

Human Computer Interaction  
INTERACTION  
PRINCIPLES FOR DESIGN

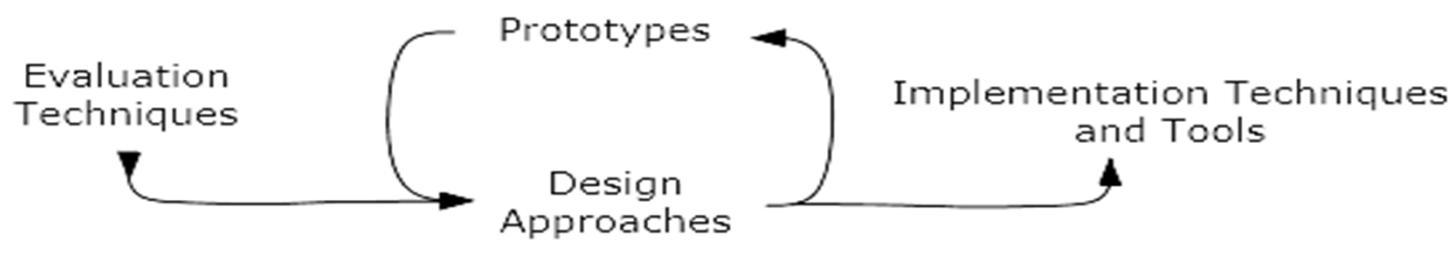
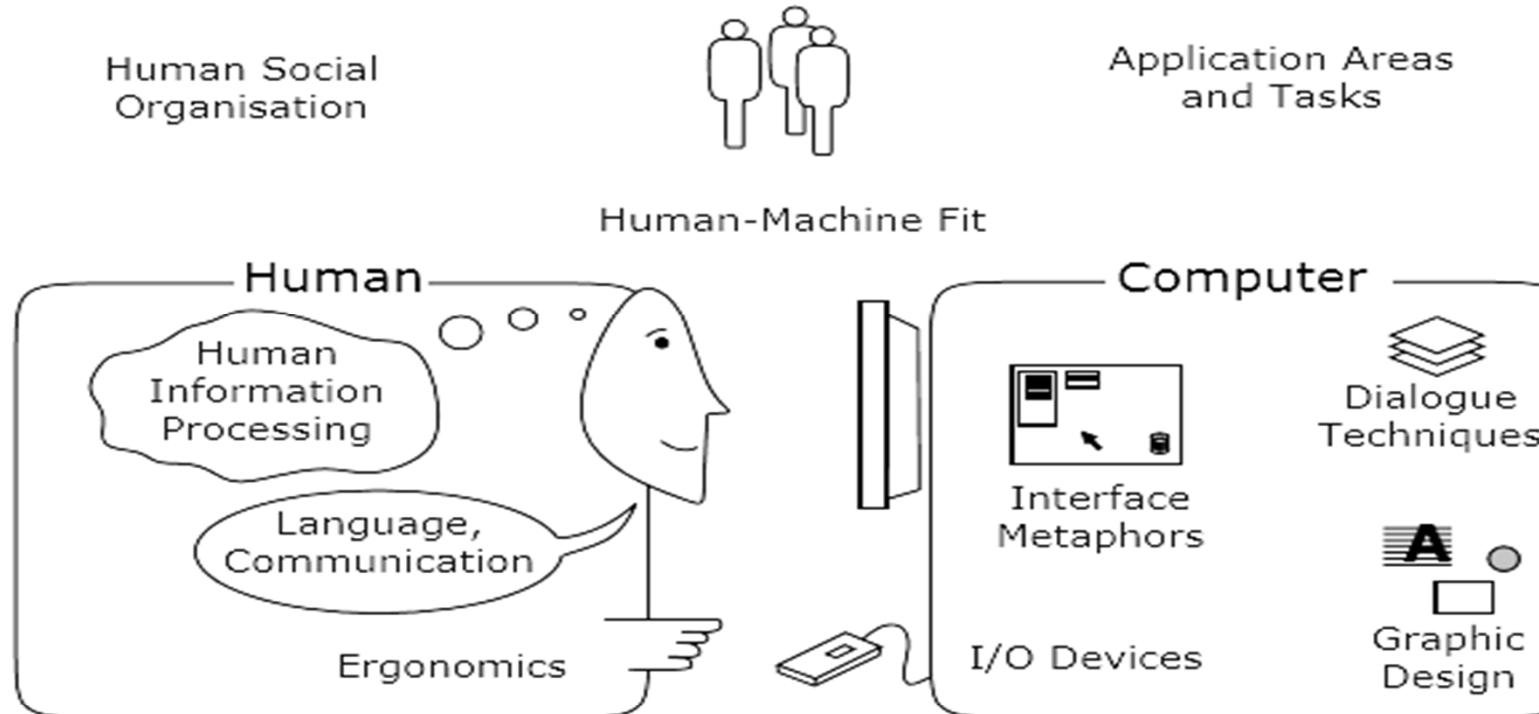
By: Nguyễn Công Hoan

