

Visual Design

Gestalt Principles

Creating Organization and Structure

Typography

UI Visual Design Objectives

1. **Information communication**
 - Enforce desired relationships (and avoid undesired relationships)
2. **Aesthetics**
 - well designed, complete, well ordered, professional
3. **“Brand”**
 - recognizable as being part of your organization

UI Visual Design Problem

- You need to present elements of your interface to your users
- Those users need to know:
 - What can I do in this interface?
 - Where is _____?
 - What is related to what?
- Want to impose **as little thinking as possible** on your users
 - Let them concentrate on their task, not the interface

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Organization and Structure

- Structure doesn't usually occur naturally, it must be designed
- People will find structure, even if none was intended
 - (and it may be the wrong structure)
- Use Gestalt principles to create structure
 - Perceptual organization for intermediate visual processing

Gestalt Principles

- Theories of visual perception that describe how people tend to organize visual elements into groups or unified wholes, when certain principles are applied.
- Clues about how the brain groups raw visual input

Proximity

Similarity

Continuity

Closure

Connectedness

(pronunciation: <http://www.howjsay.com/index.php?word=gestalt>)

Proximity

- Individual elements are associated more strongly with nearby elements than with those further away



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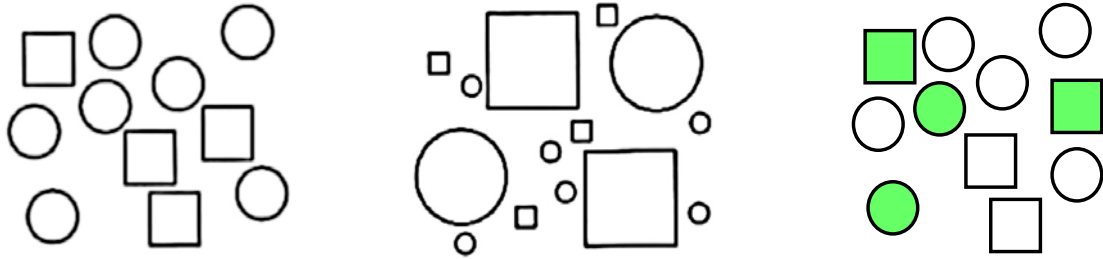
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Similarity

- Elements associated more strongly when they share basic visual characteristics, such as:
 - Shape, Size, Color, Texture, Orientation



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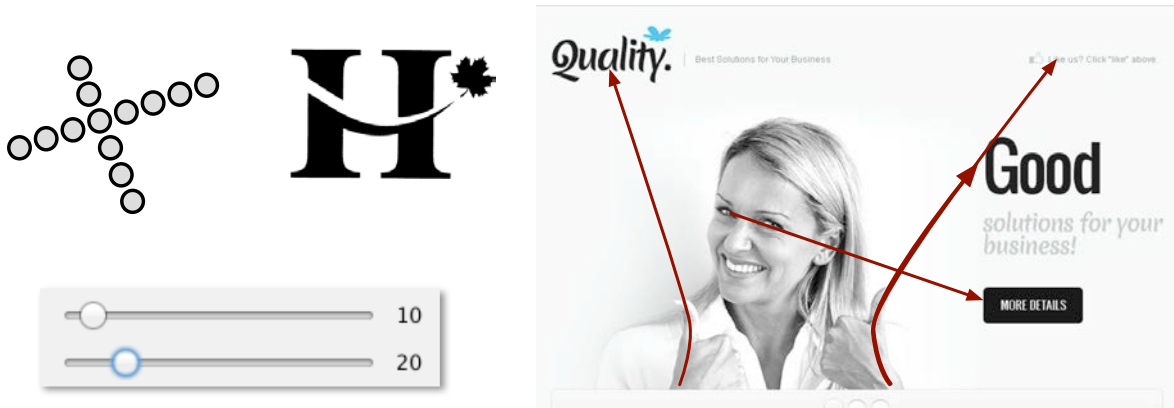
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Continuity

- Elements arranged in a straight line or a smooth curve are perceived as being more related
 - bias to continuous forms rather than disconnected segments



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Closure

- The visual system perceives a set of individual elements as a single, recognizable pattern, rather than individual elements.



