

CS325

USER INTERFACE AND USER EXPERIENCE DESIGN

Week 9

Dr Frank Guan

Recap from the last lecture

- A prototype is a rapid approximation of a design idea used to gather feedback
- Fidelity and its dimensions
- Paper prototype
- Video prototype
- Computer prototype

Visual Design

Agenda

- Goals and principles of visual design
- Typography
- Grid layout
- Color theory

Visual design

- Modern design implies a rational, functional, information-oriented perspective
- Design implies a balance between functional and aesthetic goals
- “A clear visual organization is essential for effective communication”



Goals of Visual Design

Guide

Help users find their way. Convey structure, relative importance and relationships

Pace

Draw users in, help them get oriented

Message

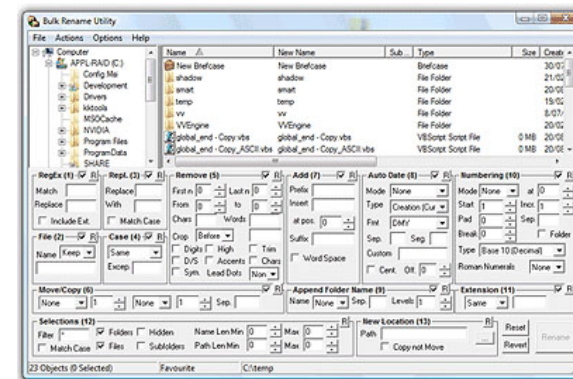
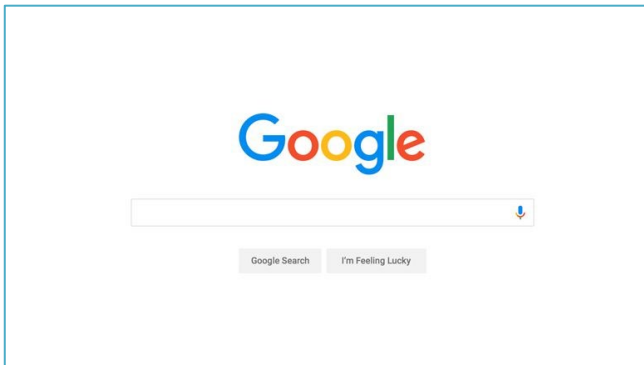
Give distinct look and feel, express meaning and style, breathe life into the content

Principles

- 1. Simplicity
- 2. Contrast
- 3. White Space
- 4. Balance
- 5. Alignment

1. Simplicity

- The simpler, the better!
- It means:
 - Usable - Reduce the likelihood of confusion or error
 - Immediate - Provide immediate cues about what to do
 - Approachable - Do not intimidate the user
 - Recognizable - Can be more easily recognized and remembered



How to achieve simplicity?

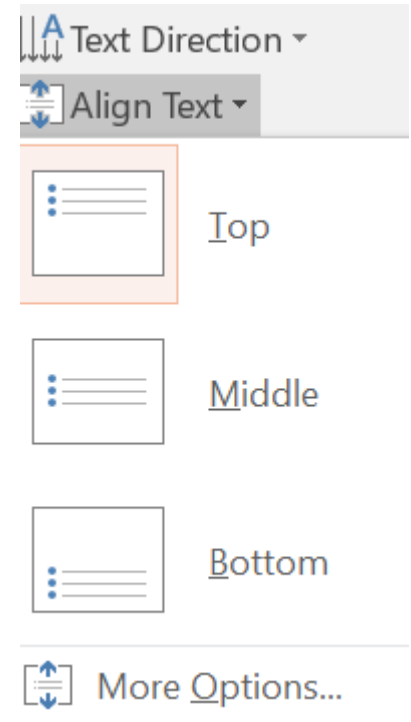
- Reduce
- Regularize
- Combine

How to reduce?

- Determine the essential elements
- Examine each element, and ask yourself whether it's needed
- If it isn't, then remove it
- Even if it is, try to remove it, and see if the design remains coherent

How to regularize?

- “Repeat elements according to a discernible rule principle or rhythm”
- Limit inessential variation
- Use regular geometric forms and muted colors wherever possible
- If similar forms are required, make them as close to identical as possible
- Limit variation in font size, type
- Make sure elements intended to stand out are not regularized

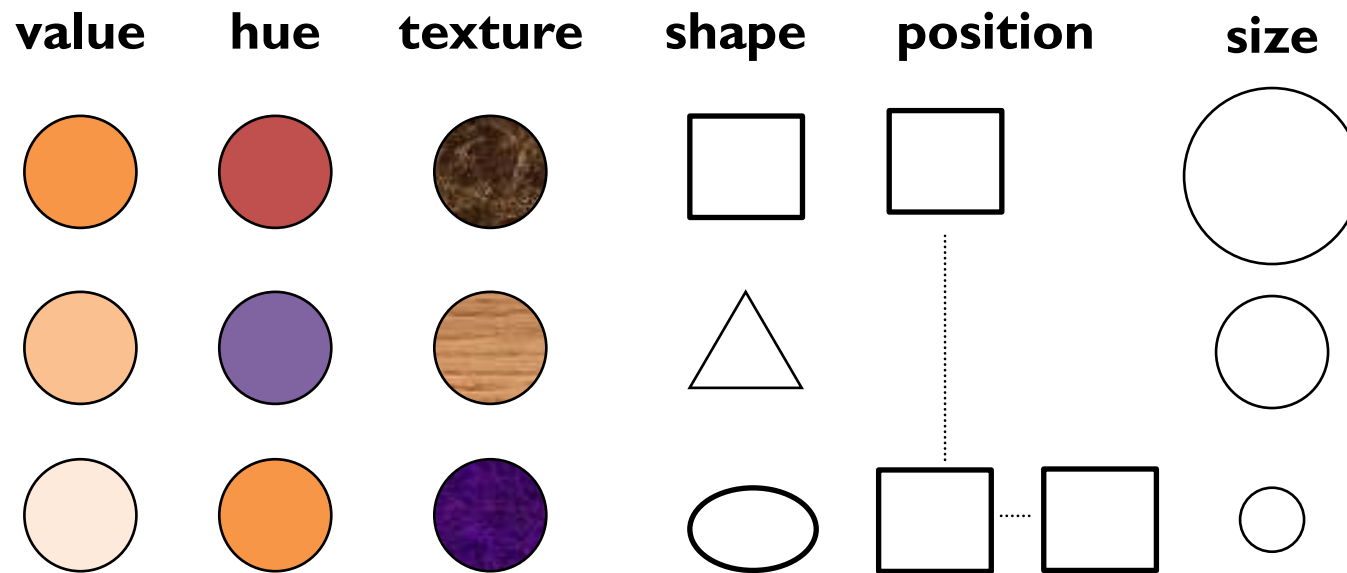


How to combine?

- Review the role played by each element in the design
- Look for places where multiple components are doing the same thing
- See whether an element's role could be performed by an adjacent component, possibly with some minor changes
- Combine redundant elements into a single, simpler unit

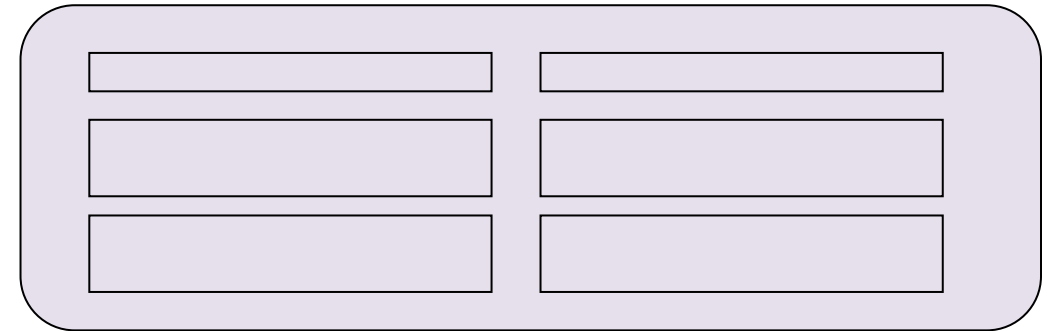
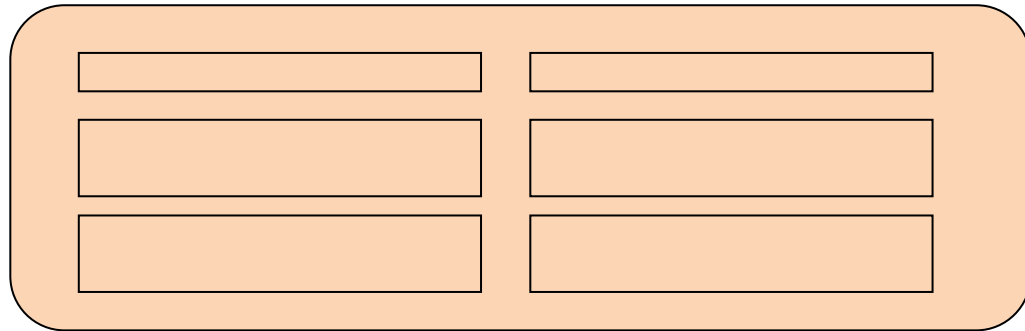
2. Contrast

- *“Information consists of differences that make a difference”*
- There are many ways to encode information along visual dimensions



How to achieve contrast? - differentiation

- Differentiation – e.g. distinguish relevant forms from background

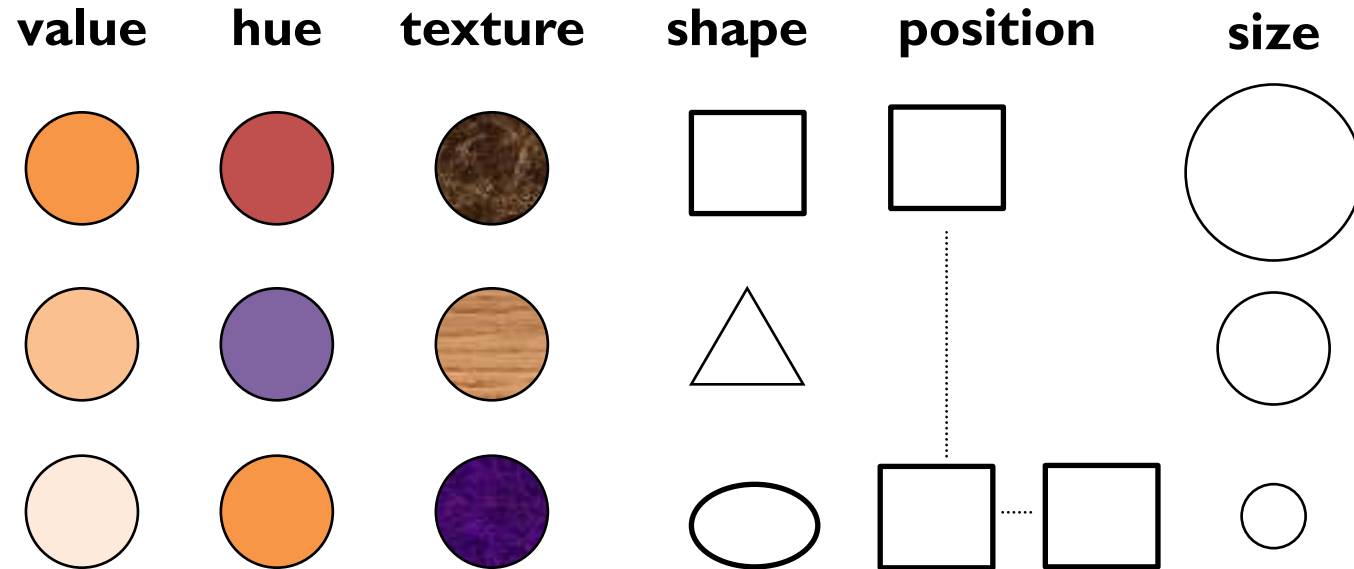


How to achieve contrast? - emphasis

- Emphasis - Emphasize certain aspects of the presentation



Other methods to achieve contrast



Are you able to perceive Contrast?

