Contrasting Accessibility with
Color Contrast
https://toddl.dev
@toddlibby

Who Am I?

Web Developer & Designer, over 21 years in the industry, front and back end, design and Accessibility. W3C Silver Community member. Visual Contrast of Text subgroup member.

I also love lobster rolls.
MADE
IN
New England
USA

Original
NON GMO PROJECT
VERIFIED
nongmoproject.org

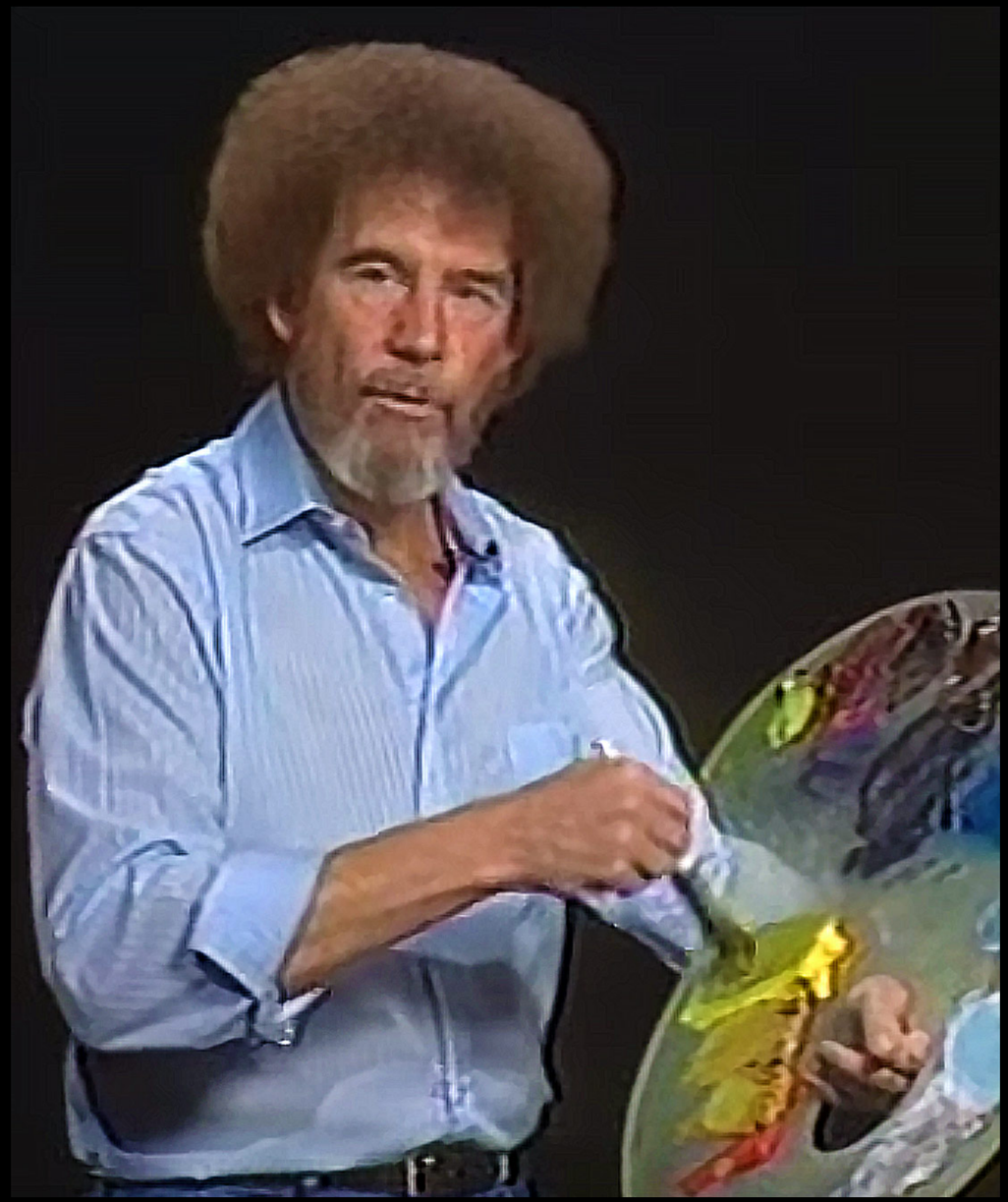
Accessible Color Contrast

“Mix up a little more shadow color here, then we can put us a little shadow right in there. See how you can move things around? You have unlimited power on this canvas -- can literally, literally move mountains”

