



*A Data Usability Company*  
**ANTENNA HOUSE**

# Printing Should Be Invisible

## Balisage 2024

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Hello, I am Tony Graham from Antenna House.

# “Printing Should Be Invisible”

- Aka “The Crystal Goblet”
- Speech by Beatrice Warde
- British Typographers’ Guild
- St Bride’s Institute, London
- October 7, 1930



Beatrice Warde is famous (in some circles) for “Printing Should Be Invisible,” also known as “The Crystal Goblet,” a speech that she delivered to the British Typographers’ Guild at St Bride’s Institute, London, on October 7, 1930.

Imagine that you have before you a flagon of wine. You may choose your own favorite vintage for this imaginary demonstration, so that it is a deep shimmering crimson in color. You have two goblets before you. One is of solid gold, wrought in the most exquisite patterns. The other is of crystal-clear glass, thin as a bubble, and as transparent. Pour and drink; and according to your choice of goblet, I shall know whether or not you are a connoisseur of wine. For if you have no feelings about wine one way or the other, you will want the sensation of drinking the stuff out of a vessel that may have cost ten thousand dollars; but if you are a member of that vanishing tribe, the amateurs of fine vintages, you will choose the crystal, because everything about it is calculated to *reveal* rather than hide the beautiful thing that it was meant to *contain*.

*PRINTING SHOULD BE INVISIBLE*

*By Beatrice L. Warde*

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Bear with me in this long-winded and fragrant metaphor; for you will find that almost all the virtues of the perfect wineglass are parallel in typography. There is the long, thin stem that obviates fingerprints on the bowl. Why? Because no cloud must come between your eyes and the fiery heart of the

3

She likens good typography to drinking wine from a crystal goblet, in contrast to drinking from a goblet "of solid gold, wrought in the most exquisite patterns." The crystal goblet, she argues, is better because "everything about it is calculated to reveal rather than hide the beautiful thing that it was meant to contain."



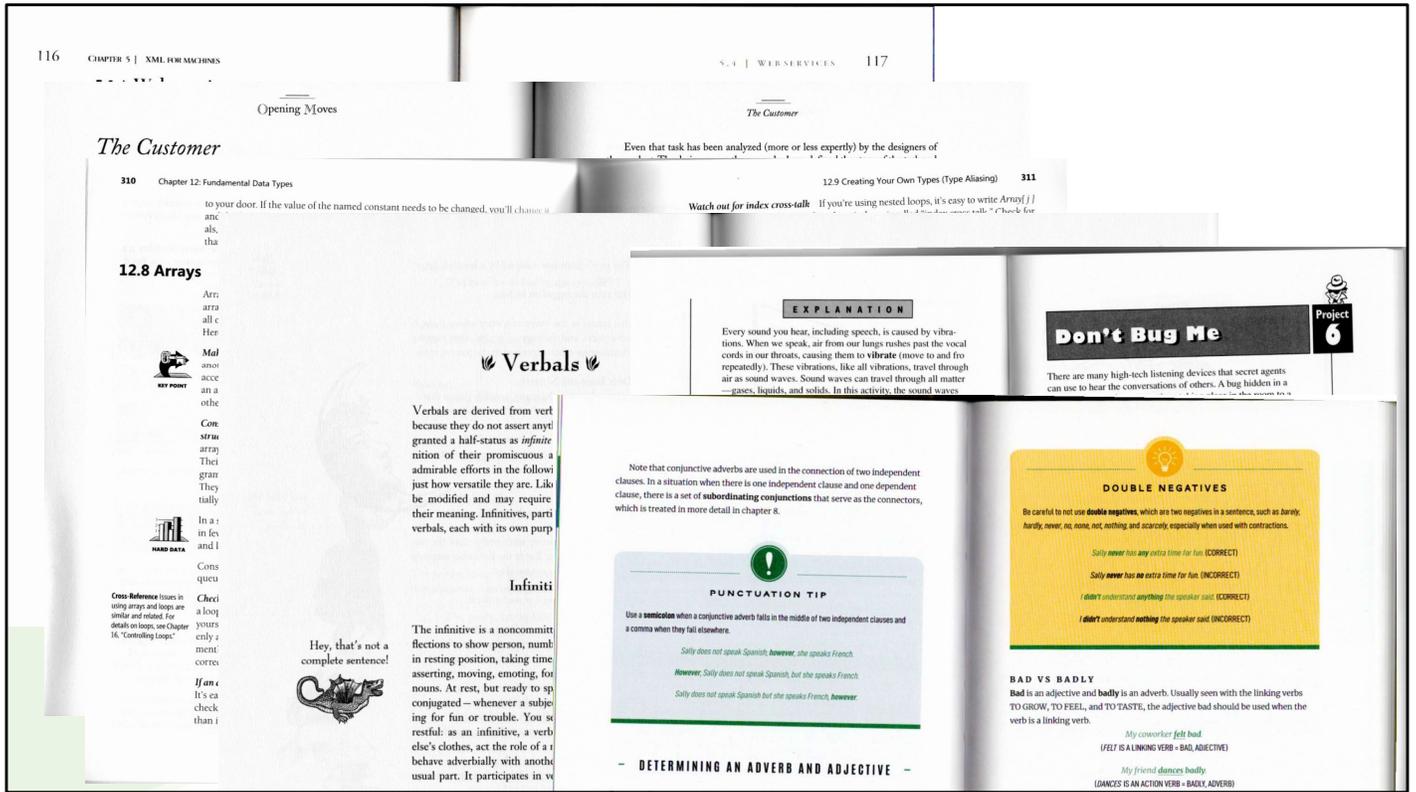
Most of us already know that things can go badly for you if you choose the gold goblet...

# Invisible?

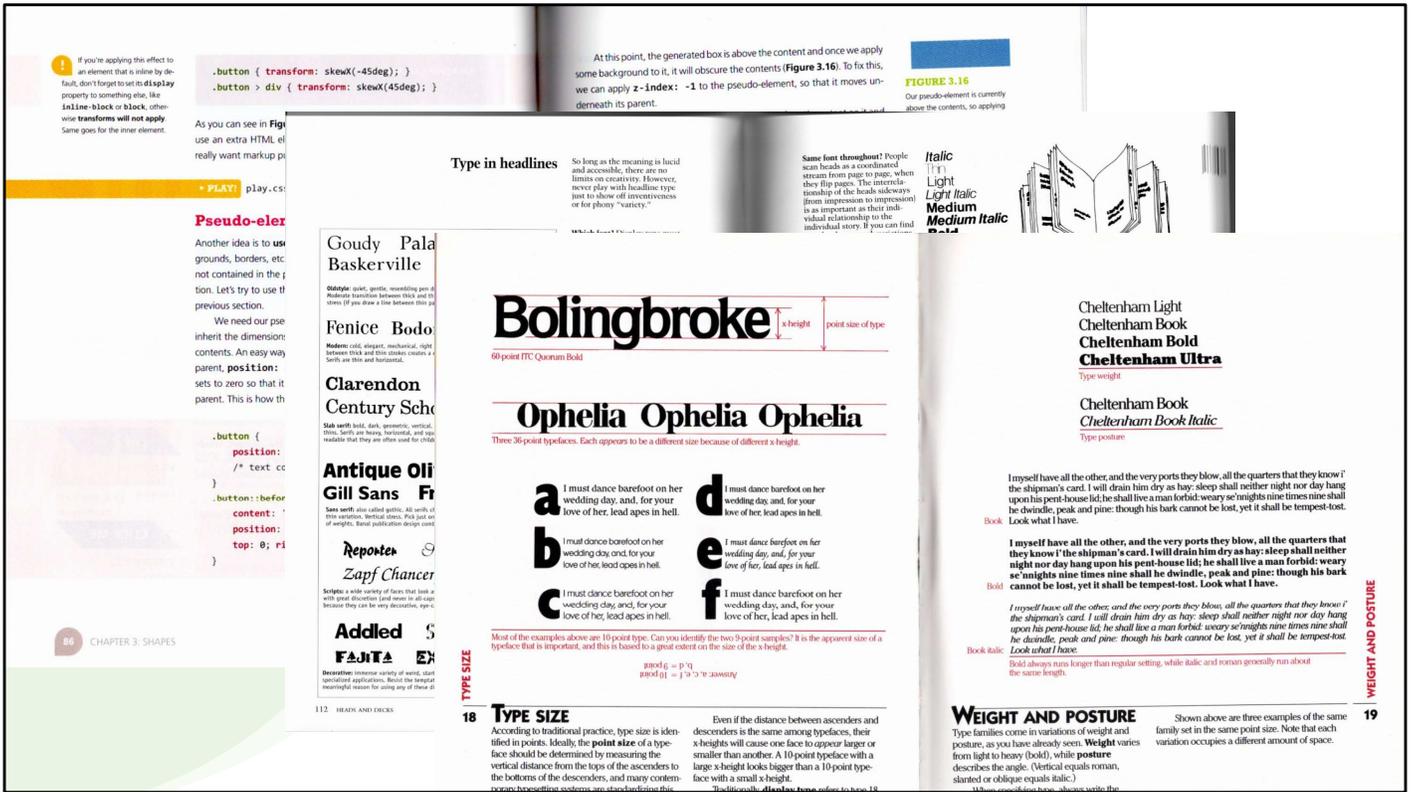


but even before 1930, exceptions were made for war and peace.

These days, of course, people just do it.



The manuals and book that many of us work on these days are more prosaic than beautiful, and their typography can be anything but invisible. There's arbitrary mixes of fonts and font styles, sidebars and pull-quotes in different fonts, sprinklings of icons and sidenotes, reverse text, and extravagant use of color.



Sometimes the books that are least invisible are the design books that tell us how to do things.



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Printing Should  
~~Be Invisible~~  
**NOT BE IRRITATING!**  
Balisage 2024

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Since neither beauty nor invisibility seem achievable, and as I don't have the same turn of phrase as Beatrice Warde, I'm aiming for the lower bar that printing should not be irritating.

# Printing Should Not Be Irritating

- Font selection
- Page layout
- Headers and footers
- Baseline grids
- Multi-column formatting
  - Line length and legibility
- Spreads
- Footnotes
- Table of Contents
- Indexes



As you can see here, aspects of typography that should not be irritating but which frequently are include:

- Font selection
- Page layout
- Headers and footers
- Baseline grids
- Multi-column formatting
  - Line length and legibility
- Spreads
- Footnotes
- Table of Contents
- Indexes

# Language-specific glyphs

<code>lang="ru"</code>	<code>lang="bg"</code>
<code>font-family: veleka;</code>	
А Б В Г Д Е Ж З И Й К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ь Ю Я Й	А Б В Г Д Е Ж З И Й К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ь Ю Я Й
а б в г д е ж з и й к л м н о п р с т у ф х ц ч ш щ ъ ь ю я й	а б в г д е ж з и й к л м н о п р с т у ф х ц ч ш щ ъ ь ю я й
<code>font-family: "Times New Roman";</code>	
А Б В Г Д Е Ж З И Й К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ь Ю Я Й	А Б В Г Д Е Ж З И Й К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ь Ю Я Й
а б в г д е ж з и й к л м н о п р с т у ф х ц ч ш щ ъ ь ю я й	а б в г д е ж з и й к л м н о п р с т у ф х ц ч ш щ ъ ь ю я й

*y Company*  
**HOUSE**

Font selection can easily be irritating. We previously saw pages from technical books that each used their own random assortment of fonts and font styles.

On a more basic level, it is irritating if you can't even get the correct glyphs for your language. This slide shows the difference between using a font that has glyphs for Bulgarian and one that doesn't. In fact, even though this was the best Bulgarian font that I could find, it doesn't have all of the Bulgarian glyphs that I had expected from my book on Cyrillic typography.