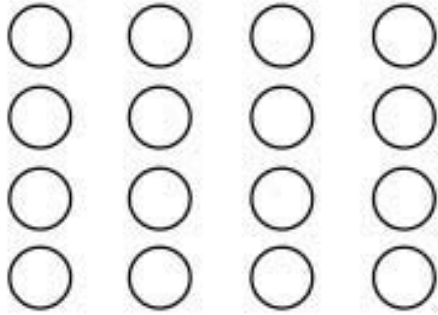
Form Title -- (appears above URL in most browsers and is used by w/w/w search engines)		Background Color:
Q&D Software Development Order Desk		FFFBF0
Form Heading -- (appears at top of Web page in bold type)		Text Color:
Q&D Software Development Order Desk <input checked="" type="checkbox"/> Center		000080
E-Mail responses to (will not appear on Web page)	Alternate (for mailto forms only)	Background Graphic:
dversch@q-d.com		
Text to appear in Submit button	Text to appear in Reset button	<input type="radio"/> Mailto
Send Order	Clear Form	<input checked="" type="radio"/> CGI
Scrolling Status Bar Message (max length = 200 characters)		
****WebMania 1.5b with Image Map Wizard is here!!****		
<< Prev Tab		Next Tab >>

3. Whitespace

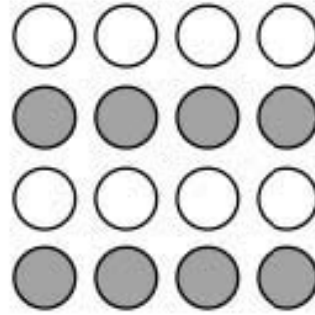
- Whitespace conveys grouping and relationship
- Creates balance and layout
- Leads the eye
- Ease of reading

Gestalt Principles for Grouping with Whitespace

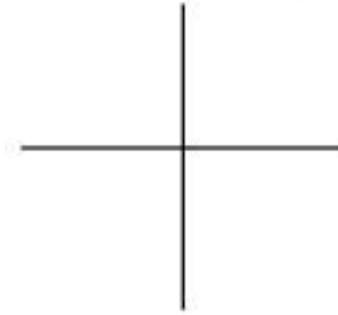
proximity



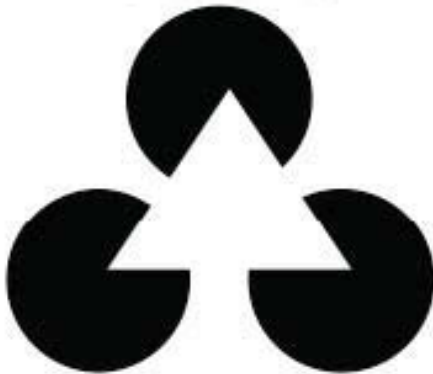
similarity



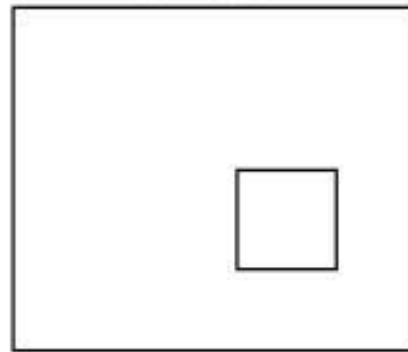
continuity



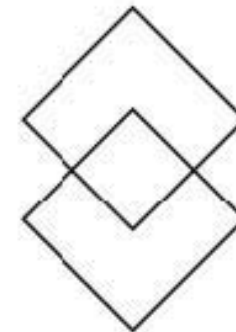
closure



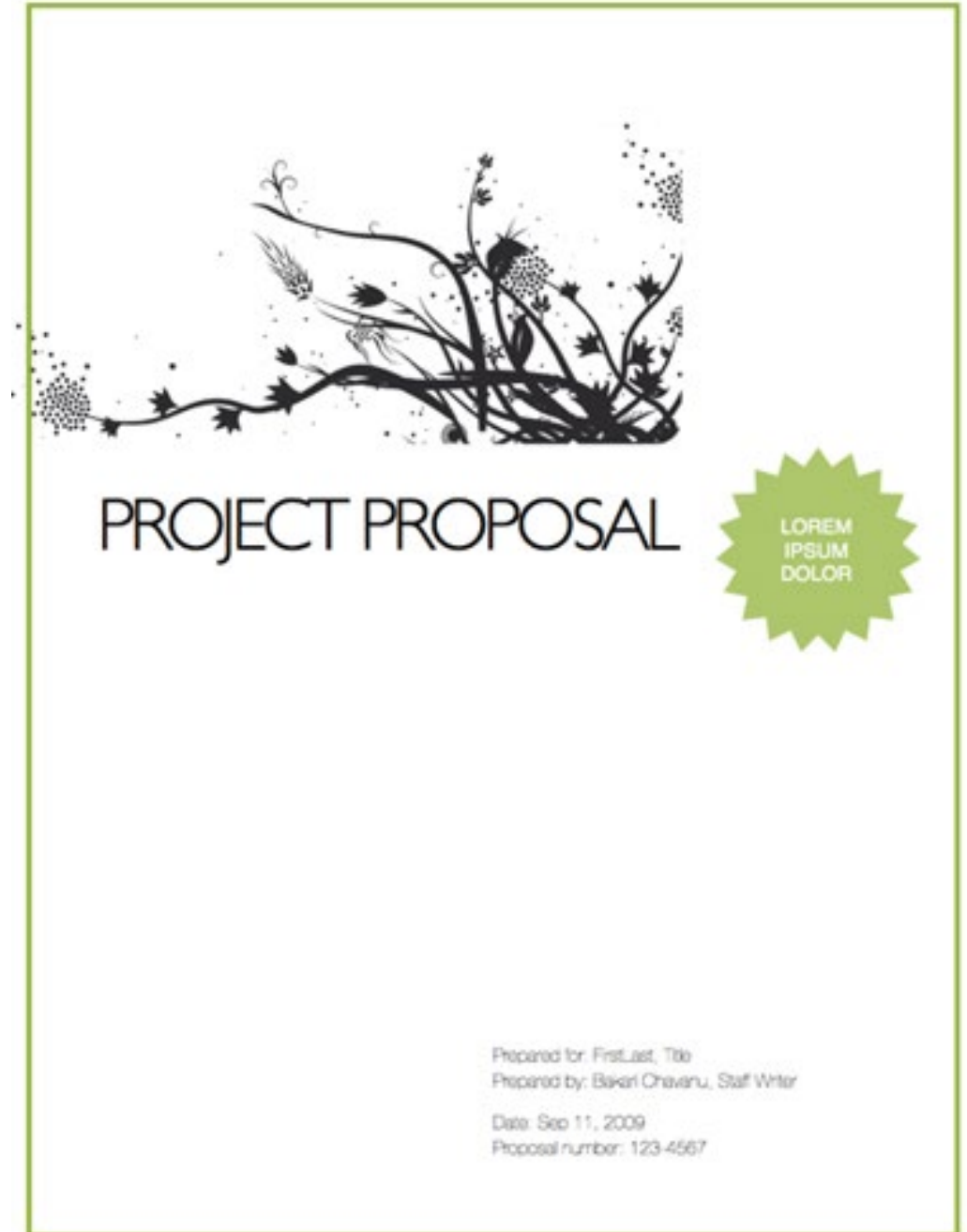
area



symmetry



Whitespace:
Create balance and layout



Whitespace: Lead the eye

You're invited to a barbeque hosted by James & Jenny on July 16, 2011 at 12pm. Cook-out, yard games, and swimming begin at noon! At the home of James & Jenny 2206 Road Lane Court, Jeffersonville, IN

Whitespace: Lead the eye

You're invited to a barbeque hosted by James & Jenny
on July 16, 2011 at 12pm.

Cook-out, yard games, and swimming begin at noon!

At the home of James & Jenny
2206 Road Lane Court,
Jeffersonville, IN

Whitespace: Lead the eye

You're invited to a

barbeque

hosted by James & Jenny

on **July 16, 2011 at 12pm.**

Cook-out, yard games, and swimming begin at noon!

