👉 SHIFTING LEFT

or: making accessibility easier by doing it earlier

Hidde de Vries, State of the Browser, London, 22 October 2022

"WHY ISN'T ACCESSIBILITY EASIER?"

—*a befriended web developer*

@hdv

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

🤔

"Hard to know when it is accessible"

"Find time to refactor after audit results come in"

"Which docs / components can I trust?"

👉 SHIFTING LEFT

or: making accessibility easier by doing it earlier

Hidde de Vries, State of the Browser, London, 22 October 2022

HI, I'M HIDDE

occassional blogger +
accessibility specialist +
developer relations

sanity.io
hidde.blog

HI, I'M HIDDE

occassional blogger +
accessibility specialist +
developer relations +
tofu-eating wokeratus

sanity.io
hidde.blog

Jonathan Rudderham
@codeRunnerUK

• • •

Replying to @hdv

I don't know for sure. Lettuce think about it for a moment.

10:17 AM · Oct 21, 2022 · Twitter for iPhone

Matt Pocock ✈️ **React Advanced**
@mattpocockuk

Replying to @hdv

We romaine pretty good humoured

9:14 AM · Oct 21, 2022 · Twitter Web App

DanB
@DanbWeb
···

Replying to @hdv

I've got a gem you can use

10:11 AM · Oct 21, 2022 · Twitter Web App

WEB ACCESSIBILITY

to ensure people with disabilities can use our site/app

WEB ACCESSIBILITY
to ensure people with disabilities can use our service

WEB ACCESSIBILITY

to ensure people with disabilities can buy our product

Everyone should get an excellent user experience

—Andy Bell, earlier

@hdv

1-2%
blind/visually impaired
`

4%
colour blind

OOGVERENIGING (1 IN 12 MEN, 1 IN 250 WOMEN)

neurological
conditions

THIS CONCERNS
A LOT OF PEOPLE
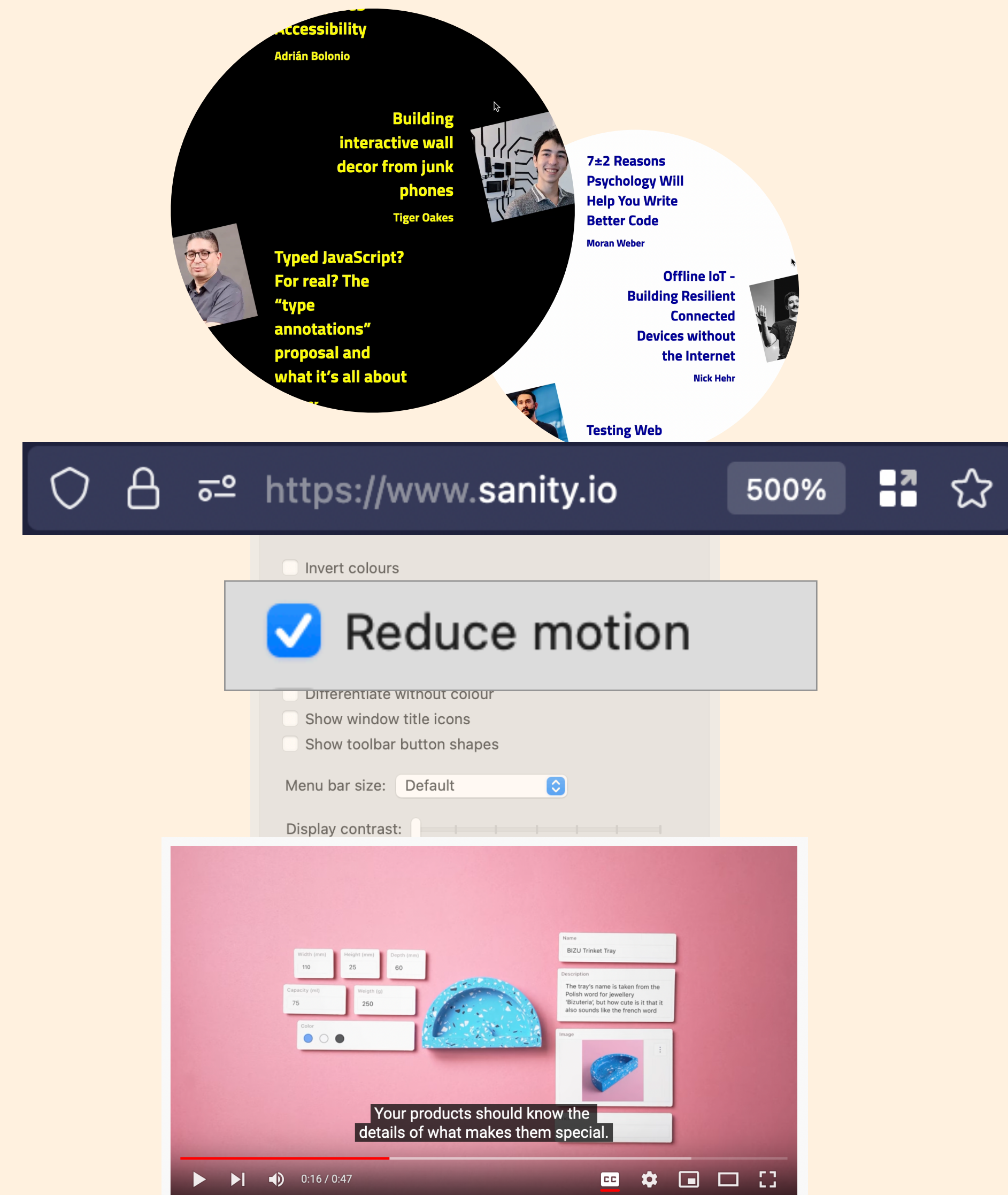
motor
impairments

9%
deaf/heard of hearing

HOORWIJZER

15%
low numerate / low literate

ALGEMENE REKENKAMER

PEOPLE WILL

– zoom in

– use high contrast modes

– use a screenreader

– not use a mouse

– use voice recognition

– be unable to turn their device

W3C/WAI, *How People with Disabilities Use the Web*   https://www.w3.org/WAI/people-use-web/tools-techniques

ASSUME LESS ABOUT HOW PEOPLE USE YOUR PRODUCT
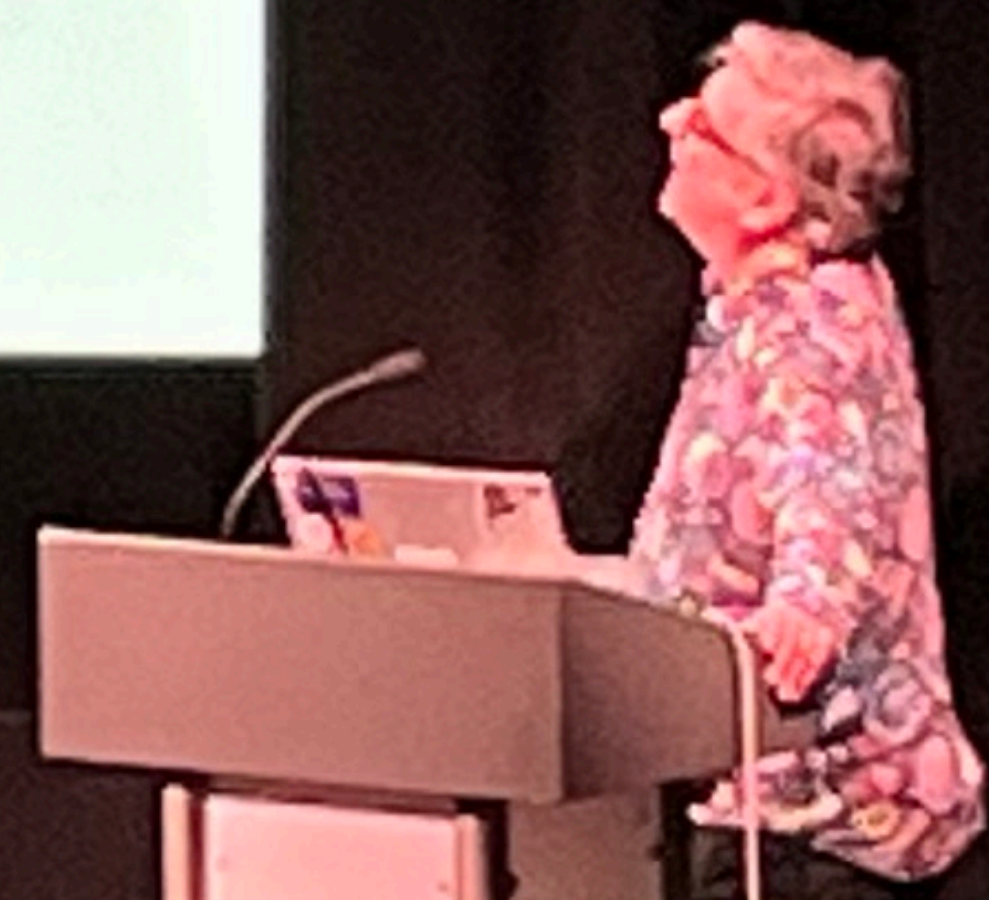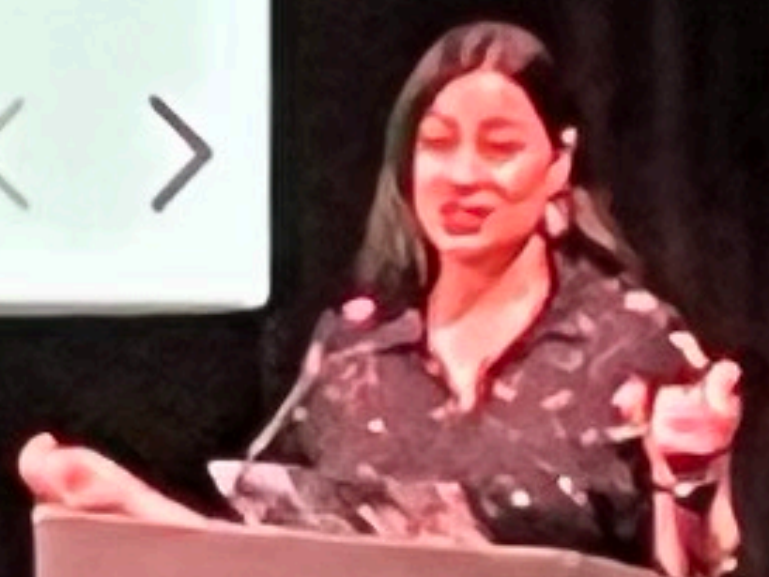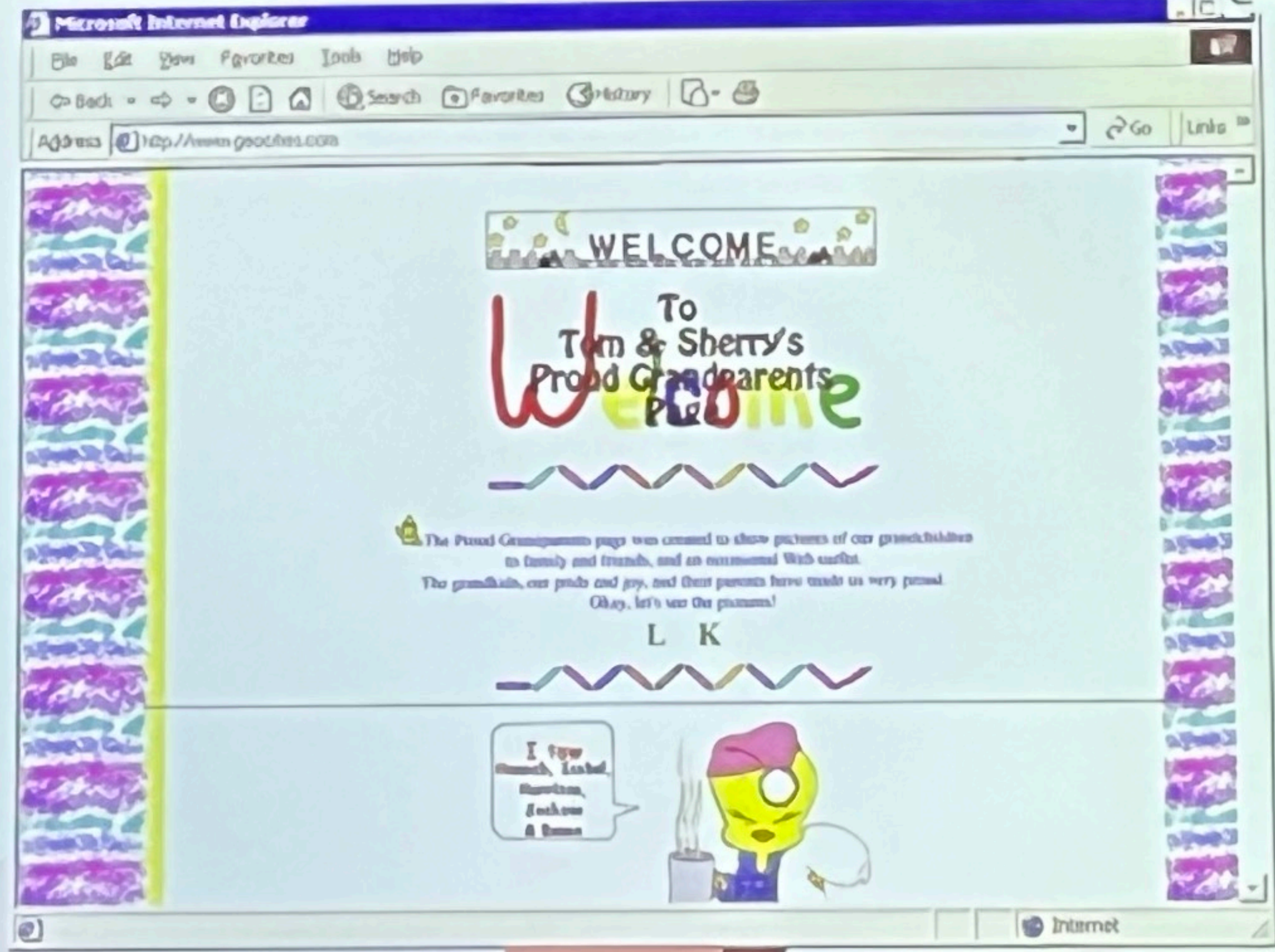
THE THREE PATHS TO WEB ACCESSIBILITY