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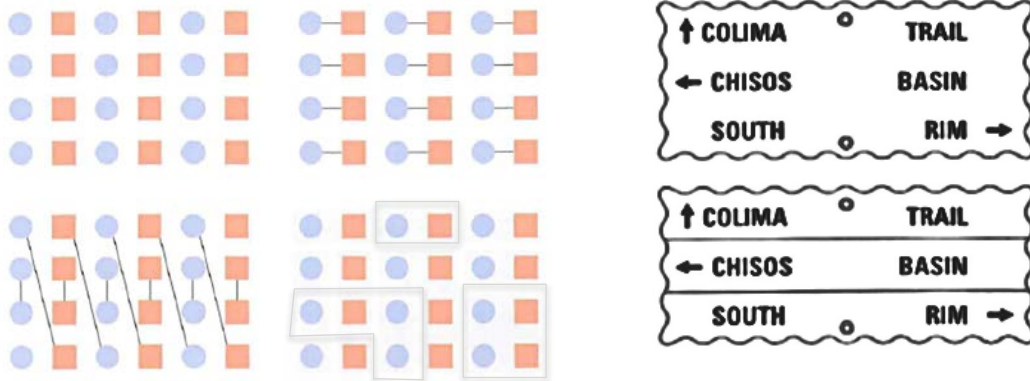
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Connectedness

- Elements connected to one another by uniform visual properties are perceived to be more related than elements that are not connected
- Two typical strategies:
 - connecting lines
 - connecting regions



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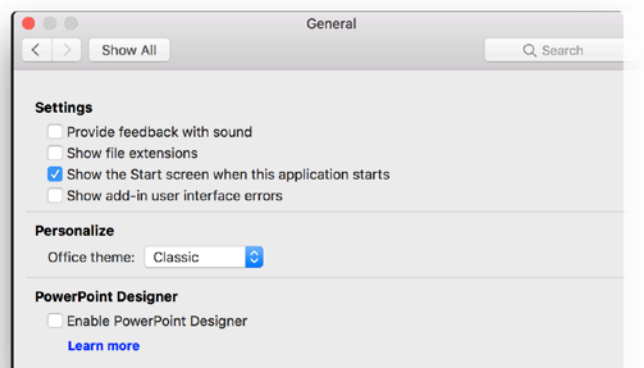
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Creating Organization and Structure

- Grouping
- Hierarchy
- Relationship
- Balance

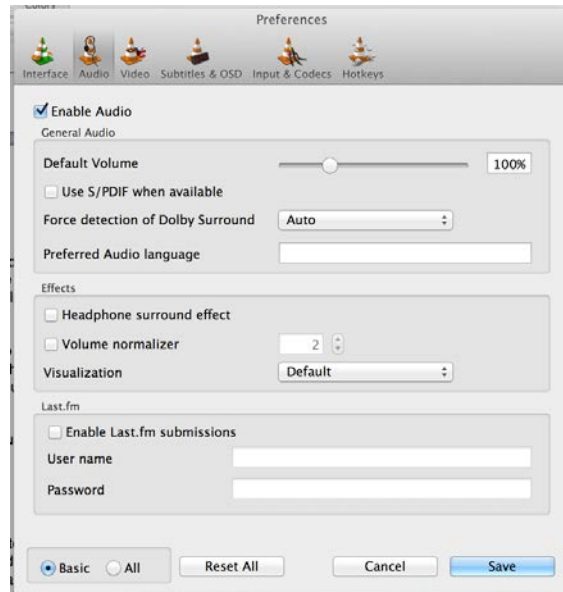
Grouping

- Group elements into higher order units
 - e.g. Newspapers have paragraphs, columns, sections, pages
- Use the Gestalt principles to create groups
- Reserve powerful techniques such as colour and connectedness for explicitly telling the user something



