Respecting User Preferences on the Web

Eric Eggert · AFutureDate.com · April 2020

Eric Eggert

Eric Eggert is a Web Developer and Teacher who works with Knowbility on improving the Web for People with Disabilities, and everyone else.

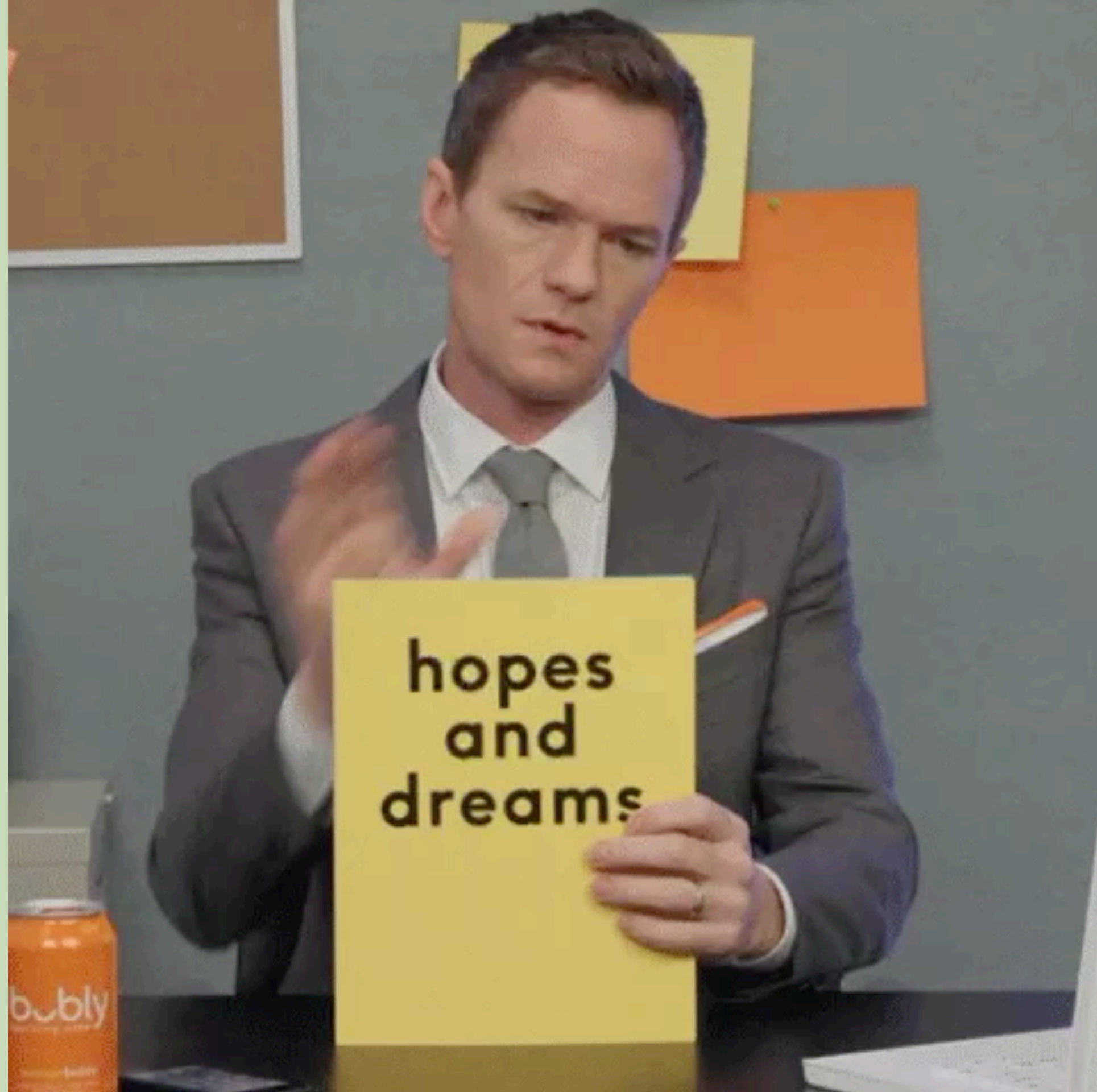2013–2020: W3C/Web Accessibility Initiative
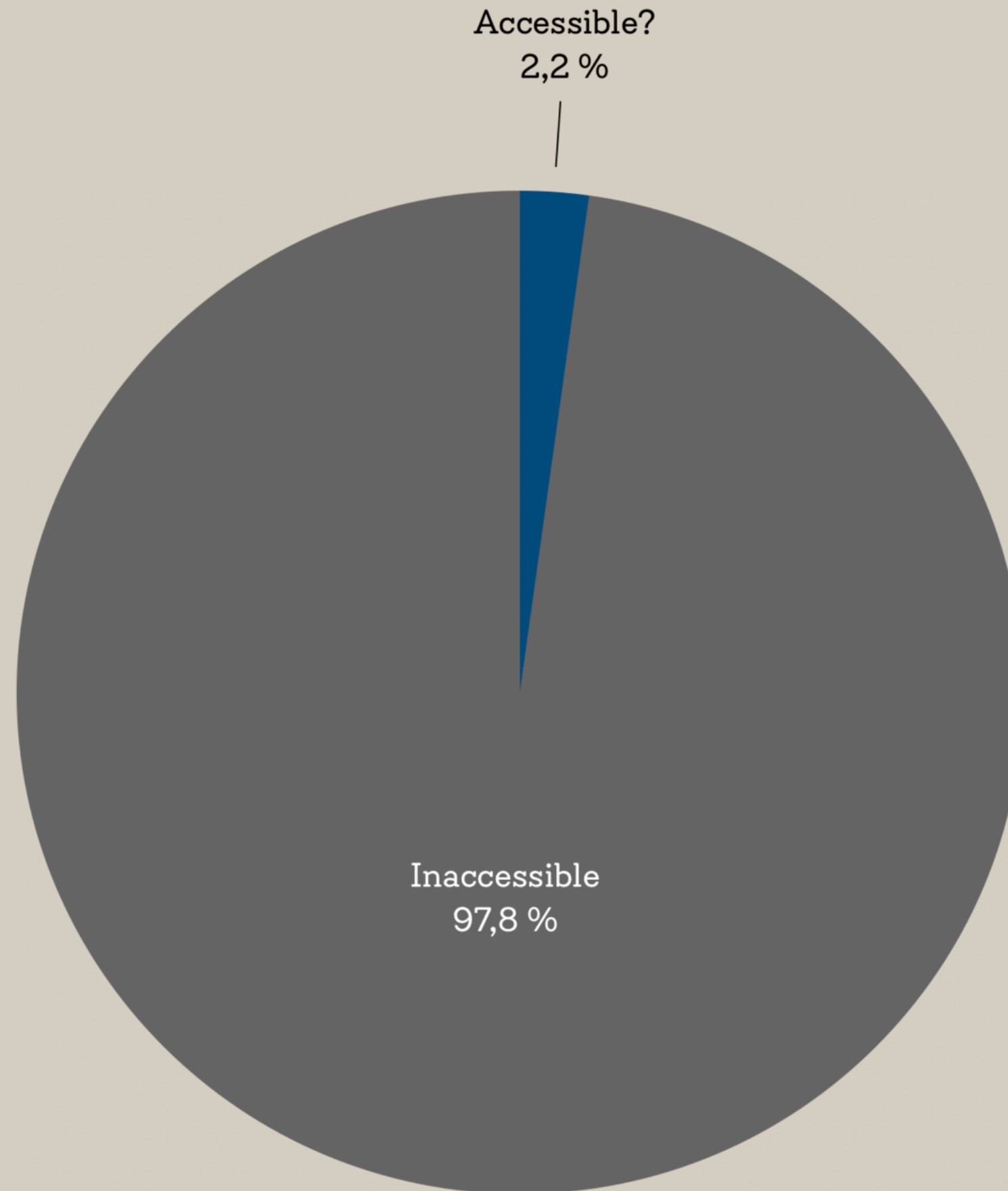
Users

