

HTML

HTML ENABLES



Multi device web

HTML ENABLES



Multi device web

Heading 1

Heading 2

Content

Default stylesheets

HTML ENABLES



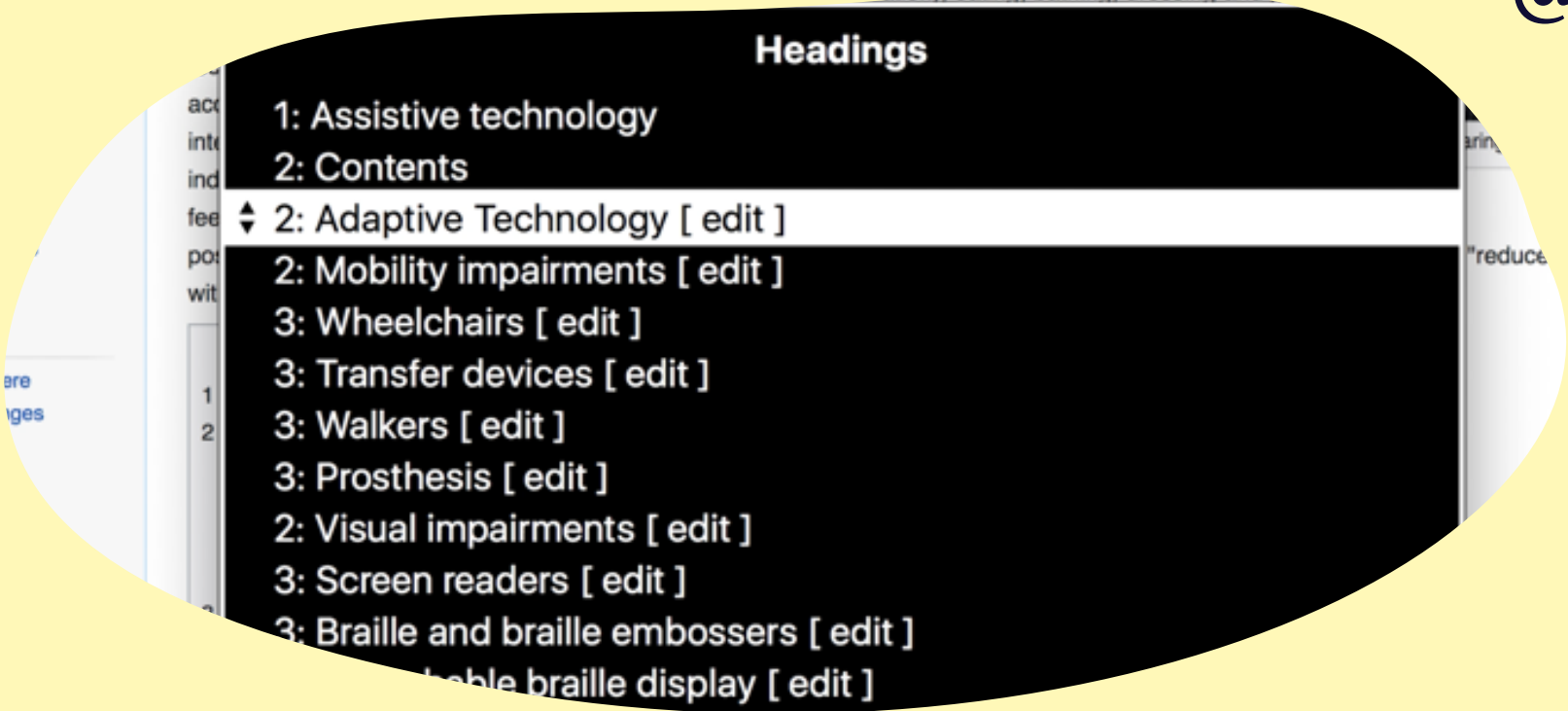
Multi device web

Heading 1

Heading 2

Content

Default stylesheets



‘Browse by heading’

HTML ENABLES



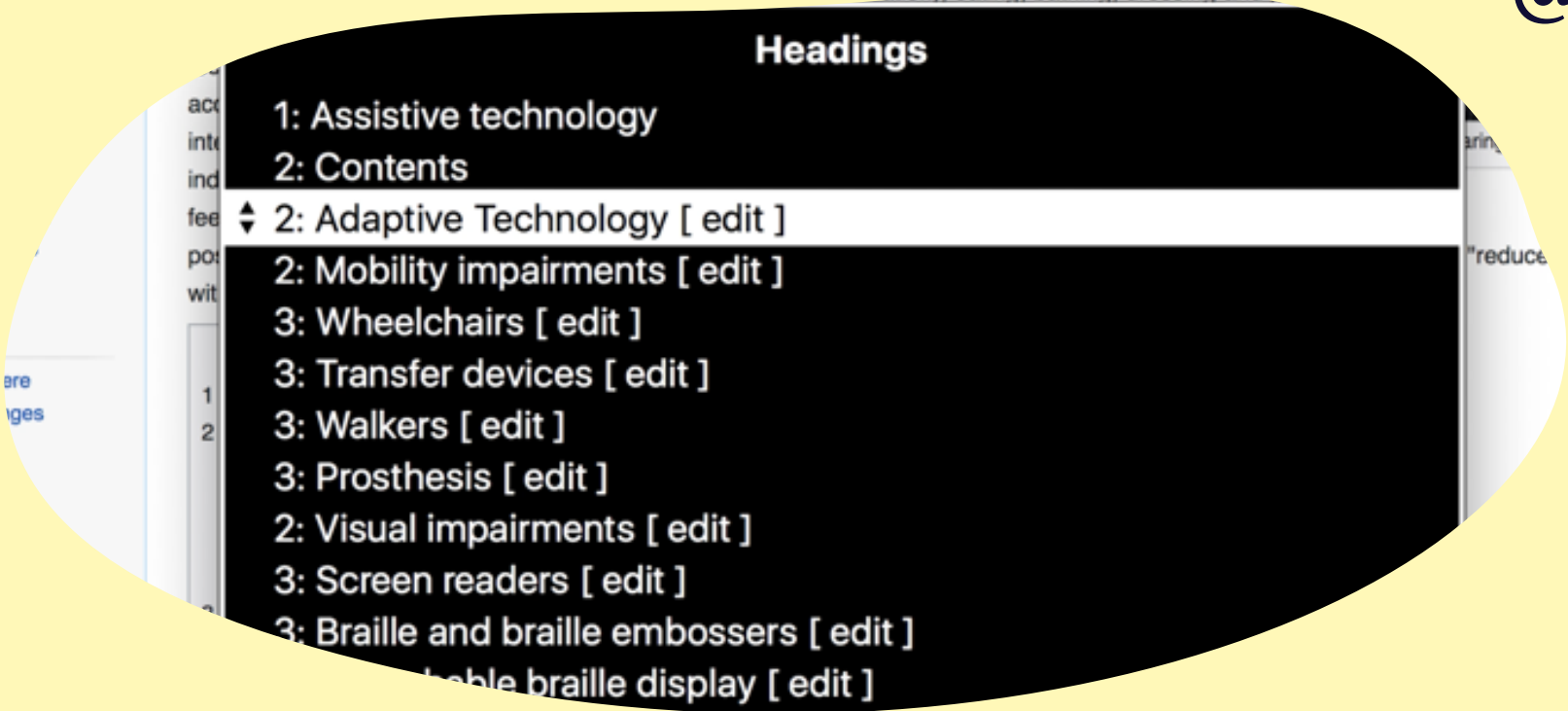
Multi device web

Heading 1

Heading 2

Content

Default stylesheets



‘Browse by heading’

HTML ENABLES

Default behaviour

Cook rice



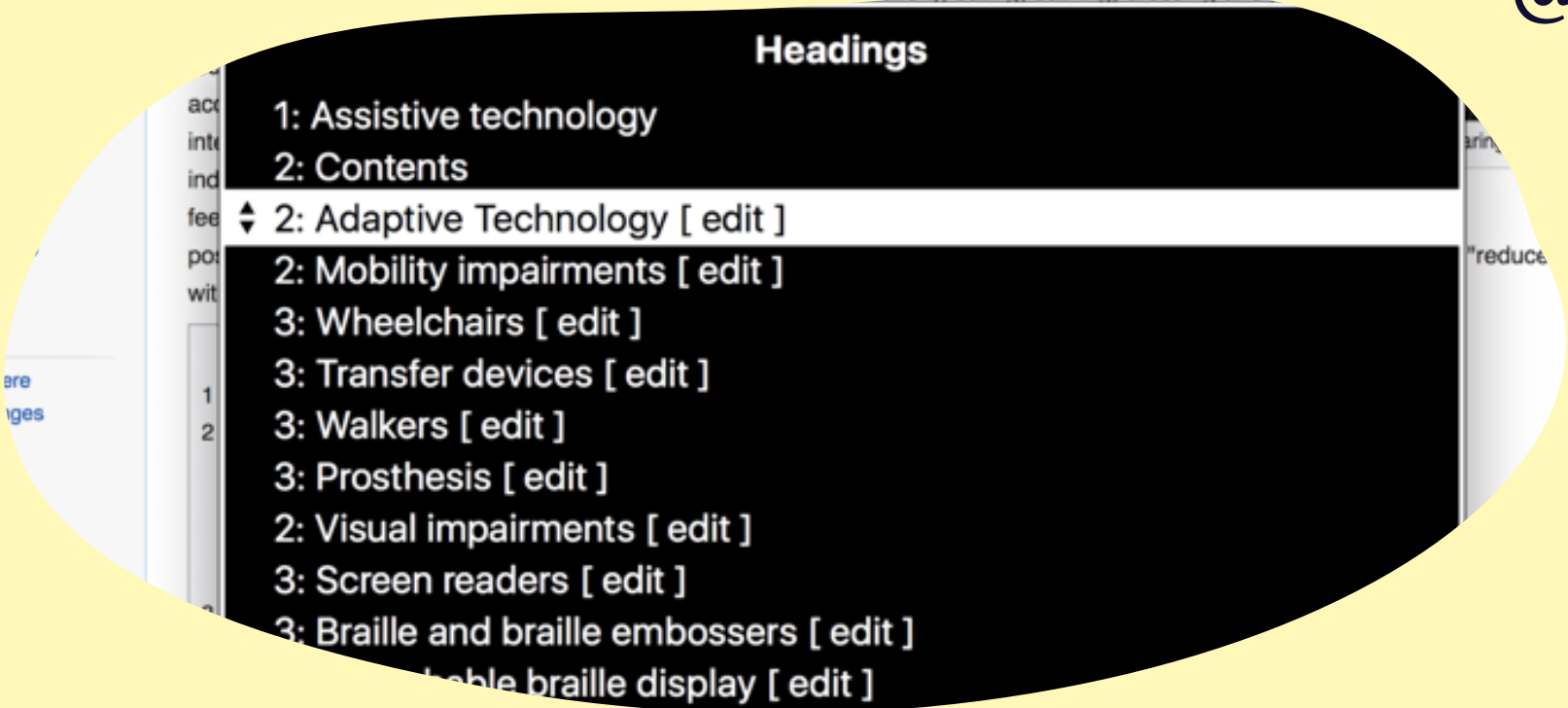
Multi device web

Heading 1

Heading 2

Content

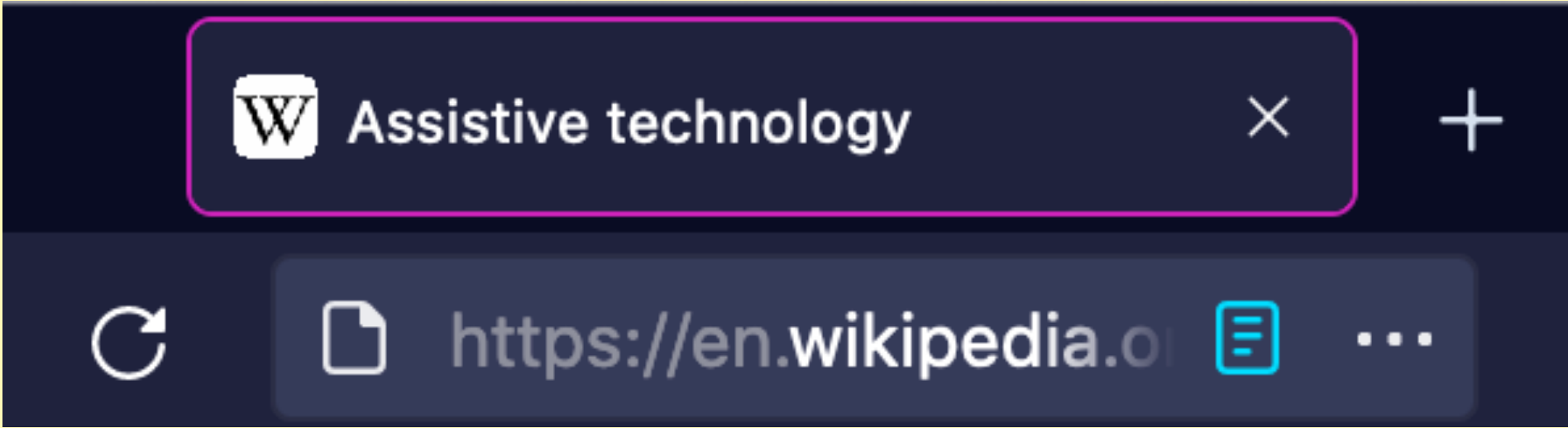
Default stylesheets



‘Browse by heading’