Hierarchy

- a visual hierarchy guides and allows information scanning
- create the hierarchy to support intended reading sequence
- Useful techniques for creating hierarchy:
 - Size, Position, Spacing, White space, Colour



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Relationship

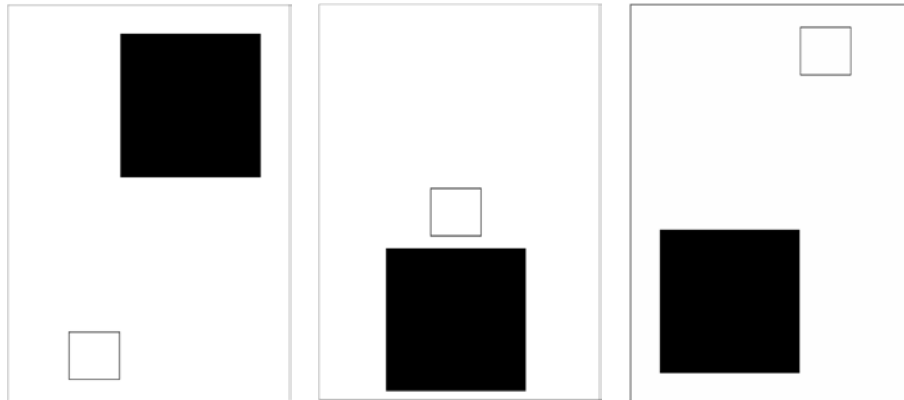
- Establish relationships between elements by using position, size, value (colour, shape, etc.)
- Use position, size, value (colour, shape, etc.)
- Alignment and similarity effective for creating relationships

	Document	Selection
Lines	60	18
Words	460	155
Characters (with spaces)	2645	829
Characters (no spaces)	2279	709
Bytes	2645	829

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Balance

- Try to create a stable composition by balancing elements (similar to physical balance)
- Stability achieved by manipulating properties such as:
 - Position, Size, Hue, Form
- Symmetric layouts naturally achieve balance



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Typography

- The practice of arranging written subject matter.
- Difference between “Typeface”, “Font Family”, and “Font”

typeface

The quick brown fox

The quick brown fox

The quick brown fox

The quick brown fox

The quick brown fox

The quick brown fox

The quick brown fox

The quick brown fox

font family

The quick brown fox

font

The quick brown fox

The quick brown fox

The quick brown fox

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The quick brown fox

The quick brown fox

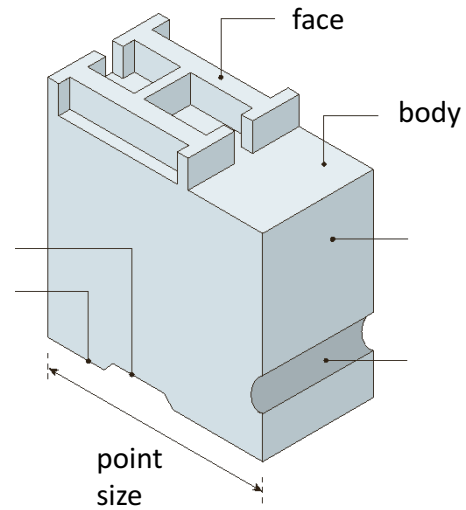
The quick brown fox

Type Styles and Anatomy

- Style (Sans-Serif, Serif, Display, etc)