# Reference

- Donald Norman, **The Design of Everyday Things, MITPress, 23 Dec 2013**
- **Tutorial Teaching of Prof. Dr. Keith Andrews, Graz University of Technology**

# Content

## Use and Context



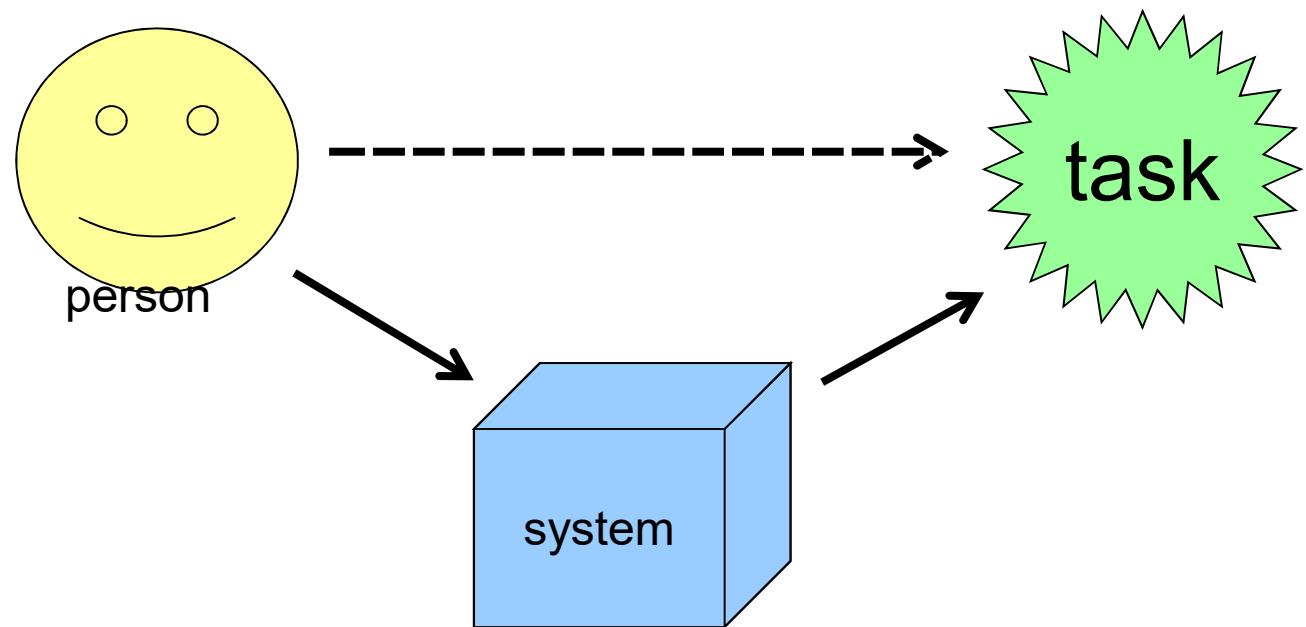
The nature of Human-Computer Interaction. Adapted from the ACM SIGCHI Curricula for Human-Computer Interaction [Hewett et al., 2002]

# Agenda

- Interaction design
- Principles for Design
- Apply Norman's principle

# Interaction design

- People are trying to accomplish their tasks in life.  
(system independent)



- Introduce a system,  
User Interface should **maximize** their ability

# Interaction design

- Design interactive products to support people in their everyday and working lives.
- Extend the way people work, communicate & interact.
- Designer vs Engineer