— Bob Ross

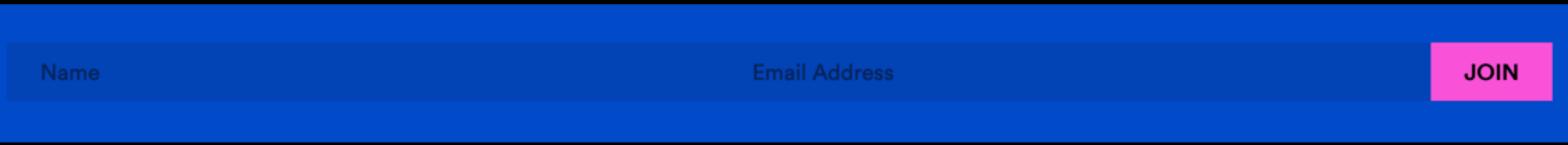
Bob Ross

Painter, art instructor, TV host



“We don't make mistakes; we just have happy accidents.”

— Bob Ross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“juxtaposition of dissimilar elements (such as color, tone, or emotion) in a work of art.”

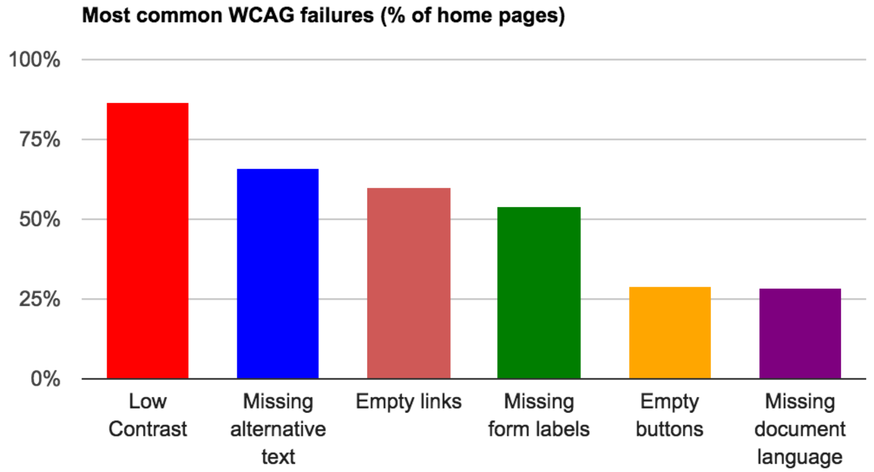
— Merriam-Webster Dictionary - **https://www.merriam-webster.com/dictionary/contrast**

Why color contrast?

What is the number one common failure in sites today regarding accessibility?