HTML ENABLES

Reader mode



Default behaviour

Cook rice

IT'S THE **MARKUP** THAT MATTERS

Hidde de Vries, JSConf, Budapest, 2 June 2022

HI, I'M HIDDE

developer relations +
accessibility specialist

sanity.io
hidde.blog
@hdv



LET'S TALK ACCESSIBILITY

WEB ACCESSIBILITY

to ensure people with disabilities
can use your site/app

WEB ACCESSIBILITY

to ensure people with disabilities
can buy your product

WEB ACCESSIBILITY

to ensure people with disabilities
can use your service

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

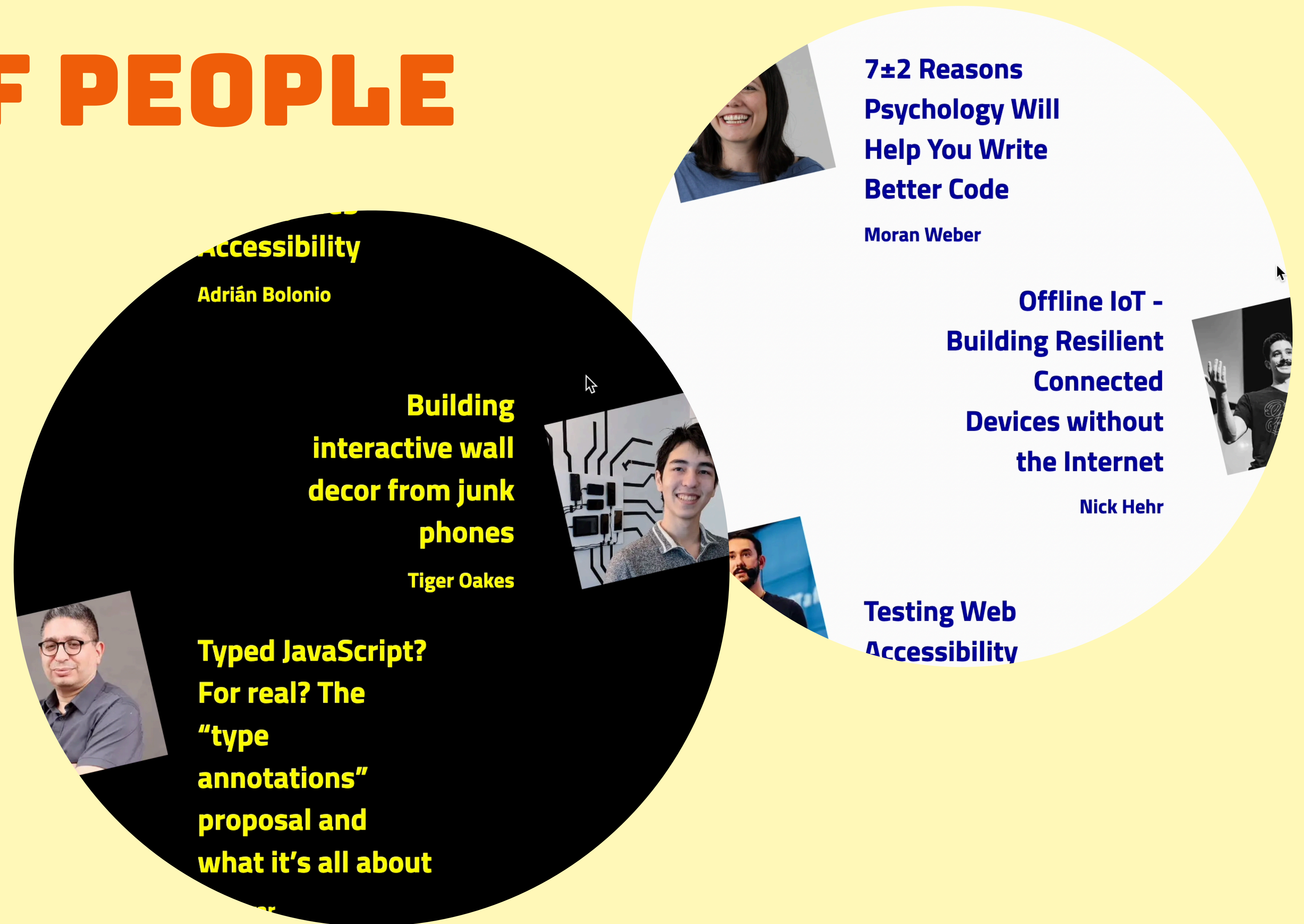
15%

low numerate / low literate

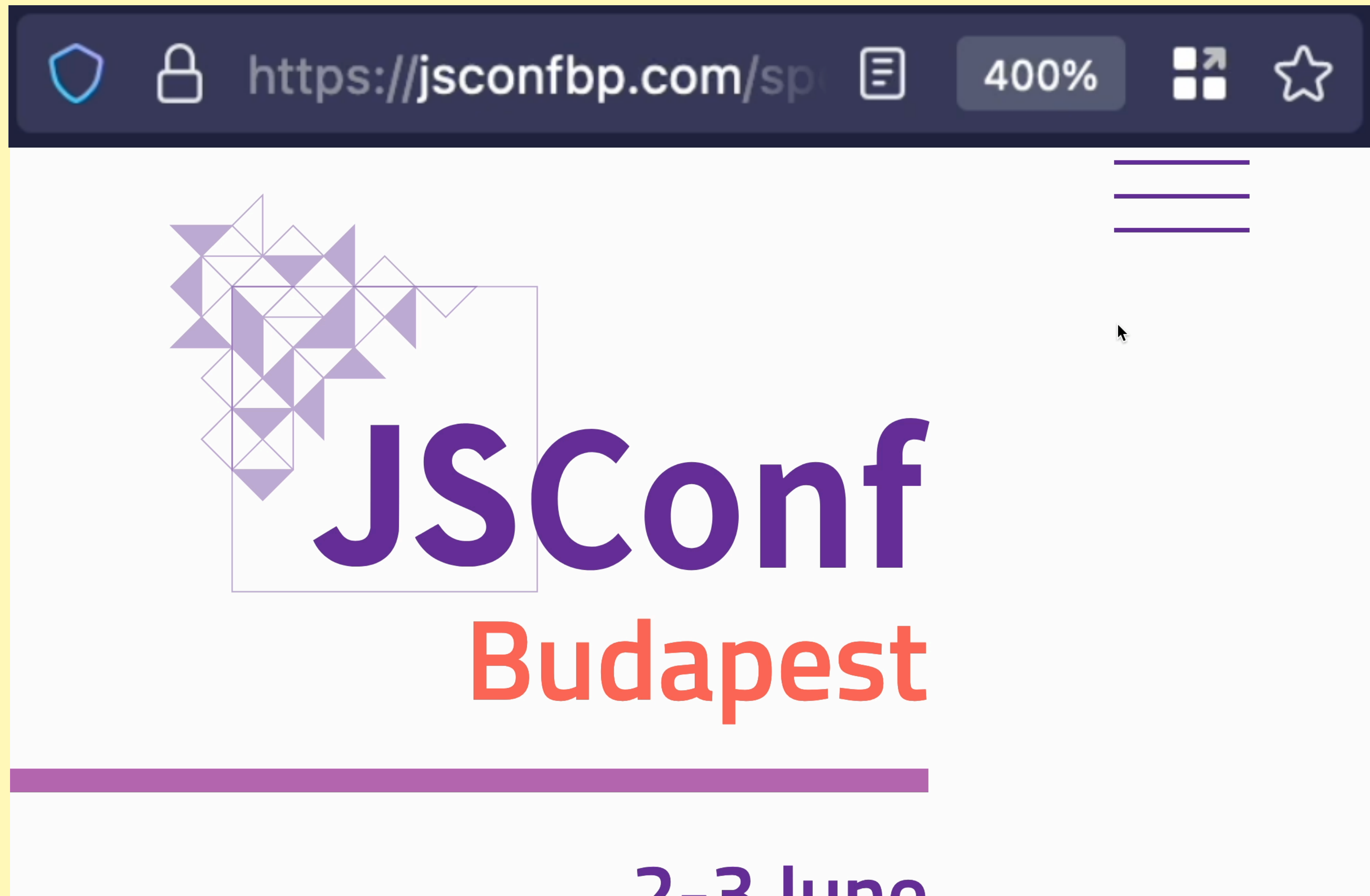
ALGEMENE REKENKAMER

A LOT OF PEOPLE

Use high
contrast
modes



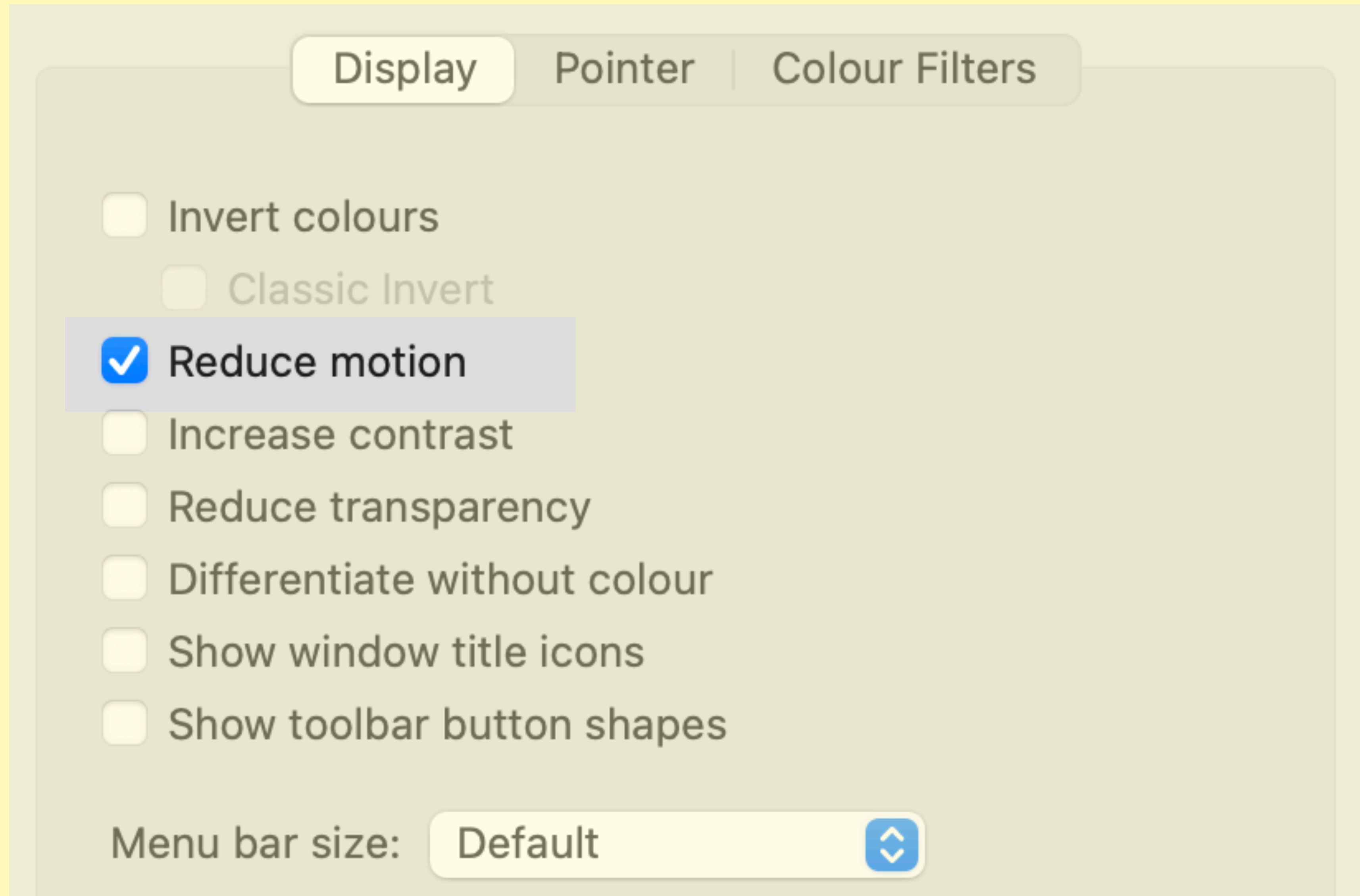
A LOT OF PEOPLE



Zoom in
on web
pages

A LOT OF PEOPLE

Prefer
reduced
motion



A LOT OF PEOPLE Do not use a mouse



A LOT OF PEOPLE

- zoom in web pages
- use high contrast modes
- use assistive technologies
- need audio/video transcribed
- do not use a mouse
- use voice recognition
- prefer reduced motion

A LOT OF PEOPLE

- zoom in web pages
- use high contrast modes
- **use assistive technologies**
- need audio/video transcribed
- do not use a mouse
- use voice recognition
- prefer reduced motion

A LOT OF PEOPLE

- zoom in web pages
- use high contrast modes
- use assistive technologies
- need audio/video transcribed
- do not use a mouse
- use voice recognition
- prefer reduced motion