Designer defines what something ought to be,  
Engineer implements that

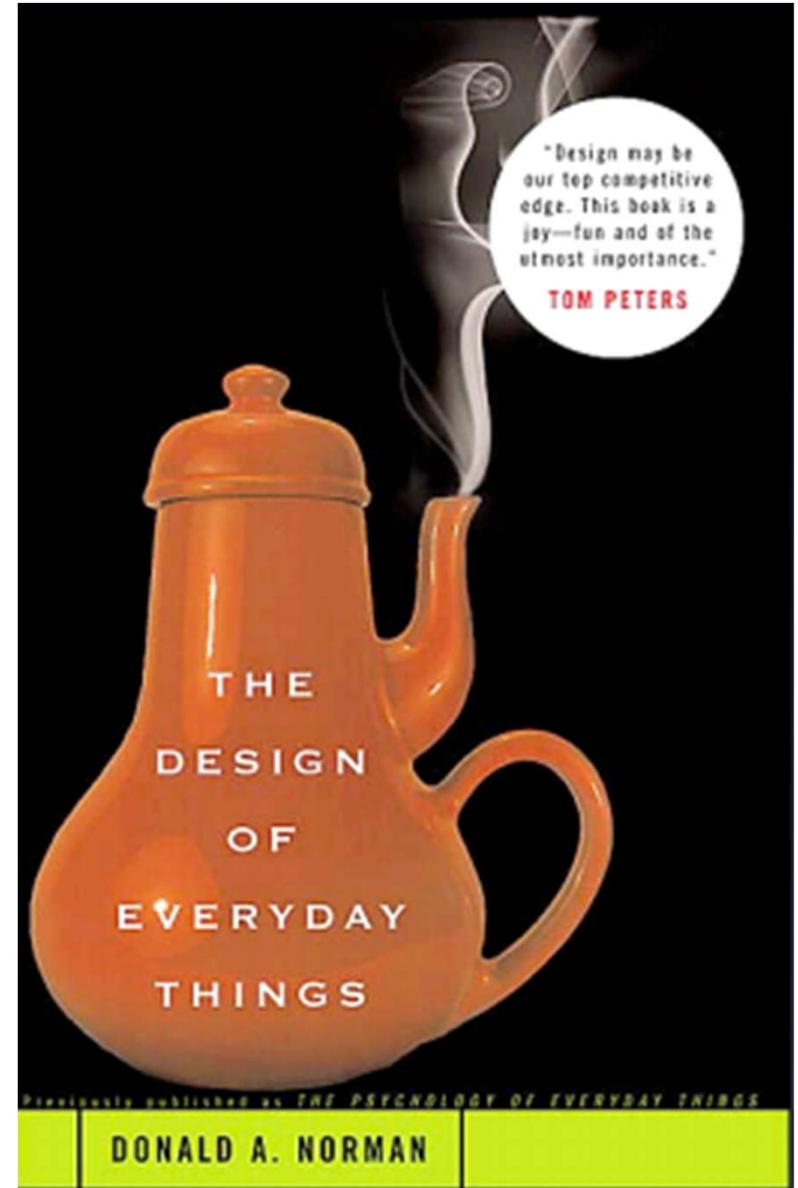
# Why Interaction Design?

- Market forces: user expectancy, competitive software...
- Good design earns money
- Bad design results in:
  - Physical and emotional injury
  - Equipment damage
  - Decreased productivity
  - Higher error rates
  - User's anger and frustration

Bad design loses money & even more...

# Principles for Design

1. Visibility
2. Affordance
3. Constraint
4. Mapping
5. Feedback



# Visibility

- The correct parts must be visible and they must convey the correct message
- By looking at the system, users should know:
  - Possible actions
  - Results of their actions
  - State of the system

## Universal Remote



# Visibility





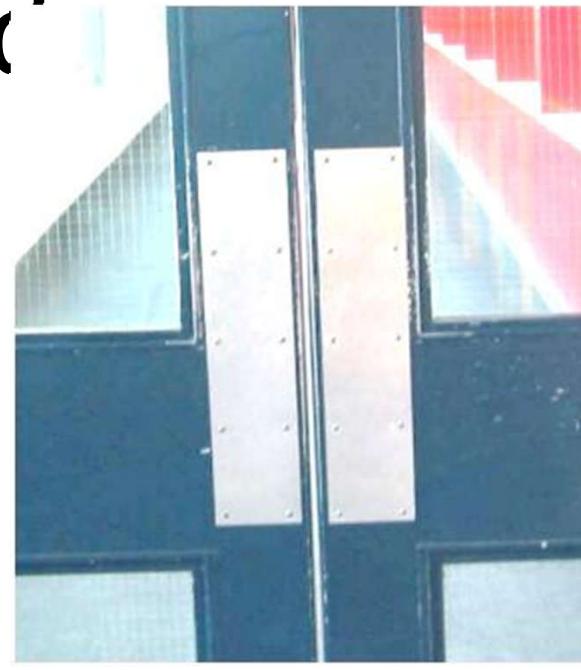
# Affordance

- The affordances of an object determine, naturally, how it can be used
  - Chair affords sitting;
  - Button affords pushing
  - Scrollbar affords moving up & down;
  - Textbox affords texting
- By looking, users should know how to use the systems
- Actual affordance vs Perceptual affordance
- Affordances rely on learned conventions.

Pull



Push



?

