

Accessibility in Ebooks

It's not just ALT text

Laura Brady

Goals

- ❖ Why
- ❖ How
 - From InDesign
 - After export

**I would never not do what
Stevie Wonder says to do**





The Statistics

15% of the world's population uses assistive technology because of a disability

85% of the non-disabled market have a situational disability

Who's impacted?



All of us!

Who are you missing?

- ❖ Movement
- ❖ Dyslexia
- ❖ Vision
- ❖ Cognitive

Deysilxa

A fnierd who has dlexiysa dcrebseid to me how she enxrepieecs mreadig. She can read, but it tekas a lot of cteoacnnitn, and the lrtets smeets to "jμup aornud".

I rrmbeemeed mredaig about [tgpioyelycma](#). Wdouln't it be plsbsioe to do it inatierlecvy on a webstie with Jriavpacst? Sure it wluod.

Feel lkie maknig a bkaoroeklmt of this or sehionmtg? [Fork it](#) on ghitub.

Dsxiylea is czrherteiaacd by dlciffituy wtih lainreng to read fetlluny and wtih acuacrte csorempneohin detpsie nmroal inelectgnite. Tihs icdnlues dlftcfiuiy with pocolnohigal araesnwes, ponailchogol dneicdog, pinssoercg speed, othrphrgoalc cindog, aidourty sorht-term mermoy, Ingagaeu silklis/vbrael cenmhrieoopsn, and/or raipd nainmg.

Dvaplmeeeeontl rndieag dedorsir (DRD) is the most cmomon laeirng ditisiblay. Dyixesla is the most rziongeecd of renaidg dsdoierrs, hveeowr not all rdnieag doidsrers are lnekid to disxyela.

Some see dleyxisa as dtiiscnt from raenidg difefilctuis rsltniueg form other caseus, scu h as a non-ngculeirooal dieeifcncy wtih voisin or haenrig, or poor or ianeatuqde rneidag isttciuron. There are tehre posreopd cvoitnge spebuyts of diysexla (aoiturdy, vuisal and ananittotel), aolguhth iindiduavl cseas of dsliexya are btteer eilaxnepd by sfiepcpc udnlrmeiyg niohlryaecococugpsl dcifetis and co-ocnuirrcg lnirnaeg disebltiais (e.g. aetttonin-difeict/htapvriityecy dsreoidr, mtah diitlsbaiy, etc.). Aouhtlgh it is coerdnised to be a repicetve lnaggaeu-bsaed laernnig dtibailisy in the rercaesh lraetirtue, delxyisa also afectfs one's epxvesisre lguaagne silklis. Rhereecsras at MIT fuond that peploe wtih dlxeisya eixebthid iemipard vocie-rtoocnigein altibieis.

Scruee: [Wiieidkpa](#)

