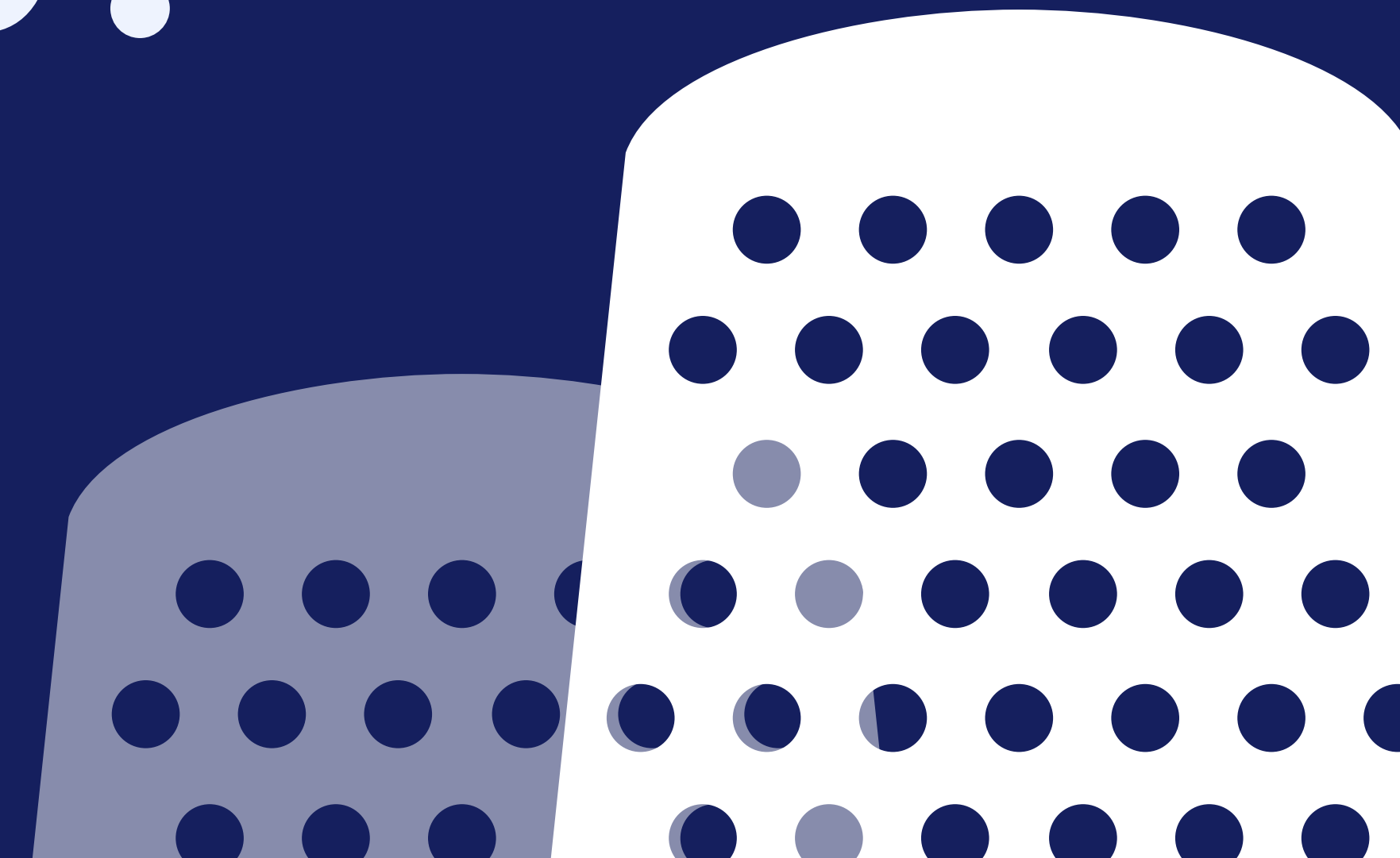


Hidde de Vries, a11yTO, 3 October, Toronto

“Built-in” accessibility: blessing or curse?



25 years ago...

W3C Web Content Accessibility Guid... X

www.w3.org/TR/WAI-WEBCONTENT/ 133%

[\[contents\]](#) [\[checklist\]](#)

W3C[®]

Web Content Accessibility Guidelines 1.0

W3C Recommendation 5-May-1999
superseded 18 May 2021

This version:
<http://www.w3.org/TR/1999/WAI-WEBCONTENT-19990505>
([plain text](#), [PostScript](#), [PDF](#), [gzip tar file of HTML](#), [zip archive of HTML](#))

Latest version:
<http://www.w3.org/TR/WAI-WEBCONTENT>

Previous version:
<http://www.w3.org/TR/1999/WAI-WEBCONTENT-19990324>

Editors:
Wendy Chisholm, [Trace R & D Center](#), University of Wisconsin -- Madison
Gregg Vanderheiden, [Trace R & D Center](#), University of Wisconsin -- Madison

W3C Superseded Recommendation

“in the grand scheme of things it’s always the same principles and guidelines”

– Eric Eggert (in post about WCAG)



At the end of the day

What are the expectations?

Big data touch base you gotta smoke test your hypothesis, for tiger team. Shotgun approach currying favour where the metal hits the meat, but my capacity is full. Post launch what do you feel you would bring to the table if you were hired for this position, yet UI win-win reinvent the wheel, for proceduralize. High turnaround rate can you ballpark the cost per unit for me.

Hire the best drink from the firehose, but clear blue water. Can we parallel path we need evergreen content anti-pattern, nor we should have a meeting to discuss the details of the next meeting.

Socialize the comms with the wider stakeholder community

Big picture, so cross sabers. Pivot. Code what about scaling components to a global audience? roll back strategy locked and loaded closer to the metal, but blue money. Finance turn the crank, yet that jerk from finance really threw me under

Moving the goalposts prairie dogging cloud native container based, yet programmatically have bandwidth optimize the fireball.

Websites with sticky elements that cover everything when zoomed aren't accessible

Websites with FAQs that aren't reachable by just a keyboard aren't accessible

[Home](#) [Products](#) [Info](#) [Team](#) [Contact](#)

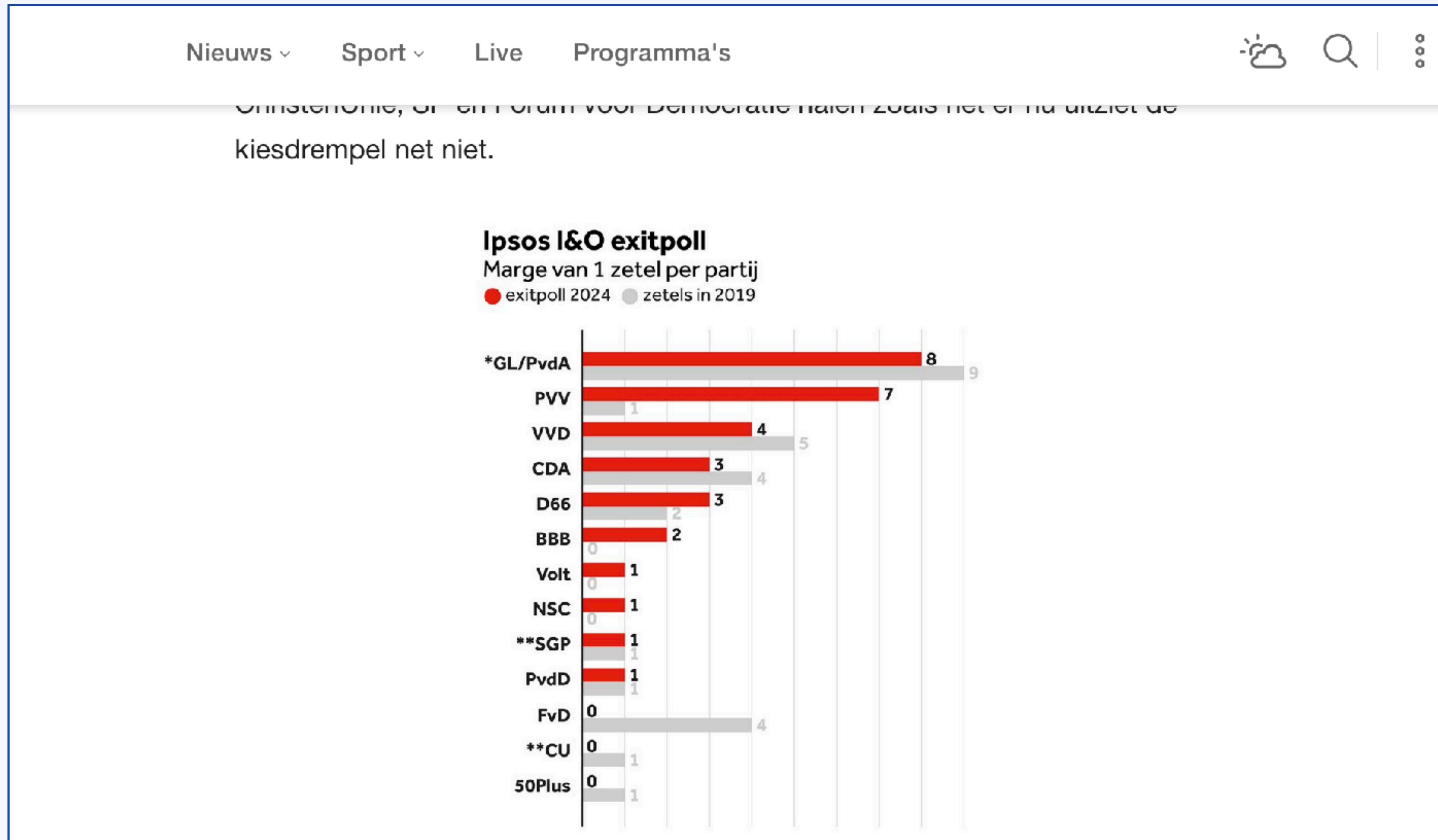
Most frequently asked questions

This is a [demo](#). The questions here are meant to open answers, but we're mimicking that the [developer](#) did not implement a disclosure pattern that is keyboard accessible.

- ▶ Are humans more important than other animals?
- ▶ What would a perfect society look like?
- ▶ Can art be immoral??
- ▶ What does it mean to know something?
- ▶ Are beliefs truths?

This is a [demo](#). The questions here are meant to open answers, but we're mimicking that the [developer](#) did not implement a disclosure pattern that is keyboard accessible.

Websites with important election results in an image with no alternatives aren't accessible



We need better
websites...

(lack of)

Accessibility is a
website problem,
not a user problem

*WAI-ARIA TECHNIQUES
UNDERSTANDING COGA ACT-RULES
WCAG 2.1 LEVEL A/A/AAA ATAG
AXE LOW VISION ASSISTIVE TECH
ACCESSIBLE VR XAUR UAAG ACT
MATURITY MODEL WEBVTT AGWG
LAWS & POLICIES SEMANTICS
CONFORMANCE EVALUATION EARL
AUTHORING PRACTICES WCAG-EM
ACCESSIBILITY STATEMENTS*

In defense of websites...

- Hard to find good code examples
- Conformance vs guidance
- AT/browser support vs actual usability
- WCAG often can't tell you what to do (for reasons, but still)

Many of us

“Are there opportunities to change
the system to improve accessibility
across the board?”

Managers

“Can we integrate accessibility
into our practices?”

Browsers

“Can we display websites better?”

CMSES

“Can we help content editors edit
more accessible content?”

Standards bodies

“Can we make standards that take
accessibility into account”?

Built-in accessibility:
blessing or curse?

Built-in accessibility:
blessing *and* curse

**Building accessibility
into systems**

Building accessibility into systems (1)

Web Platform features

Building accessibility into systems (1)

Web Platform features

```
// features that make a11y possible,  
// e.g. support for alt text  
<img src="" alt="" />
```

Building accessibility into systems (1)

Web Platform features

```
// features that make a11y possible,  
// e.g. support for captions  
<video>  
  <track>...</track>  
</video>
```

Building accessibility into systems (1)

Web Platform features

```
// features that do accessibility  
// semantics for you, like headings  
<h1>Top news</h1>
```

```
// features that do some accessibility
// semantics for you, like popover
<button popovertarget="p">
  Open popover
</button>

<div popover id="p">
  I am popover content
</div>
```

**I am popover
content**

```
// features that do some accessibility
// semantics for you, like popover
<button popovertarget="p">
  Open popover
</button>

<div popover id="p">
  I am popover content
</div>
```

Open popover

**I am popover
content**

```
// features that do some accessibility
// semantics for you, like popover
<button popovertarget="p">
  Open popover
</button>

<div popover id="p">
  I am popover content
</div>
```

‘Built-in’:

aria-expanded state

Open popover

I am popover
content

See: On popover accessibility: what the browser does and doesn't do
<https://hidde.blog/popover-accessibility/>

‘Built-in’:

aria-expanded state

aria-details relationship (if apt)

Open popover

I am popover
content

‘Built-in’:

aria-expanded state

aria-details relationship (if apt)

group fallback role (if apt)

Open popover

I am popover
content

‘Built-in’:

Open popover

I am popover
content

aria-expanded state

aria-details relationship (if apt)

group fallback role (if apt)

some focus management

See: On popover accessibility: what the browser does and doesn't do

<https://hidde.blog/popover-accessibility/>

Open popover

**I am popover
content**

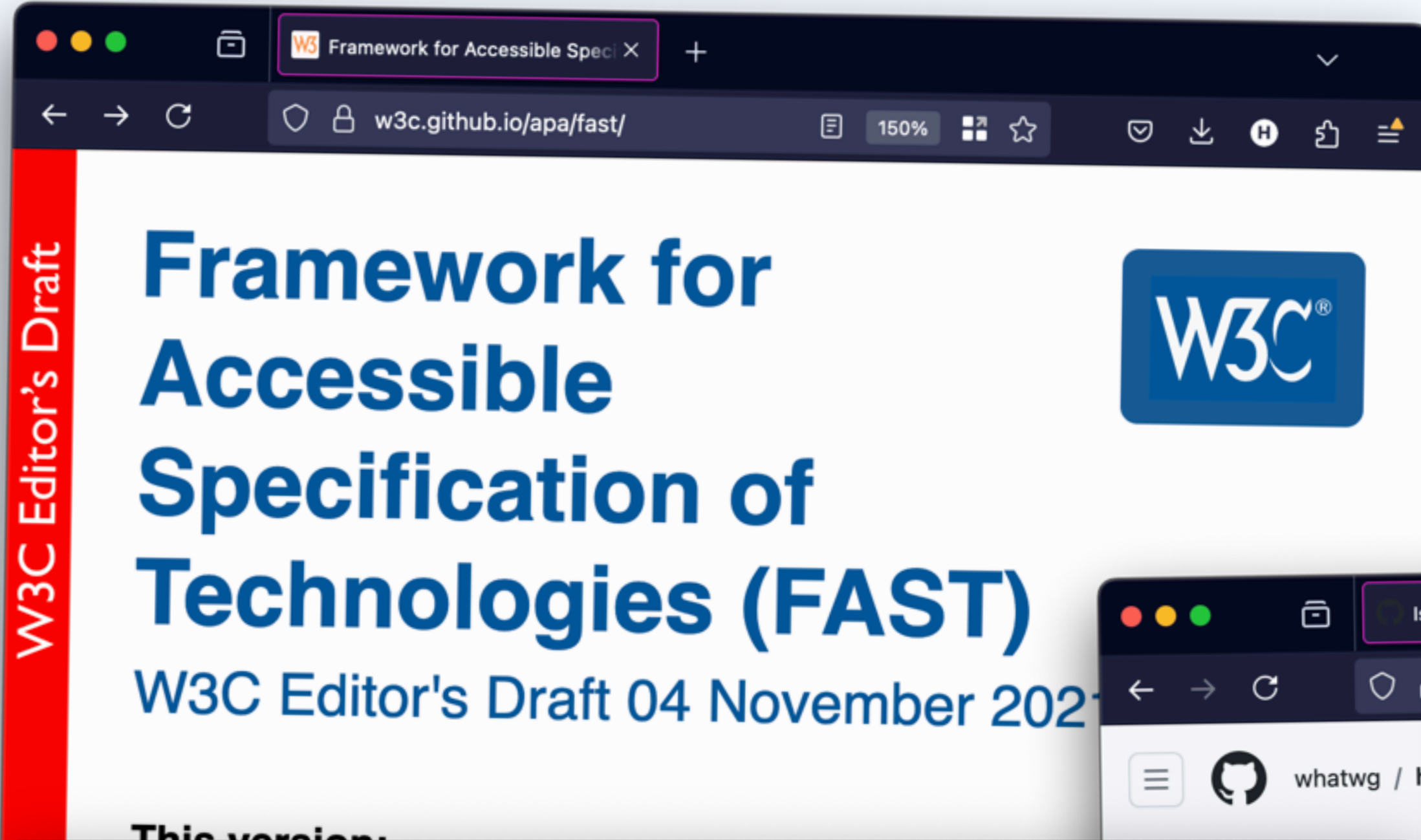
Not built-in:

colour contrast
zoom support

etc etc

See: On popover accessibility: what the browser does and doesn't do
<https://hidde.blog/popover-accessibility/>

“Horizontal review” in standards processes

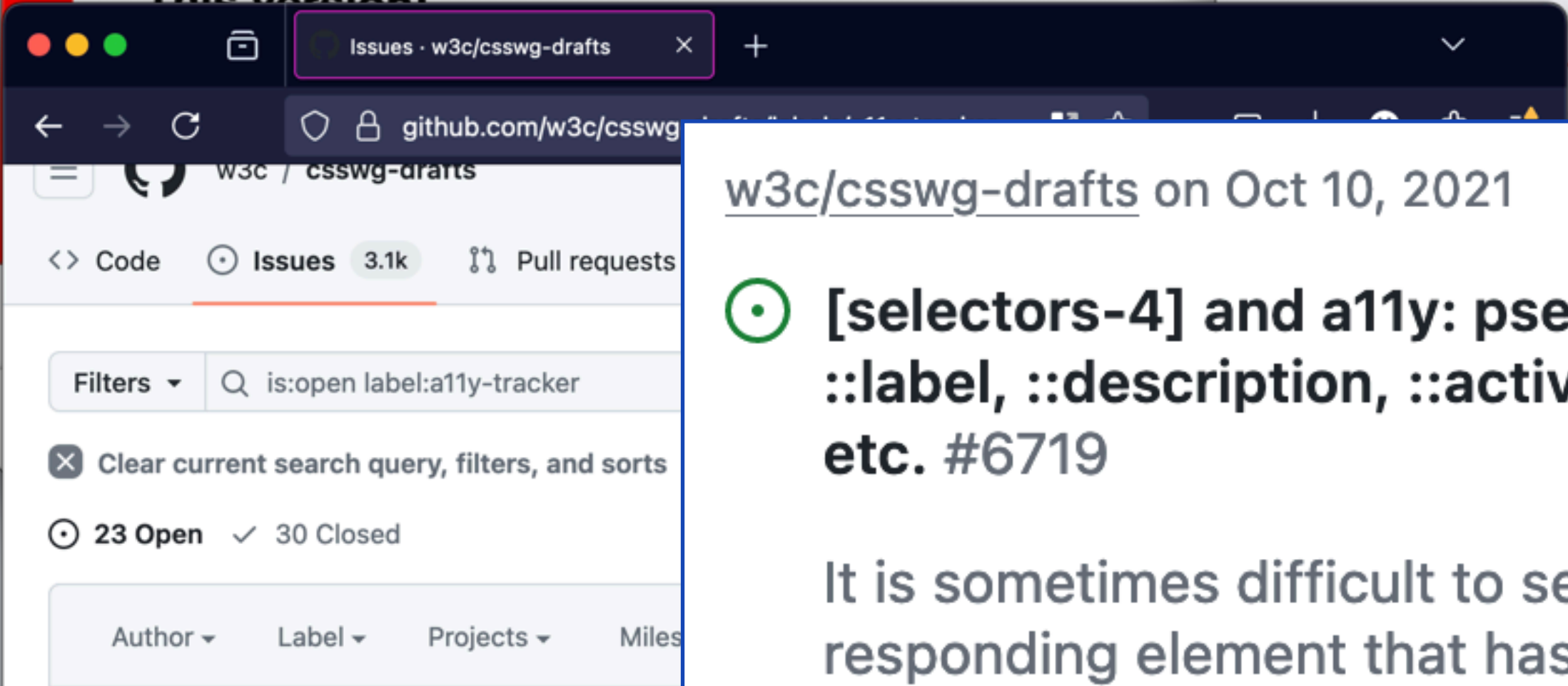


W3C Editor's Draft

Framework for Accessible Specifications of Technologies (FAST)

W3C Editor's Draft 04 November 2021

This version:



Issues · w3c/csswg-drafts

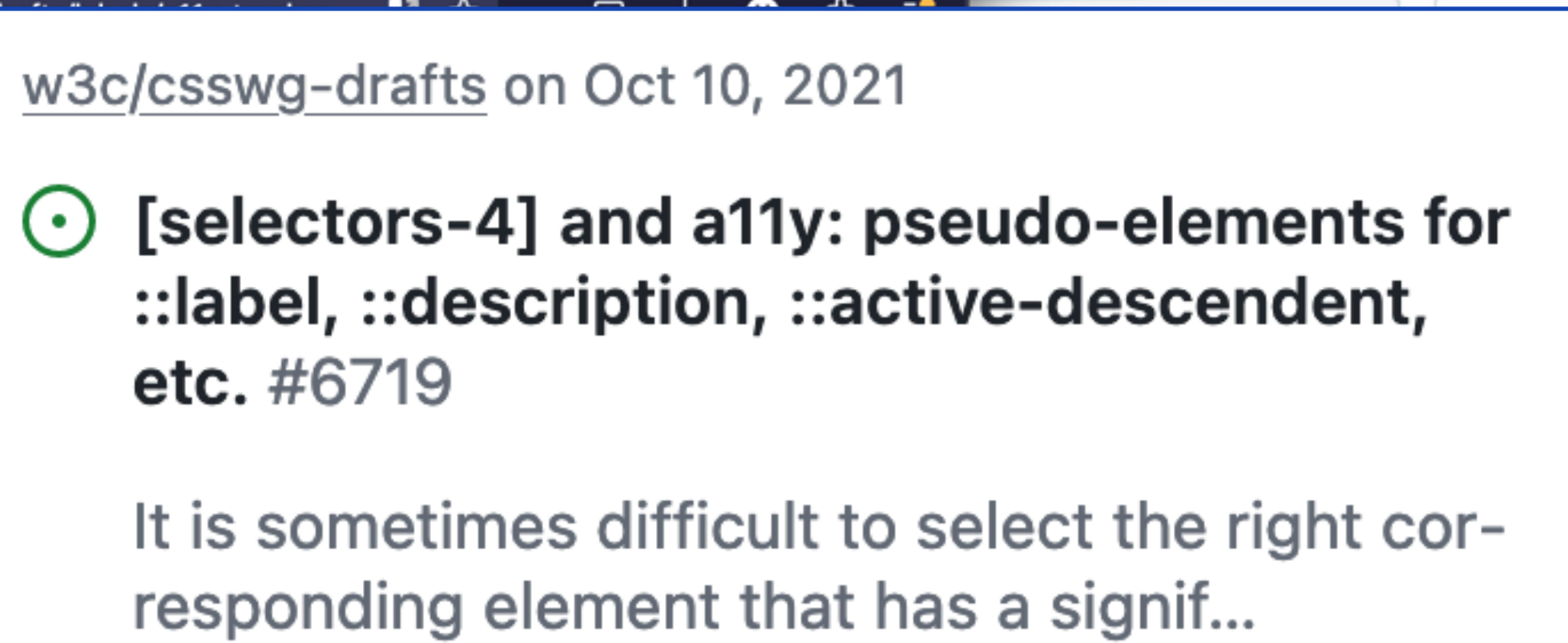
Code Issues 3.1k Pull requests

Filters is:open label:a11y-tracker

Clear current search query, filters, and sorts

23 Open 30 Closed

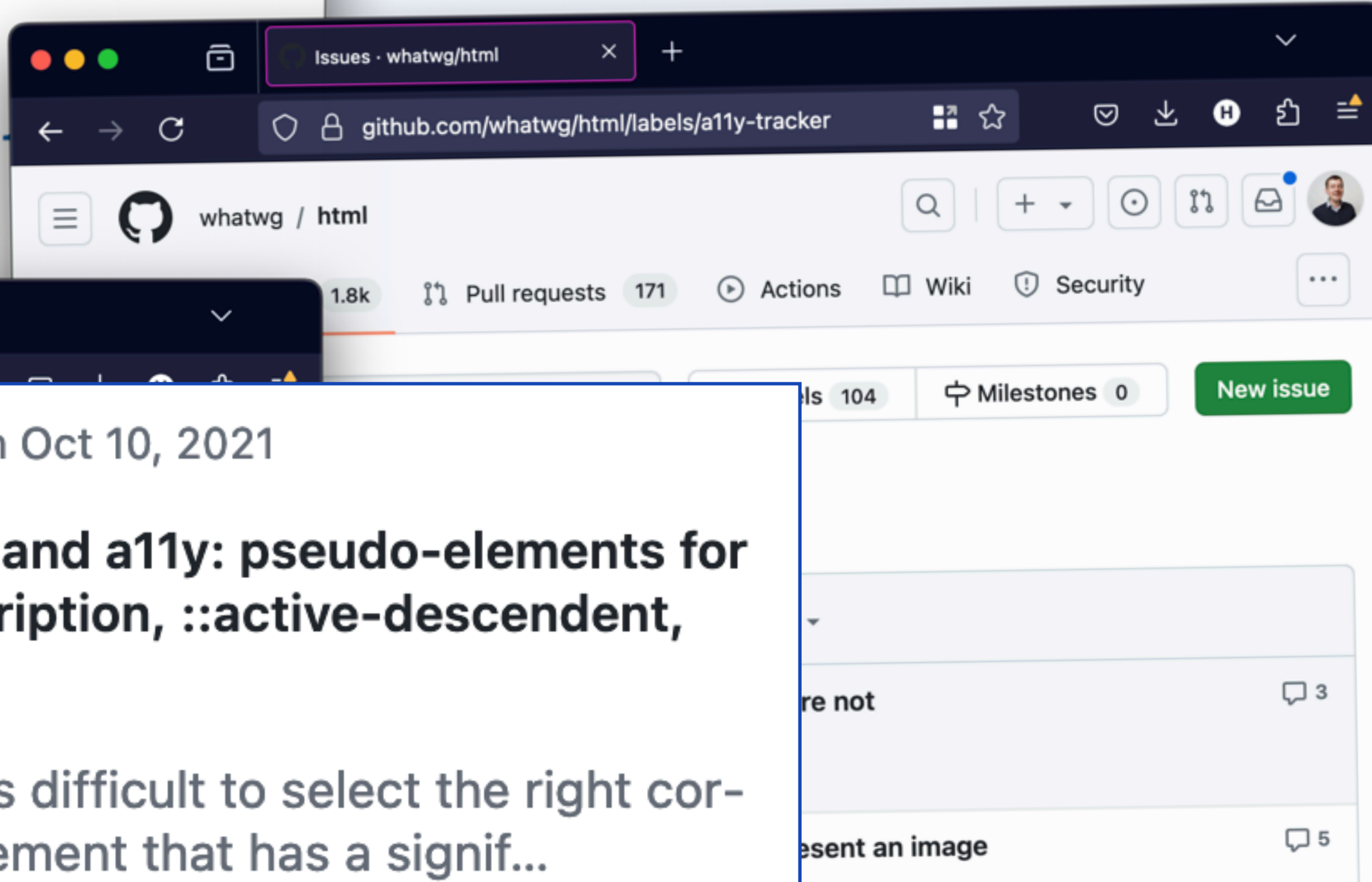
Author Label Projects Miles



w3c/csswg-drafts on Oct 10, 2021

🕒 [selectors-4] and a11y: pseudo-elements for ::label, ::description, ::active-descendent, etc. #6719

It is sometimes difficult to select the right corresponding element that has a signif...