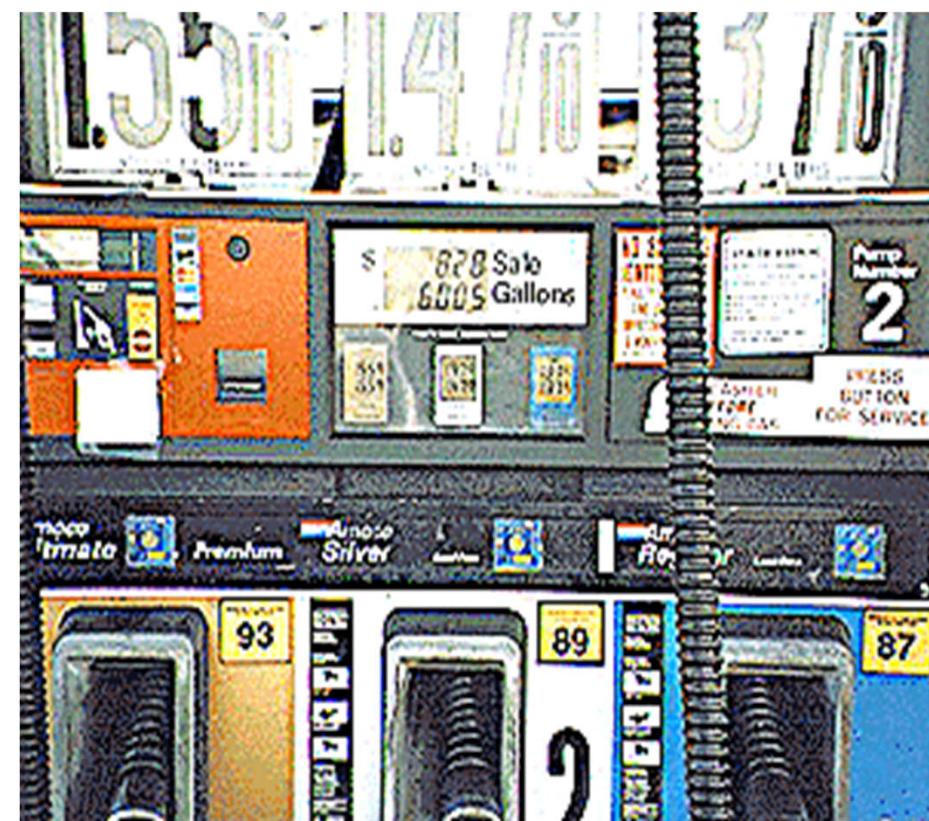


?

?



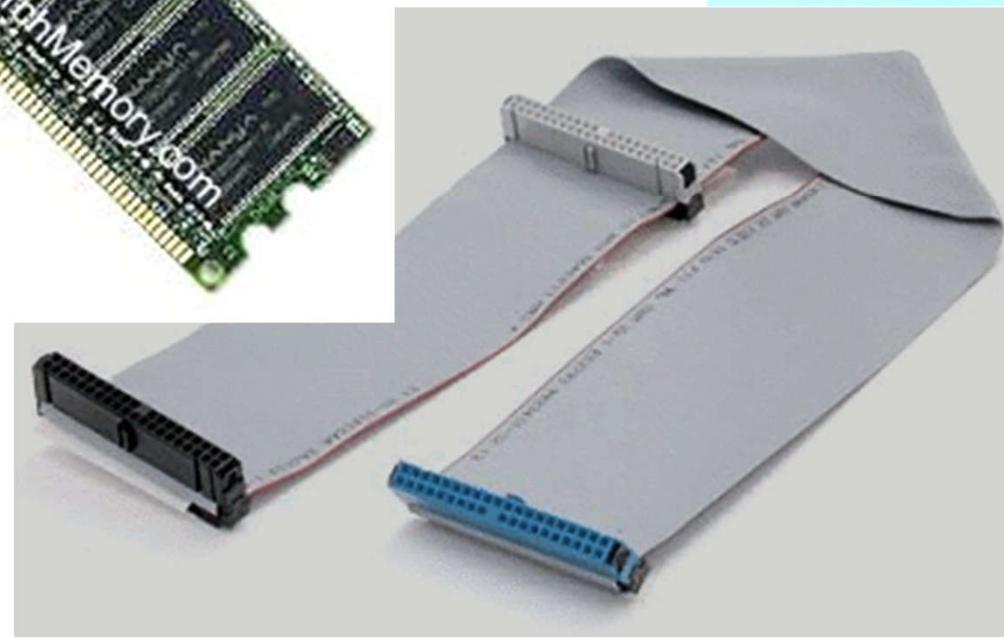