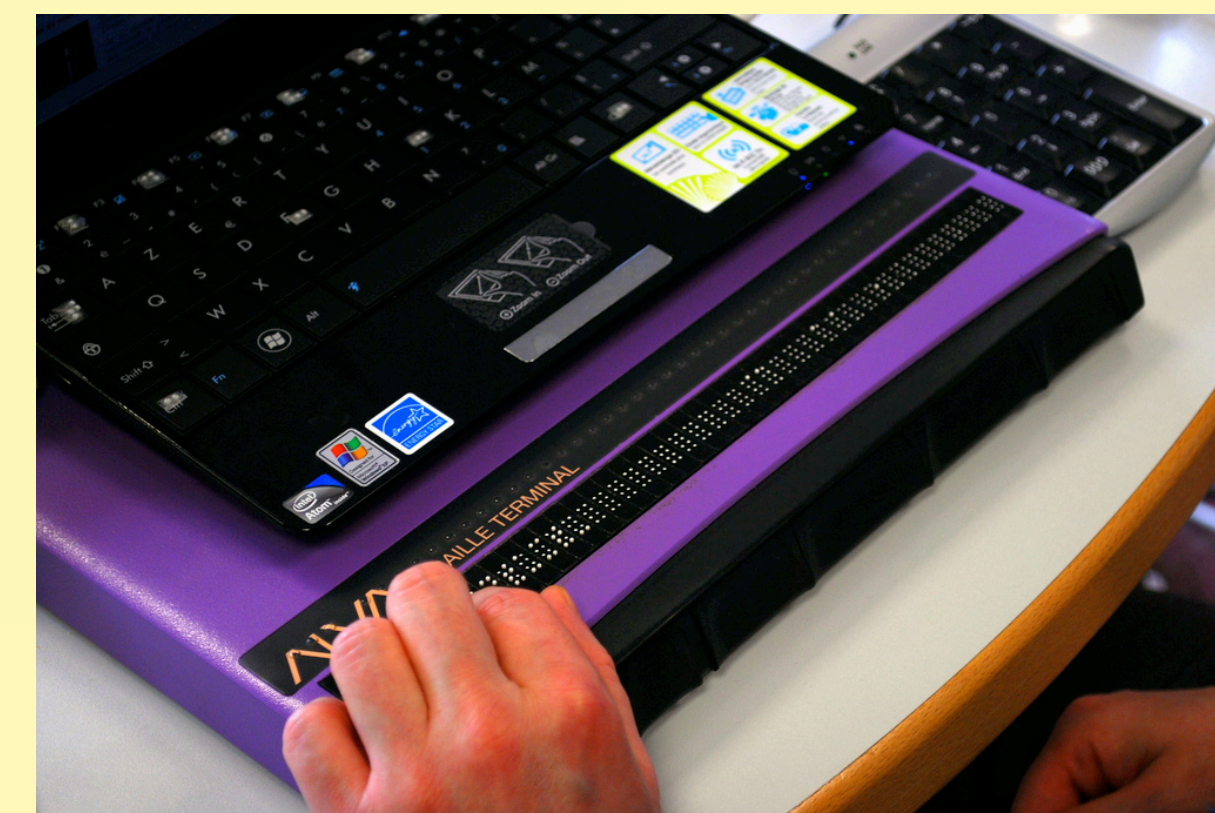
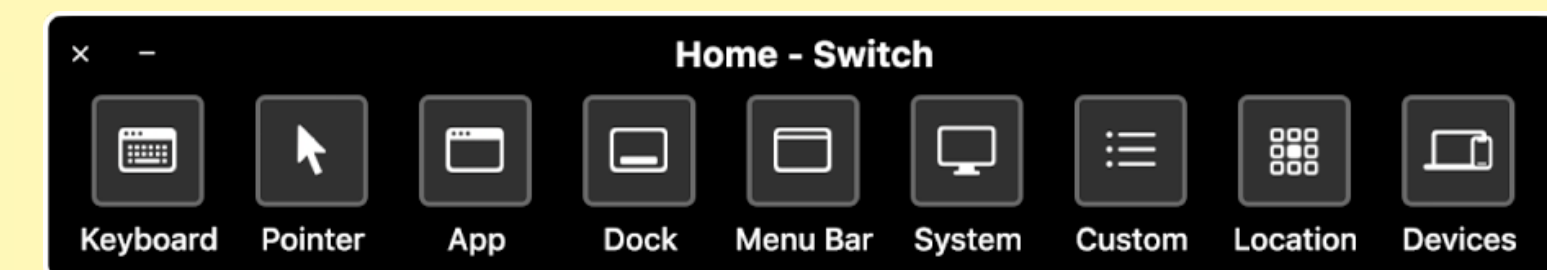
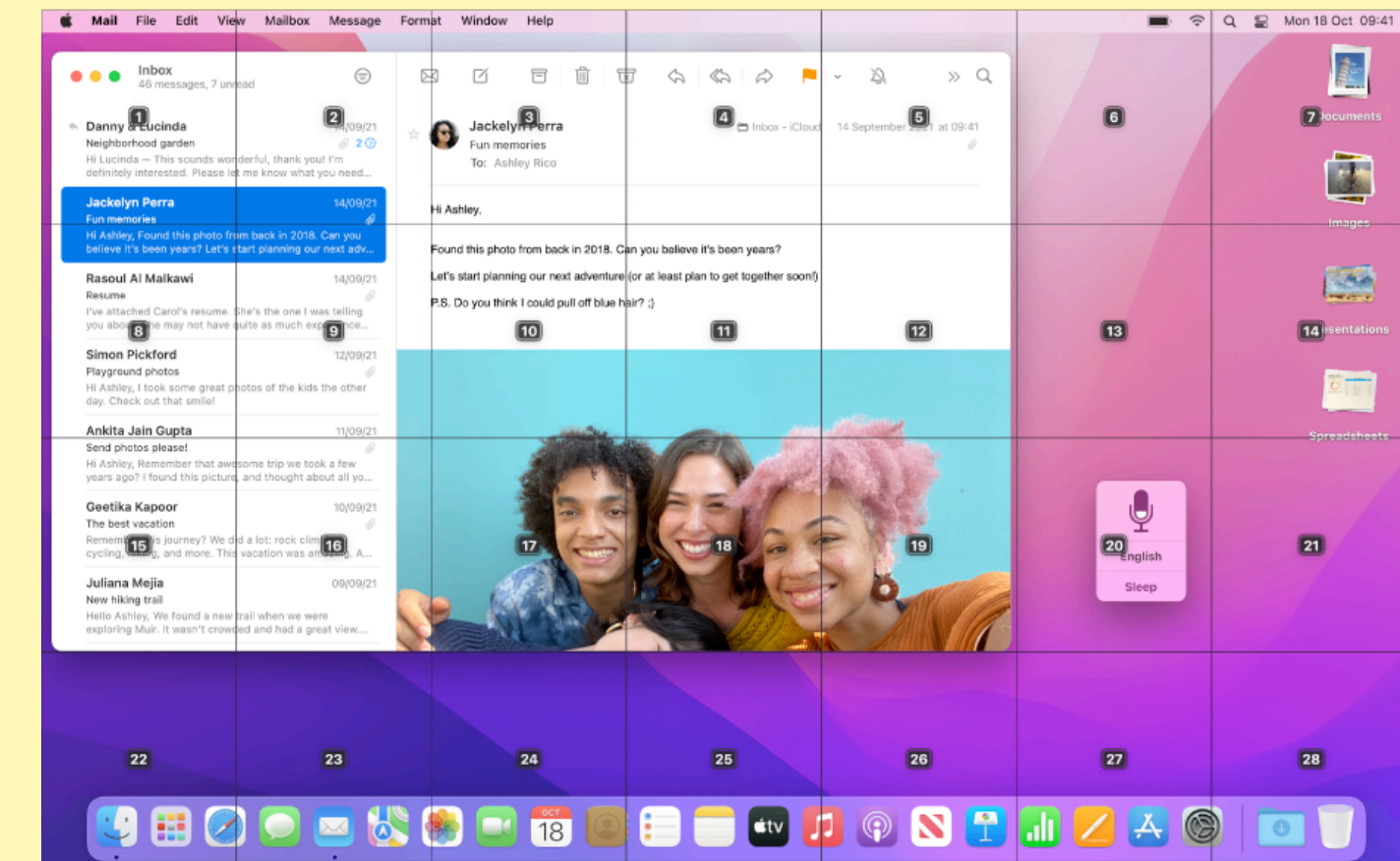
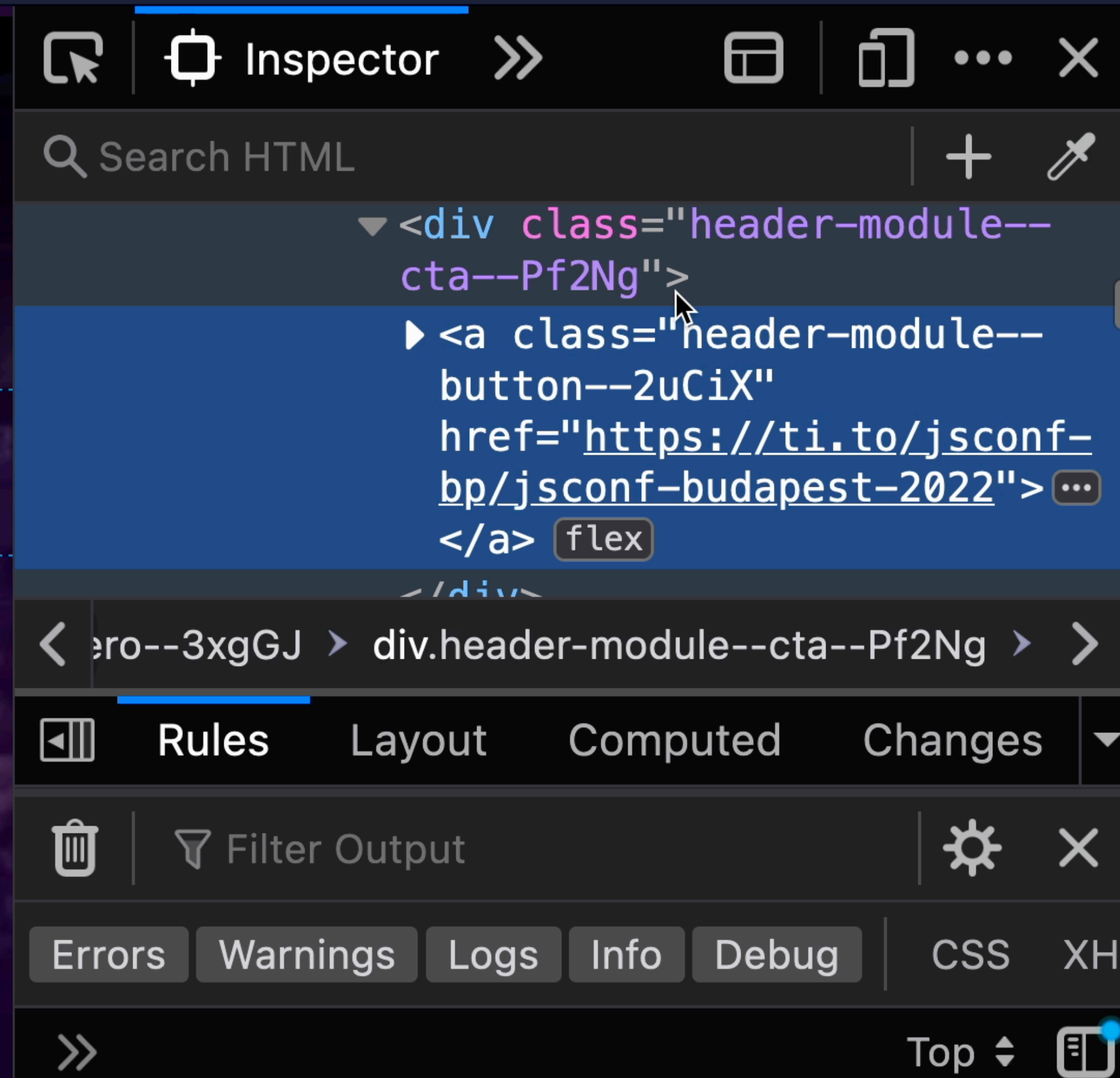
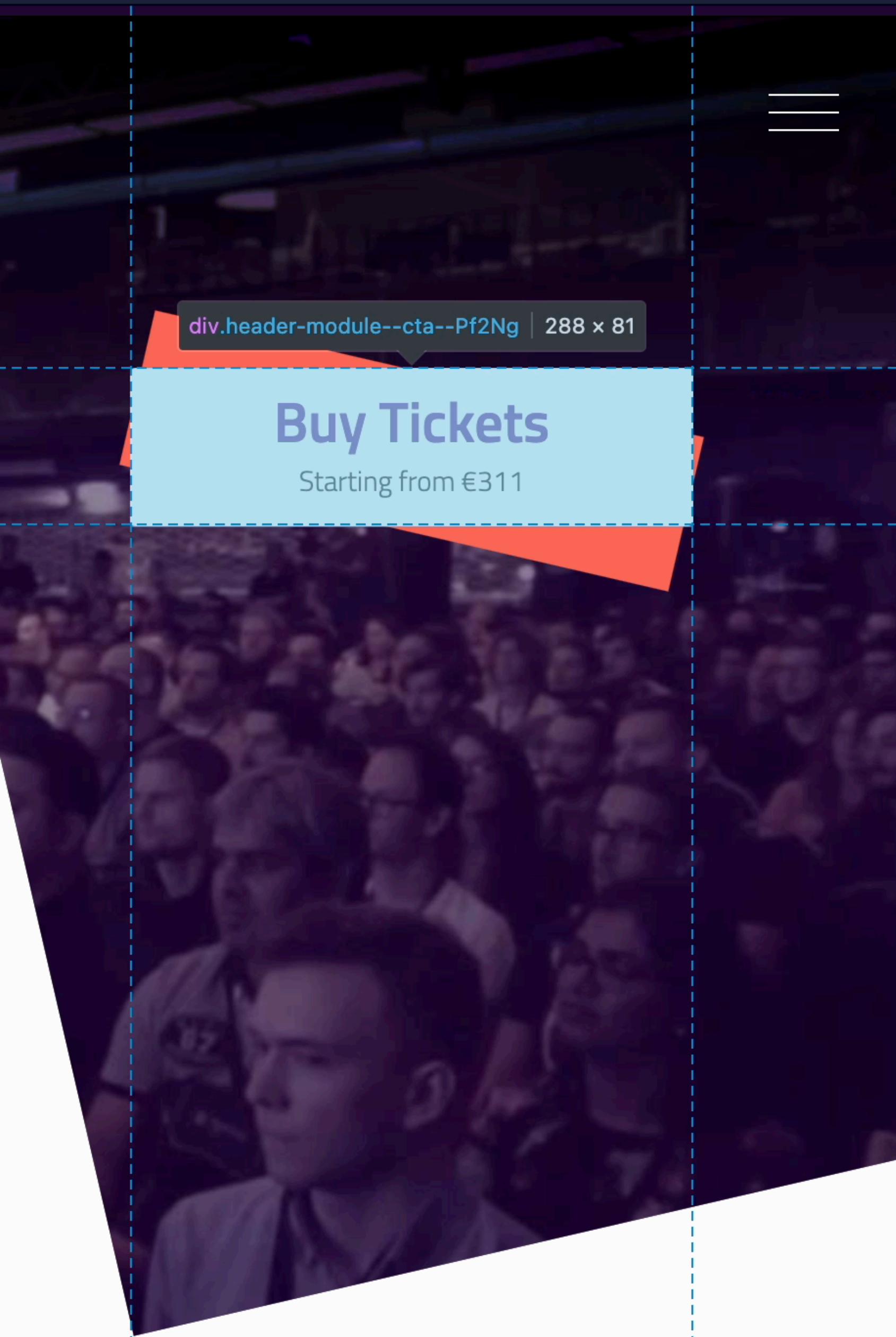
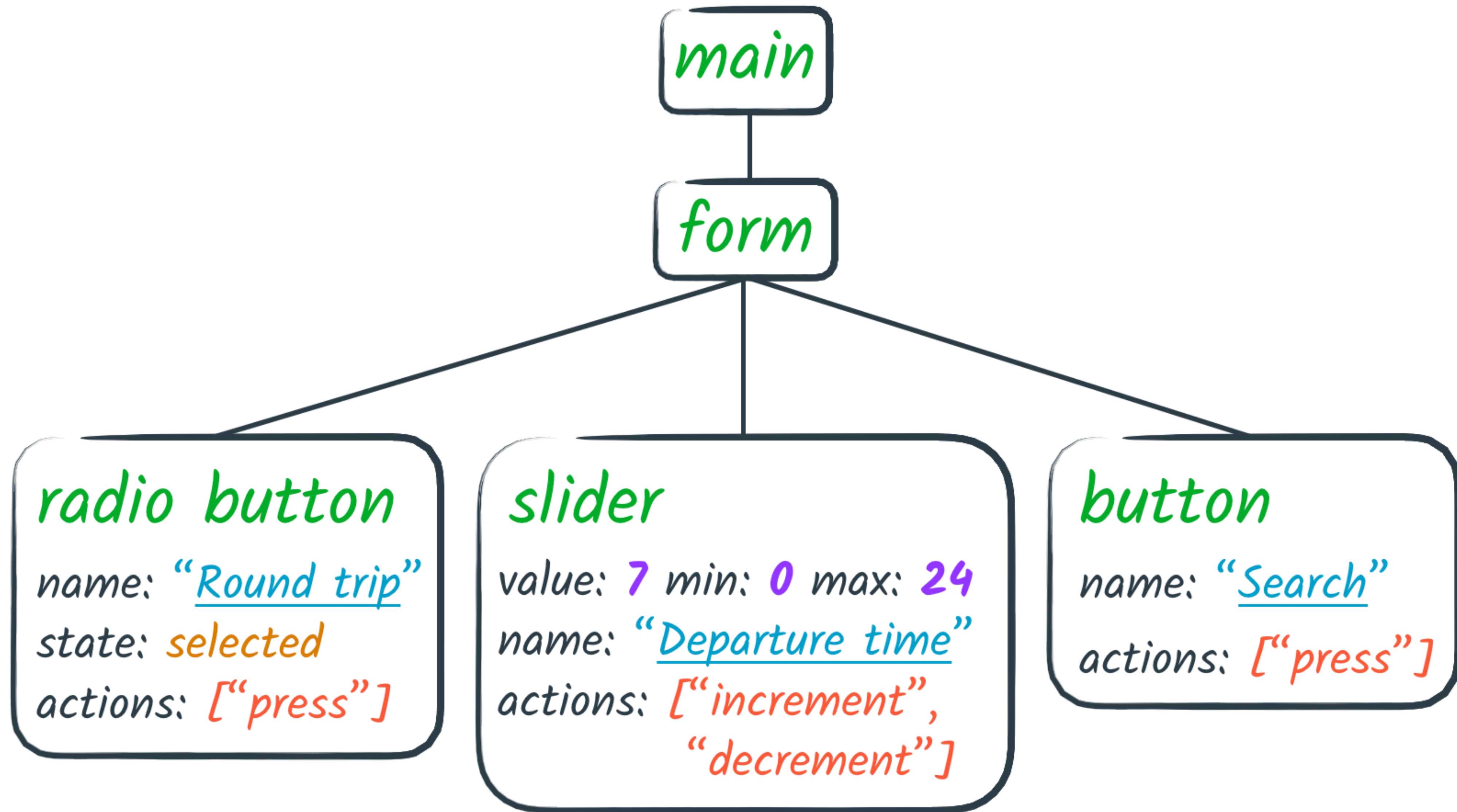


Image credits: Apple, Wikipedia

WHAT OUR MARKUP DOES



**DOCUMENT
OBJECT
MODEL**



ACCESSIBILITY TREE

What kind of thing is it?