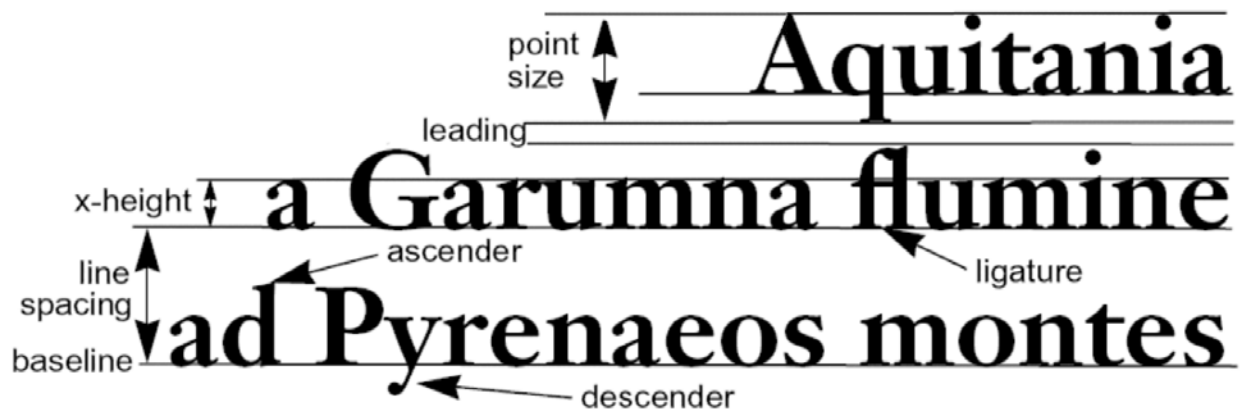
- Weight (e.g. bold)
- Emphasis (e.g. italic)
- Point: 0.351mm = 1/72" (mostly)
 - original Mac was 72 DPI



http://en.wikipedia.org/wiki/Image:Metal_type.svg

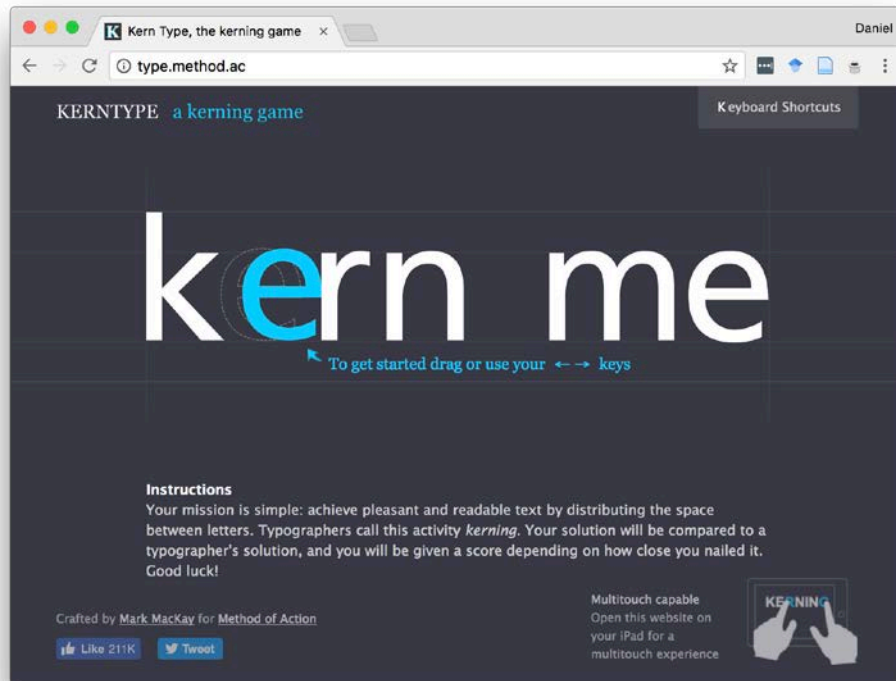
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Terminology



