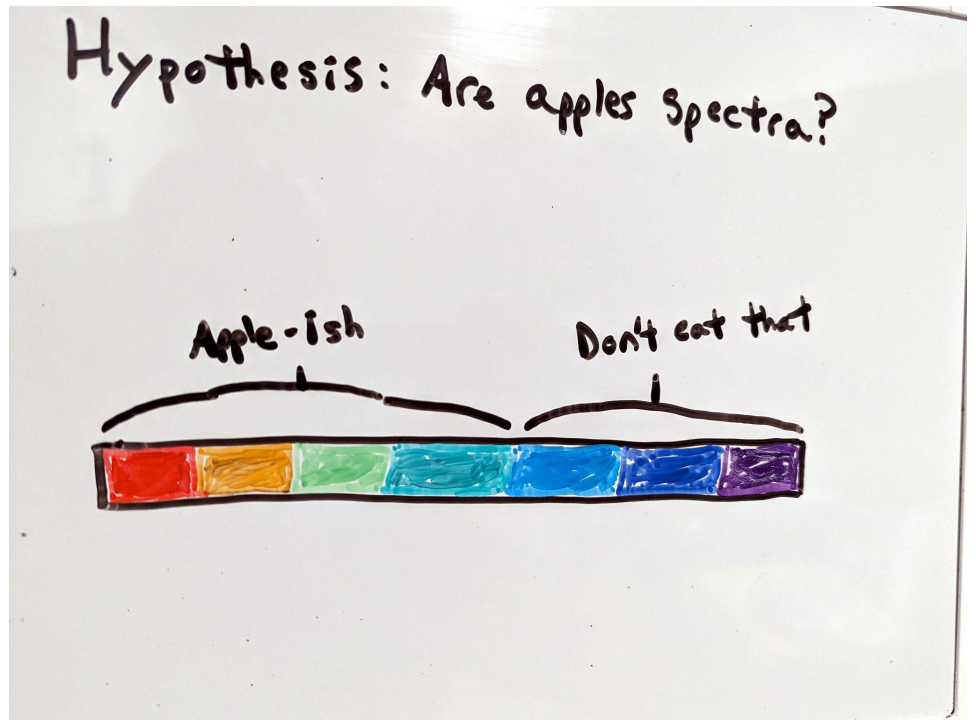
Ok, back to apples, of course:

If I'm being honest, I made this slide thinking there was a good point to be made here, but now am not so sure.

I guess the biggest takeaway is that a standard deviation, or even the Pareto 80/20-ish breakdown, is often a good way to cover most of the things in a definition without going overboard.

Getting it 68-80% right is a passing grade most places, so please don't worry A-students if your definition or framework isn't perfect all the time!

Yellow dry
erase
marker
disappeared

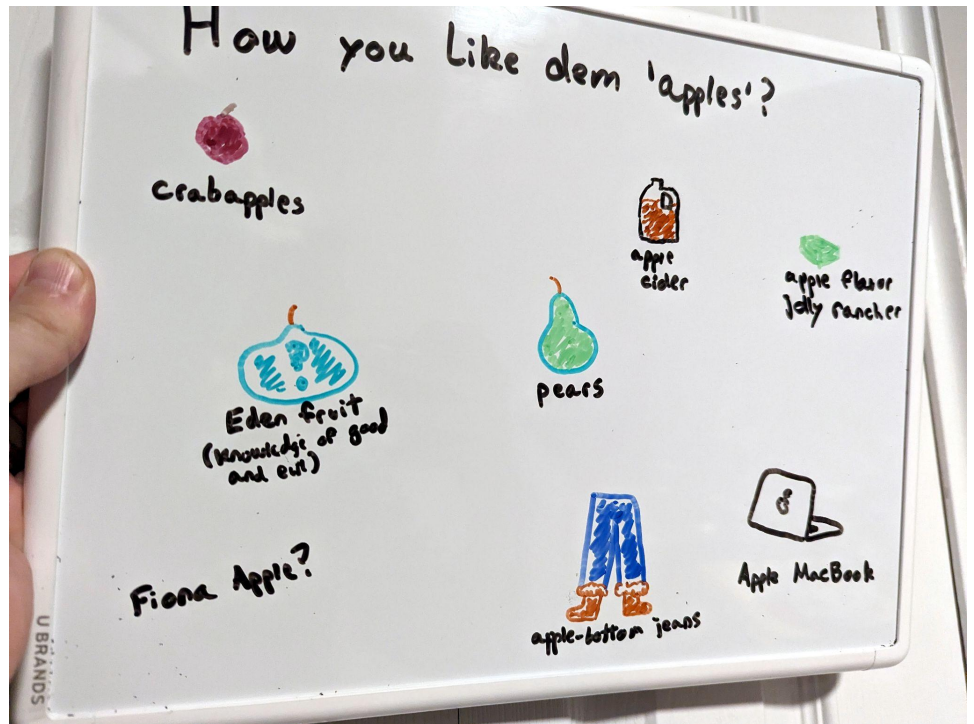


On the other hand, this slide included purely because it's fun with apples

(Graphic on the slide shows a color spectrum, with a label for red through green as "apple-ish", while blue through violet says "don't eat that")

Senses and naming have a profound effect

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Now we're back to making a point!

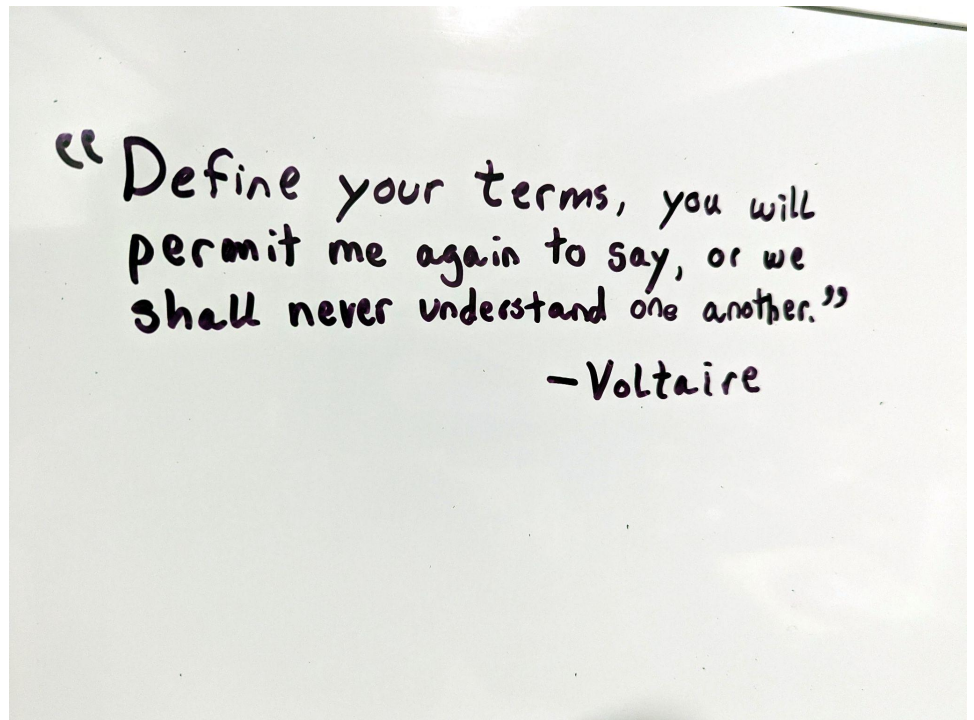
- Crabapples are fruit from trees of the same species as regular apples. They meet the definition of apple as described intensionally, but we all know the difference between regular apples and crabapples
- Apple cider smells like apples and tastes like apples, but it's a liquid that otherwise shares no properties of an apple
- Apple flavored jolly ranchers have barely any apple in them, but they share scent and taste properties with apples
- The fruit of knowledge – of good and evil – in the garden of Eden is often thought to be an apple, though that is never explicitly stated
- Pears are apple cousins. They wanna be apples so bad!
- Fiona Apple's last name is Apple
- Apple-bottom jeans might share some aesthetic properties with apples
- Apple MacBooks have an apple logo mark on them

It's all a matter of degrees. Some things don't walk like an apple or quack like an apple, but aren't as far from apple-itude as you might initially suspect
This is all metaphor and foreshadowing – something to think about when we're

talking about other things later

**Before
defining
your terms,
always
define what
defining is.
And make
apple
drawings**

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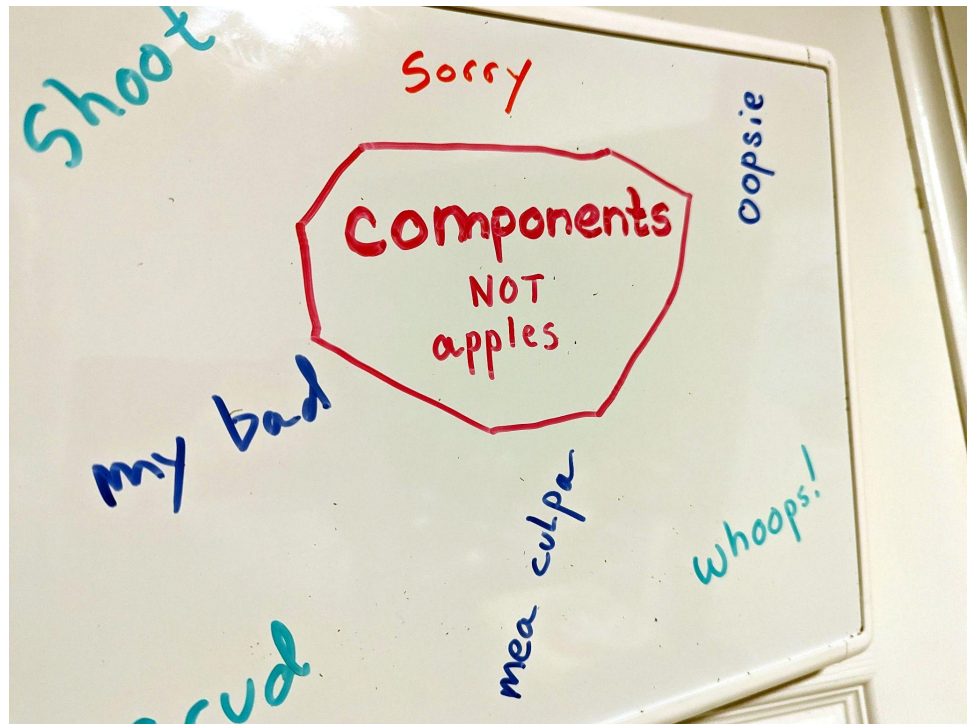
"Define your terms, you will permit me again to say, or we shall never understand one another." -Voltaire

This quote resonates with me because arguments can sometimes be silly misunderstandings of language rather than substantive debates, and I think that's goofy.

It also lets me recommend the book *Candide*, which is a short, rewarding read. Take it from me, a former librarian!

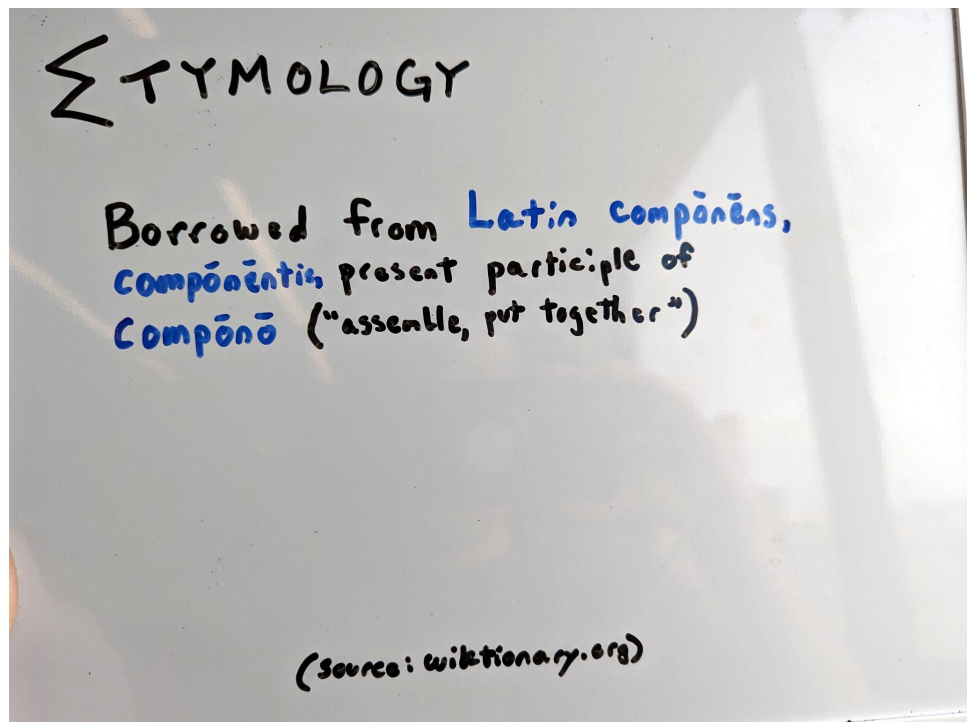
Let's get to
the matter
at hand

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Where were we? Oh, right, apples!