How should we refer to it?

What else should we know?

NEW PODCAST: Tug of war | COVID-19: Vaccination tracker | TRENDING: Astroworld tragedy | Tuvalu minister | Obama speech | US reopens | George Harrison

US is reopening its borders to global epicenter of Covid-19



The country ends a 20-month travel ban at the same moment Europe is battling a surge in cases

Global Covid-19 cases surpass 250 million

What the end of the Covid-19 pandemic could look like

Ted Cruz accuses Big Bird of spreading propaganda



Obama takes swipe at Trump over 'active hostility' on climate

- See an ethical farm with 6,000 chickens
- Fossil fuel lobbyists outnumber any single country at COP26
- Minister stands in suit and tie in sea to speak



Concertgoer sues Travis Scott

CIA Director had rare conversation with Putin

Sierra Leone tanker blast deaths rise to 115

US seizes \$6 million in ransom payments

Analysis: Biden basks after huge victory

Analysis: Nancy Pelosi is the most effective speaker ever

Gay footballer says he would be 'scared' to play at 2022 World Cup in Qatar

Bodies of three missing French climbers recovered in Himalayas

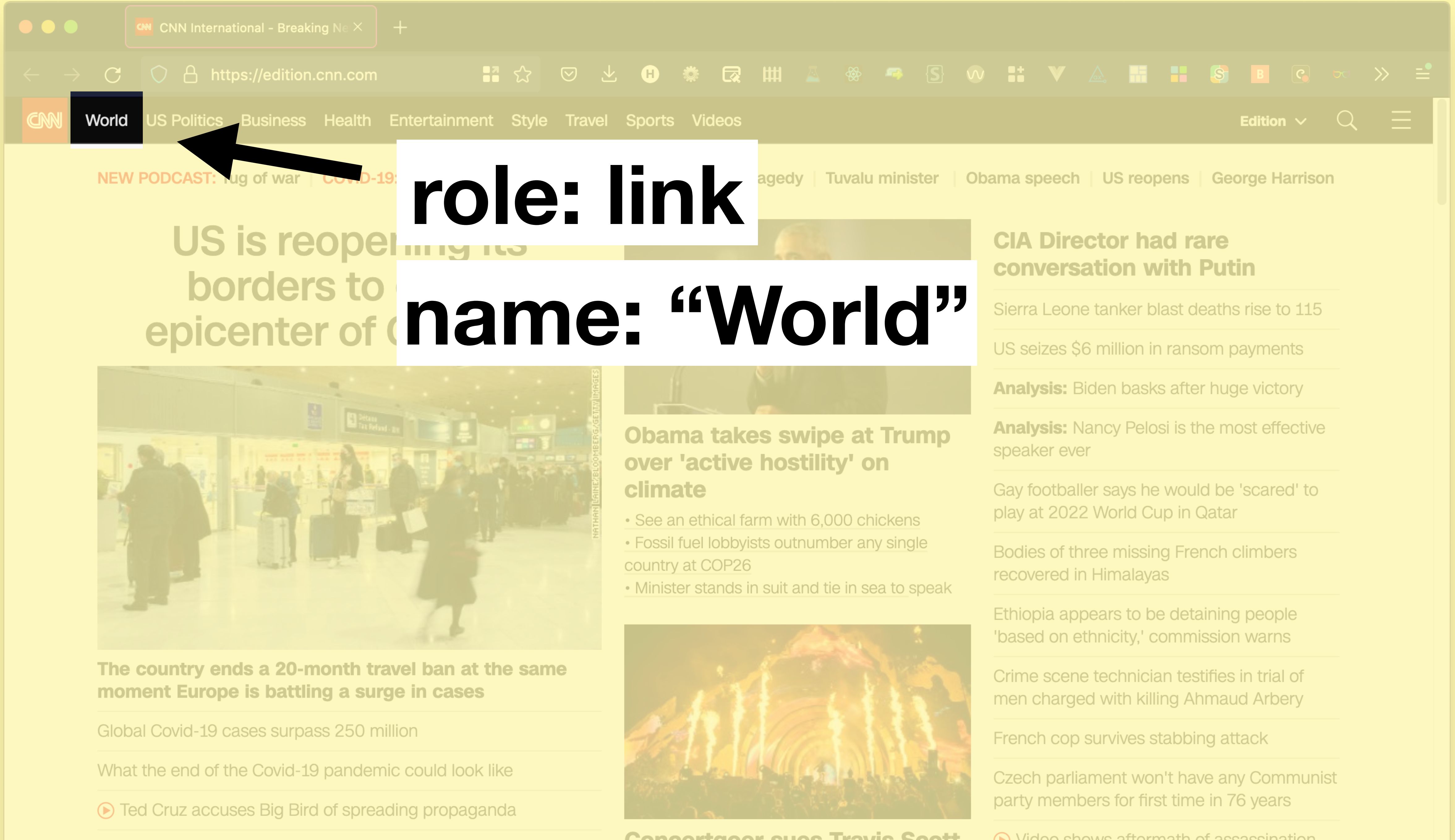
Ethiopia appears to be detaining people 'based on ethnicity,' commission warns

Crime scene technician testifies in trial of men charged with killing Ahmaud Arbery

French cop survives stabbing attack

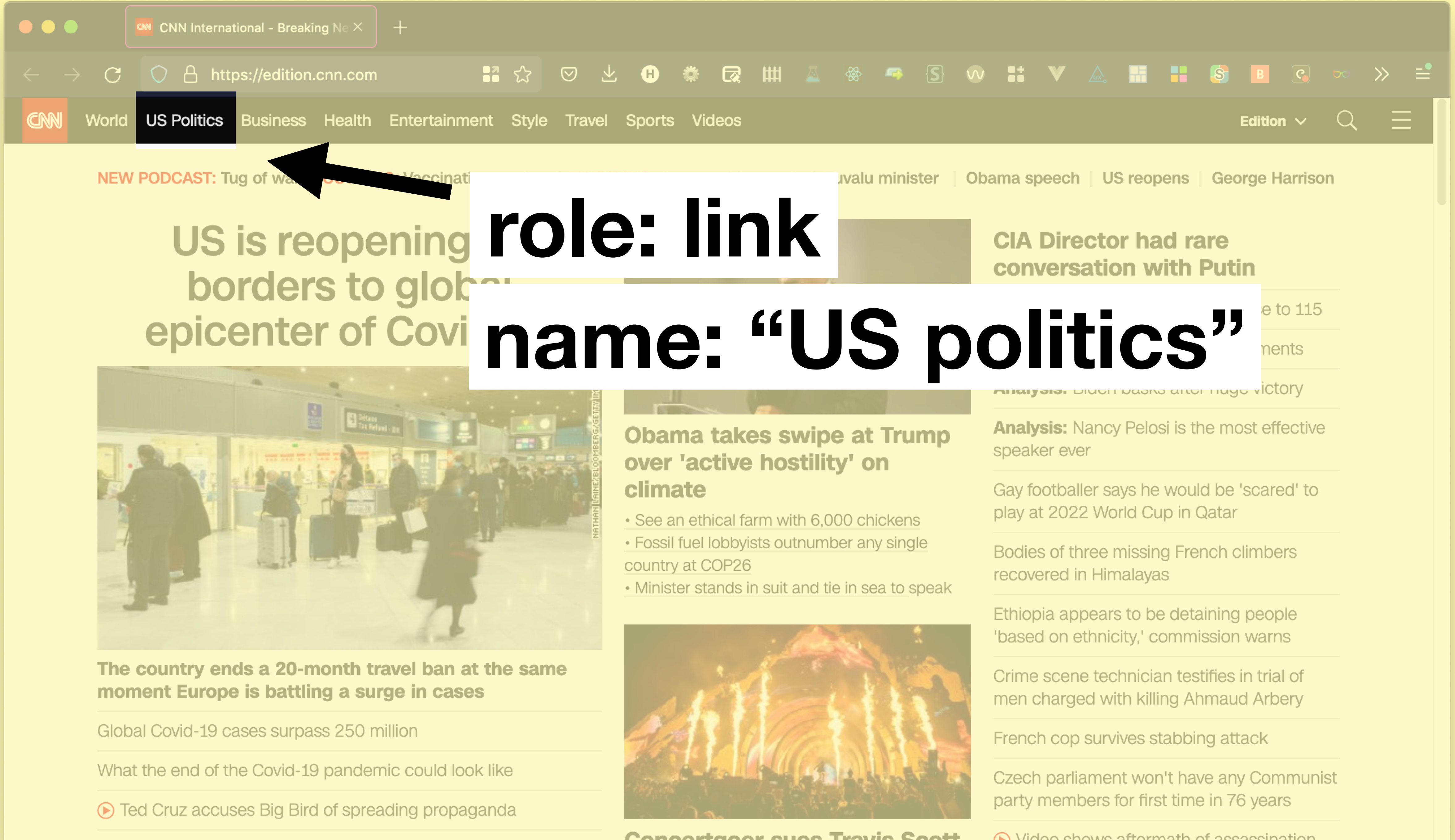
Czech parliament won't have any Communist party members for first time in 76 years

Video shows aftermath of assassination



role: link

name: "World"



role: link

name: "US politics"

NEW PODCAST: Tug of war | COVID-19: Vaccination tracker | TRENDING: Astroworld tragedy | Tuvalu minister | Obama speech | US reopens | George Harrison

US is reopening its borders to global epicenter of Covid-19



The country ends a 20-month travel ban at the same moment Europe is battling a surge in cases

Global Covid-19 cases surpass 250 million

What the end of the Covid-19 pandemic could look like

Ted Cruz accuses Big Bird of spreading propaganda

role: link

name: "Business"

CIA Director had rare conversation with Putin

Obama takes swipe at Trump over 'active hostility' on climate

- See an ethical farm with 6,000 chickens
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- Minister stands in suit and tie in sea to speak



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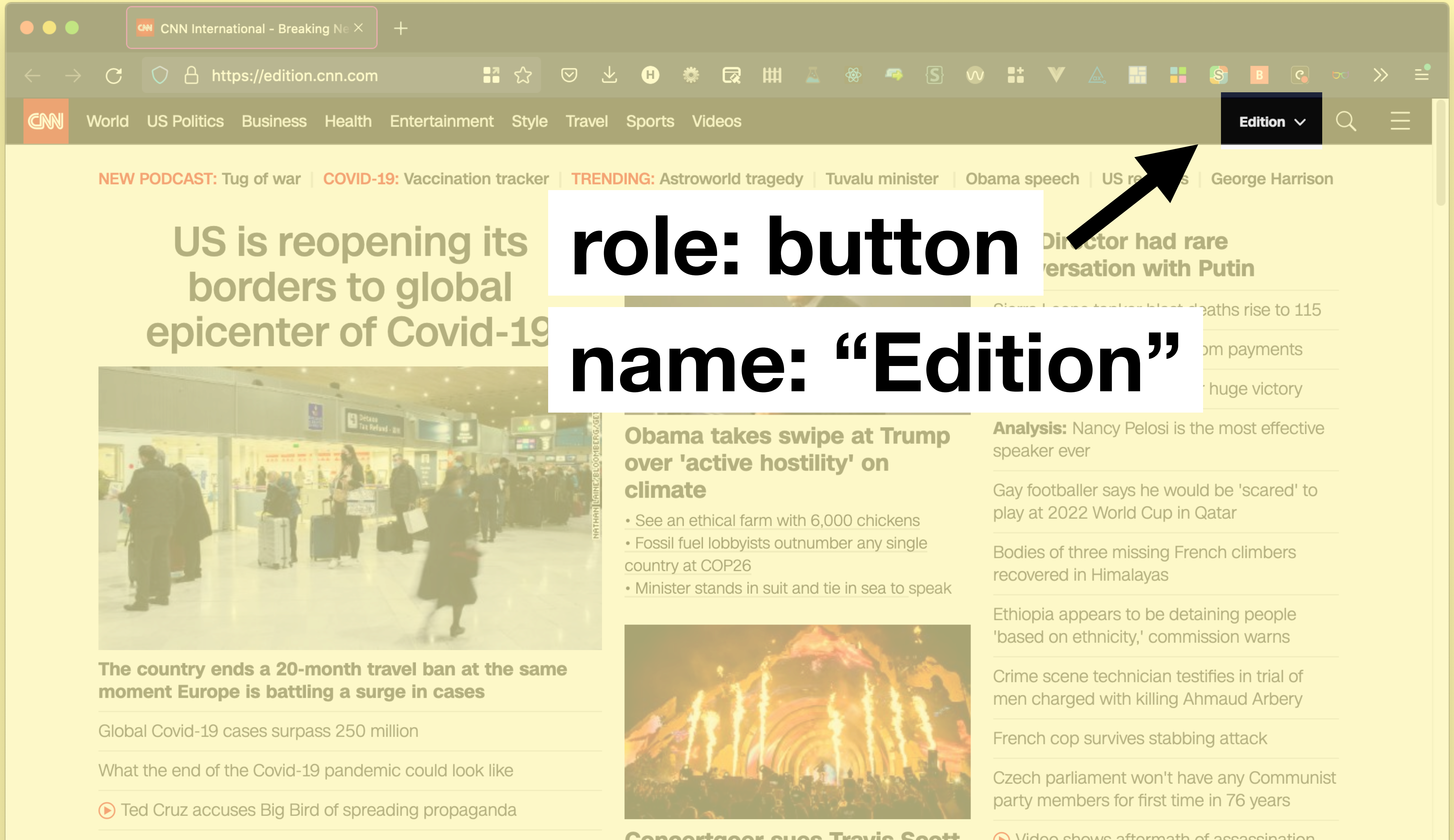
Ethiopia appears to be detaining people 'based on ethnicity,' commission warns