Issues · whatwg/html

github.com/whatwg/html/labels/a11y-tracker

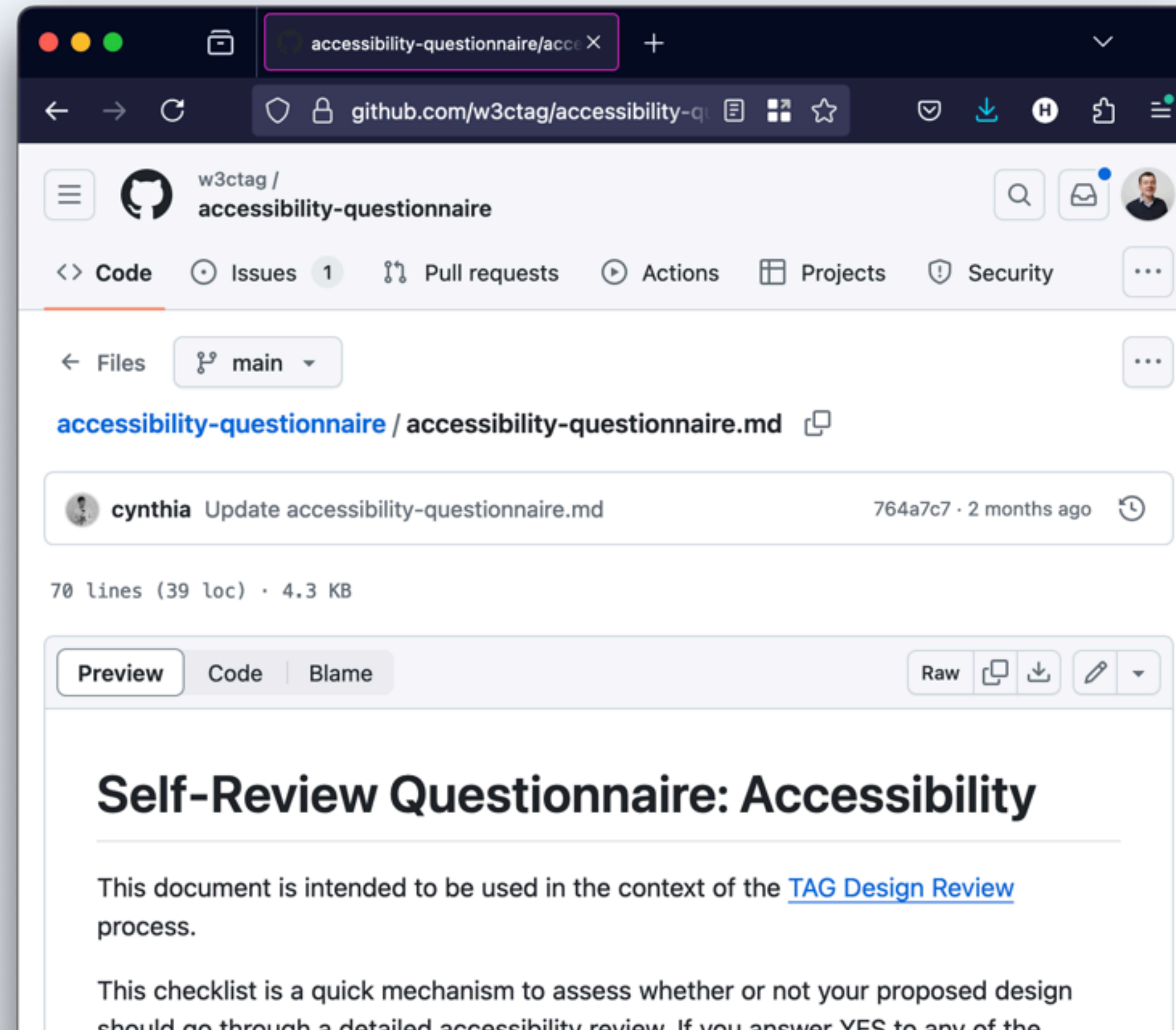
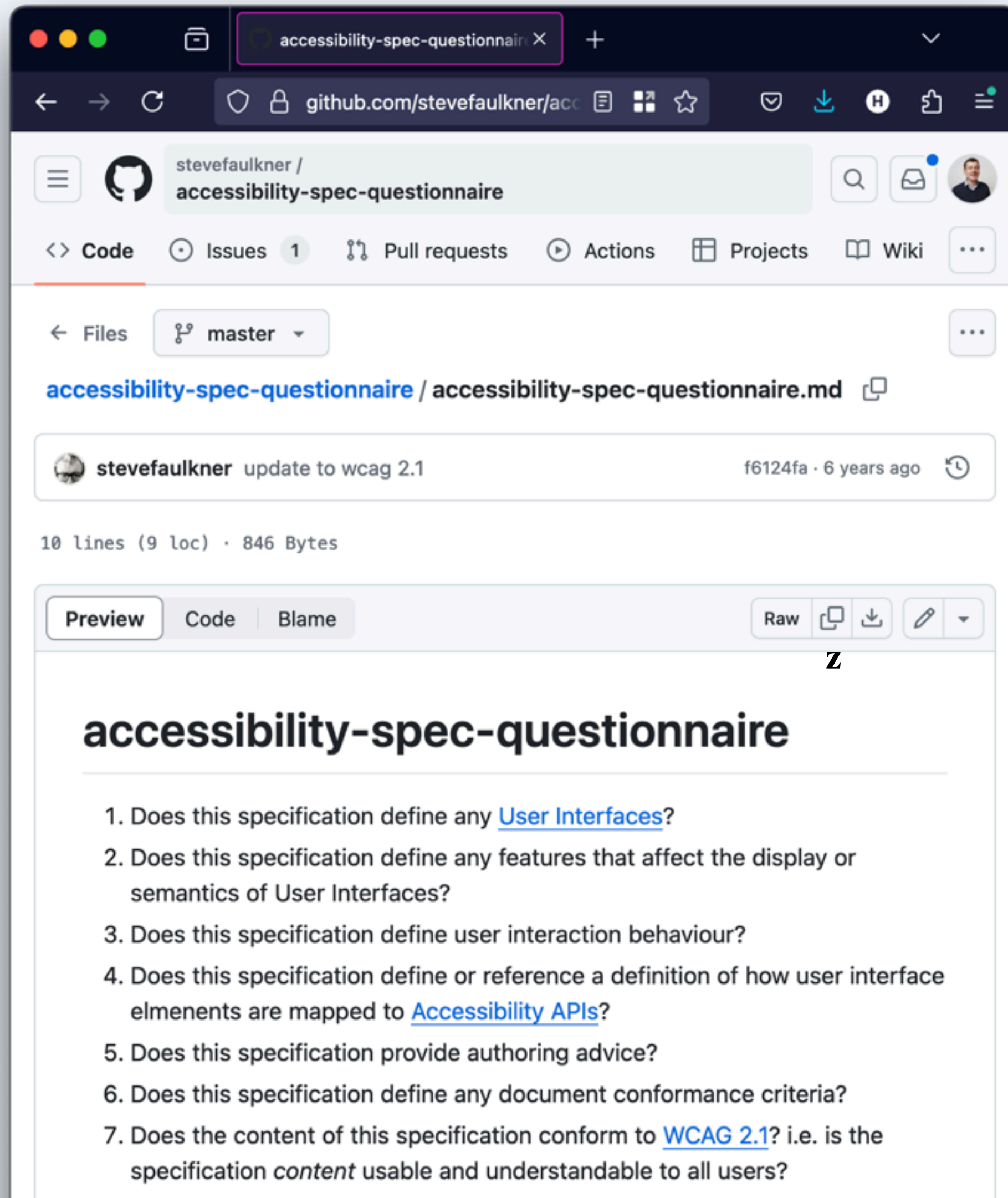
whatwg / html

1.8k Pull requests 171 Actions Wiki Security

Issues 104 Milestones 0 New issue

See: FAST
w3c.github.io/apa/fast/

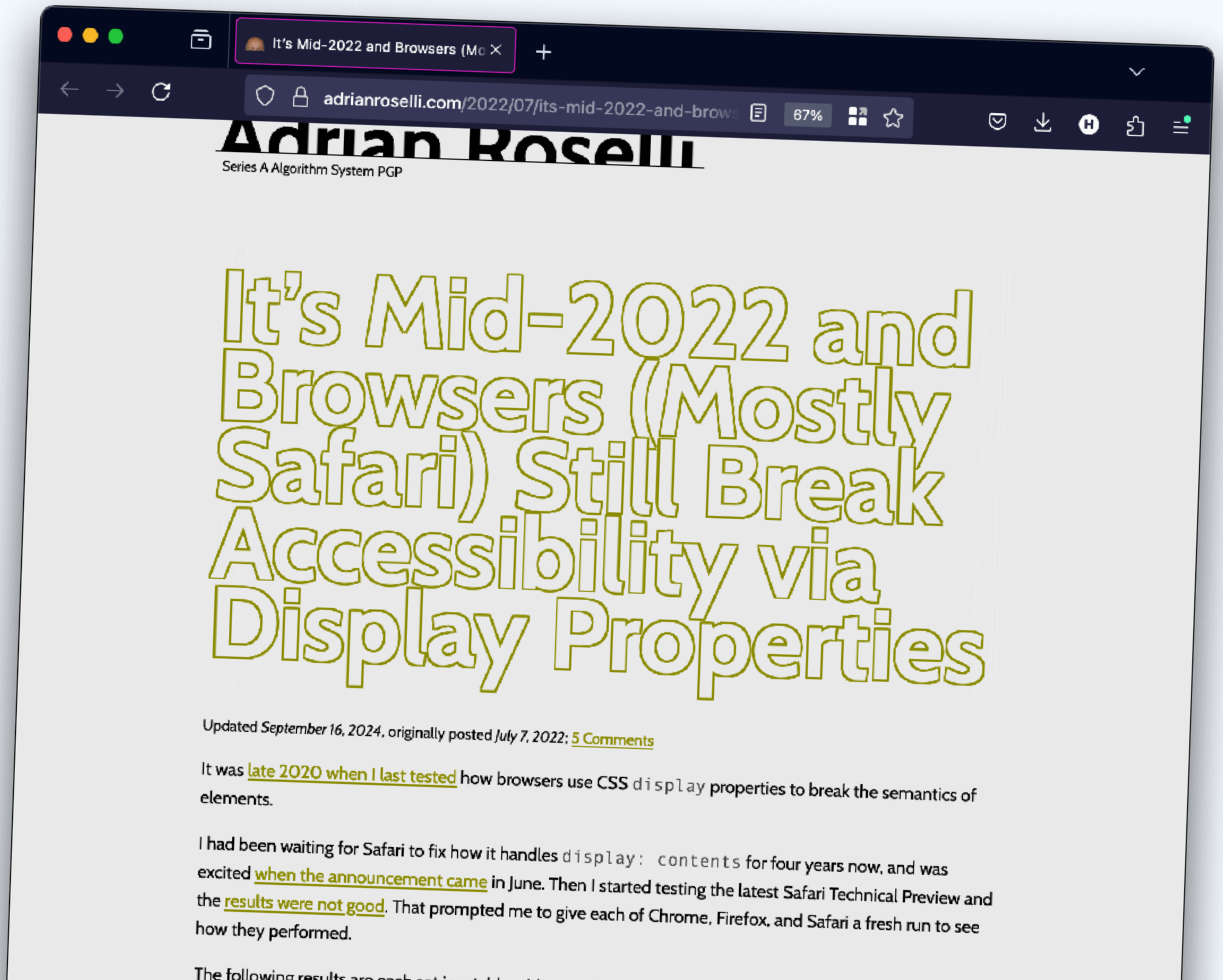
Self-review in TAG



Self-Review Questionnaire: Accessibility

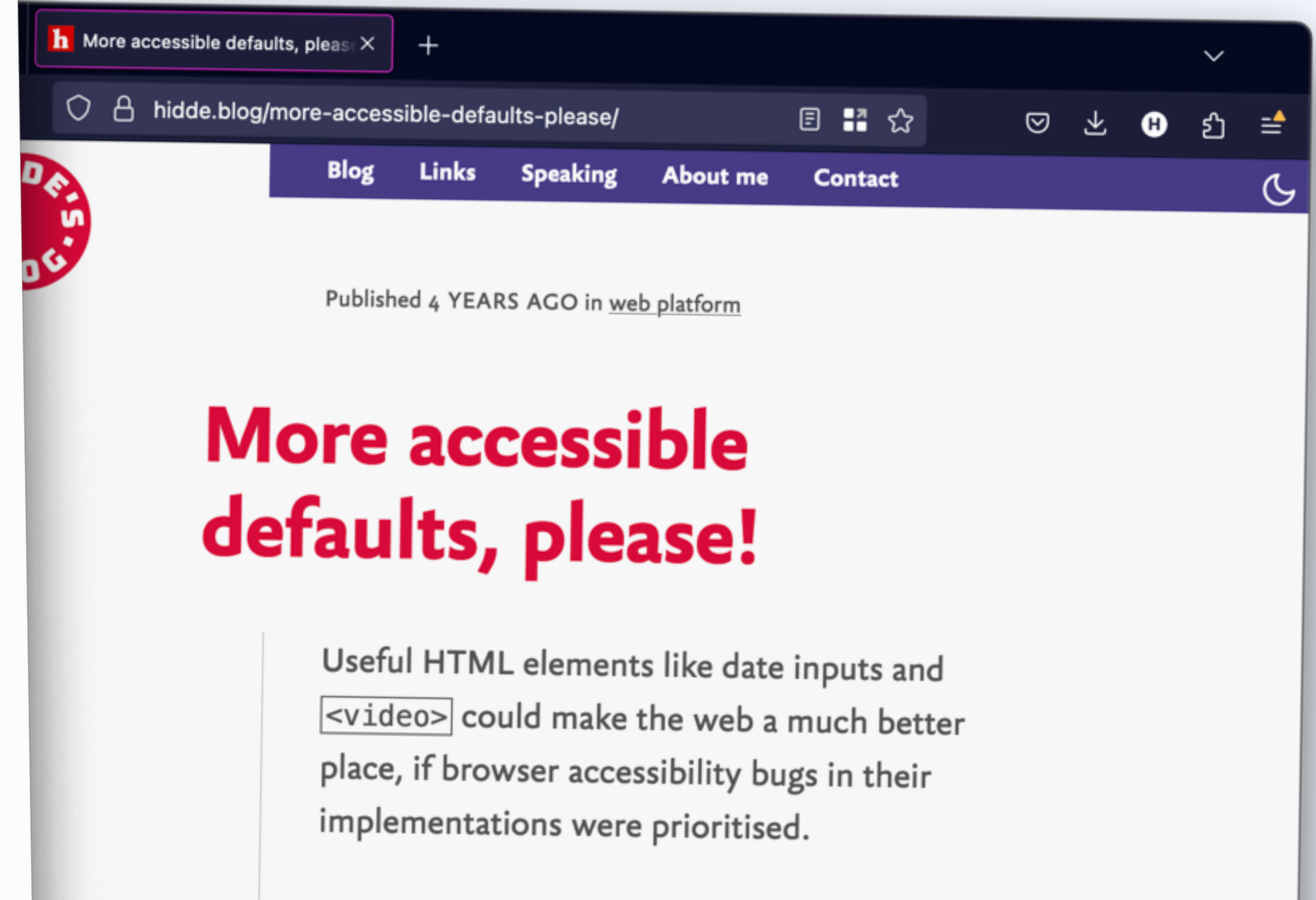
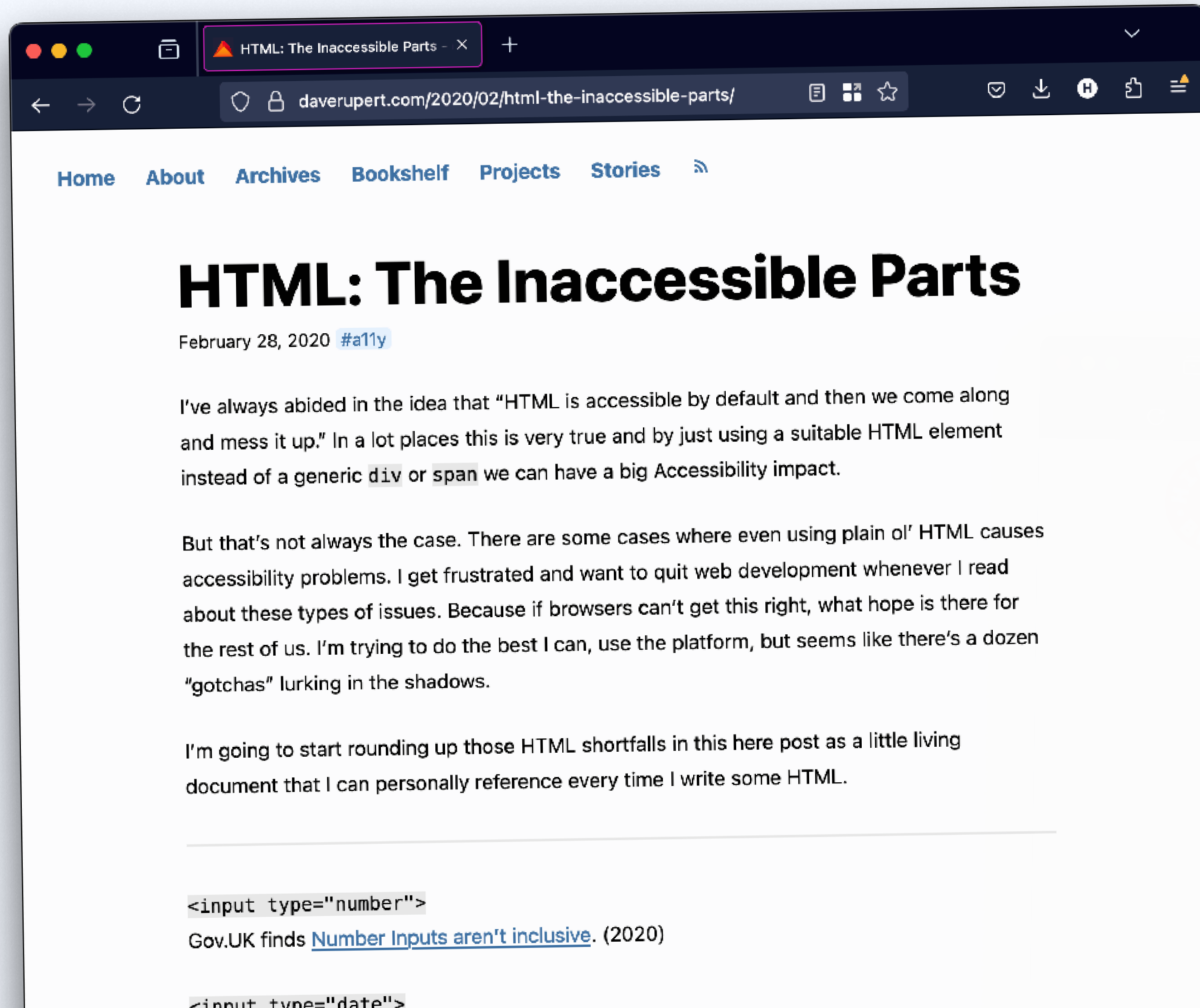
github.com/w3ctag/accessibility-questionnaire/blob/main/accessibility-questionnaire.md