In English it started seeing use in the 1600s



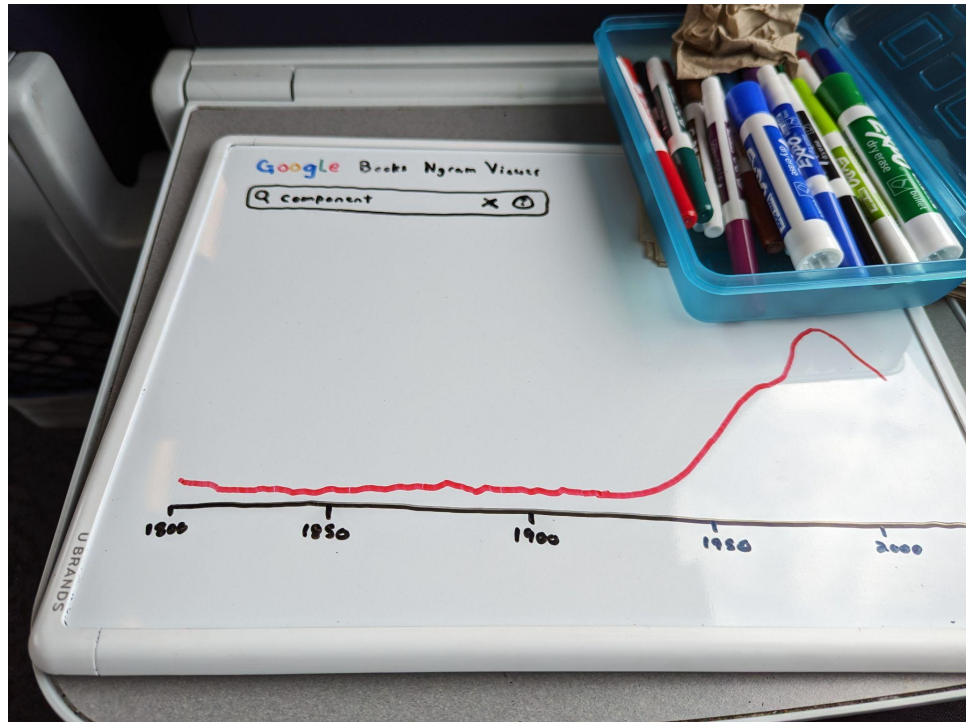
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What I was able to find out about the etymology of the word component is that it's super old, seeing as it comes from Latin.

A lot of old words English-wise are also traced back to the 1600s, so component has been a fixture of the language and has meant something similar to its current meaning for that whole time.

The 20th Century was big for components

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In books, the word component saw a big upswing starting in the 1920s and going through 2000. In recent years there has been a decline, though that may be just as much about the source corpus as the usage of the word.

(Slide graphic shows a representation of the Google ngram viewer's line chart for the word 'component', the slope of which I roughly describe in the speaker notes)

In the Drupal world we've used a lot of words
That mean "part of a whole"

"Place the widget in the section"
(and nobody gets hurt)

block
node
entity
field
module
plugin

class
dependency
region
template
bundle
fieldgroup
display mode

panel
Layout
Library

can you
name any
more?

*to some extent

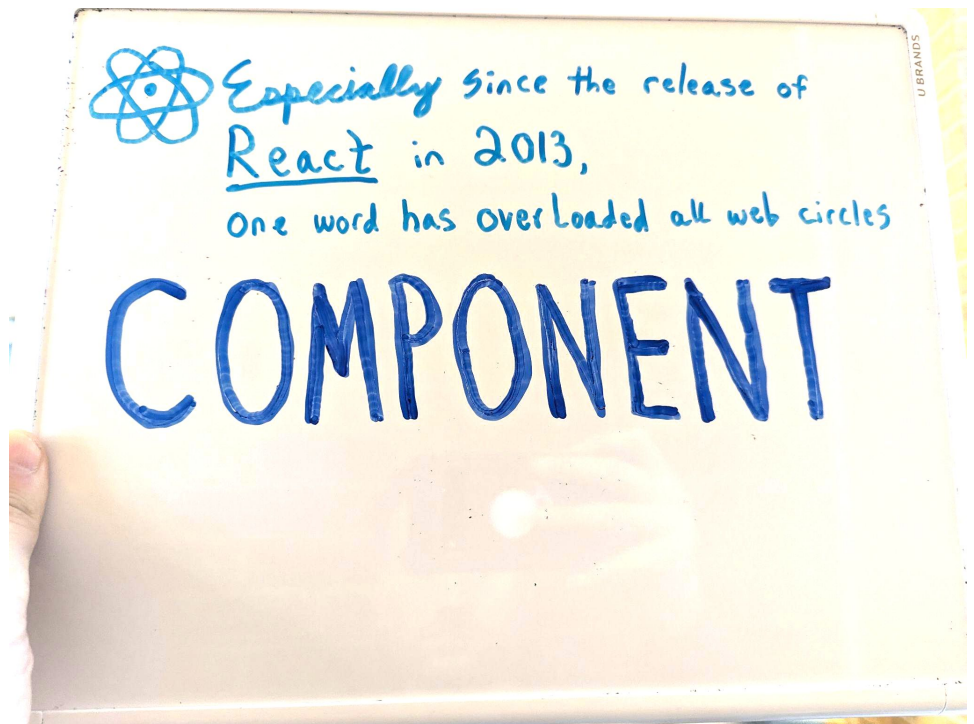
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In Drupal we subdivide lots of stuff so we can have a modular and flexible framework.

Unfortunately, word like 'block', 'module', and 'plugin' are used in vastly different ways, even within other **PHP content management systems**. It gets confusing to keep it all straight!

From a
certain point
of Vue

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Component is usually very generic but can be descriptive.

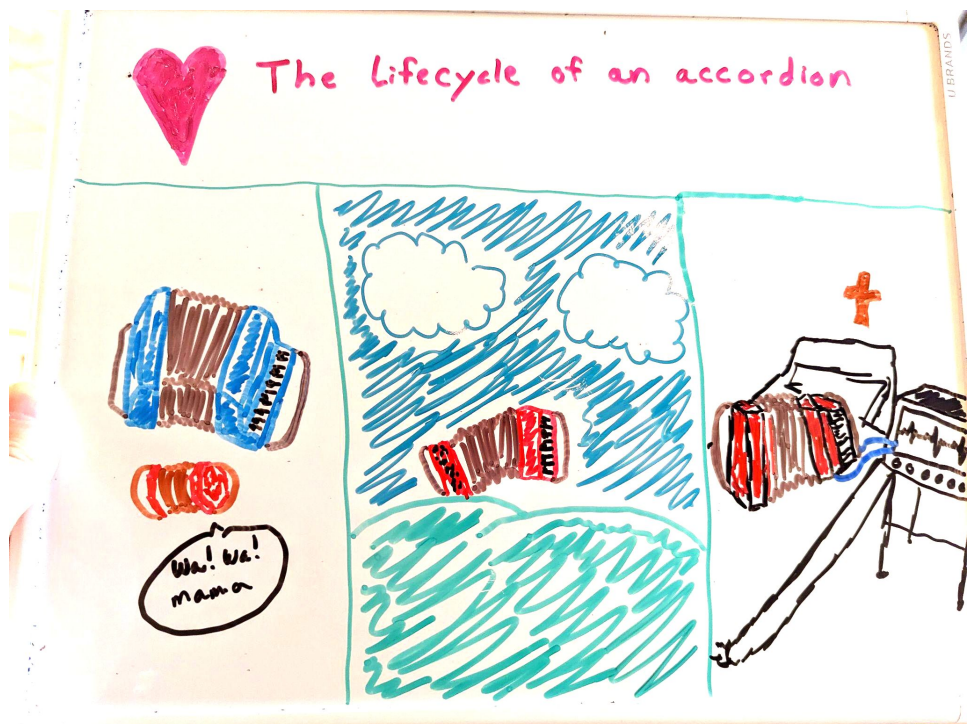
React using component in this manner led to two things:

1. React people meant something very specific by it
2. Non-React people pointed at lots of stuff and starting calling it all components, which is... fine. This is why we're in this room

As we explore my opinion of what is and isn't a component, we can all test our assumptions of what we think 'component' means, and perhaps reflect on if some of our assumptions might be gate-keeper-ish.

All accordions are born concertinas and grow into bandoneons

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Let's explore how an accordion component is born, grows, and lives. How an accordion dies is your homework assignment.

(Slide graphic shows a dry erase drawing of an accordion – the musical instrument – being born, living, and then on a deathbed, illustrating “the lifecycle of an accordion”)

The design system beyond the realms of men

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I'm going to note here at the top that what I'll be calling an accordion is what you might call an "Accordion item" or expando or disclosure widget.

Some may insist an accordion is two or more of these items. I do not. If you would like to send me strongly-worded letters I can give you my mailing address

So, Like any well-lived life, we start with the Platonic Form of the component

Raise your hand if you think it is, or voice your opinion

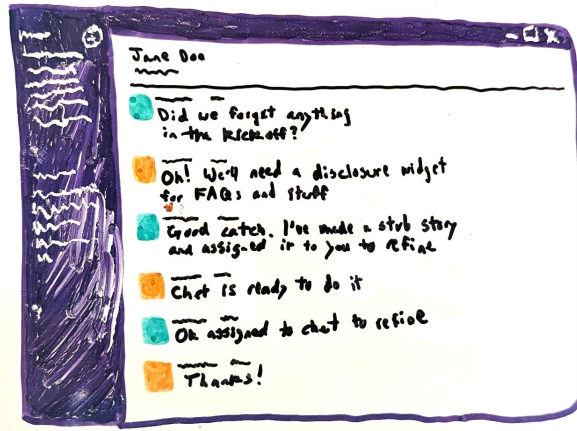
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Welcome to America's hottest new game show! IS IT A COMPONENT?

Here on Earth, a component is conceived...

If dry erase drawings could make triggering notification click sounds

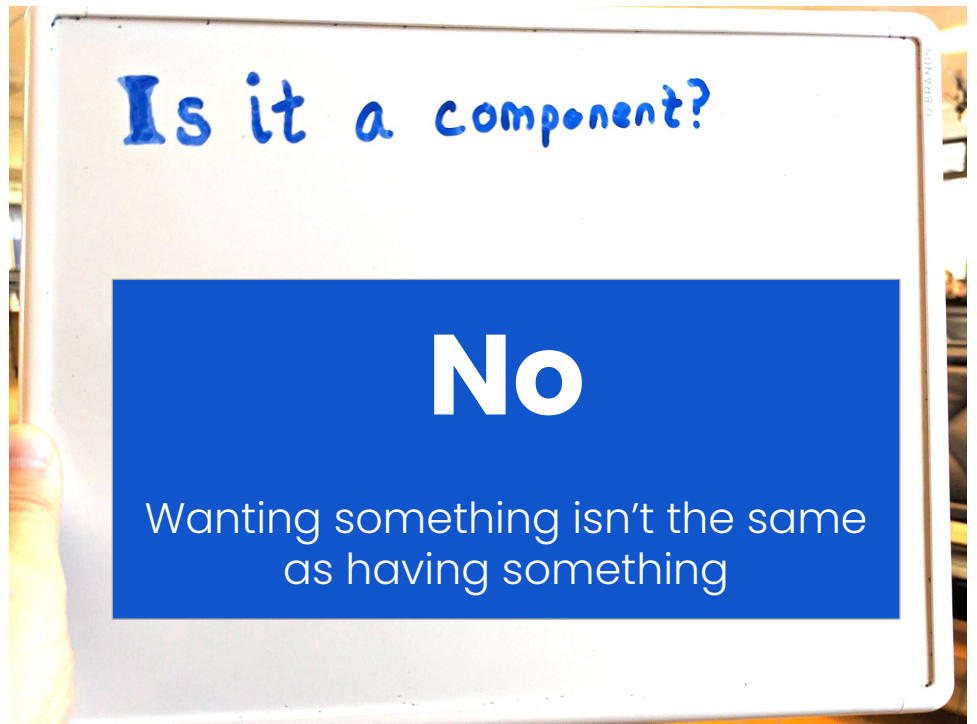


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Outside of the spirit realm and after the Sprint zero kickoff, the project manager Slacks the technical architect, who suddenly remembers to include a disclosure widget among the components

Raise your hand if you think it is, or voice your opinion

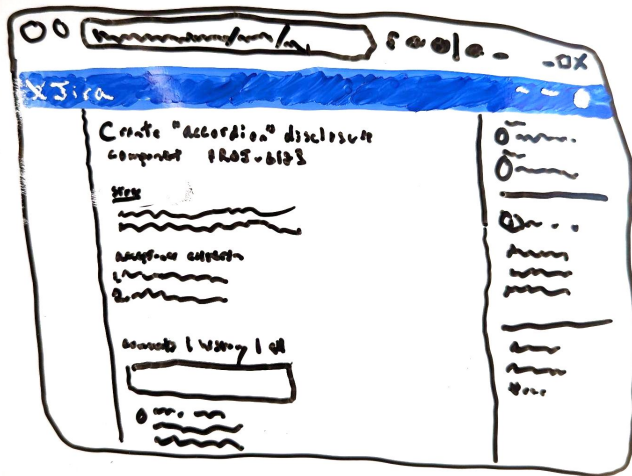
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This isn't The Secret: you can't just manifest an accordion into existence.

