

A large field of dark blue umbrellas, viewed from above, with one bright red umbrella standing out prominently in the center. A yellow banner with white text is overlaid across the middle of the image.

WCAG & Color Contrast

Thank You!

Sponsors, Hosts, Speakers, and Guests!

WCAG

Web Content Accessibility Guidelines

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

Success Criterion 1.4.3 Contrast (Minimum)

(AA)

- 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.

How to Meet WCAG 2.0 Success Criterion (SC)

- Situation A: text is < 18 point (24 px) if not bold and < 14 point (18.66666666666666666664 px).
- Situation B: text is at least 18 point if not bold and at least 14 point if bold.

Arial Font, 18pt, 4.5 to 1 Level AA

Arial Font, 18pt, 2.57 to 1

Arial Font, 18pt, 6.1 to 1

Arial Font, 18pt, 4.91 to 1

Success Criterion 1.4.6 Contrast (Enhanced) (AAA)

- Success Criterion 1.4.6 Contrast (Enhanced): The visual presentation of **text** and **images of text** has a **contrast ratio** of at least 7:1, except for the following:
 - Large Text: Large-scale text and images of large-scale text have a contrast ratio of at least 4.5:1
 - 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 contrast requirement.

<https://www.w3.org/WAI/WCAG21/Understanding/contrast-enhanced.html>

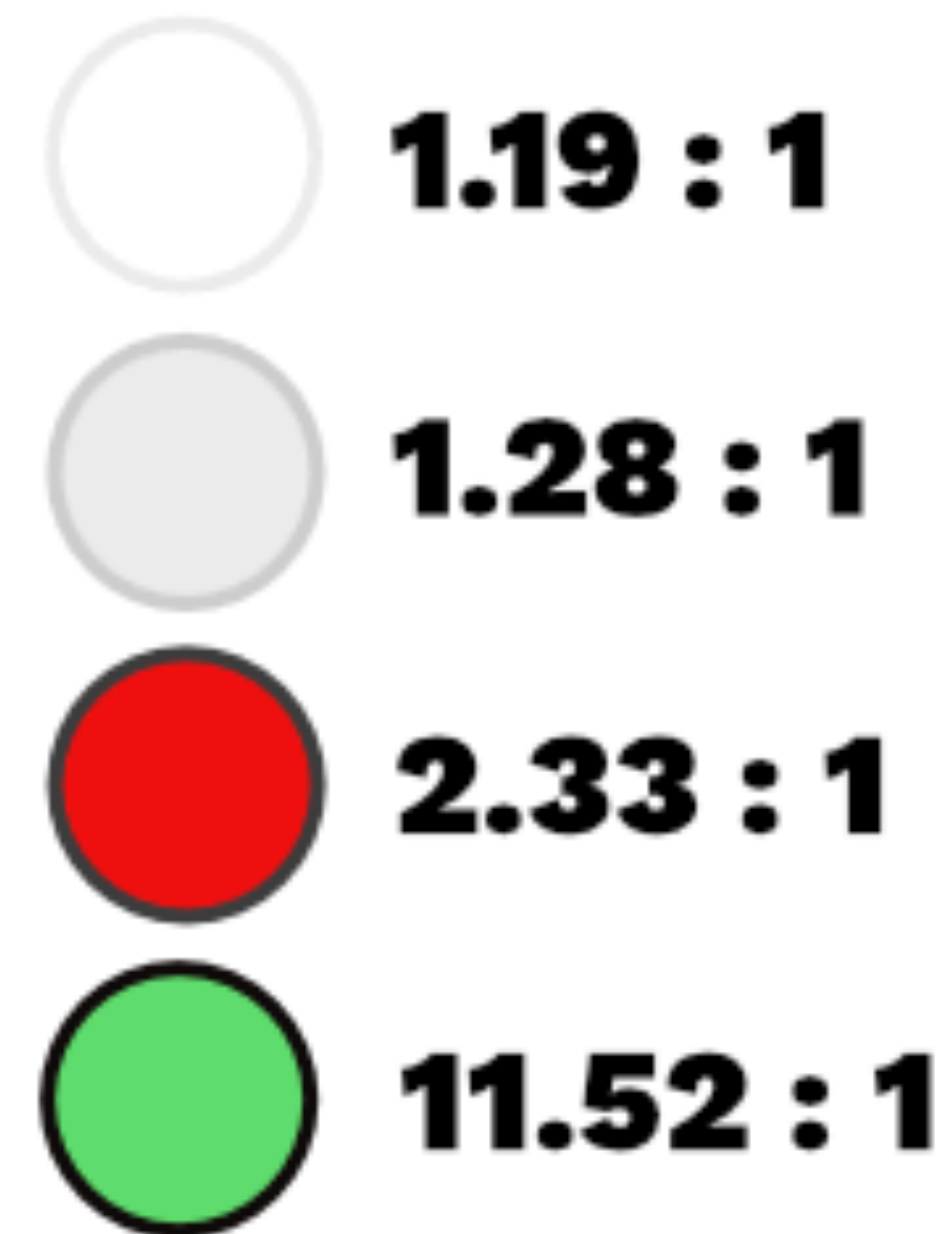
Success Criterion 1.4.11 Non-text Contrast (AA)