WebAIM Million Report

Most Common WCAG Failures

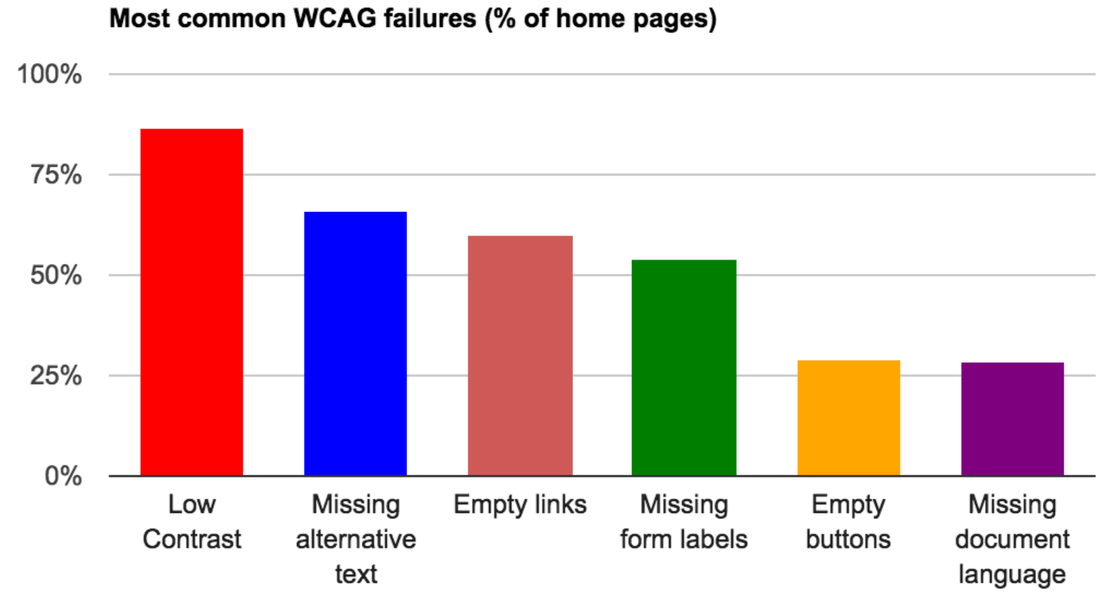


Most common types of WCAG 2 failures

WCAG Failure Type	% of home pages in February 2020	% of home pages in February 2019
Low contrast text	86.3%	85.3%
Missing alternative text for images	66.0%	68.0%
Empty links	59.9%	58.1%
Missing form input labels	53.8%	52.8%
Empty buttons	28.7%	25.0%
Missing document language	28.0%	33.1%

WCAG Conformance

98.1% of home pages had detectable WCAG 2 failures! This was up from 97.8% in February 2019. These are only automatically detectable errors that align with WCAG conformance failures with a high level of reliability. Because automatically detectable errors constitute a small portion of all possible WCAG failures, this means that the actual WCAG 2 A/AA conformance level was probably much lower.



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Who are we failing?

According to the World Health Organization (WHO):

- Globally, at least **2.2 billion people** have a vision impairment or blindness, of whom at least **1 billion** have a vision impairment that could have been prevented or has yet to be addressed.
- Of these 1 billion people, this includes those with moderate or severe distance vision impairment or blindness due to unaddressed refractive error, as well as near vision impairment caused by unaddressed presbyopia.
- Globally, the leading causes of vision impairment are uncorrected refractive errors and cataracts.
- The majority of people with vision impairment are over the age of 50 years.

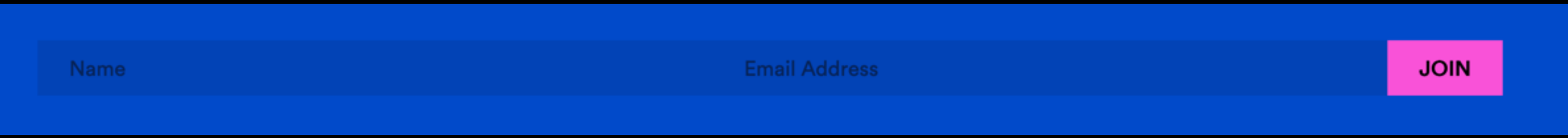
World Health Organization: **www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment**

“I know our customer base and we do not have disabled users.”

— Stakeholder and VP of Company

“...the change in the appearance of a colour **surrounded by** another colour; for example, **grey** looks **bluish** if surrounded by **yellow**.”

— Dictionary.com - https://www.dictionary.com/browse/colour-contrast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Seven Types of Color Blindness:

Red-green color blindness. → **Protanomaly** and **Deuteranomaly**
Protanopia and **Deuteranopia**

Blue-yellow color blindness. → **Tritanomaly** and **Tritanopia**

Complete color blindness. → **Monochromacy**

Other Visual Impairments: Hypermetropia, Myopia, Cataracts, Glaucoma, Stargardt's, Traumatic Iritis