kerning





Kerning Game

- <http://type.method.ac/>

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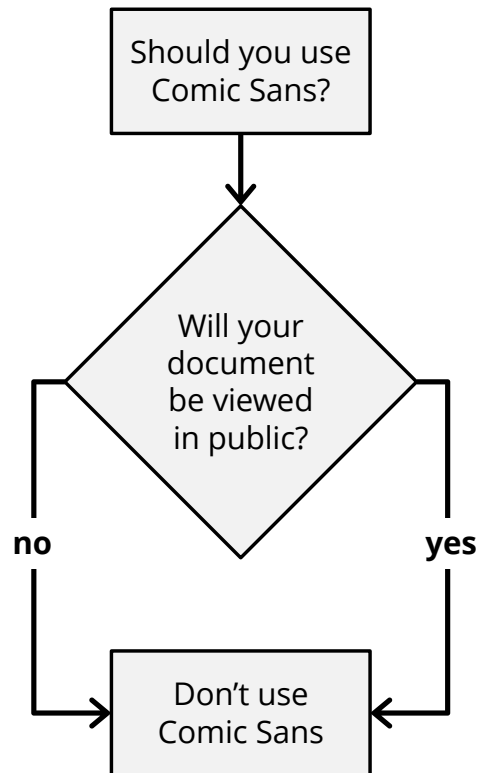
Rules of Thumb

- Avoid using display typefaces like **comic sans**
- Don't use many typefaces
- Avoid underlining (use bold and italics for emphasis)
- Avoid fully justified text



www.mezzoblue.com/.../2005/wdw/type/slides.html

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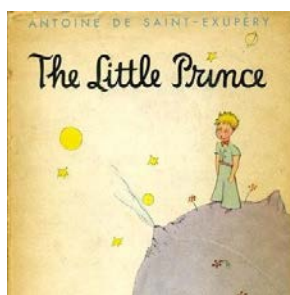
SNL Papyrus Skit
- <https://qz.com/1091639>

Simplicity

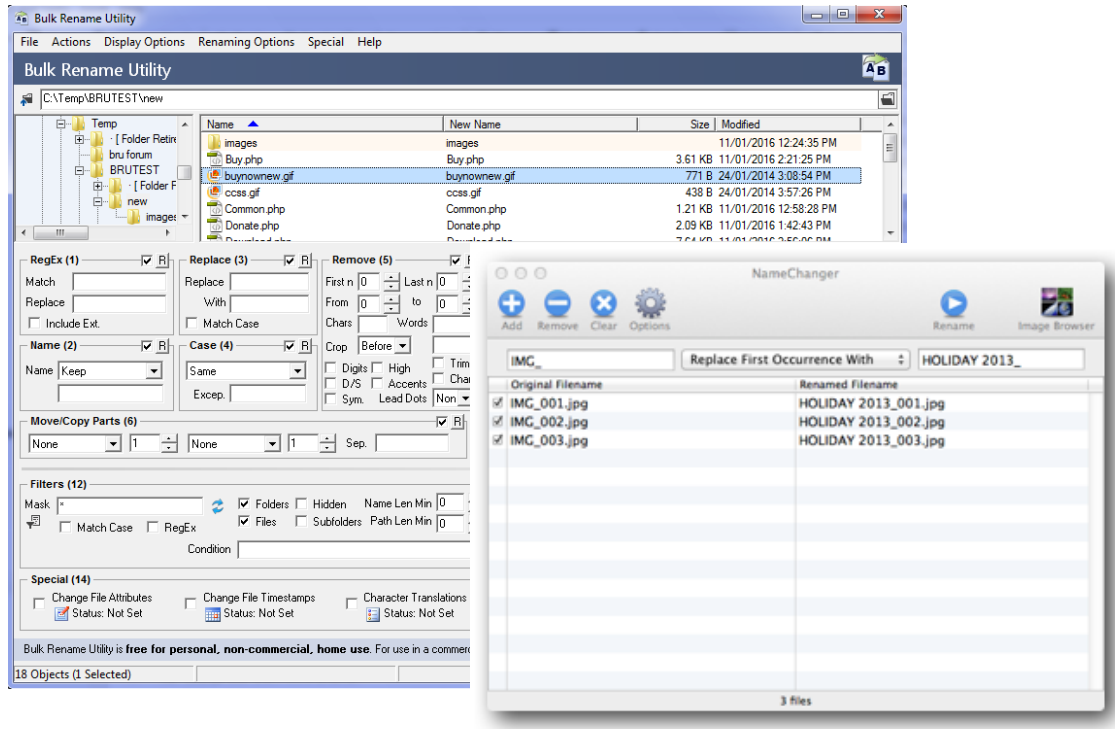
- Present the minimum amount of information to achieve maximum effect
- Functions are **quickly recognized and understood**
 - Less information means less time to process
 - Can more quickly produce correct mental models
- Simplicity also aids recall
 - Less to remember, easier to recall