# Dyslexia

- The “hidden disability”
- 4%–25% have some sort of reading disorder
  - Estimates vary a lot
  - Also varies by language/script/country
- Dyslexia-specific fonts help some but not others
- Designed by or in consultation with dyslexic readers
  - Other people with dyslexia dismiss them
  - Some proprietary or commercially available
  - Review of studies by Chuck Bigelow found limited benefit
- Colored background can help
  - Opinions differ

Even more fundamentally, some people can't read common fonts. Dyslexia, sometimes referred to as the “hidden disability,” is said to affect 4% to 25% of people. Different people have different definitions of what constitutes a reading disorder, so there's a big range there, but the proportion differs for different languages and scripts for reasons that I don't understand.

Dyslexia-specific fonts can help some people, whereas others with dyslexia will say that they make no difference. As you would expect, the fonts are designed by or in consultation with people with dyslexia. This is the free OpenDyslexic font, and there are other free and commercial fonts available.

Similarly to the fonts, some people find that a pale-colored background helps comprehension, but it doesn't help everybody, and those that it does help have differing color preferences.

# Dyslexia effects

- Symptoms vary a lot
- Similar patterns of problems
- Wash-out effect

of design, font, type size, contrast and layout, are the focus. The colour of a font, such as light, regular, medium and bold create a certain contrast with the background. The challenge is to find the right contrast (character colour and paper colour) that complements the characters. This can be accomplished with the right weight of a typeface in combination with the right colour paper, avoiding the washout-effect.

Graphics © Natascha Frensch and Barbara Termorshuizen. Used by permission.

- Rivers

preferences regarding all readers, dyslexics in particular, centred can be used for headings or titles. Aligned right and justified causes problems, aligned right causes confusion with flowing to the nextline. Justified text creates non-consistency of word spacing, and this can lead to the river-effect distortion. Very important is the strong advice against hyphenation, the words split and there fore causes difficulty in comprehension. As an overall remark I'd like to emphasise not to provide a 'learn-how-to-read' visual, but to focus on clarity, consistency and space, used initials

- Swirl

*Read Regular is created without copying or mirroring shapes. Therefore the frequency of repeated shapes in a text is decreased. This results in a minimum chance of visual distortions (swirl-effect). The aim is to create interesting typography that will maintain the readers' interest and will prevent them from getting bored or frustrated. Diversity in text knows many variations. We must understand the fact that typography for a novel is different from a magazine or a publication for education. Even so a novel has the potential to be clear and interesting. This can be achieved in any level of creativity, thinking on type size, leading, the amount of words on a sentence and the character/paper combination.*

Dyslexia is a single term for a wide ranging condition. Symptoms can vary a lot, but there are some common patterns of problems: some people report a wash-out effect; some are sensitive to rivers of white-space, particularly in justified text; and some experience a swirl effect.

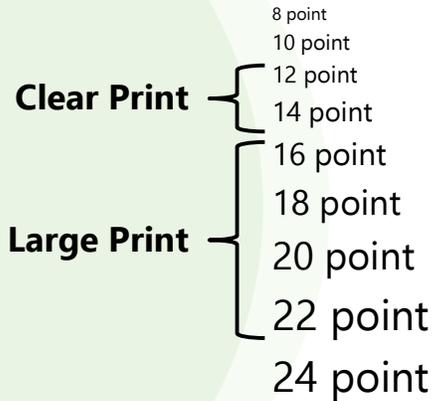
# British Dyslexia Association Style Guide (excerpt)

- Paper thick enough to prevent show-through
- Matt paper rather than glossy
- Cream or pastel color
  - Preferences vary.
- Plain, evenly spaced sans-serif font
  - Arial, Comic Sans, Verdana
- Avoid underlining and italic
- AVOID TEXT IN BLOCK CAPITALS
- Left-justified with ragged right edge
- Avoid narrow columns
- Line spacing of 1.5 is preferable
- Contents page at the beginning and an index at end of long documents
- Use bullet points and numbering



The British Dyslexia Association has produced a style guide with advice on how to produce documents that work better for people with dyslexia.

# Clear Print and Large Print



- Users may have sight problems
- Clear Print
  - Minimum 12pt type
  - 14pt if possible
- Large Print
  - 16pt to 22pt type



While up to 25% of us may have a reading disorder, even more of us has or will have sight problems. The Royal National Institute of Blind People and the International Society of Typographic Designers have produced a best practice guide for using Clear and Large Print, where Clear Print is 12pt to 14pt type, and Large Print is 16pt to 22pt type.

A lot of their guidance is very much like the guidance from the British Dyslexia Association Style Guide, including: the advice on paper stock; avoiding italics, underlining and runs of text in block capitals; including a table of contents and index; avoiding justified text and rivers; and more.

## Font should reflect text

What suits a nursery rhyme, financial report, or headline?

- Jack and Jill went...
- Profit for 2024 was...
- Man Bites Dog
- Jack and Jill went...
- Profit for 2024 was...
- Man Bites Dog
- **Jack and Jill went...**
- **Profit for 2024 was...**
- **Man Bites Dog**



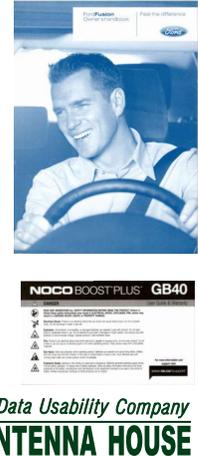
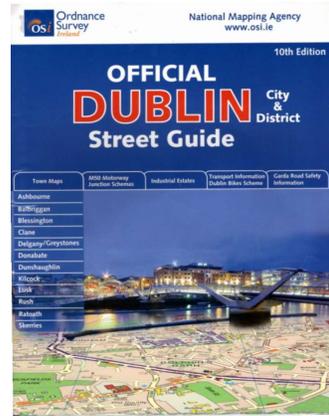
While you need to cover the essentials and make a document that is actually readable, you should also think about what the design says about the content.

Hopefully we can agree that different fonts are better suited to nursery rhymes than others, some to financial statements, and some to headlines. You get the idea.

I don't expect that we would all agree on which is the 'best' font for each use, but we can probably agree that some of these fonts are generally unsuitable for some of these applications.

# “Structure related to function”

- Purpose influences size and layout



I don't remember much from my high school biology classes, but I do remember my teacher repeating the maxim "structure related to function."

These are five documents related to my car that each serves a different function. The form letter from my insurance company is sent to every customer and is printed on standard A4 paper and came in a standard-sized envelope. The National Car Test report is also on standard A4 paper, as it was printed on the spot using a standard office printer. The Street Guide is larger than A4, presumably so the maps can be bigger, but it fits fine in the pocket behind the driver's seat. The Owner's Handbook, on the other hand, is just the right size to fit in the glove box of the car, just as you would expect. The last one is the manual, safety instructions, and warranty, all in multiple languages, for a compact battery for jumpstarting the car: it fits in the carrycase for the battery. It's the sort of thing that you read once, if at all, yet it's essential for the manufacturer to provide all that information.

Each of those documents has a different function, and their format reflects their function. For example, none of the others would work nearly as well as they do if they were the size of the jumpstarter manual, and, similarly, you wouldn't want to keep the manual with the jumpstarter if the manual was the size of any of the other documents.

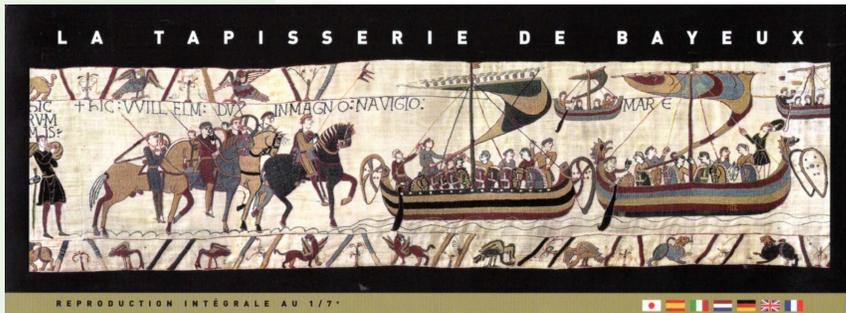


Now, I did say that the Dublin Street Guide fits well in the pocket behind the driver's seat, and it does. The maps are each a good size, but the Street Guide still doesn't fit well with me because it wouldn't fit well in a car in Sydney, where the street directory is always kept in the glove box.

So there are more local conventions or regional differences than just remembering to use Letter-size paper in the USA and A4 elsewhere.

# La Tapisserie de Bayeux

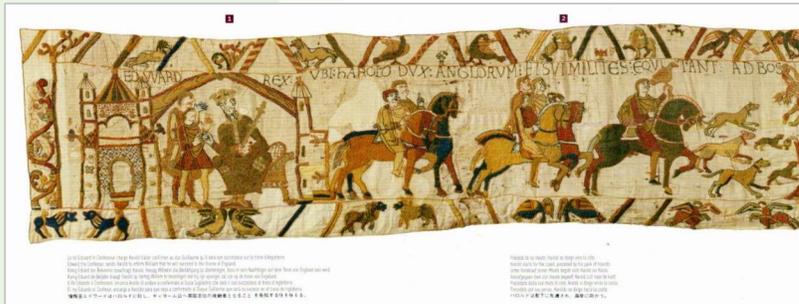
- Over 70m long, 50cm high
- Reproduced 1/7 scale
- Museum book reflects proportions



The Bayeux Tapestry is over 70m long but just 50cm high. Remember, structure relates to function, so this book on the Bayeux Tapestry, which reproduces the Tapestry at 1/7 scale, is therefore wide but not very

# La Tapisserie de Bayeux

- Over 70m long, 50cm high
- Reproduced 1/7 scale
- Museum book reflects proportions



...because of what it shows.

# La Tapisserie de Bayeux

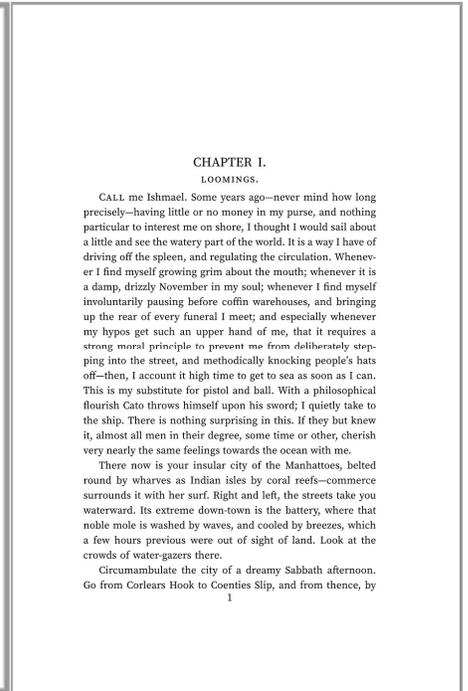
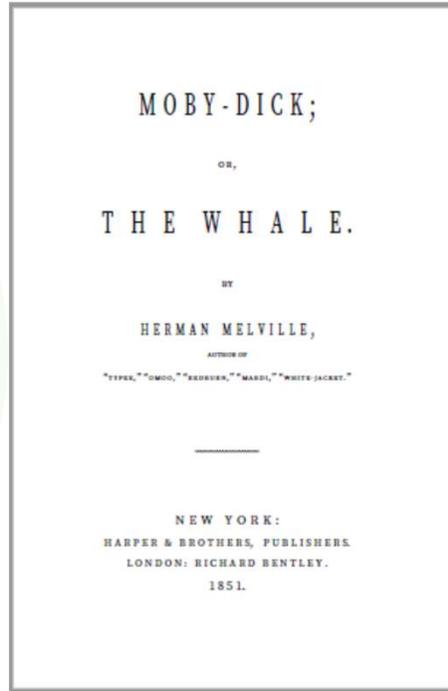
- Over 70m long, 50cm high
- Reproduced 1/7 scale
- Museum book reflects proportions



And, in a masterly piece of structure relating to function, the book opens out to show the full tapestry. The single 'page' is over 10m wide, and I had to lay it diagonally across two rooms and into a third to be able to take this photo.