Crime scene technician testifies in trial of men charged with killing Ahmaud Arbery

French cop survives stabbing attack

Czech parliament won't have any Communist party members for first time in 76 years

Video shows aftermath of assassination



role: button

name: "Edition"

**YOUR
MARKUP**

**DOM
TREE**

Accessibility tree

Inspector Accessibility >>

Turn Off Accessibility Features

Role	Name
statictext:	"(@mozilla)"
list:	""
listitem:	"Twitter (@mozilla)"
link:	"Twitter (@mozilla)"
text leaf:	" "
listitem:	"Instagram (@mozilla)"
text leaf:	" "
section:	""
heading:	"Firefox"

Properties

- name: "Twitter (@mozilla)"
- role: "link"
- actions: [...]
- value: "https://twitter.com/mozilla"
- DOMNode: a.twitter
- description: ""
- keyboardShortcut: ""
- childCount: 2
- indexInParent: 0
- states: [...]
- attributes: {...}

Platform APIs

Microsoft

Microsoft Active Accessibility
Microsoft User Interface
Automation
MSAA

Mac OS X Accessibility
Protocol

THE LINUX FOUNDATION GNOME DEVELOPER

Linux/Unix Accessibility
Toolkit
IAccessible2

AT

JAWSforWindows

text-to-speech
screen magnifiers
alternate pointing devices

< Chromium

Buy Tickets

Starting from €311



a.header-module--button--2

uCiX

288 x 80.99

Color #663399

Font 28.8px "Titillium Web", sans-serif

Background #FFFFFF

Padding 12.6px 0px 9px

ACCESSIBILITY

Name Buy Tickets Starting from €311

Role link

Keyboard-focusable

Firefox v

Buy Tickets

Starting from €311



Inspector



Accessibility



Check for issues: None | Simulate: None | ☐

Role

Name

▼ Checks

No checks for this node.

▼ Properties

name: "Buy Tickets Starting from €311"

role: "link"

▶ actions: [...]

value: "<https://ti.to/jsconf-bp/jsconf-budapest-2022>"

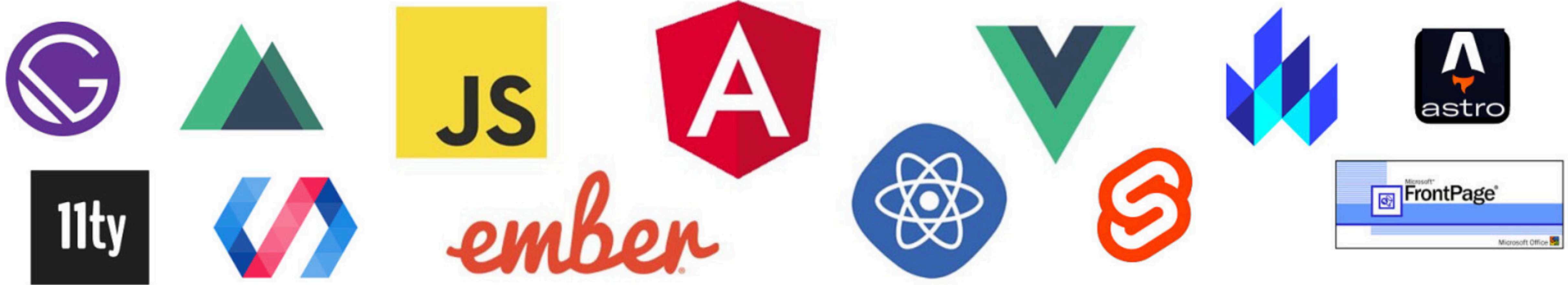
DOMNode: a.header-module--button--2uCiX

description: ""

keyboardShortcut: ""

childCount: 2

**IT'S THE MARKUP
THAT MATTERS,
IN PRACTICE**



(The following examples
work with all of your
favourite tools)

Where am I?

```
<html lang="nl">
  <head>
    <title>It's the markup that matters -
    Presentations - My site</title>
  </head>
  <body>
    ...
  </body>
</html>
```

[The <title>] is still the first guarantee or first confirmation that you've ended up on the page that you intended to reach.

– Léonie Watson, accessibility expert and screenreader user

What is on this page?
Headings

Whenever you use
<h1>, <h2>, <h3>, ...
people can:

- navigate by heading
- see headings in reader mode

Assistive technology

From Wikipedia, the free encyclopedia
(Redirected from [Assistive technologies](#))

Assistive technology is an [umbrella term](#) that includes assistive, adaptive, and rehabilitative devices [with disabilities](#) while also including the process used in selecting, locating, and using them. People with disabilities often have difficulty performing [activities of daily living](#) (ADLs) independently, or even with ADLs are self-care activities that include toileting, mobility (ambulation), eating, bathing, dressing and

Headings

1: Assistive technology

2: Contents

◆ 2: Adaptive Technology [edit]

2: Mobility impairments [edit]

3: Wheelchairs [edit]

3: Transfer devices [edit]

3: Walkers [edit]

3: Prosthesis [edit]

2: Visual impairments [edit]

3: Screen readers [edit]

3: Braille and braille embossers [edit]

3: Refreshable braille display [edit]

3: Desktop video magnifier [edit]

3: Screen magnification software [edit]

▼ 3: Large-print and tactile keyboards [edit]

4 [Personal emergency response systems](#)

5 [Accessibility software](#)

Every detail counts

Specifications

Which areas are
on this page?

Landmarks let you specify which sections a page has, so that people can navigate to them

HTML5

`<header>`

`<footer>`

`<nav>`

`<aside>`

`<main>`

ARIA ROLES

`role="banner"`

`role="contentinfo"`

`role="navigation"`

`role="complementary"`

`role="main"`

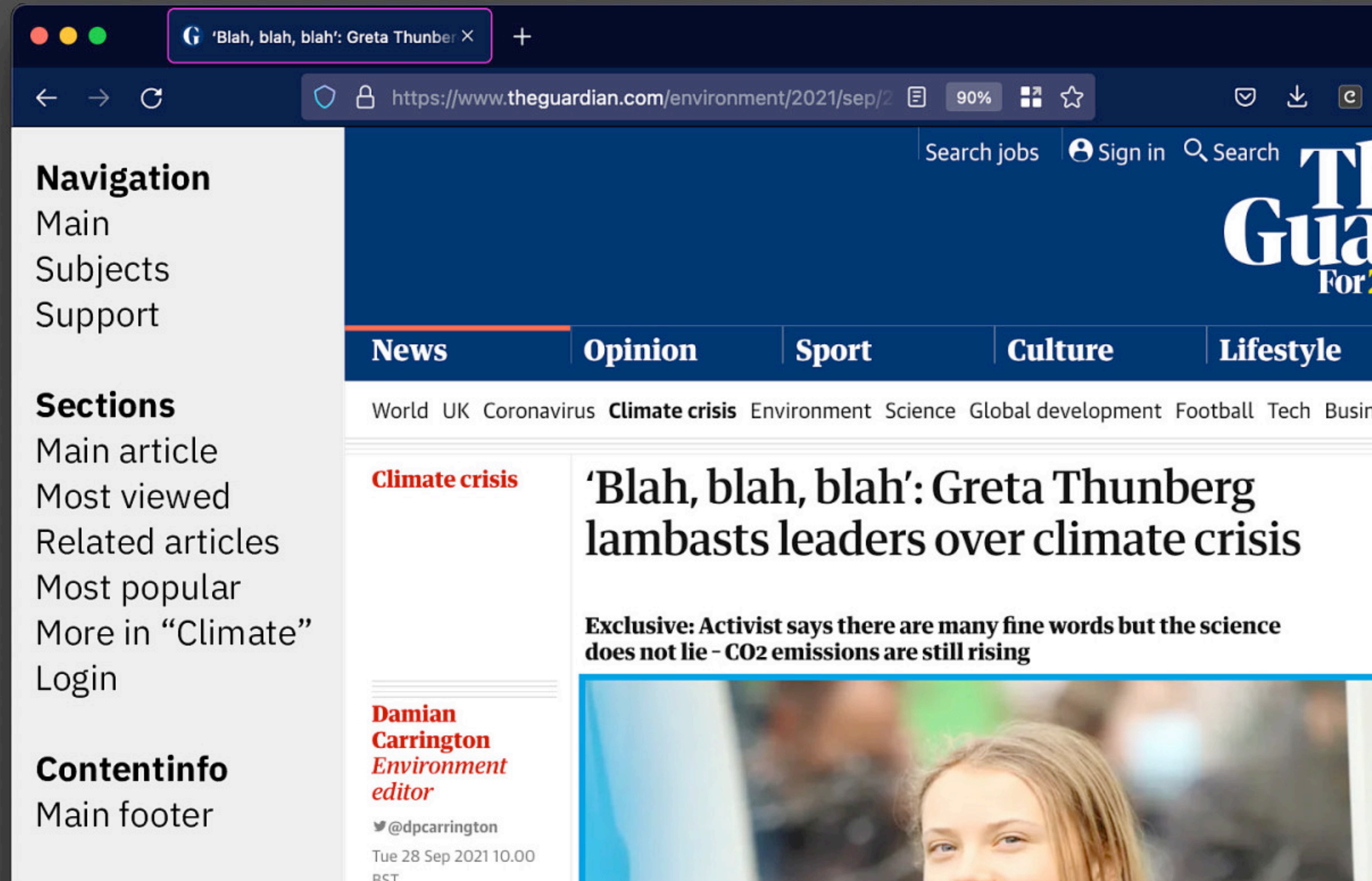
The more landmarks one has in a document, especially landmarks of the same type, the less meaningful they become

– Scott O'Hara, accessibility specialist

I would
still love
this as
a browser
feature

What if browsers let us...

☒ navigate by landmark



Form controls

“46.1% of form inputs were not properly labeled.”

— WebAIM

Label input fields, radio buttons,
checkboxes, selects, textareas,
etc... so that they have a name

City

```
<div class="form-item">  
  City  
  <input type="text" />  
</div>
```

Role: 'textbox' / 'entry'
Name: null / ''

Name: ""

aria-labelledby: *Not specified*

aria-label: *Not specified*

 **From label:** *Not specified*

placeholder: *Not specified*

aria-placeholder: *Not specified*

title: *Not specified*

City

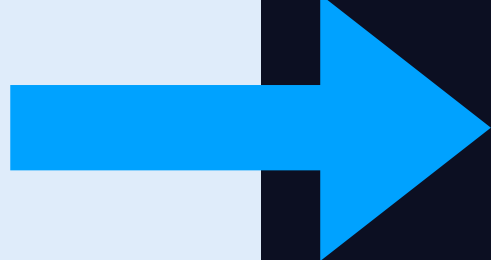
```
<div class="form-item">  
  <label for="city">City</label>  
  <input id="city" type="text" />  
</div>
```

Role: 'textbox' / 'entry'
Name: 'City'

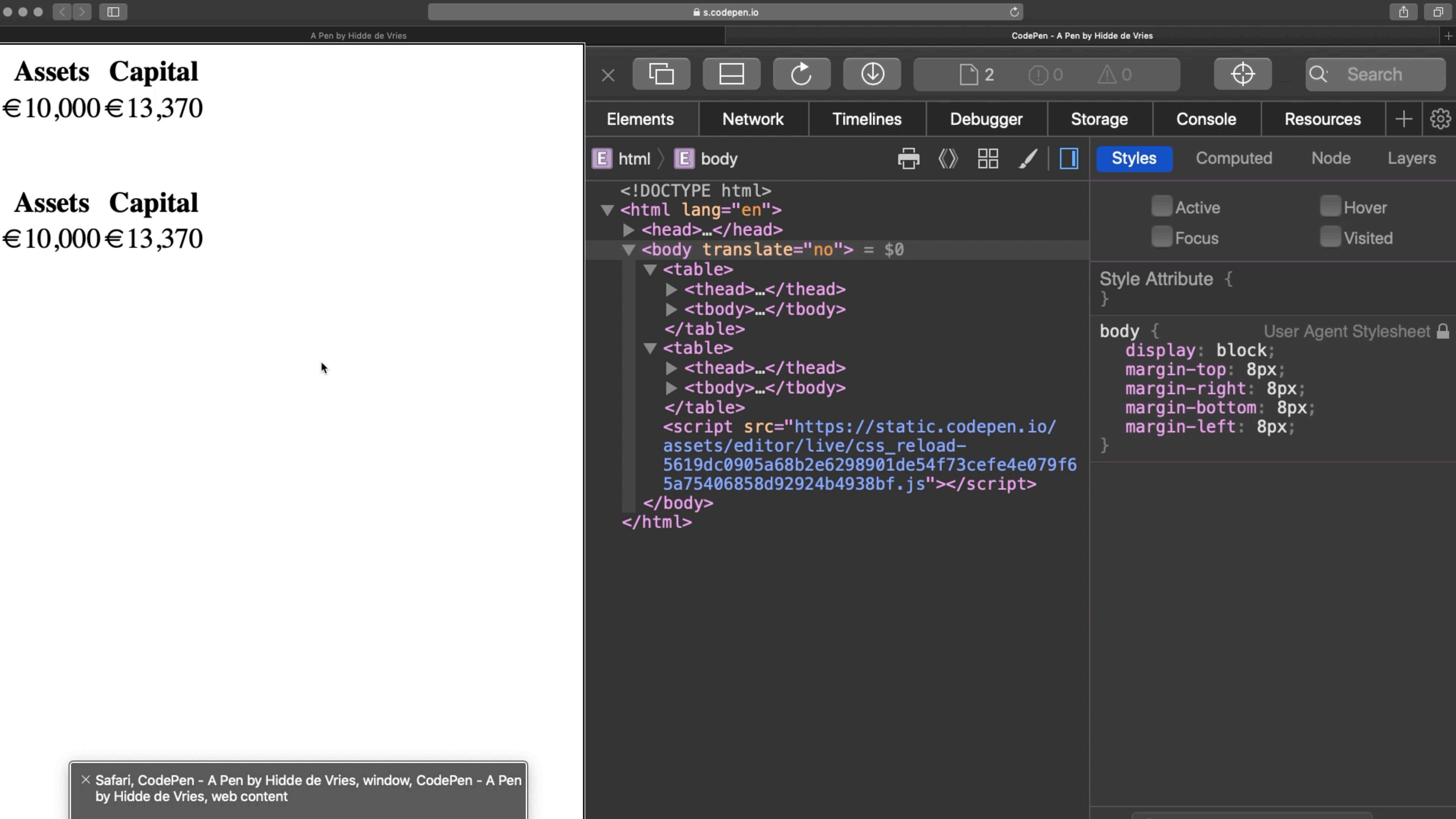
Table semantics

Tables make tabular data
easier to navigate

Use table semantics



```
<table>
  <caption>Net results 2018</caption>
  <thead>
    <tr>
      <th scope="col">Assets</th>
      <th scope="col">Capital</th>
      ...
    </tr>
  </thead>
  <tbody>
    ...
  </tbody>
</table>
```