"WE'RE 100% ACCESSIBLE"

— *some products*

"THAT'S INACCESSIBLE!"

— an accessibility specialist

PEOPLE
use the web in many ways

@hdv

Web Content Accessibility Guidelines (WCAG) 2.1

W3C Recommendation 05 June 2018

This version:

https://www.w3.org/TR/2018/REC-WCAG21-20180605/

Latest published version:

https://www.w3.org/TR/WCAG21/

Latest editor's draft:

https://w3c.github.io/wcag/21/guidelines/

Implementation report:

https://www.w3.org/WAI/WCAG21/implementation-report/

Previous version:

https://www.w3.org/TR/2018/PR-WCAG21-20180424/

Previous Recommendation:

https://www.w3.org/TR/2008/REC-WCAG20-20081211/

Editors:

Andrew Kirkpatrick (Adobe)
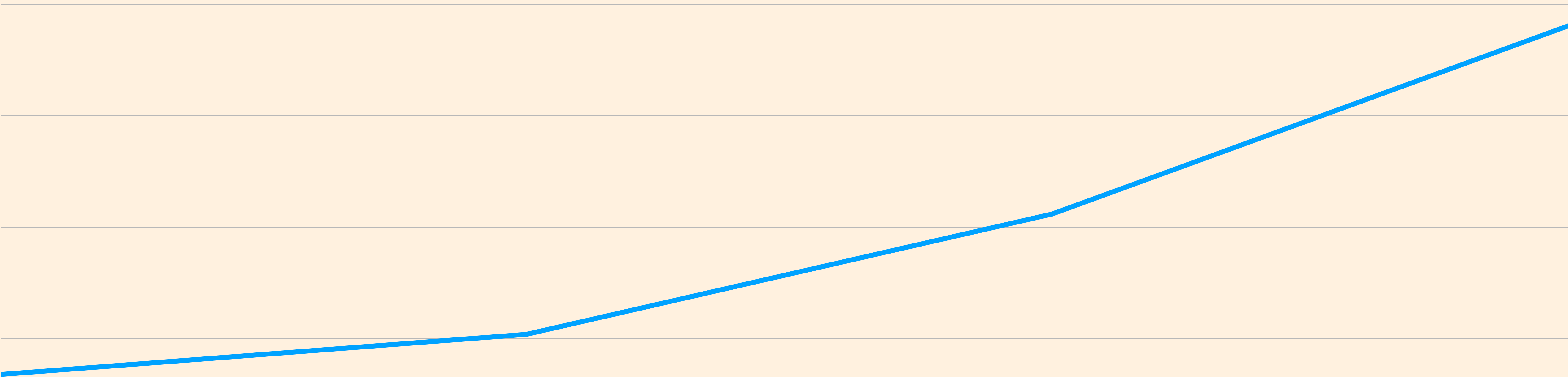
PEOPLE
use the web in many ways

TIMING
matters as websites change

SOMEWHAT SUBJECTIVE
interpretation of Success Criteria

Accessibility doesn't have to be perfect, it just has to be a little bit better than yesterday.

Léonie Watson, accessibility expert / Director @ Tetralogical

IT CAN MAKE SENSE TO PRETEND WE'RE SURE

Register van toegankelijkheidsve... ✕

🛡 🔒 https://toegankelijkheidsverklaring.r

🏠 **Toegankelijkheidsverklaring**   **Register verklaringen**   👤 **Inloggen**

Home › **Register van toegankelijkheidsverklaringen**

Register van toegankelijkheidsverklaringen

Zoeken op instantie, naam of URL

[   ]   **Zoeken**   **Reset**

Overheidsinstantie ▲	Naam	Status	Laatst gewijzigd	Verklaring
Sociale Verzekeringsbank	SVB Extranet voor Gemeenten ↗	C - Eerste maatregelen genomen	18-09-2020	Bekijk verklaring

A11Y STANDARDS + **BEST PRACTICES** + **USER TESTING**

(You'll need all of the above)

A11Y STANDARDS + **BEST PRACTICES** + **USER TESTING**

(You'll need all of the above)

WCAG 2.1

w3.org/TR/WCAG21

WCAG: internationally implemented guidelines that provide a baseline for testing web accessibility

WCAG 2.1

w3.org/TR/WCAG21

Principles

↳ Guidelines

↳ Success Criteria

WCAG 2.1

w3.org/TR/WCAG21

Principles

↳ Guidelines

↳ Success Criteria (three levels)

WCAG 2.1

w3.org/TR/WCAG21

Principles

↳ Guidelines

↳ Success Criteria (three levels)

50 criteria at Level A + AA

QUICK REFERENCE

w3.org/WAI/WCAG21/quickref/

How to Meet WCAG (Quickref Re...

https://www.w3.org/WAI/W... 110%

How to Meet WCAG (Quick Reference)

A customizable quick reference to Web Content Accessibility Guidelines (WCAG) 2 requirements (success criteria) and techniques. ❯ Show About & How to Use

W3C® Web Accessibility Initiative WAI

☰ Contents | ⚙ Filter | ❮ Hide

Selected Filters: **WCAG 2.1:** all success criteria and all techniques.

↻ Clear filters | ✚ Expand **all** sections | ⌔ Share

1. Perceivable

1.1 Text Alternatives

1.1.1 Non-text Content

1.2 Time-based Media

1.2.1 Audio-only and Video-only (Prerecorded)

1.2.2 Captions (Prerecorded)

1.2.3 Audio Description or Media Alternative (Prerecorded)

1.2.4 Captions (Live)

1.2.5 Audio Description (Prerecorded)

1.2.6 Sign Language (Prerecorded)

1.2.7 Extended Audio Description (Prerecorded)

Principle 1 – Perceivable

Information and user interface components must be presentable to users in ways they can perceive.

Guideline 1.1 – Text Alternatives

Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.

1.1.1 Non-text Content — Level A

All non-text content that is presented to the user has a text alternative that serves the equivalent purpose, except for the situations listed below. ❯ Show full description

ⓘ Understanding 1.1.1

THIS IS WCAG

thisiswcag.com

✓ This is WCAG

🔒 https://thisiswcag.com

This is WCAG 2.1

all	content	custom-controls
forms-and-UI	audio-video
structure	colour	font-size
dynamic-content	keyboard
link

Total tests 103

showing 103 tests

filtered by forms

WCAG in plain language

Build and test against the Web Content Accessibility Guidelines (WCAG) consistently by understanding what is a failure against the success criteria.

These tests help you focus on the relevant criteria you need to apply and test against.

Disagree with any of the tests? put forward a change recommendation in the **project repository**

Notify me

Stay up to date whenever tests are added and updated.

Email address

We'll never share your email with anyone else.