- Success Criterion 1.4.11 Non-text Contrast: The visual presentation of the following have a contrast ratio of at least 3:1 against adjacent colors:
- User Interface Components: Visual information required to identify **user interface components** and **states**, except for inactive components or where the appearance of the component is determined by the user agent and not modified by the author;
- Graphical Objects: Parts of graphics required to understand the content, except when a particular presentation of graphics is **essential** to the information being conveyed.

<https://www.w3.org/WAI/WCAG21/Understanding/non-text-contrast.html>

Component Contrast

Adjacent colors to flat design
radio buttons



Example radio buttons using different color contrasts

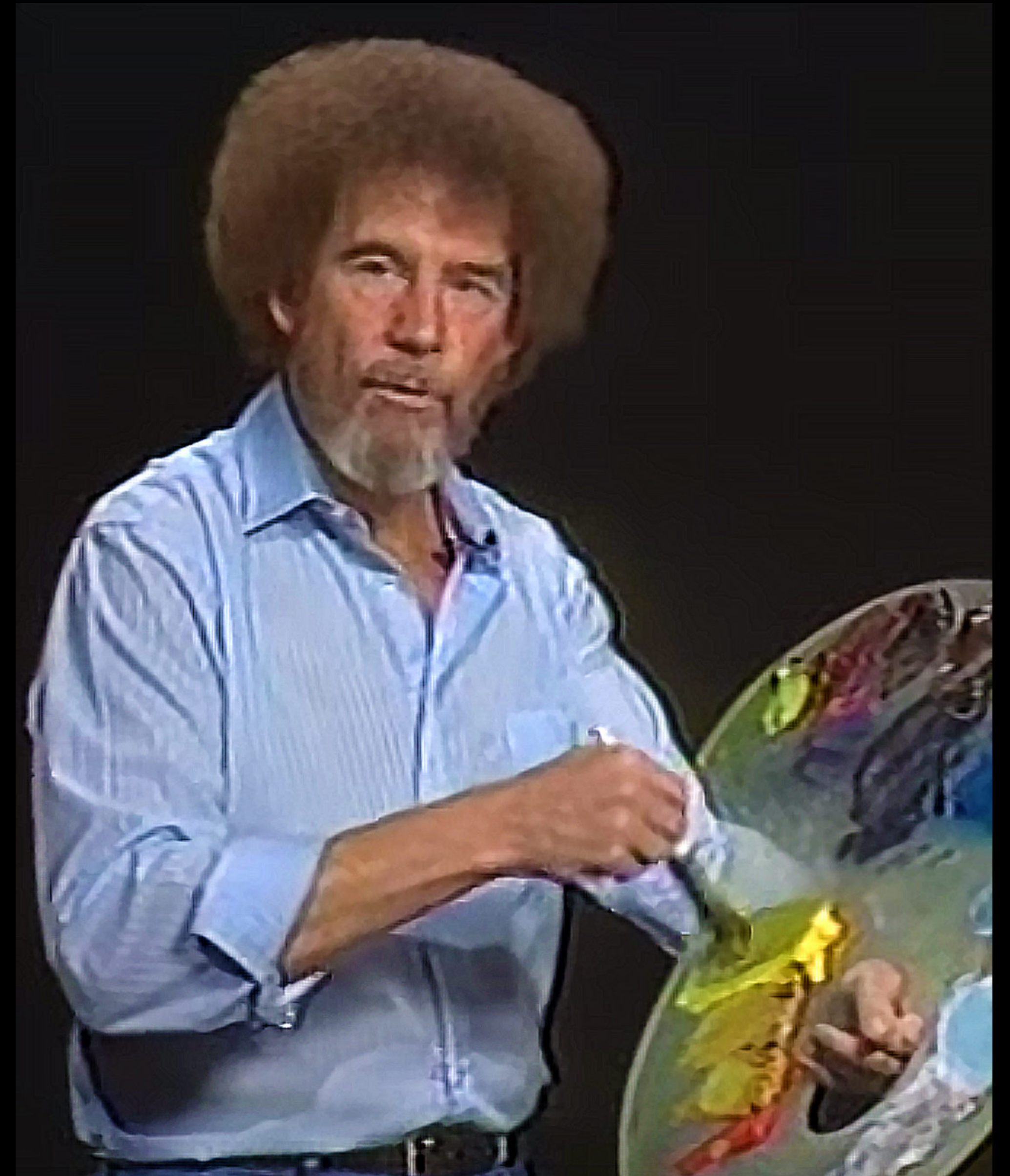
Success Criterion 1.4.11 Non-text Contrast (AA)