Pehsbulid

03 March 2016

Tags

[dsliexya](#) ¹

[tcmyyegopila](#) ¹

[Jsaavrpctit](#) ¹

Why

- ❖ Value
- ❖ Agile Content
- ❖ Because

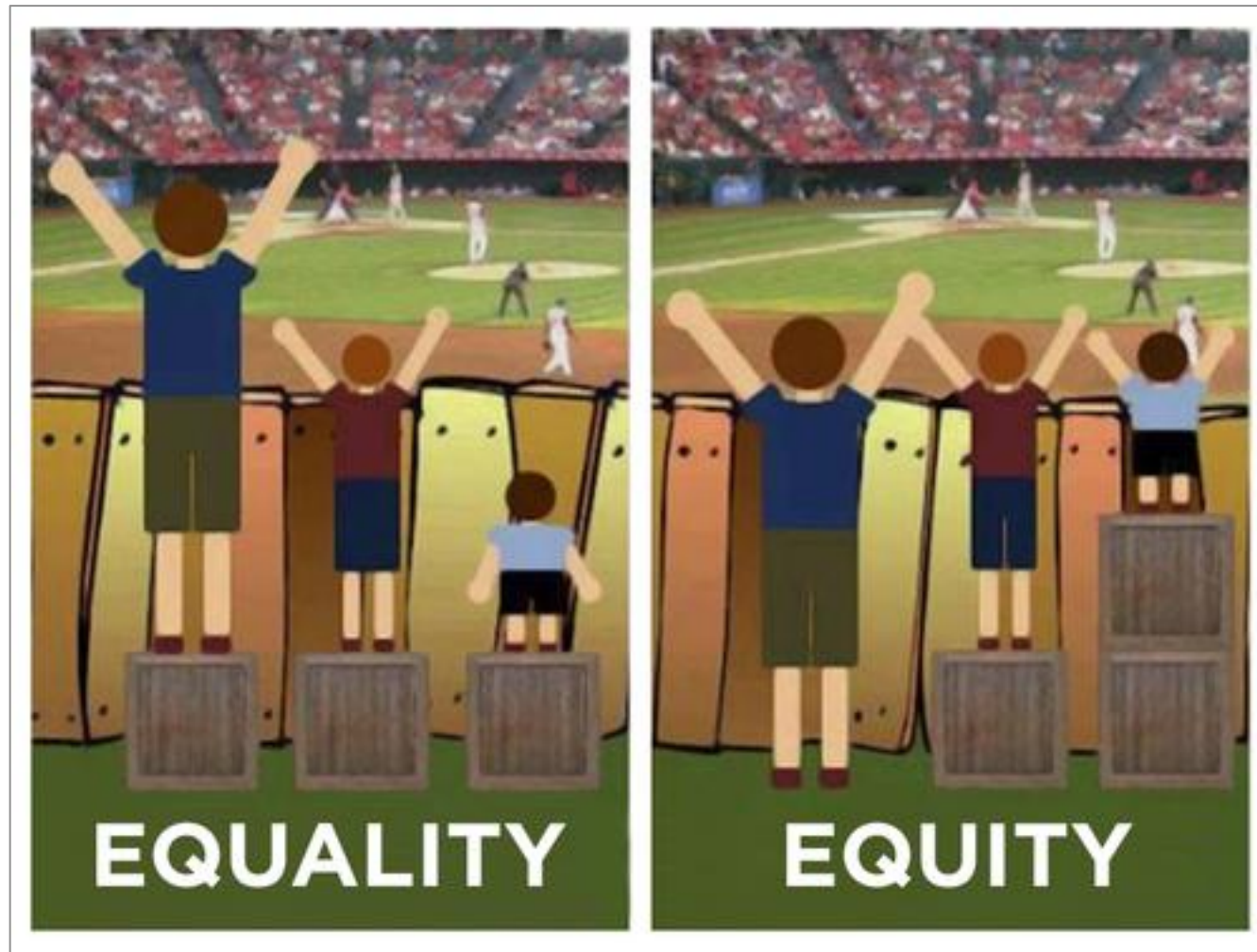
“Ensuring that content is accessible to those with vision, hearing, physical, and cognitive disorders positions compatibility with the next great unknown product development.”

A11y Quick Start Guide



Usability / Accessibility

Usability issues are speed bumps; accessibility issues are road blocks.



Good for business. Really

“[E]ven using an accessible device and an accessible e-reading software platform, a blind reader attempting to work with a Kindle e-book that is anything more than a simple novel will encounter significant accessibility barriers because Amazon’s proprietary process of converting the e-book file from ePub3 format to Kindle format has scrubbed the file of the meta-data needed by the blind person’s assistive technology.”

<https://marketbrief.edweek.org/marketplace-k-12/30-million-amazon-contract-in-ny-city-schools-held-up-by-accessibility-concerns/>

What?

- ❖ Understand reader's needs
- ❖ Potential of digital publishing
- ❖ Recognizing your influence
- ❖ QA

Four Principles of A11y

- ❖ **P**erceivable
- ❖ **O**perable
- ❖ **U**nderstandable
- ❖ **R**obust

<http://webaim.org/articles/pour/>

BISG Quickstart Guide

1. Use HTML5
2. Use HTML5 headings
3. Structural Semantics
4. Navigation
5. Logical reading order
6. Separate presentation from content
7. Live tables
8. Markup for decorative images
9. Image descriptions
10. Page numbers
11. Define languages
12. Use MathML
13. Alt access to media
14. Make interactive content accessible
15. Metadata

From the tools we use

- ❖ Structure
- ❖ Semantics
- ❖ Navigation
- ❖ Page list
- ❖ Images / figures
- ❖ Tables
- ❖ What ID won't do

HTML5 and HTML5 headings

```
<section epub:type="chapter">
  <h1>Chapter 1</h1>
  <p>....</p>
  <section>
    <h2>Sub-section</h2>
    <p>....</p>
  </section>
</section>
```

HTML top tips

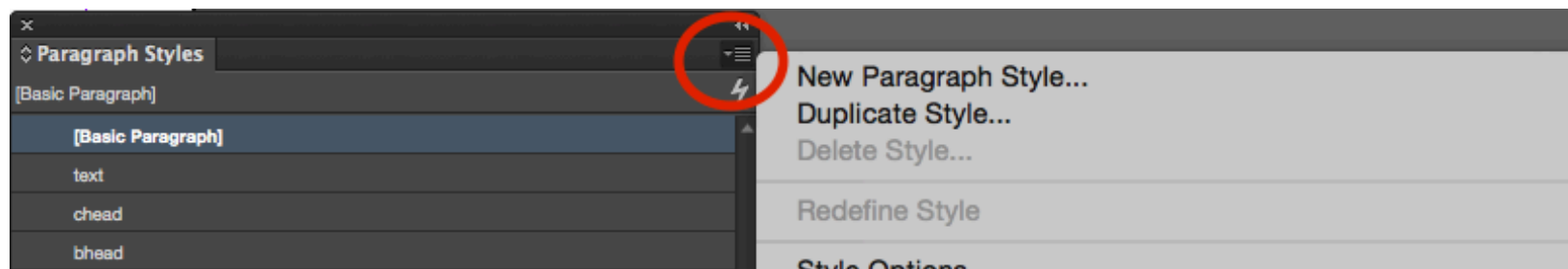
- ❖ Stop meaningless `<div>` use
- ❖ Don't use `` where `` `<i>` `` `` will do.