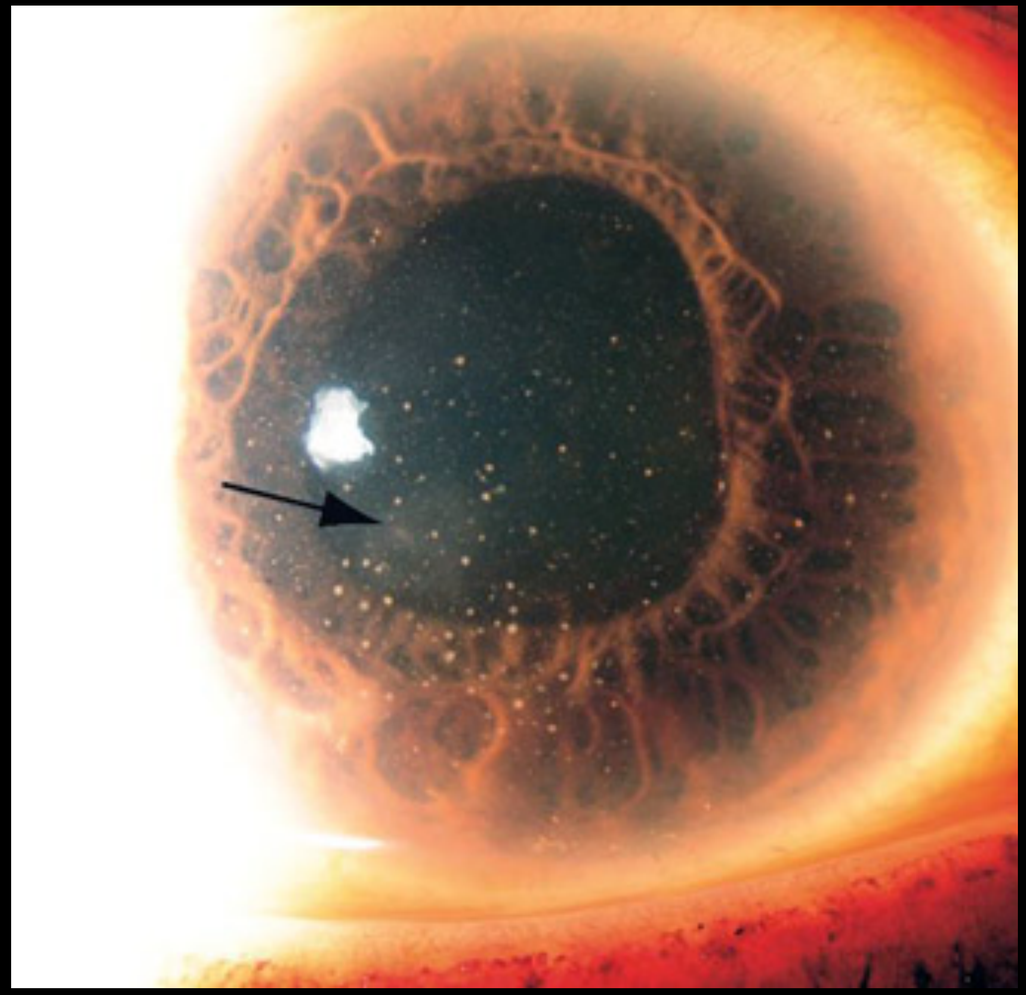
Traumatic Iritis

Traumatic iritis is inflammation of the iris due to trauma.