Implementations in browsers can have accessibility bugs



It's Mid-2022 and Browsers (Mostly Safari) Still Break Accessibility via Display Properties

adrianroselli.com/2022/07/its-mid-2022-and-browsers-mostly-safari-still-break-accessibility-via-display-properties.html



See: HTML, the inaccessible parts
daverupert.com/2020/02/html-the-inaccessible-parts/



Jamie Teh

@jcsteh



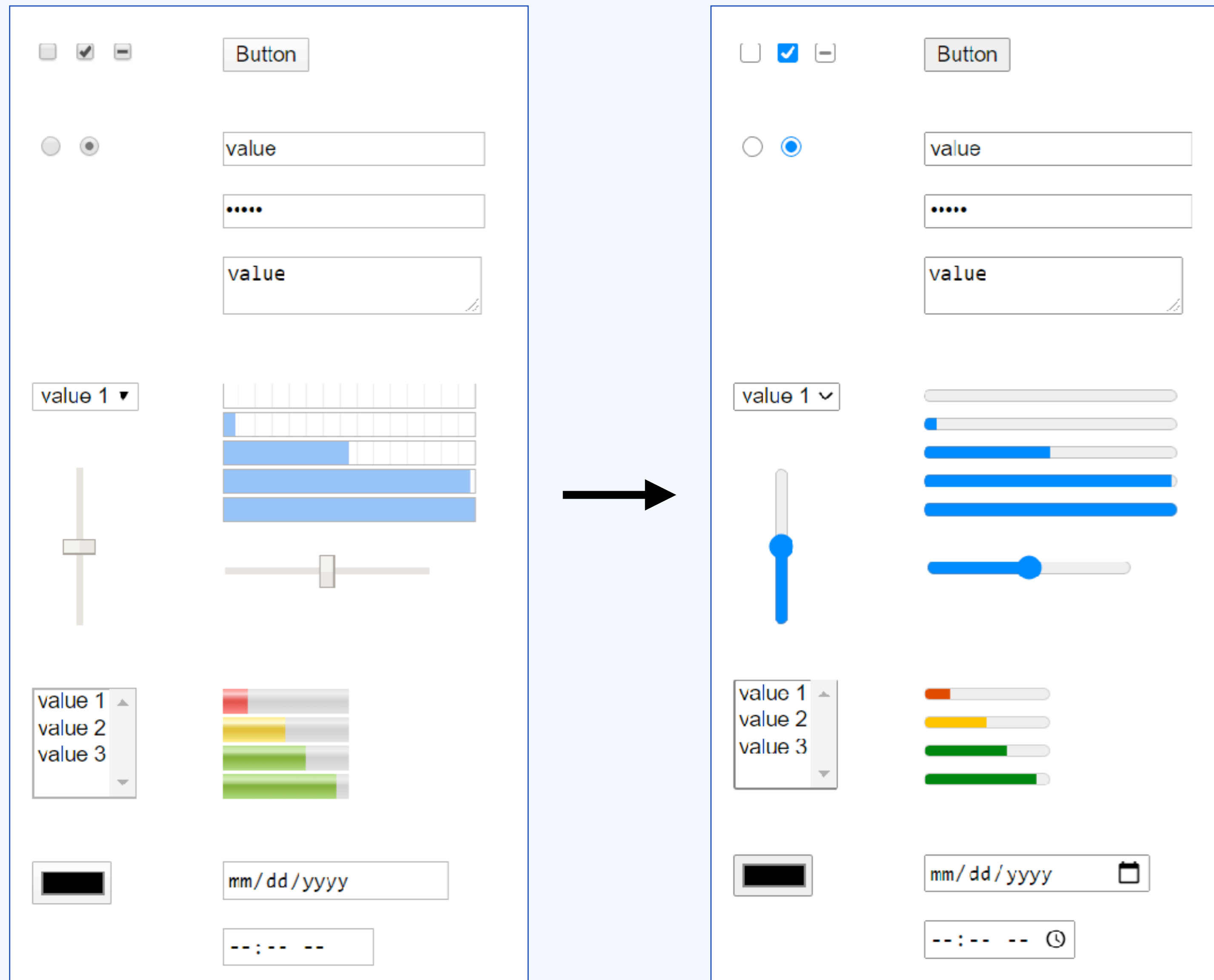
A11y exposure of input type number was fixed in Firefox 74. Not sure about dictation software, but the NVDA issues are fixed as a result.



Dennis Lembrée @dennisl · Feb 27, 2020

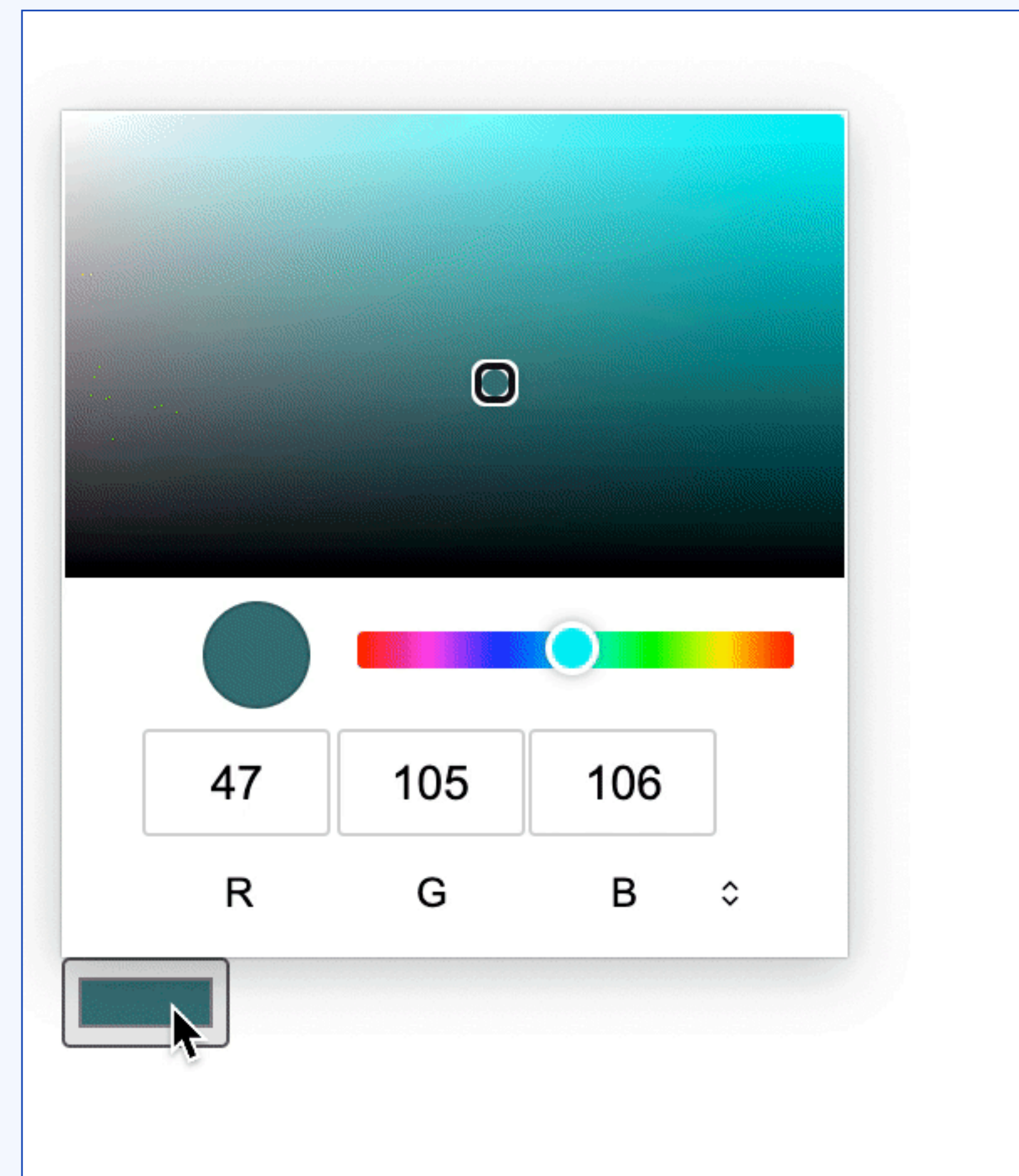
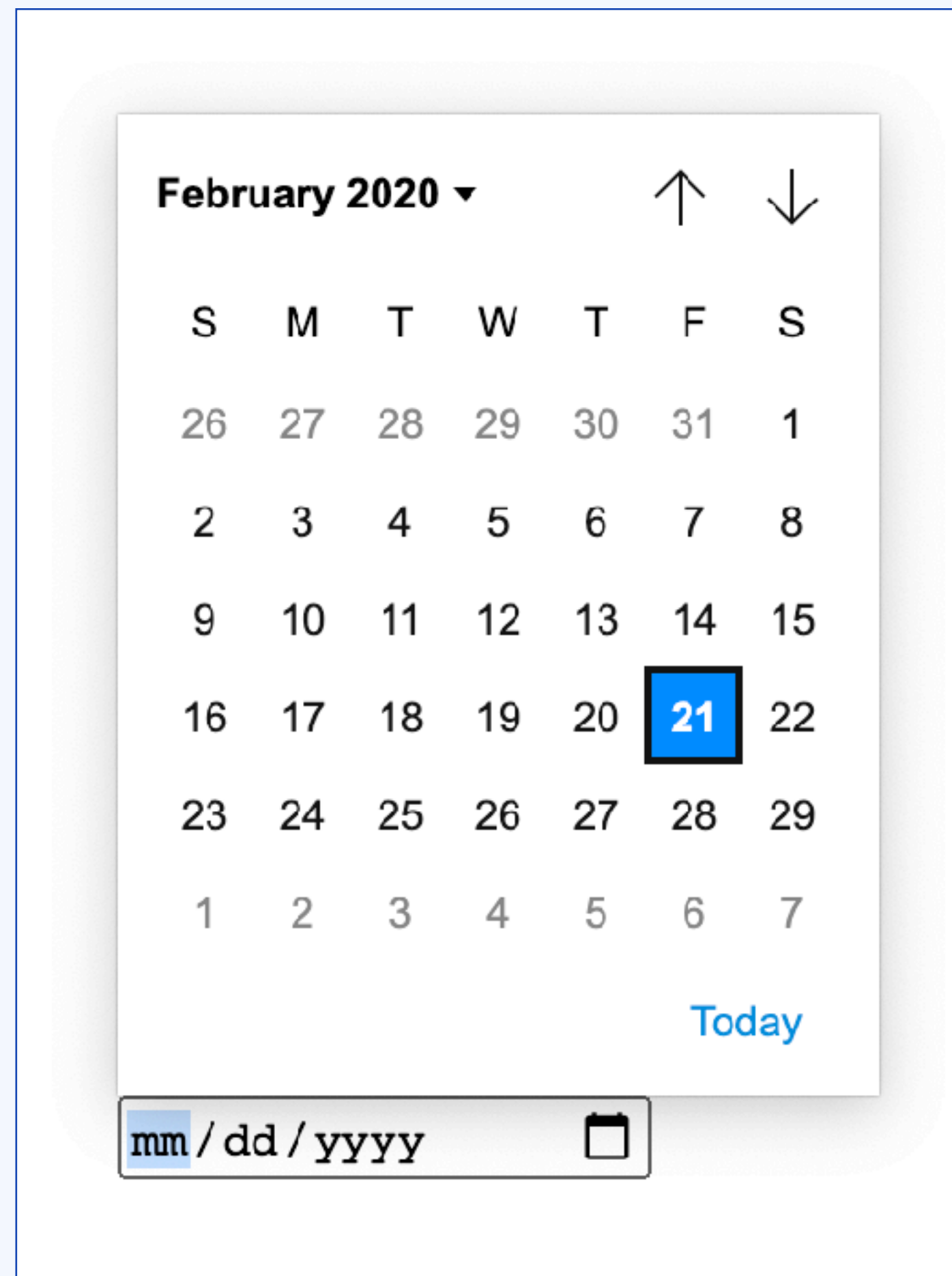
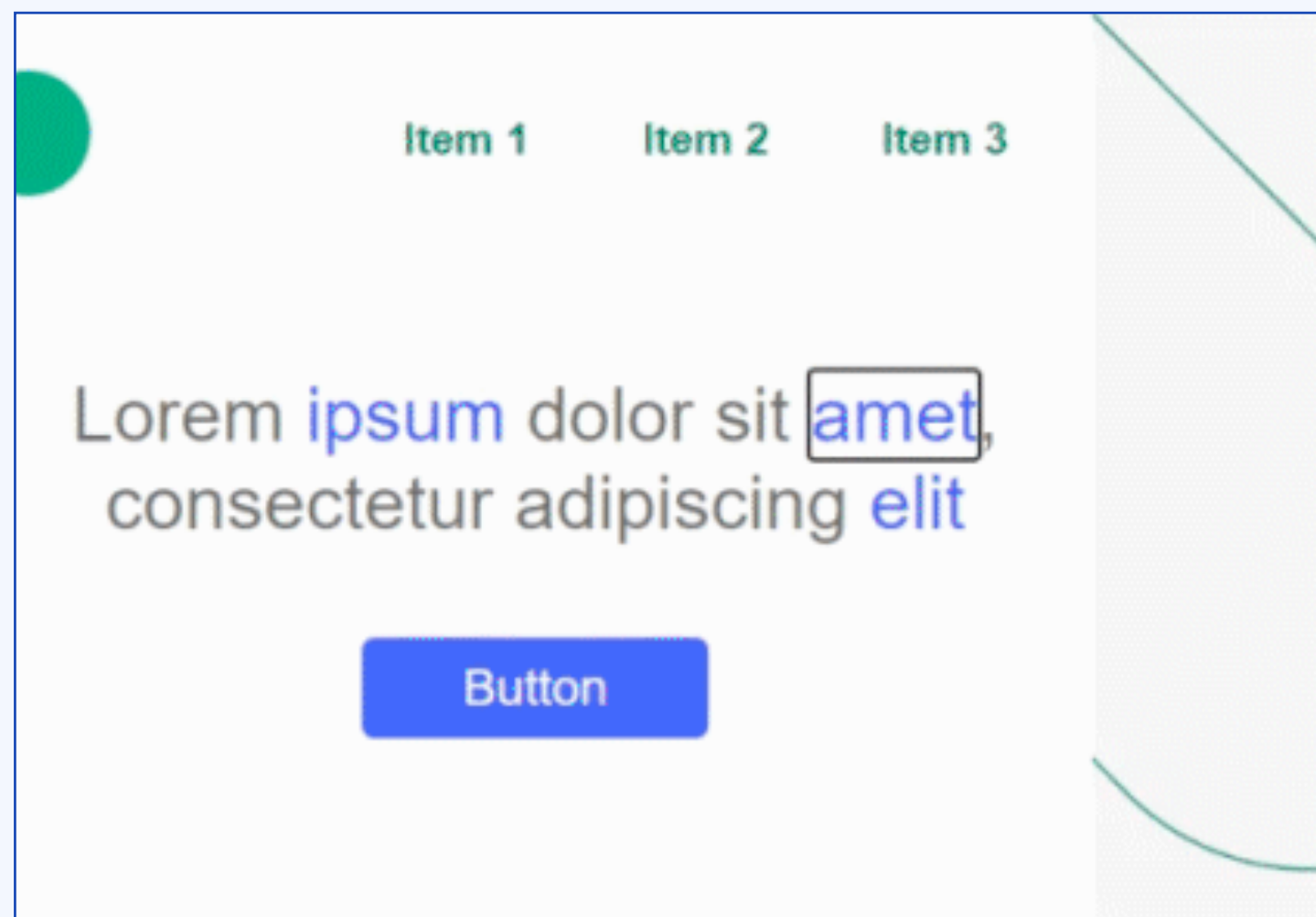
Input type=number is another #HTML5 disappointment. A good alternative solution though. #WebDev [x.com/yatil/status/1...](https://x.com/yatil/status/1234567890)

