ACCESSIBLE CUSTOM INTERFACES WITH HTML5, JAVASCRIPT & ARIA

Léonie Watson

@LEONIEWATSON HTTP://LJWATSON.CO.UK

CODE LIKE YOU GIVE A DAMN!

ACCESSIBILITY MECHANICS

DOM TREE

tink

Search

navigation

+ CATEGORIES
+ TAGS
+ ON OTHER BLOGS
+ CONFERENCES

site theme

LIGHT DARK

follow tink

Accessibil… for CSS ge… content

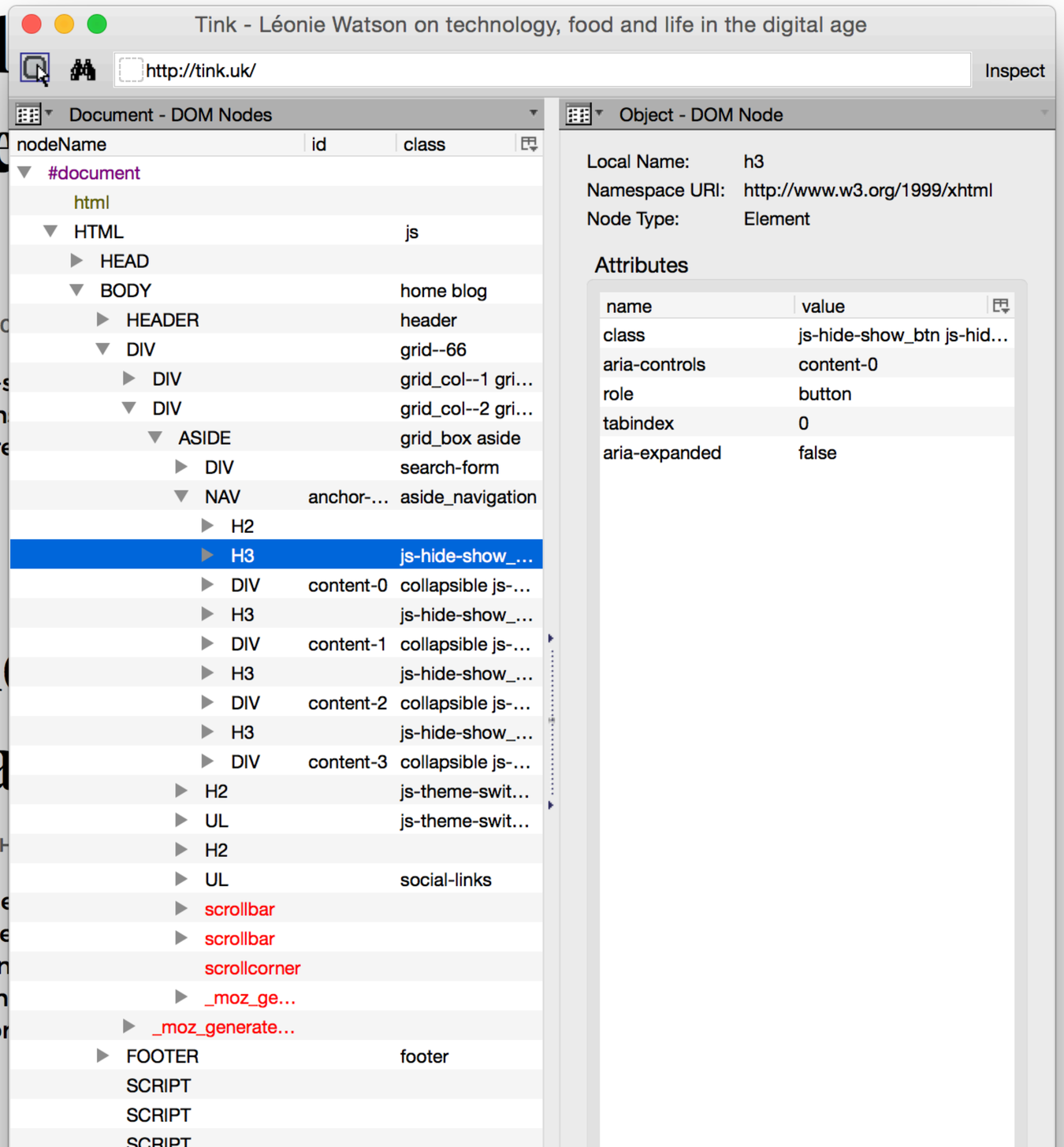
CODE THINGS MARCH 29TH 20…

The CSS before/after pseudo-s… into a page. In some situation… but how do browsers and scre… content?