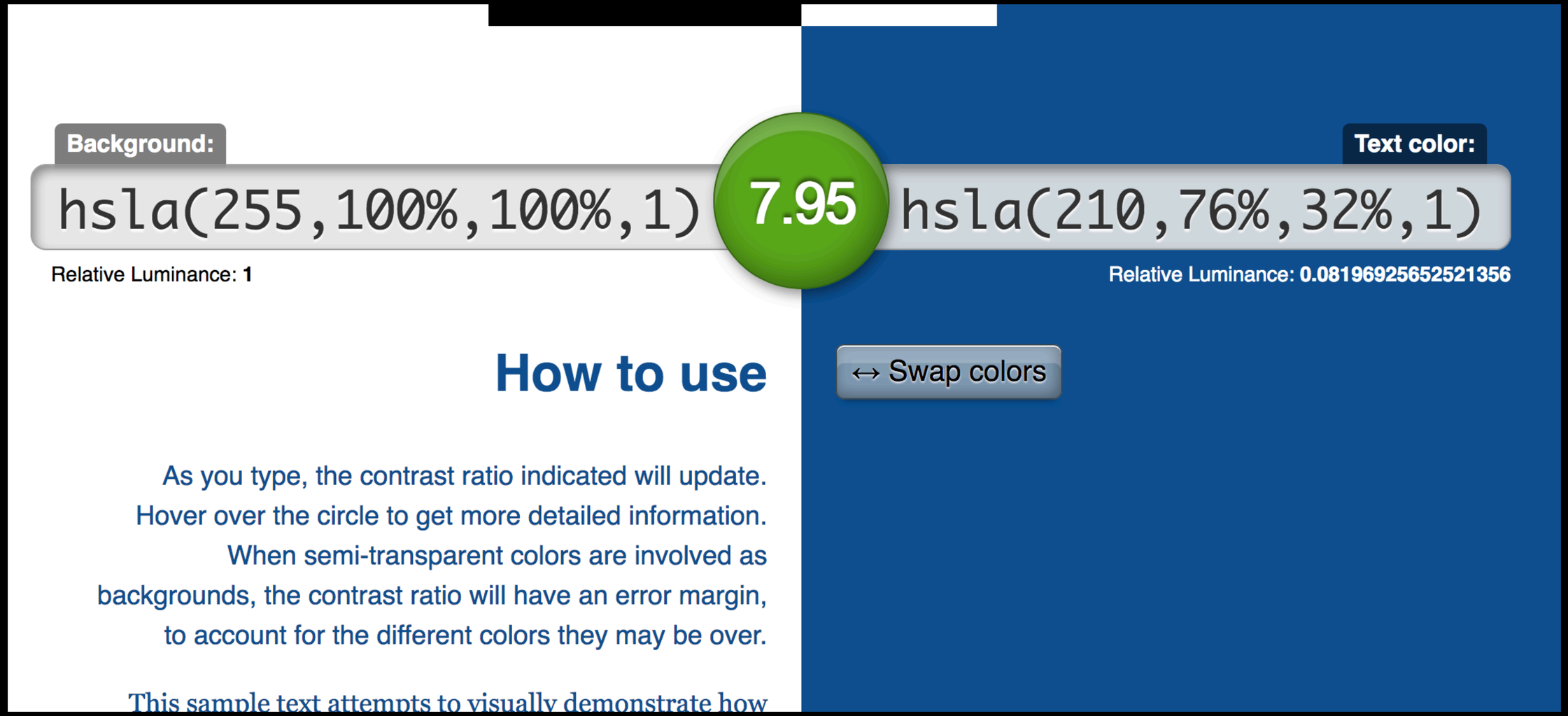
Inflammation of the iris may cause synechial formations between the inflamed, miotic iris and anterior lens.

Simply put the lens and iris in my eye were inflamed and pressed against each other.