Assets	Capital
€10,000	€13,370

Assets	Capital
€10,000	€13,370

Buttons

Whenever you use
<button> people
can:

- find it in TAB
order
- press it with just
a keyboard
- submit the form,
even if JS fails



Send tweet



The “Add Reaction” button



```
// use the button element
<button type="button">
  <svg class="icon">
    <use xlink:href="#emoji"></use>
  </svg>
</button>
```

Role: 'button'
Name: ''



```
<button type="button"
  aria-label="Add reaction">
  <svg class="icon">
    <use xlink:href="#emoji"></use>
  </svg>
</button>
```

Role: 'button'
Name: 'Add reaction'



```
<button type="button">
  <svg class="icon">
    <use xlink:href="#emoji"></use>
  </svg>
  // add accessible name
  <span class="visually-hidden">
    Add reaction
  </span>
</button>
```

Role: 'button'
Name: 'Add reaction'

The HTML spec
is the place to find
out how to use HTML

developers.whatwg.org



HTML: The Living Standard

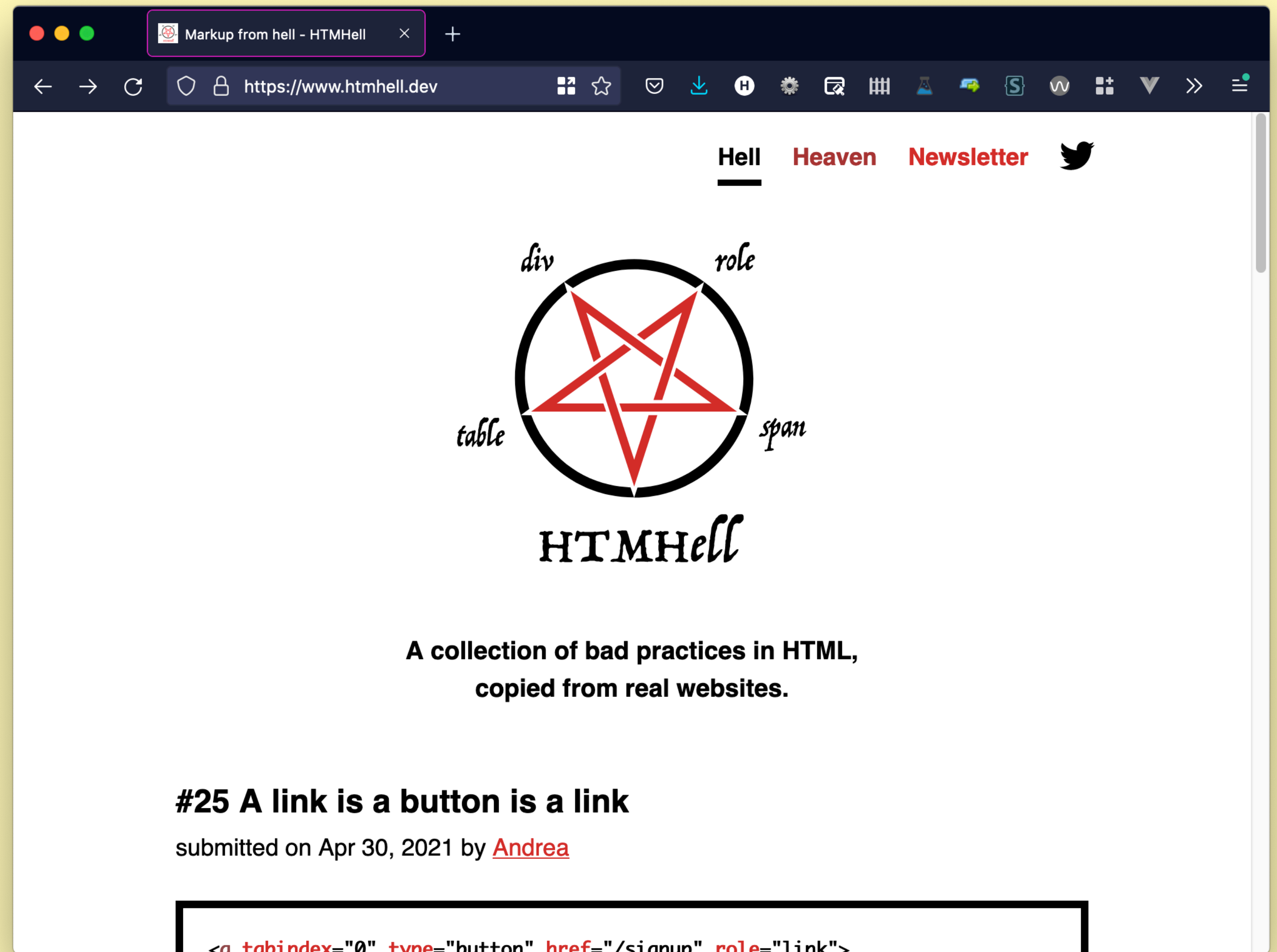
Developer's Edition — Last Updated 18 September 2017

Search. Pr

TABLE OF CONTENTS

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 - 1.1 [Is this HTML5?](#)
 - 1.2 [Background](#)
 - 1.3 [Audience](#)
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 - 1.5 [History](#)
 - 1.6 [Design notes](#)
 - 1.7 [HTML vs XML syntax](#)
 - 1.8 [Structure of this specification](#)
 - 1.9 [Privacy concerns](#)
 - 1.10 [A quick introduction to HTML](#)
 - 1.11 [Conformance requirements for authors](#)
 - 1.12 [Suggested reading](#)

HTMHell collects
examples of how **not**
to use HTML



ACCESSIBILITY OBJECT MODEL

“develop additions to the web platform to allow developers to **provide information** to assistive technology APIs, and to understand what **information browsers provide** to those APIs”

– The AOM explainer document

SETTING ALLY INFO WITH IDL PROPERTIES

(user-visible, user -modifiable)

```
const el = document.querySelector("el");
```

```
el.role = "button";
```

```
el.ariaDisabled = false;
```



SETTING ALLY INFO WITH IDL PROPERTIES INTERNALLY

(not user-visible,
not user-modifiable;
avoids sprouting)

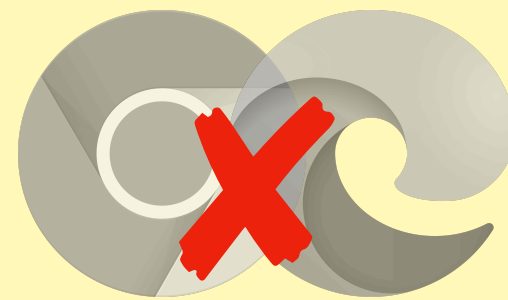
```
const el = document.querySelector("el");
```

```
el._internals.role = "button";
```

```
el._internals.ariaDisabled = false;
```



RELATIONSHIPS WITHOUT IDREFS



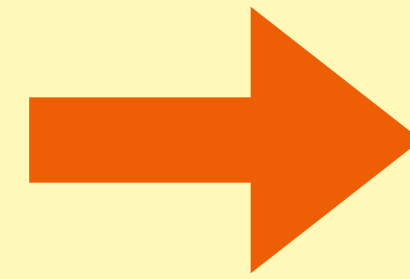
IDREFs don't work across Shadow boundaries

“an API to forward ARIA attributes and properties set on a Web Component to elements inside of its shadowroot”

– Cross-root ARIA Delegation API explainer

EVENTS FROM ASSISTIVE TECHNOLOGIES

**EVENTS FROM
ASSISTIVE
TECHNOLOGIES**



**SYNTHESISED
DOM EVENTS**

READING ACCESSIBILITY TREE FROM JAVASCRIPT



(w/ outdated syntax)

FUTURE ELEMENTS

**ACCESSIBILITY IS BUILT
INTO HTML. BUT THERE ISN'T
HTML FOR EVERYTHING!**

EXPLORE THOSE NEIGHBOURHOODS WHERE ENGLISH IS BARELY SPOKEN

BOOK YOUR NEXT TRIP

DEPARTURE STATION
Amsterdam Centraal

DEPARTURE DATE
Tuesday May 31

ADULT (26-59)
1 Adult

KID (4-11)
0 Kid

YOUTH (12-25)
0 Youth

SENIOR (60+)
0 Senior

Thalys Pass

My Thalys Wagon

SEARCH

Met de nachttrein (NJ, Thalys) naar St. Anton am Arlberg reizen?

Amstetten NÖ Bahnhof

St.Anton am Arlberg Bahnhof

gevonden

Start van de reis

Datum: DI, 31. MAI 2022

Amstetten NÖ Bahnhof - St.Anton am Arlberg Bahnhof

Voertuigtraject

Verbindingen

Verbindingen voor de geselecteerde dag. De volgende verbindingen zijn:

vanaf € 49,90 Sparschiene	vanaf € 74,90 Sparschiene	vanaf € 99,00
vanaf € 59,00	vanaf € 69,90 Sparschiene	Helaas niet beschikbaar
vanaf € 54,90 Sparschiene	vanaf € 69,90 Sparschiene	Helaas niet beschikbaar

Where to?

City, state, location, or airport

31 MAY TUE

1 JUN WED

1 Room, 1 Guest

Special Rates

May 2022

June 2022

My Dates are Flexible

Close

Bestemming *

Stad, luchthaven, attractie of adres

Inchecken

31-05-2022

Uitchecken

01-06-2022

Kamers en gasten

1 kamer, 1 gast

* Affiliatie met de respectievelijke organisatie benodigd voor de reis.
** In een zoekopdracht naar het Beste beschikbare tarief.

Var

“We hope to make it unnecessary
to reinvent built-in UI controls”

– OpenUI homepage



Standardised controls can be a
huge opportunity for accessibility

Standardised controls can be a
huge opportunity for accessibility
(if “” considerations are met)

<selectmenu>

DEVELOPERS ON `<SELECT>`

Hard to build “search in list” UI

– 27.43% of respondents

Can't customise popup window (desktop)

– 11.36% of respondents

Can't style `<option>`

– 17.85% of respondents

Need to insert arbitrary HTML

– 7.82% of respondents

Can't style default state

– 14.01% of respondents

```
// regular select
```

```
<select>
```

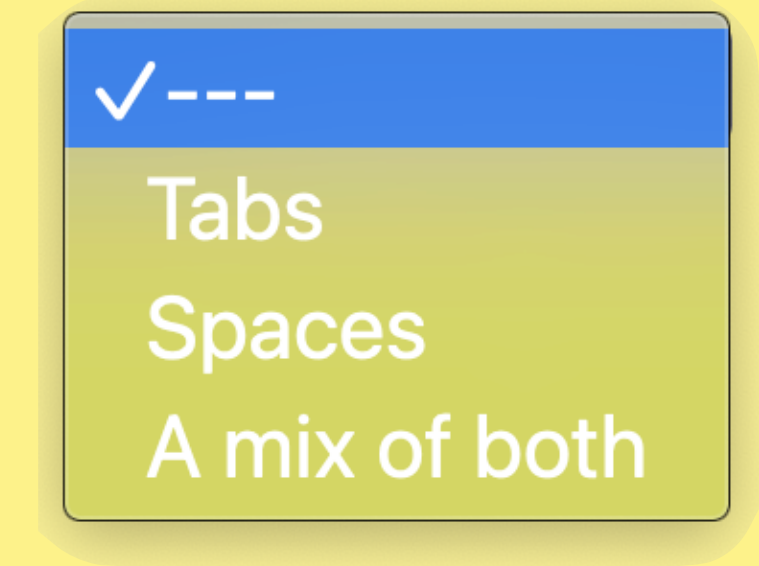
```
  <option>Tabs</option>
```

```
  <option>Spaces</option>
```

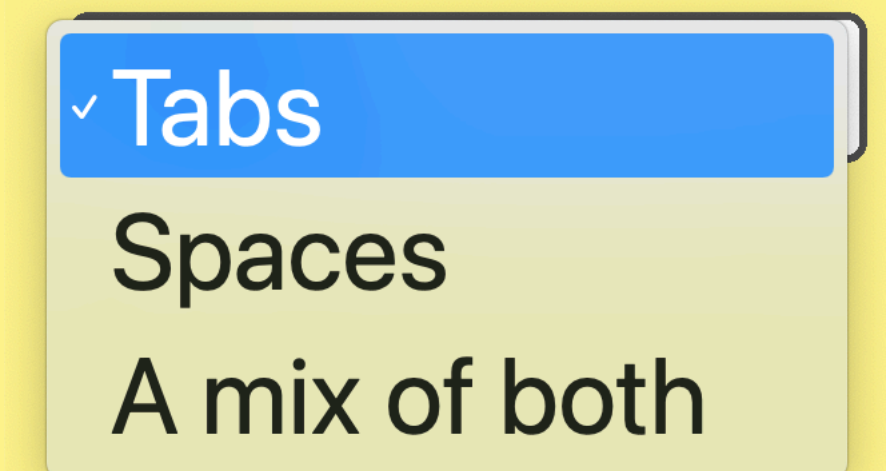
```
  <option>A mix of both</option>
```

```
</select>
```