9:51 PM · Mar 2, 2020



Chromium Blog, Updates to form controls and focus

blog.chromium.org/2020/03/updates-to-form-controls-and-focus.html

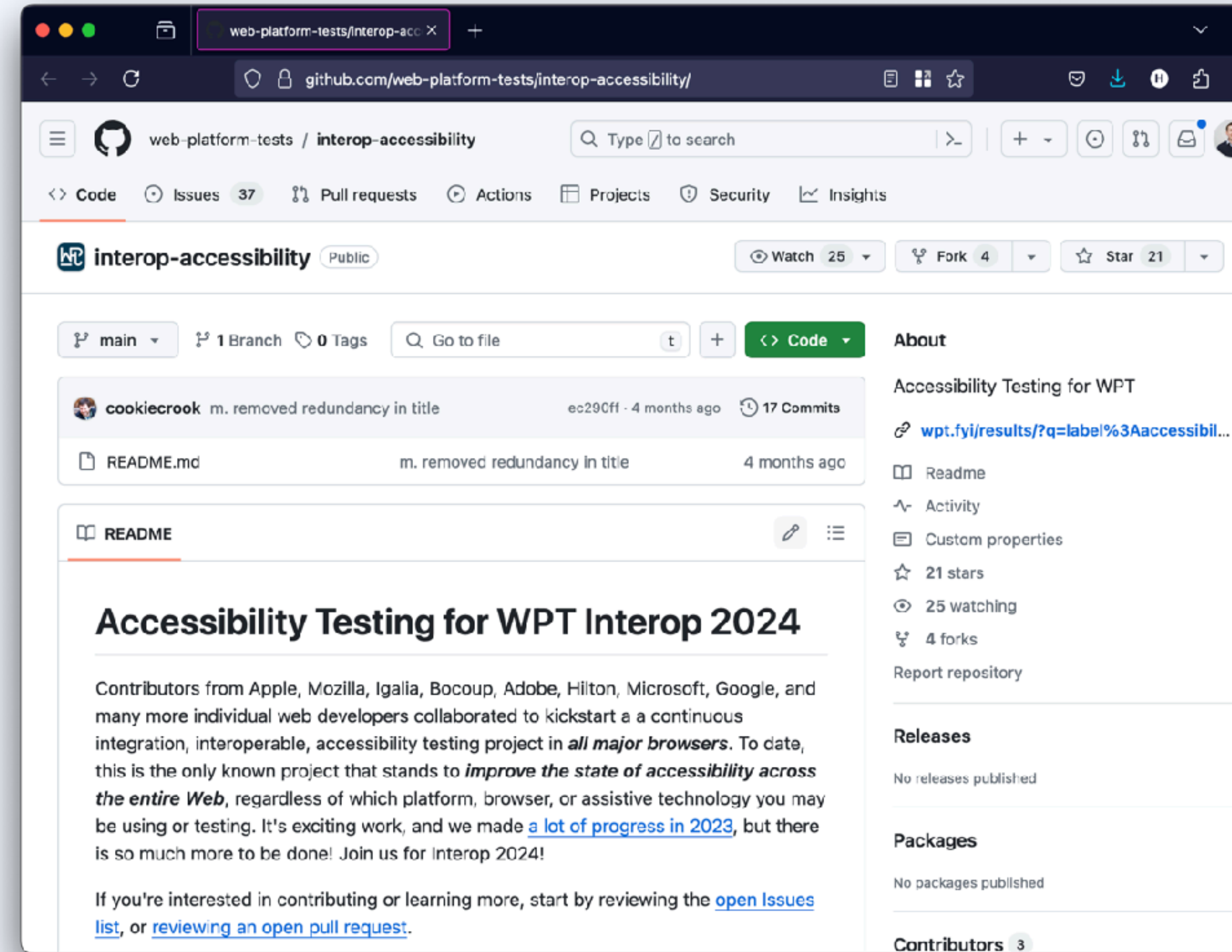


Chromium Blog, Updates to form controls and focus

blog.chromium.org/2020/03/updates-to-form-controls-and-focus.html

Improvements re making
accessibility tree testable

>1000 Web Platform Tests
labeled “accessibility”



See: Improving Web Accessibility with Web Platform Tests

webkit.org/blog/15400/improving-web-accessibility-with-web-platform-tests/

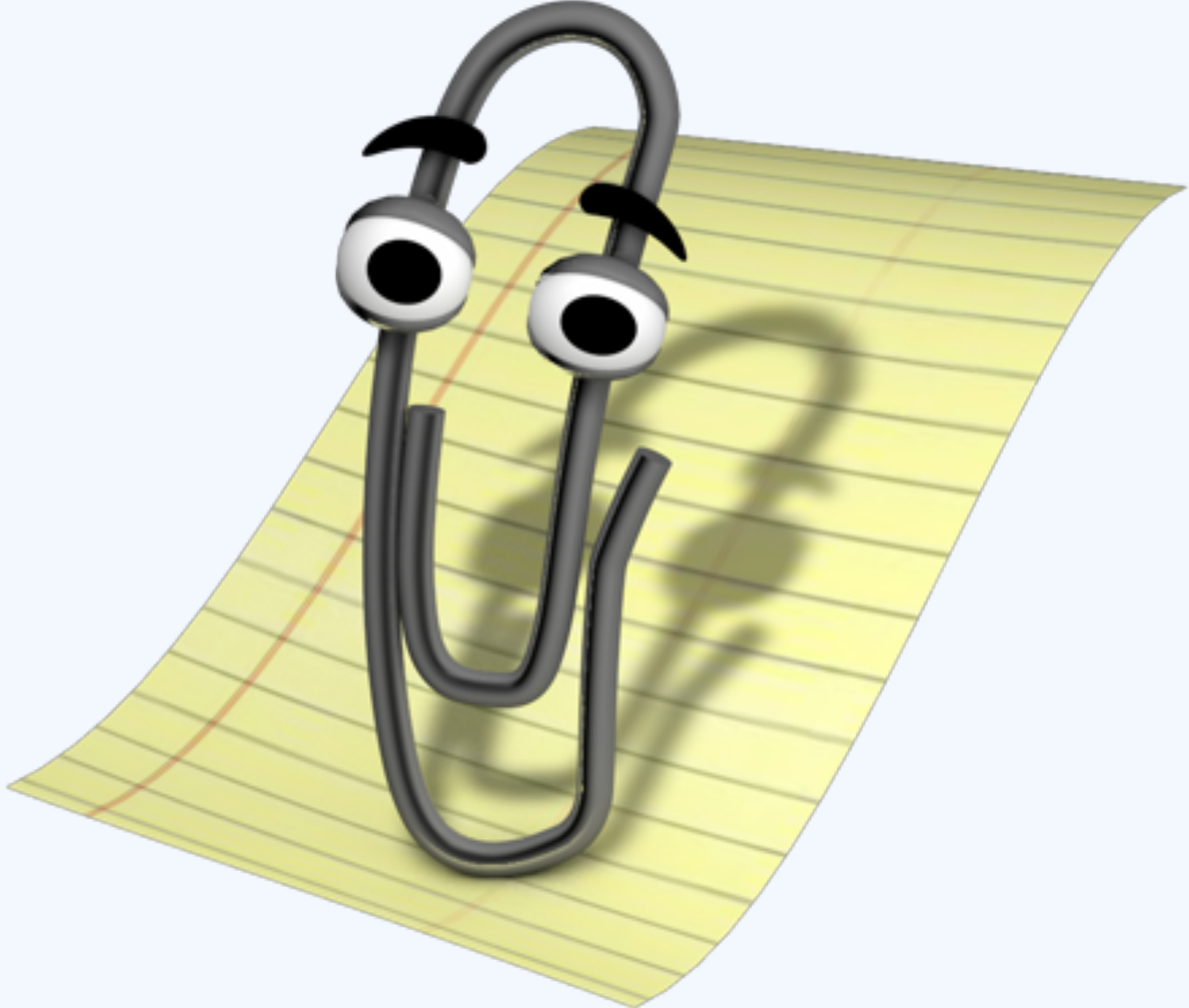
TAKEAWAY #1

We need web platform / HTML
features that are accessible and/or
include accessibility

and it's not trivial

Building accessibility into systems (2)

CMSEs



Errors

A typical page with accessibility or usability errors.

The sample text below is from [Wikipedia: Bear](#).



[Learn more about Bears on Wikipedia >](#)

Bears are carnivoran mammals of the family Ursidae. They are classified as caniforms, or doglike carnivorans. Although only eight species of bears are extant, they are widespread, appearing in a wide variety of habitats throughout the Northern Hemisphere and partially in the Southern Hemisphere. Bears are found on the continents of North America, South America, Europe, and Asia. Common characteristics of modern bears include large bodies with stocky legs, long snouts, small rounded ears, shaggy hair, plantigrade paws with five nonretractile claws, and short tails.

While the polar bear is mostly carnivorous, and the giant panda feeds almost entirely on bamboo, the remaining six species are omnivorous with varied diets. With the exception of courting individuals and mothers with their young, bears are typically solitary animals - [learn more](#). They may be diurnal or nocturnal and have an excellent sense of smell. Despite their heavy build and awkward gait, they are adept runners, climbers, and swimmers.

Etymology

The English word "bear" comes from Old English bera and belongs to a family of names for the bear in Germanic languages, such as Swedish björn also used as a first name. This form is conventionally said to be related to a Proto-Indo-European word for "brown", so that "bear" would mean "the brown one".^{[1][2]} However, Ringe notes that while this etymology is semantically plausible, a word meaning "brown" of this form cannot be found in



[Home](#)

The power of the web is its universality

This page simulates what an *author* would experience if they were logged in to a site with Editoria11y installed: a toggle automatically appears in the lower-right-hand corner of the page with issue information. Normally it is an innocuous little checkmark; since there were critical issues detected on this page it has gone red and received an issue count.

1 Explore the tins



Issues	Outline	Alt Text	?	-	x
22 issues detected.		« Previous	First »		

Contrast warnings in Gutenberg, for WordPress

The screenshot displays the WordPress Gutenberg editor interface. The main content area features a large yellow rectangular block with the text "The power of the web is its universality" in a large, bold, black sans-serif font. A dashed yellow border highlights the top-right corner of this block, indicating a contrast warning. The top toolbar includes the WordPress logo, a plus sign, a pencil, and navigation arrows. The right sidebar is open to the "Block" settings for the "Columns" block. The "Columns" settings show a slider set to 2 columns and a "Stack on mobile" toggle that is turned on. Below the "Columns" settings, the "Color" section is visible, with radio buttons for "Text", "Background", and "Link", all of which are currently unselected. The "Typography" section is partially visible at the bottom of the sidebar.

Document Block X

Columns
Display content in multiple columns, with blocks added to each column.

COLUMNS

2

Stack on mobile

Color

Text

Background

Link

Typography

SIZE



Content

Books



Norwegian wood



Norwegian wood



Current version

Book title

Norwegian wood

Review

Normal



B

i



U

~~S~~



It was a fantastic book!

Details

Really liked the main character and how they developed throughout the book.