No User is the Same

"Designing inclusive software results in improved usability and customer satisfaction."

— Microsoft's app developer guide

*Accessibility must be a **foundational** value*

Accessible Web Development is Complicated

Accessible?
2,2 %

Inaccessible
97,8 %

WebAIM Million

Observations

→ 60% of the 1 million home pages had ARIA present.

→ Home pages with ARIA present averaged 11.2 more detectable errors than pages without ARIA.

→ Pages with a valid HTML5 doctype had significantly more page

More Complex

==

Less Accessible

Taming that complexity comes with **more complexity**
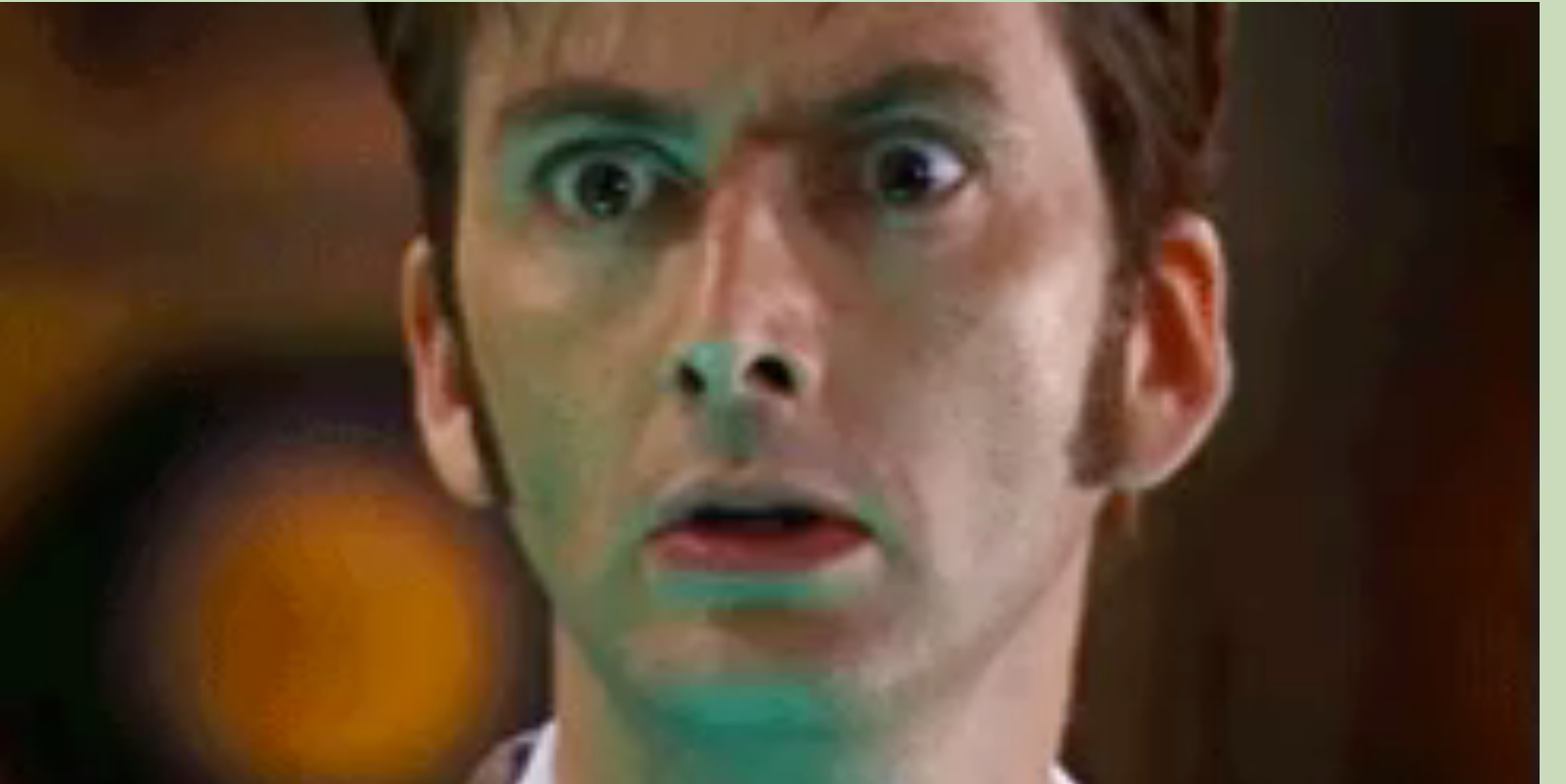
Screen Reader Differences

"VoiceOver and Safari remove list element semantics when list-style: none is used."