The project manager starts the story

Time permitting, we'll figure out how many story points this is

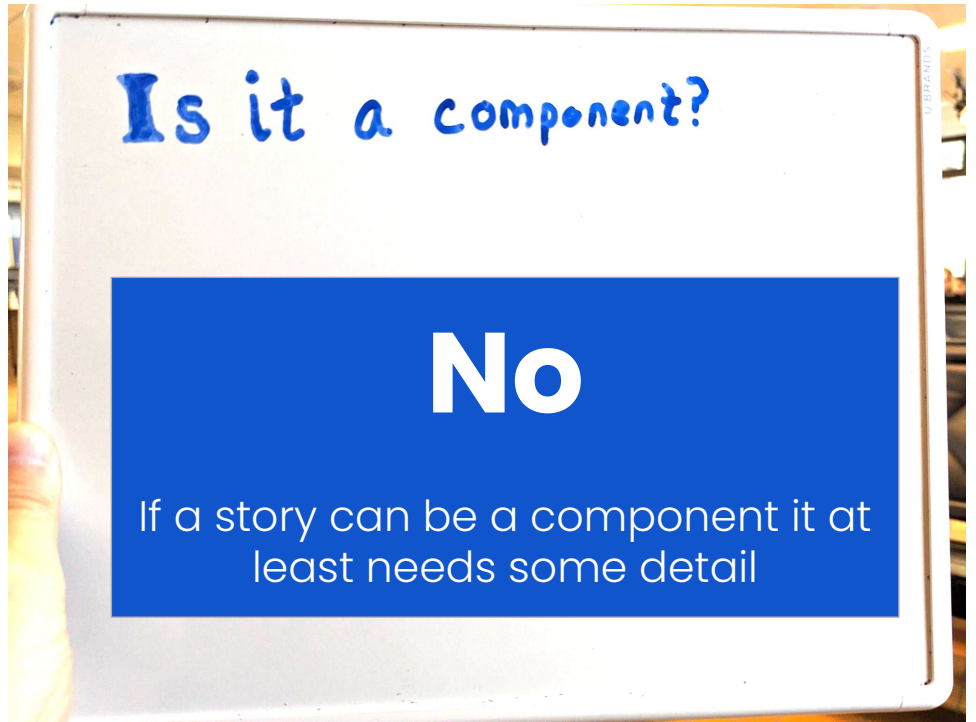


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In Jira, where the backlog is truth, the PM stubs out the story with what they know about the component, then assigns it to an architect or developer to refine

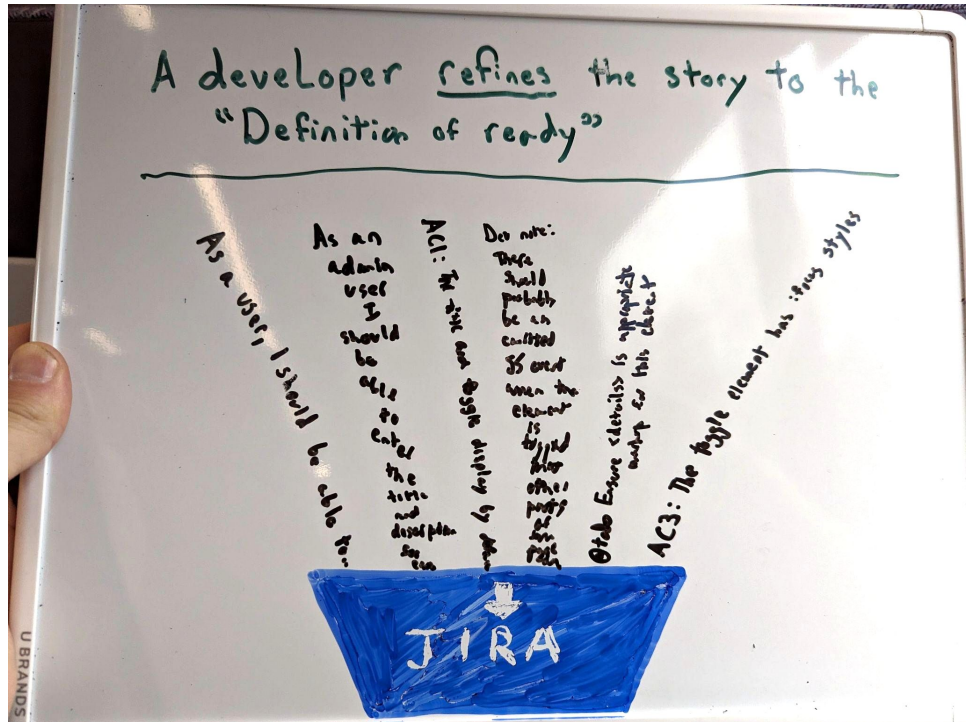
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As a developer, I will shoehorn this into the form of a user story

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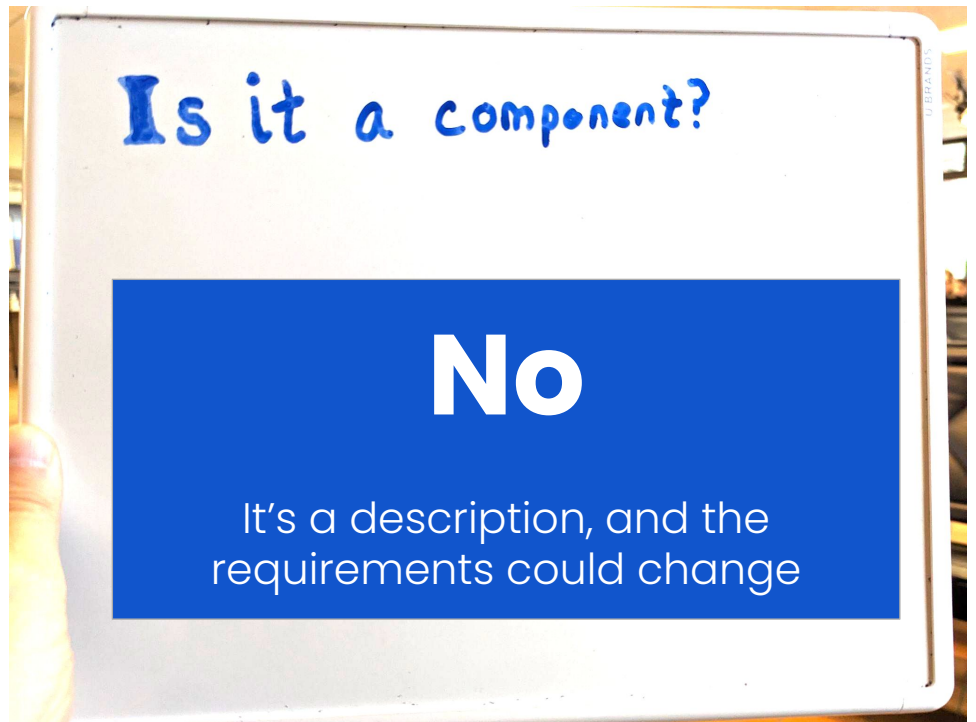


This story could be touched by multiple designers, developers, QA testers, and other subject matter experts, so having good detail is an important responsibility.

This accordion is ready for work to start!

Raise your hand if you think it is, or voice your opinion

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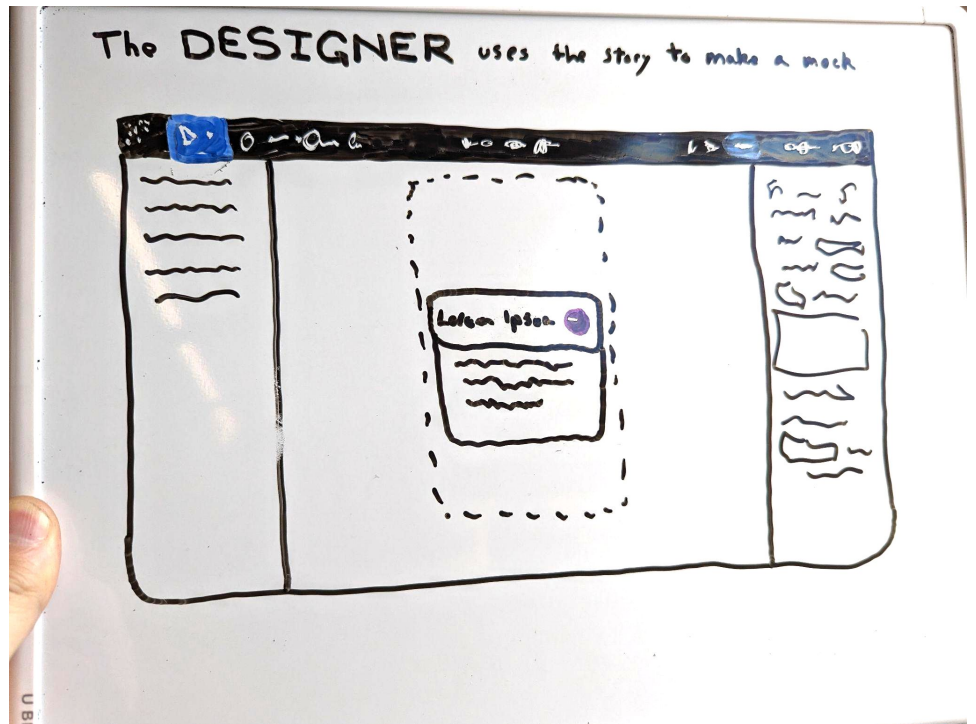
It's said that the best plans rarely survive first contact with the enemy.

As good as a well-defined story is, there's bound to be things that the resulting work deviates from.

You could make the case that a well-rounded Jira story is the specification for a component that does not and may not ever exist.

Thank goodness there are people who actually understand Figma so I don't have to

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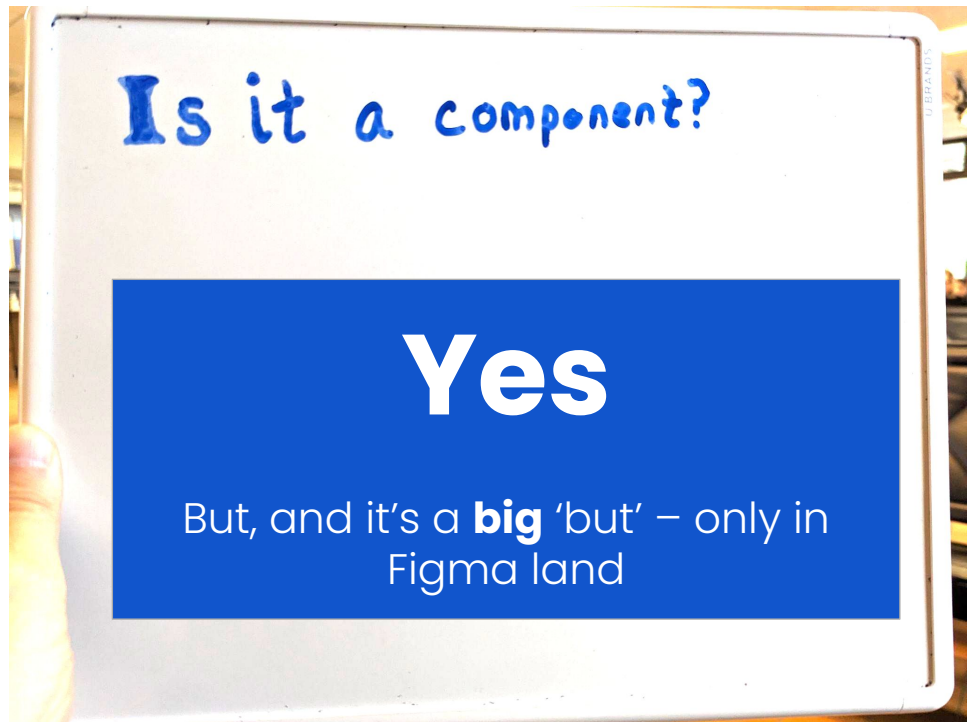


This is something that looks like an accordion!

It could be prototyped to open and close on click, and it could be placed in context with other mocked up content components.

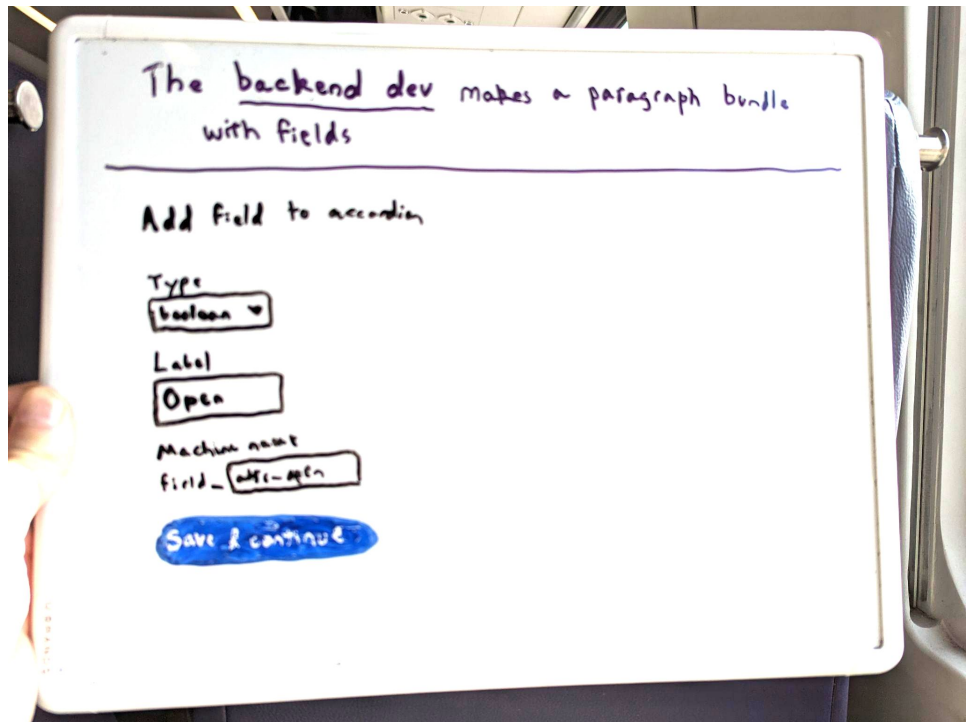
Raise your hand if you think it is, or voice your opinion

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Rarely can you ship a Figma board, so maybe the notion that this is technically a component doesn't get us very far. But we've got a Yes

Prime opportunity to reuse field_title and field_body



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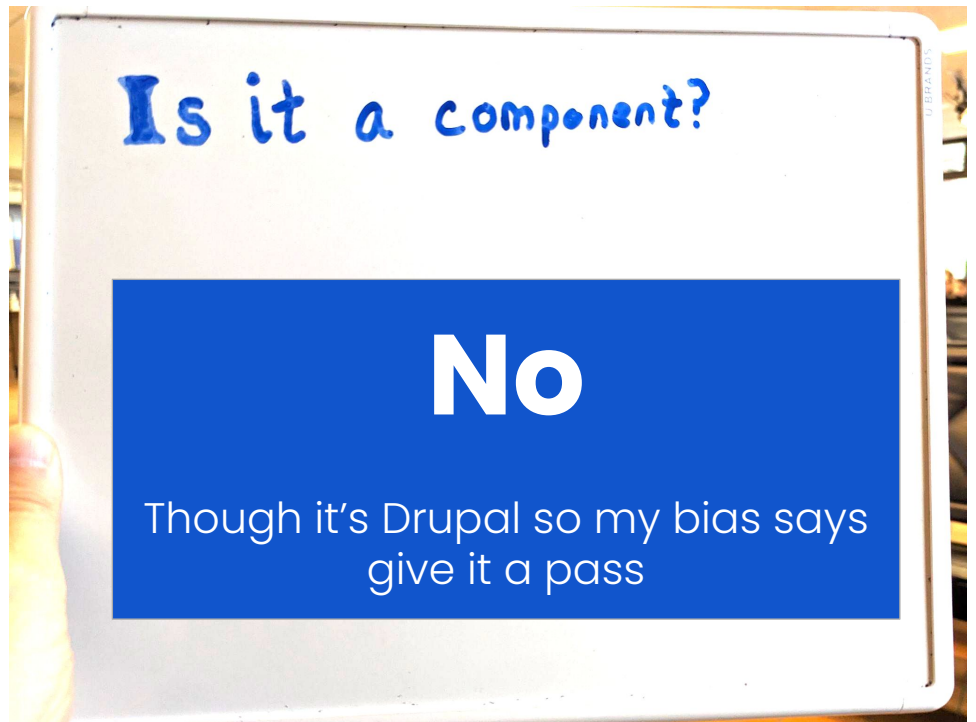
In parallel with the designs, the backend dev does the site-building portion of the buildout.

