



HTML
WORLD STANDARD

wix

Engineering

Wix

- enable navigation by keyboard
- provide Screen Reader compatibility
- build infrastructure for accessibility development and testing.

Make Your Site More Accessible

Give all your site visitors a user-friendly browsing experience.



Activate Keyboard Accessibility

Let all visitors navigate your website intuitively with a keyboard only. To enable this feature, click Activate and then Publish your website.

Activate



Enable Visual Indicators

Make it easy for visitors to see exactly where they are on the page and what they've selected.



There are more ways to make your site accessible. [Find out how](#)

Close

- Save
- Preview
- Get Feedback
- Publish
- View Published Site
- Get Found on Google
- Accessibility**
- Connect Domain
- Upgrade

- Mobile Editor

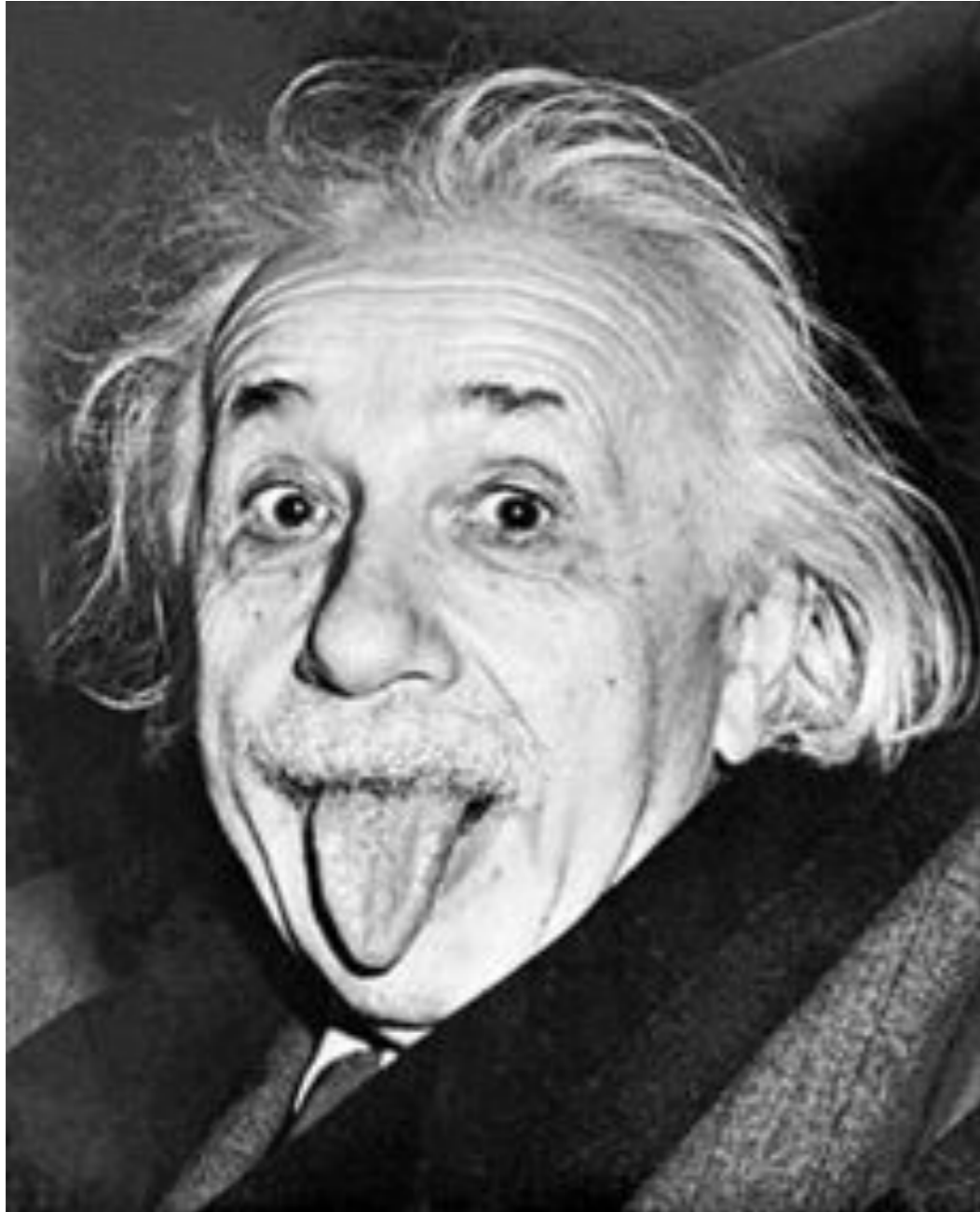
- Image Sharpening
- My Dashboard
- Site Manager
- Site History
- Exit Editor



Make Your Site Accessible

Help visitors browse your site. Activate visual indicators, keyboard navigation and more.