— Scott O'Hara: "Fixing" Lists

I'm sorry, what?
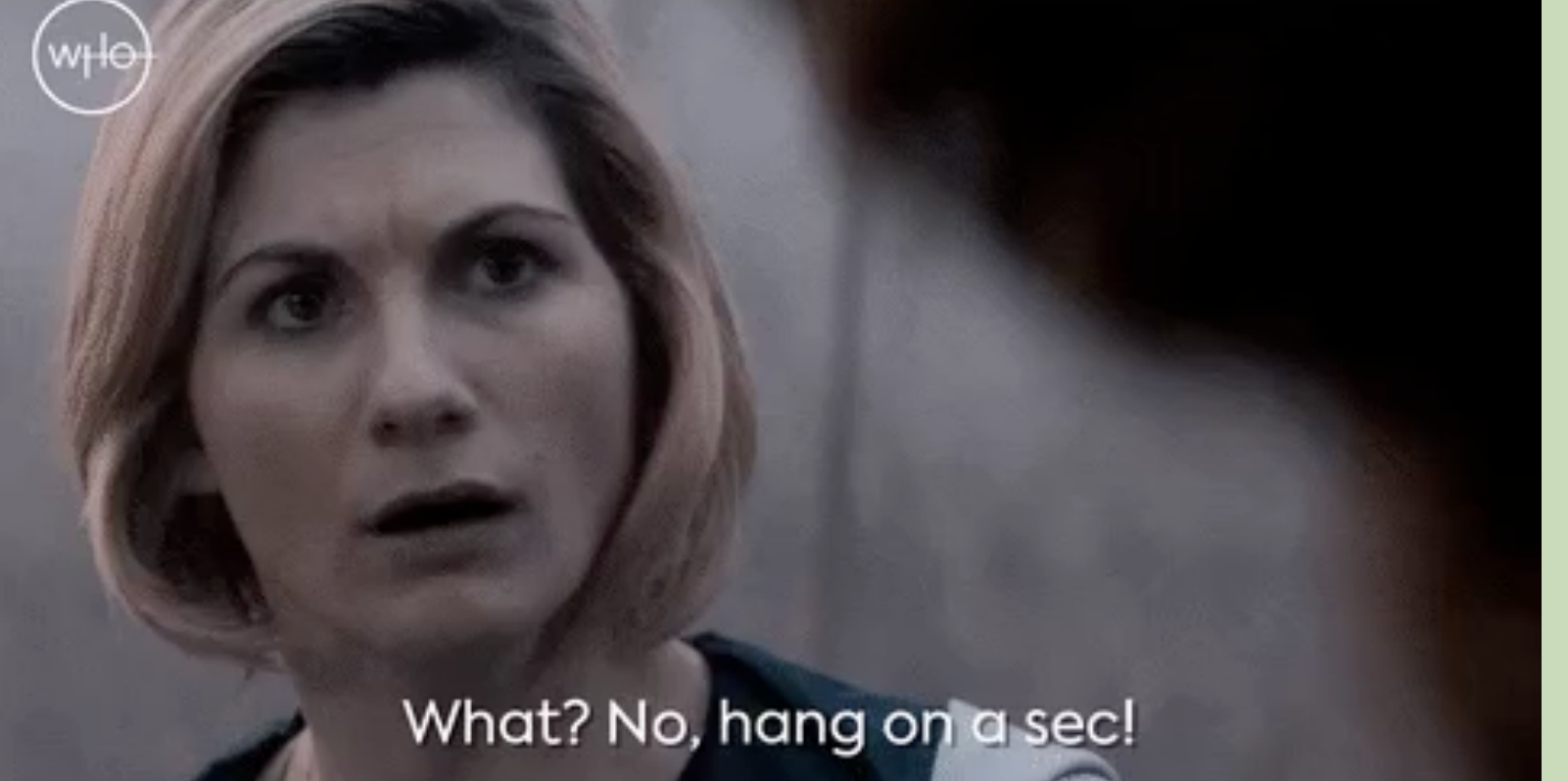
What? No, hang on a sec!

"This was a purposeful change due to rampant 'list'-itis by web developers."

— James Craig, Apple, bugs.webkit.org

What does it mean for me as a web developer that Safari is not reading lists when they don't look like a list?

Nothing.

A Time Line

2014: First Commit
2015: Additional Code

...

No Changes

...