`<section>` — body content

`<figure>` — secondary content

`<figcaption>`

`<aside>` — ancillary content



Edit All Export Tags

Show: ☒ EPUB and HTML ☐ PDF

OK

Cancel

Style	Tag	Class	Split EPUB	Emit CSS
¶ [Basic Paragraph]	[Automatic]		<input type="checkbox"/>	<input checked="" type="checkbox"/>
¶ text	p		<input type="checkbox"/>	<input checked="" type="checkbox"/>
¶ chead	h3		<input type="checkbox"/>	<input checked="" type="checkbox"/>
¶ bhead	h2		<input type="checkbox"/>	<input checked="" type="checkbox"/>
¶ ahead	h1	title	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
🖼 [Basic Graphics Frame]	[Automatic]			<input checked="" type="checkbox"/>
📄 [Basic Text Frame]	[Automatic]			<input checked="" type="checkbox"/>

New Group from Styles...

Sort by Name

Small Panel Rows

Deep Navigation

! important

- ❖ Key to easy to use ebooks for all readers
- ❖ Go deep and use hidden as required
- ❖ List of figures, illustrations, tables



```
<nav epub:type="toc" id="toc">
<h1>Table of contents</h1>
<ol>
  <li><a href="chap1.xhtml">Chapter 1</a>
  <ol>
    <li><a href="chap1.xhtml#sec-1.1">Chapter 1.1</a>
    <ol hidden="">
      <li><a href="chap1.xhtml#sec-1.1.1">Section 1.1.1</a></li>
      <li><a href="chap1.xhtml#sec-1.1.2">Section 1.1.2</a></li>
    </ol></li>
    <li><a href="chap1.xhtml#sec-1.2">Chapter 1.2</a></li>
  </ol></li>
  <li><a href="chap2.xhtml">Chapter 2</a></li>
</ol>
</nav>
```

Edit Table of Contents Style

TOC Style: EPUB

Title: Contents

Style: break

OK

Cancel

Fewer Options

Styles in Table of Contents

Include Paragraph Styles:

- part1
- break
- h3-section
- h3-section2
- h4-letterhead
- h4-italic**

<< Add

Remove >>

Other Styles:

- quote
- quote_right
- subtitle
- tbla_h2_ctr
- title
- title-txt

Style: h4-italic

Entry Style: TOC Body Text

Page Number: No Page Number

Between Entry and Number: ^t

☐ Sort Entries in Alphabetical Order

Style: [None]

Style: [None]

Level: 6

Options

☒ Create PDF Bookmarks

☐ Replace Existing Table of Contents

☐ Include Book Documents

☒ Make text anchor in source paragraph

☐ Run-in

☐ Include Text on Hidden Layers

Numbered Paragraphs: Include Full Paragraph

Logical Reading Order

- ❖ Main content/secondary content tagged
- ❖ Lists, tables, code tagged as such
- ❖ Advancing in the content doesn't rely on CSS or scripting

```
<body>
<section>
  <h1>Topic Heading</h1>
  <p>This is a paragraph of content about my topic</p>
  <p>Here is another paragraph of
    content about my topic</p>
  <aside>
    <p>Pull quote highlighting a passage of text</p>
  </aside>
  <p>Here is the last paragraph of content
    about my topic</p>
</section>
</body>
```

```
<div class="_idFootnotes">
  <div id="footnote-000" class="_idFootnote" epub:type="footnote">
    <p class="Basic-Paragraph"><a class="_idFootnoteAnchor _idGenColorInherit"
      href="Untitled-3.xhtml#footnote-000-backlink">1</a>&#9;Hello. I am a
      footnote.</p>
  </div>
```



```
<aside id="backlink1" epub:type="footnote">
  <p><a class="fn" href="#fn1">1</a>&#9;Hello. I am a footnote.</p>
</aside>
```


Articles Panel

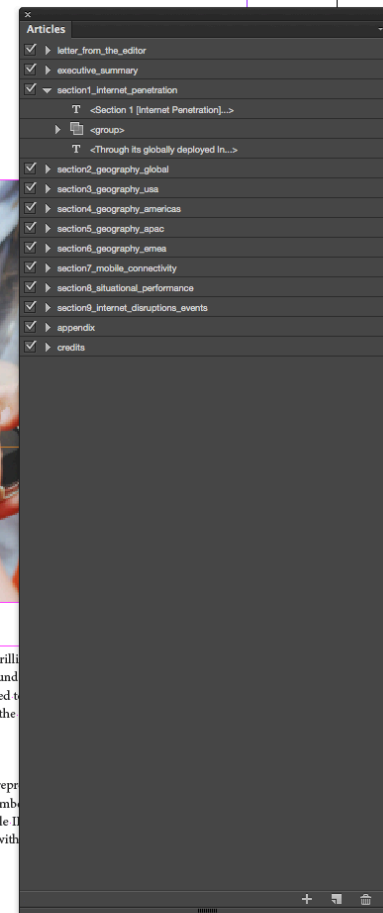
SECTION 1: [INTERNET PENETRATION]