In anything at all, perfection is finally attained not when there is no longer anything to add, but when there is no longer anything to take away.

-- Antoine de Saint Exupery



What are the Essential Features?



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How to achieve simplicity?

- Reduce, reduce, reduce
- Reduce some more
- Reduce until it hurts

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Impact

- Good visual design can reduce human processing time
- Tullis redesigned lodging information screens (1984)
 - 5.5 vs. 3.2 sec avg search times

Pennsylvania

Bedford Motel/Hotel: Crinoline Courts	(814) 623-9511	S: \$18	D: \$20
Bedford Motel/Hotel: Holiday Inn	(814) 623-9006	S: \$29	D: \$36
Bedford Motel/Hotel: Midway	(814) 623-8107	S: \$21	D: \$26
Bedford Motel/Hotel: Penn Manor	(814) 623-8177	S: \$18	D: \$25
Bedford Motel/Hotel: Quality Inn	(814) 623-5188	S: \$23	D: \$28
Bedford Motel/Hotel: Terrace	(814) 623-5111	S: \$22	D: \$24
Bradley Motel/Hotel: De Soto	(814) 362-3567	S: \$20	D: \$24
Bradley Motel/Hotel: Holiday House	(814) 362-4511	S: \$22	D: \$25
Bradley Motel/Hotel: Holiday Inn	(814) 362-4501	S: \$32	D: \$40
Breezeuood Motel/Hotel: Best Western Plaza	(814) 735-4352	S: \$20	D: \$27
Breezeuood Motel/Hotel: Hotel 70	(814) 735-4385	S: \$16	D: \$18

South Carolina		Area Code	Phone	Rates	
City	Motel/Hotel			Single	Double
Charleston	Best Western	803	747-0961	\$26	\$30
Charleston	Days Inn	803	881-1800	\$18	\$24
Charleston	Holiday Inn N	803	744-1621	\$36	\$46
Charleston	Holiday Inn SW	803	556-7100	\$33	\$47
Charleston	Howard Johnsons	803	524-4140	\$31	\$36
Charleston	Ramada Inn	803	774-8281	\$33	\$40
Charleston	Sheraton Inn	803	744-2401	\$34	\$42
Columbia	Best Western	803	796-9400	\$29	\$34
Columbia	Carolina Inn	803	799-8200	\$42	\$48
Columbia	Days Inn	803	736-0000	\$23	\$27
Columbia	Holiday Inn NW	803	794-9440	\$32	\$39
Columbia	Howard Johnsons	803	772-7200	\$25	\$27
Columbia	Quality Inn	803	772-0270	\$34	\$41
Columbia	Ramada Inn	803	796-2700	\$36	\$44
Columbia	Vagabond Inn	803	796-6240	\$27	\$30

Summary

- Strive for simplicity
- Gestalt principles hint at how brain reacts to visual stimulus
- Use principles to structure a visual design by:
 - Grouping visual information into higher units
 - Creating a hierarchy to guide the user's viewing
 - Establishing relationships between elements
 - Creating a sense of balance