At the home of James & Jenny

**2206 Road Lane Court,
Jeffersonville, IN**

A crowded dialog box

Form Title -- (appears above URL in most browsers and is used by 'www' search engines)		Background Color:
Q&D Software Development Order Desk		FFFBF0
Form Heading -- (appears at top of Web page in bold type)		Text Color:
Q&D Software Development Order Desk		000080
E-Mail responses to (will not appear on Web page)	Alternate (for mailto forms only)	Background Graphic
dversch@q-d.com		
Text to appear in Submit button	Text to appear in Reset button	<input type="radio"/> Mailto
Send Order	Clear Form	<input checked="" type="radio"/> CGI
Scrolling Status Bar Message (max length = 200 characters)		
****WebMania 1.5b with Image Map Wizard is here!!****		
<< Prev Tab		Next Tab >>

Use white space for ease of reading

Composite

Source 1

Document:

Channel:

Mask

Document:

Channel:

Source 2

Document:

Channel:

Destination

Document:

Channel:

OK

Cancel

Composite

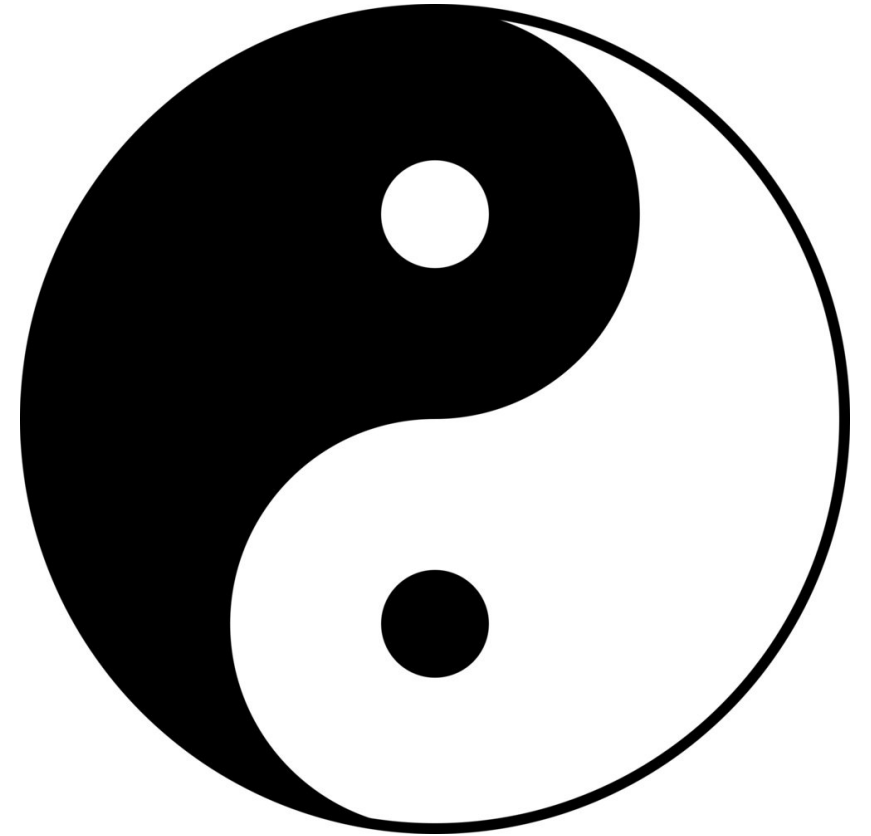
	Document	Channel
Source 1:	<input type="text" value="concept.1"/>	<input type="text" value="RGB"/>
Mask:	<input type="text" value="concept.1"/>	<input type="text" value="RGB"/>
Source 2:	<input type="text" value="concept.1"/>	<input type="text" value="RGB"/>
Destination:	<input type="text" value="New"/>	<input type="text" value="RGB"/>

OK

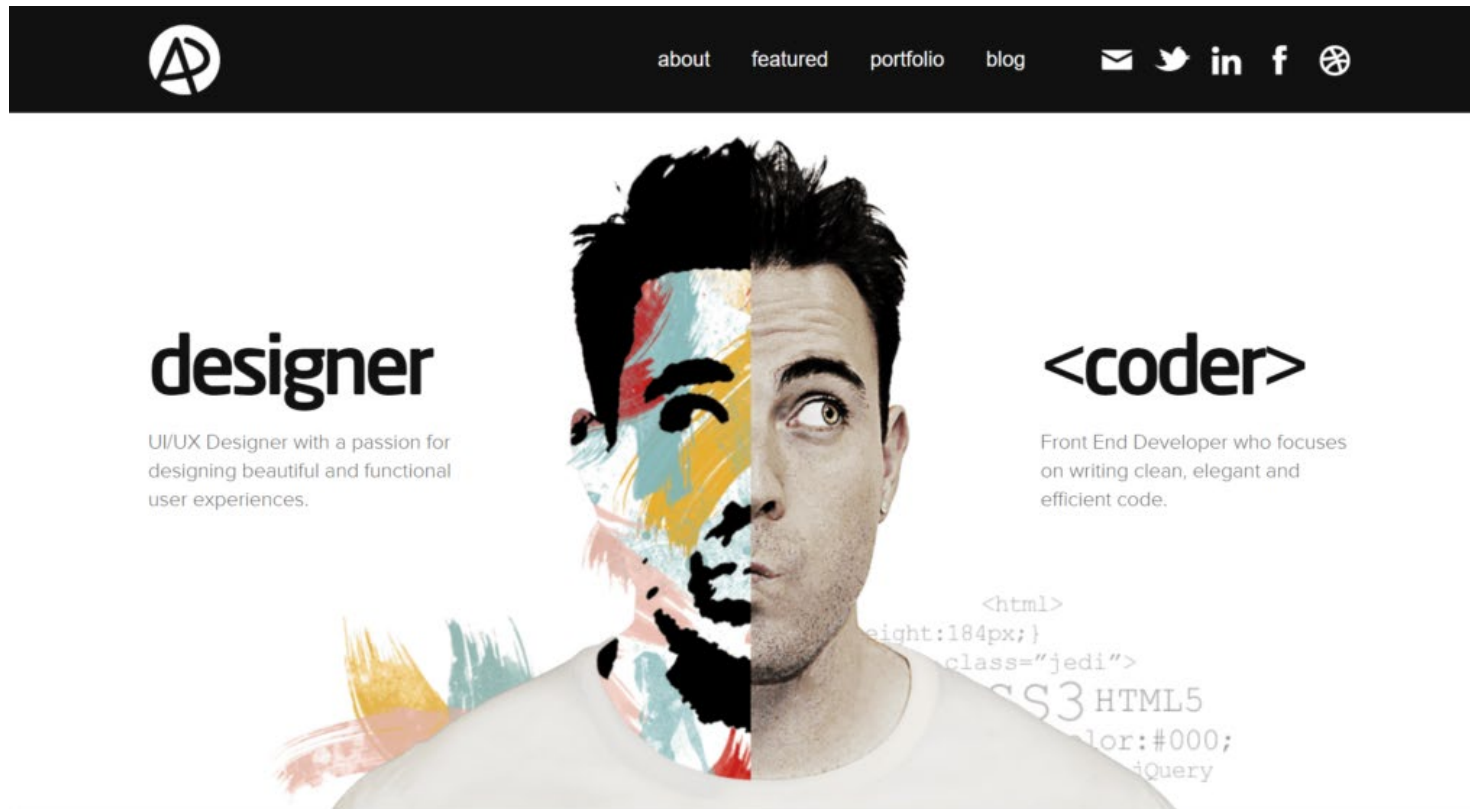
Cancel

4. Balance

- Choose an axis (usually vertical)
- Make sure the visual weight of elements on each side are approximately equal
- Symmetric layouts are implicitly balanced and aesthetically pleasing
- Asymmetric layouts are harder to balance, but can increase tension and activity



Symmetrical balance



Source: <https://uxengineer.com/principles-of-design/balance/>

Radial balance



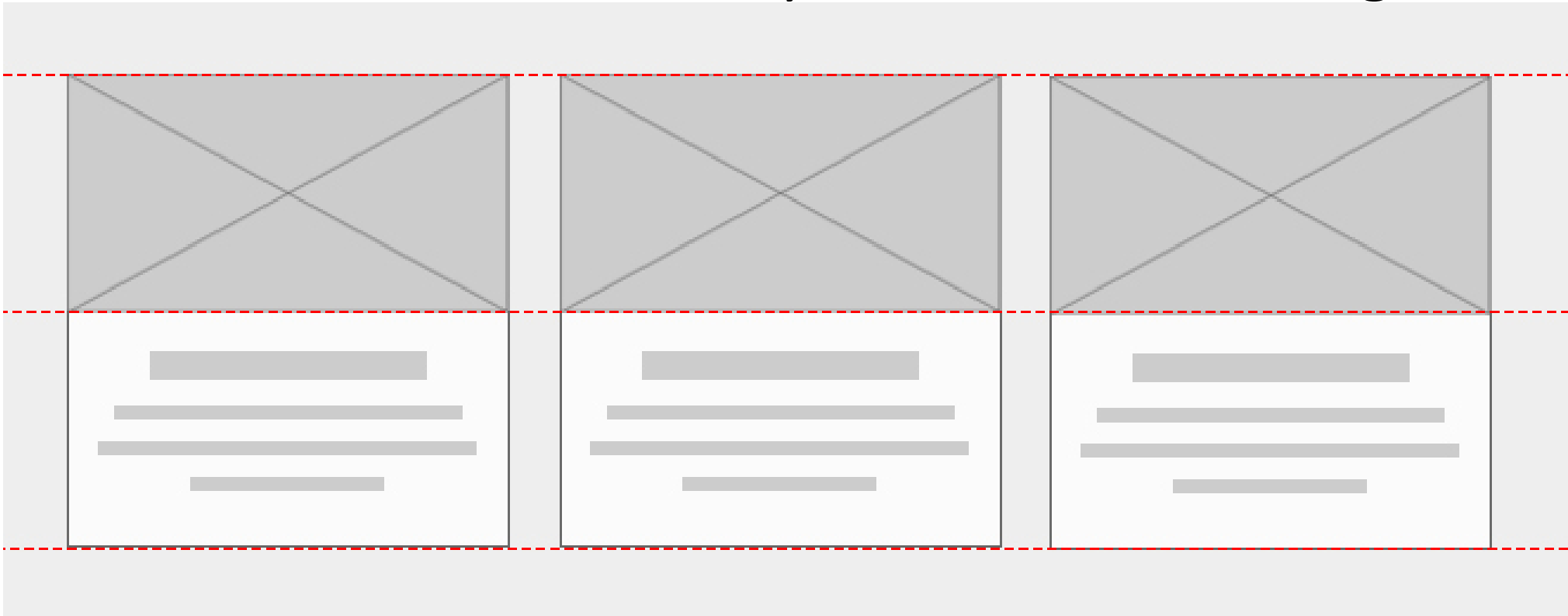
Source: <https://uxengineer.com/principles-of-design/balance/>

5. Alignment

- Either left- or right-justify your labels
- Try to align your controls on the left and the right
- Align controls and labels on the same baseline

Vertical alignment

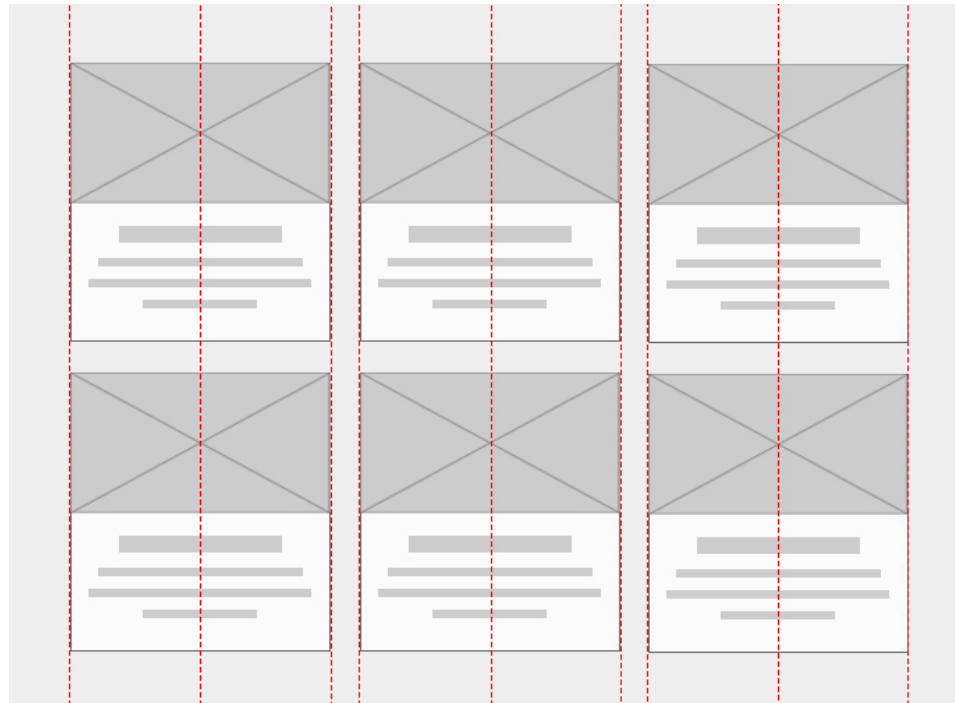
- When the center, top, and/or bottom of elements align on an invisible **horizontal line**, you create **vertical alignment**.