ME



“Perfect
is the
enemy of
Good”



“Perfect
is the
enemy of
Good”

110

MASON



STYLABLE

`/* is CSS for components */`

Stylable is a CSS preprocessor for styling components with typed CSS.

@brucel

BrUCE lawSON

Photo: F. Antolín Hernandez



@brucel

Bruce Lawson

World Wide Web

The WorldWideWeb (W3) is a wide-area [hypermedia](#) information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an [executive summary](#) of the project, [Mailing lists](#) , [Policy](#) , November's [W3 news](#) , [Frequently Asked Questions](#) .

[What's out there?](#)

Pointers to the world's online information, [subjects](#) , [W3 servers](#), etc.

[Help](#)

on the browser you are using

[Software Products](#)

A list of W3 project components and their current state. (e.g. [Line Mode](#) ,[X11 Viola](#) , [NeXTStep](#) , [Servers](#) , [Tools](#) , [Mail robot](#) , [Library](#))

[Technical](#)

Details of protocols, formats, program internals etc

[Bibliography](#)

Paper documentation on W3 and references.

[People](#)

A list of some people involved in the project.

[History](#)

A summary of the history of the project.

[How can I help ?](#)

If you would like to support the web..

[Getting code](#)

Getting the code by [anonymous FTP](#) , etc.

proposed new tag: IMG

Marc Andreessen (marca@ncsa.uiuc.edu)

Thu, 25 Feb 93 21:09:02 -0800

- **Messages sorted by:** [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)
- **Next message:** [Tony Johnson: "Re: proposed new tag: IMG"](#)
- **Previous message:** [Bill Janssen: "Re: xmosaic experience"](#)
- **Next in thread:** [Tony Johnson: "Re: proposed new tag: IMG"](#)

I'd like to propose a new, optional HTML tag:

IMG

Required argument is SRC="url".

This names a bitmap or pixmap file for the browser to attempt to pull over the network and interpret as an image, to be embedded in the text at the point of the tag's occurrence.

An example is:

```
<IMG SRC="file:///foobar.com/foo/bar/blargh.xbm">
```



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HTML 4.0 Specification

W3C Recommendation *18-Dec-1997*

“HTML 4.0 developments inspired by concerns for accessibility include the requirement that alternate text accompany an image included via the [IMG](#) element.

IT'S NOT A BLOODY
ALT TAG !!!!!!!!