Using Sch… Microdata

CODE THINGS FEBRUARY 25TH…

Search engines have ways of e… they're prone to error because… presented in so many differen… easier for search engines to in… the vocabularies available fro…



ACCESSIBILITY TREE

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CODE THINGS MAR

The CSS before/afte
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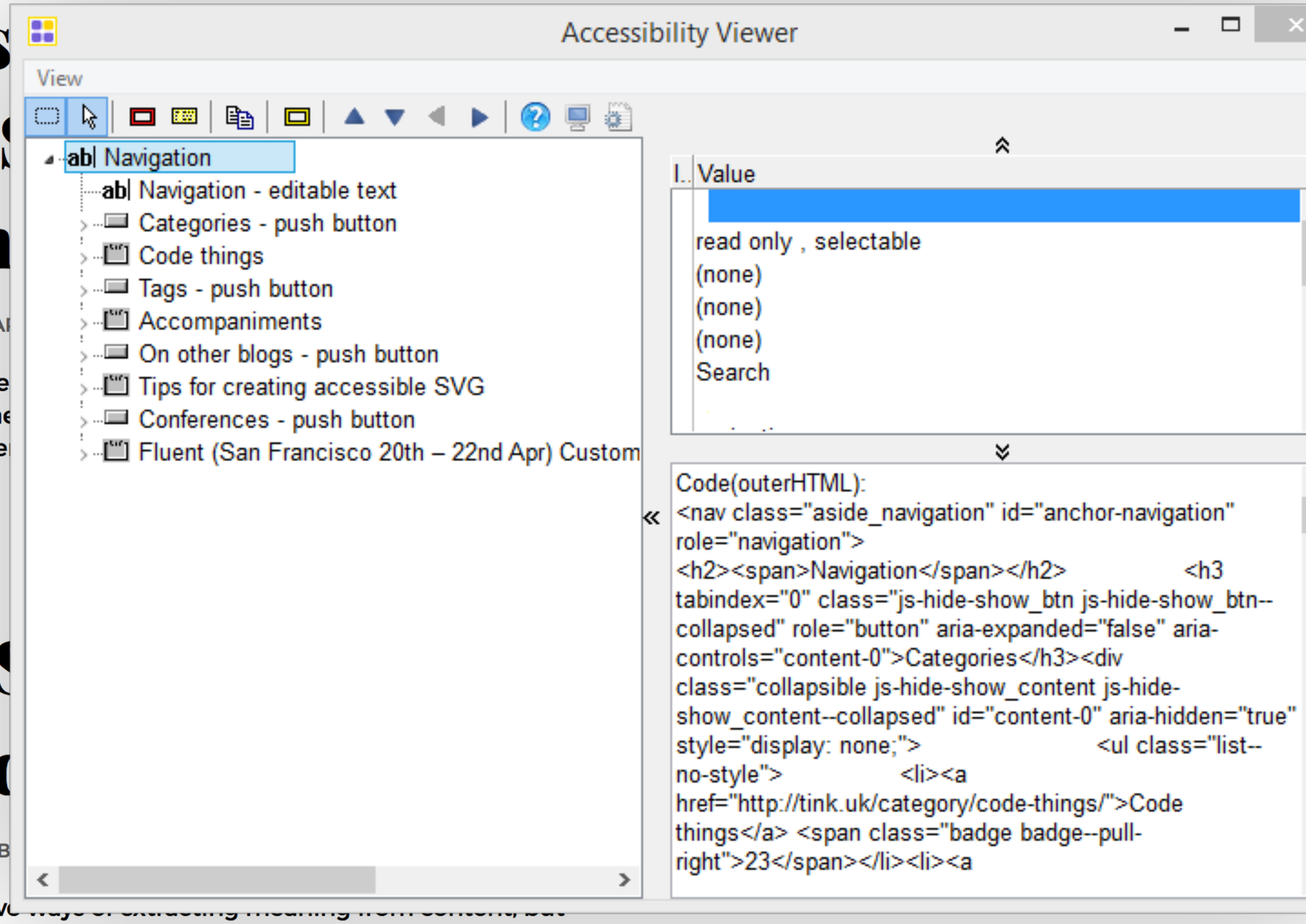
but how do browse
content?

Using S
Microd

CODE THINGS FEB

Search engines have
they're prone to error because information on the webb can be presented in so many different ways. Marking up information so it's easier for search engines to index is a good thing to do, and thanks to the vocabularies available from schema.org it's also very [...]