- Success Criterion 1.4.11 Non-text Contrast: The visual presentation of the following have a contrast ratio of at least 3:1 against adjacent colors:
- User Interface Components: Visual information required to identify **user interface components** and **states**, except for inactive components or where the appearance of the component is determined by the user agent and not modified by the author;
- Graphical Objects: Parts of graphics required to understand the content, except when a particular presentation of graphics is **essential** to the information being conveyed.

<https://www.w3.org/WAI/WCAG21/Understanding/non-text-contrast.html>

Bob Ross

Painter, art instructor, TV host



“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**

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

— **Bob Ross**

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Name	Email Address	JOIN
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What?!

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

Most common types of WCAG 2 failures

WCAG Failure Type	% of home pages in February 2021	% of home pages in February 2020	% of home pages in February 2019
Low contrast text	86.4%	86.3%	85.3%
Missing alternative text for images	60.6%	66.0%	68.0%
Missing form input labels	54.4%	53.8%	52.8%
Empty links	51.3%	59.9%	58.1%
Missing document language	28.9%	28.0%	33.1%
Empty buttons	26.9%	28.7%	25.0%

WebAIM Million Report – Low Contrast of text **increased last year**



Background:

Text color:

`hsla(255, 100%, 100%, 1)`

Relative Luminance: 1

7.95

`hsla(210, 76%, 32%, 1)`

Relative Luminance: 0.08196925652521356

How to use

As you type, the contrast ratio indicated will update.
Hover over the circle to get more detailed information.

When semi-transparent colors are involved as
backgrounds, the contrast ratio will have an error margin,
to account for the different colors they may be over.

This sample text attempts to visually demonstrate how

↔ Swap colors

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

whocanuse.com

The quick brown fox jumps over the lazy dog

663399

FFFFFFFF

TEXT SIZE 20 px

STYLES ☐ Bold

Who can use this color combination?

CONTRAST RATIO	WCAG GRADING
8.41:1	AAA

~POPULATION	VISION TYPE	SIMULATION
68%	Regular Vision (Trichromatic) AAA Can distinguish all three primary color, little to no blurriness	<div>Text</div>
1.3%	Protanomaly AAA Trouble distinguishing reds	<div>Text</div>
1.5%	Protanopia AAA Red blind - Can't see reds at all	<div>Text</div>
5.3%	Deuteranomaly AAA Trouble distinguishing greens	<div>Text</div>
1.2%	Deuteranopia AAA Green blind - Can't see greens at all	<div>Text</div>

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>
- Button Contrast Checker: <https://www.aditus.io/button-contrast-checker/>