2019: The Web Notices

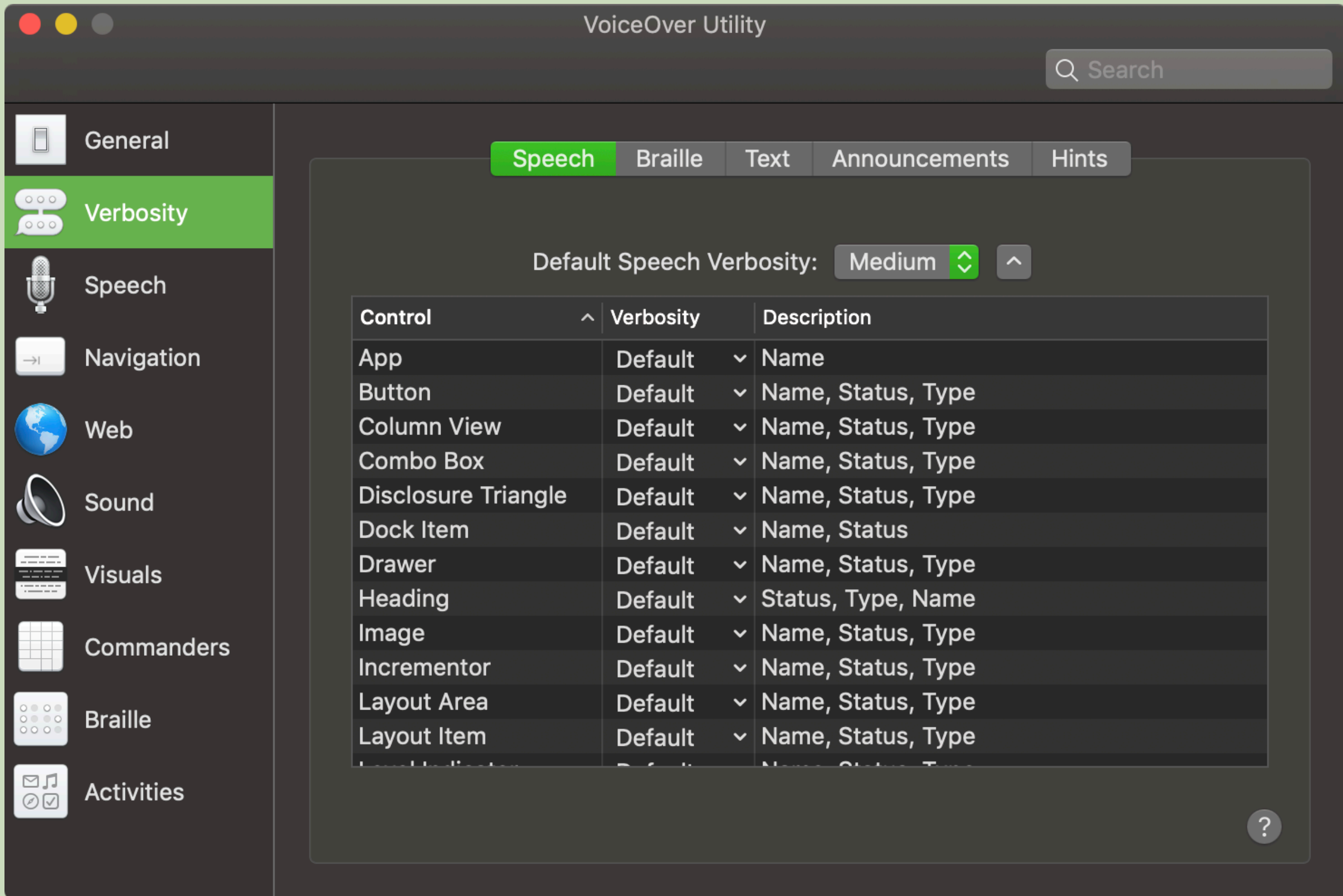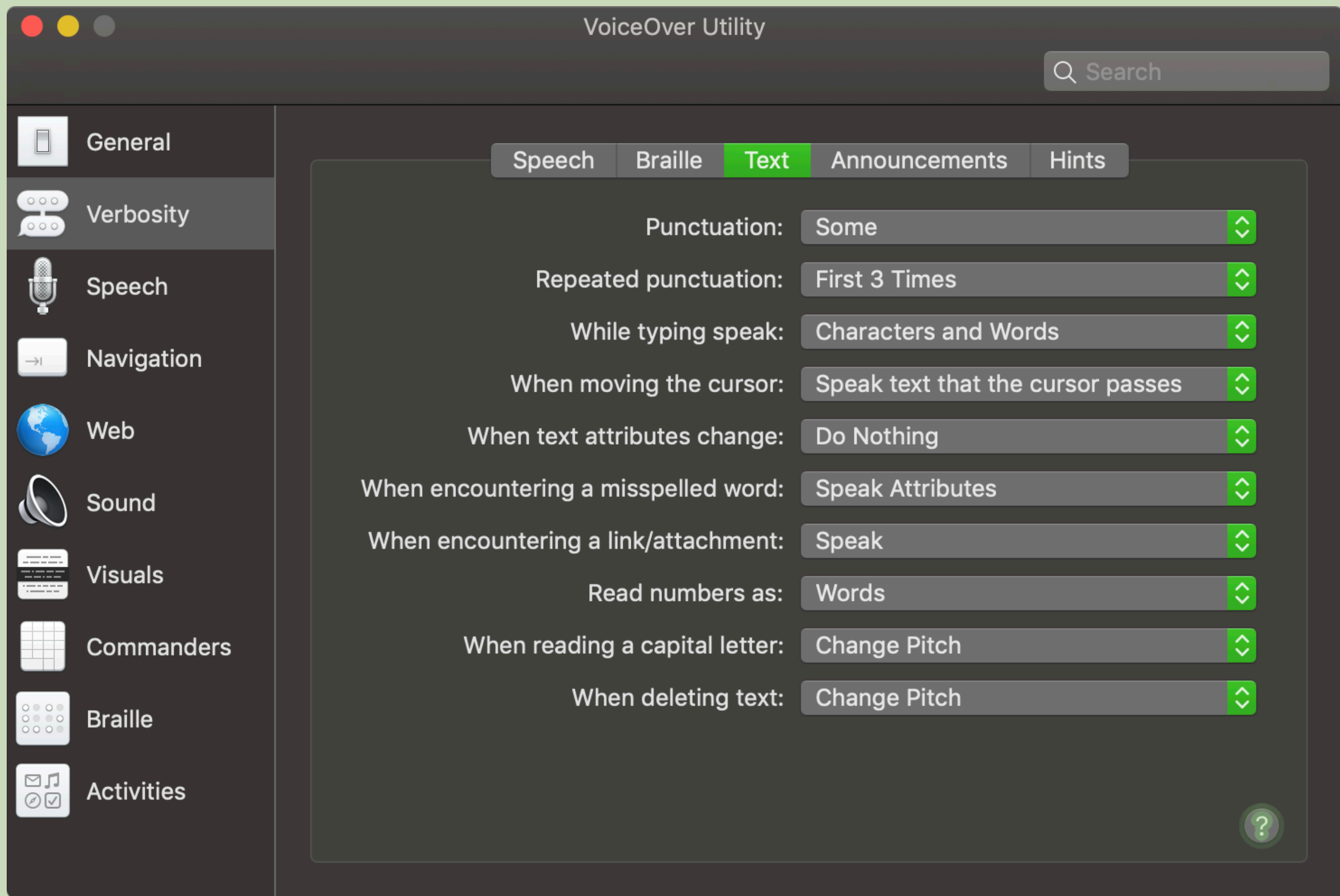"Customers seem much happier in the 3 years since this change went in."

— James Craig, Apple, bugs.webkit.org

NO!

The same it true for screen readers: They don't all need to produce the same output.

VoiceOver Utility

General

Verbosity

Speech

Navigation

Web

Sound

Visuals

Commanders

Braille

Activities

| Speech | Braille | Text | Announcements | Hints |

Default Speech Verbosity: Medium

Control ^	Verbosity	Description
App	Default ⌄	Name
Button	Default ⌄	Name, Status, Type
Column View	Default ⌄	Name, Status, Type
Combo Box	Default ⌄	Name, Status, Type
Disclosure Triangle	Default ⌄	Name, Status, Type
Dock Item	Default ⌄	Name, Status
Drawer	Default ⌄	Name, Status, Type
Heading	Default ⌄	Status, Type, Name
Image	Default ⌄	Name, Status, Type
Incrementor	Default ⌄	Name, Status, Type
Layout Area	Default ⌄	Name, Status, Type
Layout Item	Default ⌄	Name, Status, Type

VoiceOver Utility

Search

| General | Speech | Braille | **Text** | Announcements | Hints |

Verbosity

Punctuation: Some

Repeated punctuation: First 3 Times

While typing speak: Characters and Words

When moving the cursor: Speak text that the cursor passes

When text attributes change: Do Nothing

When encountering a misspelled word: Speak Attributes

When encountering a link/attachment: Speak

Read numbers as: Words

When reading a capital letter: Change Pitch

When deleting text: Change Pitch

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VoiceOver Utility

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Voices	Pronunciation

Text	Substitution	Application	Ignore Case
:(	frown	All Apps	✅
:)	smiley	All Apps	✅
!	exclaim	All Apps	☐
?	question	All Apps	☐
"	quote	All Apps	☐
(	leftparen	All Apps	☐
)	rightparen	All Apps	☐
&	and	All Apps	☐
<	less	All Apps	☐
>	greater	All Apps	☐
802.11b	8 oh 2 dot eleven b	All Apps	✅
802.11g	8 oh 2 dot eleven g	All Apps	✅
GIF	giff	All Apps	☐
GUI	gooey	All Apps	☐
qty	quantity	All Apps	✅

\+ −

*There is no Control.*

Other Differences

Go <figure>

Although 47 of the 74 worldwide swallow species are found in Africa,[1] only two species are named after the continent: the West African Swallow (*Hirundo domicella*) and the South African Swallow (*Hirundo spilodera*), also known as the South African Cave Swallow.