Through its globally deployed Intelligent Platform, and by virtue of the more than 2 trillion on a daily basis, Akamai has unique visibility into levels of Internet penetration around over 810 million unique IPv4 addresses from 243 unique countries/regions connected to a 0.9% increase in the number of unique IPv4 addresses seen by Akamai as compared with the from the number seen in the third quarter of 2015.¹

Although we saw over 800 million unique IPv4 addresses, Akamai believes that this count represents some cases, multiple individuals may be represented by a single IPv4 address (or a small number the web through a firewall or proxy server; in other cases, individual users may have multiple IP their use of multiple connected devices. Unless otherwise specified, the use of "IP address" with

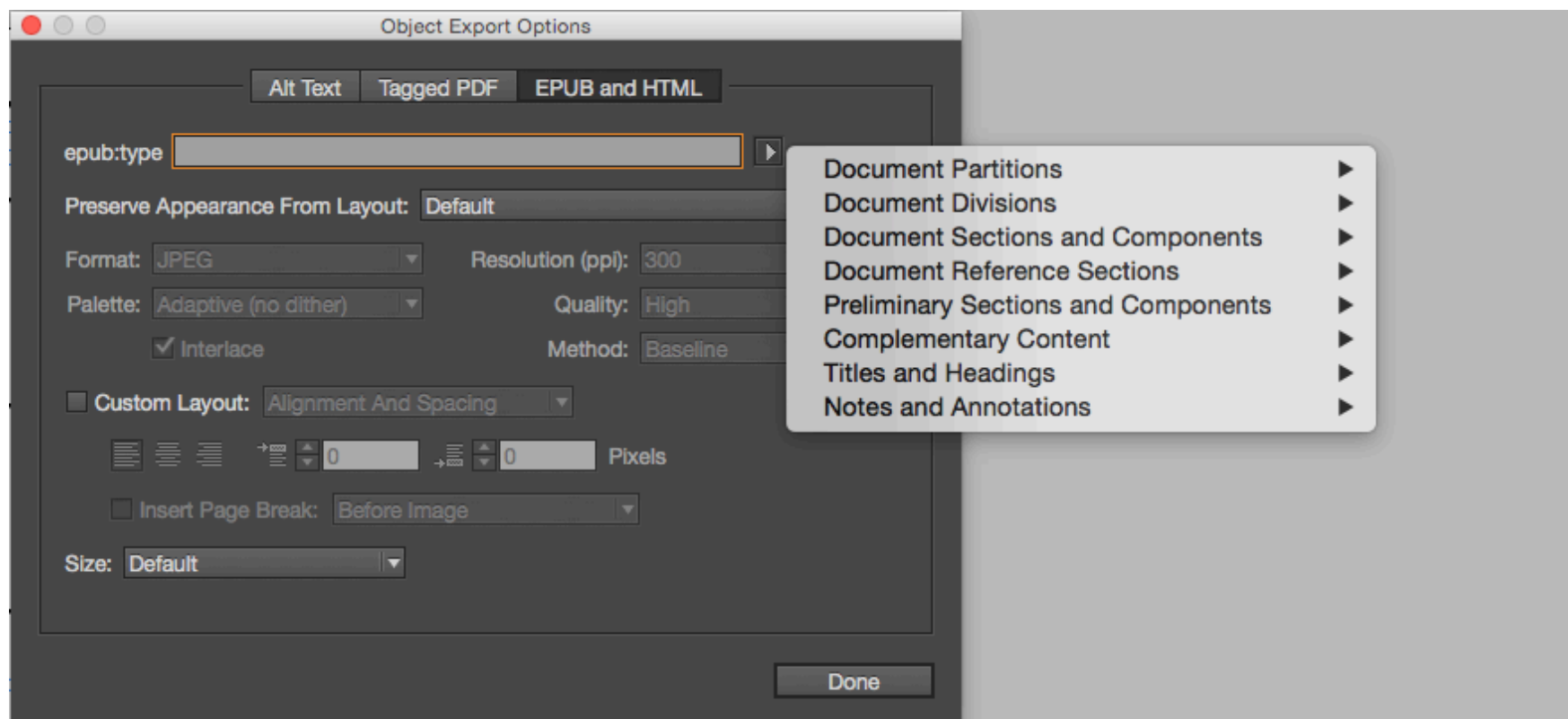
1.1 UNIQUE IPV4 ADDRESSES



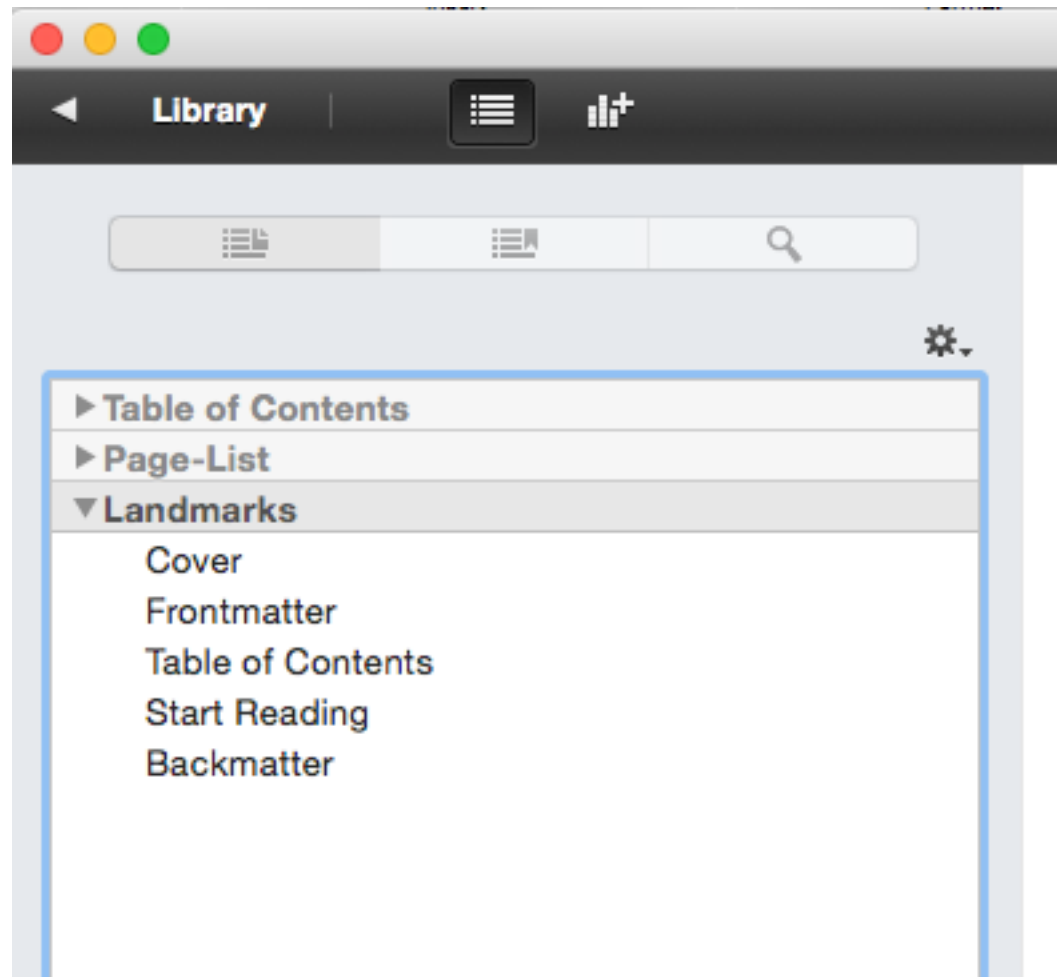
Structural Semantics

- ❖ Use a full a set of epub:type markers as possible
- ❖ These semantics are the equivalent of visual design cues for the reading system

“Structure is the elements you use to craft your EPUB content, and semantics is the additional meaning you can layer on top of those structures to better indicate what they represent.” –Matt Garrish



<http://www.idpf.org/epub/vocab/structure/>



Separate visual style from content

“Typographic conventions had to convey meaning in print because that was all that was available, and are still useful for sighted readers, but are the wrong place now to be carrying meaning.”

– Matt Garish

- ❖ Be aware of colour contrast
(webaim.org/resources/contrastchecker/)
- ❖ Avoid declaring font colour and size in the CSS
- ❖ Sort out `` / ``,
`` / `<i>`
<http://html5doctor.com/i-b-em-strong-element/>

Tables

“Setting tables as an image addresses a situational disability (the inability to view an entire table at once) by creating another disability (limited visual access to the content).”