I also liked these characters:

- Alice

TAKEAWAY #2

CMSES can be
accessibility assistants

and it's (usually) not trivial

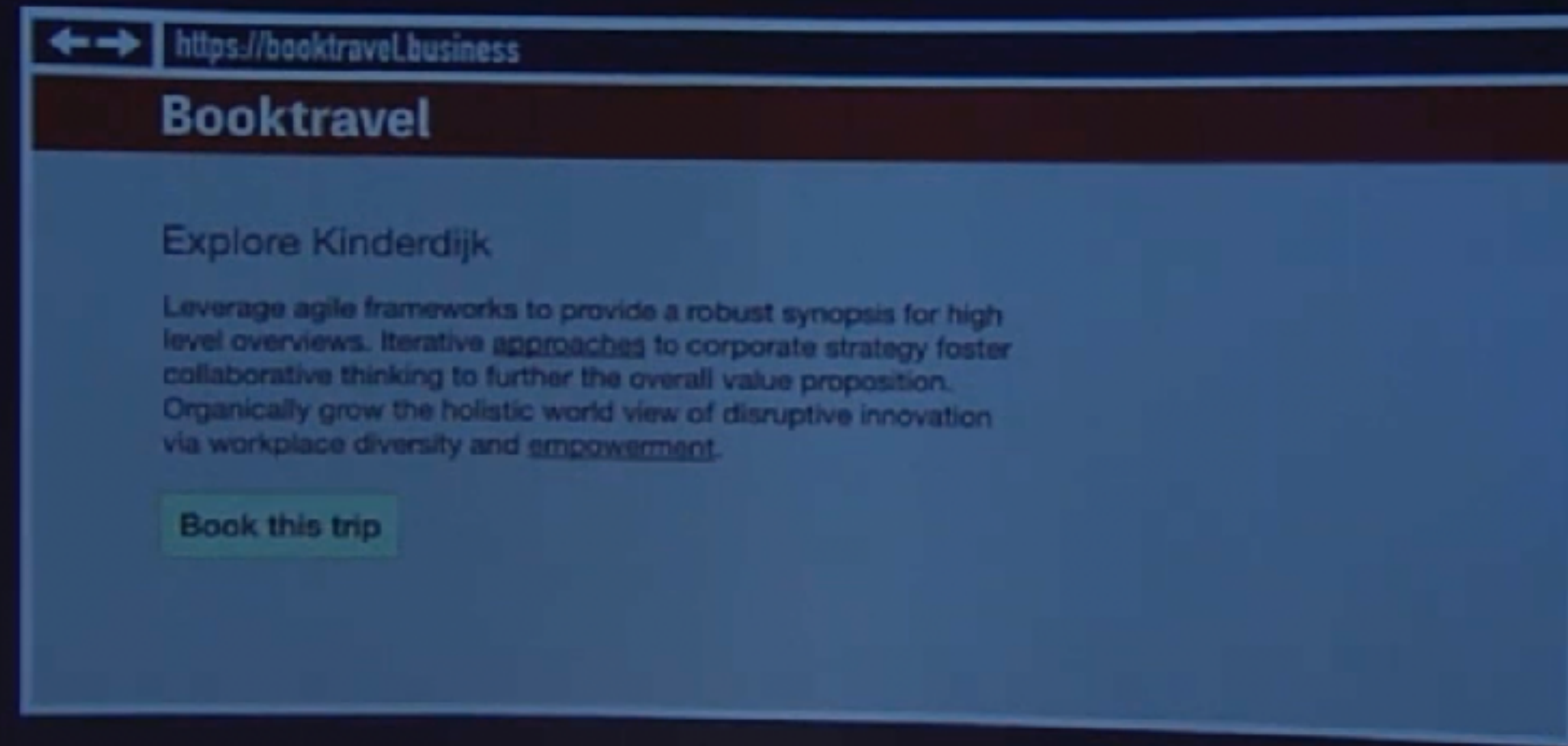
Building accessibility into systems (3)

Browsers

What if browsers let us...

force focus indication

@hdv



“Could browsers fix more accessibility problems automatically?”

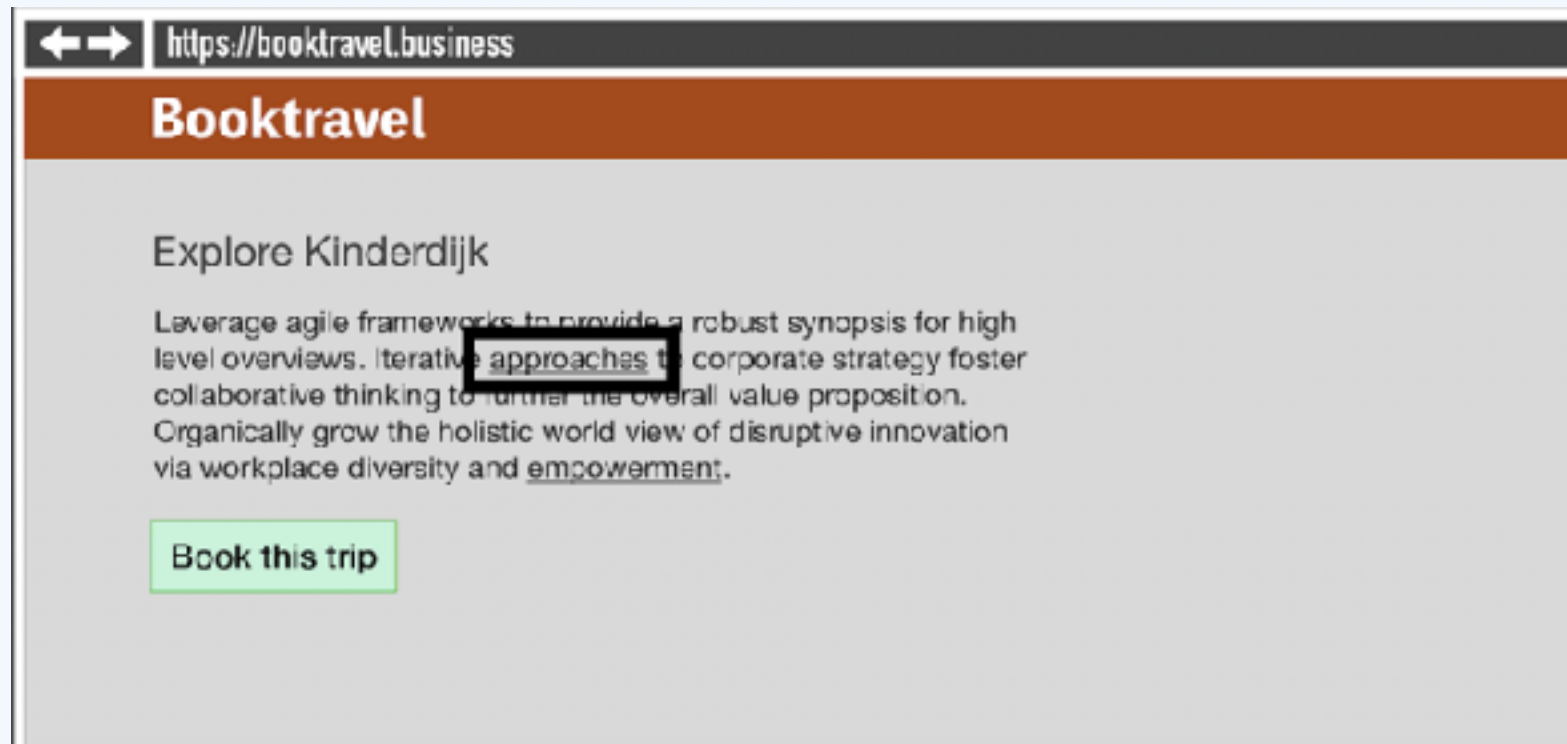
talks.hiddedevries.nl/KKW74X/could-browsers-fix-more-accessibility-problems-automatically



Untruncate text



Force colour contrast



Force focus indication



Suppress autoplay of gifs and videos

TAKEAWAY #3

Browsers could intervene
when the web content
they serve is inaccessible

and it's (usually) not trivial

Building accessibility into systems (4)

Design systems

Design systems can
make your patterns
repeatable



“Not only is this work not inherently valuable, it is also not inherently harmless”

– Amy Hupe

Building conscious design systems

amyhupe.co.uk/articles/building-conscious-design-systems

Design systems can
make good patterns
repeatable

Design systems can
make ^{good} or ^{bad} patterns
repeatable

Design systems can
make patterns
repeatable

so we'd better
ensure they're good

Design systems can teach
the nuance between the
components

TAKEAWAY #4

Design Systems make code and principles repeatable, ensure you repeat the right things

and it's (definitely) not trivial

“Built-in” accessibility

It can be done.

It's worthwhile.

It's not trivial.

**What are the
constraints?**

**or: questions
you can ask**

What could (possibly)
go wrong?

Does the icon disappear in dark mode?

Will the tabs break with too many items?

What if all buttons in a group are named the same?

How do we ensure there's useful text in
`<FormFieldError>`?

Can we force the label component to be used
whenever the text field component is used?

What decides the
accessibility of a
component?

Save

The quick brown fox jumps

Where does she jump?
Over the lazy dog? Well,
there is really only one way
to find out...

Find out

Ingredients

Method

Related recipes

Who impacts the
accessibility of a UI?

developer

designer

QA tester

Who impacts the
accessibility of a UI?

researcher

content editor



(it's the whole team)

browser that
renders it

CMS that is
involved with
managing it

What impacts the
accessibility of a UI?

assistive
technology

A design system can
impact through
components and docs

What design system components can do

- User preference support
(dark/forced color mode, text spacing, zoom support)
- Accessibility semantics
(roles, states, properties)
- Keyboard support
- Focus management
- Support for accessibility features
(images: alt support, video players: caption support, etc)

What design system docs can do

- All variables/settings documented
- Theme validator (colour contrast, spacing etc)
- Full flows: how do components work together?
- Showing **the right way**

- Showing **the right way**

“Educate, don't berate”

– Meryl Evans (in “Progress over perfection”)

Used as-is

Components (excluding settings)

Interpreted

Documentation

Component settings

TAKEAWAY #6

Components that people reuse and documentation that people interpret are an opportunity to inspire quality

What design system marketing should do

Avoid overpromising the accessibility impact

Say “makes it easier to” instead of “will take care of”

Emphasise the role of design system in a continuous effort

NL Design System

Community of **500+** web professionals in all layers of Dutch government who work together.

We collect the best **components, guidelines, patterns** and **user research** for digital services.

Collaboration through “Relay Model” with quality checks in each of four stages.



**Lessons
learned**

Make it
concrete

Make it concrete

4.1.3 Status Messages — Level AA (Added in 2.1)

In content implemented using markup languages, status messages can be programmatically determined through role or properties such that they can be presented to the user by assistive technologies without receiving focus.

[➤ Show techniques and failures for 4.1.3](#)

 Understanding 4.1.3

 **SHARE** |  **BACK TO TOP**

Make it concrete

4.1.3 Status Messages — Level AA (Added in 2.1)

In content implemented using markup languages, status messages can be programmatically determined through role or properties such that they can be programmatically determined by assistive technologies without

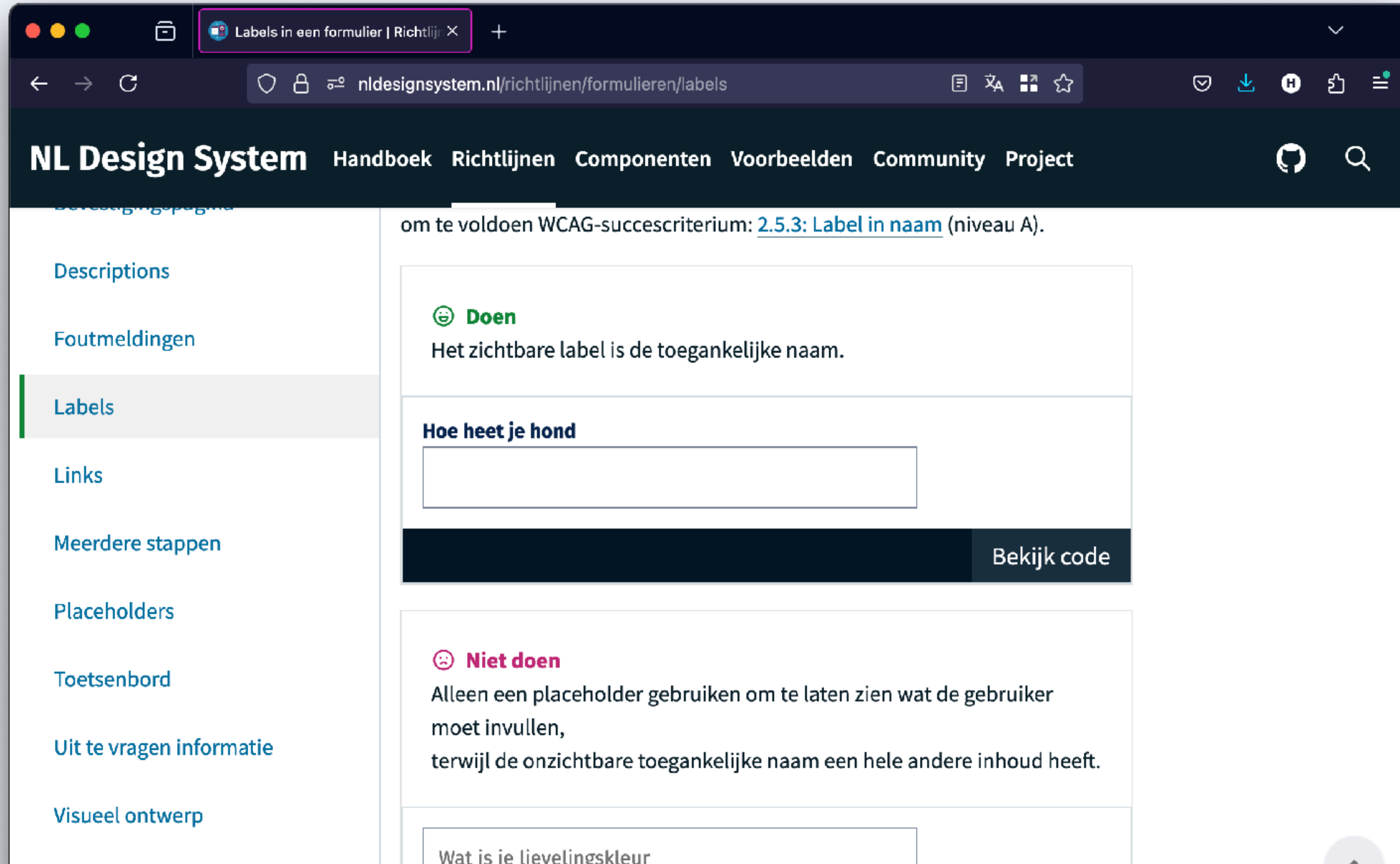
 Understanding 4.1.3

“Add error messages for forms into a live region”

➔ Show techniques and failures for 4.1.3

“Only use assertive live regions when information requires the user's attention immediately”

Make it concrete: do's and don'ts



The screenshot shows a web browser window with the URL `nldesignsystem.nl/richtlijnen/formulieren/labels`. The page title is "Labels in een formulier | Richtlijn". The main navigation includes "NL Design System", "Handboek", "Richtlijnen", "Componenten", "Voorbeelden", "Community", and "Project". A sidebar on the left lists various guidelines: "Descriptions", "Foutmeldingen", "Labels" (highlighted), "Links", "Meerdere stappen", "Placeholders", "Toetsenbord", "Uit te vragen informatie", and "Visueel ontwerp".