Browser Extensions

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

Firefox Vision Simulator



Label in Name in WCAG 2.1

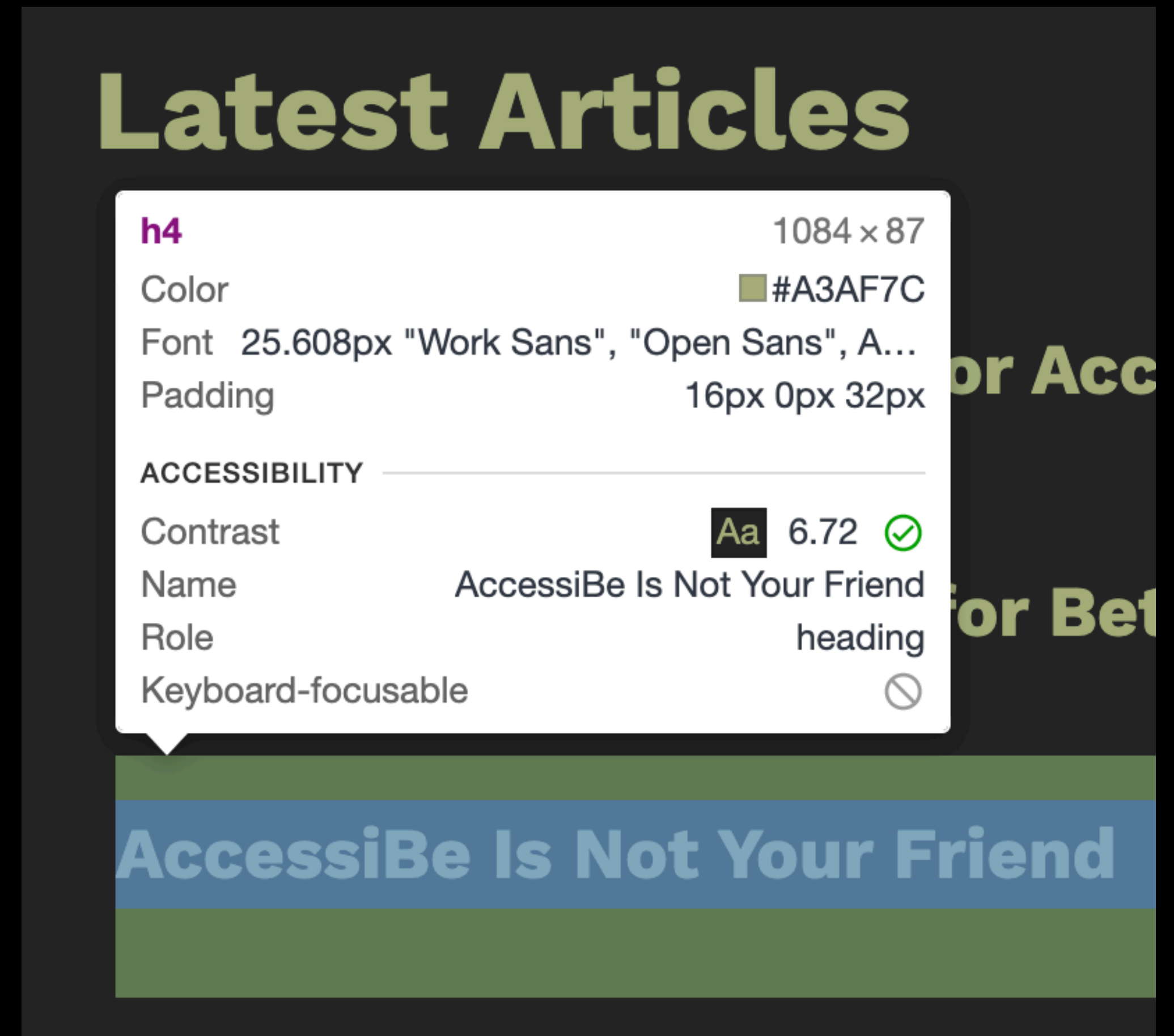
Tech Interviews and Anx

Firefox DevTools interface showing the Accessibility panel. The 'Simulate' dropdown menu is open, displaying various vision simulation options. The 'None' option is selected and highlighted with a blue border.

Simulate:	Name
✓ None	
Protanopia (no red)	
Deuteranopia (no green)	
Tritanopia (no blue)	
Achromatopsia (no color)	
Contrast loss	
Documentation...	

Chrome DevTools

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



See what I did here?

Color Contrast Apps

- Pika <https://superhighfives.com/pika> - MacOS
- Contrast <https://contrastapp.com/> - MacOS
- Colour Contrast Analyser (CCA) <https://www.tpgi.com/color-contrast-checker/> - Windows
- **Chromatic Vision Simulator** by Kazunori Asada for iOS/Android
- **VisionSim** by The Braille Instititue for iOS

Color Palette Testers

- Contrast Grid - <https://contrast-grid.eightshapes.com>
- Accessible Color Palette Builder - <https://toolness.github.io/accessible-color-matrix/>
- Tanaguru Contrast Finder - <https://contrast-finder.tanaguru.com/>
- A11y Color Palette - <http://a11yrocks.com/colorPalette/>

Tips for Great Color Contrast

- Font **weights**, **sizes**, and **colors** matter.
- **Test** your color palettes.
- Ratios that **exceed the minimums** of 4.5 to 1, 3 to 1, or 7 to 1.
- **Avoid stark contrasts** with text which can result in blurred text.

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!**



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

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

— Me 🦀

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

Thank You!

Slides: <https://noti.st/colabottles/gcPUQc/color-contrast-and-wcag>



@toddlabby