For the sake of this example the components are built using Paragraphs, with accordion being a bundle with fields specified in the refined story.

Other alternatives are block entity types or custom block classes for Drupal Layout Builder, or other entities or config schema to map the necessary data.

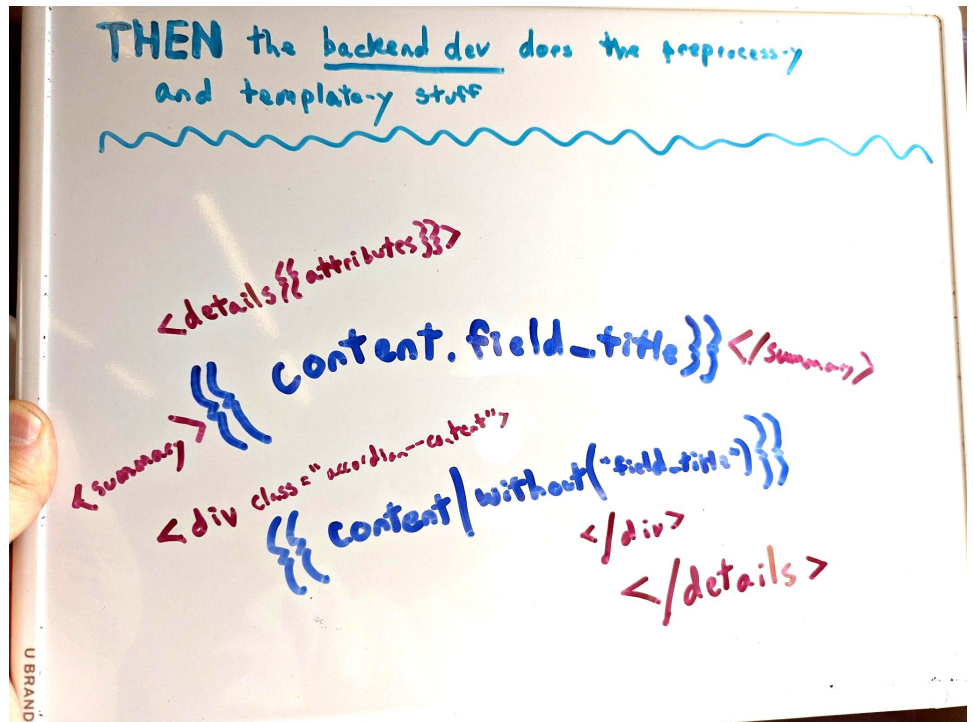
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At least at this point the Paragraph doesn't look like the mock-up or show and hide the expanded detail text. It's part of a larger whole, sure, but it's in rough shape at this point

This is either front-of-the-back-end or back-of-the-front-end



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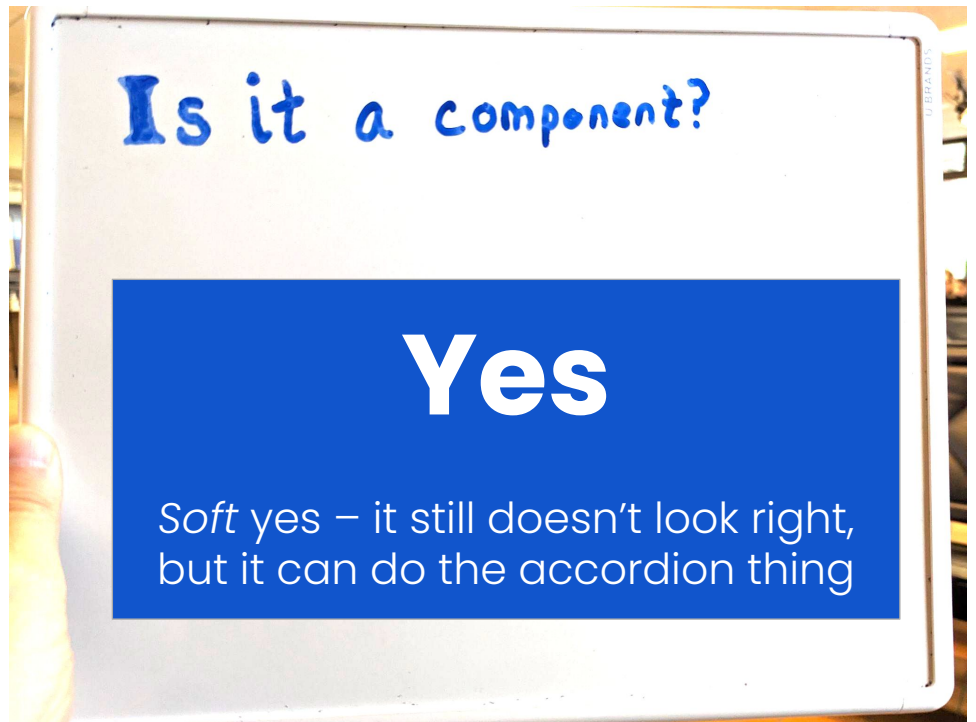
Whether using preprocess functions, twig templates, both, or other approaches, a developer tells Drupal that the open attribute goes in the details tag and the title is wrapped in a summary tag.

This templating leads the paragraph to have appropriate HTML markup for the application.

Sometimes templating includes splitting out the entity from the concept, but for simplicity this just shows some twig for the markup.

Raise your hand if you think it is, or voice your opinion

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Sight unseen, we know there's progress.

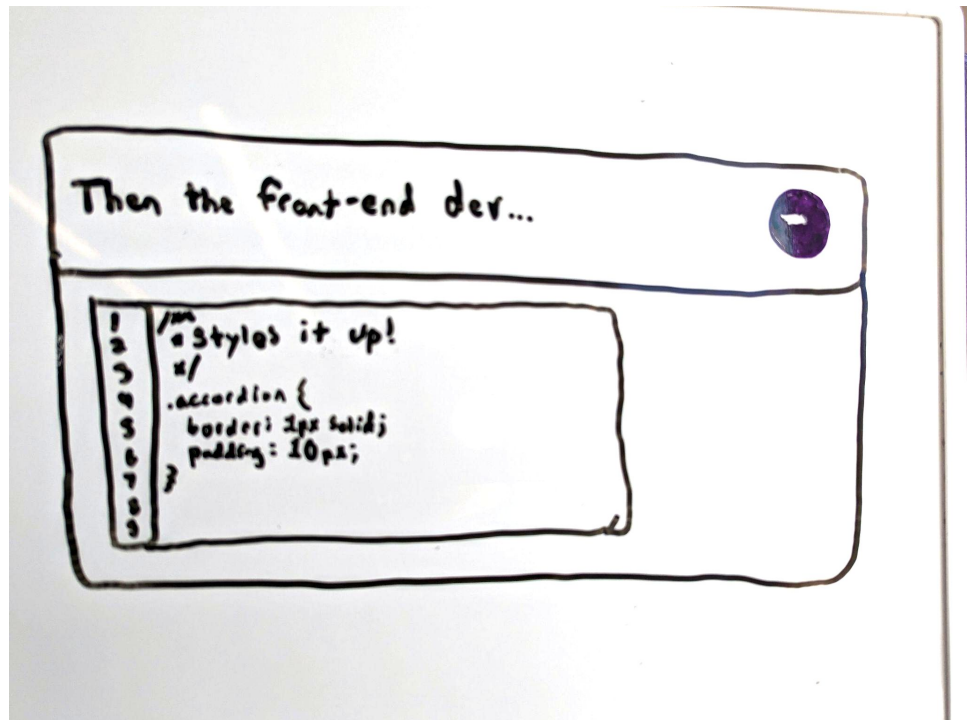
Using a `<details>` tag with a valid `<summary>` gives something that works like an accordion item, even if it doesn't look like the designs or completely match the Jira spec.

This is the first time we have something in code that's *component-ish*

Today's
mantra...

:focus-within

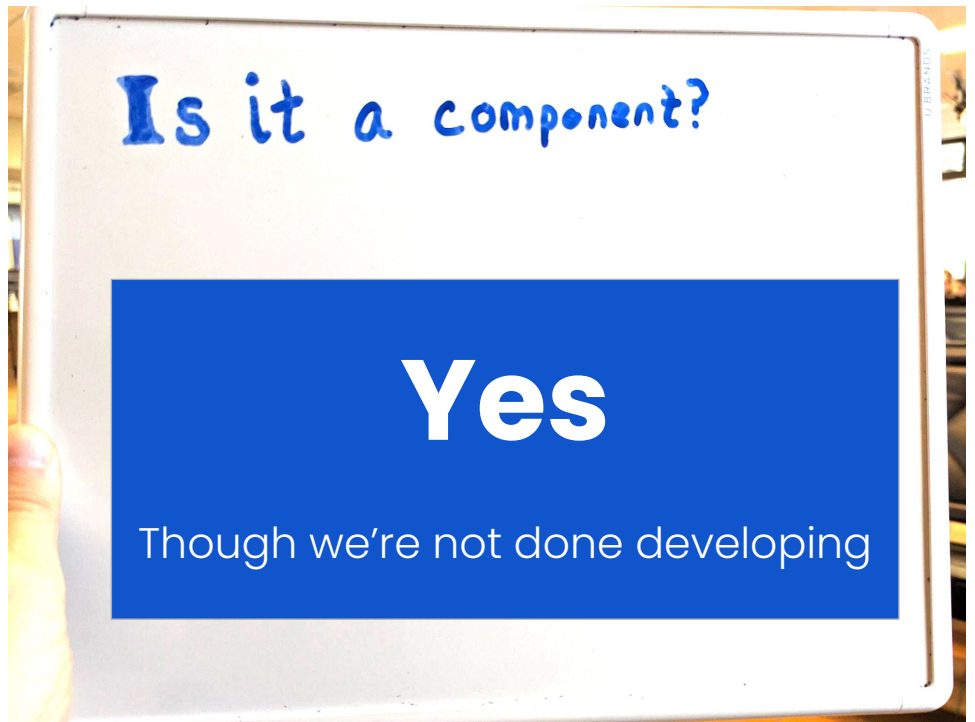
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A front-end specialist makes the markup look like the mockup. Sometimes this step feels like magic

Raise your hand if you think it is, or voice your opinion

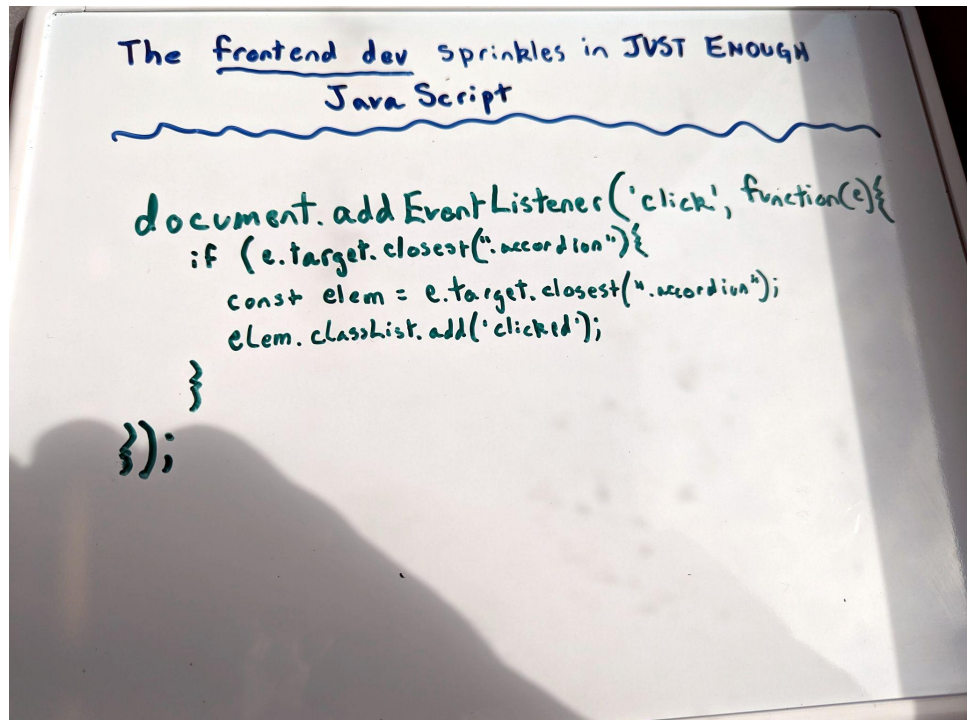
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At this point, the accordion has a Paragraphs bundle with the fields it needs so it stands alone but is part of the overall system, it looks and works how most users expect, but it's not entirely polished.