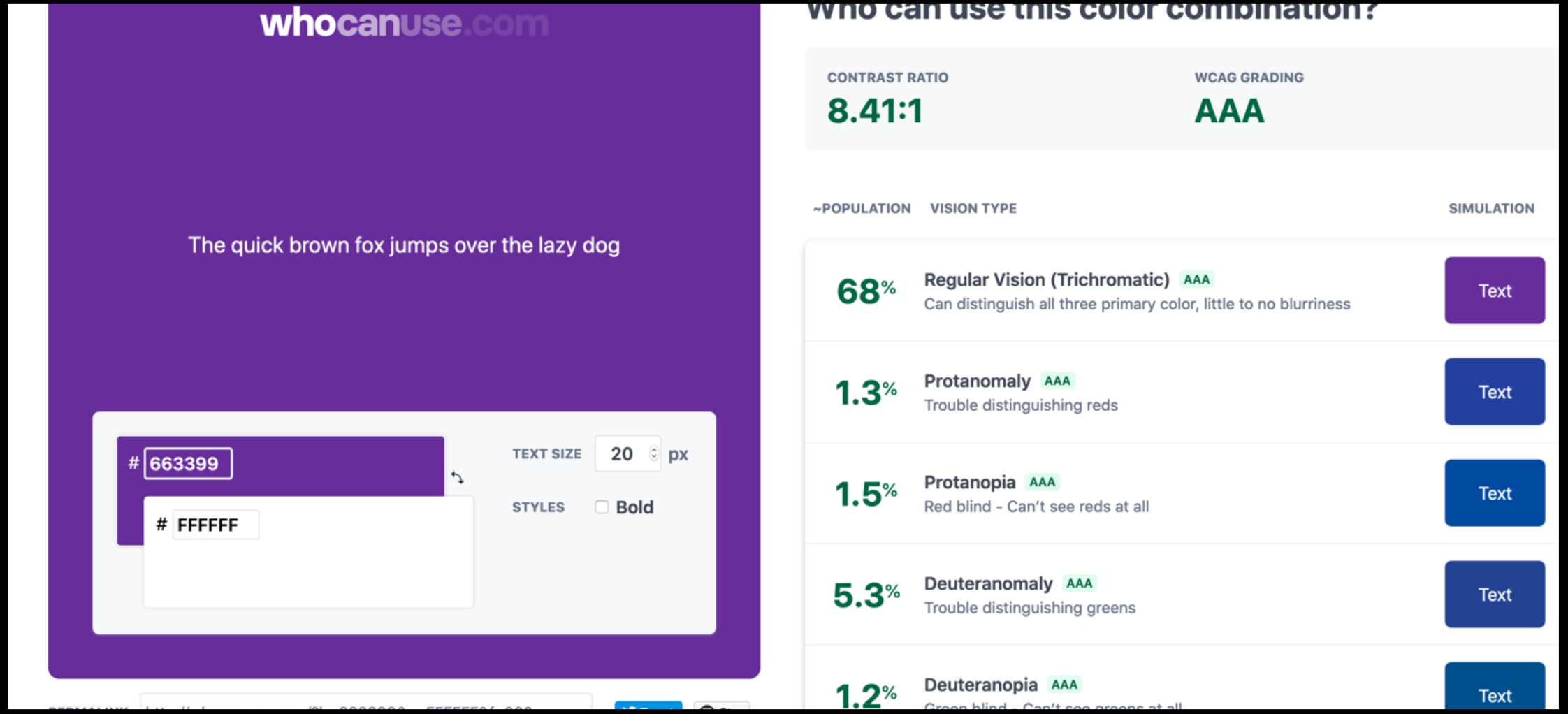
Steroids (drops 2x/day) and pill (1x/day) to treat my case.



25mm



Lea Verou's Color Contrast Checker - **https://contrast-ratio.com**



Who Can Use: **https://whocanuse.com**

MORE!