ROLE

```
<input type="checkbox" id="drink" checked>
<label for="drink">Tequila</label>
```

STATE

```
<input type="checkbox" id="drink" checked>
<label for="drink">Tequila</label>
```

PROPERTIES

```
<input type="checkbox" id="drink" checked>
<label for="drink">Tequila</label>
```

ACCESSIBILITY APIS

MSAA/UIAutmoation	Windows
IAccessible2	Windows Linux
AT-SPI	Linux
NSAccessibility	OSX
UIAccessibility	iOS
Accessibility Framework	Android

ACCESSIBILITY STACK

ASSISTIVE TECHNOLOGY

BROWSER

OPERATING SYSTEM

ACCESSIBILITY API

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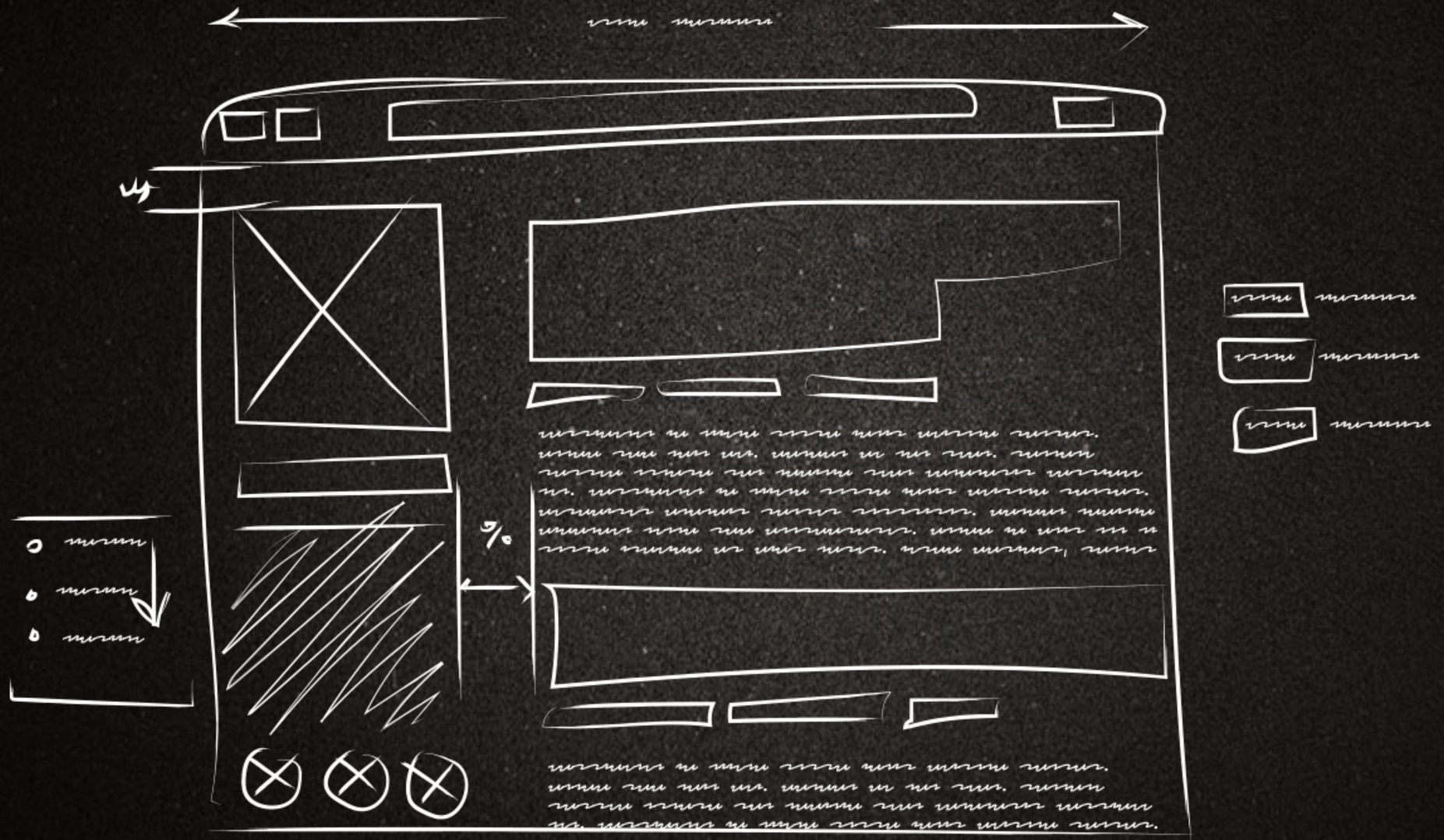
JAVASCRIPT

