Sausages, Antennagate, and Brexit
An introduction to building accessible apps

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Caveat/health warning

- I am a developer, not a designer
- I am not disabled
- If you know better than me, please heckle nicely
- We’ll mainly be talking about web sites and mobile apps but try to be platform-agnostic
Accessibility

For the related design concept, see Universal design. For the logical notion, see Accessibility relation. For accessibility on the internet, see Web accessibility.
For Wikipedia's accessibility policy, see Wikipedia:Accessibility.

Accessibility refers to the design of products, devices, services, or environments for people who experience disabilities.\[1\] The concept of accessible design and practice of accessible development ensures both "direct access" (i.e. unassisted) and "indirect access" meaning compatibility with a person's assistive technology (for example, computer screen readers).
What is a disabled person?
6 Disability

(1) A person (P) has a disability if—
   (a) P has a physical or mental impairment, and
   (b) the impairment has a substantial and long-term adverse effect on P’s ability to carry out normal day-to-day activities.

(2) A reference to a disabled person is a reference to a person who has a disability.

(3) In relation to the protected characteristic of disability—
   (a) a reference to a person who has a particular protected characteristic is a reference to a person who has a particular disability;

   (b) a reference to persons who share a protected characteristic is a reference to persons who have the same disability.

(4) This Act (except Part 12 and section 190) applies in relation to a person who has had a disability as it applies in relation to a person who has the disability; accordingly (except in that Part and that section)—
   (a) a reference (however expressed) to a person who has a disability includes a reference to a person who has had the disability, and
   (b) a reference (however expressed) to a person who does not have a disability includes a reference to a person who has not had the disability.

(5) A Minister of the Crown may issue guidance about matters to be taken into account in deciding any question for the purposes of subsection (1).

(6) Schedule 1 (disability: supplementary provision) has effect.
What makes someone disabled?
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the medical model v. the social model
Medical model

“She is disabled because she can’t use her legs as a result of her MS.

We should invest in healthcare and technology that cures the passenger’s MS, and restores her ability to walk and climb steps.”
Social model

“She is disabled because the tram door isn’t level with the platform edge, and there’s no way for her to get her wheelchair into the tram.

We should add level boarding ramps and build trams with lower floors to allow level boarding.”
medical model  vs  social model

- Disability comes from people’s differences
- Different = broken
- ‘Fix’ people

- Disability comes from society not being organised to accommodate people’s differences
- Fix the way society is organised
VS social model

- Disability comes from society not being organised to accommodate people’s differences
- Fix the way society is organised
social model

- Disability comes from society not being organised to accommodate people’s differences
- Fix the way society is organised
social model

- Disability comes from society not being organised to accommodate people’s differences
- Fix the way society is organised
The medical model looks at what is 'wrong' with the person, not what the person needs. It creates low expectations and leads to people losing independence, choice and control in their own lives.

–Scope: The social model of disability
social model

- Disability comes from society not being organised to accommodate people’s differences
- Fix the way society is organised
You've sent the following payment:

16.45 GBP

to Khadija Yousaf

at khadi@megabank

Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.
Thank You

You've sent the following payment:

16.45 GBP
to Khadija Yousaf
at khadi@megabank

Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.

Send Money to Someone Else

Contact Us
Thank You

You've sent the following payment:

Sixteen point forty five GBP

to Khadija Yousaf

in the name of Maggots

Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.

Send Money to Someone Else

Contact Us
You've sent the following payment:

16.45 GBP to Khadija Yousaf at khadi@megabank

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Important: If you’re using standard elements, you usually don’t need this
You've sent the following payment:
Sixteen point forty five GBP
to Khadija Yousaf
at Khadi@megabank
Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.
accessibility ≠
just giving all the elements labels
MoneyFriend

MoneyFriend brand swoosh

Thank You

Tick

You've sent the following payment:

Sixteen point forty five GBP

to Khadija Yousaf

in the name of megabank

Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.