Since the range of the South African Swallow extends only as far north as Zaire,[2] I felt fairly confident that this was the non-migratory African species referred to in previous discussions of the comparative
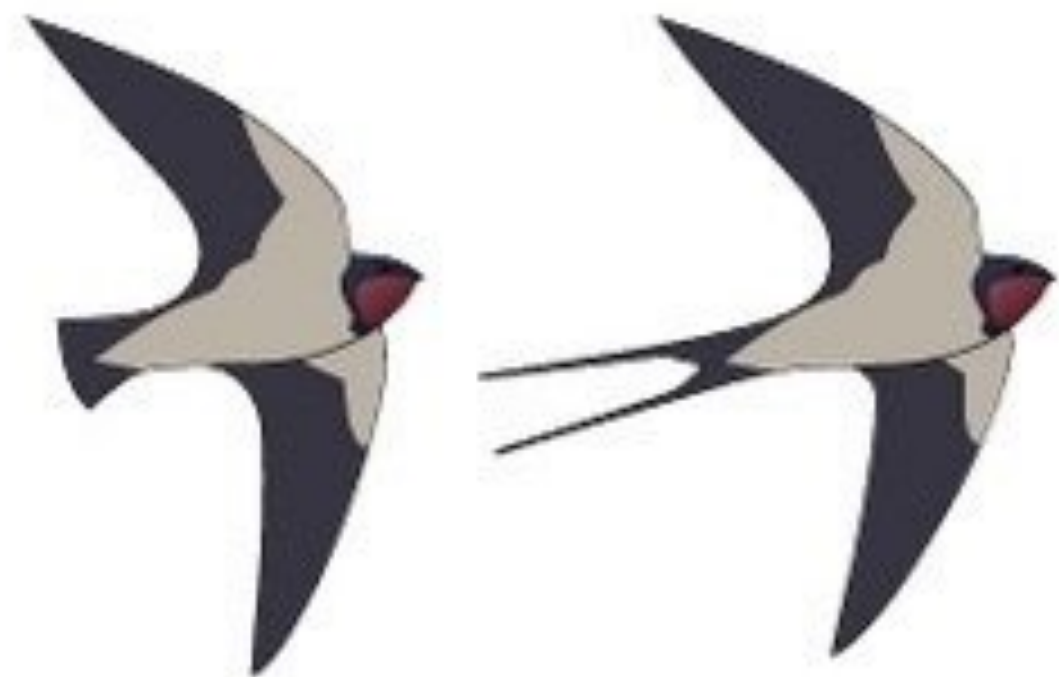
LEFT: South African Swallow
RIGHT: European Swallow

JAWS has the best support for announcing native figures and their captions, though support is not perfect or consistent **depending on the browser** and JAWS's **verbosity settings.**

IE11 requires the use of role="figure" and an aria-label or aria-labelledby pointing to the figcaption to mimic native announcements.

🤦🏻‍♂️🤦🏻‍♂️🤦🏻‍♂️

Edge[1] won't announce *the presence of a figure role at all, regardless if ARIA is used or not.*

[1] EdgeHTML-Version as published in 2018.

Chrome and Firefox offer similar support, however JAWS *(with default verbosity settings)* **+ Chrome** *will completely ignore a figure (including the content of its figcaption)* **if an image has an empty alt or is lacking an alt attribute.**

Testing **NVDA** version 2018.4.1 with IE11, Edge, Firefox 64.0.2 and Chrome 71, there was **no trace of figures.**

```html
<figure role="figure" aria-label="Caption for the figure.">
  <!-- figure content. if an image, provide alt text -->
  <figcaption>
    Caption for the figure.
  </figcaption>
</figure>

<!--
  aria-label for macOS VoiceOver + Chrome
  role="figure" for IE11.

  IE11 needs an accessible name (provided by aria-label).
  If not for the fact VO + Chrome doesn't support an
  accessible name from aria-labelledby, that attribute
  would have been preferred / pointed to an ID on
  the <figcaption>.
-->
```

Presently, mobile screen readers won't announce figures, nor Edge unless paired with Narrator (sort of), or any browser paired with NVDA.

Thanks, Scott![2]

[2] How do you figure? | scottohara.me

ARIA *can* help, but not in every situation.

Accessibility is *not* only Screen Readers

Most non-Screen-Reader assistive technology does not work well with ARIA.

Nuance released the lucky version 13 of [Dragon Naturally Speaking](#). I've been doing some preliminary testing and here's what Dragon 13 supports (so far) in terms of ARIA:

- `role="button"`

- `role="link"`

- `role="radio"`

- `role="checkbox"`

- `aria-label`

That's just in about 30 mins of testing, so there's definitely more to test, but this is a huge step.

How Dragon Naturally Speaking works with ARIA » Simply Accessible *(2014)*

I'm a real link | As am I

I'm a placeholder link (no href)

I'm an ARIA link made out of a div

I'm an ARIA link made out of a button

I'm a paragraph of text with an ARIA link within me. Where I be?

I'm a real link | As am I

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I'm a paragraph of text with an ARIA link within me. Where I be?

Normal Button | aria-disabled button | Actually Disabled Button

Users!

Knowledge Levels Vary Greatly

Users often don't know what their computers can do for them.

Other Users hack their assistive technology to work with inaccessible sites.

Some users write style sheets and JavaScripts to change websites to their needs.