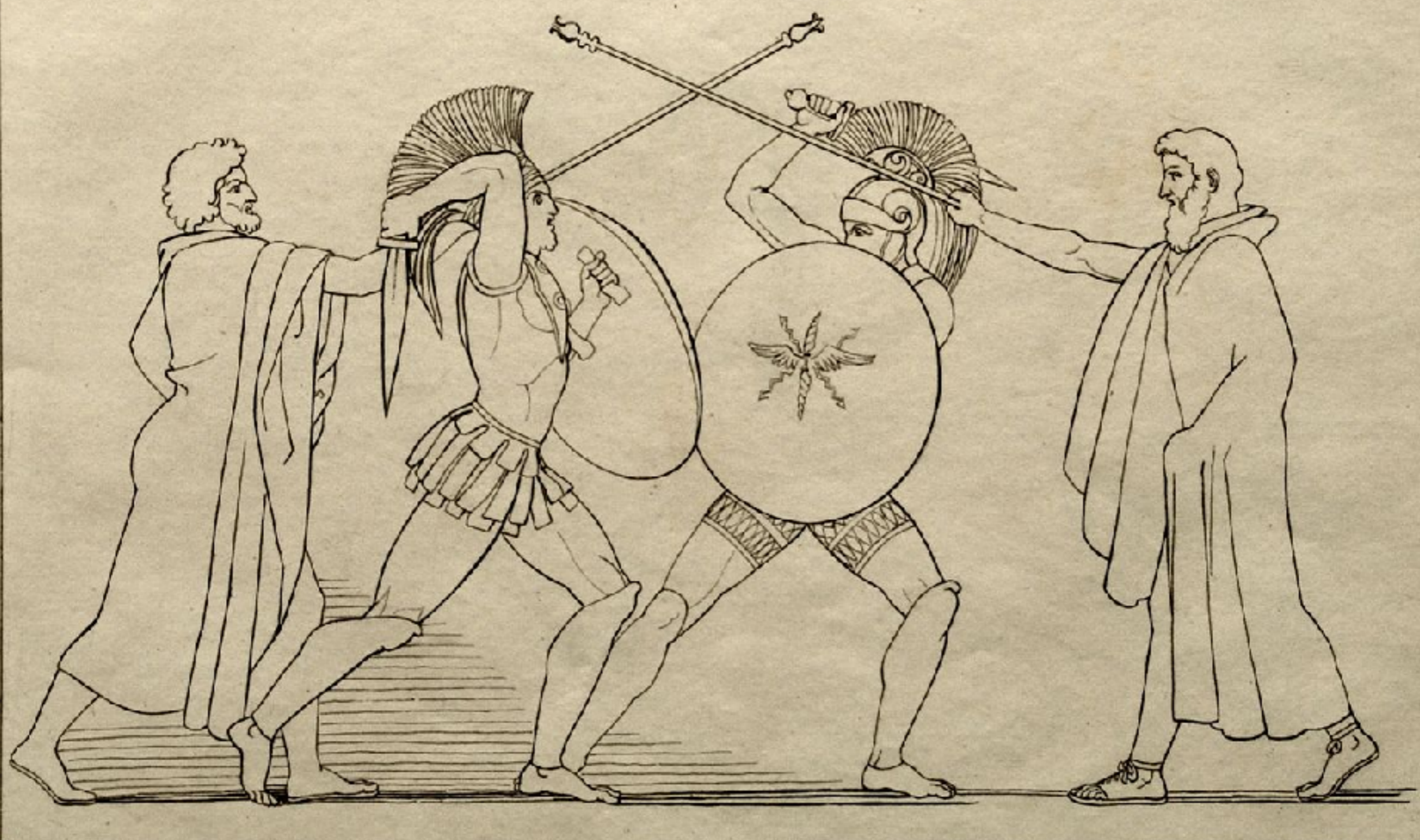
HTML Design Principles

Design features to be accessible to users with disabilities.

Access by everyone regardless of ability is essential.

This does not mean that features should be omitted entirely if not all users can make full use of them, but alternate mechanisms should be provided.

HTML Design Principles - <https://www.w3.org/TR/html-design-principles/>



Achilles

Hector

Between their swords their peaceful sceptres rear'd.

Published as the Act direct. Jan: 1795. by J. Matthews N. 44 Strand.

Iliad. B. 7. l. 530. Pope

Ajax / “Web 2.0”

By **decoupling the data interchange layer from the presentation layer**, Ajax allows for Web pages, and by extension Web applications, to **change content dynamically without the need to reload the entire page.**

WAI ARIA



Web Accessibility
initiative



WAI: Strategies, guidelines, resources to make the Web accessible to people with disabilities

WAI-ARIA provides a framework for adding attributes to identify features for user interaction, how they relate to each other, and their current state.

WAI-ARIA describes new navigation techniques to mark regions and common Web structures as menus, primary content, secondary content, banner information, and other types of Web structures.

ARIA landmark roles

`role="contentinfo", "main", "banner" ...`

Built-in beats bolt-on

`div role=banner`

`div
role=
navigation`

`div role=main`

`div role=article`

`div role=article`

`div role=article`

`div role=contentinfo`

<header>

<nav>

<main>

<article>

<article>

<article>

<footer>

Photo: Brittany Shaw



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Bruce Lawson

BULLET FROM
ASSASSIN'S GUN
60' HIGH

BULLET HOLE
IN SHIRT 5 3/4"
BELOW COLLAR

BULLET HOLE
TIE KNOT

ENTRY
NEAR RIGHT
ARM PIT

EXIT UNDER
RIGHT NIPPLE

RIGHT WRIST
SHATTERED

5TH RIB
SHATTERED

WOUND
IN LEFT
THIGH

KENNEDY

CONNALLY

THE REMARKABLE PATH OF
THE PRISTINE BULLET,
ACCORDING TO WARREN COMMISSION

ARIA isn't a magic bullet

You still need to

- maintain state and value
- make sure things are keyboard-focusable
- listen for keypresses
- deal with live regions

Web Components



WEB COMPONENT



Shadow Dom

PALAIS DER FRIEDRICHSTADT
FRIEDRICHSTR. EINGANG BESSELSTRASSE 22



Diisy & Kerkert
Theater 1910 1908

Marbia's getanzte Lieder

Web Components WTF?