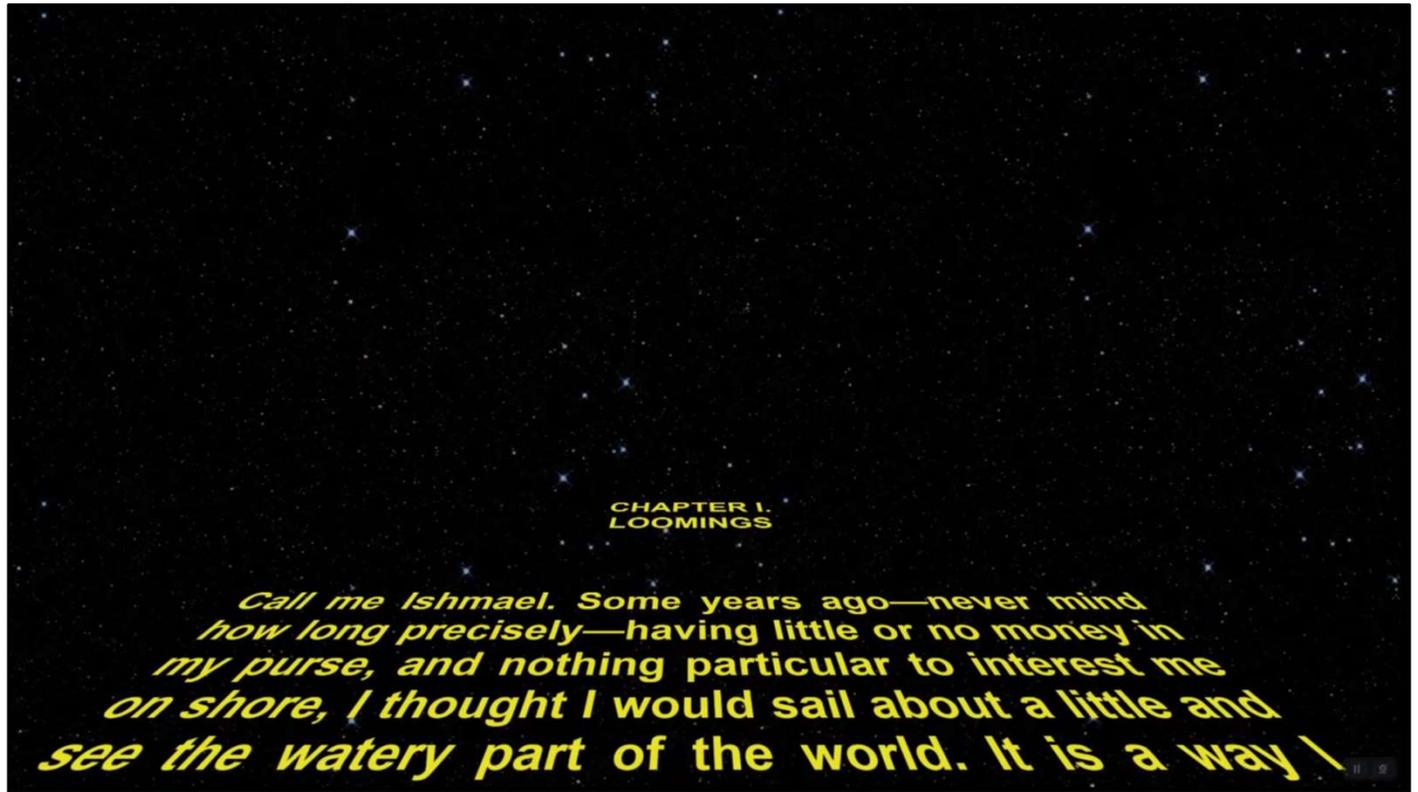
# Consider history and origin

- Layout and font aligned with text
- Or not...



It can be irritating if the typography is at odds with the history and origin of the text. You don't always have to reproduce the original or recreate the typography of the period, as I did in this pastiche of 'Moby-Dick' that I talked about here at Balisage a few years ago, but it helps to be aware of where the document came from.

That said, you don't always have to match the original...



...and there is more than one way to make a pastiche.

# Authenticity should not be irritating

*Decius.* Great Cæsar.  
*Cæs.* Doth not Brutus bootlesse kneele?  
*Casca.* Speake hands for me.  
*They stab Cæsar.*  
*Cæs.* Et Tu Brute?—Then fall Cæsar. *Dies*  
*Cin.* Liberty, Freedome; Tyranny is dead,  
 Run hence, proclaime, cry it about the Streets.



## Et Tu Brute?

## ET TU BRUTE?

1908

*Dec.* Great Cæsar,—  
*Cæs.* Doth not Brutus bootless kneel?  
*Casca.* Speak, hands, for me!  
 [*Casca first, then the other Conspirators and Marcus Brutus stab Cæsar.*]  
*Cæs.* Et tu, Brute? Then fall, Cæsar! [*Dies.*]  
*Cin.* Liberty! freedom! Tyranny is dead!  
 Run hence, proclaim, cry it about the streets.

2024

DECIUS, <sup>「kneeling」</sup>  
 Great Caesar—  
 CAESAR Doth not Brutus bootless kneel?  
 CASCA Speak, hands, for me!  
<sup>「As Casca strikes, the others rise up and」</sup> stab Caesar.  
 CAESAR Et tu, Brute?—Then fall, Caesar. 85  
<sup>「He」</sup> dies.  
 CINNA  
 Liberty! Freedom! Tyranny is dead!  
 Run hence, proclaim, cry it about the streets.

Of course, there is also such a thing as too much authenticity. If you were formatting Shakespeare's 'Julius Caesar', making it look like the First Folio text would irritate your readers (unless you were aiming for a facsimile or pastiche, that is). If you went full-Roman for some reason and made it look like a Roman inscription, it would be even more irritating. Sometimes, yes, you do just want a legible font that doesn't detract or distract from the words themselves, although what counts as legible or accessible text has varied over time.

# Headers and footers **SHOULD NOT BE IRRITATING!**

- Navigation aid
  - Document
  - Position within document
- Easier in XSL-FO than CSS
  - CSS: complete running element
  - XSL-FO: markers for parts

## *PRINTING SHOULD BE INVISIBLE*

*By Beatrice L. Wardle*

Imagine that you have before you a flagon of wine. You may choose your own favorite vintage for this imaginary demonstration, so that it be a deep shimmering crimson in color. You have two goblets before you. One is of solid gold, wrought in the most exquisite patterns. The other is of crystal-clear glass, thin as a bubble, and as transparent. Pour and drink; and according to your choice of goblet, I shall know whether or not you are a connoisseur of wine. For if you have no feelings about wine one way or the other, you will want the sensation of drinking the stuff out of a vessel that may have cost ten thousand dollars; but if you are a member of that vanishing tribe, the amateurs of fine vintages, you will choose the crystal, because everything about it is calculated to *reveal* rather than to hide the beautiful thing which it was meant to *contain*.

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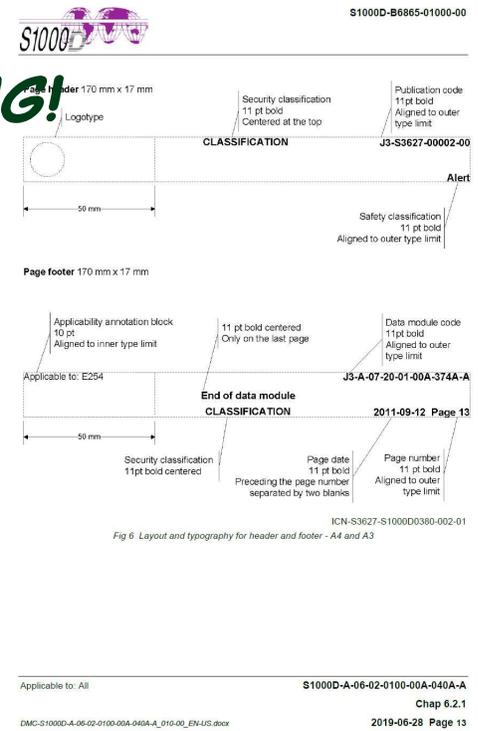
3

Headers and footers are usually used as a navigation aid to identify the document and your position in the document.

Like so many other things, structure relates to function. For example, what you want or need to put in the headers and footers for 'Printing Should Be Invisible' is very different...

# Headers and footers **SHOULD NOT BE IRRITATING!**

- Navigation aid
  - Document
  - Position within document
- Easier in XSL-FO than CSS
  - CSS: complete running element
  - XSL-FO: markers for parts

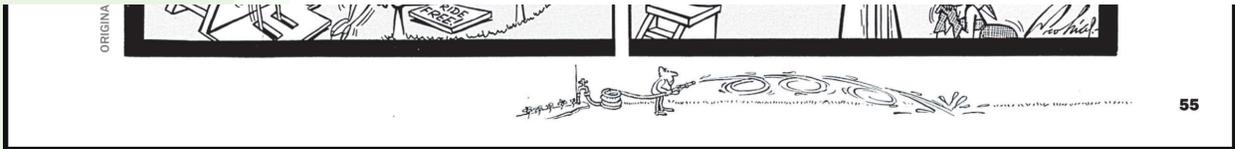
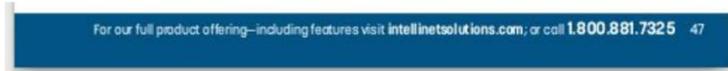


...what you need for an S1000D manual. Putting an S1000D footer in a copy of 'Printing Should Be Invisible' would be overkill, and putting the barely-visible 'Printing Should Be Invisible' page number footer in an S1000D manual would be inadequate.

Populating the headers and footers can be easier in XSL-FO than in CSS: for a complex header or footer in CSS, you need to put copies of the full header or footer as running elements in the body of the document, whereas in XSL-FO, you can often put the bulk of the header or footer in an fo:static-content and pull in arbitrary changeable parts using markers.

# Headers and footers

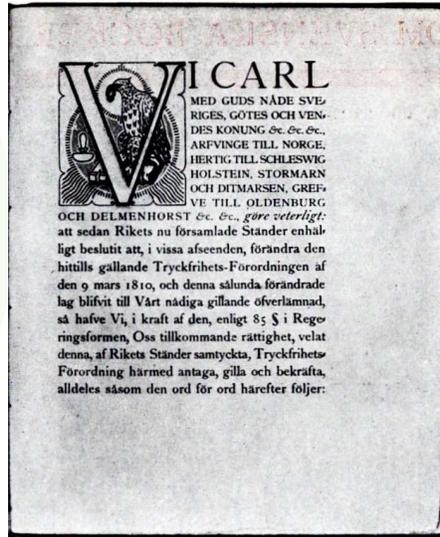
- Decoration
- Boilerplate
- Entertainment!



Headers and footers can be irritating, or they can literally fade into the background.

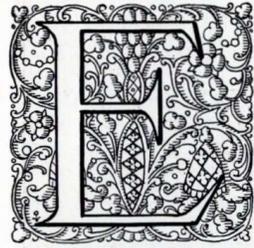
They can be used for decoration, for boilerplate text, or even for entertainment, such as in the Marginals by Sergio Aragones.

# Initial letters



We need to talk about initial letters....

# Initial letters



TT ÖVERBLICK  
kande av svunna tids  
ders svenska tryck  
alster skall givetvis  
kunna ge en bild av  
svensk bokkonst,  
sådan den gestaltat  
sig under olika tids  
der, och ge en bild  
av den *stil*, som på detta område varit rådande  
under olika perioder. I svenska tryck finnes  
visserligen ingenting, som påtagligt kan sägas

på trycken, men också olikartat genomförande  
av typerna i användningen, såsom samman  
ställning av olikartade typsnitt eller enhetligt  
genomförande av ett och samma typsnitt, ger  
olikartad och ofta säregen karaktär åt trycken.