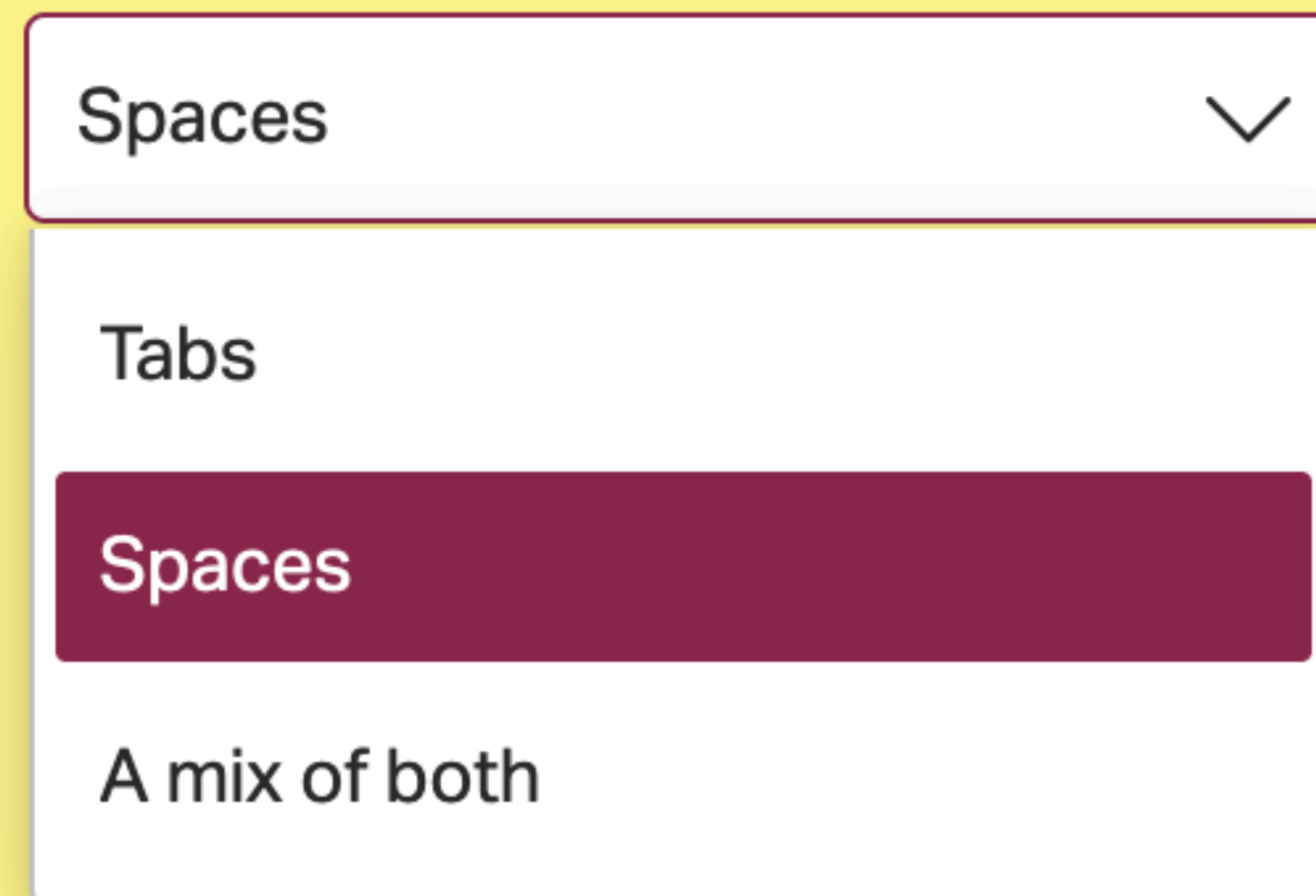
Firefox



Edge



```
// introducing... <selectmenu>  
<selectmenu>  
  <option>Tabs</option>  
  <option>Spaces</option>  
  <option>A mix of both</option>  
</select>
```



```
selectmenu::part(button) {  
  background-color: #f00;  
  border-radius: 5px;  
}
```

A screenshot of a 'fast-select' component. The dropdown menu is open, showing three options: 'Spaces', 'Tabs', and 'A mix of both'. The 'Spaces' option is highlighted with a dark red background. The component has a white background and a dark red border. A pink arrow points from the CSS code to the 'Spaces' option.

Spaces

Tabs

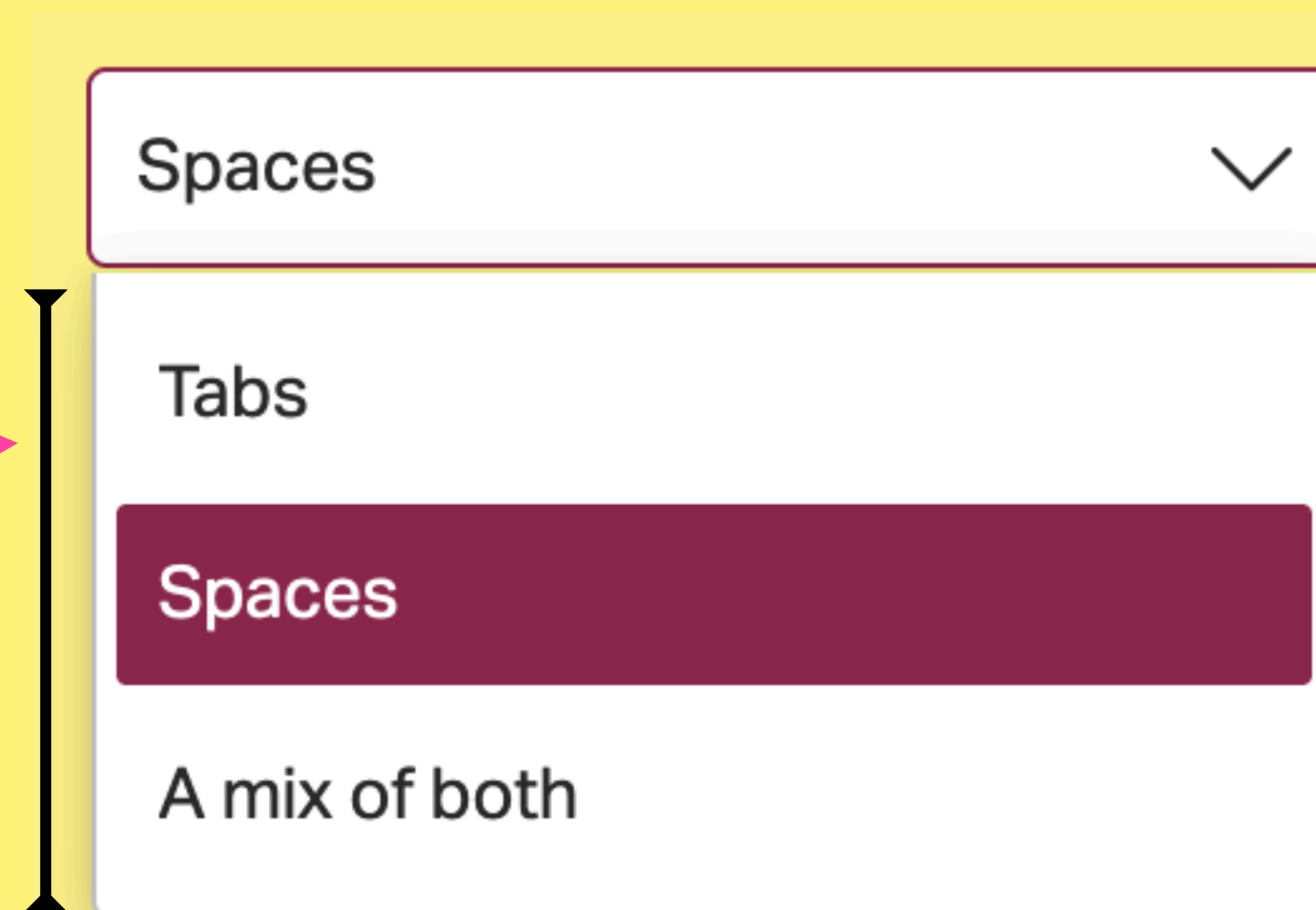
Spaces

A mix of both

EXPERIMENTAL

```
selectmenu::part(button) {  
  background-color: #f00;  
  border-radius: 5px;  
}
```

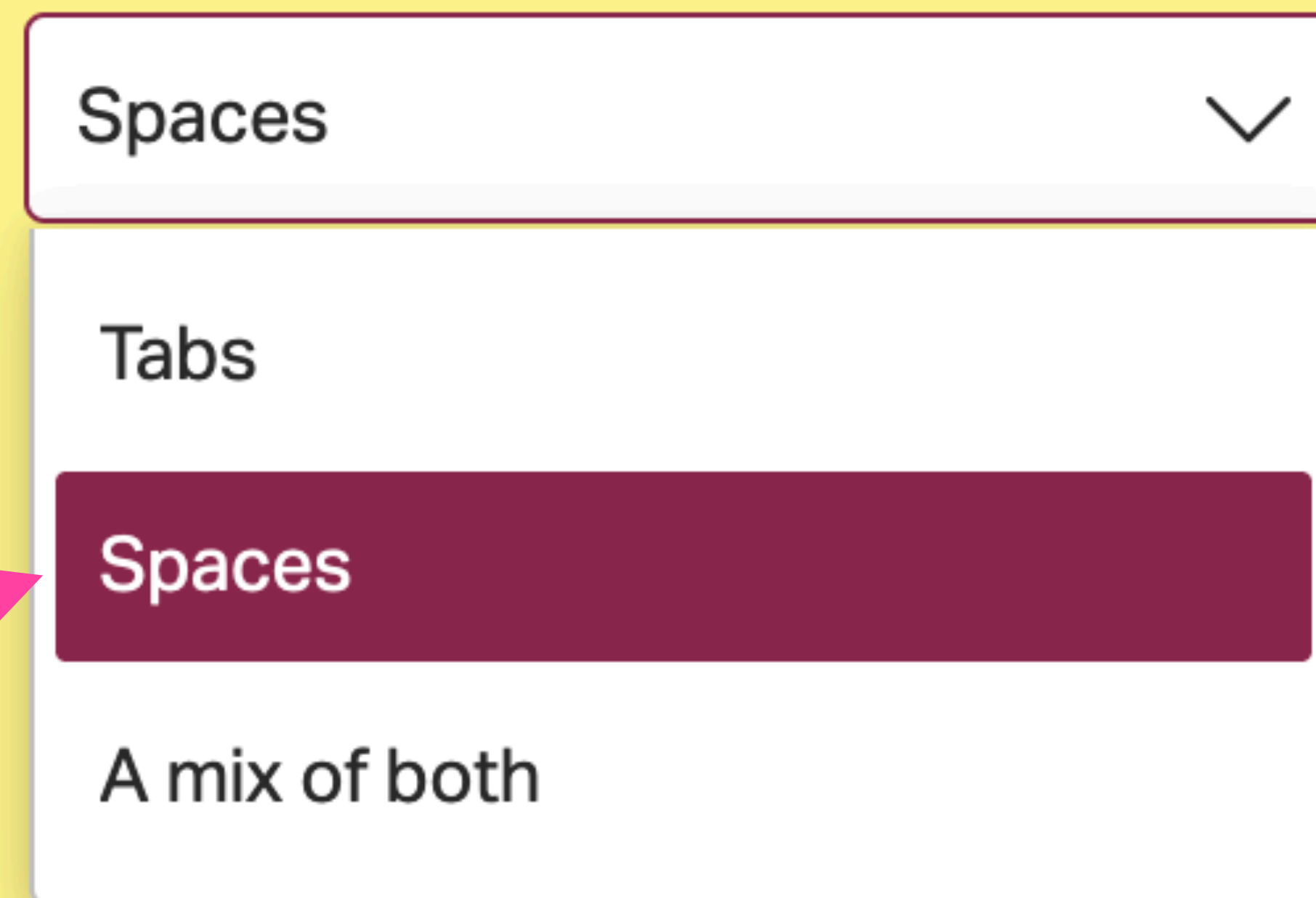
```
selectmenu::part(listbox) {  
  padding: 10px;  
  margin-top: 5px;  
}
```



```
selectmenu::part(button) {  
  background-color: #f00;  
  border-radius: 5px;  
}
```

```
selectmenu::part(listbox) {  
  padding: 10px;  
  margin-top: 5px;  
}
```

```
selectmenu::part(selected-value) {  
  padding: 10px;  
  margin-top: 5px;  
}
```



<SELECTMENU> BROWSER SUPPORT



Experimental, behind flags,
known accessibility issues
[about:flags](#), “Experimental Web Features”

popup attribute

popup would be
an attribute for
HTML to make
popup-like
behaviors easier
to build

Where is Hidde?

Search

0


Content

Photos

Ypont

Current version

Main image



REPLACE

Upload

Browse

Download original file

Copy URL

Clear field

Alternative text

What's on this picture?

POPUP EXAMPLES

action
menus

teaching
UI

content
pickers

form element
suggestions

<select>'s
listbox

COMMON POPUP BEHAVIOURS

on top of
other page
content

short-lived

usually
one at
the time

```
// create a popup
```

```
<div>
```

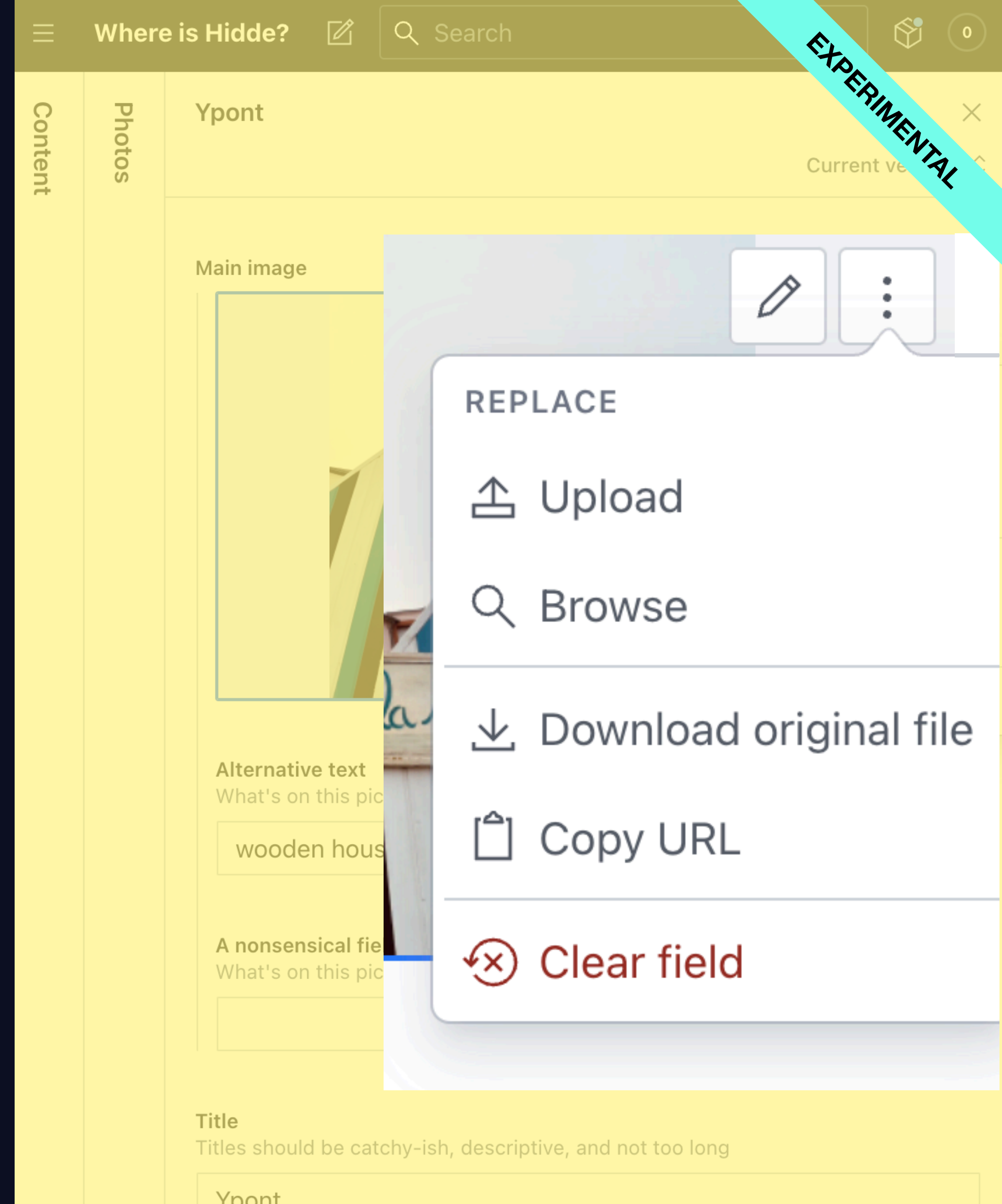
```
  <h3>Replace image</h3>
```

```
  <button>Upload</button>
```

```
  <button>Browse</button>
```

```
  ...
```

```
</div>
```



```
// give this popup behavior
```

```
<div popup>
```