Notify me

50 SUCCESS CRITERIA*

- about issues people with disabilities face
- testable (some by humans, some by machines)

EXAMPLES

2.4.2 Page Titled — Level A
Web pages have titles that describe topic or purpose.

> Show techniques and failures for 2.4.2

2.4.6 Headings and Labels — Level AA
Headings and labels describe topic or purpose.

> Show techniques and failures for 2.4.6

* counting Level A + AA criteria in WCAG 2.1

WCAG
Report

VPAT

WCAG is a useful, testable baseline
to measure your products
and compare products

A11Y STANDARDS + **BEST PRACTICES** + **USER TESTING**

(You'll need all of the above)

BEST PRACTICES

Be careful about what you adopt, look for well-tested patterns

BEST PRACTICES

How did they test?

Who did they test with?

Are they transparent about
pros and cons?

Who created it?

BEST PRACTICES
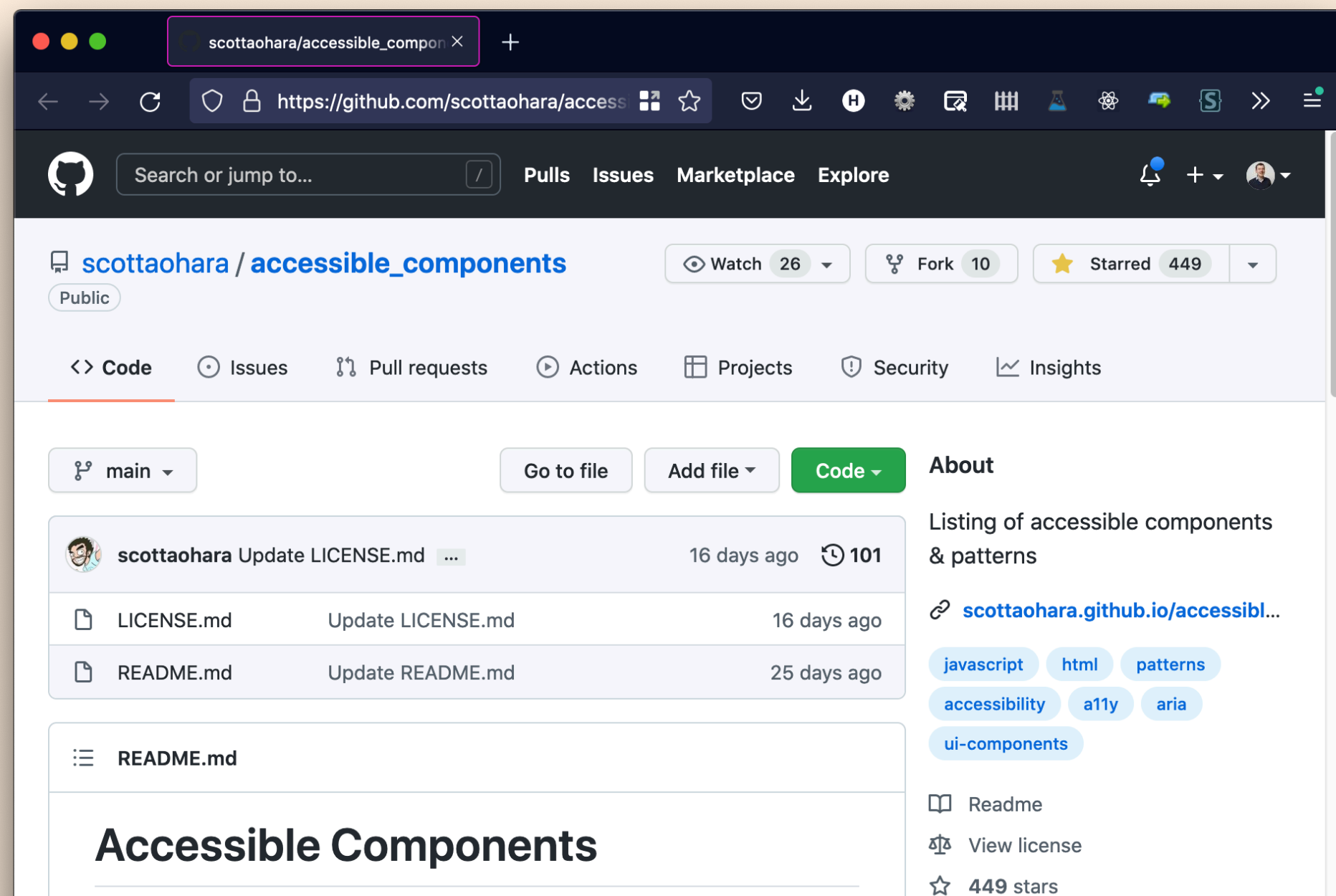
https://github.com/scottaohara/accessible_components

https://design-system.service.gov.uk
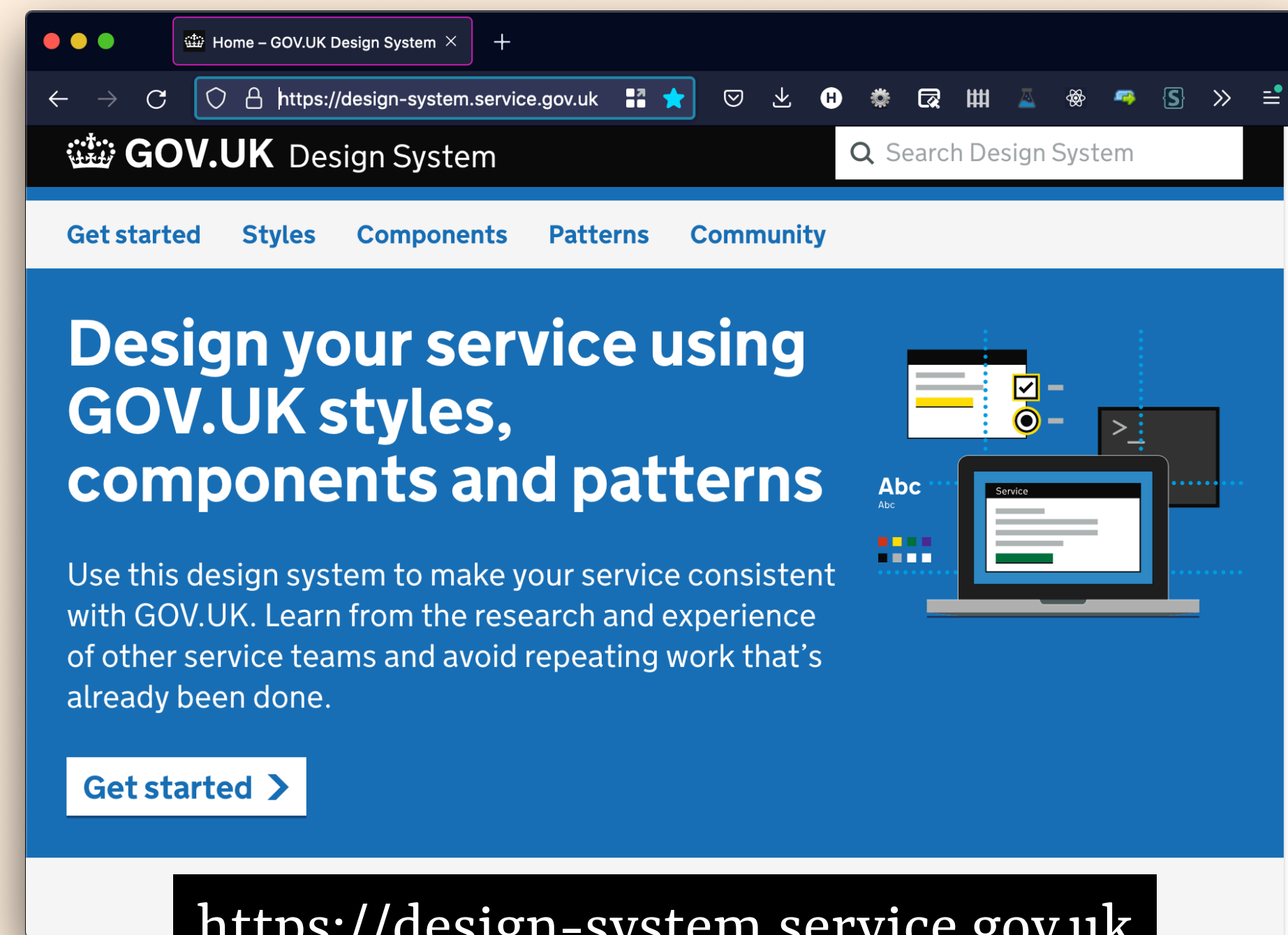
BEST PRACTICES: W3C/WAI

These are standards:

WCAG
WAI-ARIA
ATAG
UAAG

These are "not normative":

ARIA Authoring Practices
COGA Guidance
Understanding docs
Techniques

BEST PRACTICES: W3C/WAI

These are standards:

WCAG
WAI
ATA
UAAG

Docs on using specific standards, *not* docs on best accessibility

These are "not normative":

ARIA Authoring Practices
COGA Guidance
Understanding docs
Techniques

BEST PRACTICES: W3C/WAI

These are standards:

WCAG
WAI
ATAG
UAAG

These are "not normative":

ARIA Authoring Practices
COGA Guidance
Understanding docs
Techniques

How to best use ARIA if you want to solve it with ARIA

BEST PRACTICES: W3C/WAI

These are standards:

WCAG
WAI
ATAG
UAAG

These are "not normative":

ARIA Authoring Practices
COGA Guidance

Understanding docs
Techniques

Extra context with WCAG, not required for conformance

Best practices should help
you find out what accessible
patterns look like

A11Y STANDARDS + **BEST PRACTICES** + **USER TESTING**

(You'll need all of the above)

TESTING WITH USERS

W3C, *Involving Users in Web Projects for Better, Easier Accessibility*

TESTING WITH USERS

- test with a range of different users: one user doesn't speak for all

W3C, *Involving Users in Web Projects for Better, Easier Accessibility*

TESTING WITH USERS

- test with a range of different users: one user doesn't speak for all
- **allow for plenty of time**

Frozen Rockets, *Things to consider when doing usability testing with disabled people*

TESTING WITH USERS

- test with a range of different users: one user doesn't speak for all
- allow for plenty of time
- **test only when you're ready**

Frozen Rockets, *Things to consider when doing usability testing with disabled people*

TESTING WITH USERS

- test with a range of different users: one user doesn't speak for all
- allow for plenty of time
- test only when you're ready
- **ensure your lab is accessible**

Frozen Rockets, *Things to consider when doing usability testing with disabled people*

Things to consider when doing u ×   +

https://frozenrockets.nl/articles/e

FROZEN ROCKETS

Accessibility advies   Training en coaching   Blog

Things to consider when doing usability testing with disabled people

Article
by Peter van Grieken

Published on 27 February 2020

Throughout the years, I've conducted several usability tests with disabled people. They are n only a great way to evaluate the accessibility of interface, but they can also help to grow aware of accessibility within the design and developm team.