Under 1400-talet var svensk bokkonst  
i alla sina uttryck – överförd som den var  
från Tyskland – alltigenom *götisk* såväl vad  
typens form och dess användning som vad de  
korationer och illustrationer beträffar. Illustrat  
tionen var, som i allmänhet i tysk inkunabels



They are anything but invisible, yet we seldom find them irritating.

# Blame Gutenberg?



Can we blame Gutenberg for this blind spot over initial letters? Illuminated letters, such as this 'I' from the beginning of Genesis in a 13th century Bible, were a feature of medieval manuscripts. Are initial letters grandfathered in because Gutenberg used them?

Gutenberg knew his market, so he left spaces for illuminated letters to be added by hand. A bit like buying accessories for your new car, it is presumed that the differing levels of decoration in different Bibles depended on what each customer could or would pay. Some copies were never decorated, though, like cars, there might even have been an aftermarket for decorations, as some of the bibles printed in Germany were decorated as far away as London.

# Initial letter styles

Raised initial letter

**L**orem ipsum dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus.

Change indent only for first line

**L**orem ipsum dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus. In aliquam sem quis suscipit iaculis. In vitae nibh volutpat, blandit mi at, cursus ipsum.

Language-specific letter selection

**IJ**zel zorgt voor zeer gevaarlijke omstandigheden op de weg. IJzel zorgt voor zeer gevaarlijke omstandigheden op de weg.  
**B**lack ice creates very dangerous conditions on the road. Black ice creates very dangerous conditions on the road.

Combination with small-capitals

**L**OREM IPSUM dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus. In aliquam sem quis suscipit iaculis. In vitae nibh volutpat, blandit mi at, cursus ipsum.

Individual color

**Z**orem ipsum dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus.

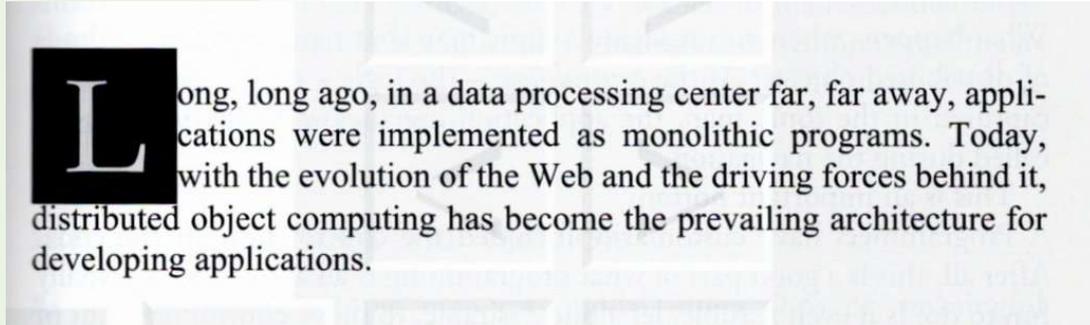
Partially raised

**g**azing on that which seems to dim thy sight? What seest thou there? King Henry's diadem, encased with all the honour of the world? If so, gaze on, and grovel on thy face, until thy head be curled with the same.

Company  
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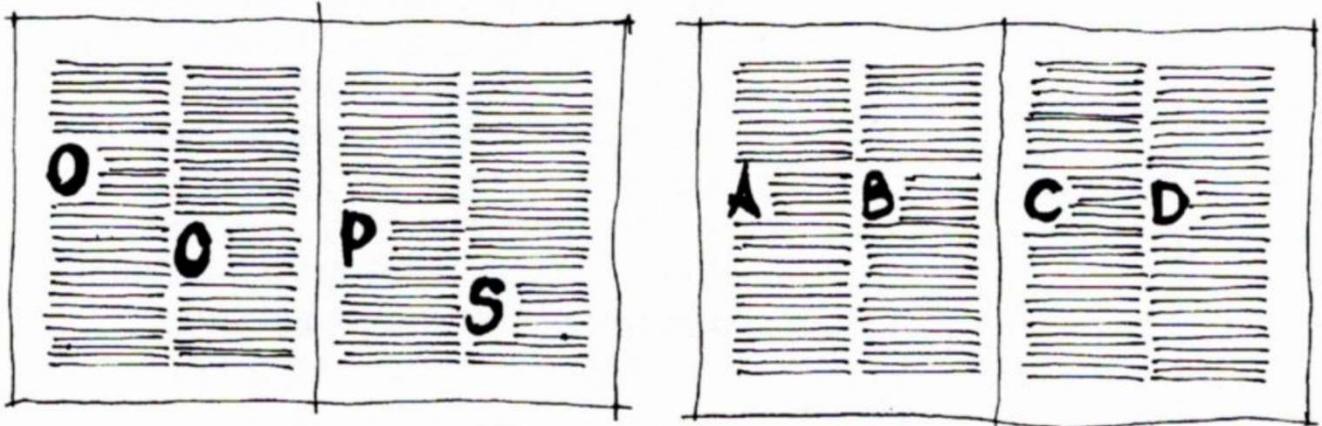
There are many different ways to style initial letters.

# Initial letters can be irritating



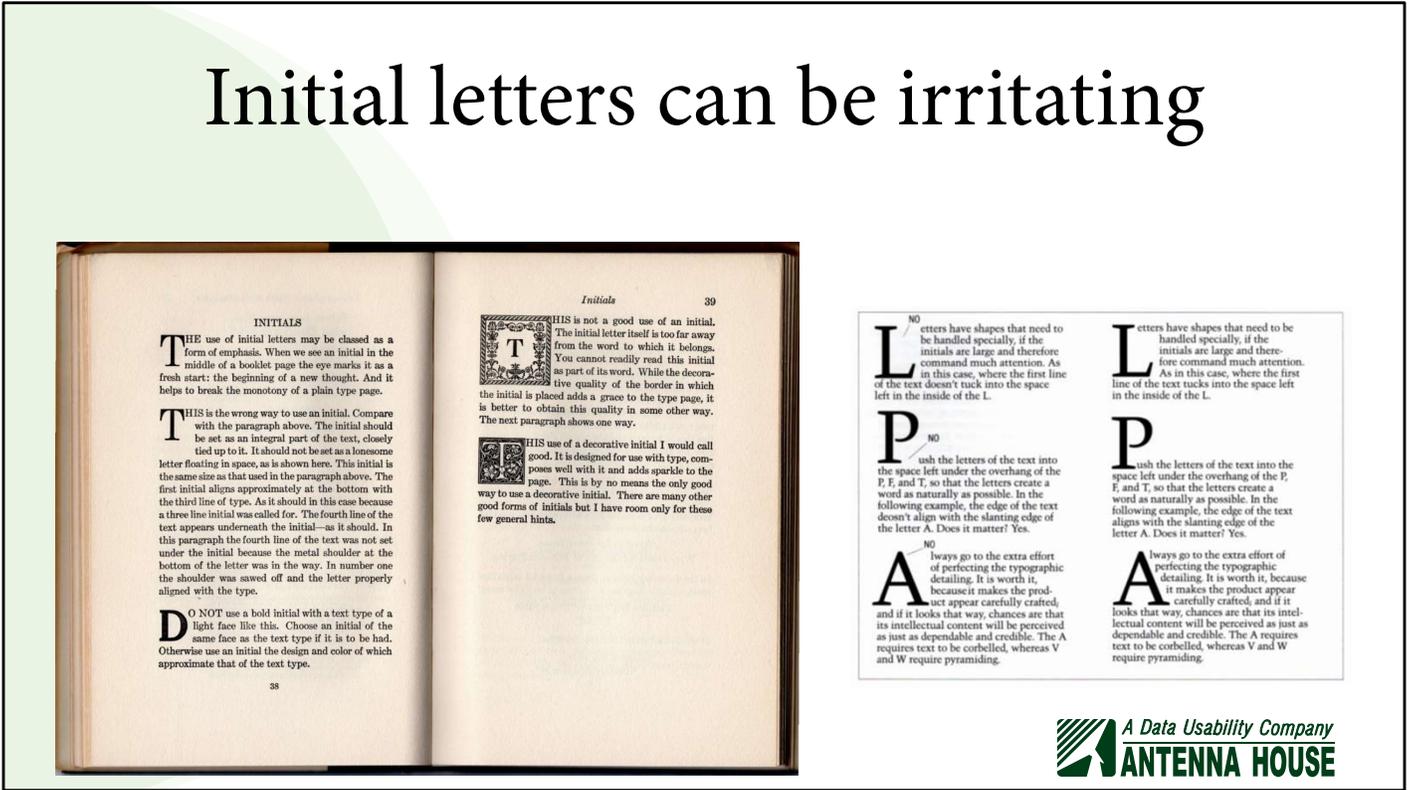
Initial letters can still be irritating, such as: when they are formatted badly...

# Initial letters can be irritating



...when they accidentally spell a word or line up across the page

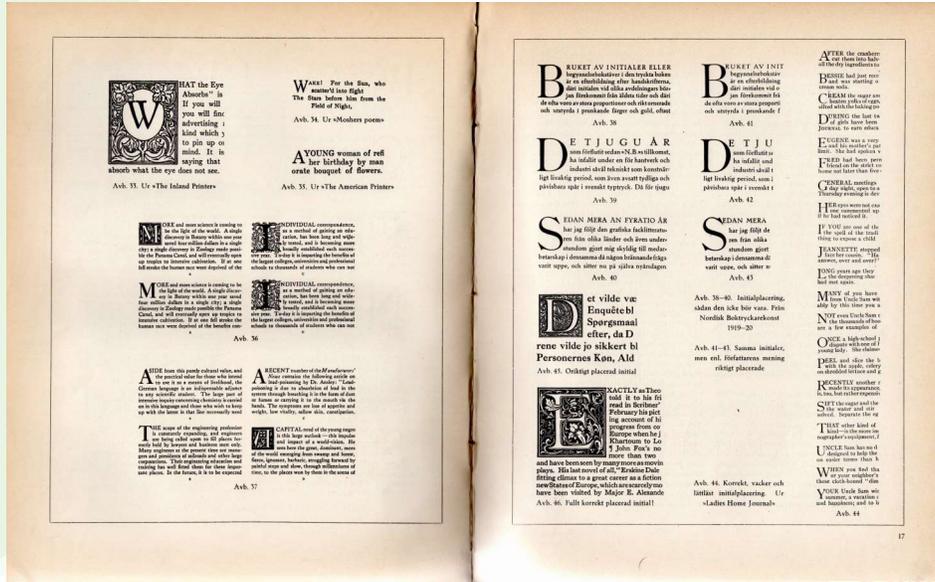
# Initial letters can be irritating



...or when there's too many on one page.

Typography books show ways to use initial letters well and badly.

# Initial letters can be irritating



Usability Company  
ENNA HOUSE

This last example is from a Norwegian typography journal from 1920: I bought it hoping to find a Nordic approach to doing initial letters, but the examples down the righthand side are all from the American "Ladies Home Journal" of 1919, and the 'B', 'D', and 'S' examples seem to be the current author disagreeing with how initial letters were done in a previous journal edition, something that he found irritating.

# Show-through

- *Not* invisible
- Definitely irritating
- Use a baseline grid

## Introduction to CSS for Paged Media

Using CSS in paged media design for XML and HTML is not yet common but its use is expected to increase as the development of CSS 3 progresses. This document aims to make CSS for Paged Media easy to understand.

## Introduction to CSS for Paged Media

Using CSS in paged media design for XML and HTML is not yet common but its use is expected to increase as the development of CSS 3 progresses. This document aims to make CSS for Paged Media easy to understand.

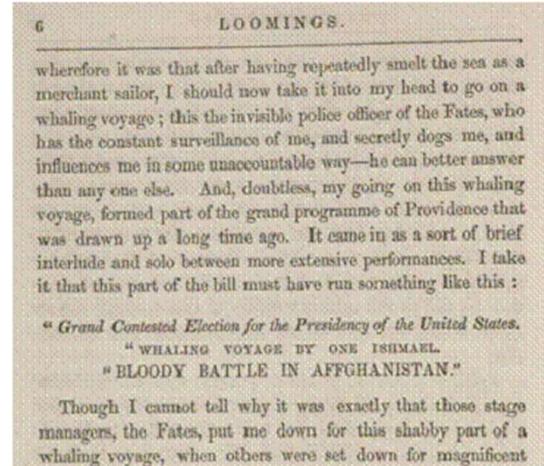


Show-through of the text on the other side of a sheet of paper is an aspect of printing that should be invisible. When it isn't is when it becomes irritating.