Web components are a set of web platform APIs that allow you to create **new custom, reusable, encapsulated HTML tags to use in web pages and web apps.**

<https://www.webcomponents.org/introduction>

JavaScript frameworks



Custom elements

```
<lovely-button>Click me!</lovely-button>
```


.. or semantically neutral

```
<div>Click me!</div>
```



R C C E S S S B B B B B

O B J E C T

M A D E

wicg.github.io/aom/spec/

- Alexander Surkov, Mozilla
- Alice Boxhall, Google
- Dominic Mazzoni, Google
- James Craig, Apple

```
--enable-blink-features=AccessibilityObjectModel
```

Current gaps

- Leaky abstractions
- IDrefs
- No way to capture input events from Assistive Technology
- Every accessible node requires a DOM element.
- No introspection





Eric Hunt [https://en.wikipedia.org/wiki/Brussels_sprout#/media/
File:Brussels_sprout_closeup.jpg](https://en.wikipedia.org/wiki/Brussels_sprout#/media/File:Brussels_sprout_closeup.jpg)

Sprouting ARIA attributes

```
<custom-slider min="0" max="5" value="3"></custom-slider>
```

```
<!-- Custom element is forced to "sprout" extra attributes  
to express semantics -->
```

```
<custom-slider min="0" max="5" value="3" role="slider"  
tabindex="0" aria-valuemin="0" aria-valuemax="5" aria-  
valuenow="3"  
aria-valuetext="3"></custom-slider>
```


Phase 1 of AOM

```
<div role="checkbox" aria-checked="true">  
Receive promotional offers</div>
```

can be replaced by:

```
el.accessibleNode.role = "checkbox";  
el.accessibleNode.checked = true;
```

Cleaner code

```
<custom-checkbox checked>  
Receive promotional offers  
</custom-checkbox>
```

AOM vs ARIA

- While AOM and ARIA both affect the computed accessible properties of a node, and have the same vocabulary, they are separate interfaces.
- They don't reflect each other.
- If an AOM Accessible Property and the corresponding ARIA attribute have different values, the AOM property takes precedence.

IDrefs

IDs in HTML associate

```
<div id="firstname">First name:</div>  
<input aria-labelledby="firstname">
```

aria-activedescendant indicates a descendant that's focused in a composite control like a list box.

```
<div role="listbox" aria-activedescendant="item1"  
tabindex="0">  
  <div role="option" id="item1">Item 1</div>  
  <div role="option" id="item2">Item 2</div>  
  <div role="option" id="item3">Item 3</div>  
</div>
```

Impossible across components

```
<custom-listbox>  
  <custom-option id="item1">Item 1</custom-option>  
  <custom-option id="item2">Item 2</custom-option>  
  <custom-option id="item3">Item 3</custom-option>  
</custom-listbox>
```