Source: <https://uxengineer.com/principles-of-design/alignment/>

Horizontal alignment

- When the center, left side, and/or right side of elements align on an invisible **vertical line**, you create **horizontal alignment**.

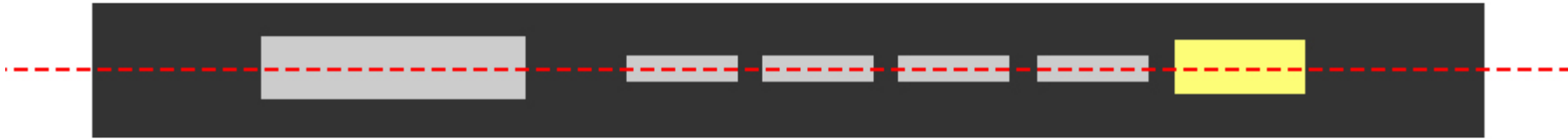


Source: <https://uxengineer.com/principles-of-design/alignment/>

Center alignment

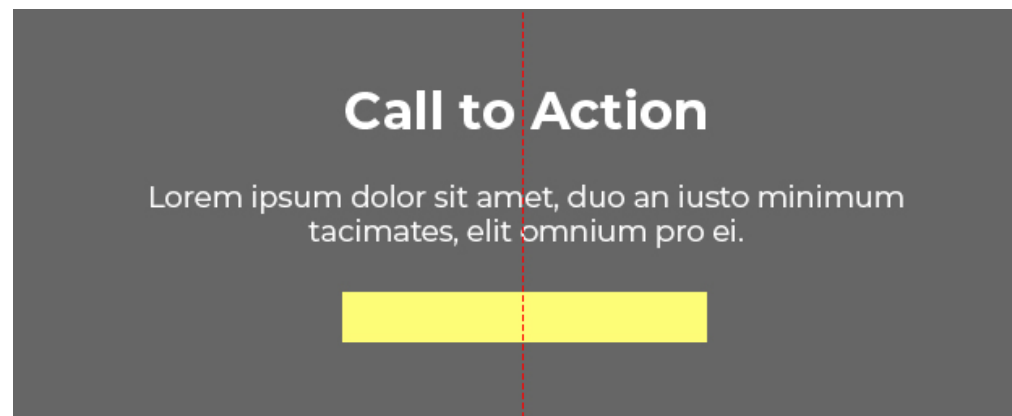
Centered Vertical Alignment

In cases where an element's height may vary, but not drastically, it might make more sense to vertically align them across the center.



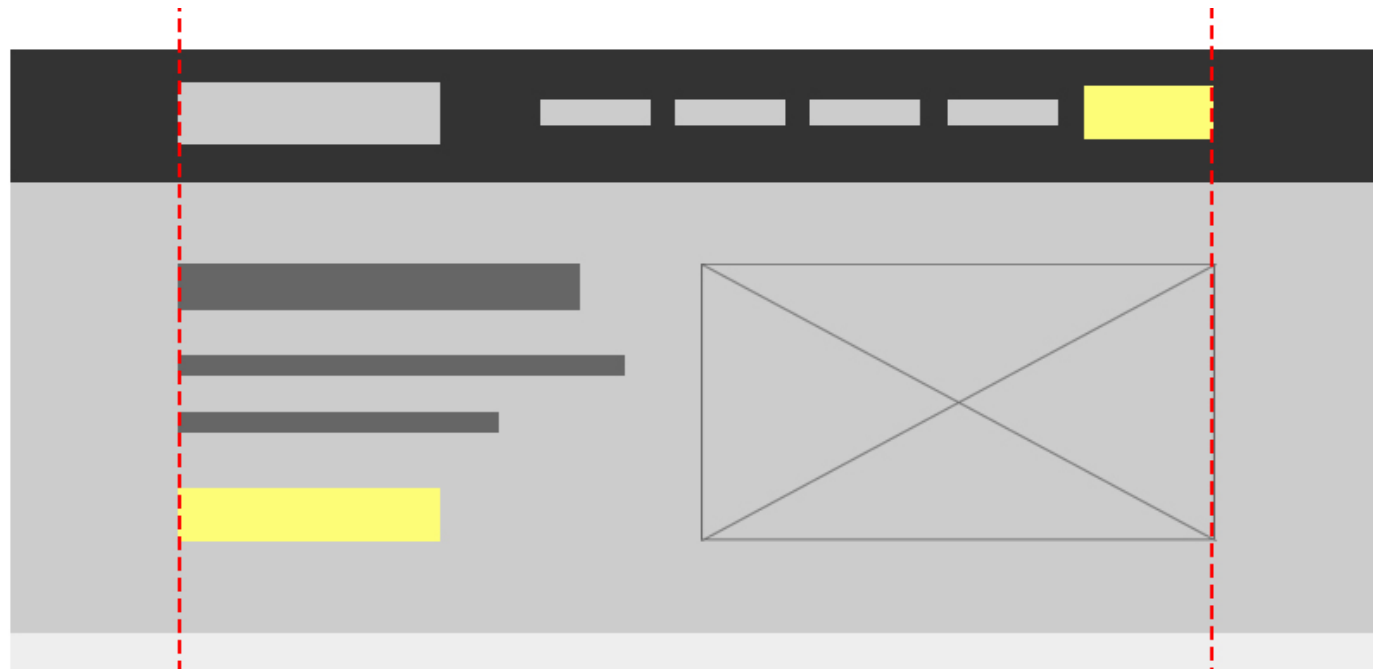
Centered Horizontal Alignment

Centered horizontal alignment can be useful when you have a single element in a row.



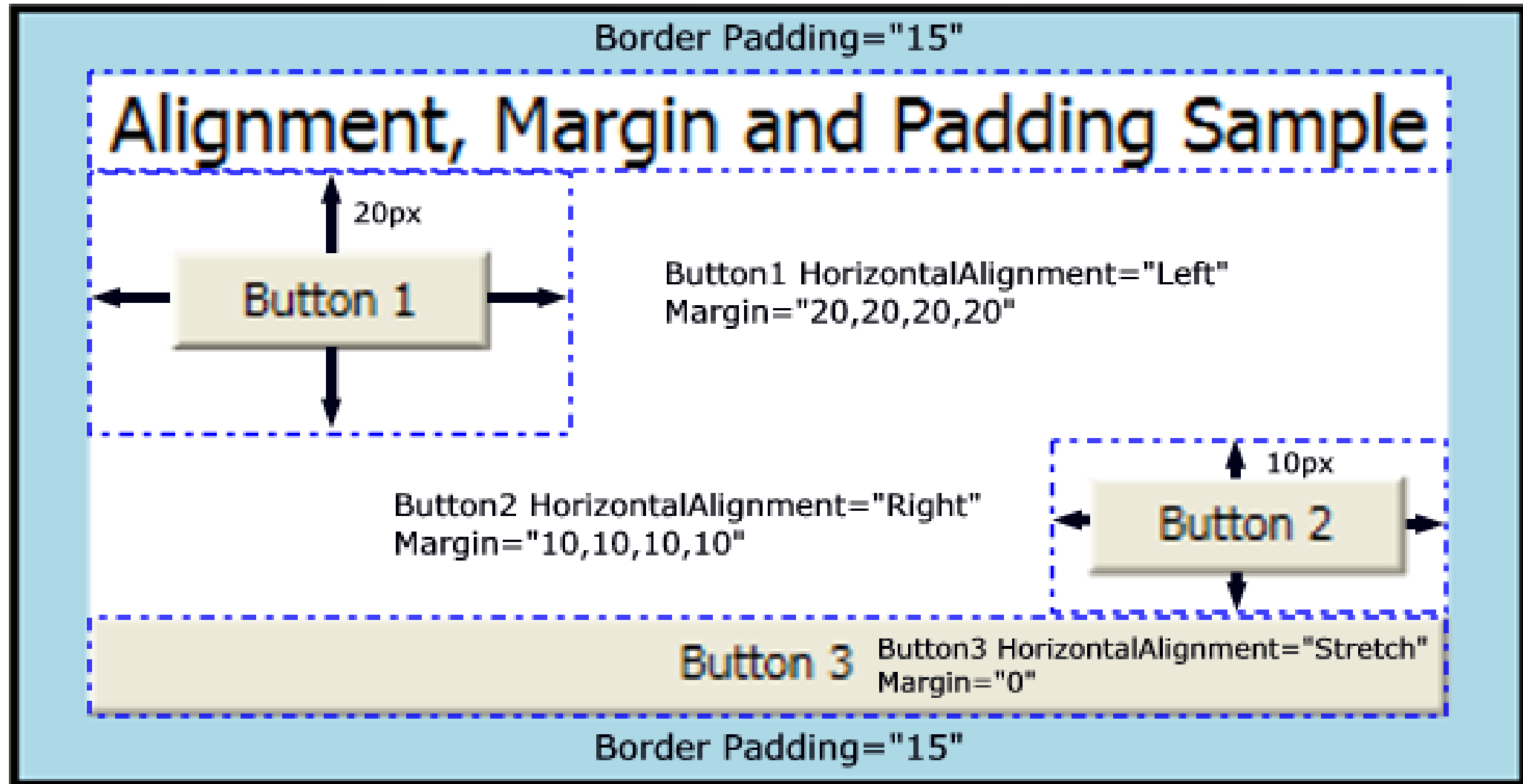
Left and Right Horizontal Alignment

- When designing a layout, the easiest way to ensure left and right alignment is to establish a max-width for all of your content in the very beginning. This invisible box will ensure your elements are aligned whether they are pushed to the left or right side.