Show-through can obviously be avoided by using a thicker or more opaque paper, but when that is not an option, one way of reducing show-through is to use a baseline grid so that the text on this side of the page obscures the show-through text.

## Baseline grid

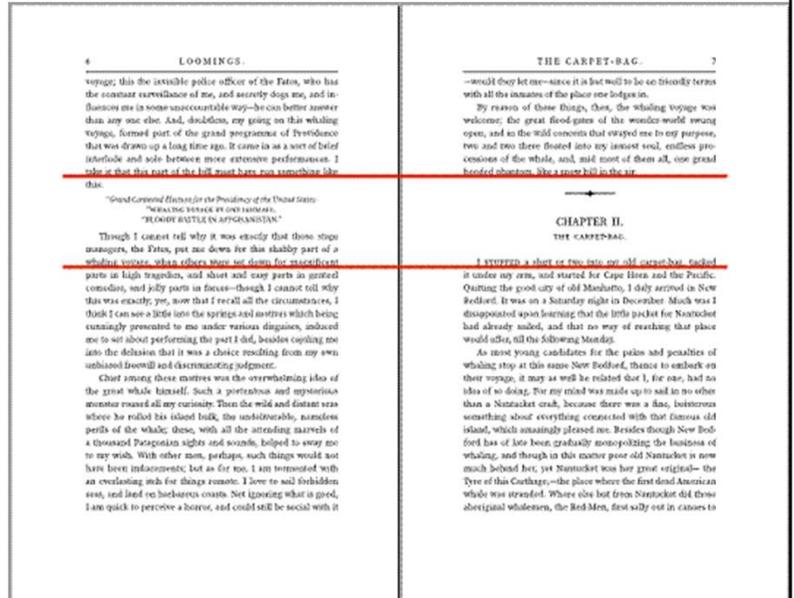
- “Show-through” reduces legibility
- Align lines on front and back
- Resume after irregular lines, titles, etc.



Keeping lines aligned front-and-back is straightforward when all of the text is the same font size and has the same line height. It becomes harder when the text includes titles, etc., that have different font sizes, line heights, and space before and after. It is often possible to style a title such that the space before the title, the line height of the title, and the space after the title add up to a multiple of the base line height. However, this will fail if some titles extend over two lines and the line height of the title is not a multiple of the base line height.

# axf:baseline-grid

- Set common grid
- Blocks can set own grid or no grid at all



Using axf:baseline-grid, you can set a common grid for all text, and individual blocks can set their own grid or set no grid at all.

In these pages from 'Moby-Dick', lines in the paragraphs at the tops of the pages are aligned to the root baseline grid. The quotes and the chapter opener both set their own grids, then the following paragraphs resume on the root baseline grid.

# Common and specific grids

## fo:page-sequence

```
<xsl:template match="body">  
  <fo:page-sequence  
    master-reference="PageMaster"  
    initial-page-number="1"  
    axf:baseline-grid="root">  
    <xsl:call-template  
      name="static-content" />  
    <fo:flow  
      flow-name="xsl-region-body"  
      hyphenate="true"  
      text-align="justify">  
      <xsl:apply-templates />  
    </fo:flow>  
  </fo:page-sequence>  
</xsl:template>
```

## fo:block

```
<xsl:template match="body//q">  
  <fo:block  
    text-align="center"  
    text-indent="0"  
    space-before="0.251h"  
    font-size="7pt"  
    line-height="9pt"  
    axf:baseline-block-snap=  
      "before margin-box"  
    axf:baseline-grid="new">  
    <xsl:apply-templates />  
  </fo:block>  
</xsl:template>
```



The 'body' template on the left generates an fo:page-sequence, where 'axf:baseline-grid="root"' specifies to use the root baseline grid established on the fo:root.

The 'body//q' template on the right generates an fo:block, where 'axf:baseline-grid="new"' specifies to use a separate baseline grid for the fo:block based on the font size and line height of the block.

# Single and multiple columns

Normal <fo:block-container>

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Long lines of text can be irritating because they are hard to read. RNIB recommends between 60 and 70 characters, including spaces, per line.

# Single and multiple columns

Three-column segment with a 8pt-column-gap using `axf:column-count="3"`, `axf:column-gap="8pt"`

Lorem ipsum dolor sit amet, con- sectetur adipiscing elit. Aliquam bibendum tincidunt pharetra. Ae- nean ultricies molestie ante, sit amet ultricies nunc mollis id. Inte- ger ut porttitor felis, vel tincidunt velit. Duis volutpat, quam quis ali- quet tristique, nulla dui malesuada velit, et consectetur tellus ipsum et arcu. Ut tincidunt lorem erat, at el-	ementum nibh varius consectetur. Sed viverra metus quis nibh pulvi- nar, at dignissim nibh adipiscing. Duis sit amet ipsum non elit tinci- dunt sagittis ac non tortor. Mauris commodo, elit a imperdiet inter- dum, nulla velit viverra elit, at sce- lerisque urna est eget lacus. Integer eu lobortis neque. Donec malesua-	da sed arcu vitae fringilla. Quisque imperdiet tortor iaculis, pulvinar neque sit amet, aliquet massa. Sed sed auctor purus. Vivamus nec tur- pis elementum, iaculis lorem in, pellentesque metus. Ut blandit tor- tor mi, ac bibendum felis varius vitae.
--	--	---



Using multiple columns obviously reduces the line length...

# Single and multiple columns

Three-column segment with column rules using `axf:column-rule-style="solid"`, `axf:column-rule-width="1.5pt"`, `axf:column-rule-color="#AAAAFF"`, `axf:column-rule-length="100%"` and `axf:column-rule-align="center"`.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam bibendum tincidunt pharetra. Aenean ultricies molestie ante, sit amet ultricies nunc mollis id. Integer ut porttitor felis, vel tincidunt velit. Duis volutpat, quam quis aliquet tristique, nulla dui malesuada	velit, et consectetur tellus ipsum et arcu. Ut tincidunt lorem erat, at elementum nibh varius consectetur. Duis sit amet ipsum non elit tincidunt sagittis ac non tortor. Mauris commodo, elit a imperdiet interdum, nulla velit viverra elit, at	scelerisque urna est eget lacus. Integer eu lobortis neque. Donec malesuada sed arcu vitae fringilla. Quisque imperdiet tortor iaculis, pulvinar neque sit amet, aliquet massa. Sed sed auctor purus. Vivamus nec turpis elementum, iaculis lorem in, pellentesque metus.
---	---	---



...but, as we know, making narrow columns of justified text is more likely to create rivers.

# Single and multiple columns

Three-column segment with column rules using `axf:column-rule-style="solid"`, `axf:column-rule-width="1.5pt"`, `axf:column-rule-color="#AAAAFF"`, `axf:column-rule-length="100%"` and `axf:column-rule-align="center"`.

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velit, et consectetur tellus ipsum et arcu. Ut tincidunt lorem erat, at elementum nibh varius consectetur.

Duis sit amet ipsum non elit tincidunt sagittis ac non tortor. Mauris commodo, elit a imperdiet interdum, nulla velit viverra elit, at

scelerisque urna est eget lacus. Integer eu lobortis neque. Donec malesuada sed arcu vitae fringilla. Quisque imperdiet tortor iaculis, pulvinar neque sit amet, aliquet massa. Sed sed auctor purus. Vivamus nec turpis elementum, iaculis lorem in, pellentesque metus.

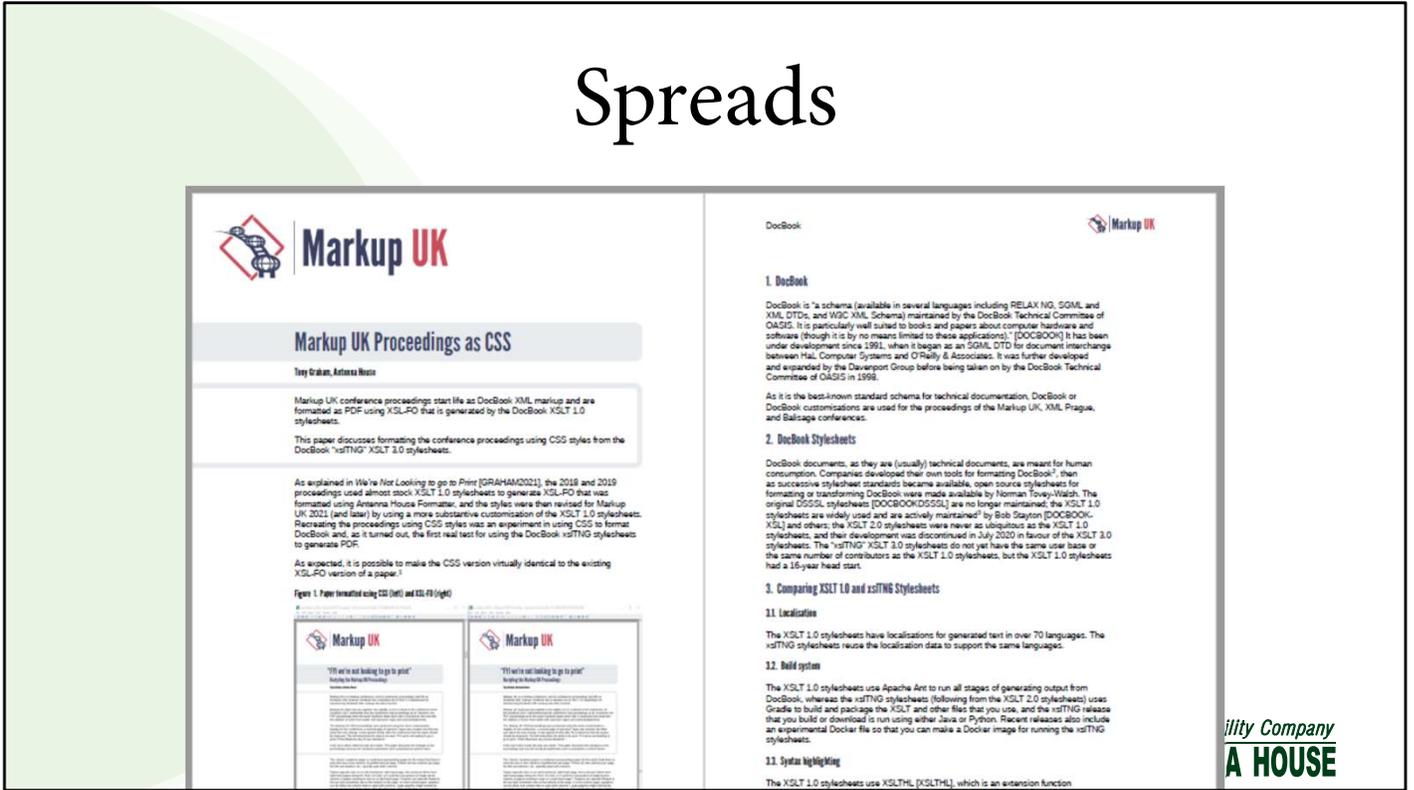


Both RNIB and the British Dyslexia Association recommend left-justified text, and RNIB also recommends column rules between columns.



Two facing pages are referred to as a spread. Ideally, spreads can be used to make documents interesting rather than irritating.

# Spreads



It can be useful, and can reduce irritation, to work with two facing pages as a whole, even when you are not going to print.

The Markup UK proceedings are meant for online viewing. Each paper starts on a lefthand page, and the PDF opens to show two pages at a time, so that the proceedings work well with today's wide monitors.