Type of Disability

Accessibility Support

Proficiency

Your Users are Everywhere here.
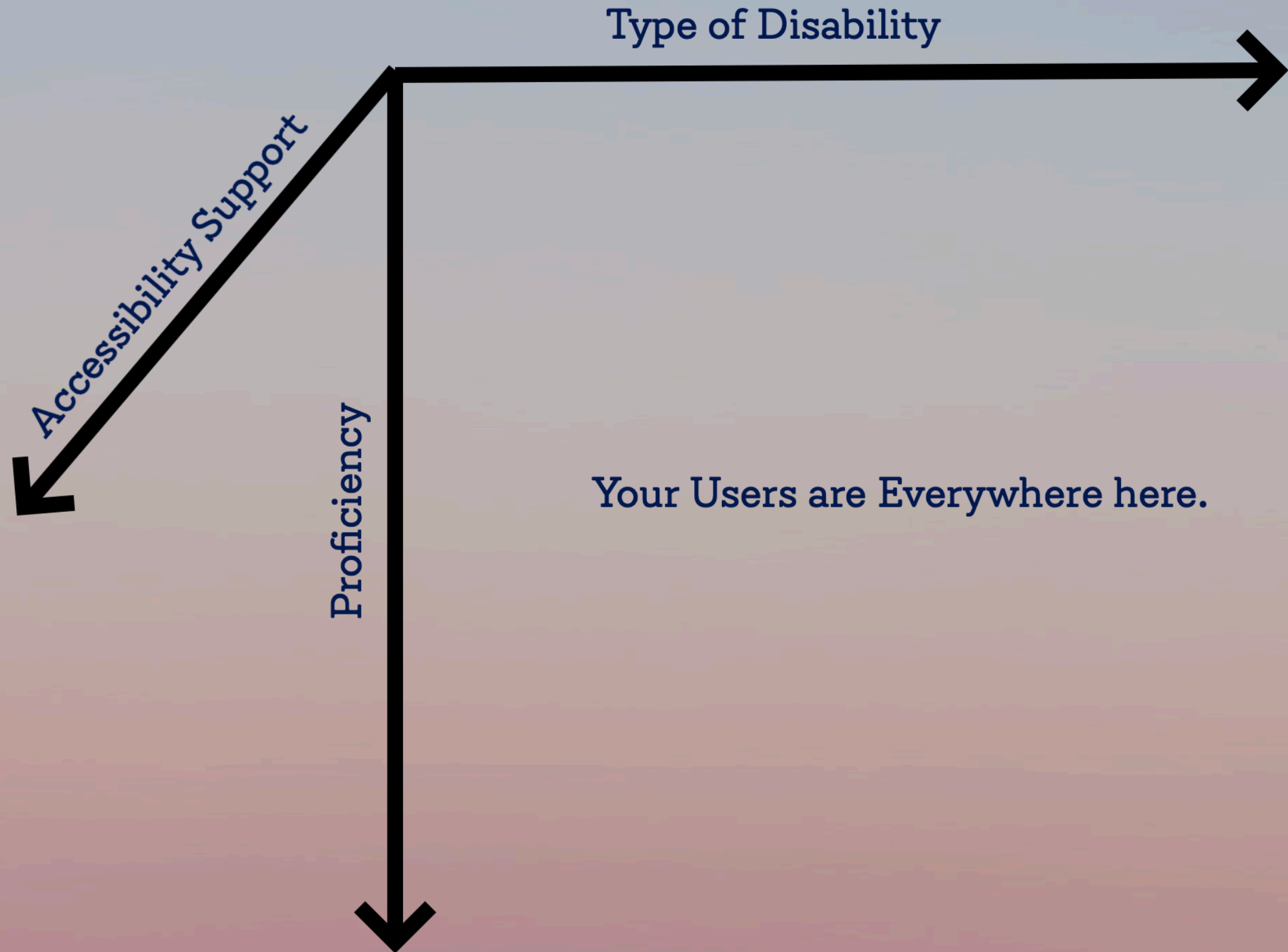
Test with Diverse Users

Give Users Agency

Allow use of assistive technology that suits a particular user's needs.