Source: <https://uxengineer.com/principles-of-design/alignment/>

In C#.NET

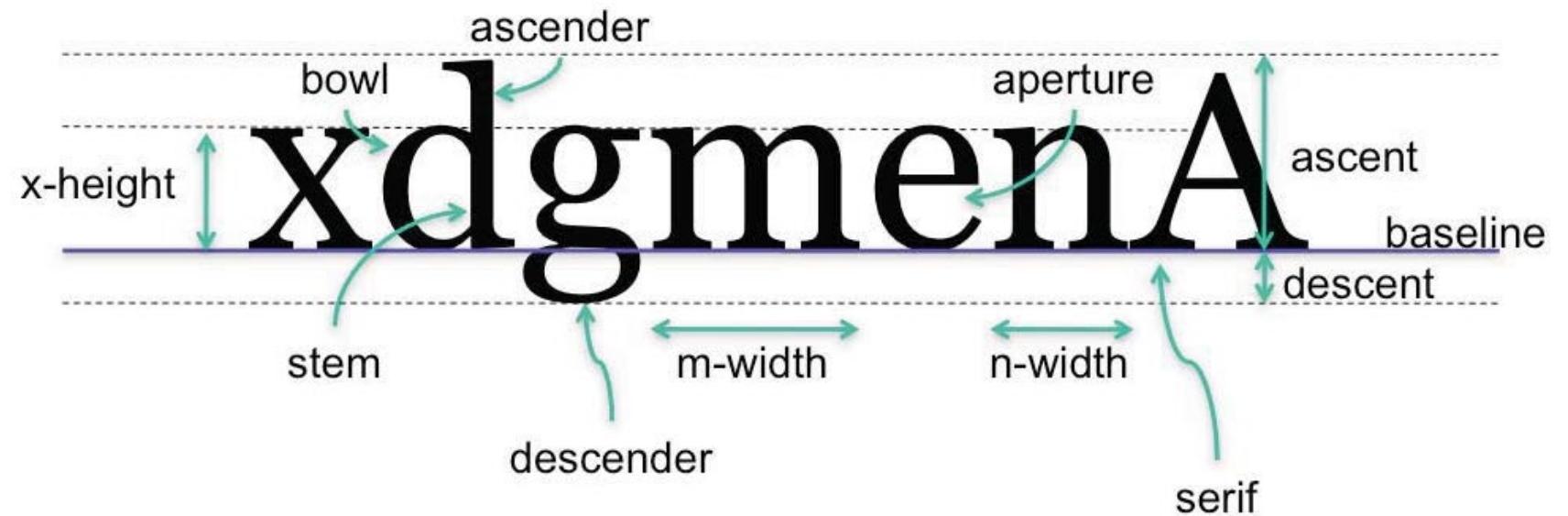


Typography

- Displaying text on the screen
 - Key decisions: font and spacing

Font Dimensions

- x-height
- Ascenders, Descenders
- Point
- Leading
- Serifs
- Kerning



Six } **x-height**

Six **Six** **Six**

Gill Sans

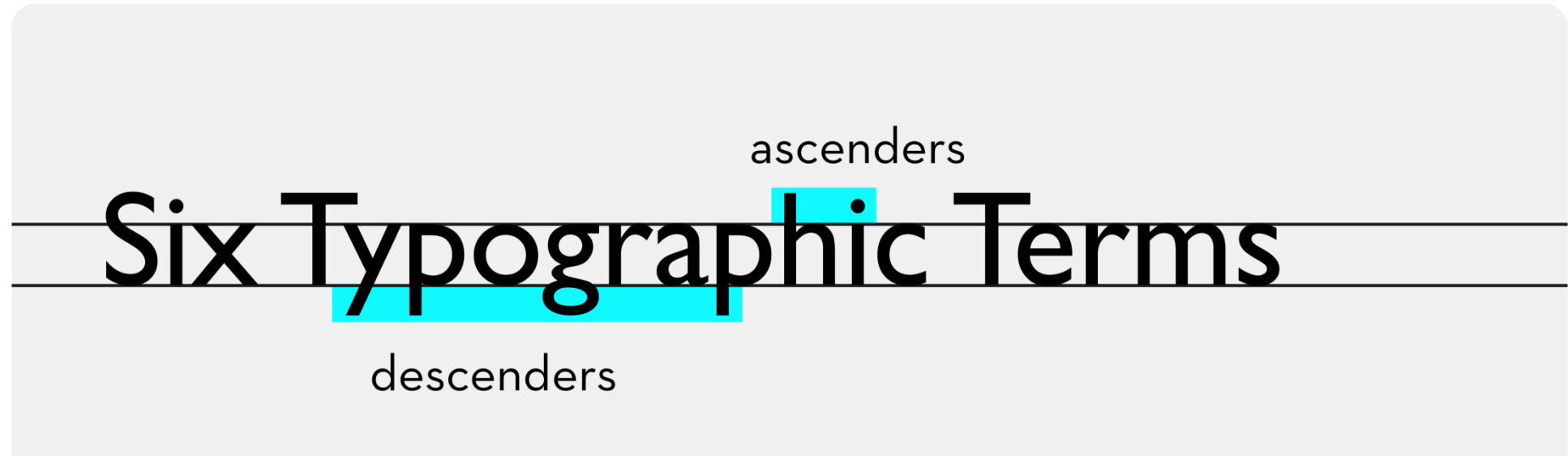
Lucida Bright
high x-height

Baskerville
Low x-height

Typefaces with high x-height:
easier to read at small point size

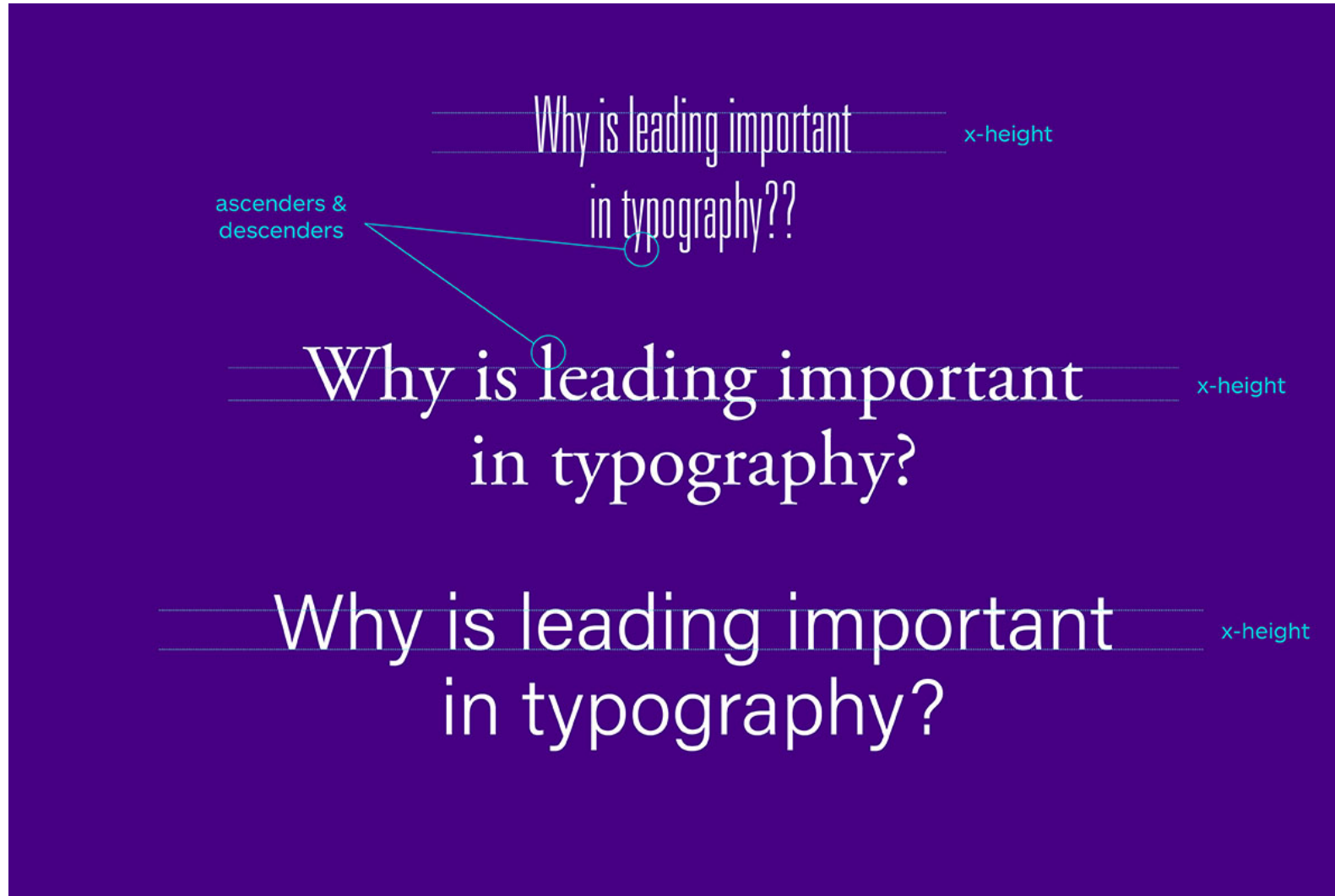
Typefaces with low x-height:
harder to read at small point size

Lucida Bright: 1993, Charles Bigelow & Kris Holmes · Baskerville, 1757, John Baskerville

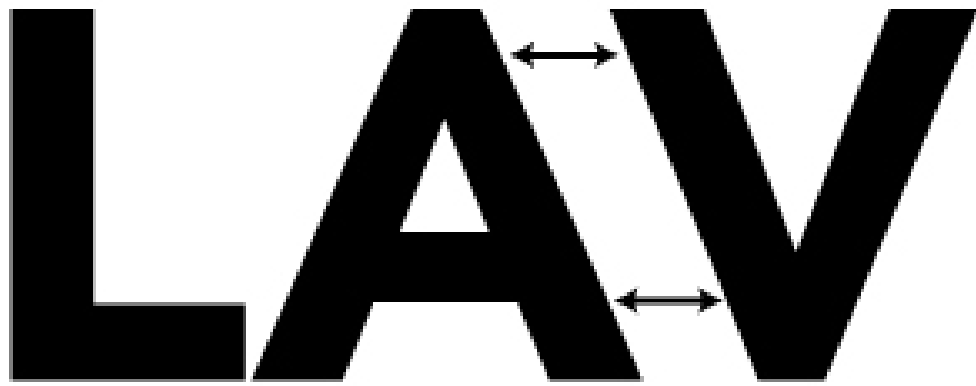


Font size is denoted in points; a point is $\frac{1}{72}$ inch, so a 12-point font occupies $\frac{1}{6}$ of an inch vertically.