# Spreads

## Spanning across gutter

The table can span from one page to the other across the gutter. If the document will be printed, `'axf:bleed'` should be used to minimize possible problems from misregistration when printing.

Parameter	Default	Functions
-s		If <b>Antenna House Formatter V7.1</b> has already been invoked, the formatting will be executed with the already running <b>Antenna House Formatter V7.1</b> . If this parameter is not specified, another <b>Antenna House Formatter V7.1</b> will run.
-d Document		Specifies the URI of the source XML/FO/HTML document. The GUI window is displayed.
-t Stylesheet		Specifies the URI of the XSL/CSS stylesheet that is used for formatting. Must be used in combination with the -d, -p or -pt parameter.
-i Option-Setting-File		Specifies the path of "Option Setting File" which defines <b>Antenna House Formatter V7.1</b> options in XML format. Any number of these parameters can be specified. If any content of this file is specified later, it will overwrite the previous contents. The default AHFSsettings.xml is always read before this parameter.
-p Document		<b>Antenna House Formatter V7.1</b> prints the document by displaying the Print Dialog without also displaying the GUI window. Cannot be used in combination with the -s parameter.
-pt Document Printer-Name		<b>Antenna House Formatter V7.1</b> prints the document without displaying either the GUI screen or the Print Dialog. If Printer-Name is omitted, the default printer is used. Cannot be used in combination with the -s parameter.
-pts Document Printer-Name		Same as the -pt parameter, but prints the document without displaying the stop dialog box while printing. If Printer-Name is omitted, the default printer is used. Cannot be used in combination with the -s parameter.
-ps Printer-Setting-File		Specifies the path name of the Printer Setting file. See "How to create a Printer Setting file". When the XML document is specified by -d, please print the document by displaying the Print Dialog.

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By treating two pages as one, this spread has a table that extends across the gutter between the two pages to maximize the text on the page.

# Spreads

## Empty cell across gutter

Every <fo-table-row> contains an empty <fo-table-cell> that is the width of the gutter so that the visible parts of the table match the margins of an

Parameter	Default
-s	
-d Document	
-t Stylesheet	
-i Option-Setting-File	
-p Document	
-pt Document Printer-Name	

ordinary page.

## Functions

If **Antenna House Formatter V7.1** has already been invoked, the formatting will be executed with the already running **Antenna House Formatter V7.1**. If this parameter is not specified, another **Antenna House Formatter V7.1** will run.

Specifies the URI of the source XML/FO/HTML document. The GUI window is displayed.

Specifies the URI of the XSL/CSS stylesheet that is used for formatting. Must be used in combination with the -d, -p or -pt parameter.

Specifies the path of "Option Setting File" which defines **Antenna House Formatter V7.1** options in XML format. Any number of these parameters can be specified. If any content of this file is specified later, it will overwrite the previous contents. The default AHFSettings.xml is always read before this parameter.

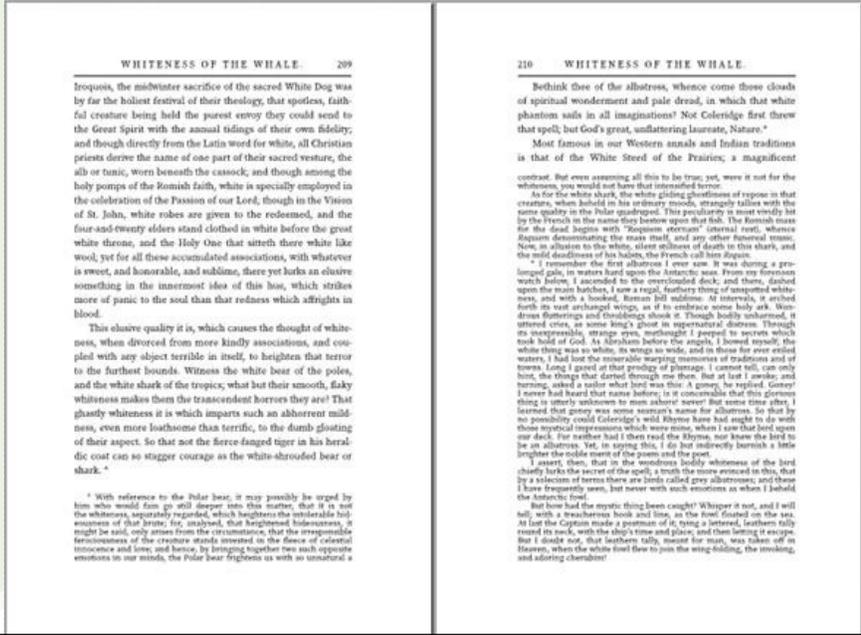
**Antenna House Formatter V7.1** prints the document by displaying the Print Dialog without also displaying the GUI window. Cannot be used in combination with the -s parameter.

**Antenna House Formatter V7.1** prints the document without displaying either the GUI screen or the Print Dialog. If Printer-Name is omitted, the default printer is

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If extending the text across the gutter is irritating, it's also possible to make the table with a column of empty cells.

# Whale-size footnotes



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Footnotes can be irritating: Noel Coward famously said, "Having to read footnotes resembles having to go downstairs to answer the door while in the midst of making love."

One thing that can be hard to handle is whale-size footnotes don't fit in the space available on the current page, such as in 'Moby-Dick'.

# Whale-size footnotes

WHITENESS OF THE WHALE 209

Iroquois, the midwinter sacrifice of the sacred White Dog was by far the holiest festival of their theology, that spotless, faithful creature being held the purest enjoy they could send to the Great Spirit with the annual tidings of their own fidelity; and though directly from the Latin word for white, all Christian priests derive the name of one part of their sacred vesture, the alb or tunic, worn beneath the cassock; and though among the holy pomps of the Romish faith, white is specially employed in the celebration of the Passion of our Lord, though in the Vision of St. John, white robes are given to the redeemed, and the four-and-twenty elders stand clothed in white before the great white throne, and the Holy One that sitteth there white like wool, yet for all these accumulated associations, with whatever is sweet, and honorable, and sublime, there yet lurks an elusive something in the innermost idea of this hue, which strikes more of panic to the soul than that redness which affrights in blood.

This elusive quality it is, which causes the thought of whiteness, when divorced from more kindly associations, and coupled with any object terrible in itself, to brighten that terror to the furthest bounds. Witness the white bear of the poles, and the white shark of the tropics, what but their smooth, flaky whiteness makes them the transcendent horrors they are? That ghastly whiteness it is which imparts such an abhorrent mildness, even more loathsome than terrific, to the dumb glowering of their aspect. So that not the fierce-fanged tiger in his heraldic coat can so stagger courage as the white-shrouded bear or shark.\*

\* With reference to the Polar bear, it may possibly be urged by him who would fan go still deeper into this matter, that it is not the whiteness, separately regarded, which heightens the indelible holocausts of that brute; for, unluckily, that brightened holocausts, it might be said, only arises from the circumstance, that the irresponsive ferocity of the creature stands invested in the fleece of celestial innocence and love, and hence, by bringing together two such opposite emotions in our minds, the Polar bear frightens us with an unnatural a

210 WHITENESS OF THE WHALE

Bethink thee of the albatross, whence come those clouds of spiritual woefulness and pale dread, in which that white phantom sails in all imaginations? Not Coleridge first threw that spell; but God's great, unflattering laureate, Nature.\*

Most famous in our Western annals and Indian traditions is that of the White Steed of the Prairies; a magnificent

contrast. But even assuming all this to be true, yet, were it not for the whiteness, you would not have that interested terror.

As for the white shark, the white gliding glidingness of repose in that creature, when beheld in his ordinary moods, strangely tallies with the same quality in the Polar quadruped. This peculiarity is most vividly hit by the French in the name they bestow upon that fish. The Romish mass for the dead begins with "Requiem eternam" eternal rest, whence Requiem denoting the mass itself, and any other funeral music; Nam, in allusion to the white, silent stillness of death in this shark, and the mild docility of his habits, the French call him Requiem.

\* I remember the first albatross I ever saw. It was during a gale, in waters hard upon the Antarctic sea. From my forenoon watch below, I ascended to the greenlanded deck, and there, dashed upon the main hatchway, I saw a regal, stately thing of unspotted whiteness, and with a hooked, Roman jill neckline. At intervals, it arched forth its vast outspread wings, as if to embrace some holy ark. Shuddering flutterings and thrummings shook it. Though bodily unharmed, it uttered cries, as some king's ghost in imperatorial diadem. Through its unexpressible, strange eyes, methought I peeped to secrets which took hold of God. As Abraham before the angels, I bowed myself; the white thing was so white, its wings so wide, and in those far ever exiled waters, I had lost the memorable markings of traditions and old towns. Long I gazed at that prodigy of plumage. I cannot tell, can only hint, the things that darted through me then. But at last I awoke, and turning, asked a sailor what bird was that. A gony, he replied. Gony? I never had heard that name before; is it conceivable that this glorious thing is utterly unknown to man aboves? never! But some time after, I learned that gony was some seaman's name for albatross. So that by no possibility could Coleridge's word, Rhynchoceros, have had ought to do with those mystical impressions which were mine, when I saw that bird upon our deck. For neither had I then read the rhyme, nor have the bird to be an albatross. Yet, in saying this, I do but indirectly berate a little brighter the middle merit of the poem and the poet.

I assert, then, that in the woodiness bodily whiteness of the bird, chiefly links the secret of the spell, a truth the more avowed in this, that by a selection of names there are birds called grey albatrosses, and these I have frequently seen, but never with such emotions as when I beheld the Antarctic bird.

But how had the mystic thing been caught? Whizzer it not, and I will tell, with a meachesterous hook and line, as the food floated on the sea. At last the Captain made a portman of it, tying a leather, leathern tally round its neck, with the ship's name and place, and then letting it escape. But I doubt not, that leathern tally, meant for man, was taken off in Hissou, when the white bird flew to join the wing-killing, the smoking, and adoring cherishes?



Happily, Antenna House Formatter can continue footnotes on the following page and also has a property for limiting how much of the page can be used by footnotes.

# Duplicate footnotes on same page

THE ADVOCATE. 122

old English statutory law, the whale is declared "a royal fish."

Oh, that's only nominal! The whale himself has never figured in any grand imposing way.

The whale never figured in any grand imposing way? In one of the mighty triumphs given to a Roman general upon his entering the world's capital, the bones of a whale, brought all the way from the Syrian coast, were the most conspicuous object in the symbolical procession.

Grant it, since you cite it; but, say what you will, there is no real dignity in whaling.

No dignity in whaling? The dignity of our calling the very luxurious attend. Certain is a contribution to the South! No more! Drive down your hat in presence of the Carr, and take it off to Quosquog! No more! I know a man that, in his lifetime, has taken three hundred and fifty whales. I account that man more honorable than that great captain of antiquity who boasted of taking so many walled towns.

And, as for me, if by any possibility, there be any yet unincorporated prime thing in me; if I shall ever deserve any real repute in that small but high looked world which I might not be unreasonably ambitious of; if hereafter I shall do anything that, upon the whole, a man might rather have done than to have left undone; if, at my death, my executors, or more properly my creditors, find any prodigious MSS. in my desk, than here I prospectively scribble all the honor and the glory to whaling; for a whaliship was my Yale College and my Harvard.

\* See subsequent chapters for something more on this head.

THE ADVOCATE. 122

The whale has no famous author, and whaling no famous chronicler, you will say.

The whale no famous author, and whaling no famous chronicler? Who wrote the first account of our Leviathan? Who but mighty Job? And who composed the first narrative of a whaling voyage? Who, but no less a prince than Alfred the Great, who, with his own royal pen, took down the words from Otho, the Norwegian whale-hunter of those times? And who pronounced our glowing eulogy in Parliament? Who, but Edmund Burke?

True enough, but then whalers themselves are poor devils; they have no good blood in their veins.