**console.log(
"Slide
initialized");**

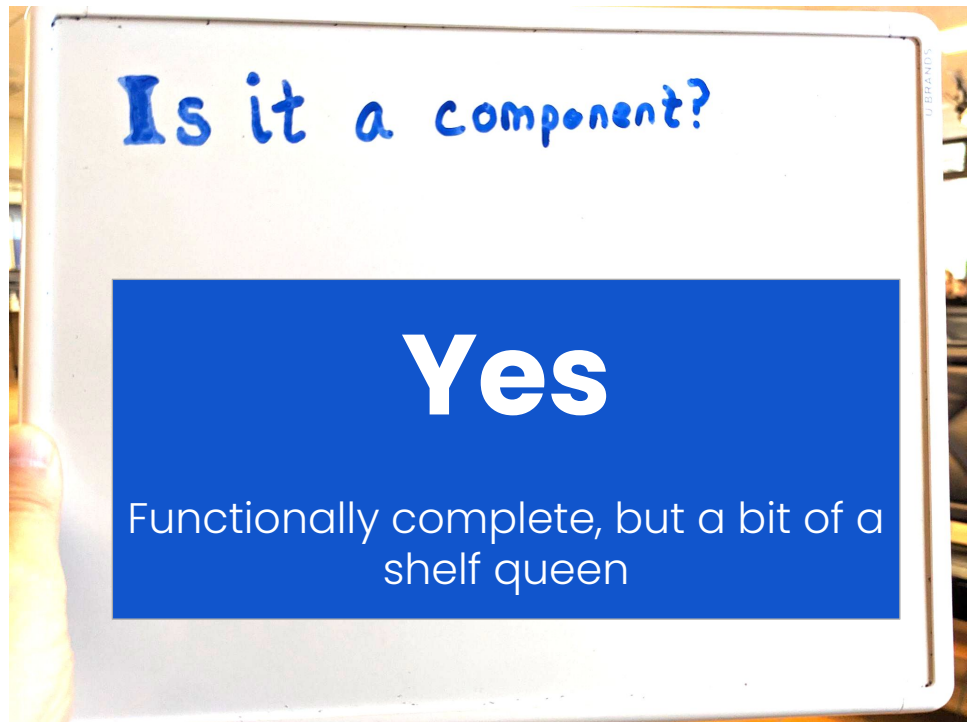
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Maybe this component doesn't need any JavaScript to work, since <details> is doing the heavy lifting, but the frontend developer is a real pro, and the Jira story said to set up some JS just in case.

Raise your hand if you think it is, or voice your opinion

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At this point the story can likely go to testing to get closed out this sprint.

It's very much a component in the sense that it's a functional part of the system, but it isn't being used so it feels just a bit aimless

Shift them onto
your
cross-functional
team!

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The Technical Writer thoroughly documents the accordion

Values

Name	type	required	description	example
title	slot	yes	brief text	@: what is love?
Open	attribute	no	boolean slot slot	true
children	slot	yes	long text	why do it but no data less info the more.
class	attribute	no	modifier strings	accordion-ble

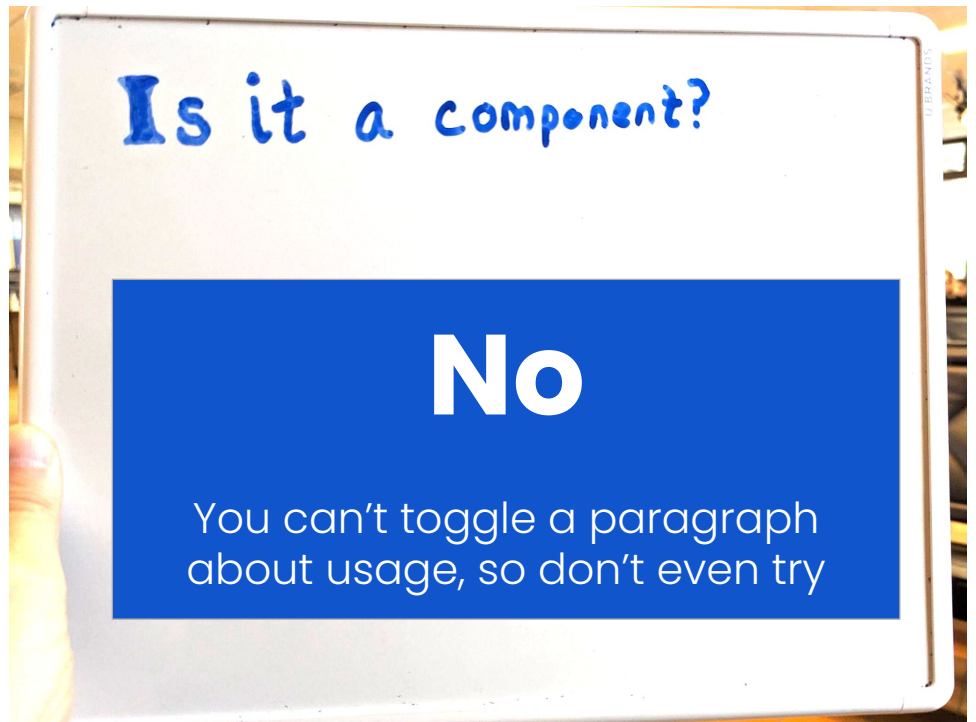
We have to train people and memorialize the work.

There's a lot to say about even one accordion component within a whole design system, so let's commit it to paper.

At this point in the sprint we're also doing QA, checking accessibility, writing automated tests, and other good code hygiene, though the documentation angle is the most visible in the process.

Raise your hand if you think it is, or voice your opinion

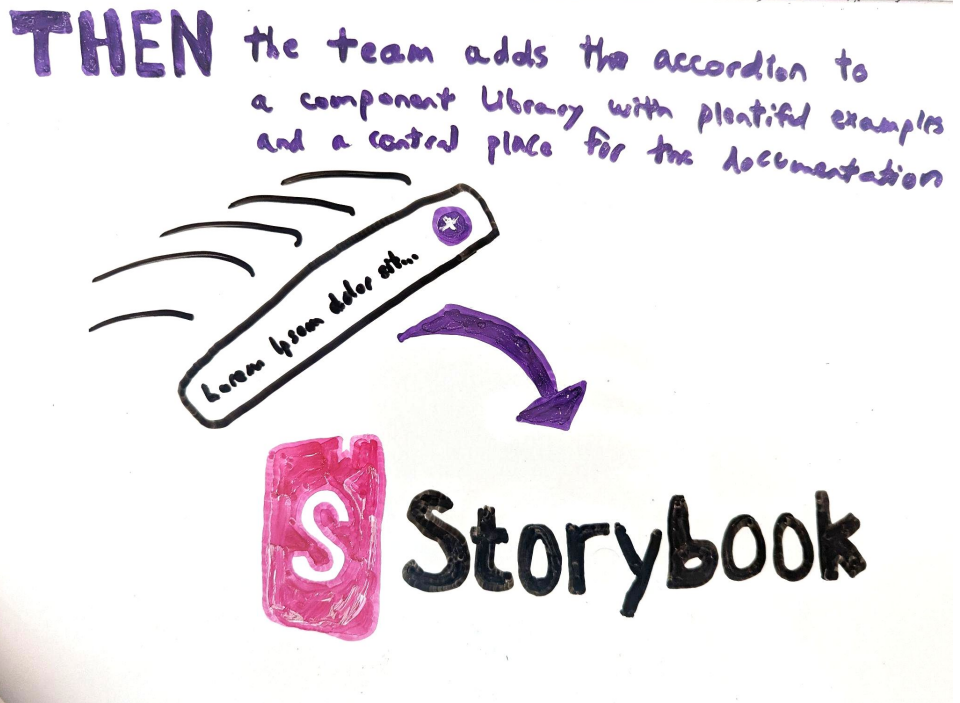
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The documentation about a component is a part of the whole of documentation, so you could make the case that the documentation for the accordion is a component of the overall documentation.

However, this isn't typically what we mean by 'component' in the context of web.

A one-stop shop for your design system



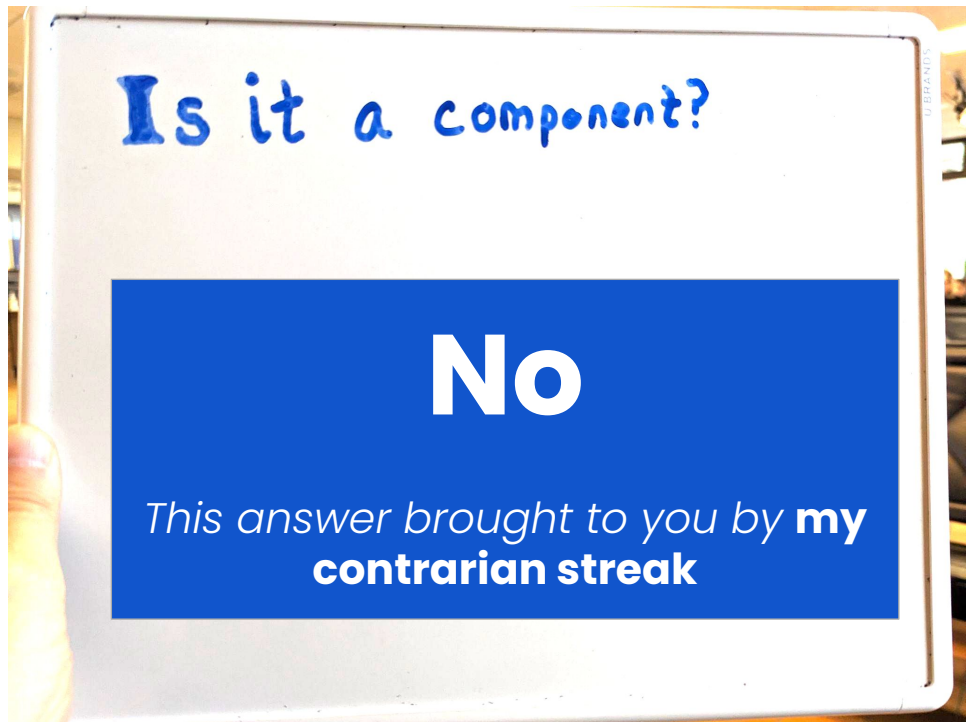
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Storybook, pattern lab, and other tools serve a useful purpose, but they also *feel* like something you should do when working with components.

They're a place to show examples of components, give source code for implementation, document the options for using components (sometimes interactively), and in many cases provide more documentation about usage, accessibility, and other adjacent topics.

Raise your hand if you think it is, or voice your opinion

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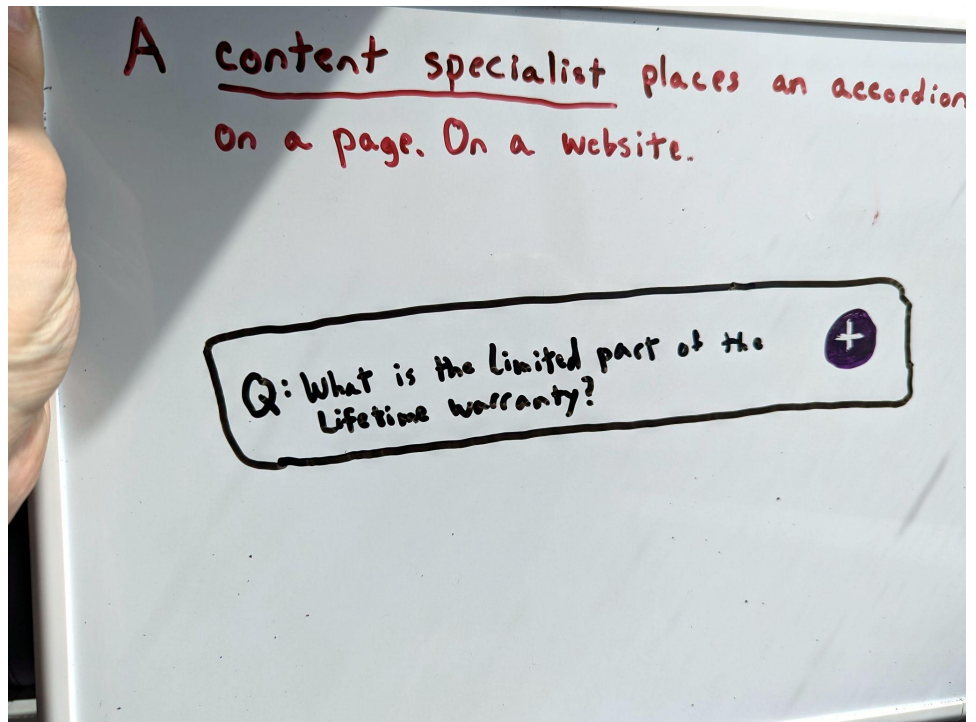
Sure, if the fully-coded accordion is a component and storybook contains the fully-coded component at least once, then of course it's a component. But I just said the documentation isn't a component and a decent chunk of each component page is documentation, so there's that.

Maybe my strongest argument here is that you can have one or more components in your toolbox and skip the design library step and still be using components.

This step feels component-y, but is not a gate that must be kept.

If an accordion exists but nobody places it on a page, does it make a sound?

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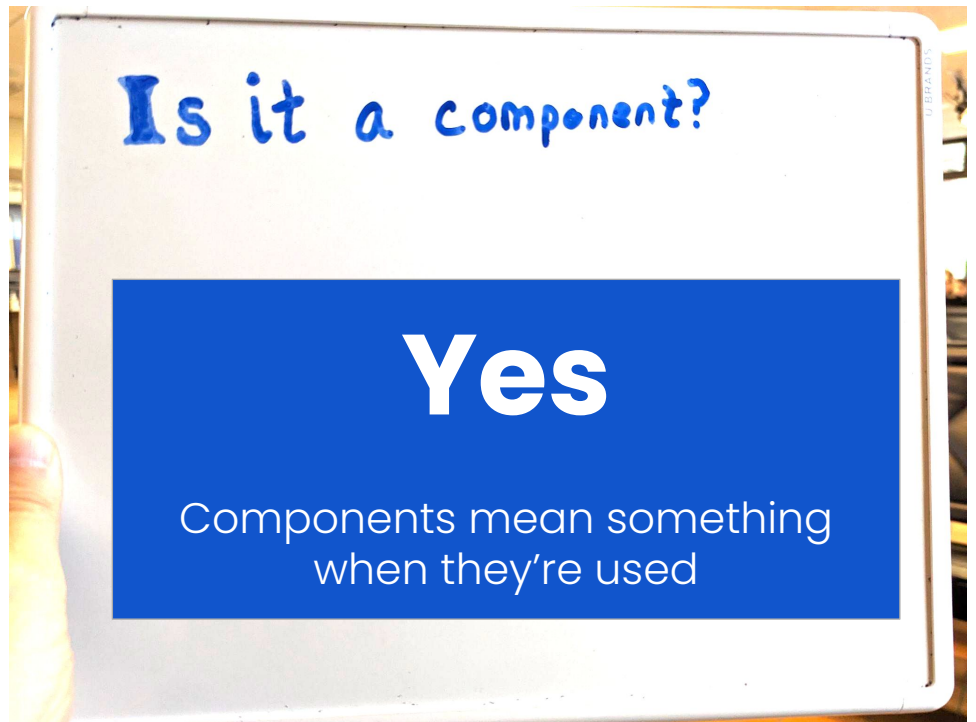


Finally, the day comes when an accordion is needed, and it happens to be on an FAQ page.