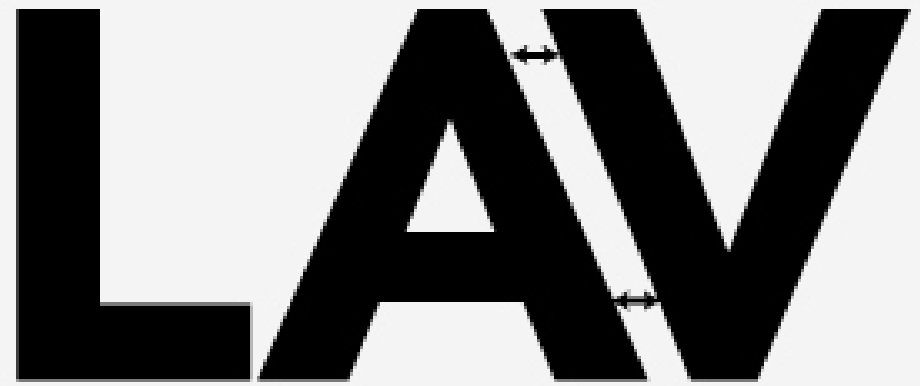
X-height and ascenders & descenders



LAV



LAV



KERNING

Font Leading Examples

40px Font – Default Leading
40px Font – Default Leading

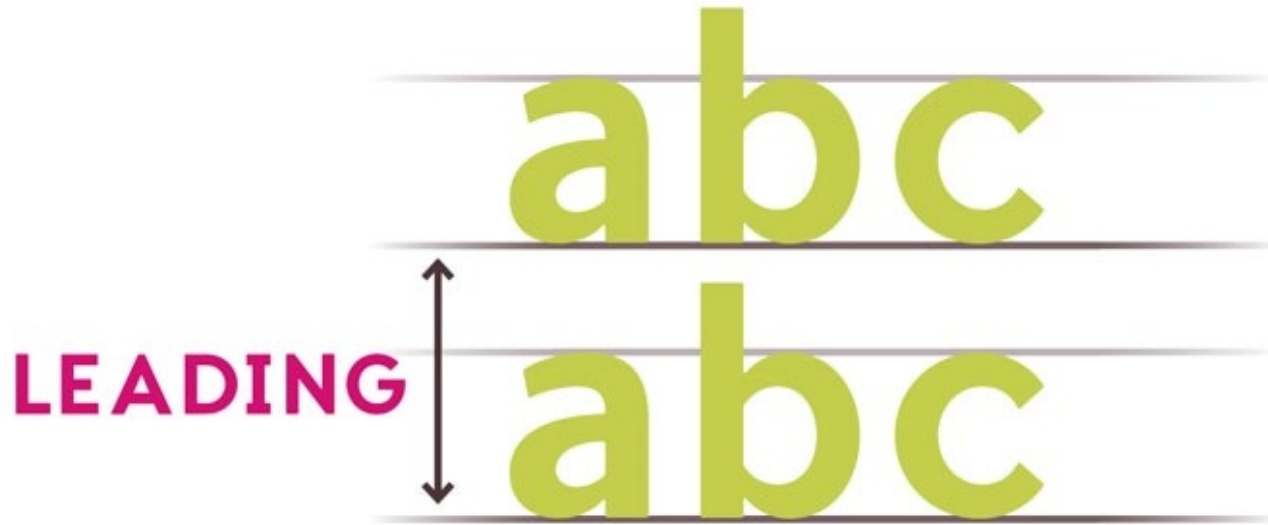
40px Font – 20px Leading

40px Font – 40px Leading
40px Font – 40px Leading

40px Font – 50px Leading
40px Font – 50px Leading

40px Font – 80px Leading
40px Font – 80px Leading

80px



Spacing guidelines

- Use whitespace
 - Always leave margins around body text; never pack it tightly against the edge
- Use generous leading
 - Make sure body text is not overcrowded
 - E.g. CSS: line-height: 120%
- Keep text paragraphs narrow
 - About 60-75 characters / 12 – 15 words

Typeface

Typeface: Helvetica

Font: Helvetica Light
Helvetica Regular
Helvetica Oblique
Helvetica Bold
Helvetica Bold Oblique

AaBbCc Sans-serif font

AaBbCc Serif font

AaBbCc Serif font (red serifs)

Style

Abcg
roman style

*A*bcg
italic style

Abcg
bold style

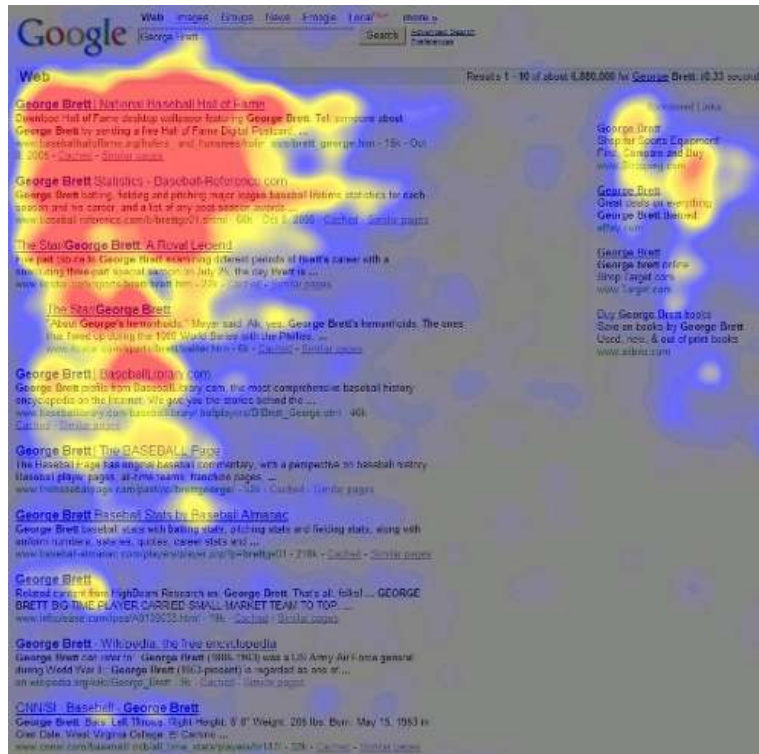
Font Selection

- Simplicity and Contrast
 - Don't use more than 2 or 3 fonts
 - E.g. One for body and one for display text
 - Use size, weight, style, hue to establish essential contrasts
 - 4-5 varieties should be enough

How users read online

They don't!

Eyetracking



Google



Some other websites

Design for easy scanning

Priority 1

Priority 2

Priority 3

Above the Fold



- Prime real estate, where users first start looking
- Place items where users expect
- Users happy to scroll only if they think they will be rewarded

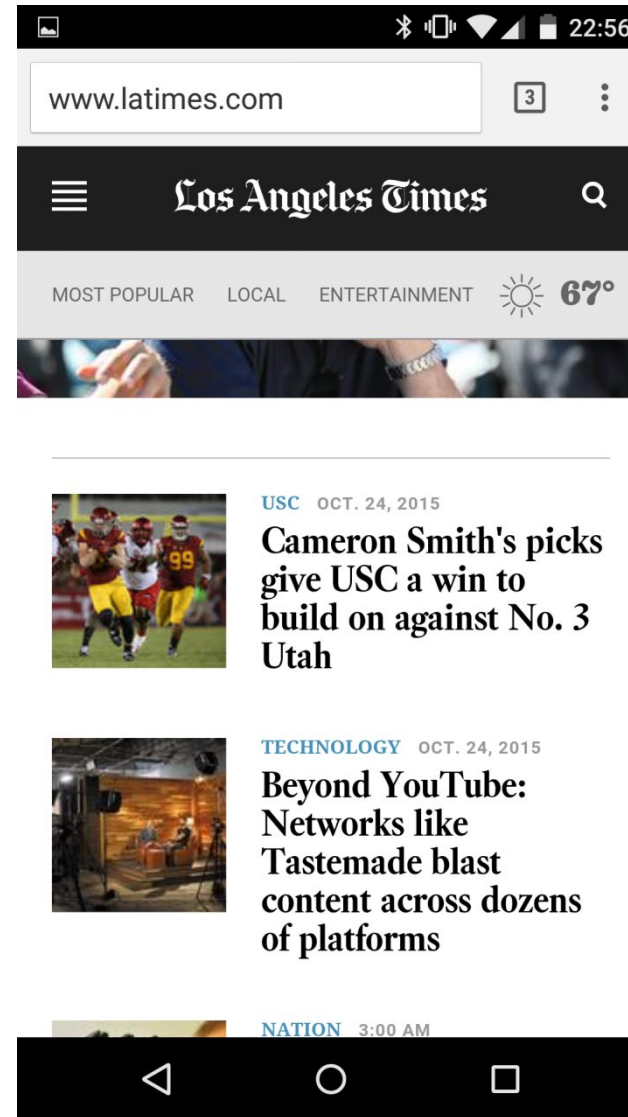
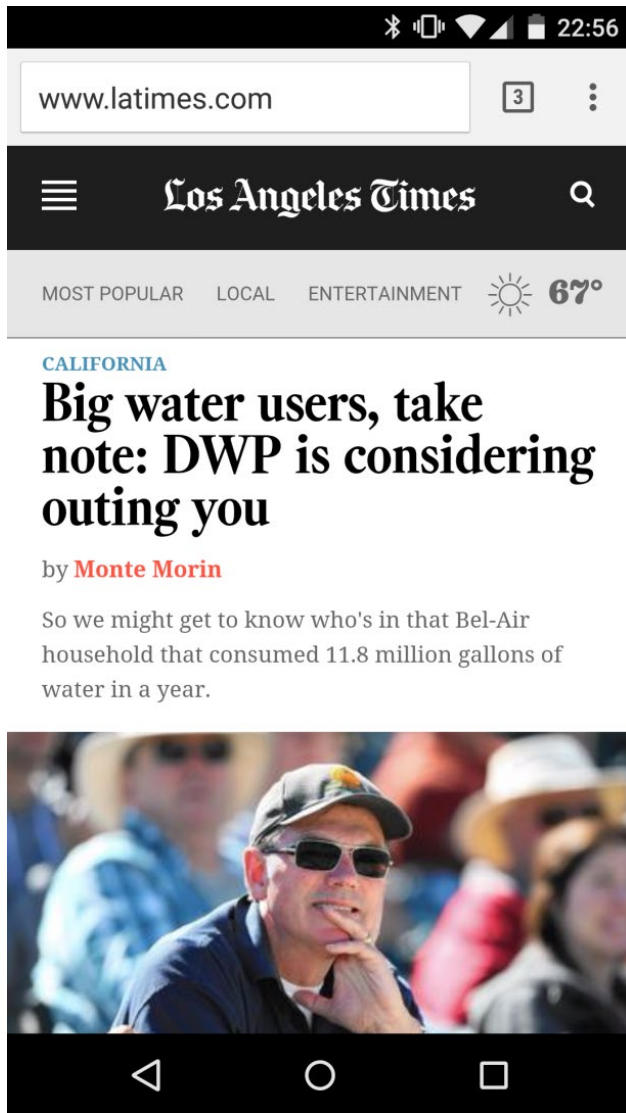


Above the fold.