No good blood in their veins? They have something better than royal blood there. The grandmother of Benjamin Franklin was Mary Morrel; afterwards, by marriage, Mary Folger, one of the old settlers of Nantucket, and the ancestress to a long line of Folgers and barpooneers—all kin and kin to noble Benjamin—this day during the horrid iron from one side of the world to the other.

Good again; but then all confess that somehow whaling is not respectable.

Whaling not respectable? Whaling is imperial! By old English statutory law, the whale is declared "a royal fish."

Oh, that's only nominal! The whale himself has never figured in any grand imposing way.

The whale never figured in any grand imposing way? In one of the mighty triumphs given to a Roman general upon his entering the world's capital, the bones of a whale, brought all the way from the Syrian coast, were the most conspicuous object in the symbolical procession.

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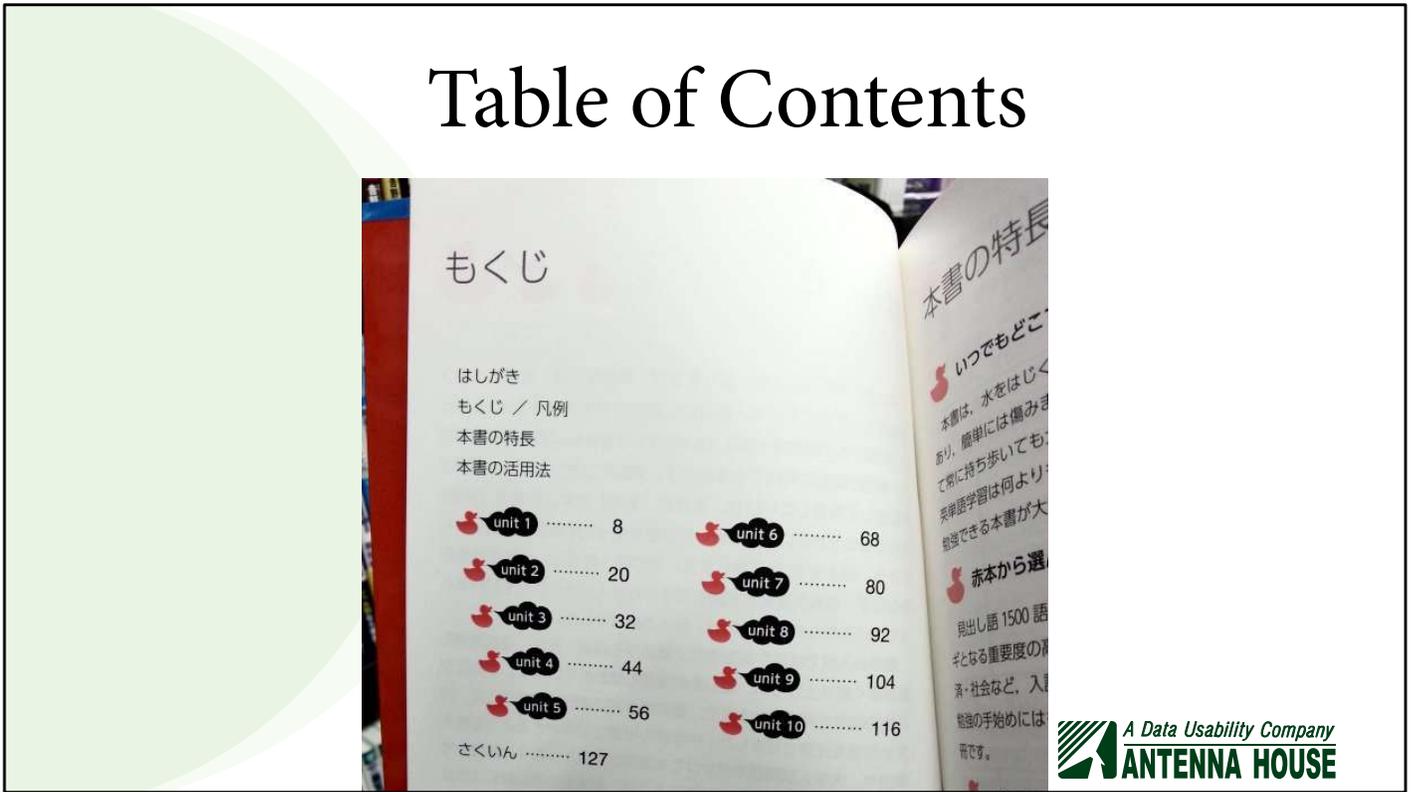
\* See subsequent chapters for something more on this head.

- XML repeats footnote text
- XSL 1.1 won't merge
- `axf:suppress-duplicate-footnote`

Another potential irritation is to repeat a footnote multiple times on the same page. 'Moby-Dick' has one page with a repeated footnote and only one copy of the footnote text, but they could do that because the pages were made up by hand.

When you have XML with two copies of the footnote text, it becomes a bit harder. XSL 1.1 has no provision for duplicate footnotes, so they won't be merged. Antenna House Formatter, however, has an `axf:suppress-duplicate-footnote` property that causes Antenna House Formatter to recognize and suppress duplicate copies of the same footnote on the same page. The result is like the 'Moby-Dick' page.

# Table of Contents

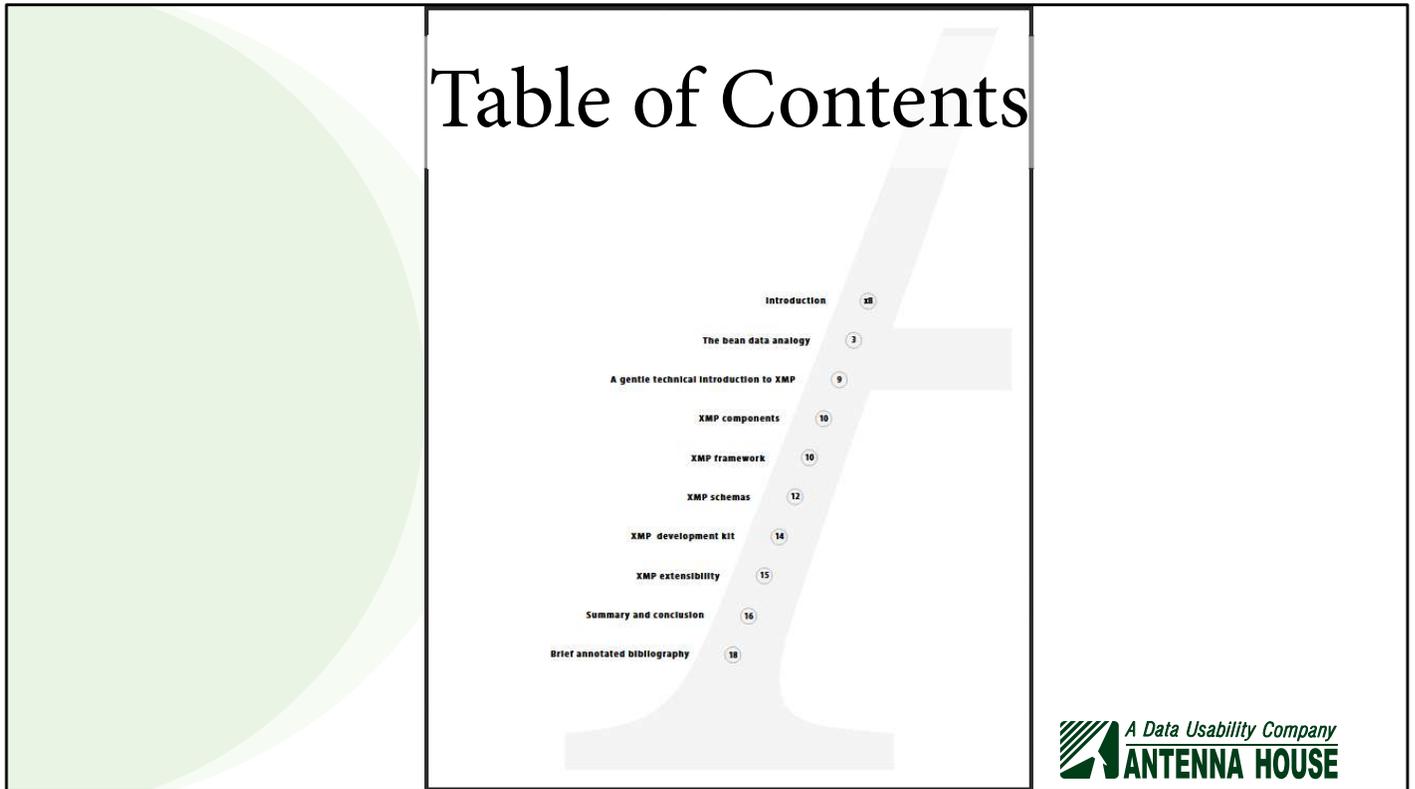


Everybody knows what a table-of contents looks like: it has ducks that move further to the right as you go down the column, with the title in a speech bubble spoken by the duck. Hardly invisible, but this is structure related to function, as this is from a children's book that I saw in a bookshop in Japan.

# Table of Contents



Maybe your tables of contents has fewer ducks but the section titles are listed vertically from right to left...



# Table of Contents

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XMP framework	10
XMP schemas	12
XMP development kit	14
XMP extensibility	15
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Brief annotated bibliography	18

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... maybe they drift to the left, with the page numbers inside a large capital letter.

# Table of Contents



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Erik Siegel.

**Working with XML inside a web browser** 14

Daniel Arthursson. Martin Nilsson.

**Markup UK Proceedings as CSS** 30

Tony Graham.

**Enhancing Markup Quality Assurance with Automated Schema Visualization** 34

Closer to home, maybe your table of contents deemphasizes the page number because the document is meant to be read in a PDF viewer where you click on the title to go to a paper.

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Utility Company  
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There's more than one way to make an index, too. Structure follows function, so some index styles seem baroque, bizarre, or even irritating, right up until you need them.

This index from a catalog of safety products does show the page numbers for where to find items, but it gives much more space to reproducing the color of the thumb-tabs for the sections containing those pages so you can quickly get to the relevant section and hone in on the page that you want.

# Indexes

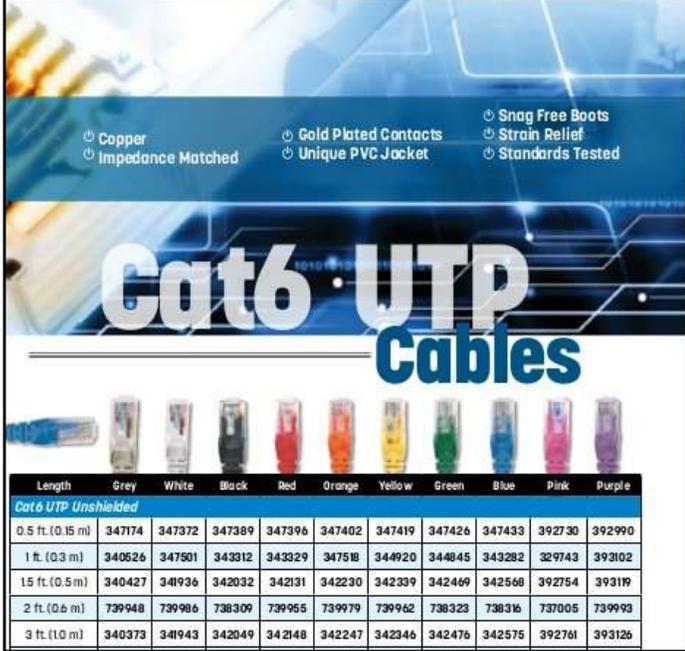


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This index from a catalog of networking products mostly lists model numbers and where to find them, but then it breaks the pattern by simply listing categories for certain cables.