W3C
Aria

HTML DISCLOSURE WIDGET



SKELETON HTML

```
<span id="button">Tequila <span
id="icon"></span></span>
<div id="content">Makes me happy...</div>
```

USING A MOUSE

DISCLOSURE BUTTON: SPAN ELEMENT

Tequila ›

USING A SCREEN READER

DISCLOSURE BUTTON: SPAN ELEMENT

ADD BUTTON ROLE

```
<span id="button" role="button”>
Tequila <span id="icon"></span></span>
```

ADD TABINDEX

```
<span id="button" role="button" tabindex="0”>
Tequila <span id="icon"></span></span>
```

ADD ARIA-EXPANDED

```
<span id="button" role="button"
tabindex="0" aria-expanded="false”>
Tequila <span id="icon"></span></span>
```

ADD ARIA-CONTROLS

```
<span id="button" role="button" tabindex="0"
aria-expanded="false" aria-controls="content">
Tequila <span id="icon"></span></span>

<div id="content">Makes me happy...</div>
```

ADD ARIA-HIDDEN

```
<span id="button" role="button" tabindex="0"
aria-expanded="false" aria-controls="content">
Tequila <span id="icon" aria-hidden="true"
</span></span>
```

```
<div id="content" aria-hidden="true">
Makes me happy</div>
```

ADD EVENT LISTENERS

```
document.getElementById("button").addEventListe
ner("click", toggleDisclosure);
document.getElementById("button").addEventListe
ner("keydown", toggleDisclosure);
```

ADD KEYBOARD INTERACTION

```
function toggleDisclosure(event)
{
    var type = event.type;

    if (type === "keydown" && (event.keyCode !==
    13 && event.keyCode !== 32))
    {
        return true
    }
    event.preventDefault();
}
```

ADD FUNCTIONALITY

```
function toggleDisclosure(event)
    {
        var button = document.getElementById("button");
        var content = document.getElementById("content");

        if(content.getAttribute("aria-hidden") == "true")
        {
            content.setAttribute("aria-hidden", "false");
            button.setAttribute("aria-expanded", "true");
        }

        else
        {
        content.setAttribute("aria-hidden", "true");
        button.setAttribute("aria-expanded", "false");
        }
}
```

ADD FOCUS VISUALS

```
[role="button"]:hover, [role="button"]:focus {
    background-color: #333;
    color: #fff;
    text-shadow: 0 -1px 0 #444;
    box-shadow: 0 1px 0 #666;
}
```

ADD STATE VISUALS

```
[role="button"][aria-expanded="false"] .icon:after {
    content: ' >';
}

[role="button"][aria-expanded="true"] .icon:after {
    content: ' x';
}
```

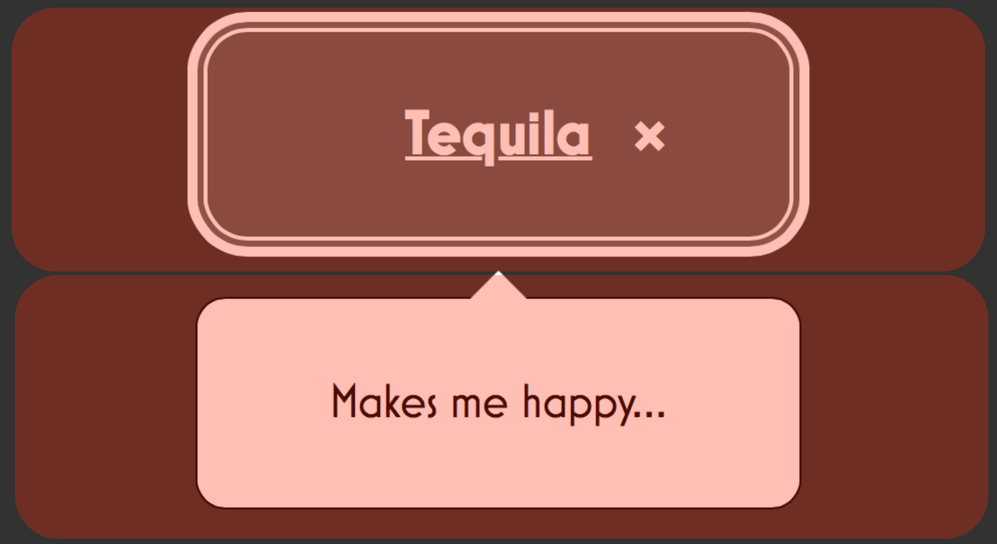
ADD FUNCTIONALITY VISUALS

```
div[aria-hidden="true”] {
    display: none;
}
```

```
div[aria-hidden="false”] {
    display: block;
    border: 1px #000 solid;
    padding: 1em;
    background: #555;
    color: #FFF;
}
```