The main content area is titled "om te voldoen WCAG-succescriterium: [2.5.3: Label in naam](#) (niveau A)."

Doen
Het zichtbare label is de toegankelijke naam.

Hoe heet je hond

[Bekijk code](#)

Niet doen
Alleen een placeholder gebruiken om te laten zien wat de gebruiker moet invullen, terwijl de onzichtbare toegankelijke naam een hele andere inhoud heeft.

Back guidance
up with research

“Accessibility isn't just about meeting standards, it's about usability too”

– Vasilis van Gemert (this morning)



User research as input for patterns

The screenshot shows a web browser window with the following elements:

- Browser Tab:** Foutmeldingen | NL Design Syst X
- Address Bar:** nldesignsystem.nl/voorbeelden/patronen/formulieren/foutmeldingen
- Navigation Menu:** NL Design System, Handboek, Richtlijnen, Componenten, Voorbeelden, Community, Project
- Sidebar (Left):**
 - Startpunt
 - Intropagina
 - Inloggen
 - Stapelen en uitlijnen
 - Niet verplichte velden
 - Foutmeldingen** (highlighted)
 - Uploaden
 - Voortgang indicatie
 - 'Volgende stap' actie
- Main Content Area:**
 - ## Foutmeldingen in een formulier
 - In een formulier kunnen foutmeldingen voorkomen. Hieronder verzamelen we informatie rondom dit patroon.
 - ← [Vorige stap](#)

Stap 2 van 4

Uw gegevens

Om u zo goed mogelijk te kunnen helpen, ontvangen we graag uw contactgegevens. Deze gegevens worden niet met anderen gedeeld.

ⓘ Verbeter de fouten voor u verder gaat

[Wul uw naam in.](#)

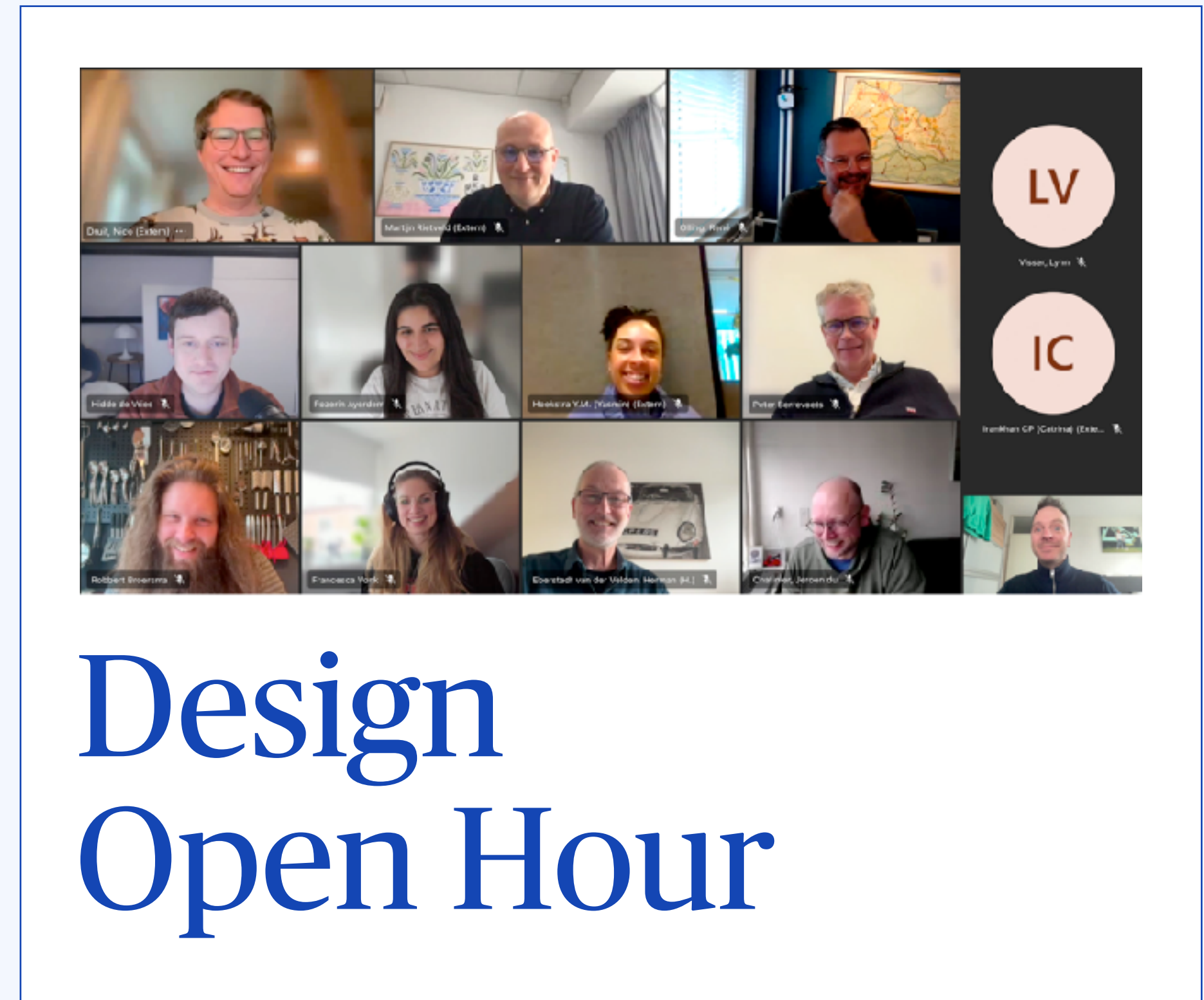
[Wul uw straat in.](#)

[Wul uw huisnummer in.](#)

Naam

ⓘ Wul uw naam in.

Accessibility audit reports as input for guidelines



Most reported issues as input for guidelines

FUTURE

Dashboard DigiToegankelijk

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties

DigiToegankelijk >

Dashboard DigiToegankelijk

Hoe toegankelijk zijn de websites en apps van de Nederlandse overheid? Check het zelf! Zoek een overheidsorganisatie, site of app of bekijk de [lijst van alle organisaties, sites en apps](#).

Zoek een organisatie, site of app

Bijvoorbeeld: "Belastingdienst", "www.logius.nl" of "Afvalkalender"

Grafiek Tabel

Year	Count
2020	2138
2021	2624
2022	2926

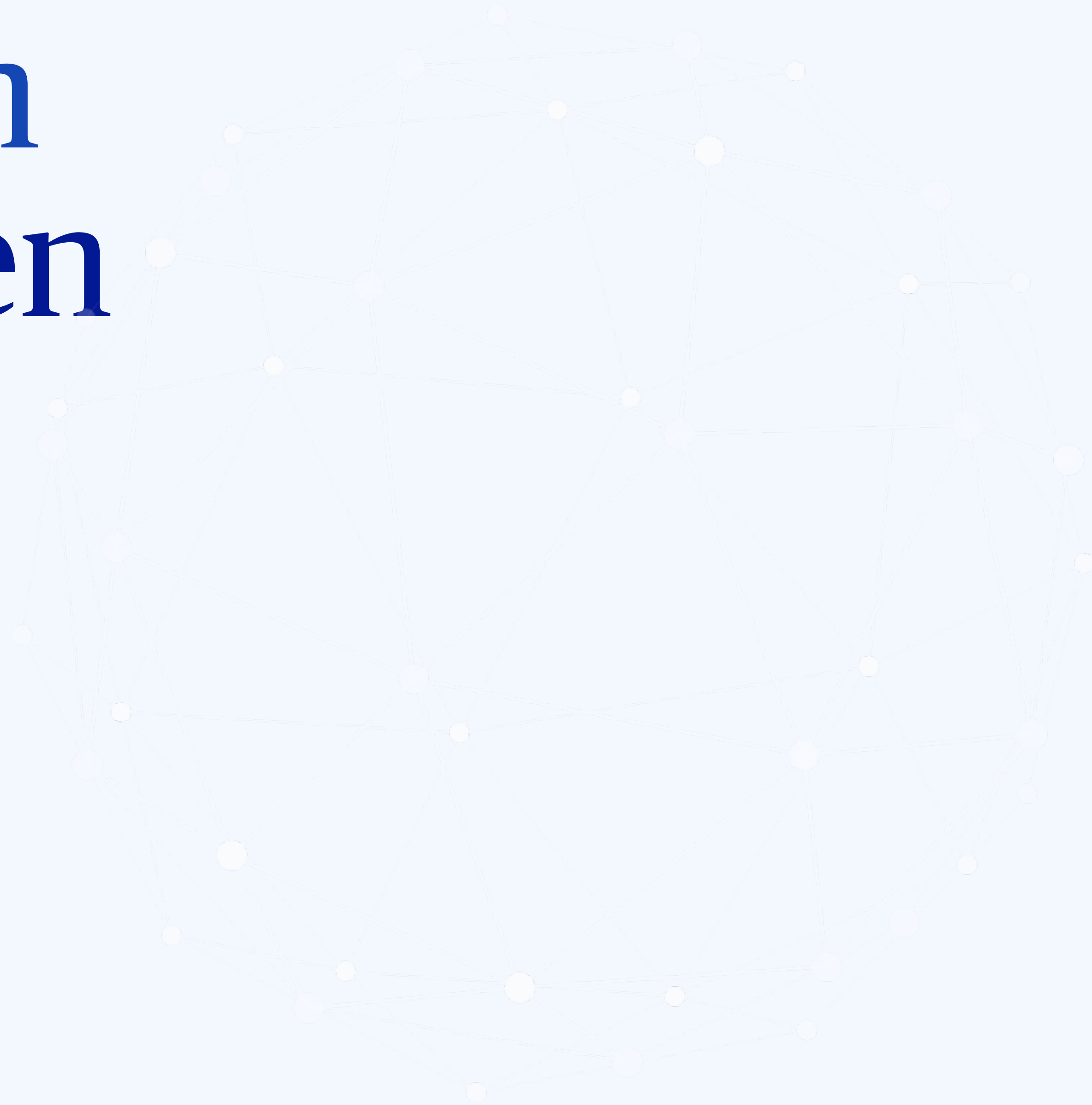
De Nederlandse overheid is verantwoordelijk voor **8921** websites en mobiele apps

38% van de websites en apps voldoet aan de wettelijke verplichting

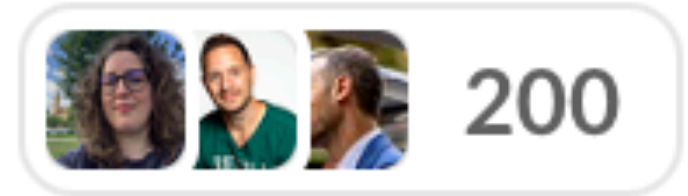
Make it open source

- More perspectives lead to better quality
- Easier to report issues
- Easier to steal
- Most effective against reinvention of wheels
- Instigates collaboration

Work in the open



#nl-design-system-designers ▾ Op dit kanaal is de NL Design Syste...




 Code of Conduct  Meedoen als designer  Figma +

 1 reply Today at 11:20 AM

Today ▾

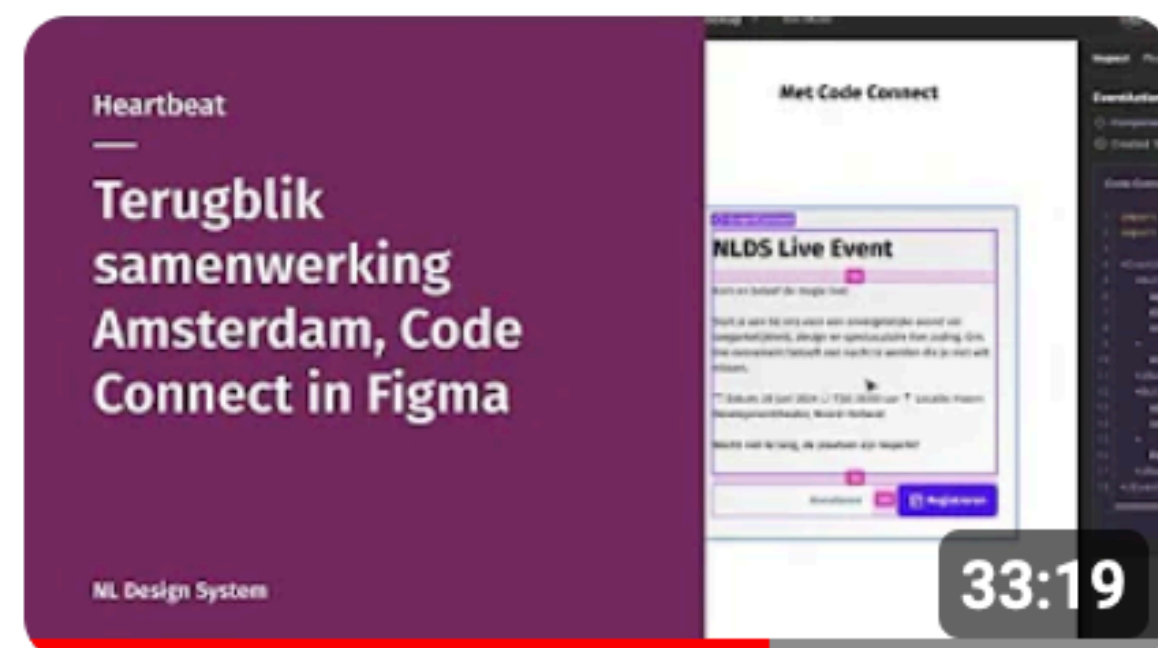
 **Yolijn** 12:06 PM

 Estafette dag

     +3 **19 replies** Last reply today at 2:47 PM

Threads in public channels so that people can peak (low-treshold)

Heartbeats 2024 ▶ Alles afspelen



Terugblik samenwerking
Gemeente Amsterdam, Cod...

NL Design System



Michaëla Tan vertelt over
samenwerking KWIV en NL...

NL Design System



Participatieprojecten in eigen
huisstijl met Open Stad en ...

NL Design System



Tom Dekker van Acato vertelt
over de NL Design System...