# Indexes



**Cat6 UTP Cables**

- Copper
- Impedance Matched
- Gold Plated Contacts
- Unique PVC Jacket
- Snag Free Boots
- Strain Relief
- Standards Tested

Length	Grey	White	Black	Red	Orange	Yellow	Green	Blue	Pink	Purple
<b>Cat6 UTP Unshielded</b>										
0.5 ft. (0.15 m)	347174	347372	347389	347396	347402	347419	347426	347433	392730	392990
1 ft. (0.3 m)	340526	347501	343312	343329	347518	344920	344845	343282	329743	393102
1.5 ft. (0.5 m)	340427	341936	342032	342131	342230	342339	342469	342568	392754	393119
2 ft. (0.6 m)	739948	739986	738309	739955	739979	739962	738323	738316	737005	739993
3 ft. (1.0 m)	340373	341943	342049	342148	342247	342346	342476	342575	392761	393126

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162470	24	508742	21	591228	9	711050	36	720847	24	Cat6 UTP	
210591	44	508759	20	561235	5	711081	37	720861	24	Cables	38
210607	44	508766	20	561242	8	711715	34	720922	24		
210614	44	508827	11	561259	8	711777	34	721066	24	Cat6 U/UTP Slim	
210638	44	508834	11	561266	4	711845	34	721073	24	Patch Cables	39
210720	44	508919	12	561273	15	711869	34	721080	24		
210737	44	508940	4,12	561334	15	712019	34	771351	43	Cat6A S/FTP	
210775	44	508957	12	561341	9	712194	37	771986	44	Patch Cables	39
211048	26	508964	19	561365	12	712415	34,37	772280	44		
211055	26	508971	19	561389	12	712507	35	772303	44	Cat6A U/UTP Slim	
211062	27	508988	19	561402	8	712514	35	772327	44	Patch Cables	40
351898	27	508995	11	561419	7	712675	36	772334	44		
351911	27	509084	12	561426	10	712767	36	772341	44	Cat 8 S/FTP	
402439	25	509091	13	561495	5,23	712774	36	772365	44	Patch Cables	41
402446	25	509107	12,16	561518	5	713658	37	772419	42		
502344	43	509213	16	561570	5	713825	34	772426	42	Fiber Optic	
504195	43	509220	6	561600	4	713849	34	772433	42	Cables	45,46
504898	43	510493	16	561617	4	713863	34	772440	42		
505130	43	510530	18	561624	8	713887	34	772457	42		
505147	43	510547	18	561648	4,23	714389	35	772464	42		
506502	17	513555	24	561679	8	714679	36	772488	42		
506519	17	515566	27	561686	6	714877	35	772495	42		
506724	21	519526	24	561693	4	714884	35	772501	42		
507356	17	520959	24	561723	14	714891	35	772518	42		
507332	17	522533	46	561730	14	715072	35	772525	42		
507349	18	523301	14	561747	14	715102	35	772532	42		
507462	20	523318	14	561754	14	715157	37	772549	42		
507479	20	523882	20	561761	7	715171	37	772556	42		
507486	21	524179	5	561778	5	715188	37	772563	42		
507509	21	530347	14	561785	5	715218	37	772570	42		
508179	20	530378	14	561792	6	716031	30	772587	42		
508193	16	545006	20	561808	8	716048	31	772594	42		
508216	16	545013	21	561815	15	716055	31	772600	42		

When you look at those pages, you see that there's so many cables that to list each of their part numbers would both expand the index to more pages (costing more money) and make it harder to locate the non-cable part numbers amongst all of the cable part numbers in an expanded index.

# Indexes

---

ACM Symposium on Principles of Programming  
Languages, Third (Atlanta, Ga., 1976), selected  
papers ..... \*1858

ACM Symposium on Theory of Computing, Eighth  
Annual (Hershey, Pa., 1976) ..... 1879, 4813,  
5414, 6918, 6936, 6937, 6946, 6951, 6970, 7619,  
9605, 10148, 11676, 11687, 11692, 11710, 13869

Software ..... See \*1858

---

ACM Symposium  
on Principles of  
Programming  
Languages, Third  
(Atlanta, Ga., 1976),  
selected papers .... \*1858

ACM Symposium on  
Theory of Computing,  
Eighth Annual  
(Hershey, Pa., 1976)  
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6918, 6936, 6937, 6946,  
6951, 6970, 7619, 9605,  
10148, 11676, 11687,  
11692, 11710, 13869

Software ..... See \*1858

---

ACM Symposium on Principles of  
Programming Languages, Third  
(Atlanta, Ga., 1976), selected papers  
..... \*1858

ACM Symposium on Theory of  
Computing, Eighth Annual  
(Hershey, Pa., 1976) .....  
1879, 4813, 5414, 6918, 6936, 6937,  
6946, 6951, 6970, 7619, 9605, 10148,  
11676, 11687, 11692, 11710, 13869

Software ..... See \*1858

Figure 11. These three extracts from a 'Key Index' were all typeset from identical input, with respective column widths of 225 points, 175 points, and 125 points. Note the combination of ragged right and ragged left setting, and the 'dot leaders'.



These example index entries from the Knuth/Platt “Breaking Paragraphs Into Lines” paper show examples of formatting left-aligned text, leaders, and right-aligned page numbers, a combination that they describe as “the most difficult one that has so far been encountered by the authors”.

# Indexes

Short Label ..... 10, 20, 30

Short Label ... 10, 20, 30, 40, 50, 60, 70, 80, 90, 100,  
110, 120, 130, 140, 150

Very Looong Label ...  
..... 10, 20, 30

Very Looong Label ...  
..... 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120,  
130, 140, 150

Very Very Very Looong  
Long Long Label ..... 10, 20, 30

Very Very Very Looong  
Long Long Label .... 10, 20, 30, 40, 50, 60, 70, 80, 90,  
100, 110, 120, 130, 140, 150

```
<fo:block text-align="justify" text-align-last="right" axf:text-align-first="justify"
  axf:leader-expansion="force">
  Label
  <fo:leader leader-length.minimum="0pt" leader-pattern="dots"/><fo:leader leader-pattern="dots"/>
  Pages
</fo:block>
```



It isn't necessarily easy, but it's not that hard, either, if you are using XSL-FO, and even easier if you are using Antenna House Formatter.

# FOs and properties for indexes

## Index keys

- `fo:index-range-begin`
- `fo:index-range-end`
- `index-key`
- `index-class`

## Building the index

- `fo:index-page-citation-list`
- `merge-sequential-page-numbers`
- `fo:index-key-reference`



XSL 1.1 provides multiple formatting objects for marking up index keys appearing in the body of your document, as well as other Fos and properties for collating and merging multiple index keys for the same term.

# Merging page references in CSS

- Refer to IDs on pages  
1, 3, 4, 4, 5, 6, 8, 8, 9

```
<p class="index-page-citation-list">  
<span class="index-item" href="#id1"/>,  
<span class="index-item" href="#id2"/>,  
<span class="index-item" href="#id3"/>,  
<span class="index-item" href="#id4"/>,  
<span class="index-item" href="#id5"/>,  
<span class="index-item" href="#id6"/>,  
<span class="index-item" href="#id7"/>,  
<span class="index-item" href="#id8"/>,  
<span class="index-item" href="#id9"/>  
</p>
```

- ```
span.index-item {  
  content: target-counter(attr(href), page);  
}
```

1, 3, 4, 4, 5, 6, 8, 8, 9

- ```
p.index-page-citation-list {  
  -ah-merge-sequential-page-numbers: merge;  
}  
span.index-item {  
  content: target-counter(attr(href), page);  
}
```

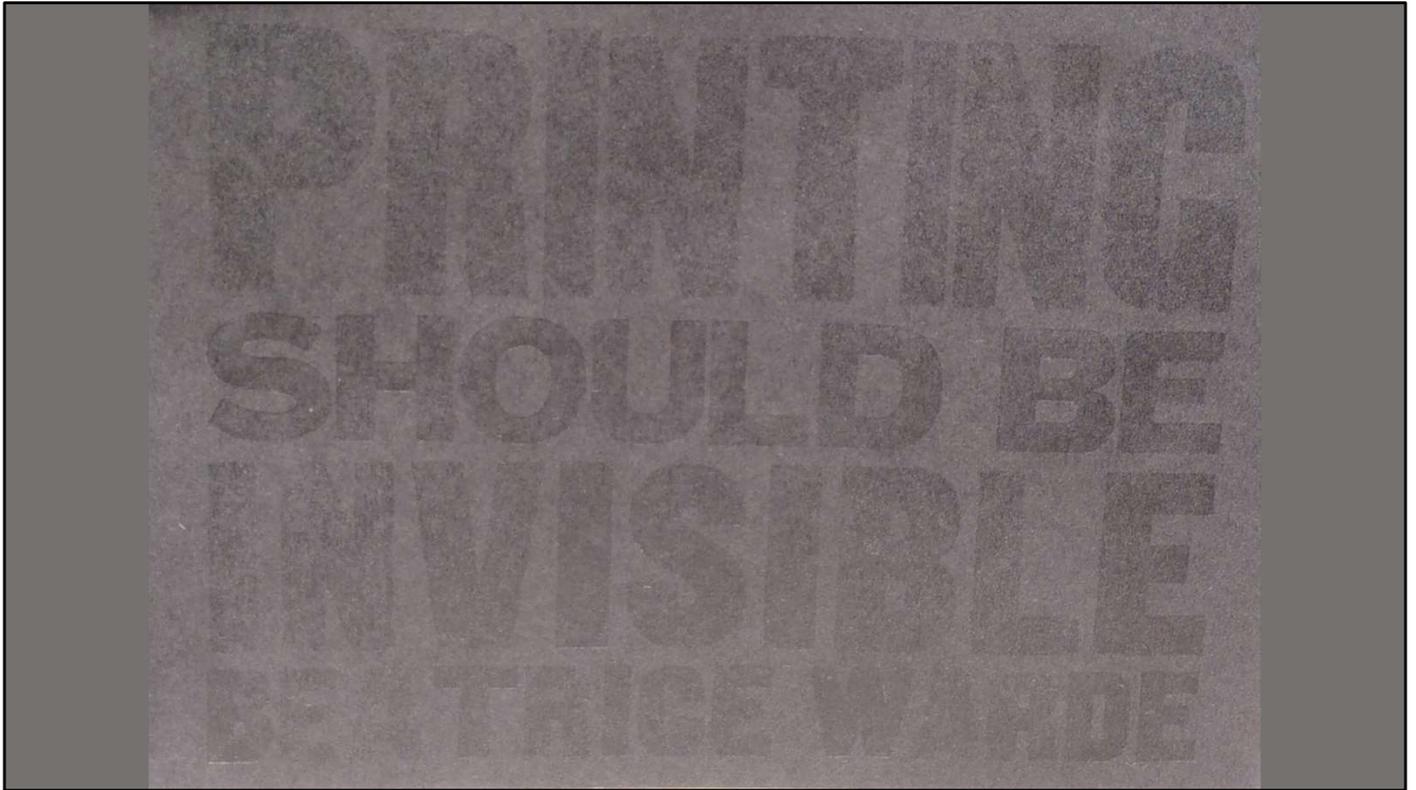
1, 3–6, 8, 9



Producing a satisfactory index is harder using CSS because it doesn't have either a way to markup index keys or a way to collate and merge the non-existent index keys.

The result is that your index has to have discreet references to IDs for points in the document where the index term is used, and you need a way to merge repeated page numbers resulting from those ID references.

If you are using Antenna House Formatter, you can use the '-ah-merge-sequential-page-numbers' property, which behaves like its XSL-FO equivalent, and automatically collapse not just repeated page numbers but also sequences of consecutive page numbers.



Since I have reached the back of the book, as it were, and also strayed into showing code, I'll end here.

Thank you for your time.

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  - [https://fr.vikidia.org/wiki/Fichier:Gutenberg\\_bible\\_Old\\_Testament\\_Epistle\\_of\\_St\\_Jerome.jpg](https://fr.vikidia.org/wiki/Fichier:Gutenberg_bible_Old_Testament_Epistle_of_St_Jerome.jpg)



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- [Printing Should Be Invisible Beatrice Warde](#)
  - © 2019 Tony Graham, 'Printing Should be Invisible', transparent ink on black card

