Basics of Visual Design

(Adapted from Saul Greenberg)
GRIDS
3 Column Grid

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid (page layout)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>From Wikipedia, the free encyclopedia</td>
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<tr>
<td>A typographic grid composed of a series of intersecting vertical and horizontal axes.</td>
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<tr>
<td>The grid in use, typography is arranged flush left, ragged right on the grid.</td>
<td></td>
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<td>A typographic grid is a two-dimensional structure made up of a series of intersecting vertical and horizontal axes used to structure content.</td>
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<td>The grid serves as an armature on which a designer can organize text and images in a rational, easy to absorb manner. The less common printing term “reference grid,” is an unrelated system with roots in the early days of printing.</td>
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</tr>
<tr>
<td>Contents</td>
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<tr>
<td>History</td>
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<td>Antecedents</td>
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Evolution of the modern grid

After World War II, a number of graphic designers, including Max Bill, Ernst Fuchs, and Josef Müller-Brockmann, influenced by the modernist ideas of art movements like the New Typography. The New Typography, began to question the relevance of the conventional page layout of the time. They began to devise a flexible system able to help designers achieve coherence in organizing the page. The result was the modern typographic grid that became associated with the International Typographic Style. The seminal work on the subject, Grid systems in graphic design by Müller-Brockmann, helped propagate the use of the grid, first in Europe, and later in North America.

Reaction and reassessment

By the mid 1970s instruction of the typographic grid as a part of graphic design curricula had become standard in Europe, North America and much of Latin America. The graphic style of the grid was adopted as a look for corporate...
12 Column Grid

Image from: http://tallaricobenaghi.blogspot.com/2011/03/using-grid-systems-for-web-design.html
Qt Designer

Swing GridBagLayout

https://docs.oracle.com/javase/tutorial/uiswing/layout/gridbag.html
http://www.oracle.com/technetwork/java/hig-136467.html#80967
Dmitriy Vyacheslavovich Klokov (Russian: Дмитрий Вячеславович Клоков) (born February 18, 1983)[1] is a former Russian weightlifter. He competed in the 105 kg category. He is 182 cm tall.

Klokov was born in Balashikha, Moscow Oblast.[2] He is the son of World Champion Vyacheslav Klokov, who also competed in the Heavyweight category.[3][4]

He became world champion at the 2005 World Championships, with a total of 419 kg.[1][3]

Klokov also participated at the 2005 and 2006 Arnold Sports Festivals in Columbus, Ohio.[5]

At the 2006 World Championships and 2007 World Championships he ranked 3rd.[3][6]

Klokov won the silver medal at the 2008 Summer Olympics, with a total of 423 kg.[1]

Klokov won the silver medal at the 2011 World Weightlifting Championships, with a 196 kg snatch, 232 kg clean and jerk for a total of 428 kg at a body weight of 104.6 kg. He lost to a fellow Russian, Khadzhimurat Akkayev by 2 kilos (on the snatch).

Klokov was scheduled to compete at the 2012 Summer Olympics in the 105 kg class but was forced to withdraw due to undisclosed medical reasons.

In May 2015, Klokov announced his retirement from international competition.[7] Klokov recently signed with the Baltimore Anthem of the National Pro Grid League.

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Comprehension
Hierarchy
ALIGNMENT
Alignment: Rules of Thumb

Alignment guides the eye.
We noticed patterns; deviate from patterns strategically.
Avoid slight misalignments.
Visual proximity suggests relationship.
Small / Large; scale communicates importance.
Text Alignment

Left-aligned text is usually easier to read. It’s also easier to skim.

Center-aligned text is harder to read. It’s harder to skim information when it’s not left-aligned.
Right Aligned Text
COLOR
Design in Grayscale

Design for old and new-fangled media, like interfaces, icons and identities
Design in Grayscale

Design for old and new-fangled media, like interfaces, icons and identities
Keep the Luminance
Advice

• Use minimal color palette
• Use colors consistently
• Draw attention with contrast
• Use bold colors to draw attention sparingly
Choosing Colors

http://paletton.com
ICONS
What does it mean?
What does it mean?

Time?
Set Clock Time?
Set Alarm?
New Meeting?

Rating?
Heart Monitor?
Send Love Note?

Ice Cream?
Set Address?
Setup GPS?
Context Matters; So do Labels
Reference

http://iconhandbook.co.uk/book/
GETTING STARTED
CRAP

• **Contrast**
  – make different things different
  – brings out dominant elements
  – mutes lesser elements
  – creates dynamism

• **Repetition**
  – repeat design throughout the interface
  – consistency
  – creates unity

• **Alignment**
  – visually connects elements
  – creates a visual flow

• **Proximity**
  – groups related elements
  – separates unrelated ones
Process

1. Establish groups of related items
2. Are there things that have limited/no utility? Get rid of them.
3. Of the remaining stuff, what’s most important? What do you want users to see first, second, third, etc?
4. Start sketching a variety of different possible layouts keeping CRAP ideas in mind. Less is often more.
5. Translate best two sketches to a more detailed grid sketch.
Wireframing

WALL OF SOUND WEBSITE REDESIGN | WIRE FRAMES

Image from: https://britzerbo.files.wordpress.com/2013/11/wos_wf_home.jpg
Do you really want to delete the file “myfile.doc” from the folder “junk”?

Cannot move the file “myfile.doc” to the folder “junk” because the disc is full.