There's an accordion placed on the site, and not just for testing.

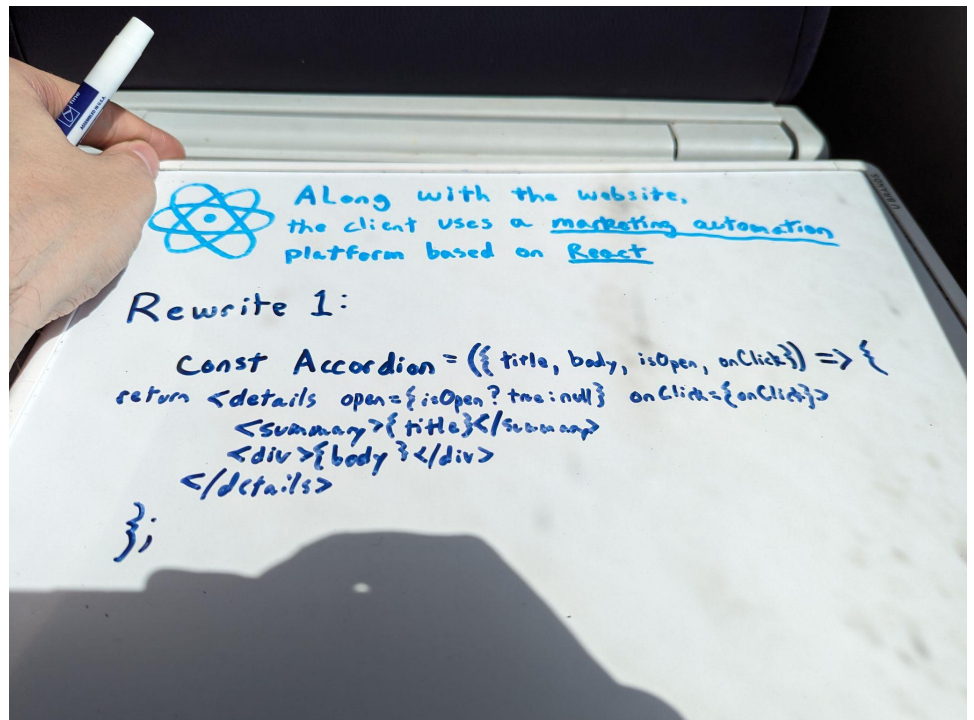
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This feels like the accordion frolicking in the sunshine: the component has a purpose now, which *feels* necessary even if it's not a definitional requirement for a component in a web context

Mad props



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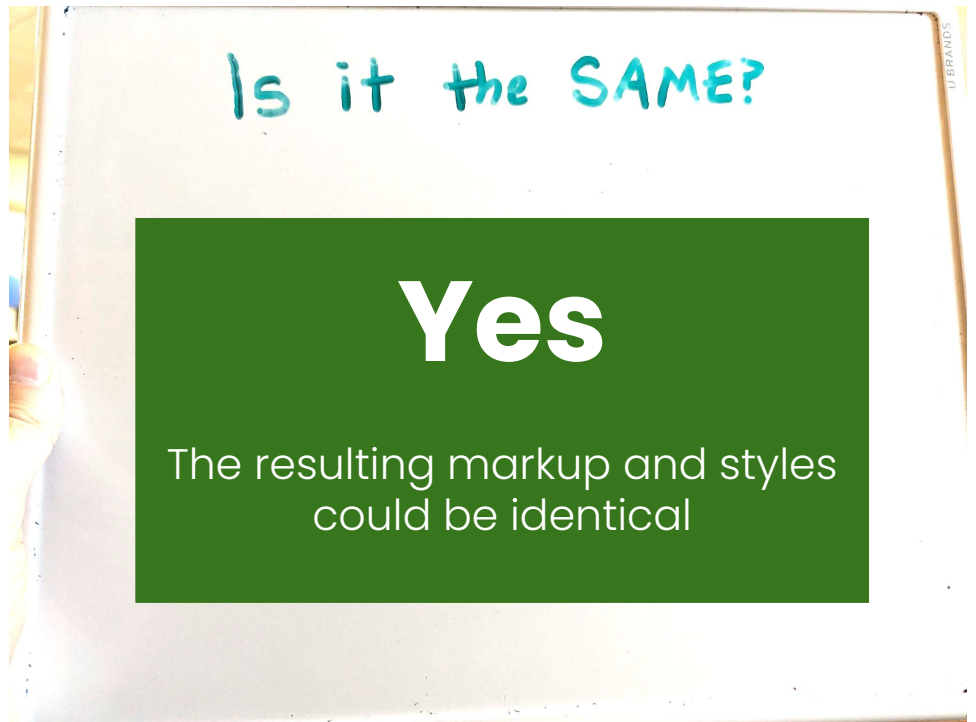
Sometimes you have to rewrite code you've already written, albeit in another dialect.

You can see in the brief example that it's a flavor of JavaScript called an arrow function, with the return value being JSX, the component name starts with an uppercase letter, and the HTML it returns looks a lot like the twig example from before.

A distinction I'd like to highlight now that will become more important later is that React is an **abstraction layer** in that you can use an accordion and pass it props, but you don't see that in the HTML source – you see the HTML code from the return statement. That `<details>` tag prints to the page.

Raise your hand if you think it is, or voice your opinion

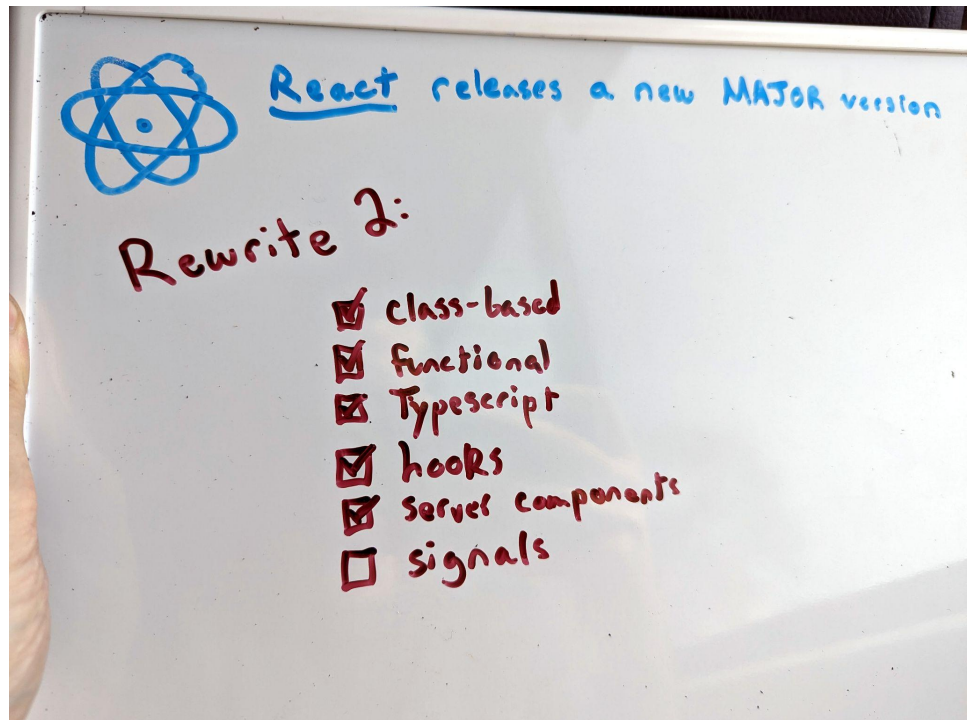
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We're back from commercial break and starting round two: IS IT THE SAME?

Since the component is an abstraction layer and the `<details>` tag prints to the screen, the browser and users can see the React component as identical to the earlier twig one.

An ounce of prevention

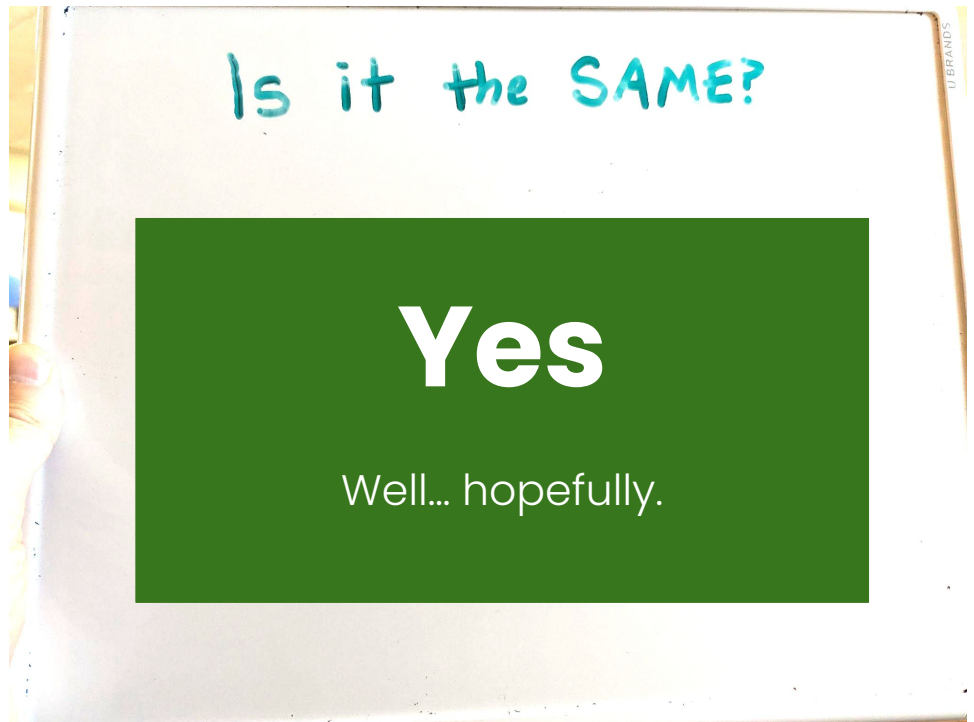


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Every fifteen to twenty minutes, the React project releases a new major version that requires a partial rewrite of your code. It's never quick and easy, but it's also not painful enough to rage quit React altogether – so a nice little balance.

Raise your hand if you think it is, or voice your opinion

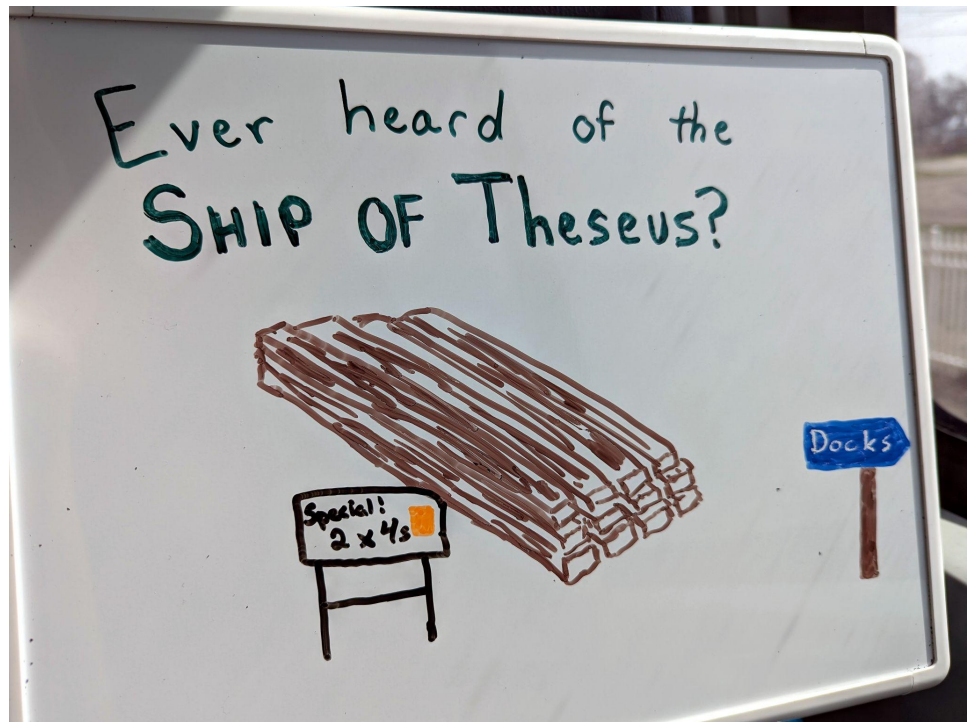
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As long as the rewrite doesn't cause regressions or other defects, the resulting component should be the same as the previous component which was the same as the one before that.