Try not to prescribe how to use a component.
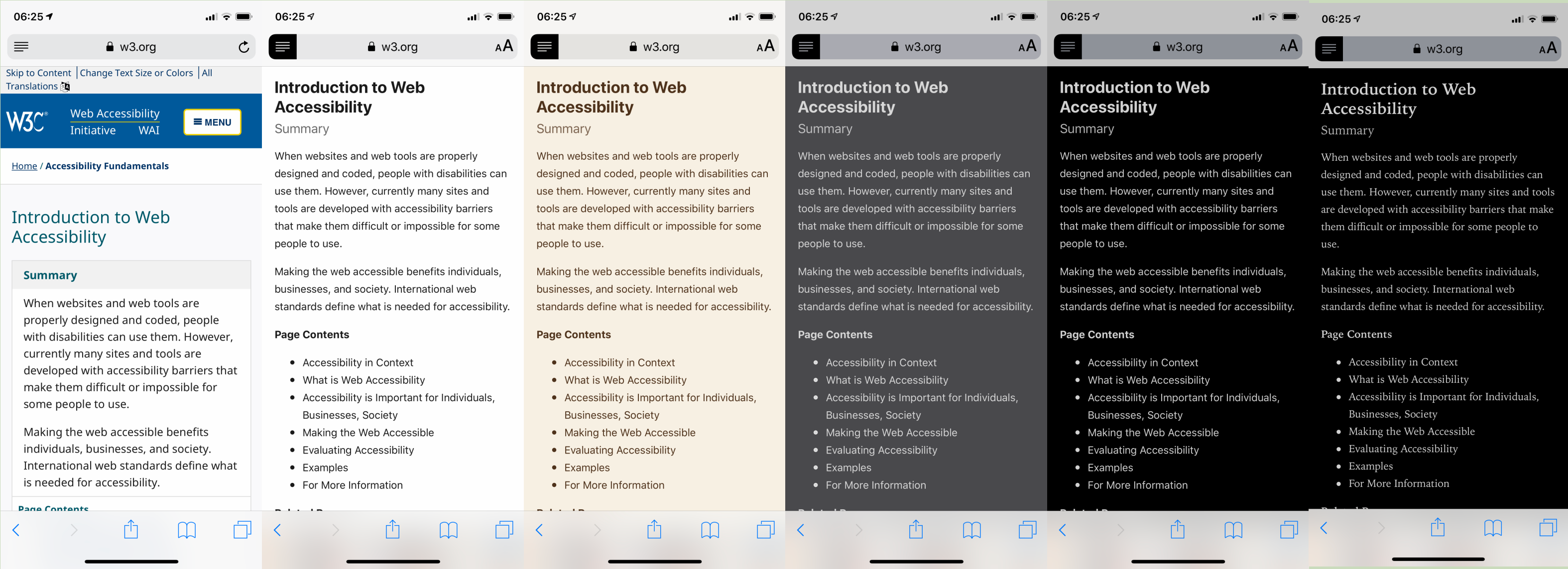
Use HTML & CSS to describe elements.
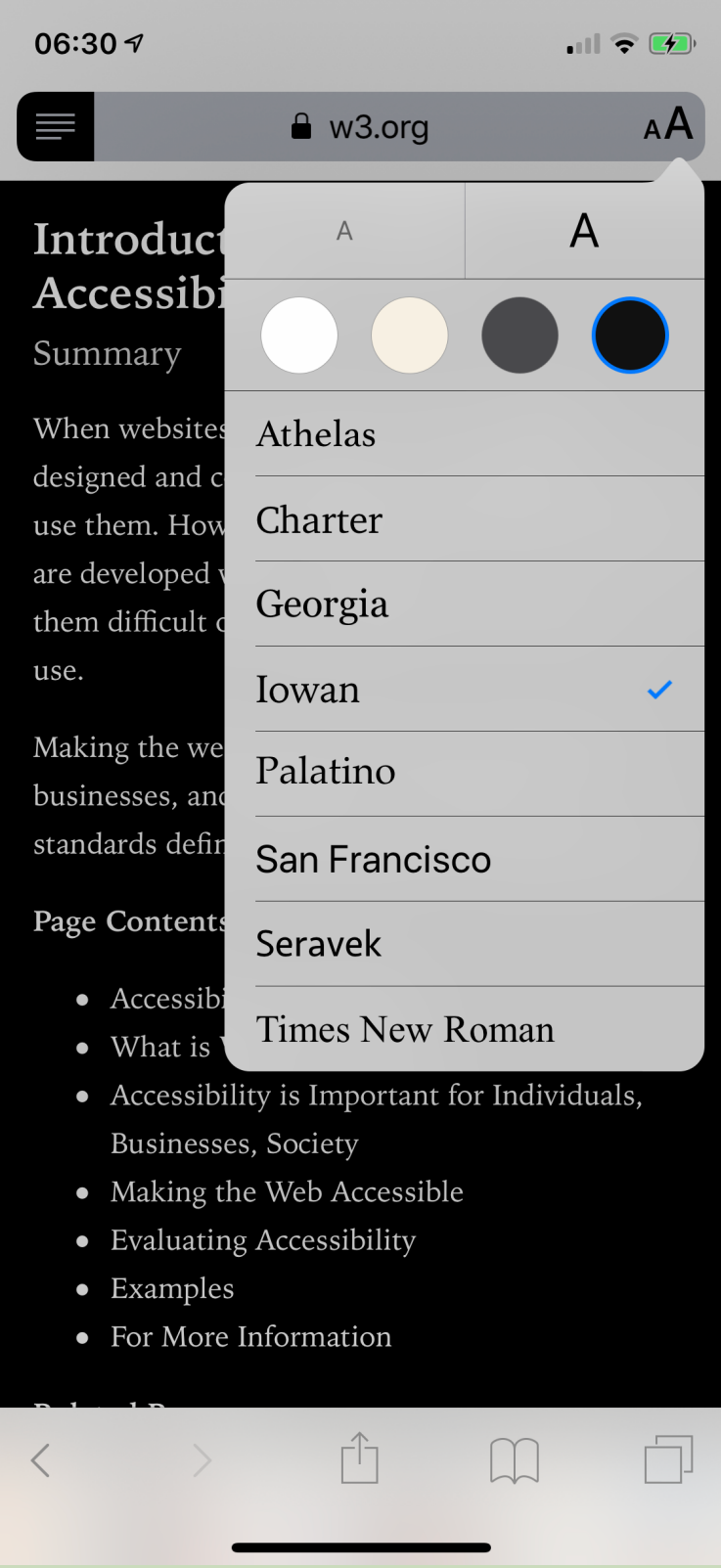
Don't expect any proficiency from users.

Don't break conventions!

Users get a lot more tools to use!

Reader Mode

Skip to Content | Change Text Size or Colors | All Translations

W3C Web Accessibility Initiative WAI ☰ MENU

Home / Accessibility Fundamentals

Introduction to Web Accessibility

Summary

When websites and web tools are properly designed and coded, people with disabilities can use them. However, currently many sites and tools are developed with accessibility barriers that make them difficult or impossible for some people to use.

Making the web accessible benefits individuals, businesses, and society. International web standards define what is needed for accessibility.

Page Contents

06:30

🔒 w3.org

A **A**

Athelas

Charter

Georgia

Iowan ✓

Palatino

San Francisco

Seravek

Times New Roman

Introduct...
Accessibi...

Summary

When websites
designed and c
use them. How
are developed
them difficult
use.

Making the we
businesses, an
standards defi

Page Contents

- Accessibi...
- What is
- Accessibility is Important for Individuals, Businesses, Society
- Making the Web Accessible
- Evaluating Accessibility
- Examples
- For More Information

Reader Mode

Native Support:

→ Safari (since 2010, can set to default since 2015)

→ Firefox (2015)

→ Edge (2015)

Introduction to Web Accessibility

w3c_wai

7-9 minutes

Page Contents

Accessibility in Context

> The power of the Web is in its universality.
> Access by everyone regardless of disability is an essential aspect.

The Web is fundamentally designed to work for all people, whatever their hardware, software, language, location, or ability. When the Web meets this goal, it is accessible to people with a diverse range of hearing, movement, sight, and cognitive ability.

Thus the impact of disability is radically changed on the Web because the Web removes barriers to communication and interaction that many people face in the physical world. However, when websites, applications, technologies, or tools are badly designed, they can create barriers that exclude people from using the Web.

Accessibility is essential for developers and organizations that want to create high-quality websites and web tools, and not exclude people from using their products and services.

w3.org

Web Accessibility

7-9 minutes

Page Contents

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https://www.w3.org/WAI/fundam

Sans-serif

Serif

Light

Dark

Sepia

...Web Accessibility

xt

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More Website Settings

outline ˅ ♿ ˅ misc ˅ S

POWER TO...   **W3C** SVG Au

When visiting this website:

☑ Use Reader when available

☑ Enable content blockers

Page Zoom: 100 %

Auto-Play: Never Auto-Play

Pop-up Windows: Block and Notify

Camera: Ask

Microphone: Ask

Location: Ask

Websites

General | Tabs | AutoFill | Passwords | Search | Security | Privacy | Websites | Extensions | Advanced

General

- Reader
- Content Blockers
- **Auto-Play**
- Page Zoom
- Camera
- Microphone
- Location
- Notifications
- Pop-up Windows

Plug-ins

☑ WebEx64 General Plu...
Version 1.1.0

Allow the websites below to automatically play media:

Currently Open Websites

duckduckgo.com	Never Auto-Play
giphy.com	Stop Media with Sound
knowbility.org	Never Auto-Play
lynda.com	Never Auto-Play
medium.com	Never Auto-Play
noti.st	Never Auto-Play
slides.com	Allow All Auto-Play
talks.yatil.net	Never Auto-Play
w3c.github.io	Never Auto-Play

Configured Websites

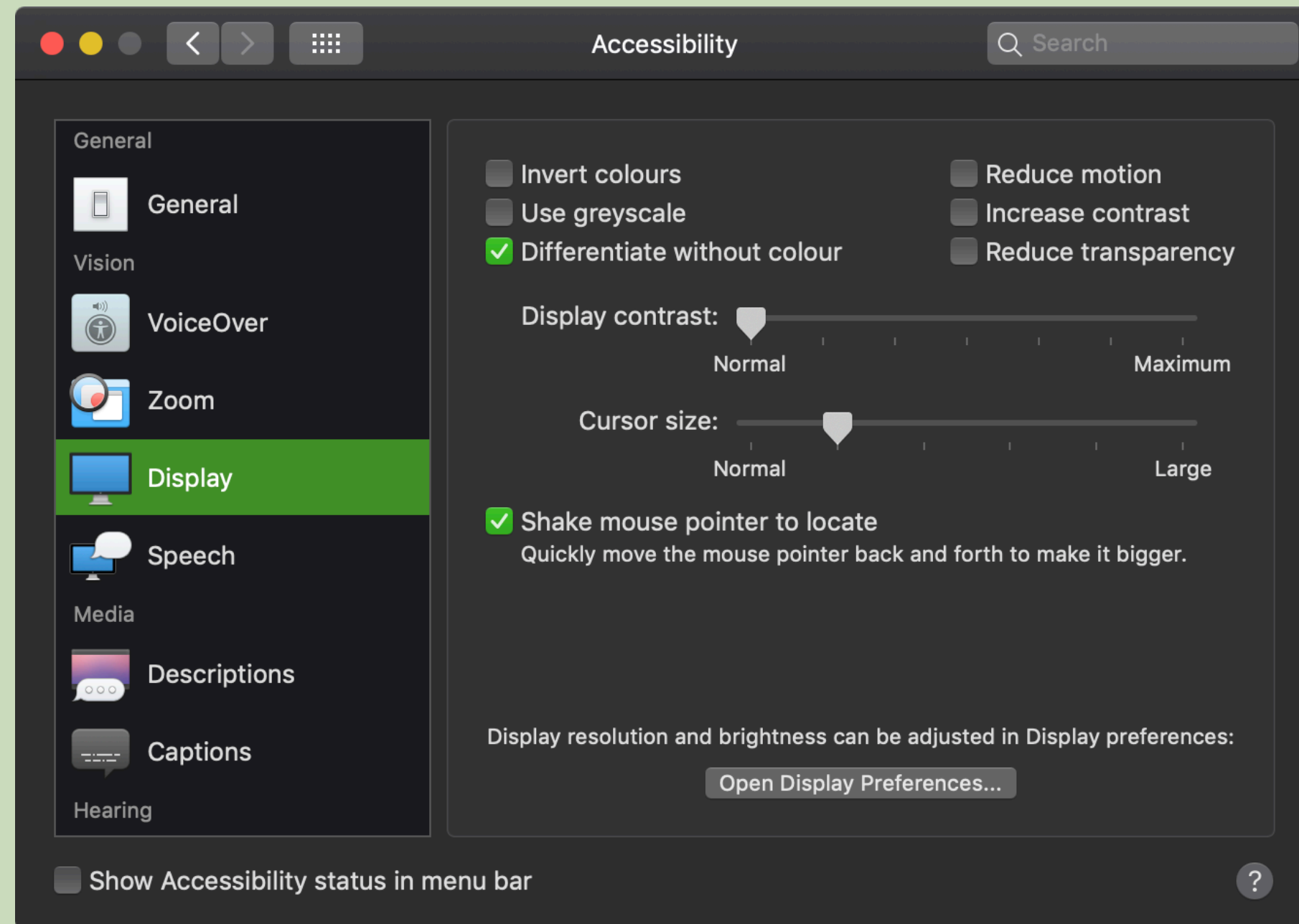|	
apple.com	Stop Media with Sound
ct-com-wci-bff-tst.us-south.containers.ap...	Allow All Auto-Play

Remove   When visiting other websites: Never Auto-Play

OS

As in Operating System

OS Settings

prefers-reduced-motion
Media Query

```css
@media (prefers-reduced-motion: reduce) {
  * {
      transition: none !important;
      animation: none !important;
  }
}
```

Support

On Windows
...it's complicated

Short note on prefers-reduced-motion and puzzled (Windows) users

Defensive prefers-reduced-motion use
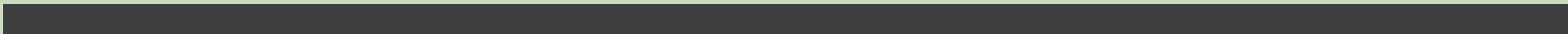
```css
@media (prefers-reduced-motion: no-preference) {
  .animation {
    animation: vibrate 0.3s linear infinite both;
  }
}
```

Source: Patrick H. Lauke, TPG

prefers-color-scheme
Media Query

```css
:root {
  --color: #333;
  --bgcolor: #eee;
}

@media (prefers-color-scheme: dark) {
  :root {
    --color: #eee;
    --bgcolor: #333;
  }
}

html {
  color: var(--color);
  background-color: var(--bgcolor);
}
```

We³ also get a lot more tools to use!

³ Designers & Developers

Media Queries Level 5(?)

inverted-colors[4]

→ none

→ inverted

[4] Planned in <u>Media Queries Level 5</u>

prefers-reduced-transparency[4]

-> no-preference

-> reduce

[4] Planned in <u>Media Queries Level 5</u>

prefers-contrast[4]

-> no-preference

-> high

-> low

forced-colors[4]

→ none

→ active

[4] Planned in <u>Media Queries Level 5</u>

Environment MQs[4]

light-level[4]

→ dim

→ normal

→ washed

[4] Planned in <u>Media Queries Level 5</u>

environment-blending[4]

-> opaque

  -> The document is rendered on an opaque medium, such as a traditional monitor or paper. Black is dark and white is 100% light.

[4] Planned in <u>Media Queries Level 5</u>

Thank You!

Eric Eggert

Web: yatil.net

E-Mail: mail@yatil.net

Social: @yatil