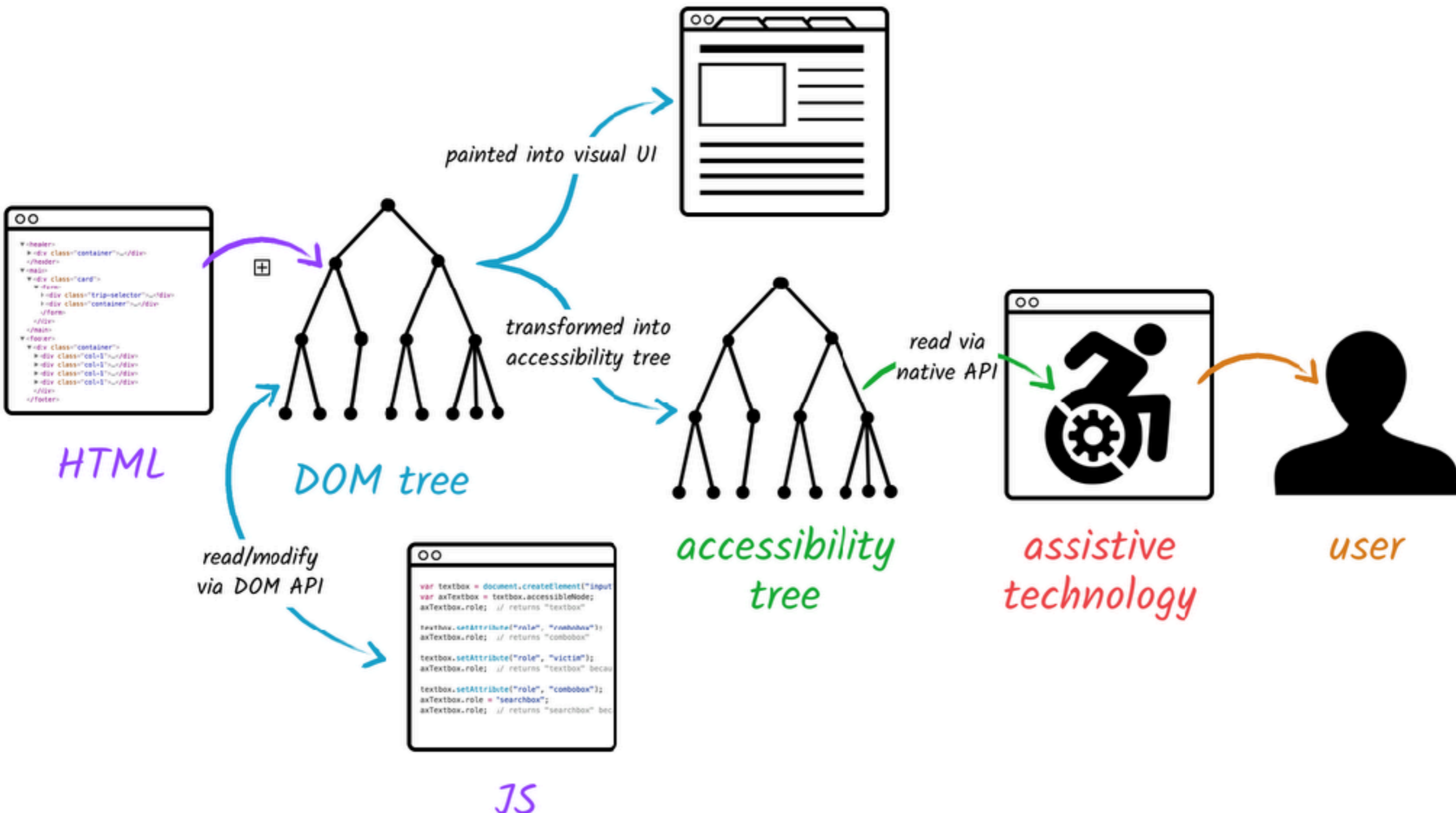
New! Improved! AOM!

```
const input = comboBox.shadowRoot.querySelector("input");
```

```
const optionList = comboBox.querySelector("custom-optionlist");
```

```
input.accessibleNode.activeDescendant =  
optionList.accessibleNode;
```

AT input events



Accessible Actions

- Accessible Actions gives web developers a mechanism to listen for accessible actions directly, by adding event listeners on an `AccessibleNode`.
- This is analogous to listening for user interaction events on a DOM node, except that the interaction event arrives via an assistive technology API, so it is directed to the accessible node first.

AOM phases

Phase 1

Modifying Accessible Properties, will allow **setting** accessible properties for a DOM element, including accessible relationships.

Phase 2

Accessible Actions, will allow **reacting** to user actions from assistive technology.

Phase 3

Virtual Accessibility Nodes, will allow the creation of accessibility nodes which are **not associated** with DOM elements.

Phase 4

Computed Accessibility Tree, will allow **reading** the computed accessible properties for accessibility nodes, whether associated with DOM elements or virtual, and walking the computed accessibility tree.

Why is Phase 4 last?

“the accessibility tree is **not standardized** between browsers: Each implements accessibility tree computation slightly differently. In order for this API to be useful, it needs to work consistently across browsers

We want to take the appropriate time to ensure we can agree on the details for how the tree should be computed and represented”.

Users users users!

“Compared to the previous three phases, accessing the computed accessibility tree will have the **least direct impact on users**”

Priority of Constituencies

In case of conflict, **consider users over authors over implementors over specifiers over theoretical purity.**

HTML Design Principles - <https://www.w3.org/TR/html-design-principles/>



Please pay displayed amount

1.00 GBP

Change is possible!

Intercom



Receipt





They're young.

They're in love.

They're happy -

because they use the

Accessibility Object Model



**Thank you
thank you
thank you
to
Alice Boxhall
(@sundress)**

Thank YOU!

xxx

@bruce1