USING A SCREEN READER

DISCLOSURE BUTTON: SPAN ELEMENT



SVG BUTTON

<!DOCTYPE html>
<!--[if lt IE 9]><html class="oldie" lang="en-GB"><![endif]-->
<!--[if IE 6]><html class="ie6" lang="en-GB"><![endif]-->
<!--[if IE 9]><html class="ie9" lang="en-GB"><![endif]-->
<!--[if gt IE 9]><!--><html lang="en-GB"><!--<![endif]-->
<head>
<title>Tink - Léonie Watson on technology, food and life in the digital age</title>
<meta charset="UTF-8">
<meta content="width=device-width, initial-scale=1" name="viewport" />
<meta content="Léonie Watson on technology, food and life in the digital
<meta name="description" content="Léonie Watson on technology, food and
<meta content="Léonie Watson" name="author" />
<link href="http://fonts.googleapis.com/css?family=Montserrat:400,700"
<link href="http://tink.uk/wp-content/themes/
e.min.css" media="
<link href="http://tink.uk/xmlrpc.php" rel="pingback" />
/css/normalize.css/normaliz
display:400,400italic,

BASIC SVG

```
<svg version="1.1" width="300" height="200">

<title id="title">Green rectangle</title>

<rect width="75" height="50" rx="20" ry="20"
fill="#90ee90" stroke="#228b22″ />


</svg>
```

ADD ARIA-LABELLEDBY

```
<svg version="1.1" width="300" height="200"
aria-labelledby="title">

<title id="title">Green rectangle</title>

<rect width="75" height="50" rx="20" ry="20"
fill="#90ee90" stroke="#228b22″ />


</svg>
```

ADD ARIA-DESCRIBEDBY

```
<svg version="1.1" width="300" height="200"
aria-labelledby="title" aria-describedby="desc"

<title id="title">Green rectangle</title>

<desc id="desc">A light green rectangle with
rounded corners and a dark green border</desc>

<rect width="75" height="50" rx="20" ry="20"
fill="#90ee90" stroke="#228b22" />

</svg>
```

ADD IMG ROLE

```
<svg version="1.1" width="300" height="200"
aria-labelledby="title" aria-describedby="desc"
role="img">

<title id="title">Green rectangle</title>

<desc id="desc">A light green rectangle with
rounded corners and a dark green border.</desc>

<rect width="75" height="50" rx="20" ry="20"
fill="#90ee90" stroke="#228b22″ />

</svg>
```

ADD BUTTON ROLE

```
<svg version="1.1" width="300" height="200" aria-
labelledby="title" aria-describedby="desc" role="button" >

<title id="title">Green rectangle</title>

<desc id="desc">A light green rectangle with rounded
corners and a dark green border.</desc>

<a xlink:href="http://tink.uk/" tabindex="0" role="link>

    <rect width="75" height="50" rx="20" ry="20"
    fill="#90ee90" stroke="#228b22″ />

    <text x="35" y="30" font-size="1em" text-
    anchor="middle" fill="#000000">Tink's website</text>

</a>
```

CUSTOM DISCLOSURE ELEMENT

REGISTERING A CUSTOM TAG

```
var elem = document.registerElement
('tequila-button');
document.body.appendChild(new elem());
```

INSTANTIATING A CUSTOM TAG

```
<tequila-button>Drink me</tequila-button>
```

ADD A ROLE

```
proto.createdCallback = function() {
this.setAttribute('role', 'button');
}
```

ADD EVENT LISTENERS

```
proto.createdCallback = function() {
this.setAttribute('role', 'button');
this.addEventListener("click", toggleDisclosure);
this.addEventListener("keydown", toggleDisclosure);
}
```

SOUND FAMILIAR?

REGISTERING A TYPE EXTENSION

```
var elem = document.registerElement
('tequila-button', {
    prototype:
    Object.create(HTMLButtonElement.prototype),
    extends: 'button'
});
```

INSTANTIATING A TYPE EXTENSION

```
<button is="tequila-button">Drink me</button>
```

CODE LIKE YOU GIVE A DAMN!

Name

Role

State

Properties

Focus

@LEONIEWATSON HTTP://LJWATSON.CO.UK

Thank you.

Léonie Watson @leoniewatson