Send Money to Someone Else

Contact Us
Thank You

Tick

You've sent the following payment:

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Send Money to Someone Else

Contact Us
Swift

```swift
brandSwooshView
    .isAccessibilityElement = false
```

HTML

```html
<img
    src="brand-swoosh.png"
    aria-hidden="true">
```

MoneyFriend

Send Money to Someone Else

Thank You

You've sent the following payment:

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Reference: WEDNESDAY LUNCH

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Contact Us
<img src="brand-swoosh.png" aria-hidden="true">

body {
  background-image: url('brand-swoosh.png');
}

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Swift

```swift
brandSwooshView
.isAccessibilityElement = false
```

HTML

```
<img
src="brand-swoosh.png"
aria-hidden="true">
```
accessibility ≠
giving all the elements labels and
removing irrelevant ones
MoneyFriend

Thank You

You've sent the following payment:

Sixteen point forty five GBP

to Khadija Yousaf

in the name of Khadija

Reference: WEDNESDAY LUNCH

They will get their money

in the next 2 hours. If there is a

problem please contact us.

Send Money to Someone Else

Contact Us
MoneyFriend

Thank You

You've sent the following payment:

16.45 GBP to Khadija Yousaf
in the name of

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They will get their money in the next 2 hours. If there is a problem please contact us.

Send Money to Someone Else

Contact Us
You've sent the following payment:

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Swift

```swift
sendMoneyButton
  .accessibilityTraits = .button
```