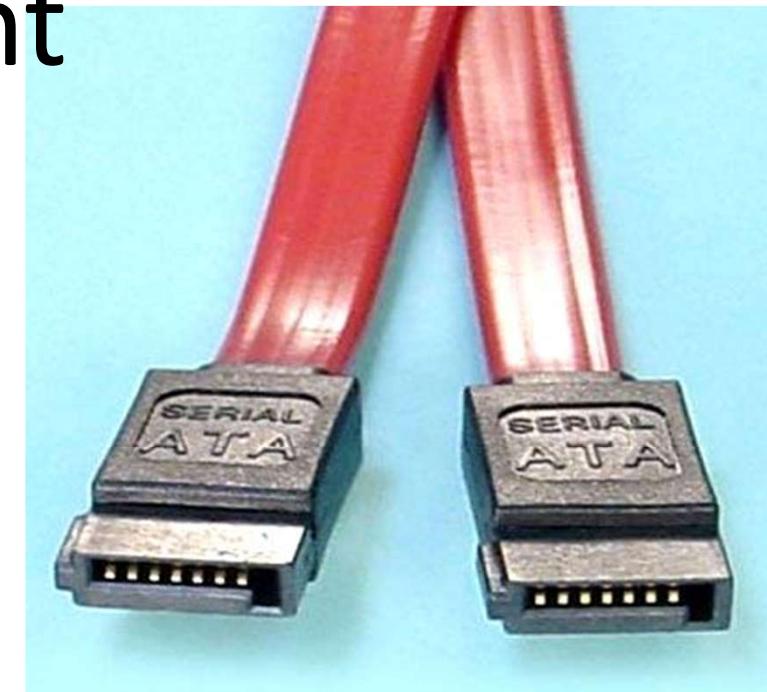
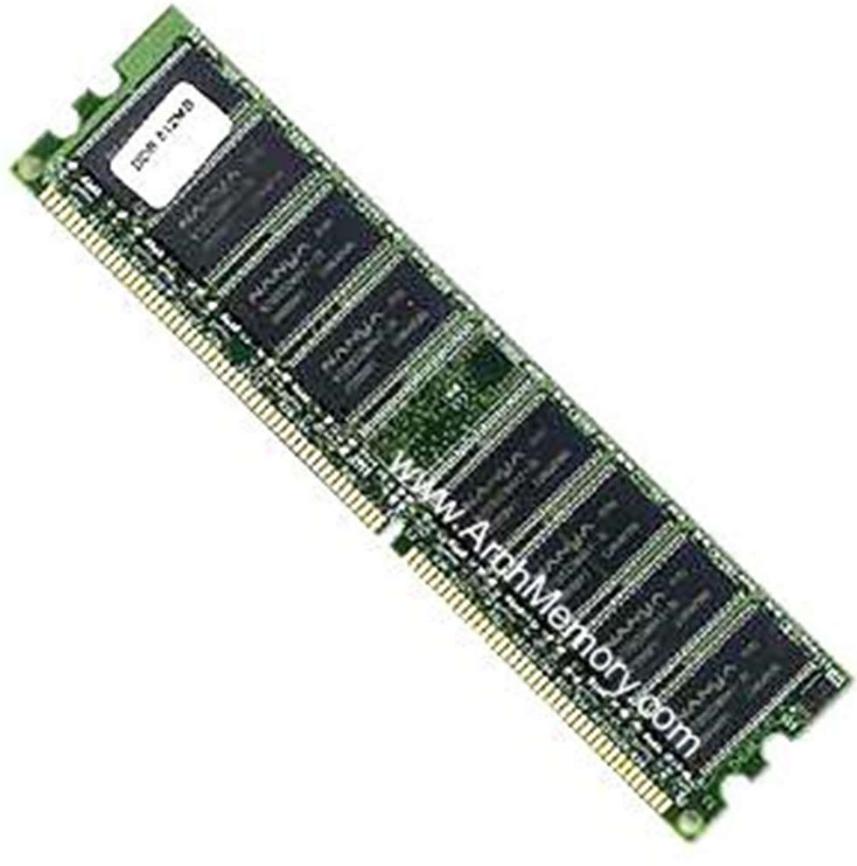
# Affordance