**Devs: for
rock-hard
abs, do
planks
between
rewrites**

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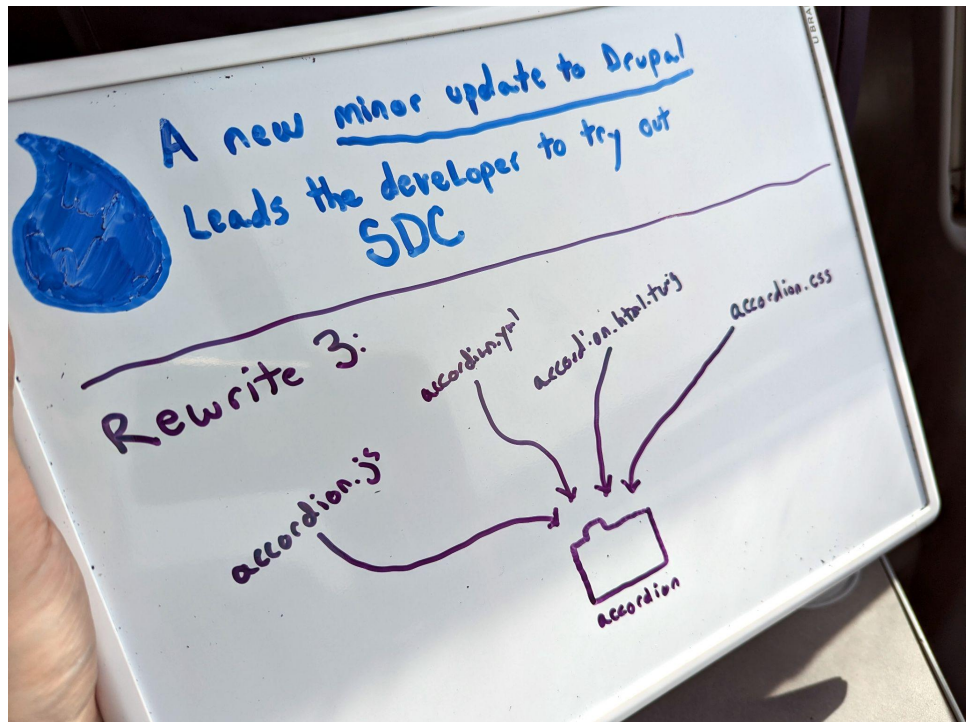
Let's say a ship leaves port for a long journey. Along the way some wooden boards break and the sailors repair the ship.

The ship is away at sea for so long that eventually every board and plank and mast has been replaced.

When it returns to its home port, is it the same ship as when it departed?

Not sure why that came to mind...

Single Directory Components FTW



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If you already have a component in the sense of a part of a whole of the system, and that part has styles and javascript like our accordion example, it should be pretty straightforward to adapt it into a Single Directory Component.

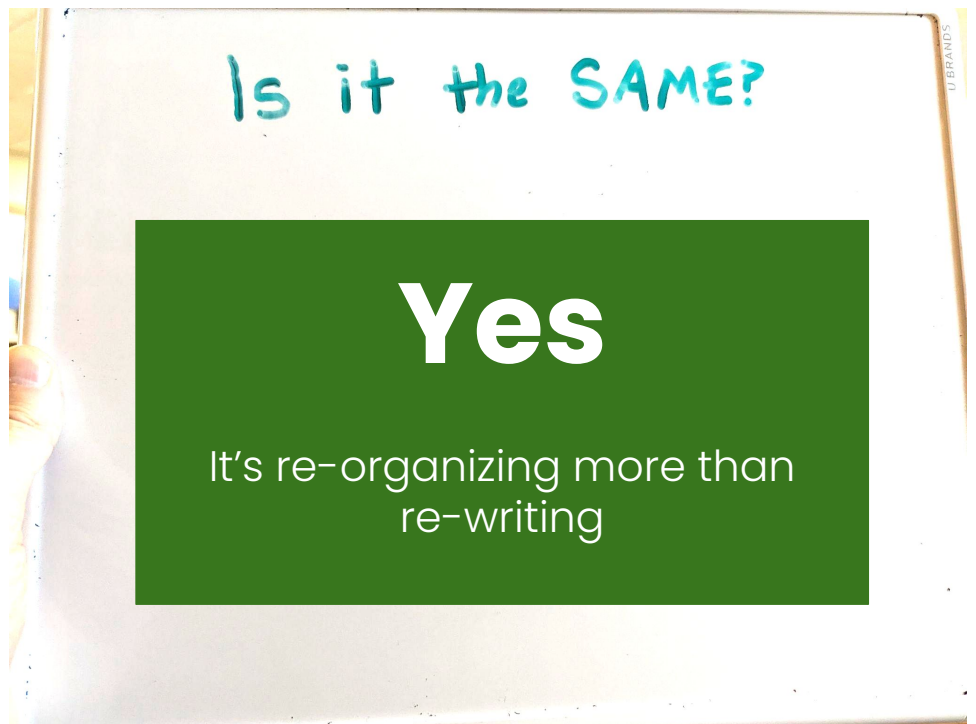
The directory may need a component yaml file that define many of the slots and properties defined and documented earlier, which is new.

And the accordion might stand alone as its own thing, needing to be called separately from within the accordion Paragraphs twig template outside the single directory.

But overall this is an interesting exercise in encapsulation.

Raise your hand if you think it is, or voice your opinion

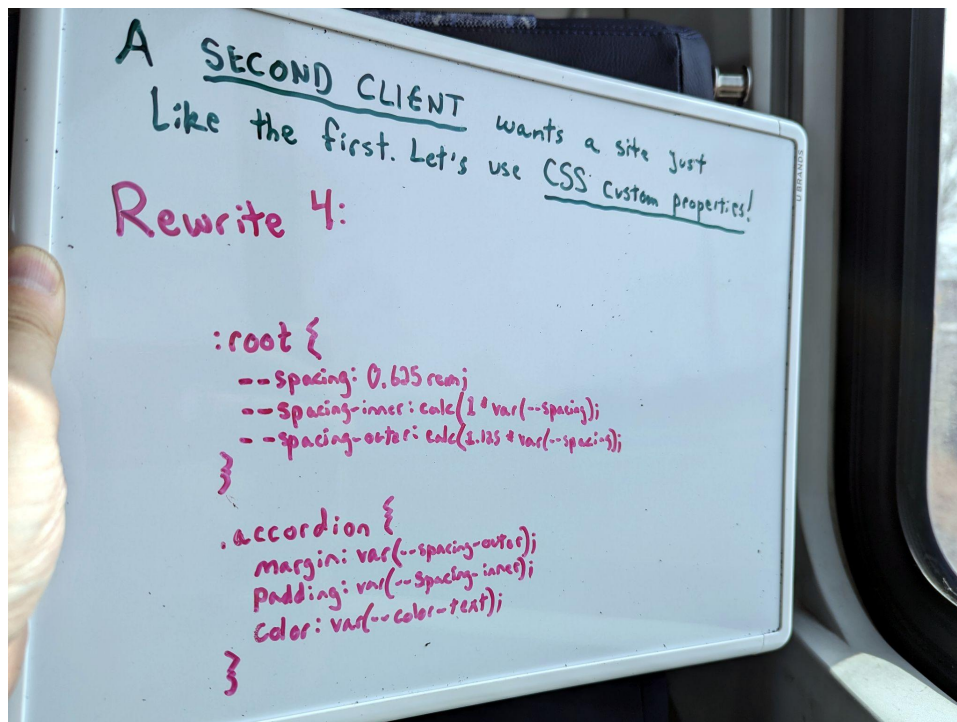
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We're moving files around and changing some formats, but the accordion looks and works the same as it did before, so that checks out.

Confession: I get paid by the hyphen

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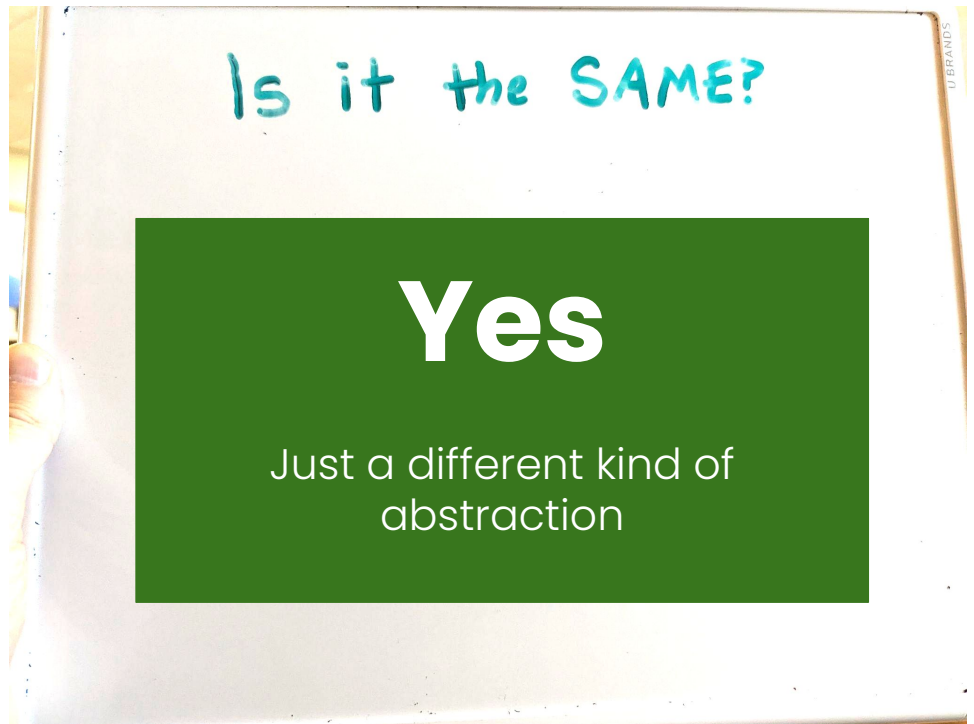
CSS custom properties, also known as CSS variables, let you define things like brand colors one time, then refer to them everywhere else in your styling code.

This allows you to set up maybe 10 variables in one file and drastically rebrand an entire design system.

This is a wonderful thing for reuse of components and themes.

Raise your hand if you think it is, or voice your opinion

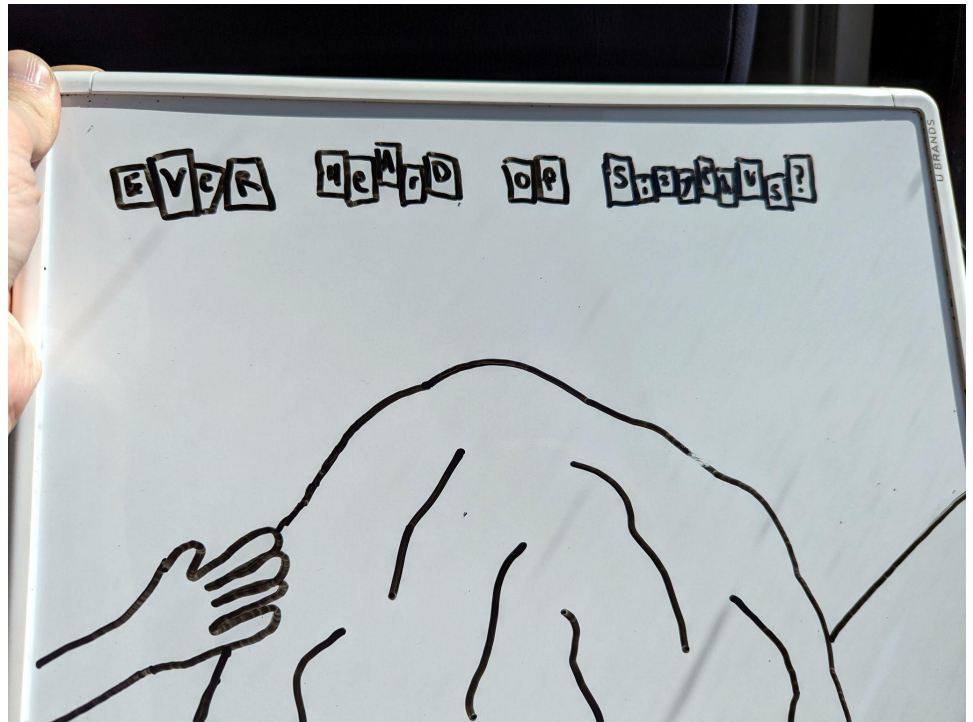
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Even with deeply-nested variables, the original values that define how the accordion is styled still come through in the end, so it looks and works the same still.

I'm doomed
to remind
people of
Sisyphus
over and
over

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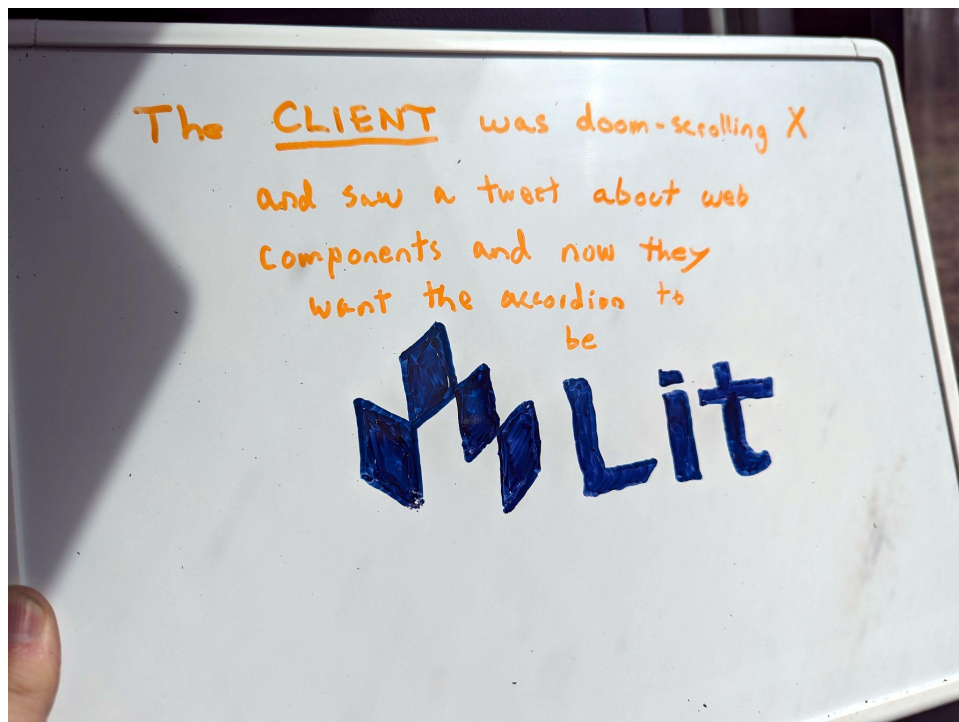


In Greek mythology, Sisyphus was a mean king whom the gods punished by forcing him to push a boulder up a hill for eternity. Every time he got close to the top the boulder would roll back down the hill and he'd have to start all over again.

Why do old Greek myths keep popping in my head?

60 slides in, the component talk mentions web components

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Web components are the new hotness and a browser-supported web standard.