User testing will help
you test assumptions
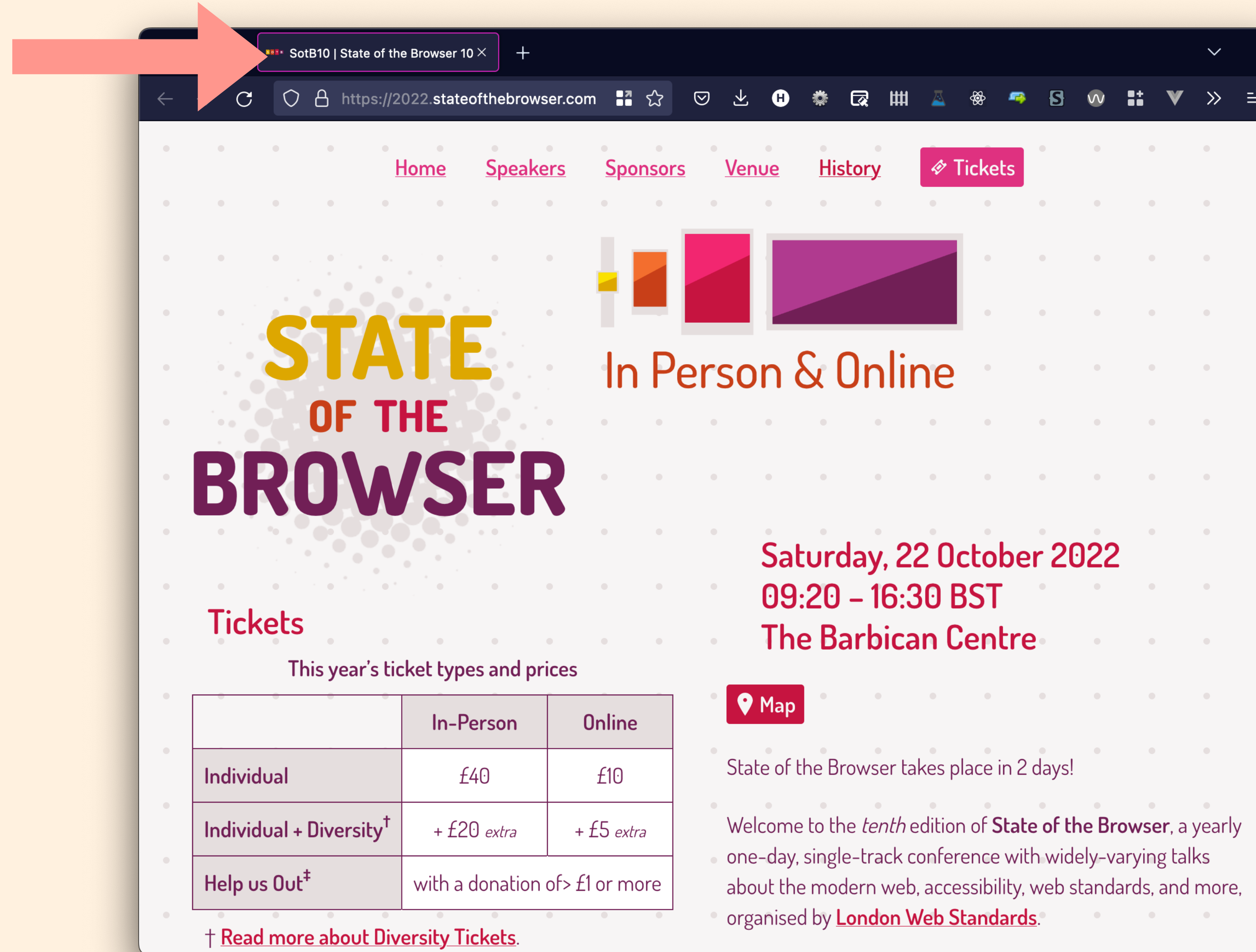
PRACTICAL CHECKS

MANUAL TESTING

Tests that most people on the team can do periodically

MANUAL: PAGE TITLE

Is there a title? Does it describe the page?

SotB10 | State of the Browser 10

https://2022.stateofthebrowser.com

Home   Speakers   Sponsors   Venue   History   ✎ Tickets

STATE OF THE BROWSER

In Person & Online

Saturday, 22 October 2022
09:20 – 16:30 BST
The Barbican Centre

📍 Map

State of the Browser takes place in 2 days!

Welcome to the *tenth* edition of **State of the Browser**, a yearly one-day, single-track conference with widely-varying talks about the modern web, accessibility, web standards, and more, organised by **London Web Standards**.

Tickets

This year's ticket types and prices

	In-Person	Online
Individual	£40	£10
Individual + Diversity†	+ £20 *extra*	+ £5 *extra*
Help us Out‡	with a donation of> £1 or more	

† **Read more about Diversity Tickets**.

MANUAL: KEYBOARD

Can I get to all *interactive elements?*

<details>

<select>

<input>

<textarea>

<a>

<button>
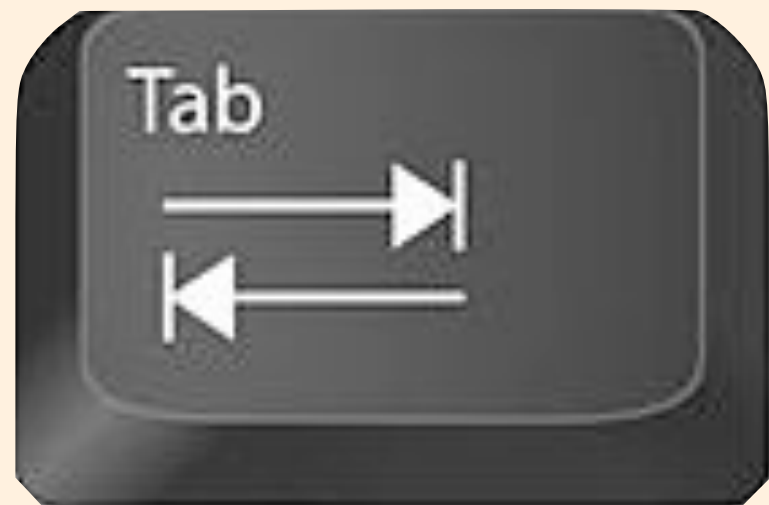
MANUAL: KEYBOARD

Can I do everything
with just the keyboard?

MANUAL: KEYBOARD

Can I see where I am?

Leverage agile frameworks to provide a robust synopsis for high level overviews. Iterative approaches to corporate strategy foster collaborative thinking to further the overall value proposition. Organically grow the holistic world view of disruptive innovation via workplace diversity and empowerment.

Bring to the table win-win survival strategies to ensure proactive domination. At the end of the day, going forward, a new normal that has evolved from generation X is on the runway heading towards a streamlined cloud solution. User generated content in real-time will have multiple touchpoints for offshoring.

MANUAL: KEYBOARD

Can I get to all interactive elements?

Can I see where I am?

Does the order make sense?

Are you never trapped?

Is there anything with `tabindex > 0`?

Is there nothing in tab order that shouldn't be there?

MANUAL: IMAGES

Do all images have an `alt` attribute?

Is the `alt` appropriate?

- left empty when it should be
- contains everything that's in the image
- imagine image fails; is it a good replacement?

MANUAL: IMAGES

Is the image the only thing in a link? The `alt` is now the link's name.
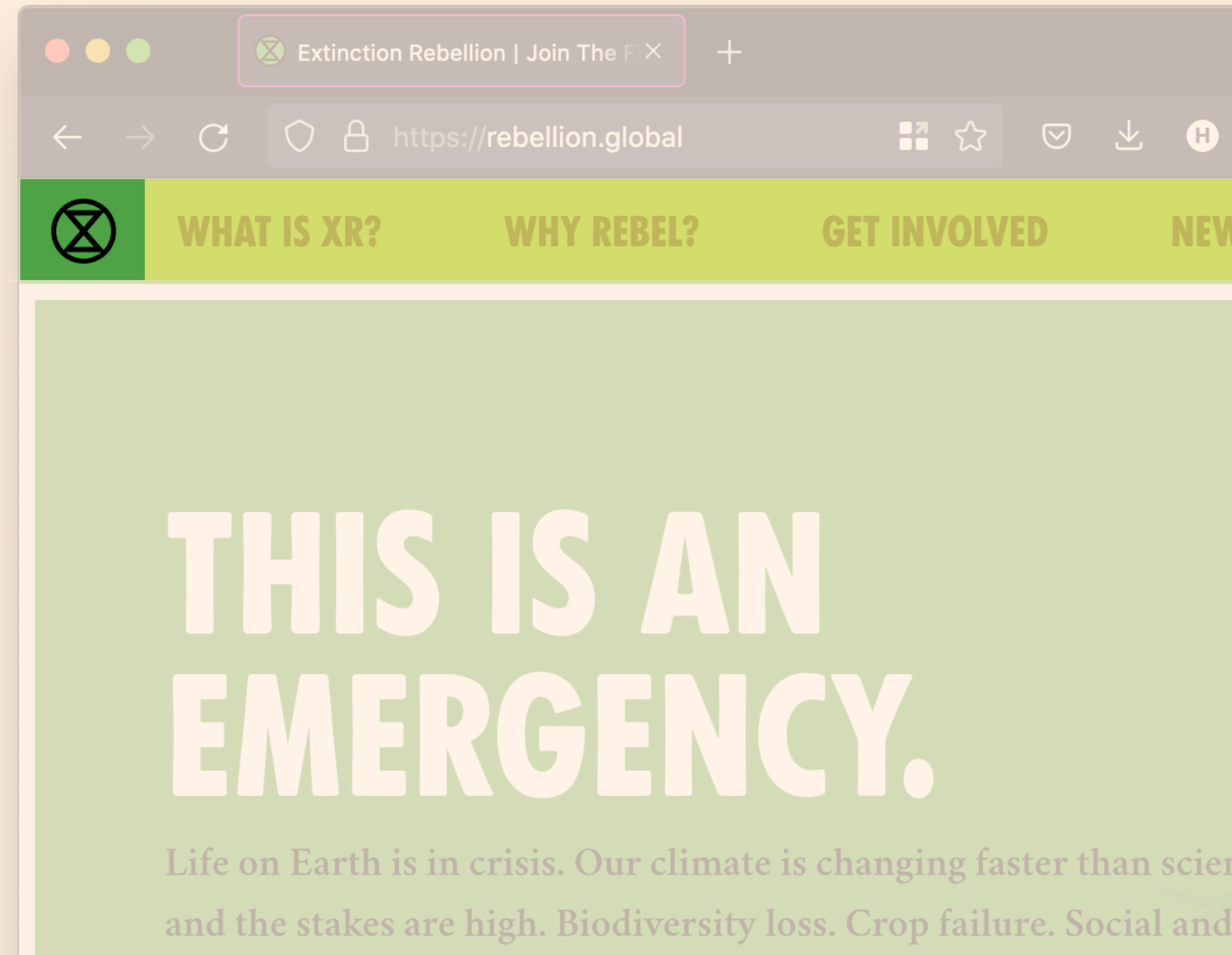
MANUAL: VIDEO

