

Case Study on Reflow

Litigation

Since the first website accessibility case, *Gil v. Winn-Dixie Stores, Inc.*, there have been an increasing number of cases against website owners to make the websites more accessible [2]. As of yet, there are no legal cases in the US around the strict topic of website or software reflow. However, the current rulings are that websites and software interfaces adhere to the **WCAG 2.0** guidelines, which includes reflow. Specifically, it is stated that the page should be able to be **zoomed in by 400%** while maintaining the same general layout and the same content.

Good and Bad Examples

Reflow is, specifically, **how the DOM elements update**. The most important effect that we are looking at in the course about accessibility, is how that change affects the page.

Technical Details

Reflow is nearly an inevitability when interacting with a website. The **DOM** will be in a state of reflow after most changes to an HTML element (please see [1] for further information). From a technical perspective, reflow affects many different components of an interface and it is a rabbit hole of possibilities. While this creates space for a website's functionality to be improved, in this case study, we are more concerned with how our user interacts with and understand the content.

Examples

Take, for example, the website for [Randys -Up-The-River](#); a small-town bar and grill in Western New York. Figure 1 demonstrates what the website looks like not zoomed in. Randy's website does not take into account that when zooming in, the content layout will be shifted.



Figure SEQ Figure * ARABIC 1 - Randy's website



Figure SEQ Figure * ARABIC 2 - Randy's website zoomed in

[BBC Earth](#), on the other hand, has a much better design for reflow. Figure 3 demonstrates BBC Earth while not being zoomed in. If you play with the site for a while you will soon notice that the content and the page layout adjusts to fit into whichever viewport you may be using.

What do I mean by shifted? Well, instead of having the same vertical page of content, the page now has vertical and horizontal content. This makes it much harder to navigate the page, especially if you are viewing it on a mobile platform, as demonstrated in Figure 2. Not only is the content harder to navigate, but the navigation itself will be broken apart.

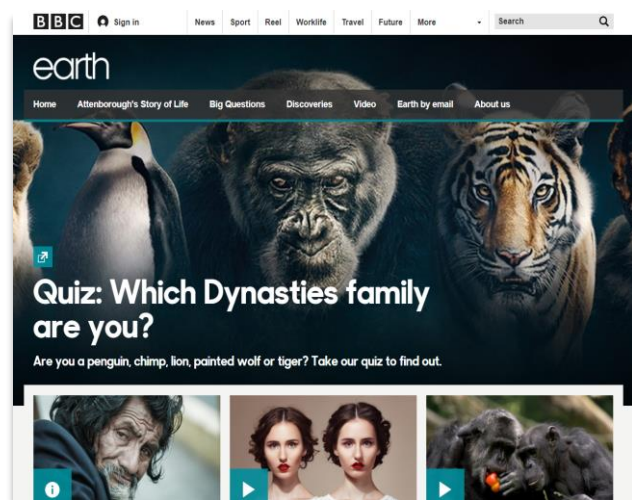


Figure SEQ Figure * ARABIC 3 - BBC Earth website



Figure SEQ Figure * ARABIC 4 - BBC Earth website zoomed in

As seen in Figure 4, when zoomed in, the website maintains the same basic structure as Figure 3. One noticeable difference is that the navigation bar on BBC Earth changes into the hamburger menu and the buttons displayed on top are only the most important. This helps by changing how the content is delivered, but still keeping the structure of the content delivery the same.

Real-World Impact

Making an interface that has proper reflow, as previously mentioned, helps every party involved.

How

Specifically, by limiting the mobile scrolling to the vertical axis means that everyone will have an easier time accessing content. It also means that all users get access to the same content across all viewports, meaning no one gets left out or excluded.

Why

As the developer of the interface, it is your professional responsibility to ensure that everyone has reasonable access to your interface. Not only that, but as previously mentioned, making your interface more accessible not only allows more people to use it, but makes it easier to use for everyone.

Validator

As of yet, there is no real reflow validator. The best way to search for and to fix this issue is to manually use a tool like [VisBug](#) or the Browser's inspection tool to test the interface in different viewports.

Changes in Reflow

In a very technical sense, reflow changes constantly because of the technical requirements of the DOM. Over a broader scale, the more we learn about how to make interfaces accessible to individuals with cognitive impairments, the more the accessibility topic reflow will change. The unfortunate reality of the situation is we do not currently know everything there is to making interfaces accessible to those with cognitive impairments. This just means that there will likely be more fluctuation within this topic in the future.

Resources/Further Learning

[1] The technical side of editing for reflow

<https://medium.com/better-programming/web-performance-dom-reflow-76ac7c4d2d4f>

Google

<https://developers.google.com/speed/docs/insights/browser-reflow>

[2] More information about accessibility litigation

<https://www.williamsmullen.com/news/lawsuits-regarding-ada-compliant-websites-spike-2018>

[3] Defining what is liable in the context of ADA

https://www.ada.gov/ada_title_III.htm

[4] First litigation

<https://law.justia.com/cases/federal/district-courts/florida/flsdce/1:2016cv23020/488749/63/>

[5] US Government accessibility guidelines

<https://section508.gov/>

[6] Section 508 outline

<https://www.epa.gov/accessibility/what-section-508>

[7] Guide to Disability Rights Laws

<https://www.ada.gov/cguide.htm>