Two countries, Libya and Yemen, saw a 0.9 Mbps **respectively**.¹

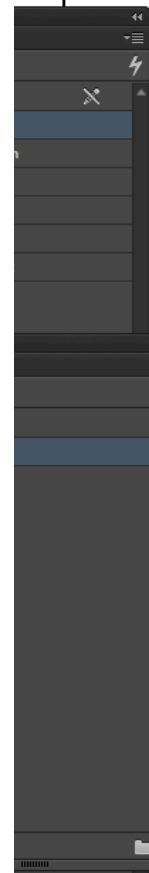
#	Country/Region#	Q1 2016 Avg. Mbps
-#	Global#	
1#	South Korea#	
2#	Norway#	
3#	Sweden#	
4#	Hong Kong#	
5#	Switzerland#	
6#	Latvia#	
7#	Japan#	
8#	Netherlands#	
9#	Czech Republic#	
10#	Finland#	

Figure 6: Average Connection Speed (IPv4)

```

Q1_2016-SOTI_Connectivity-3.xhtml
24 <p class="b
25 <table id="
26 <colgro
27 <col />
28 <col />
29 <col />
30 <col />
31 <col />
32 </colgr
33 <thead>
34 <tr>
35 <td>
36 <td>
37 <h3 class="tbl_center">Country/Region</h3>
38 </td>
39 <td>
40 <h3 class="tbl_center">Q1 2016 Avg. Mbps</h3>
41 </td>
42 <td>
43 <h3 class="tbl_center">QoQ Change</h3>
44 </td>
45 <td>
46 <h3 class="tbl_center">YoY Change</h3>
47 </td>
48 </tr>
49 </thead>
50 <tbody>
51 <tr>
52 <td>
53 <p class="tbl_body">-</p>
54 </td>
55 <td>
56 <p class="tbl_body">Global</p>
57 </td>
58 <td>
59 <p class="tbl_body">6.3</p>
60 </td>
61 <td>
62 <p class="tbl_body">12%</p>
63 </td>
64 <td>
65 <p class="tbl_body">23%</p>
66 </td>
67 </tr>
68 <tr class="grey">
69 <td>
70 <p class="tbl_body">1</p>
71 </td>
72 <td>
73 <p class="tbl_body">South Korea</p>
74 </td>
75 <td>
76 <p class="tbl_body">29.0</p>
77 </td>
78 <td>
79 <p class="tbl_body">8.6%</p>
80 </td>
81 </tr>

```



My mother had heard all of this on a transistor radio, the same one that she kept tucked into her pocket. But this did not keep her from retelling the story, adding her own particular flavor. For extra effect, my mother would seal the tale by raising her right arm and pointing to her clean underarms with her left index finger. “The hairs grew out long enough for braiding, Kalyana,” she would say. “Eeeeww!” And she would scrunch up her nose.



She would tell other stories, too, stories from our past. My grandmother, she said, was born on SS *Sangola*, a merchant ship of the British India Steam Navigation Company. She arrived in an unusual way: head first, like a bag of stones, with her umbilical cord wrapped around her neck. My mother would pronounce SS *Sangola* like the British, exaggerating each syllable for dramatic effect.

This journey, she always claimed, had been the ship’s third time on the great oceans, bringing Indian laborers from the heat of Calcutta to the plains of Fiji. Just like the birds that migrate south in search of the warmth of the sun, leaving behind the harshness of winter, so the Indians came to Fiji with *lotas* filled with hope, fleeing the chill of poverty.

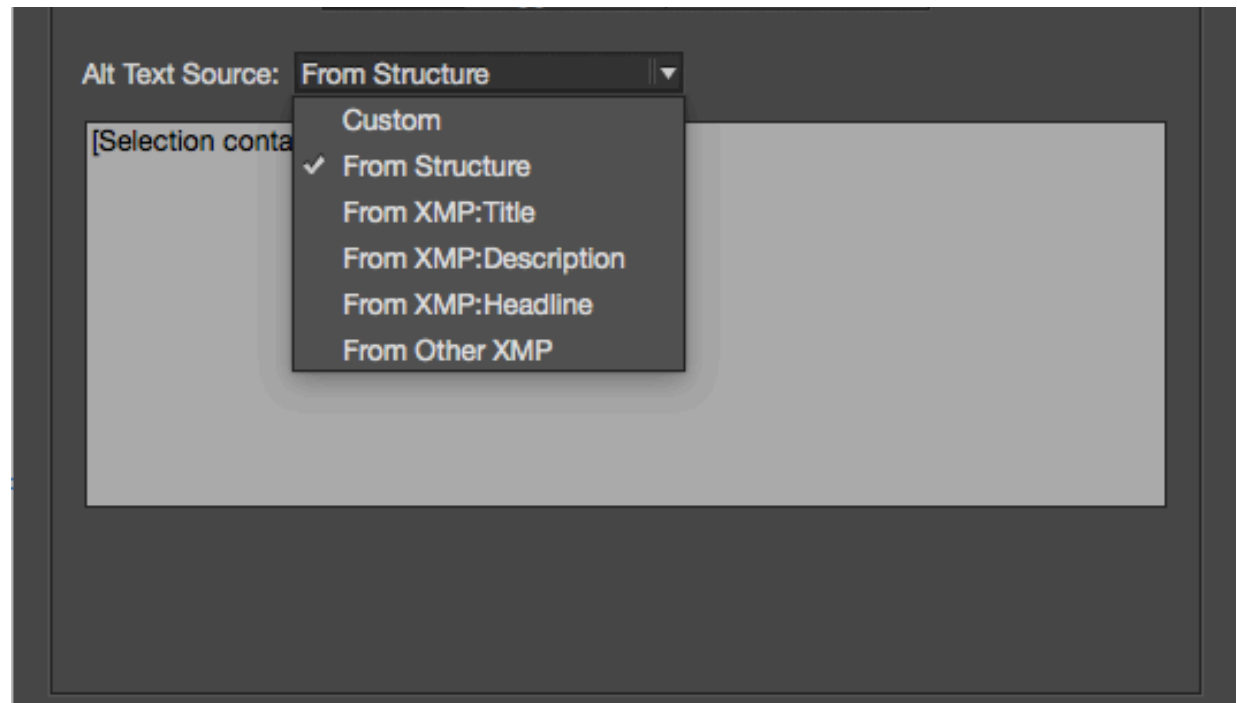
The laborers, my mother said, were numbered carefully: 1,151 set sail. Yet 1,152 laborers landed on the Fiji sands on February 1, 1909, and my mother insisted that my grandmother had accounted for the extra number. She was sure about this detail, too, as she was sure about everything else.

```

336 hr.doodad {
337     background-image: 
338     margin: 1em 0 0 0;
339     border:none;
340     height: 45px;
341     margin-left: 35%;
342     background-repeat:
343 }