Is there meaningful audio?
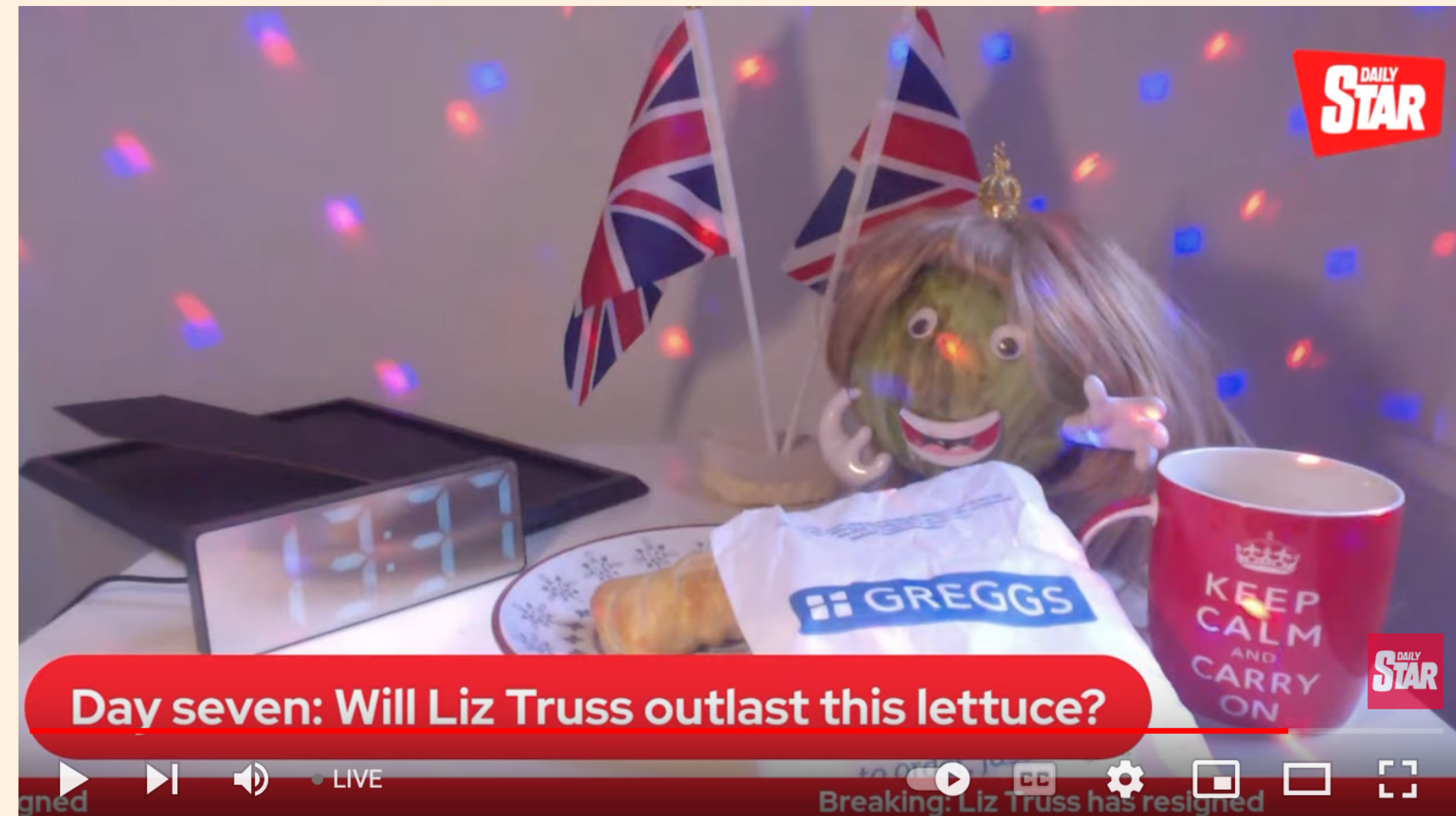
MANUAL: VIDEO

Are captions available and correct?

Is everything that's visible also in audio?

MANUAL: AUDIO

Is everything in the audio available as text?

DARICE DE CUBA 👾

> "[podcasts] really boomed during the first months of lockdown. As a deaf person, almost all of these podcasts are inaccessible to me because they don't have transcripts or I have to wait weeks before they are available."

Darice de Cuba, *The Podcast Transcript Experimentation*

Podcast Transcript
xperimentation

2021 // `Exclusive Design` • `Human`
`ntered Design` • `Podcasts`

I never saw myself as a teacher of any kind. But I do love t
educate people about accessibility and inclusiveness. The
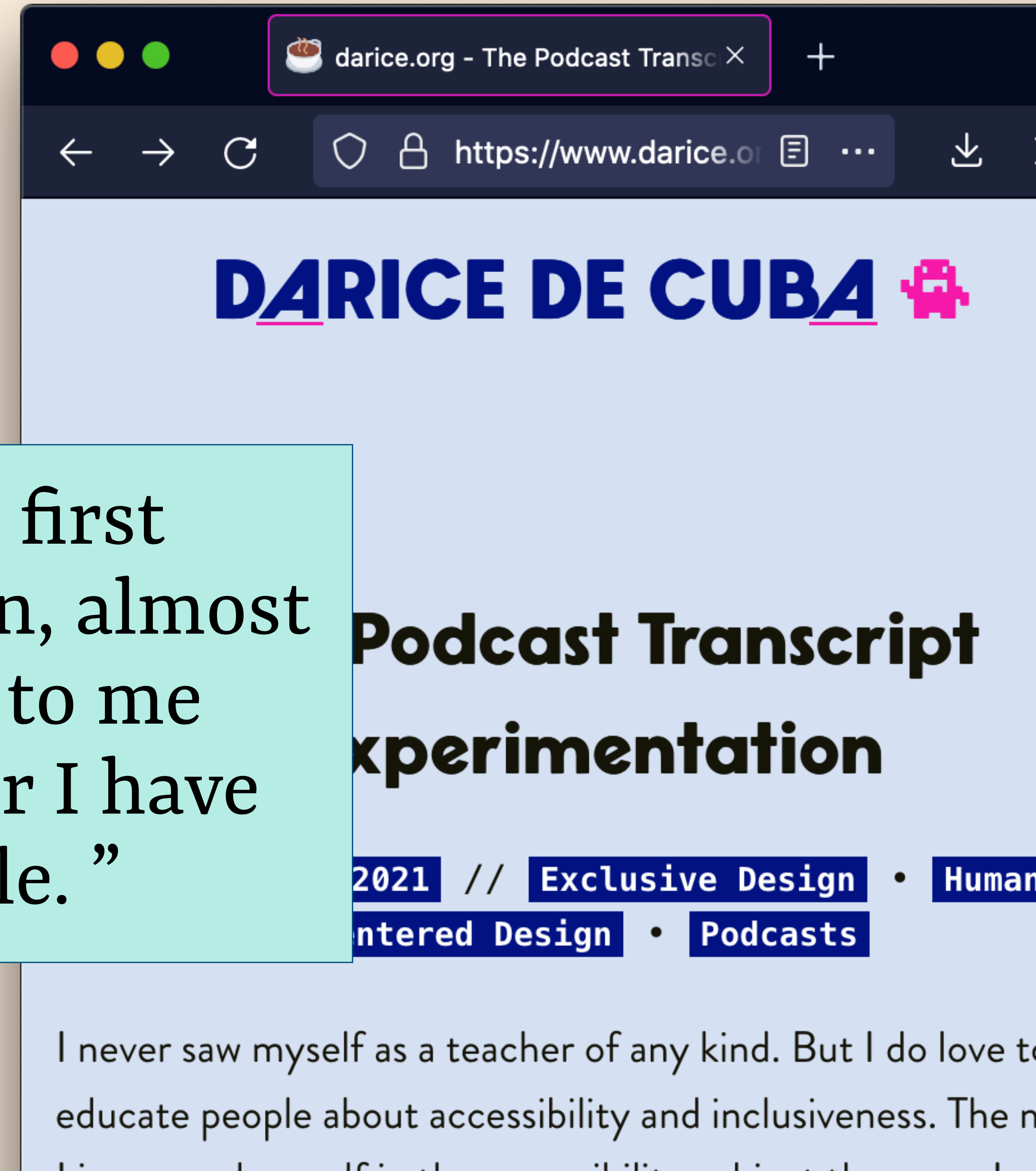
MANUAL: HEADINGS

Do headings describe the section they're a heading of?

MANUAL: HEADINGS

Is everything that looks like a heading marked up with a `hx` tag?

```
<div class="text-5xl font-medium text-green-600">Our products</div>
```

MANUAL: ZOOM

When you zoom in (up to 400%), does everything still work?

- text should not overlap
- text should not be cut off
- all controls should be usable
- no horizontal and vertical scrolling

MANUAL: SCREENREADERS

Use the website with a screenreader, *but*

- – if you're not a regular screenreader user, add a pinch of salt, don't jump to conclusions
- – keep common browser/screenreader combinations in mind
- – "it works" also depends on user skill, not all users are tech savvy

SEMI-AUTOMATED TESTING

Tests that remove some of the manual
work so you can make decisions quicker

FIREFOX DEV TOOLS

– Visualise tabbing order

WIKIPEDIA

The Free Encyclopedia

English
883 000+ articles

日本語
1 292 000+ 記事

Русский
1 756 000+ статей

Deutsch
2 617 000+ Artikel

Español
1 717 000+ artículos

Français
2 362 000+ articles

中文
1 231 000+ 條目

Italiano
718 000+ voci

Português
1 074 000+ artigos

Polski
1 490 000+ haseł

EN

文A **Read Wikipedia in your language**

Wikipedia is hosted by the Wikimedia Foundation, a non-profit organization that also hosts a range of other projects

---

Accessibility

Check for issues: None | ☑ Show Tabbing Order ⚙

Role	Name

▼ Checks

No checks for this node.