The first thing that visitors see

Fold Line

Below the fold. Not initially visible.



Grids

- Grid system for the placement and alignment of all visual objects on the web page
- Help the user scan and understand a page quickly
- Gives solid visual and structural balance
- Alignment guides the eye
- Reduces clutter



January 11, 2013 -- Updated 2001 GMT (0401 HKT)

Make CNN Your Homepage

EDITOR'S CHOICE

Dreamliner • Mayhem in Mali • Costa Concordia • Oscar nominations • Saudi beheading • CES 2013 • Syrian refugees



Syria rebels claim to have taken key military base

Syrian rebels say they have captured a base used to bomb opposition forces -- but U.N. envoy Lakhdar Brahimi insists there can be "no military solution." [FULL STORY](#)

- U.N.: Syrian war most complex in world
- Sheltering refugees from bitter cold
- Special | [iReport](#) | [CNNArabic.com](#)

DREAMLINER WOES

- U.S. opens probe into Dreamliner
- Dreamliner probe aimed at reliability
- Experts: 787 problems not unusual



Why Syrian refugee lives in dread

With young lives shattered by the continuing war in Syria, refugee Saleh tells CNN how he lives in fear that when the phone rings it will mean he has lost another brother in the fighting. [WATCH](#) | [REFUGEES FULL COVERAGE](#)

SYRIA CRISIS

SYRIAN REFUGEES »



Sheltering refugees from bitter winter

2:23



Tracking violence against women

5:58



Sami: Why I fight the Assad regime

2:03

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CNN TV



TV Programs

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WEATHER

Enter a U.S. Zip or Intl city

GO

London, United Kingdom

Current conditions



1°

Cloudy

Hi 5° | Lo 2°

10-day

Feels like -1°



The New York Times

Sunday, January 11, 2015 Today's Paper Video 24°F Dow -0.95% ↓



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The New York Times Store

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SHOP OUR GIFT GUIDE

In New Era of Terrorism, a Voice From Yemen Echoes

By SCOTT SHANE 6:25 AM ET
Anwar al-Awlaki, killed by a C.I.A. drone strike in 2011, has remained a leading influence on jihadists, and there is evidence that Yemen's Al Qaeda branch, and Mr. Awlaki, had a role in preparations for the deadly assault in Paris.

Suspect Evolved From Criminal to Terrorist, Police Say

By ANDREW HIGGINS
Amedy Coulibaly, who had a long criminal record, transformed, in plain sight,



Crowds gathered at the Place de la République in Paris on Sunday before a rally in response to terrorist attacks.
Laurent Cipriani/Associated Press

1 of 6

Huge Crowds Gather for Antiterror Rally

By DAN BILEFSKY and MAÏA de la BAUME 6:27 AM ET
World leaders and hundreds of thousands of people have gathered to rally and march under extraordinary security in Paris on Sunday after a series of terrorist attacks in the city.

RELATED COVERAGE

Sunday Review

Saving the Nuclear Deal With Iran

By THE EDITORIAL BOARD

An agreement would carry risks, but a bigger risk would be squandering this moment.

- Bruni: Your God, My Dignity
- Douthat: France, the Crucible of Europe
- Dowd: The Deano Chronicles
- Kristof: Race, the Police and the Propaganda
- Sunday Dialogue: America, Falling Short



ROGER COHEN

The Battle to Belong

My mother suffered as an immigrant, as a Jew set adrift.

How 'Places to Go' Gets Done

A Reporter Treads Carefully When Writing About Religion and Violence

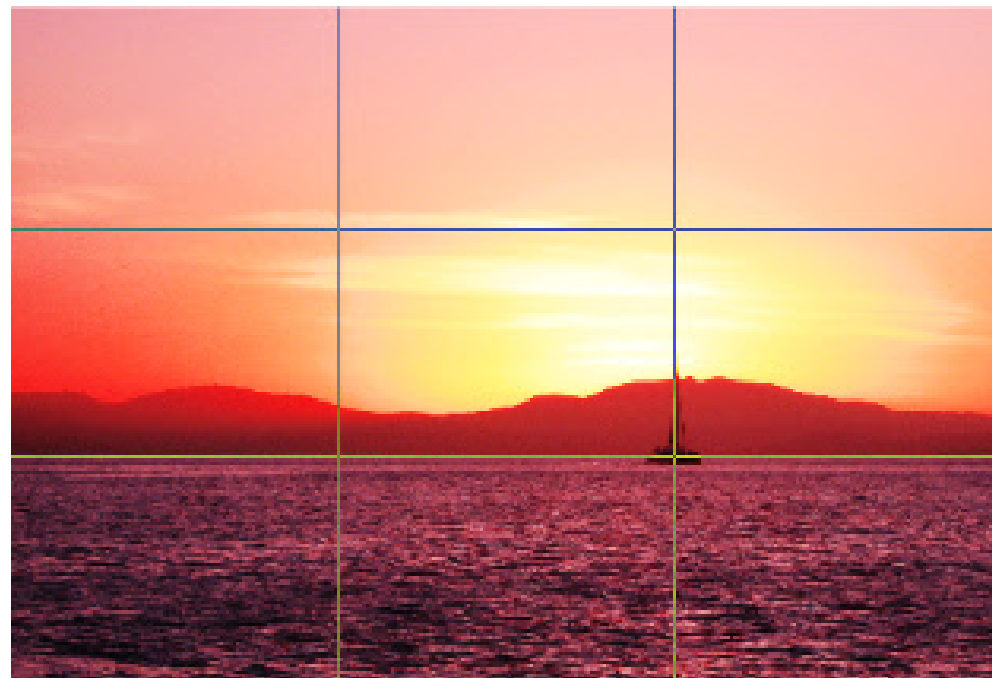
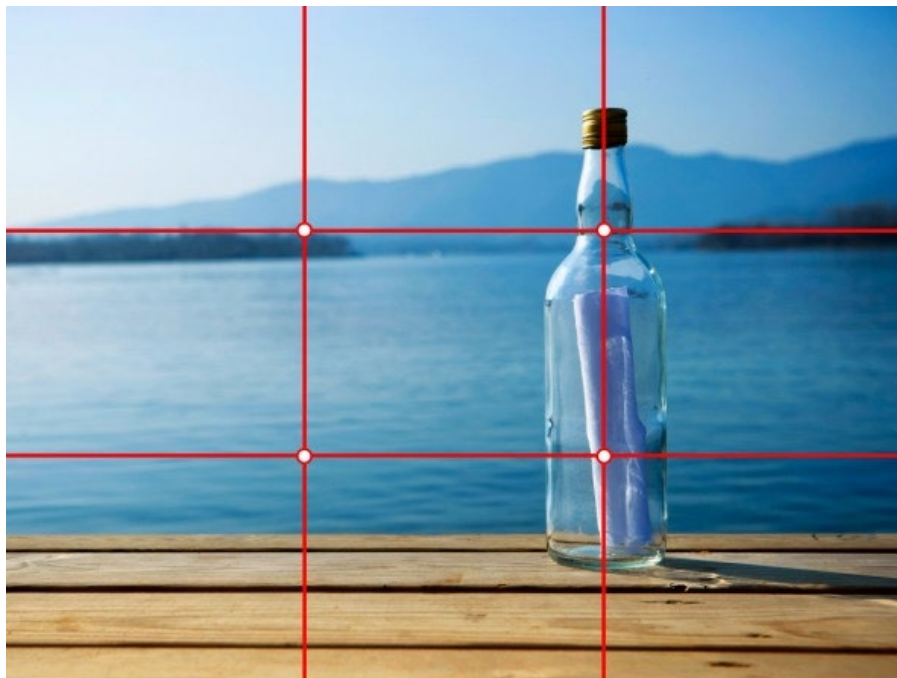
TimesTalks | Malala Yousafzai: Preview

Times Premier



Now in Times Premier

Rule of Thirds



Theory dictating how an image should be composed in order to create an aesthetically pleasing result



Startende ondernemers hebben meestal geen overzicht.



Articles | News

Envato 'WordPress Pack' Bundle!

collis on Oct 13th 2010 with 12 comments

Love WordPress? Well you're going to love our latest Envato Bundle – the [WordPress Pack](#) – which has over \$250 of premium WP Themes, Plugins, a mobile theme, a psd template, a copy of my book How to Be a Rockstar WordPress Designer, and a Tuts Premium tutorial series, all for the amazing price of \$30! But it's only available for 7 days, so grab it while it's hot!

[\(Continue\)](#)



Articles | Typography

Choosing the Right Font: A Practical Guide to Typography on the Web

Max Luzuriaga on Oct 12th 2010 with 58 comments

Typography is an huge field. People devote years of their lives to this ancient craft, and yet there's always something new to learn. In this article, I'll be reviewing the major points that you should consider when selecting a typeface for a website.

[\(Continue\)](#)



Advertise Here

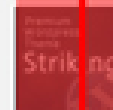
[Advertise Here](#)

Photoshop to HTML

This perfect book for when your design rocks and you're ready to code it.