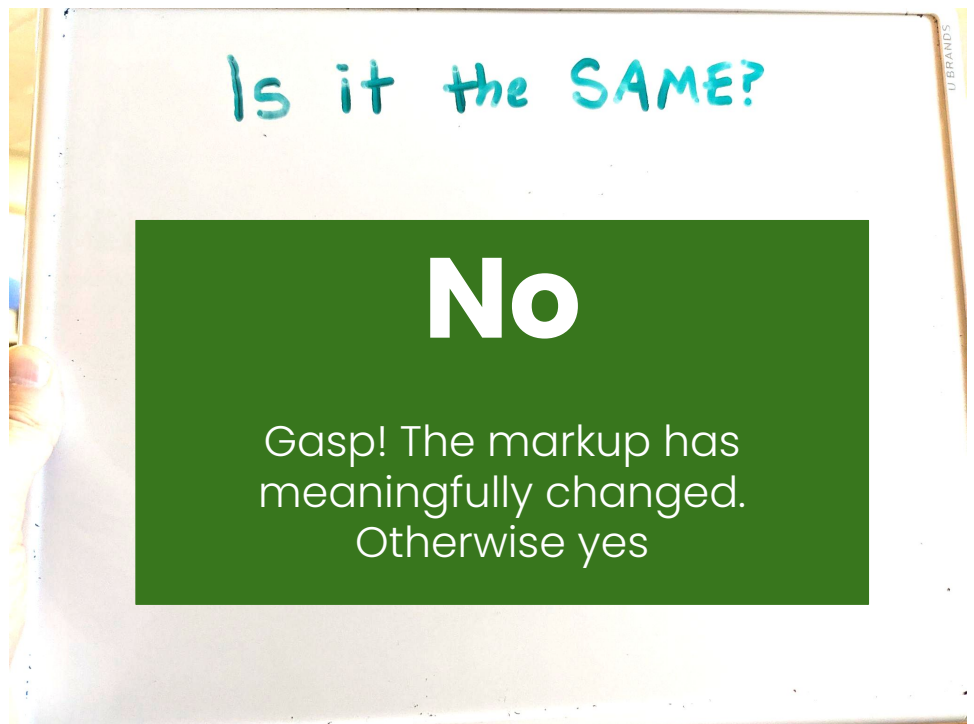
They're great for at least two things:

1. If you're defining a component that isn't covered by an existing HTML tag or simple combination of tags, like a copy-all button, multi-select, responsive table, or video aspect-ratio wrapper
2. If you have a large 'Enterprise' organization with sophisticated design needs, a big team with a large budget, and a need to ensure compliance with a design system, everything can become a web component!

Since web components are less prone to accidental bad styling than regular HTML markup, they're great for controlling the experience within them.

Raise your hand if you think it is, or voice your opinion

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At the very least there's a new tag wrapping the accordion.

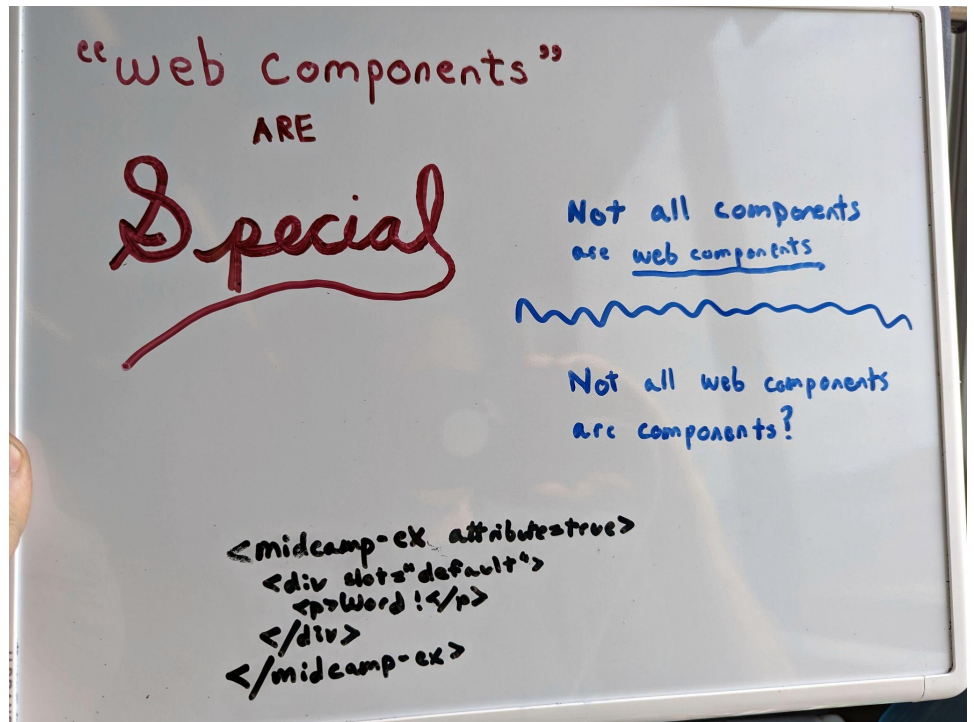
Remember how the React component was an **abstraction** that still prints the same HTML? With web components the abstraction part doesn't disappear – it just stays there wrapping the markup inside.

Kind of.

I'd be fine if you see this as a distinction without a difference. I've gotta get in my controversies somewhere!

Custom elements with browser support and fanciness

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What is a web component?

If you use that exact phrase, as opposed to just the word 'component' in the context of the web, you're talking about something specific, as seen in action on the bottom of the slide.

The HTML web standard now includes "custom elements", which is a way to name your own HTML tags. The main rule is the tag name has to include a hyphen – otherwise it's just invalid markup.

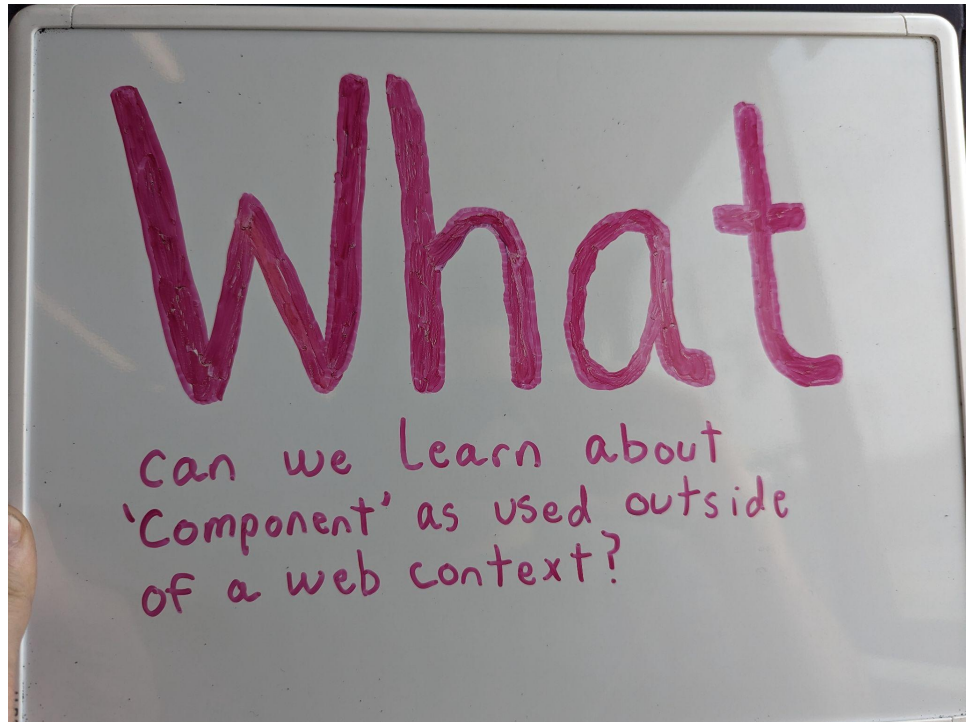
Along with the tag naming scheme for custom elements, web components also include:

- Registering the new tag using some JavaScript
- A way to template the insides of the component and put the reusable markup in something called the Shadow DOM. This is where Barb from Stranger Things is
- A special barrier where the regular DOM ends and the Shadow DOM begins for styling and some scripting that only certain rules can cross.

- CSS variables are allowed to pass through, but those random styles from 3 sprints ago that have infected the rest of the site can't affect the component's insides
- A consistent way to pass information into the component. Simple values can be included in attributes (also known as props), while markup can be put inside the tag with 'slots'

**That's your
cue: please
tell us where
you've
heard the
word used**

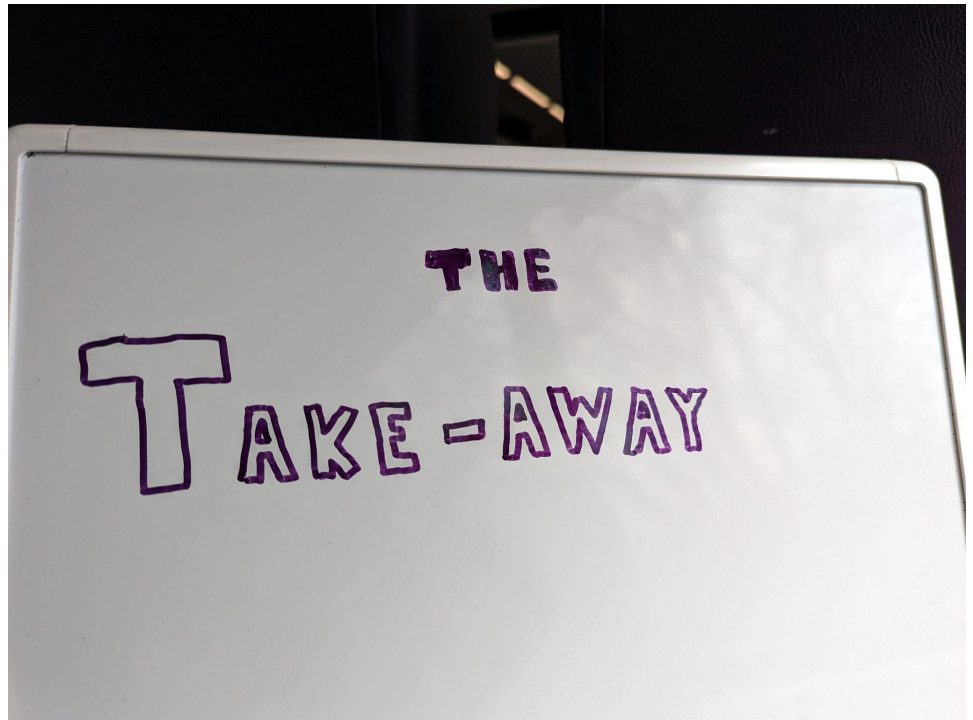
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What else can we learn about components on the web, just from how the word 'component' is used in the real world?

Do we know
what is and
isn't a
component?

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I set out on this journey because a few years back I was on a project and another developer wanted to do everything in React. I wasn't a fan of that idea and wanted to justify my position.

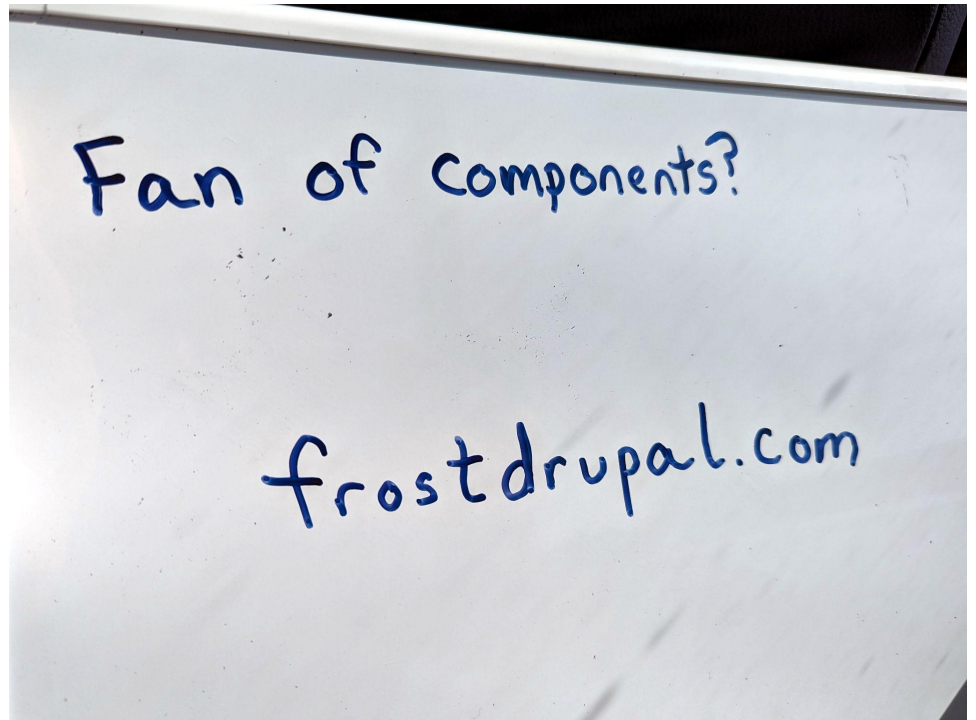
Eventually, instead of making a slideshow of weird doodles I ended up voting with my feet. They're probably still making unnecessary React pages to this day.

If plain old HTML and CSS are functionally equivalent to a React component, then in my mind there's nothing wrong using old-fashioned markup alongside the trendy technology this season.

Of course, there's a benefit – an Economy of Scale – to having everybody on the team doing things the same way, and that's a big reason for making component libraries and design systems in the first place. So take my sincere desire to use classic HTML with a grain of salt, since your mileage may vary.

Along this journey I came up with a few other controversial opinions mostly to confound your expectations. Hopefully now we have a greater appreciation for the world of components, even if we disagree even more than when we started.

Shameless plug



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You won't find single directory components, web components, React, Storybook, or Layout Builder at that address, but you will find an aggressively component-based starter kit with solid bones and time-saving tricks.

THANK YOU, QUESTIONS?

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**Bonus art
from Ellie**

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CONTRIBUTION DAY

Friday 10am to 4pm

You don't have to know code to give back!

New Contributor training 9am to 10am
with **Matthew Radcliffe** of Kosada

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