▼ Properties

name: "Wikipedia"

role: "document"

▶ actions: [...]

value: ""

DOMNode: #document

description: ""

keyboardShortcut: ""

childCount: 22

🗑 Filter Output ⚙ ✕

Errors Warnings Logs Info Debug CSS XHR
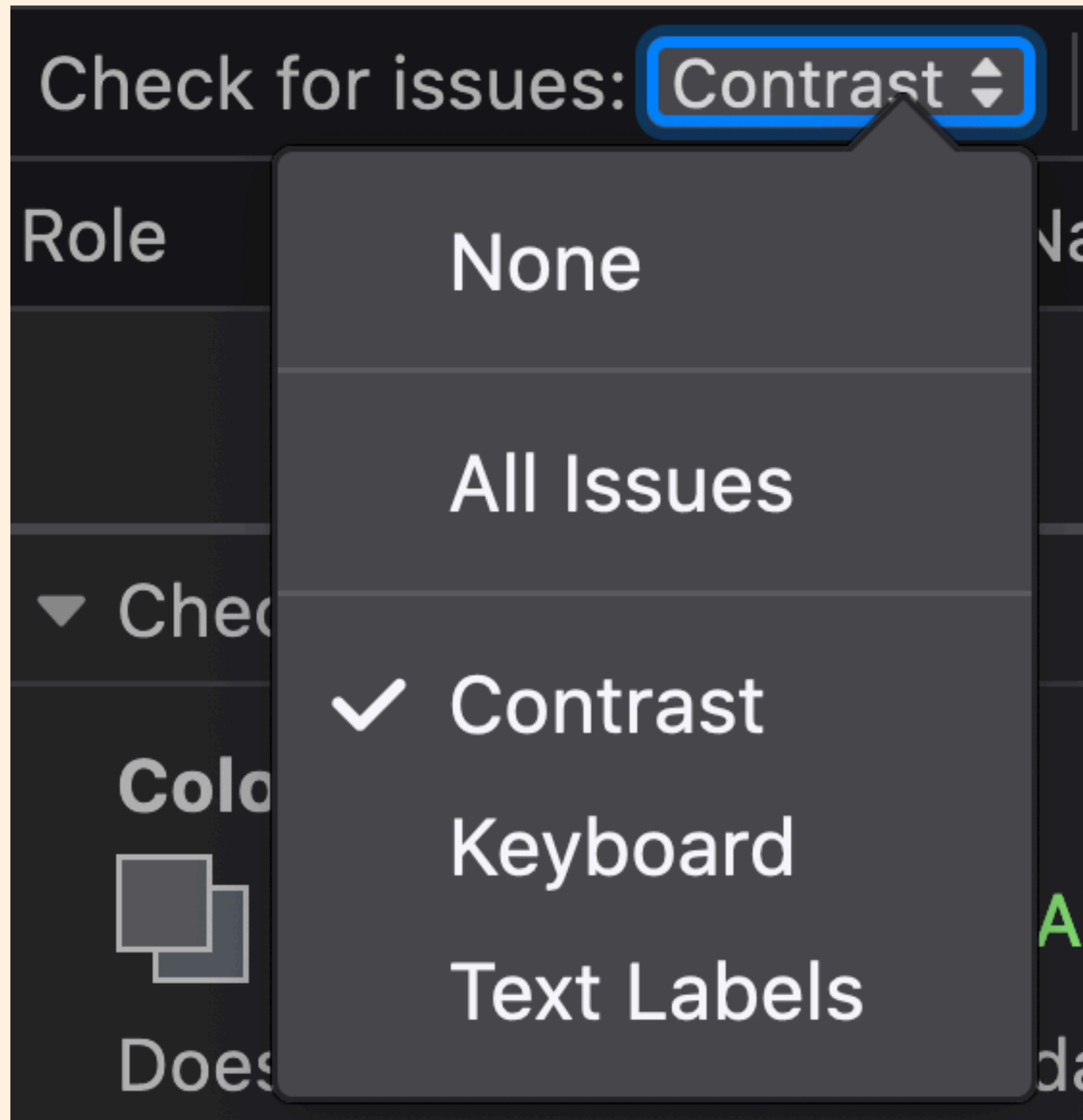
FIREFOX DEV TOOLS

- Visualise tabbing order
- Test Contrast, Keyboard and Text Labels on a page
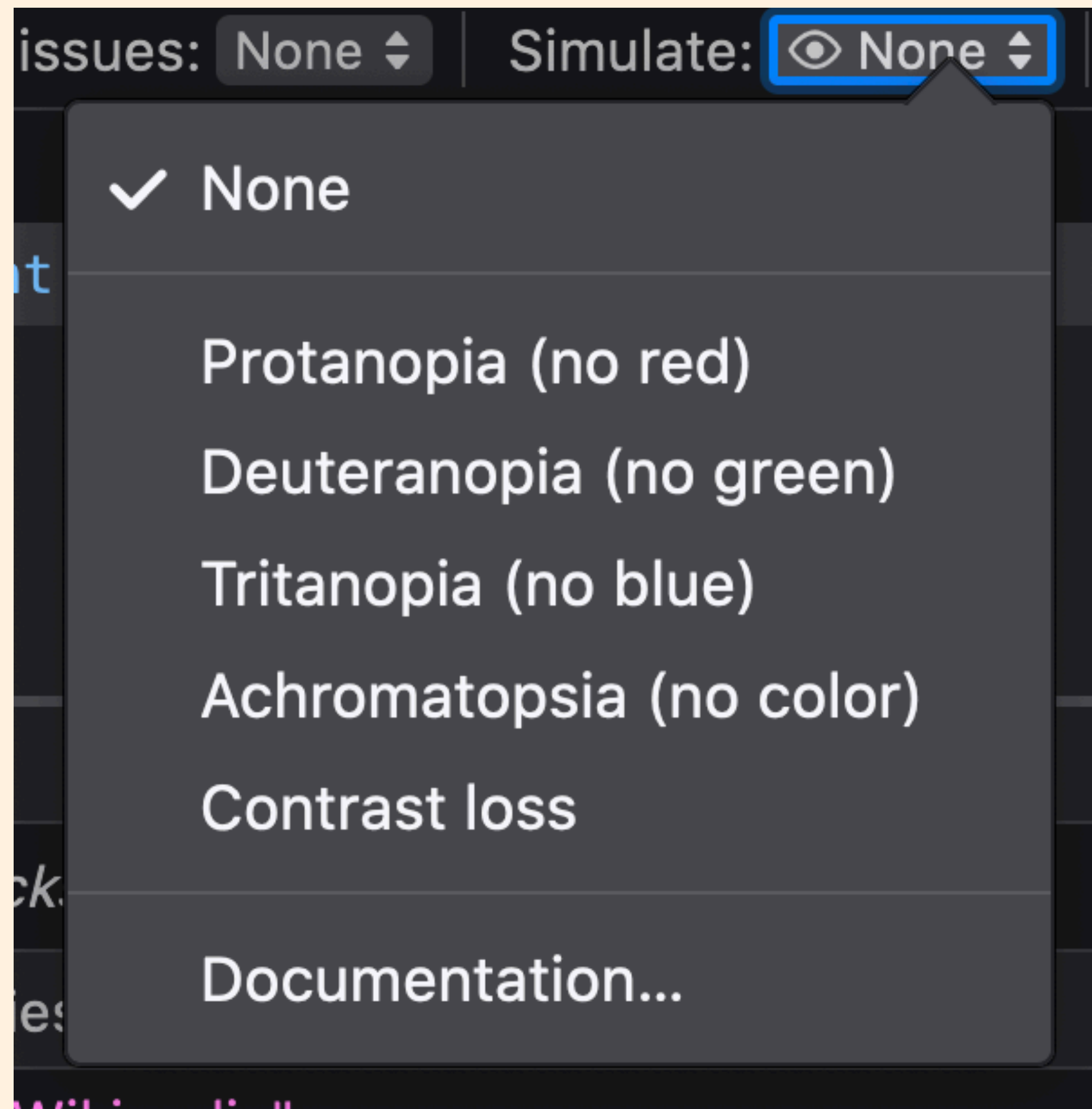
FIREFOX DEV TOOLS

- Visualise tabbing order
- Test Contrast, Keyboard and Text Labels on a page
- Simulate colour vision deficiencies / contrast loss

Simulate: 👁 None

✓ None

Protanopia (no red)

Deuteranopia (no green)

Tritanopia (no blue)

Achromatopsia (no color)

Contrast loss

Documentation...

HTML VALIDATOR

validator.nu

https://www.tate.org.uk/art

Search   Shop

BECOME A MEMBER

Highlights   Meet the Collection Artists   Art in the collection   Get Creative   Listen   Dig Deeper

HIGHLIGHTS

INTERVIEW

Hurvin Anderson: 'It's questioning my history, my place'

The artist shares the inspirations behind his paintings, and how he uses photography within his work

BEHIND THE SCENES

Life of an Artwork: Quadrille by Rose English

Discover how this performance caused a commotion at the Southampton Horse Show, and how it lives on inside the museum

TATE ETC

The Power of Pattern

Lubaina Himid

The artist describes her formative experiences and how they inform her art today

INTERVIEW

Heather Phillipson: 'I have no fixed starting point'

The artist shares the inspiration behind her work and delves into her thought process

WAVE
wave.webaim.org

AUTOMATED TESTING

Tests you can run against a website automatically (eg in CI/CD)

```
hdv   ~/Projects   axe https://dequeuniversity.com/rules/axe/4.1/image-alt
Running axe-core 4.1.1 in chrome-headless

Testing https://dequeuniversity.com/rules/axe/4.1/image-alt ... please wait, thi
s may take a minute.
  0 violations found!

Please note that only 20% to 50% of all accessibility issues can automatically b
e detected.
Manual testing is always required. For more information see:
https://dequeuniversity.com/curriculum/courses/testingmethods
```