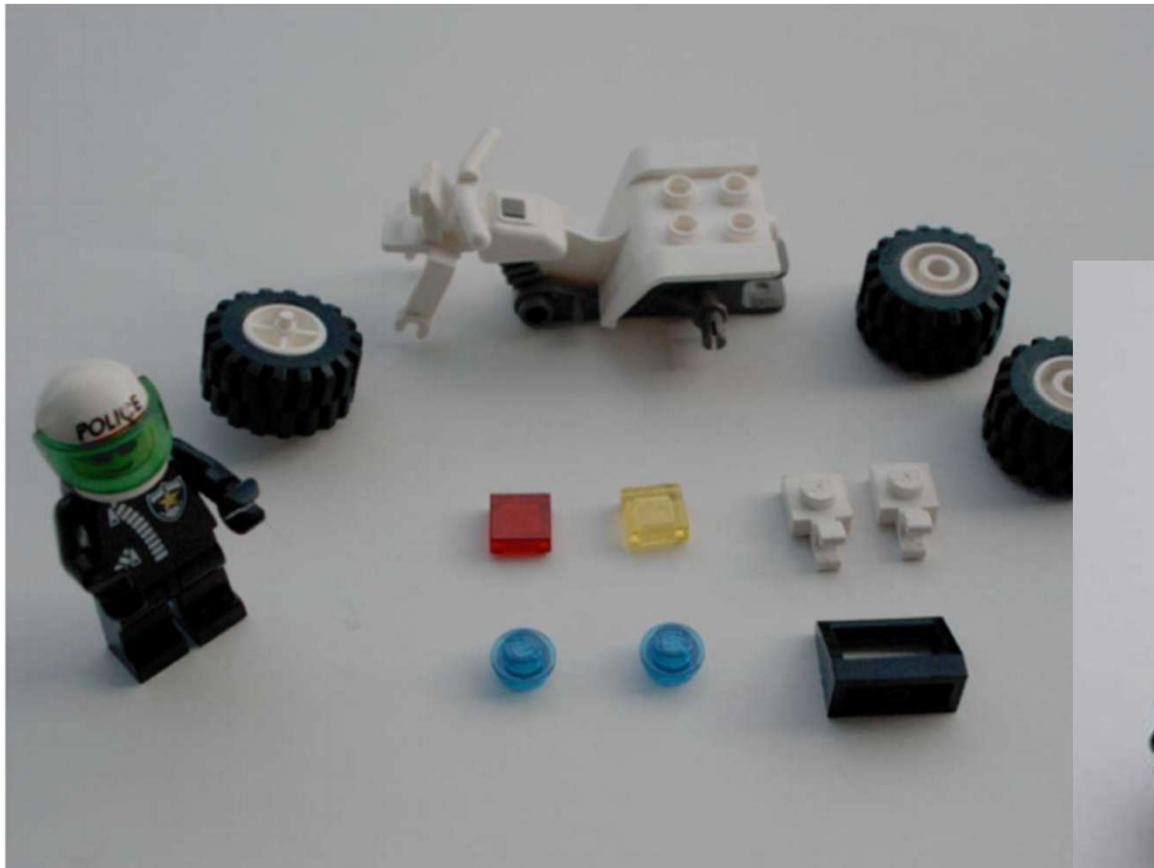
# Constraint

- Constraints limit the possible actions of an object.
- Constraints prevent users from making errors.
- Constraints can be
  - Physical
  - Logical
  - Cultural

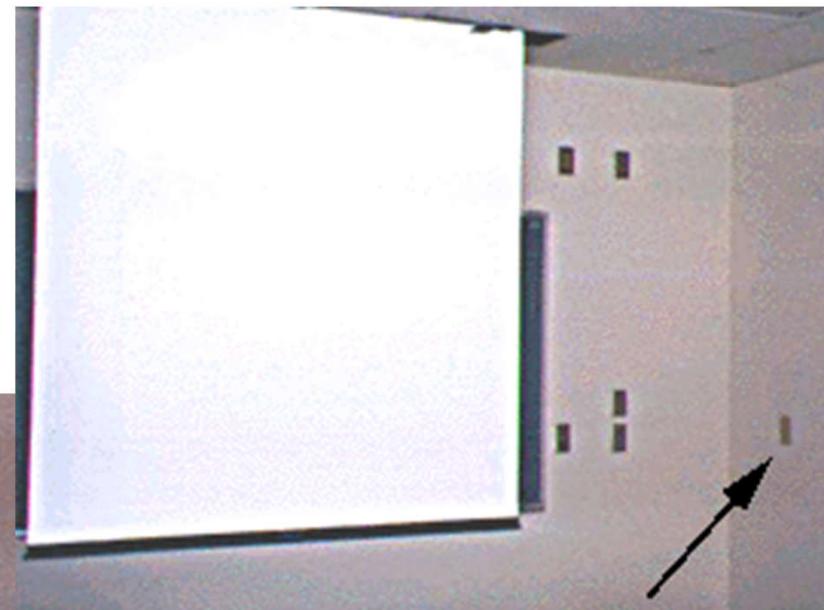
# Constraint



# Constraint



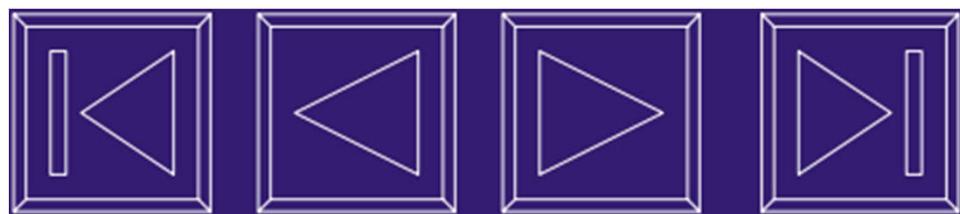
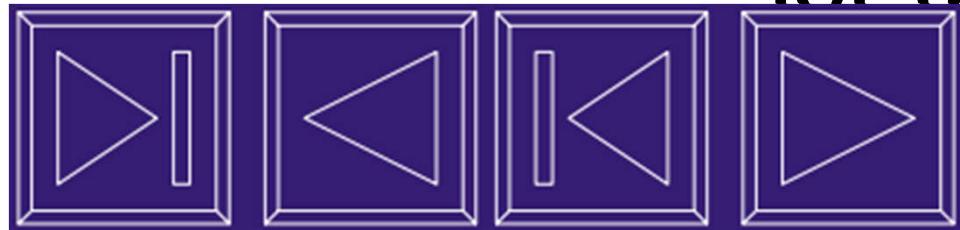
# Constraint