HTML

```html
<a aria-role="button">Send Money to Someone Else
</a>

Important: If you’re using standard buttons, you don’t need this… so use the standard elements 😞
You've sent the following payment:

Sixteen point forty five GBP

to Khadija Yousaf

in the name of

Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.
accessibility ≠
giving all the elements labels and removing irrelevant ones and setting all the traits/behaviours
Thank You

You've sent the following payment:

Sixteen point forty five GBP

to Khadija Yousaf

in the name of recipient

Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.

Send Money to Someone Else

Contact Us
You've sent the following payment:
Sixteen point forty five GBP

to Khadija Yousaf
in the name of Kajira
Reference: WEDNESDAY LUNCH

They will get their money
in the next 2 hours. If there is a
problem please contact us.
Thank You

You've sent the following payment:

Sixteen point forty five GBP

to Khadija Yousaf

to Khadija Yousaf

in the next 2 hours. If there is a problem please contact us.

Send Money to Someone Else BUTTON

Contact Us BUTTON
Thank You

You've sent the following payment:

16.45 GBP

to Khadija Yousaf

in the name of

Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.

Send Money to Someone Else BUTTON

Contact Us BUTTON
You've sent the following payment:

16.45 GBP

to Khadija Yousaf
in the name of

Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.

Send Money to Someone Else BUTTON

Contact Us BUTTON
You've sent the following payment: Sixteen point forty five GBP to Khadija Yousaf at megabank. Reference: WEDNESDAYLUNCH. They will get their money in the next 2 hours. If there is a problem please contact us.
Thank You

You've sent the following payment:

16.45 GBP

to Khadija Yousafo

at khadi@megabank

Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.

MoneyFriend

Send Money to Someone Else

Contact Us

Triple tap × 3
Triple tap × 3

MoneyFriend
Send Money to Someone Else

Thank You

You've sent the following payment:
16.45 GBP to
Khadija Yousaf at
khadi@megabank

Reference: WEDNESDAY LUNCH

They will get their money in the next 2 hours. If there is a problem please contact us.
We could all do with examining how the system unfairly benefits us personally… An uncomfortable truth dawned on me as I lugged my bike up and down flights of stairs in commuter-town train stations [...] no ramps, no lifts. Before I’d had my own wheels to carry, I’d never noticed this problem.

-Reni Eddo-Lodge

Why I’m No Longer Talking To White People About Race
accessibility ≠ just getting your app to work with a screenreader
Colourblindness
(colour vision deficiency, CVD)
Colourblindness
(colour vision deficiency, CVD)
4.5% of the UK population ≈ 2.7 million people
(source: http://www.colourblindawareness.org/colour-blindness/)
8% men = (1 in 12)
(source: http://www.colourblindawareness.org/colour-blindness/)
Is a red-green colourblind person disabled?
Contrast

don’t make your slides look like this…

and test them on screens with different contrast ratios too
accessibility ≠
just designing for
blind and partially sighted people
Bitcoin adoption in 2015

The chart related to bitcoin that I find most interesting is not price, but instead Estimated USD Transaction Volume from Blockchain.info:

The reason I find this chart useful is that it seems a decent proxy for the amount of value being transacted through the network irrespective of bitcoin price fluctuations.

By way of comparison, here is a chart of the USD market price of bitcoin over the same period:
Bitcoin adoption in 2015

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Is someone who experiences tremors disabled?
Image: Apple
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@jorodev

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“There is no Antennagate!”

–Steve Jobs, 2010
Is a left-handed person disabled?
Ten percent (10%) of the population are dyslexic; 4% severely so. Dyslexia is identified as a disability as defined in the Equality Act 2010. Many of the dyslexic people across the UK, whether adults or children, are unable to fulfil their potential as a large percentage of the population still do not understand what dyslexia is, the difficulties which the condition presents and do not know how best to support them. Dyslexia is not an obvious difficulty; it is hidden. As a result, dyslexic people have to overcome numerous barriers to make a full contribution to society.

Dyslexia
(reading disorder)
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Dyslexia
(reading disorder)

Text: British Dyslexia Association
Completely erase disk named "The Mac 512" (internal drive)?

Do It  Cancel
Completely erase disk named "The Mac 512" (internal drive)?

OK  Cancel
17% of U.S. schoolchildren are dyslexic

Is a dyslexic person disabled?
Neuro-Diversity & Software Development
Dr. Sal Freudenberg

https://youtu.be/yiGAFJGrrVs
16% functionally illiterate adults in the UK ≈ 5.2 million

(source: [http://www.literacytrust.org.uk/adult_literacy/illiterate_adults_in_england](http://www.literacytrust.org.uk/adult_literacy/illiterate_adults_in_england))
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@jorodev

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https://xkcd.com/simplewriter/

**Simple Writer**
*Write Like Up Goer Five and Thing Explainer*

**Put Words Here**

“Halloa! Below there!”

When he heard a voice thus calling to him, he was standing at the door of his box, with a flag in his hand, furled round its short pole. One would have thought, considering the nature of the ground, that he could not have doubted from what quarter the voice came; but instead of looking up to where I stood on the top of the steep cutting nearly over his head, he turned himself about, and looked down the line. There was something remarkable in his manner of doing so, though I could not have said for my life what. But I know it was

**You Used Some Less Simple Words**

Halloa thus flag furled pole nature doubted quarter steep remarkable manner attract foreshortened trench steeped glow sunset shaded repetition idle vague vibration violent pulsation oncoming vapour height rapid skimming landscape refurling inquiry regard motioned level distant dint closely rough zigzag descending notched extremely unusually precipitate clammy oozier recall singular reluctance compulsion
### Referendum on the United Kingdom’s membership of the European Union

**Vote only once** by putting a cross $\times$ in the box next to your choice.

Should the United Kingdom remain a member of the European Union or leave the European Union?

<table>
<thead>
<tr>
<th>Remain a member of the European Union</th>
<th>Leave the European Union</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>Referendum on the United Kingdom’s membership of the European Union</td>
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<tr>
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</tr>
<tr>
<td><strong>Vote only once</strong> by putting a cross in the box next to your choice</td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td><strong>Remain</strong> a member of the European Union</td>
<td></td>
</tr>
<tr>
<td><strong>Leave</strong> the European Union</td>
<td></td>
</tr>
</tbody>
</table>
Is a person who is functionally illiterate disabled?
Your new Hotmail address: 

Postcode: 

Sausages, Antennagate, Brexit
Your new Hotmail address:  

**Already Taken**  

tommy@hotmail.co.uk

Postcode:
Your new Hotmail address: tommy.atkins5@hotmail.co.uk

Postcode:

Sausages, Antennagate, Brexit
Your new Hotmail address: tommy.atkins5@hotmail.co.uk

Postcode: gui5

Not Valid
Is a person who is not computer literate disabled?
“Human rights are women’s rights, and women’s rights are human rights”

–Hillary Clinton
Accessibility

For the related design concept, see Universal design. For the logical notion, see Accessibility relation. For accessibility on the internet, see Web accessibility. For Wikipedia's accessibility policy, see Wikipedia:Accessibility.

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disability

- affects more people than you think
- is caused by barriers that we put in place
- if it doesn’t affect you now, it will in the future
accessibility is usability is accessibility
Sausages, Antennagate, and Brexit
An introduction to building accessible apps
written and presented by Jonathan Rothwell
jonathan.rothwell@zuhlke.com / @jorodev
Thank you for coming 💜