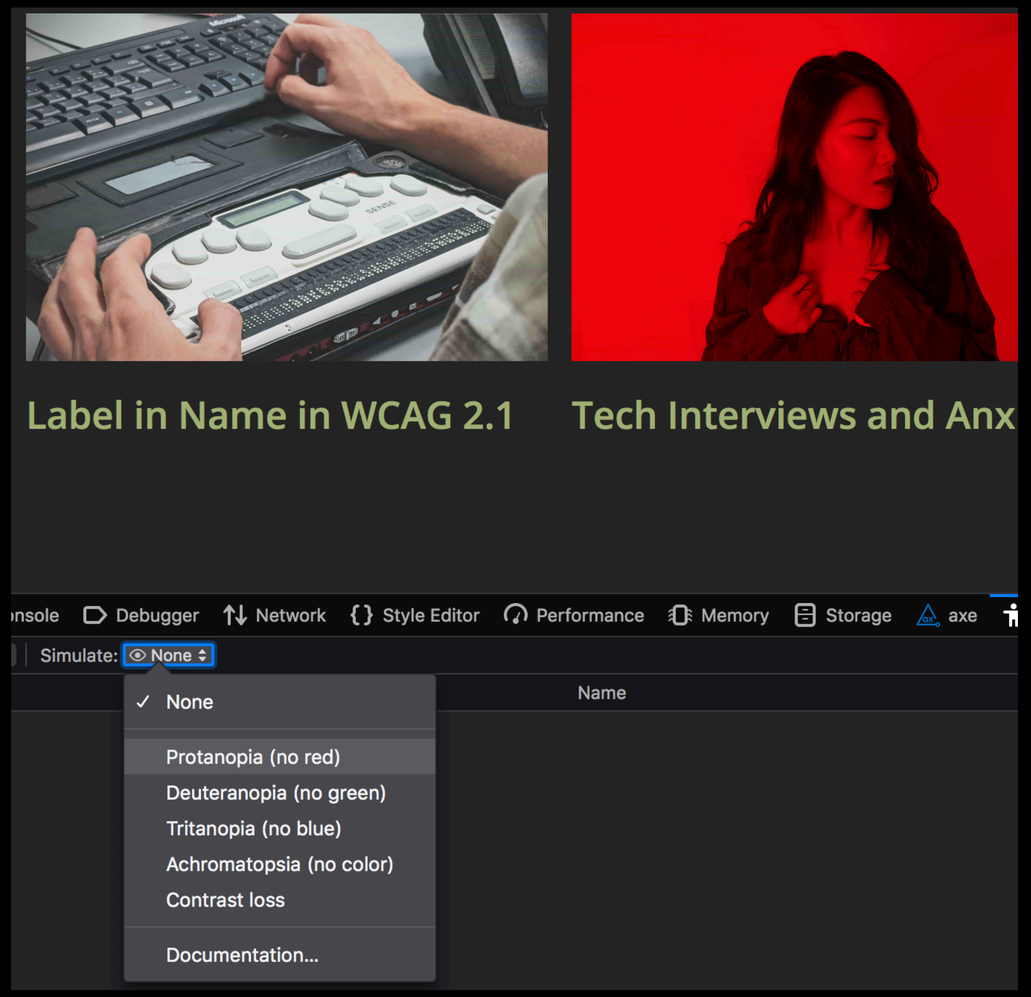
- WCAG Contrast Checker: **https://contrastchecker.com**
- WebAIM Contrast Checker: **https://webaim.org/resources/contrastchecker**
- ColourContrast: **https://colourcontrast.cc**
- RandomA11y: **https://randoma11y.com**