```

Image Descriptions



So many options...

Where the image is not put in context by the surrounding text, add a description.

1. ALT text

```

```

2. Figure/figcaption

```
<figure role="group">  

```

```
<figcaption>A water molecule is made of two  
hydrogen atoms and one oxygen atom. The two  
hydrogen atoms are positioned on the oxygen  
atom and are separated by approximately 105  
degrees, as shown in Figure 1.
```

```
</figcaption>  
</figure>
```

3. aria-describedby

```

```

```
<aside class="hidden"
        id="watermolecule-desc">
```

```
<p>A water molecule is made of two
hydrogen atoms and one oxygen atom. The
two hydrogen atoms are positioned on the
oxygen atom and are separated by
approximately 105 degrees.</p>
```

```
</aside>
```

[http://
diagramcenter.org/
59-image-
guidelines-for-
epub-3.html](http://diagramcenter.org/59-image-guidelines-for-epub-3.html)

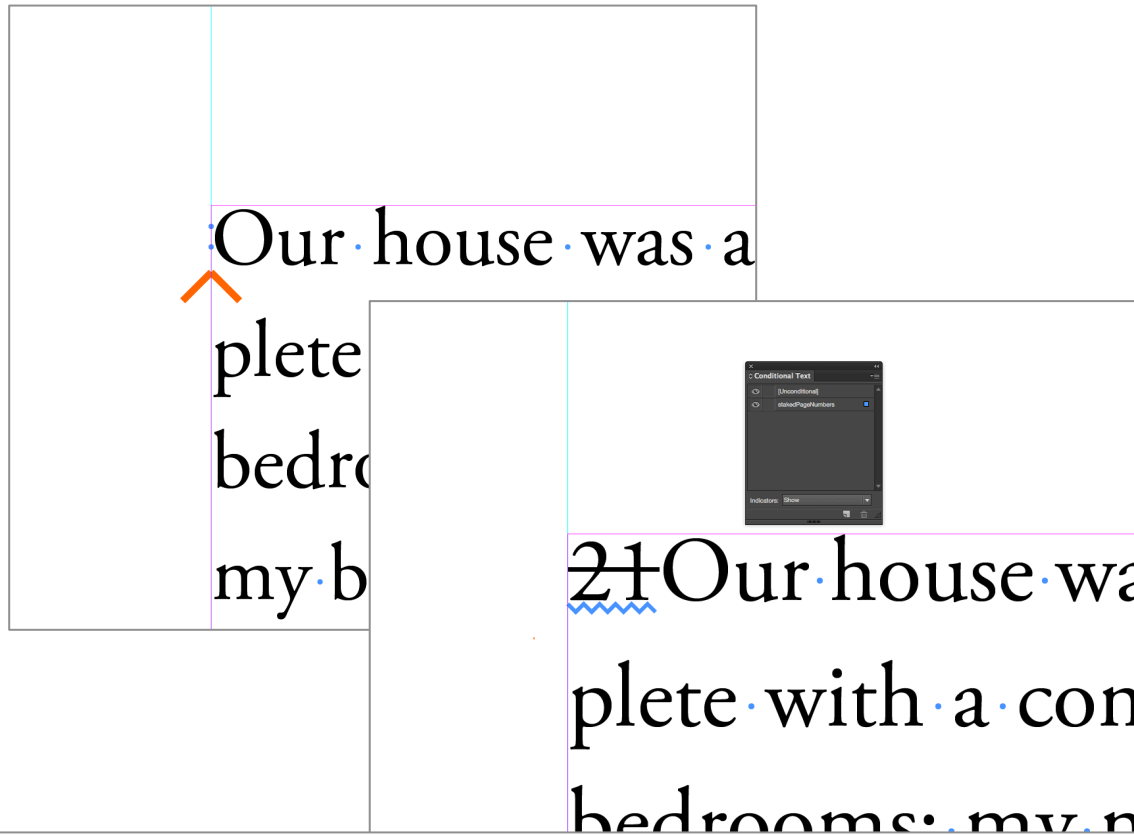
Image Descriptions

- ❖ Context is key
- ❖ Consider your audience
- ❖ Be concise
- ❖ Be objective
- ❖ General to specific
- ❖ Tone & Language

[http://
diagramcenter.
org/general-
guidelines-
final-
draft.html#2](http://diagramcenter.org/general-guidelines-final-draft.html#2)

Page List

- ❖ Mark print-equivalent page breaks
- ❖ One more way to navigate into the content
- ❖ Be sure to declare dc:source in the metadata



```
<p class="noindent"><span class="com-rorohiko-pagestaker-style">21</span>Our house was a one-level wooden dwelling on stilts, comp
<p class="text">Manjula did not want to share a mattress with me. When I turned four, my mother had removed me from the bed she sh
<p class="text">Manjula would frequently tell me that she wished I had been born a boy; that way, Raju would be the one sharing hi
<p class="text">Our room was filled with toys that my father had bought for me: stuffed animals and dolls with golden curls, cryst
<p class="text">I was only five years old when, in the midst of shopping <span class="com-rorohiko-pagestaker-style">22</span>for
<p class="text">The moment I set my eyes upon it, my heart fluttered and butterflies sprang around in my tubby belly. I dreamed of
<p class="text">I started off with a direct request to my mother. "I want this, Mummy."</p>
<p class="text">"No."</p>
```

Language

- ❖ Define the language of the content and of language shifts in the content

```
<span xml:lang="fr" lang="fr">rue  
    Saint-André-des-Arts</span>
```

```
<i xml:lang="fr" lang="fr">C'est  
    vendredi saint!</i>
```

A few more best practices

- ❖ Consider EPUB for Education (EDUPUB)
- ❖ Use MathML
- ❖ Provide alt access to media
- ❖ Make interactive content accessible

Use accessibility metadata