NL Design System

Public bi-weekly meetings that
are also publised afterwards

Test with people and
share the results

Test with people and share the results

Because accessibility is more than WCAG

Test with people and share the results

Because not everyone will test, your results likely have some use for others

gebruikersonderzoeken.nl

The screenshot shows a web browser window with the following elements:

- Browser Tab:** 'Ontwerp en usability onderzoek' with a close button.
- Address Bar:** 'gebruikersonderzoeken.nl/docs/onderzoek-bekijken/mijn-zaken/denhaag-mijn'.
- Navigation:** 'Gebruikersonderzoeken', 'Onderzoek bekijken', 'Onderzoek delen', 'Vragen'. A search bar with 'Zoeken' and a keyboard shortcut 'K' is on the right.
- Left Sidebar:**
 - Onderzoek bekijken
 - Formulieren
 - Mijn Omgeving
 - Ontwerp en usability onderzoek Mijn-omgevingen** (highlighted)
 - Onderzoek MijnAanvragen in Open Inwoner Platform (OIP) – Mijn Omgeving
 - Onderzoek Status Component van MijnZaken
 - Iconen
 - Bevrijdingsdag, koningsdag en melding icoon
 - Gemeenteraad, burgemeester, afval icoon
 - Energietoeslag, milieuzone, rioolheffing, thuiswerken en parkeren icoon
- Breadcrumbs:** Home > Onderzoek bekijken > Mijn Omgeving > **Ontwerp en usability onderzoek Mijn-omgevingen**
- Main Content:**
 - # Ontwerp en usability onderzoek Mijn-omgevingen
 - Samengevat: de Mijn Omgeving kan niet als één aparte service worden gezien, maar is voor de inwoner een geheel van vier verschillende onderdelen. Het onderzoek toont het belang van duidelijkheid, rust en vertrouwen aan.**
 - ## Doel van het onderzoek

Dit onderzoek moet inzicht bieden in de gebruiksvriendelijkheid, begrijpelijkheid en optimalisatiekansen voor de vier ontwikkelde generieke
- Right Sidebar:**
 - Doel van het onderzoek
 - Advies
 - Resultaten en inzichten
 - Wat is er mee gedaan?
 - Opzet
 - Contactinformatie
 - Bijlagen

Open design
decisions up
for automated
scrutiny

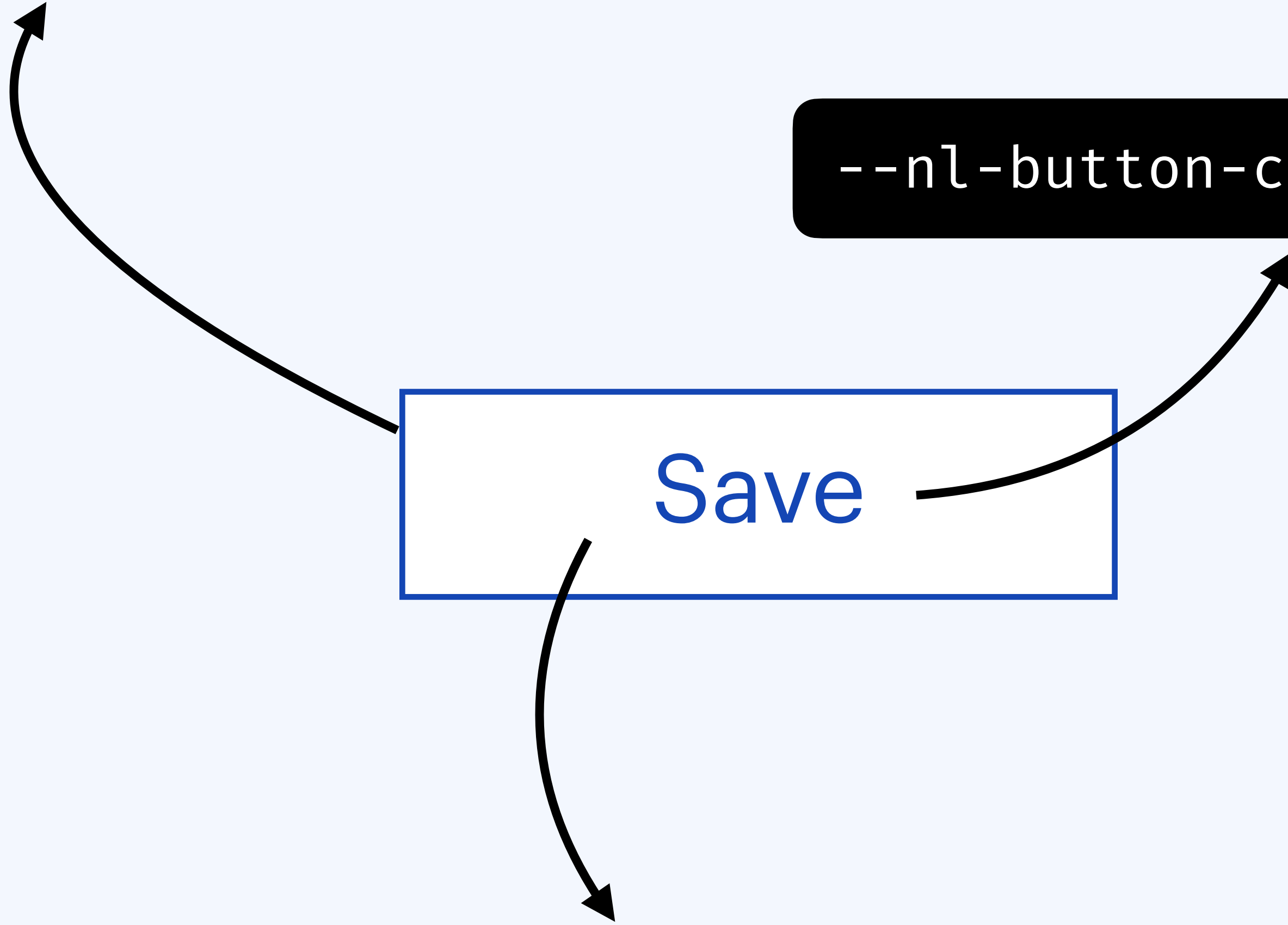
Save

```
--nl-button-border-color: #2446AE
```

```
--nl-button-color: #2446AE
```

Save

```
--nl-button-background-color: #ffffff
```



```
--nl-button-border-color: #2446AE
```

```
--nl-button-color: #2446AE
```

Save

```
--nl-button-background-color: #ffffff
```

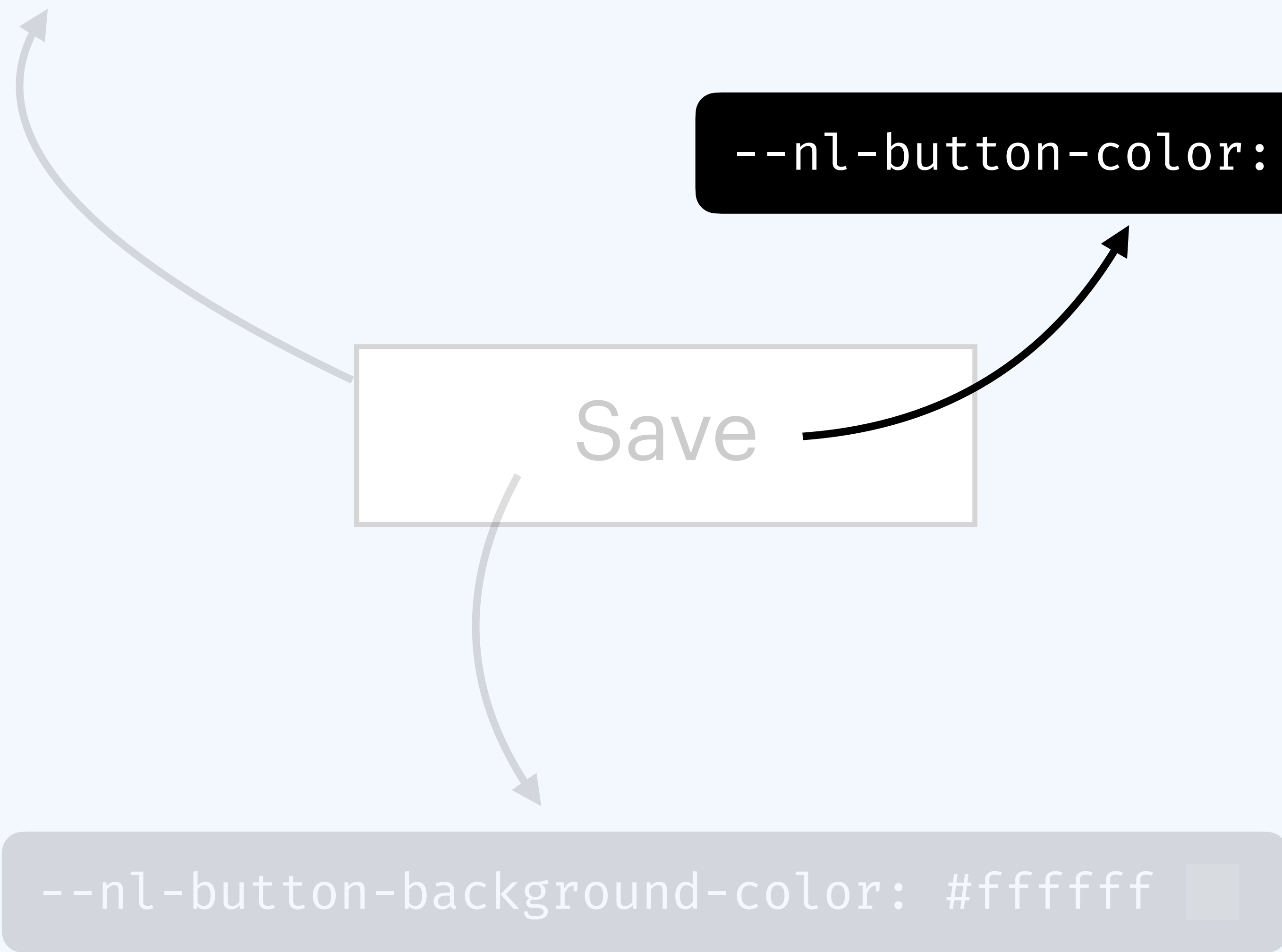


```
--nl-button-border-color: #2446AE
```

```
--nl-button-color: #cccccc
```

Save

```
--nl-button-background-color: #ffffff
```



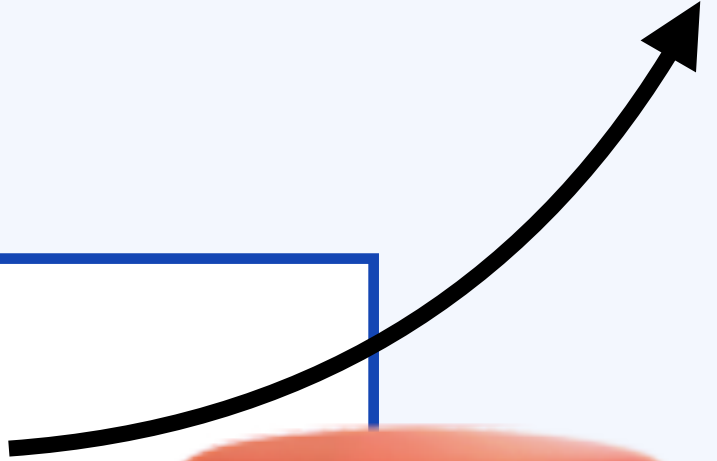
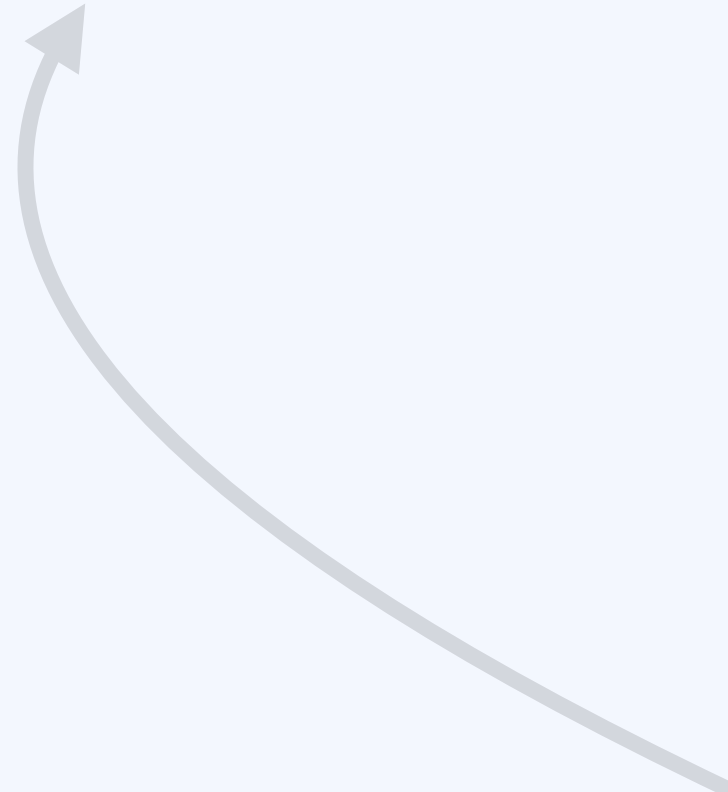
```
--nl-button-border-color: #2446AE
```

```
--nl-button-color: #cccccc
```

Save



```
--nl-button-background-color: #ffffff
```



Verify with
process

Verify with process: GOV.UK



BETA [Contact the Service Manual team](#) if you have feedback, questions or suggestions.

[Service manual](#) > [Service Standard](#)

Service Standard

[Give feedback about this page](#)

5. Make sure everyone can use the service

Provide a service that everyone can use, including disabled people and people with other legally protected characteristics. And people who do not have access to the internet or lack the skills or confidence to use it.

Contents

— [Why it's important](#)

Why it's important

Verify with process: NL Design System “Relay Model”



Do handover
to consumers
with test steps

Handover: USWDS

COMPONENTS

Button accessibility tests

Any USWDS button should pass these manual accessibility tests.

Passed WCAG 2.1 AA

- Explain which tests you've done
- Explain what consumers of the components should test themselves

Button accessibility checklist

↓ **General tests**

↓ **Zoom magnification tests**

↓ **Keyboard navigation tests**

↓ **Screen reader tests**

General tests

- Button text conveys its meaning.** When you view the button on a page and determine the button's purpose, the text (not color alone) conveys the button's meaning.

This can only be tested in your implementation of the component. Be sure to test this in your project.

WCAG A

[1.4.1 Use of color](#)

USWDS test status: Conditional

Last test: v3.7.1

Make it concrete

Back guidance up with research

Make it open source

Work in the open

Test with users, share the tests

Test design tokens






Verify with process

Handover with test steps

Wrapping up

Built-in accessibility:
blessing *and* curse

Re: in defense of websites...

- Hard to find good code examples 
- Conformance vs guidance 
- AT/browser support vs actual usability  
- WCAG often can't tell you what to do (for reasons, but still) 

“Built-in” accessibility

It's not trivial, not a one-off, not a quick “fix”.

It can be done.

It's worthwhile.



hidde.blog/slides

@hdv in most places

Thank you!

hidde.blog

@hdv@front-end.social

Slides: talks.hiddedevries.nl