The file was destroyed

Template Wireframes
Two-level Hierarchy
- indentation
- contrast

Logic of organizational flow

Alignment connects visual elements in a sequence

Grouping by white space
HUMAN EYES & PERCEPTION
Human Visual System

- Light passes through lens
- Focused on retina
Retina

- Retina covered with light-sensitive receptors?
  - rods
    - primarily for night vision & perceiving movement
    - sensitive to broad spectrum of light
    - can’t discriminate between colors
    - sense intensity or shades of gray
  - cones
    - used to sense color

http://www.webexhibits.org/causesofcolor/1G.html
Color Perception via Cones

• “Photopigments” used to sense color
• 3 types: blue, green, “red” (really yellow)
  – each sensitive to different band of spectrum
  – ratio of neural activity of the 3 → color
    • other colors are perceived by combining stimulation
Color Sensitivity

from http://insight.med.utah.edu/Webvision/index.html
Distribution of Photopigments

• Not distributed evenly – mainly reds (64%) & very few blues (4%)
  – insensitivity to short wavelengths (blue)
• As we age lens yellows & absorbs shorter wavelengths
  – sensitivity to blue is even more reduced
• Implication
  – don’t rely on blue for text or small objects!

http://www.webexhibits.org/causesofcolor/1G.html
Color Deficiency  
(AKA “color blindness”)

• Trouble discriminating colors  
  – besets about 9% of population

• Two main types  
  – \textit{different photopigment response} most common  
    • reduces capability to discern small color diffs  
  – \textit{red-green deficiency} is best known  
    • lack of either green or red photopigment → can’t discriminate colors dependent on R & G
Color Deficiency Example

Add/Update Shipping Information

We found an error while verifying your shipping address.
We've marked the problem in red for you.

Update the address book of

Required information is marked in GREEN CAPS.
HELP for questions about shipping.

NICKNAME: MYSELF

Please assign a "nickname" for the person you're shipping to. You may change or delete this information at any time.

FIRST NAME: DOUGLAS
LAST NAME:
ADDRESS: 245 SAN JOSE RD

(City is optional)

CITY: LOS GATOS
STATE/PROVINCE: California

ZIP/POSTAL CODE: 95333
COUNTRY: Select a country

SHIPPING METHOD: In the U.S.: HELP
- Standard UPS (2 business days plus)
- Canada Post (4-10 business days)

International: HELP
- Canada Canada Post
- Other (if country is not USA or Canada)
Protanopia
Achromatopsia
Color Guidelines

• Avoid simultaneous display of highly saturated, spectrally extreme colors
  – e.g., no cyans/blues at the same time as reds, why?
    • refocusing!
  – desaturated combinations are better → pastels
Using the Hue Circle

- Pick non-adjacent colors
  - opponent colors go well together
    - (red & green) or (yellow & blue)
Color Scheme Generators

http://www.colorsontheweb.com/colorwizard.asp
Increase Contrast

• When in doubt, lighten your light and darken your dark. This helps make interfaces more readable for those with impaired vision.
More contrast advice

• Contrast dark colors from the bottom half of the circle with light colors from the top.
The layout of information on the page also impacts how quickly users can find the information they need.
# Color for Grouping

<table>
<thead>
<tr>
<th>Black Hills Forest</th>
<th>Peters Landing</th>
<th>Jefferson Farms</th>
<th>Devlin Hall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheyenne River</td>
<td>Public Health</td>
<td>Psychophysics</td>
<td>Positions</td>
</tr>
<tr>
<td>Social Science</td>
<td>San Bernardino</td>
<td>Political Science</td>
<td>Hubard Hall</td>
</tr>
<tr>
<td>South San Jose</td>
<td>Moreno Valley</td>
<td>Game Schedule</td>
<td>Fernadino Beach</td>
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<tr>
<td>Badlands Park</td>
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<td>Council Bluffs</td>
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<tr>
<td>Juvenile Justice</td>
<td>Peach Tree City</td>
<td>Cherry Hills</td>
<td>Classic Lit</td>
</tr>
<tr>
<td>Results and Stats</td>
<td>Highland Park</td>
<td>Creative Writing</td>
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</tr>
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<td>Thousand Oaks</td>
<td>Machesney Park</td>
<td>Lake Havasu City</td>
<td>Greek</td>
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<td>Promotions</td>
<td>Vallecito Mts.</td>
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<td>North Palermo</td>
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<td>Theater Auditions</td>
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## Lines for Grouping

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Which is faster?

vs.
Which is faster?

It takes people more time to find a specific item in the colored display case than in the boxed display case.
Focus

• Different wavelengths of light focused at different distances behind eye’s lens
  – need for constant refocusing → ?
    • causes fatigue
  – be careful about color combinations

• Pure (saturated) colors require more focusing then less pure (desaturated)
  – don’t use saturated colors in UIs unless you really need something to stand out (stop sign)
Importance?

• Do not interpret that as “always use boxes”
• Instead, use it as concrete example that layout does matter and that you need to pay attention.
Which is faster?

If a display choice has the potential to significantly impact user performance, run a quick experiment.
When in doubt...

• Run a quick test:
  – Create two (or more but don’t go crazy) alternative designs
  – Ask people to locate particular elements of the interface
  – Time them

• This *will not* tell you that your logical structure makes sense, but it can help you to decide on a layout.
Useful Resources

Color Choice

• http://colorschemedesigner.com/
• http://www.colorschemer.com/online.html
• http://kuler.adobe.com/

Font Choice

• http://morganelye.com/?p=433
• http://www.willharris.com/fontpair-d-i.htm