[Find Out More](#)

Top Selling on Themeforest



Striking Premium Corporate & ... only \$35.00 by kaptein



inFocus - Powerful Professional ... only \$35.00 by Webtreats



[iFont - More](#)

[creaffice](#)

41%
of users focus
here first, longest

20%

25%

14%

Grid Layout Tips

- Short elements are extended to begin and end on grid boundaries
- Long elements are allowed to span multiple grid units
- Avoid slight misalignments
- Use visual proximity and scale
- Left aligned text is easier to skim
(for languages that read left-to-right)

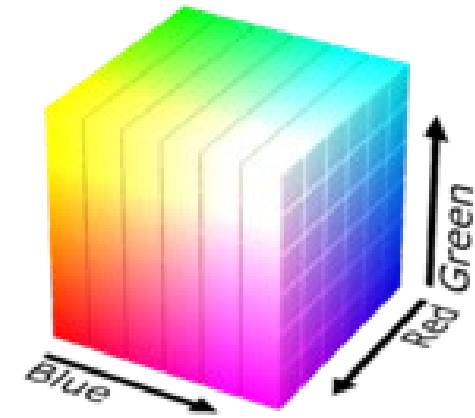
Color Theory

Practical guidance to color mixing and the visual effects of specific color combinations

Color Models

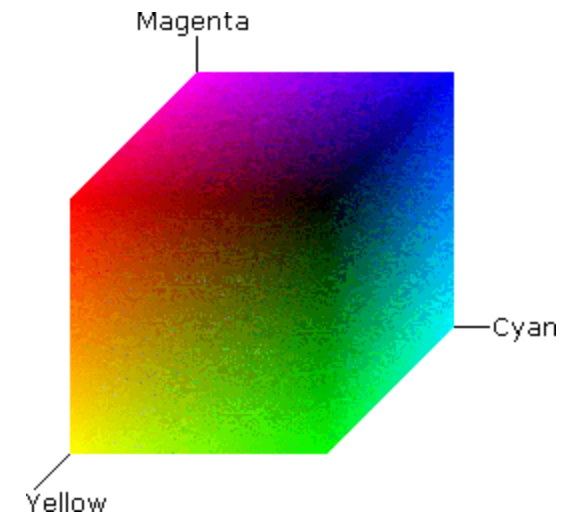
Red-Green-Blue (RGB)

- Red: 0% - 100%
- Green: 0% - 100%
- Blue: 0% - 100%



Cyan-Magenta-Yellow

- Used for printing



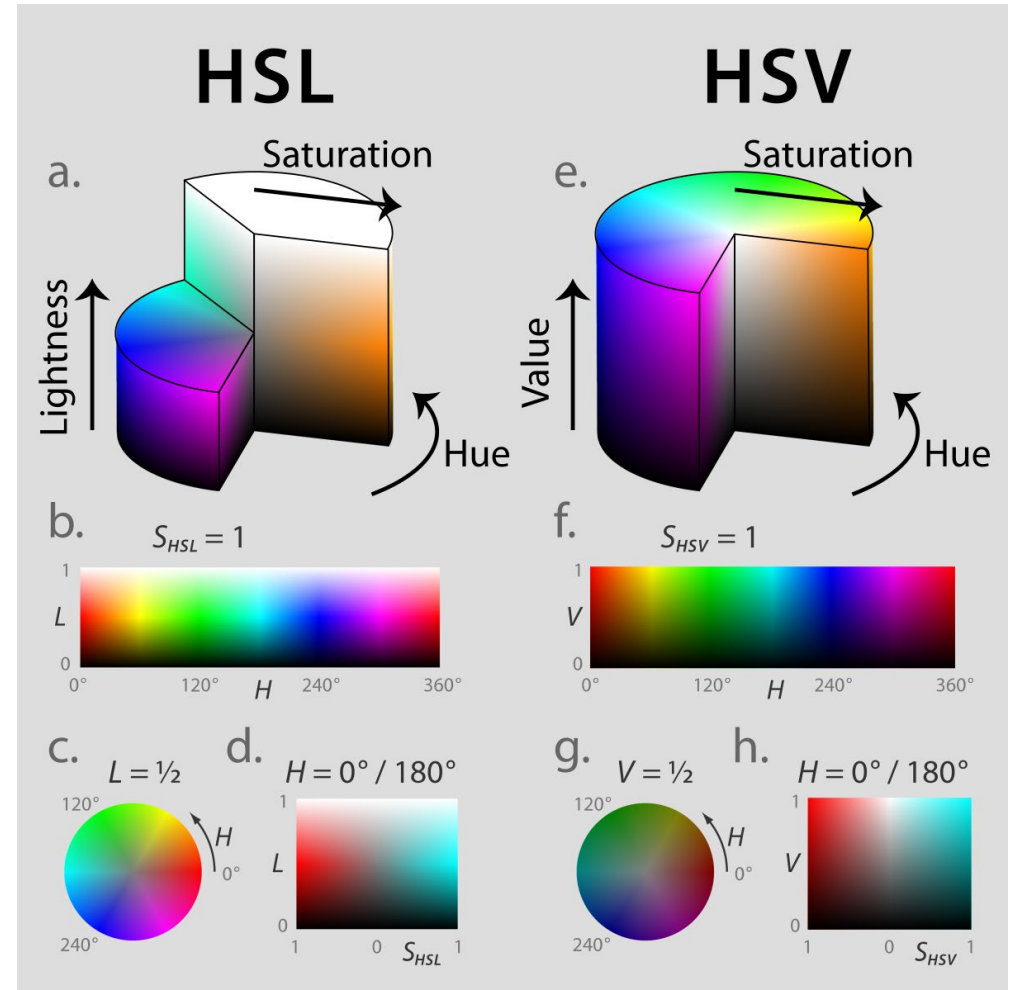
Color Models

Hue-Saturation-Value (HSV)

- Hue is wavelength of color
- Saturation is amount of pure color
 - 0% = gray, 100% = pure
- Value is brightness
 - 0% = dark, 100% = bright

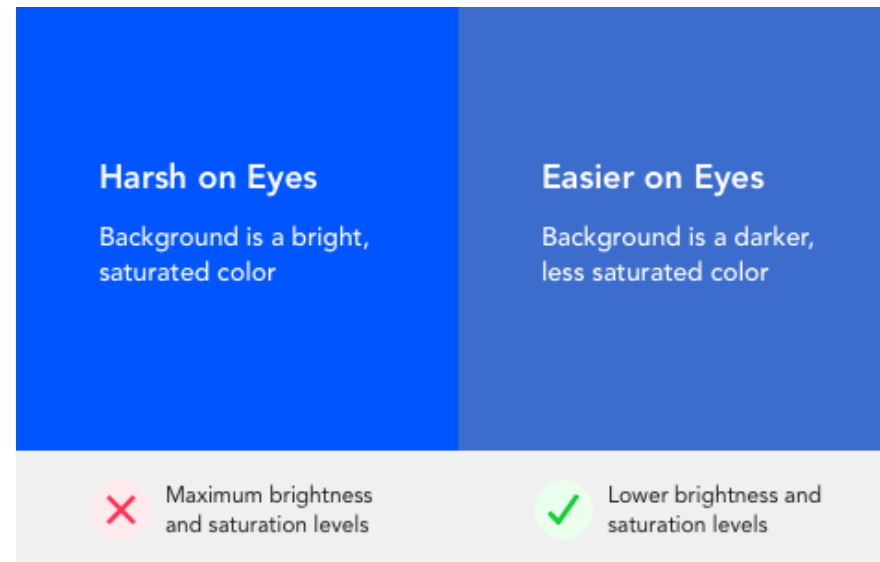
Hue-Lightness-Saturation (HLS)

- White has lightness 1.0
- Pure colors have lightness 0.5



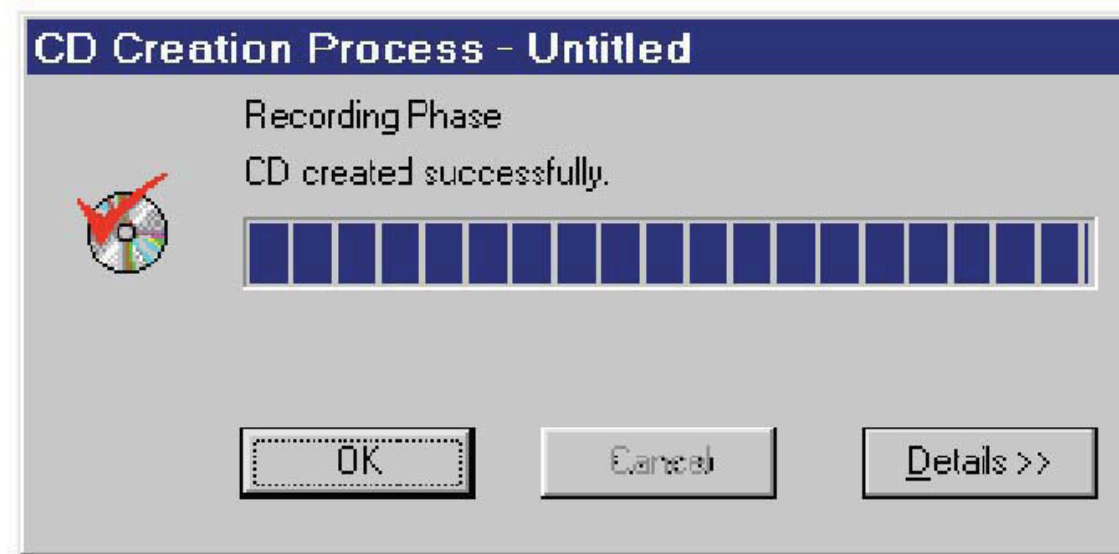
Color Guidelines

- Avoid simultaneous display of highly saturated, spectrally extreme colors
 - Use pastel colors
 - Unless to draw attention to something



Color Guidelines

- Be consistent with conventions and expectations
 - Red means stop/bad/error/attention
 - green means go/good/ok



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Color Guidelines

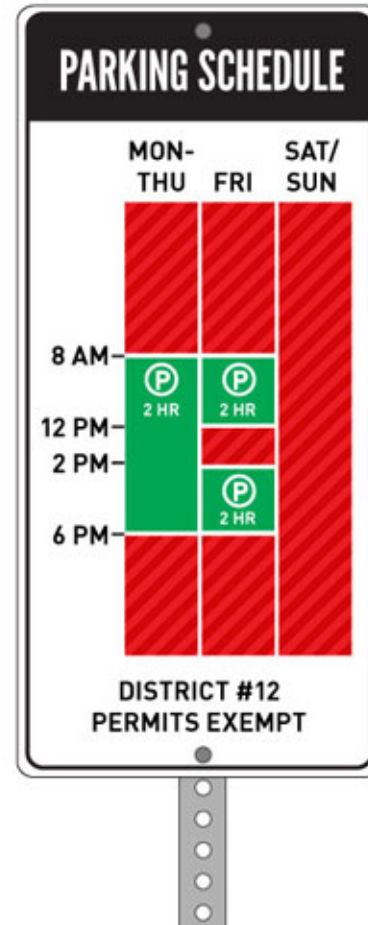
- Judicious use of fewer colors
 - Too many colors look complex, cluttered, distracting



Choosing the good colors

- Search for colors from other interface designs
- Pick colors out of a photograph with natural colors
- Pick one color and several shades of gray
- Use color tools (ColorLovers, NASA Color Usage Research Lab, etc)

US Parking Signs Redesigned



References

- Jennifer Tidwell, **Designing Interfaces (2nd Edition)**, 2001
- Steve Krug, **Don't Make Me Think**, 2000
- Gestalt Principles
- <http://www.smashingmagazine.com/2014/03/design-principles-visual-perception-and-the-principles-of-gestalt/>

References

- Wired: Redesigned Parking Sign
<http://www.wired.com/2014/07/a-redesigned-parking-sign-so-simple-youll-never-get-towed-again/>
- Nikki Sylianteng
<http://toparkornottopark.com/>