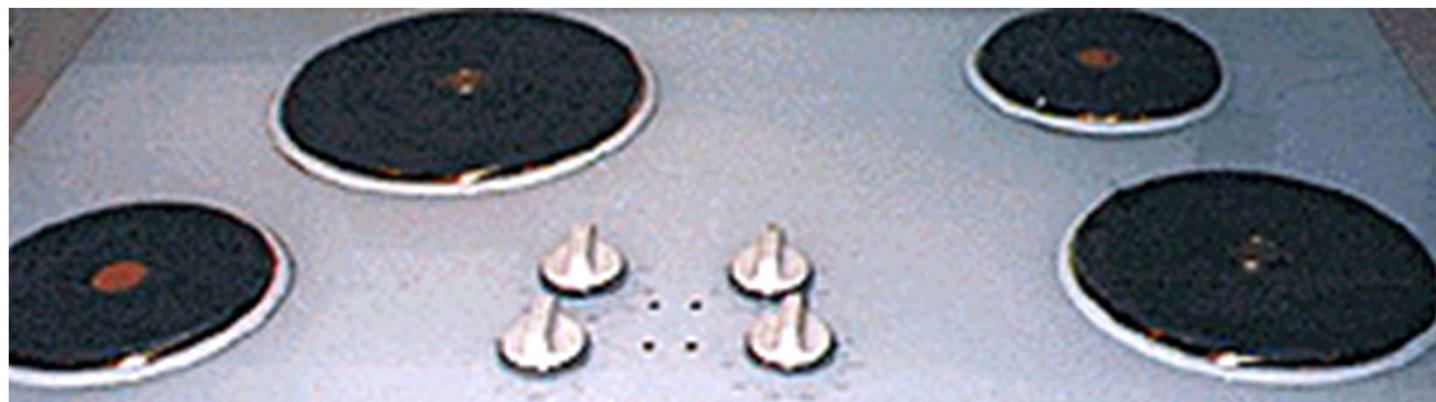
# Mapping

- Mappings are the relationships between controls and their effects on a system.
- Natural mappings take advantage of physical analogies and cultural standards.