<http://www.idpf.org/accessibility/guidelines/content/meta/onix.php>

Use your tools wisely

- ❖ InDesign needs to be nudged in many ways. Use it well, understanding where it fails.

QA and Testing

- ❖ Turn text-to-speech on and see what happens. You will be amazed/alarmed/surprised at what comes out.
- ❖ Benetech is developing a “Certified Accessible” process

“Simply put, it’s difficult to understand what needs to happen to make content truly accessible, in a useful way, until you have an understanding of the context in which content will be used and have tried it yourself.” –Jean Kaplansky



Opening Doors



C.O.P E Puppies

Brad4 Type
DIGITAL + PRINT BOOK PRODUCTION

ACCESSIBILITY

Does it work for people who are print-disabled?

Yes. Built with [Readium's rendering engine](#), the Open eBooks App takes advantage of the accessibility features that are native to the EPUB3 format in which the books are rendered. Open eBooks is compatible with Apple and Android's Text to Speech (TTS). In the future we plan to improve the implementation of Readium to make this even more robust.

We're working on improving the experience and accessibility in future updates and versions of the app and its content. Again, making this content accessible is a top priority and we are working with all our industry partners to make progress in this area.

We also encourage families, teachers and librarians of readers with print disabilities to try applications like [BARD](#), [BookShare](#), and [Learning Ally](#). These great resources can help students build an even bigger collection of eBooks.

How does it work for readers with Dyslexia?

Open eBooks supports Open Dyslexic Font for those with Dyslexia.

To enable:

- Open your eBook
- Click the [Aa] button in the top right corner
- Click the Open Dyslexic Font located in the top row on the far right

Resources

Bookshare's list of tools

<https://www.bookshare.org/cms/help-center/reading-tools/member-preferred-tools>

BISG's Quick Start Guide to Accessible Publishing

<https://www.bisg.org/pre-order-bisg-quick-start-guide-accessible-publishing>

Diagram Center Top EPUB 3 Tips

<http://diagramcenter.org/54-9-tips-for-creating-accessible-epub-3-files.html>

Apple a11y Resources

<http://www.apple.com/accessibility/resources/>

The A11Y Project

<http://a11yproject.com/resources.html>

❖ EPUB Zone Resource Page

<http://epubzone.org/resources/accessibility-epub-3-resources-and-guidance>

❖ Daisy: news on EPUB & a11y

www.daisy.org/daisy-epub-3-developments

❖ Arizona State A11y Lab

<https://asunow.asu.edu/20160309-solutions-making-textbooks-accessible-all>

Thanks!

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