Browser Extensions

- WAVE: **https://wave.webaim.org/extension**
- Axe: **https://www.deque.com/axe**
- Firefox & Chrome DevTools

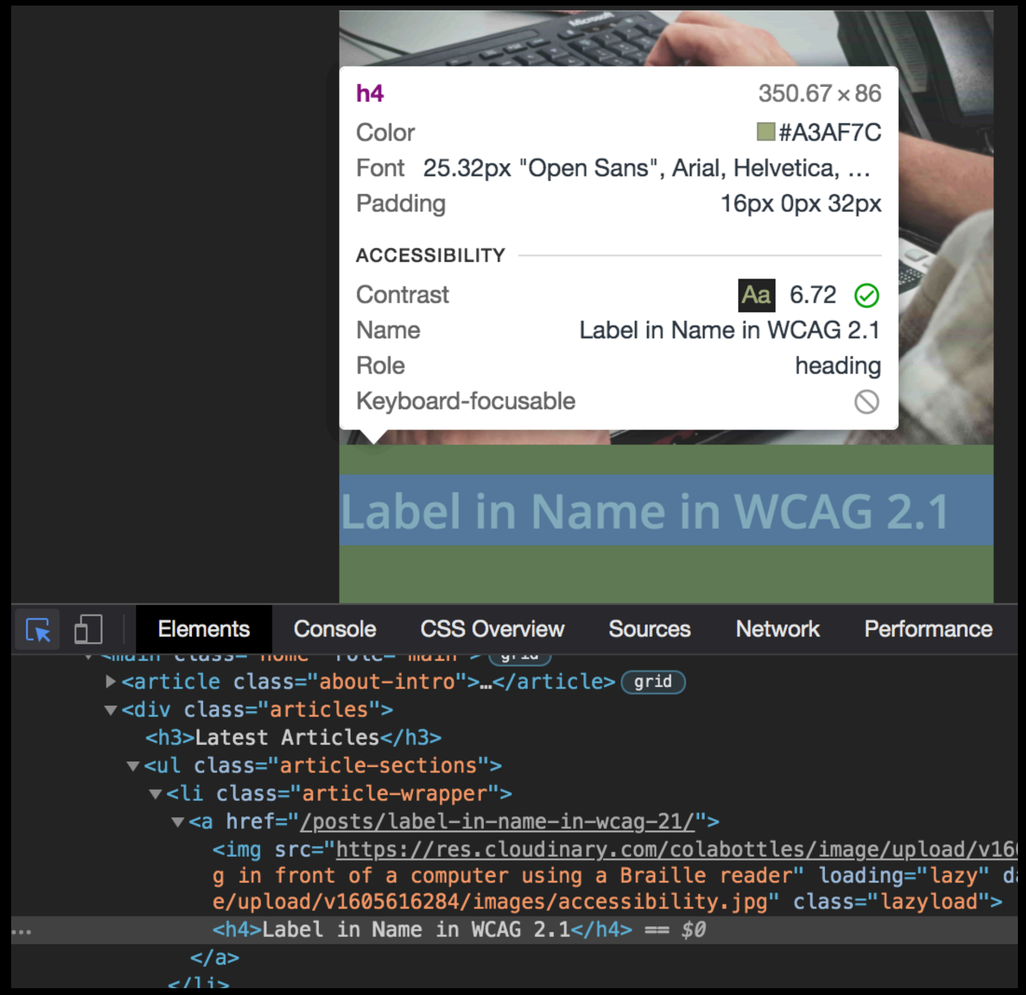
Firefox Vision Simulator

- This feature depends on webrender, an experimental feature that is not enabled by default on all platforms
- about:config to force-enable the webrender
- Set the preference `gfx.webrender.all` to `true` using the Firefox Configuration Editor



Chrome DevTools

- This feature is **built-in**
- **No** config required
- Toggle the element on the page to enable modal



WCAG

Web Content Accessibility Guidelines

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

Contrast Ratio WCAG 2.0

- Success Criterion 1.4.3 Contrast (Minimum): The visual presentation of **text** and **images of text** has a **contrast ratio** of at least 4.5:1, except for the following: (Level AA)
  - Large Text: Large-scale text and images of large-scale text have a contrast ratio of 3:1
  - Incidental: Text or images of text that are part of an inactive **user interface component**, that are **pure decoration**, that are not visible to anyone, or that are part of a picture that contains significant other visual content, have no contrast requirement.
  - Logotypes: Text that is part of a logo or brand name has no minimum contrast requirement.

https://www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-contrast.html

How to Meet WCAG 2.0 Success Criterion (SC)

- Situation A: text is < 18 point (24 px) if not bold and < 14 point (18.666666666666664 px).

- Situation B: text is at least 18 point if not bold and at least 14 point if bold.

https://www.w3.org/WAI/WCAG20/quickref/20160105/#visual-audio-contrast-contrast

Contrast 3

- New calculations of contrast based on more modern research on color perception.
- **Merging** the **1.4.3 AA** and **1.4.6 AAA** levels into **one** guideline.
- New test of text contrast.
- At this time, it only includes textual visual contrast.

Photo by Dex Ezekiel on Unsplash

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y connected

nks for subscribing! Please check your email for further instructions

Video Captioning

This is a lobster roll. They are delicious!
They are the best food in the entire world and I love to eat them!

Video Captions

"**Readability** is the most important aspect of captioning in video. **No other rules matter if captions cannot be read.**" **— Meryl K. Evans**

This is a lobster roll. They are delicious!
They are the best food in the entire world and I love to eat them!

“Make sure text stands out from the background and any distractions.” — Meryl K. Evans

What Can We Do?

- **Test** with persons w/visual impairments.
- **Hire people with disabilities!**
- Make a11y **inclusive** in the design & development process **from the start**.
- Be **sensible** with colors and color palettes.
- **Use the tools!**

“...our industry as a whole thinks less and less about accessibility (not that we ever had an A game on the subject), and talks less and less about progressive enhancement, preferring to chase the ephemeral goal posts of over-engineered solutions to non-problems.”

— Jeffrey Zeldman

https://www.zeldman.com/2019/12/01/bluebeanieday2019/

"The Special Rapporteur underscores the unique and transformative nature of the Internet not only to enable individuals to exercise their right to freedom of opinion and expression," according to the report's summary, "but also a range of other human rights, and to promote the progress of society as a whole."

— United Nations

https://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.27_en.pdf

A11y is a **right**.
NOT a privilege.

— Me🦞

https://cottonbureau.com/products/a11y-is-a-right#/5254643/

Thank You!

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