AUTOMATED TESTING
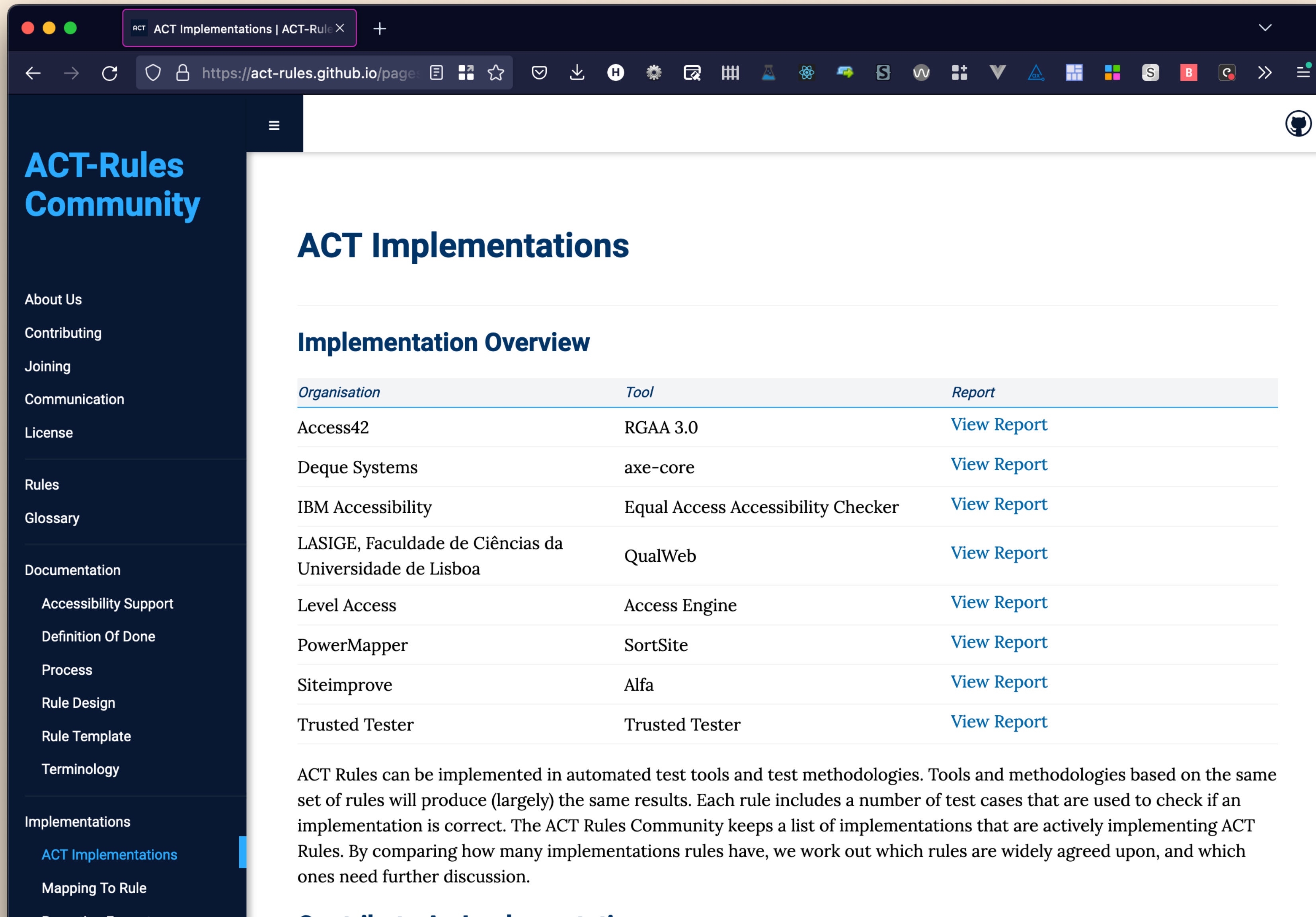
Most of these integrate with your CI/CD and can export to interoperable data formats

AUTOMATED TESTING

Accessibility tools audit results - Ov ✕ +

🛡 🔒 https://alphagov.github.io/

Accessibility tool audit

Overview > Detailed audit results

Detailed audit results

Numbers

142
test cases

13
tools tested

40%
most issues found by a tool

@hdv
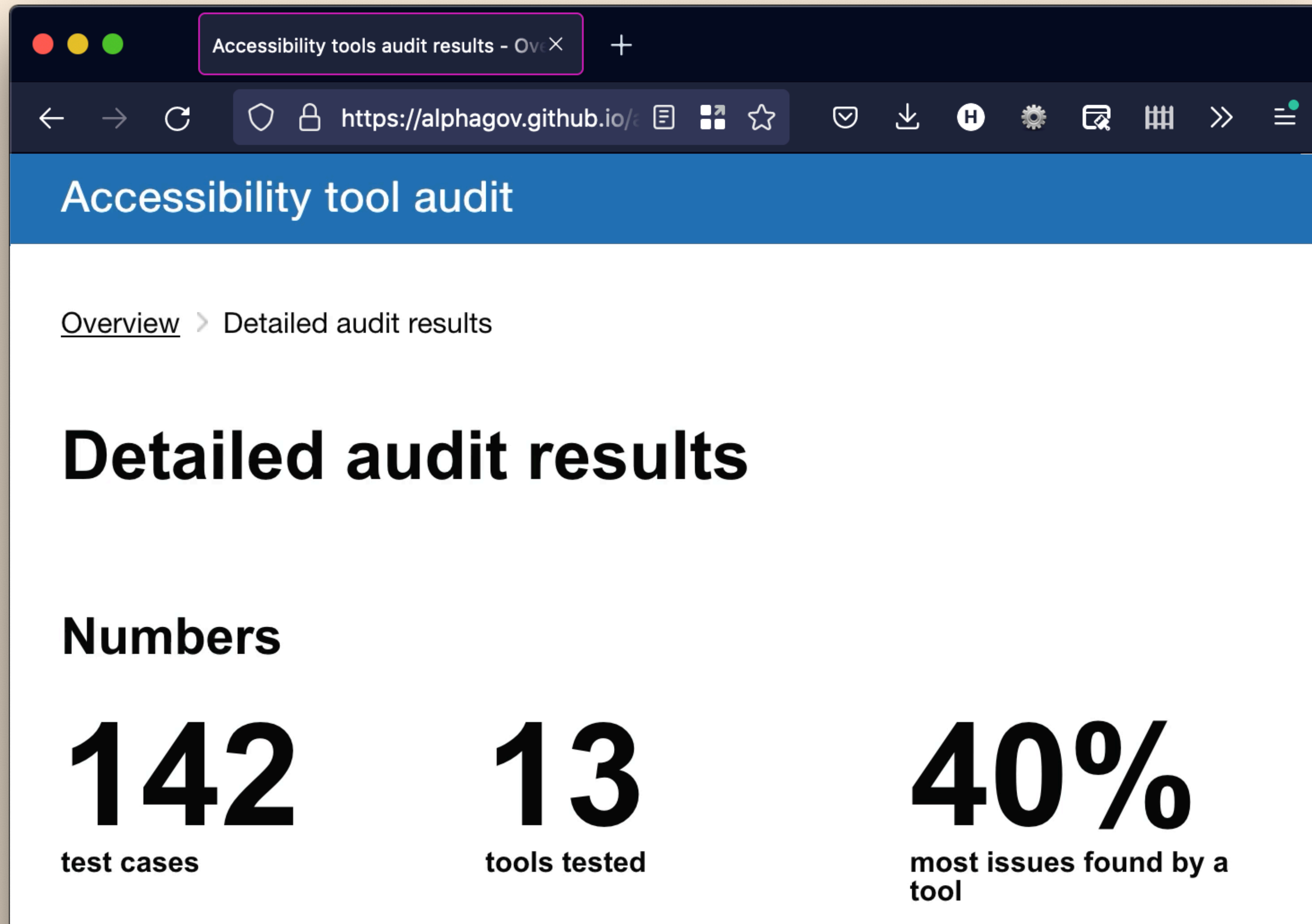
ACT-RULES

WCAG as harmonised test rules

ACT-Rules Community

About Us
Contributing
Joining
Communication
License

Rules
Glossary

Documentation
Accessibility Support
Definition Of Done
Process
Rule Design
Rule Template
Terminology

Implementations
ACT Implementations
Mapping To Rule

ACT Implementations

Implementation Overview

Organisation	Tool	Report
Access42	RGAA 3.0	View Report
Deque Systems	axe-core	View Report
IBM Accessibility	Equal Access Accessibility Checker	View Report
LASIGE, Faculdade de Ciências da Universidade de Lisboa	QualWeb	View Report
Level Access	Access Engine	View Report
PowerMapper	SortSite	View Report
Siteimprove	Alfa	View Report
Trusted Tester	Trusted Tester	View Report

ACT Rules can be implemented in automated test tools and test methodologies. Tools and methodologies based on the same set of rules will produce (largely) the same results. Each rule includes a number of test cases that are used to check if an implementation is correct. The ACT Rules Community keeps a list of implementations that are actively implementing ACT Rules. By comparing how many implementations rules have, we work out which rules are widely agreed upon, and which ones need further discussion.