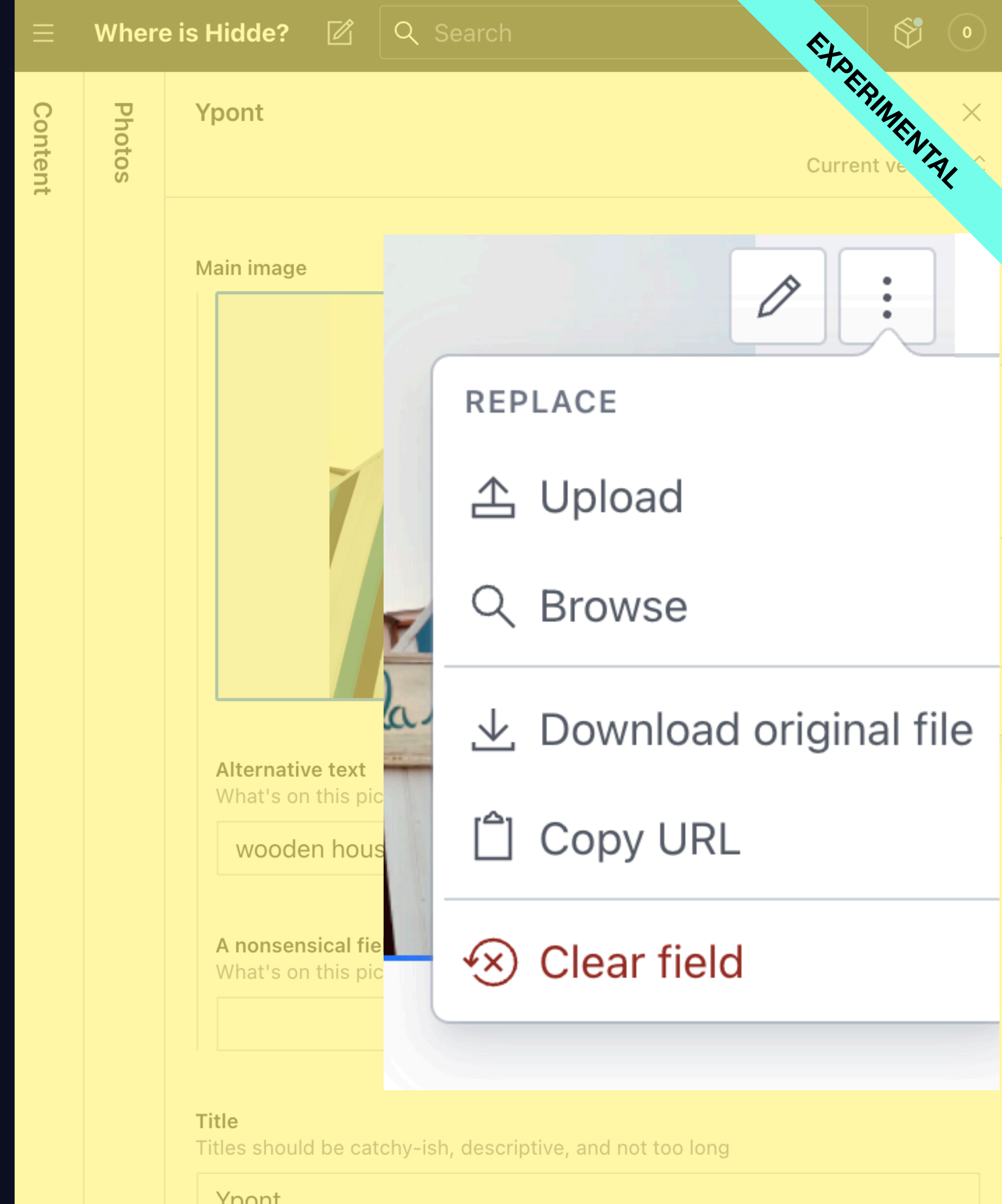
```
  <h3>Replace image</h3>
```

```
  <button>Upload</button>
```

```
  <button>Browse</button>
```

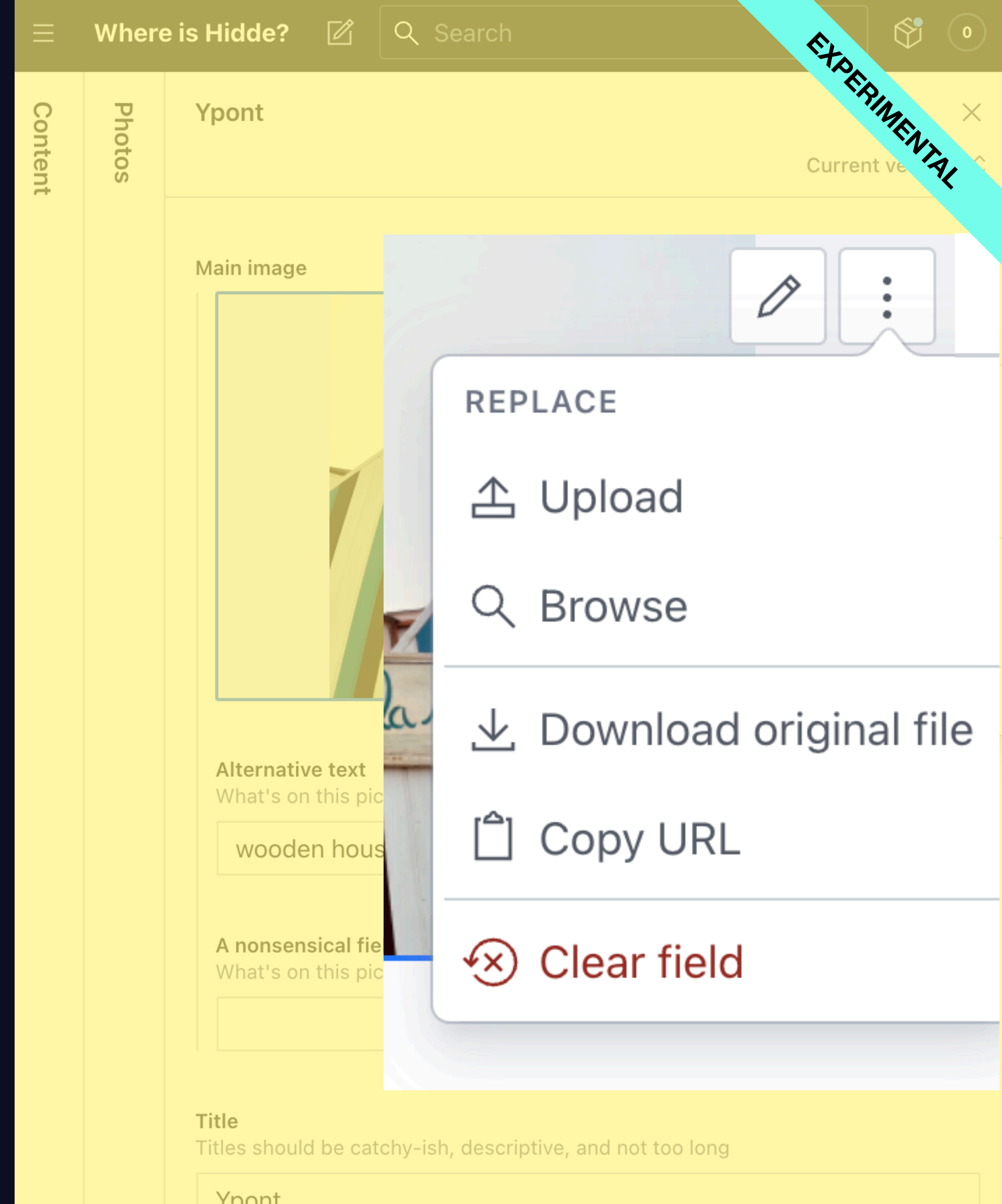
```
  ...
```

```
</div>
```



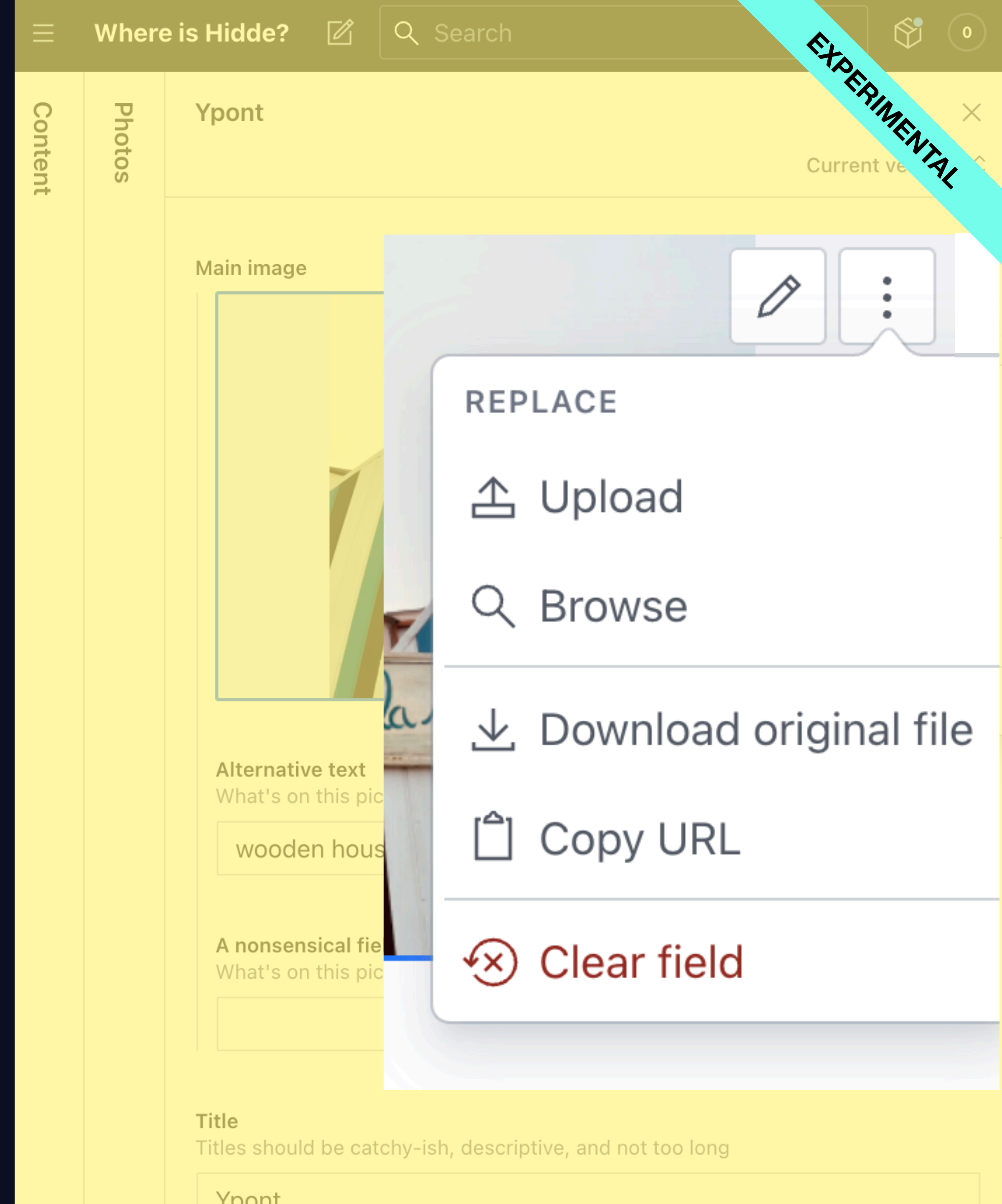
```
// add a unique ID
```

```
<div popup id="options">  
  <h3>Replace image</h3>  
  <button>Upload</button>  
  <button>Browse</button>  
  ...  
</div>
```



```
// add a toggle button
<button togglepopup="options">
  Image options
</button>
```

```
// give this popup behavior
<div popup id="options">
  <h3>Replace image</h3>
  <button>Upload</button>
  <button>Browse</button>
  ...
</div>
```



```
// make an async popup
```

```
<div popup="async" id="statusMessage">
```

```
</div>
```

Main image



Alternative text

What's on this picture?

wooden houses painted lightblue, darkblue and white, with a sign

A nonsensical field for fun

What's on this picture?

ad

Title

Titles should be catchy-ish, descriptive, and not too long

Ypont

The document was published



↑ just now

✓ Published



```
// make an announceable async popup
```

```
<div role="alert">
```

```
  <div popup="async" id="statusMessage">
```

```
  </div>
```

```
</div>
```

Main image



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EXPERIMENTAL

```
// make an announceable async popup
```

```
<div role="alert">  
  <div popup="async" id="statusMessage">  
  </div>  
</div>
```

```
const statusMessage =  
  document.querySelector("#options");
```

Main image



EXPERIMENTAL

Alternative text

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```
// make an announceable async popup
<div role="alert">
  <div popup="async" id="statusMessage">
    </div>
  </div>
```

```
const statusMessage =
  document.querySelector("#options");
```

```
// do publishing magic, then:
statusMessage.textContent =
  "This document was published";
statusMessage.showPopup();
```

Main image



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popup browser support



Experimental, behind flags,
known accessibility issues
`about:flags`, “Experimental Web Features”

We want your thoughts!

@OpenUICG on Twitter
Discord / weekly meetings

WRAPPING UP

MARKUP AFFECTS ACCESSIBILITY TREES

**MARKUP AFFECTS
ACCESSIBILITY TREES**

**SOME OF THIS IS COMING
TO JAVASCRIPT LAND**

**MARKUP AFFECTS
ACCESSIBILITY TREES**

**SOME OF THIS IS COMING
TO JAVASCRIPT LAND**

**SOME OF THIS MAY BE BUILT
INTO NEW HTML ELEMENTS**

THANKS FOR LISTENING!

Contact/resources

talks.hiddedevries.nl

@hdv or hidde@sanity.io

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Typefaces

Bungee by David Jonathan Ross (DJR)

Rasa by Anna Giedryś, David Březina (Rosetta)