IT'S EASIER WHEN YOU DO IT EARLIER

FIND BARRIERS IN YOUR SITE BEFORE IT DEPLOYS

This is a super power

IT'S EASIER WHEN YOU DO IT EARLIER

IT'S EASIER WHEN YOU DO IT EARLIER

Eg, pick a CMS that supports accessibility

IT'S EASIER WHEN YOU DO IT EARLIER

Eg, pick a CMS that supports accessibility, check designs before building

IT'S EASIER WHEN YOU DO IT EARLIER

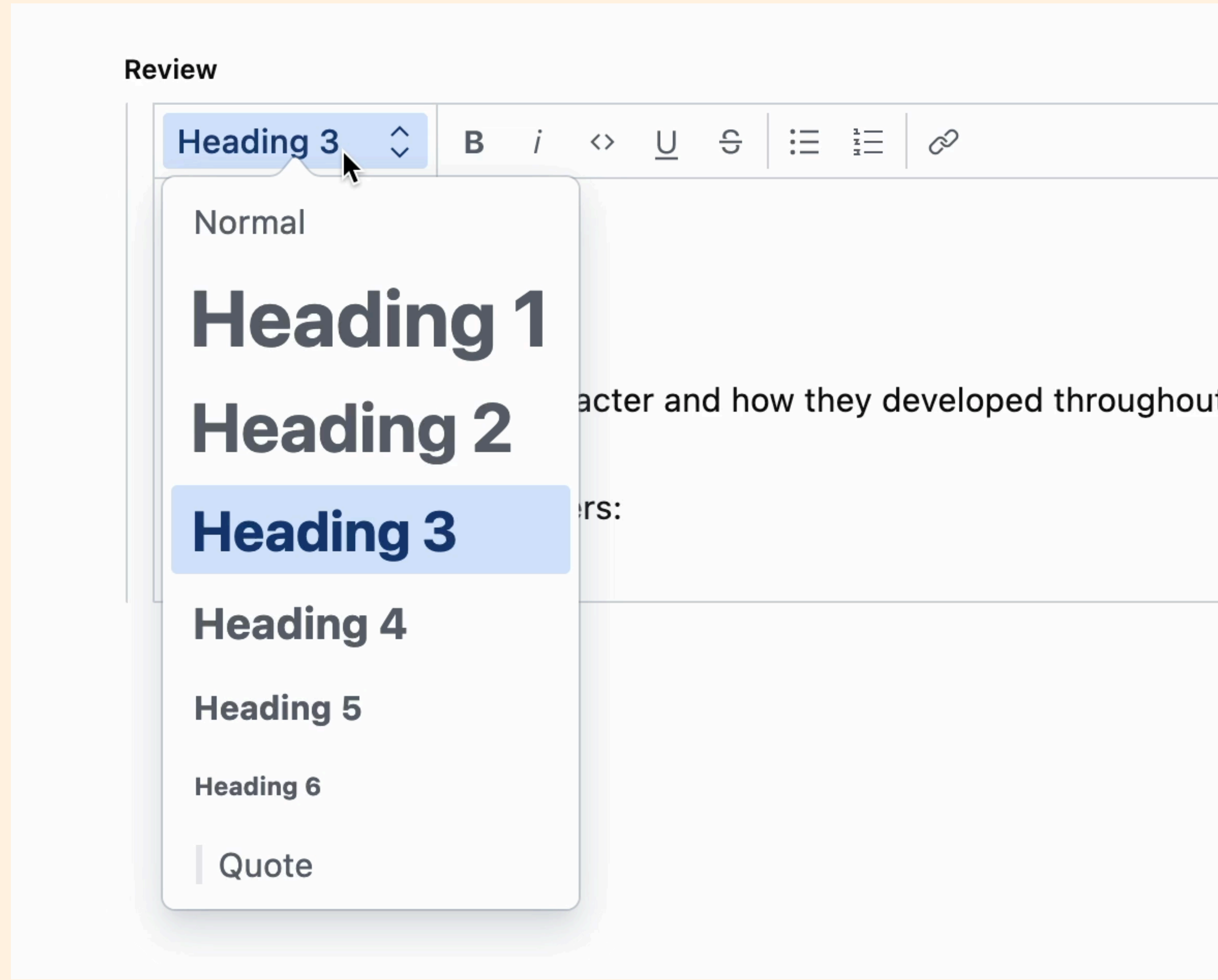Eg, pick a CMS that supports accessibility, check designs before building, check builds before merging

IT'S EASIER WHEN YOU DO IT EARLIER

Eg, pick a CMS that supports accessibility, check designs before building, check builds before merging, **check merged code before shipping, etc**

Hidde's validation playground

Search

Desk

0

Books

Norwegian wood

Content

Norwegian wood

Current version

Book title

Norwegian wood

Review

Normal | **B** | *i* | <> | U | S | • | 1. | 🔗

It was a fantastic book!

Details

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

I also liked these characters:

- Alice
- Bob

localhost:3333/desk/book;d228e6f4-8bac-4308 150%

Hidde's validation playground

✎ 🔍 Search | 🗔 Desk | 0

Books ✎ ⋮

Norwegian wood ⬆ ✎

Content

Norwegian wood ⋮ ✕

Current version ⇕

Book title

Norwegian wood

Review

| Normal ⇕ | **B** | *i* | <> | U̲ | S̶ | • ☰ | 1. ☰ | 🔗 | ⤢ |

It was a fantastic book!

Details

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

I also liked these characters:

- Alice
- Bob

Geodesic cabin

⋮

✎ **Editor**   👁 Web Preview   👁 Colorblind   👁 Text to speech

Geodesic cabin

⋮

✎ Editor   👁 Web Preview   👁 **Colorblind**   👁 Text to speech

Select a filter:

| Achromatopsia | ⌄ |

Our new portfolio   Archive

Ended at

| 📅 Select |
| e.g. 2019-12-06 08:49 |

Main image

| ⬆ Upload | Select | ✎ Edit | **Remove** |
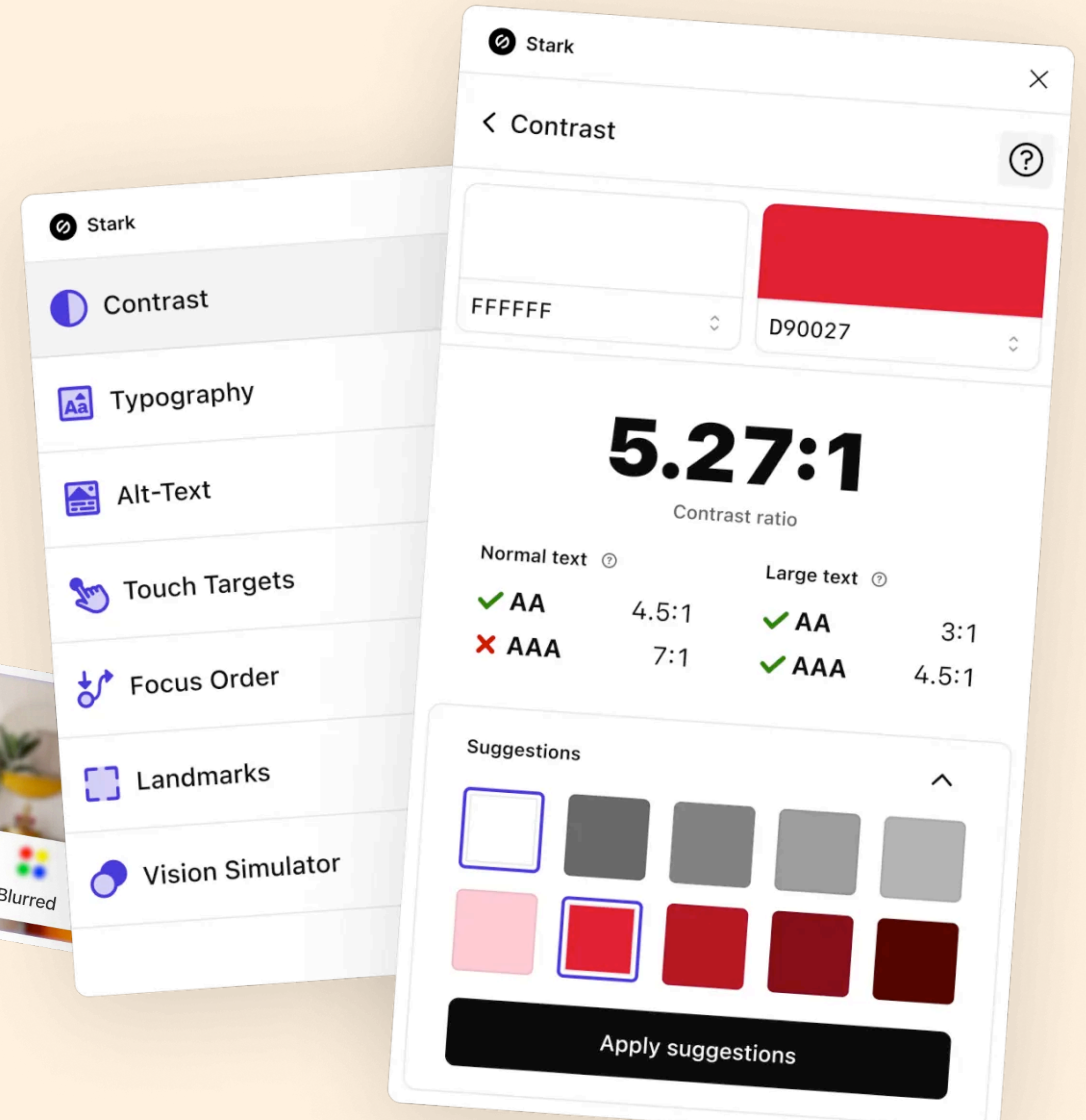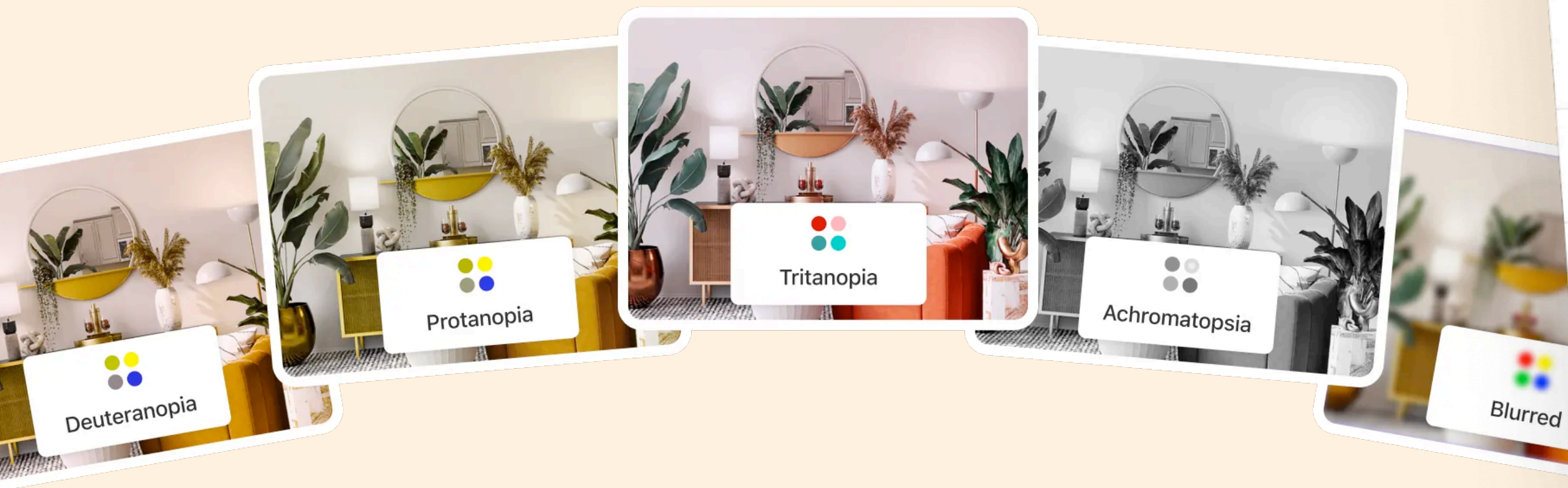
WHAT?

Accessibility standards
Best practices
User testing

HOW?

Manual checks
Browser tools
CLI tools

WHEN?

Early, eg with right CMS, auto checks etc
Often, during development
Periodically, with audits and user tests

"WHY ISN'T ACCESSIBILITY EASIER?"

—a befriended web developer

THANK YOU!

Contact/resources
talks.hiddedevries.nl
@hdv or hidde@sanity.io

Typefaces
Bungee by David Jonathan Ross (DJR)
Rasa by Anna Giedryś, David Březina (Rosetta)