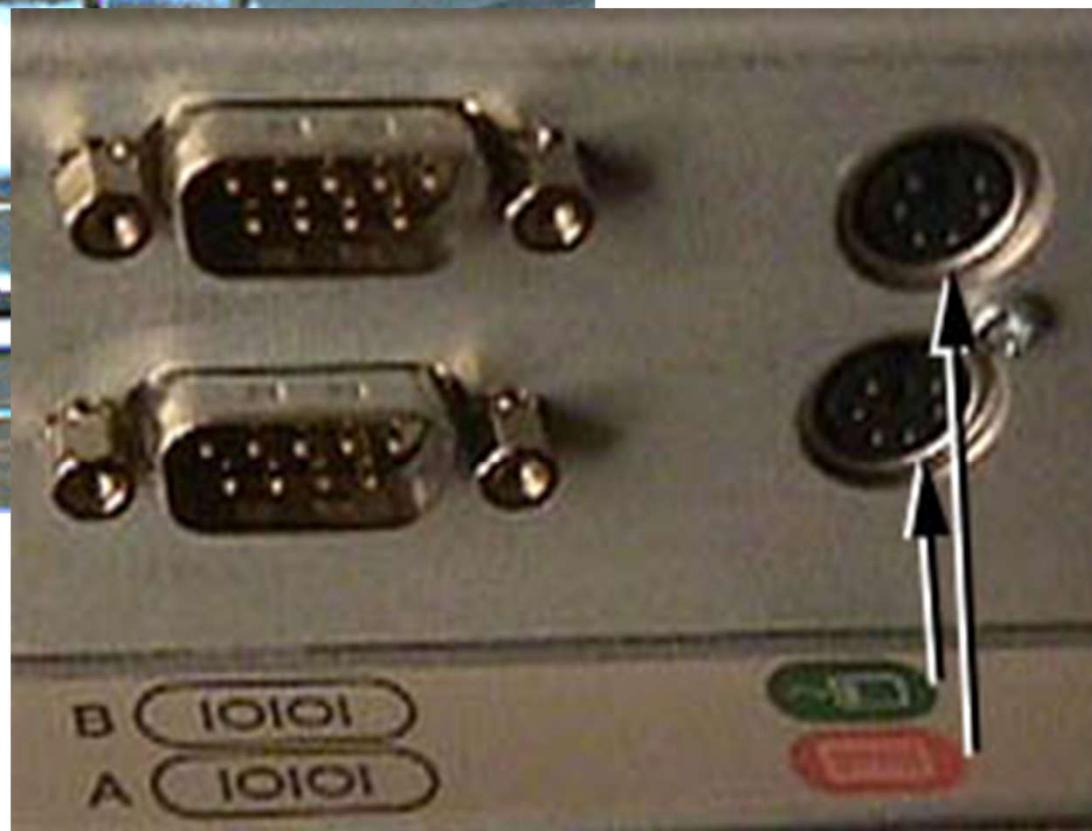
# Mapping



# Mapping



# Mapping



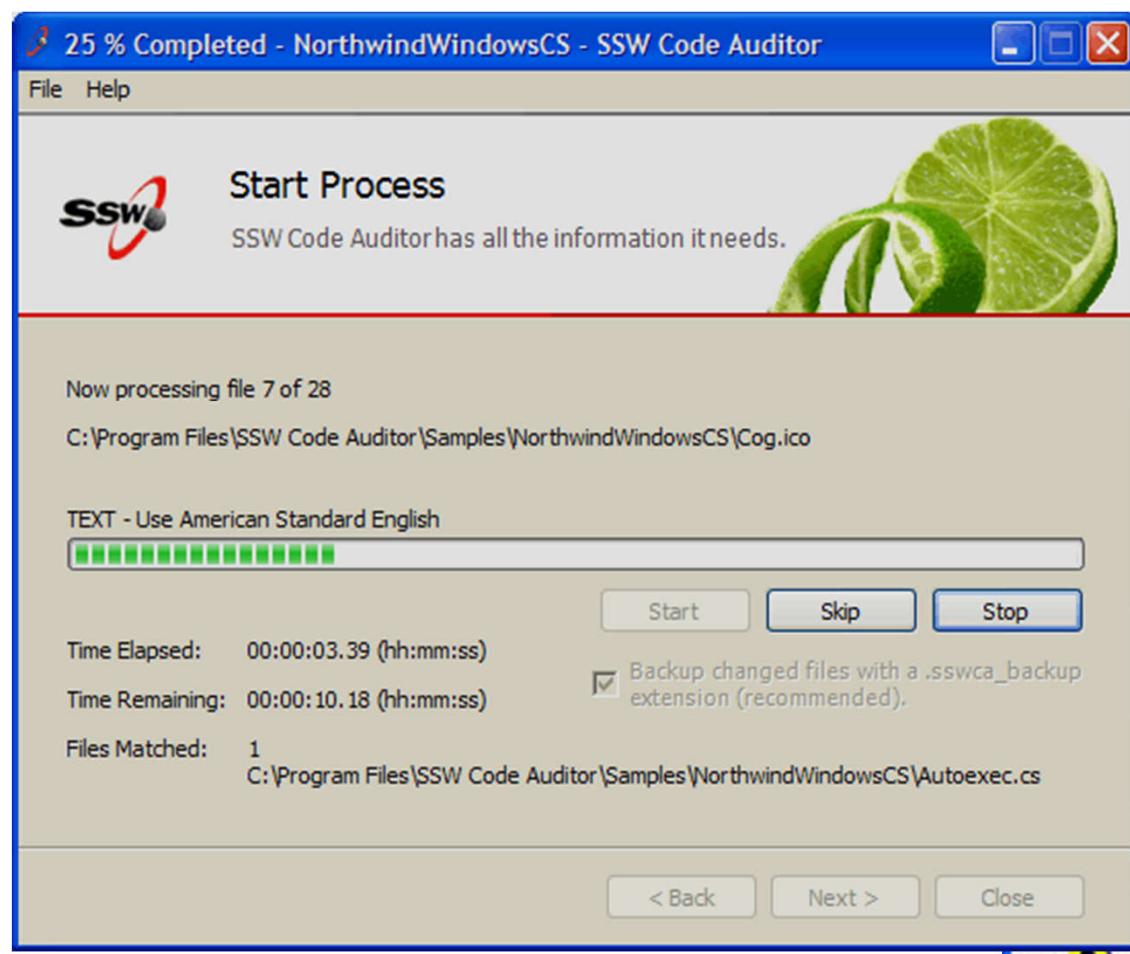
# Feedback

- Feedback is sending back to the user information about what action has been done.
- Visibility of the effects of the operation tell whether if something worked correctly.
- Feedback to ensure users know what to do next.

# Feedback



# Feedback



# Feedback

```
usCallback(TRUE));
```

```
ection(strServerName, nPort);
```

```
CHttpConnection::HTTP_VERB_GET,  
NULL, dwHttpR  
aders);
```

```
Ret);
```

```
pt the user fo
```

```
ED)
```

```
g(NULL, ERROR_INTERNET_INCORRECT_PASSWORD,  
GENERATE_DATA | FLAGS_ERROR_UI_FLAGS_CHANGE_OI
```

the dialog, bail out



# Principles for Design

- Visibility
- Affordance
- Constraint
- Mapping
- Feedback
- →The relationships of these principles

How can we apply  
Norman's principles to  
Interaction Design?

# Visual GUIs design

- Communication via Visual Language
- Functional > Aesthetic
- Simplicity > realism
- Geometry: scale, contrast & proportion
- Management: visual organization
- Grids: modular visual design
- Semiotics: icons & symbols as signs
- Style

# Visual language

- Vocabulary by visual elements
- Syntax by usage rules for elements
- Literacy by experience of designer & user
- Style skill by w/ vocabulary & syntax

# Elegance and Simplicity

- Reduce design elements to a minimum
  - functionality not photo-realism
  - reduce visual search (and cognitive) load
- Simple designs are more: approachable  
recognizable, remembered usable  
(immediately and thereafter)

# Reduction

- Determine essential qualities(adjectives) -- color, labels, controls
- Is each element needed? Would the design suffer if removed?
- Test element's necessity by removing it. If design is fine omit element.
- Omitted elements can be indirectly accessible via menus -- option
- buttons

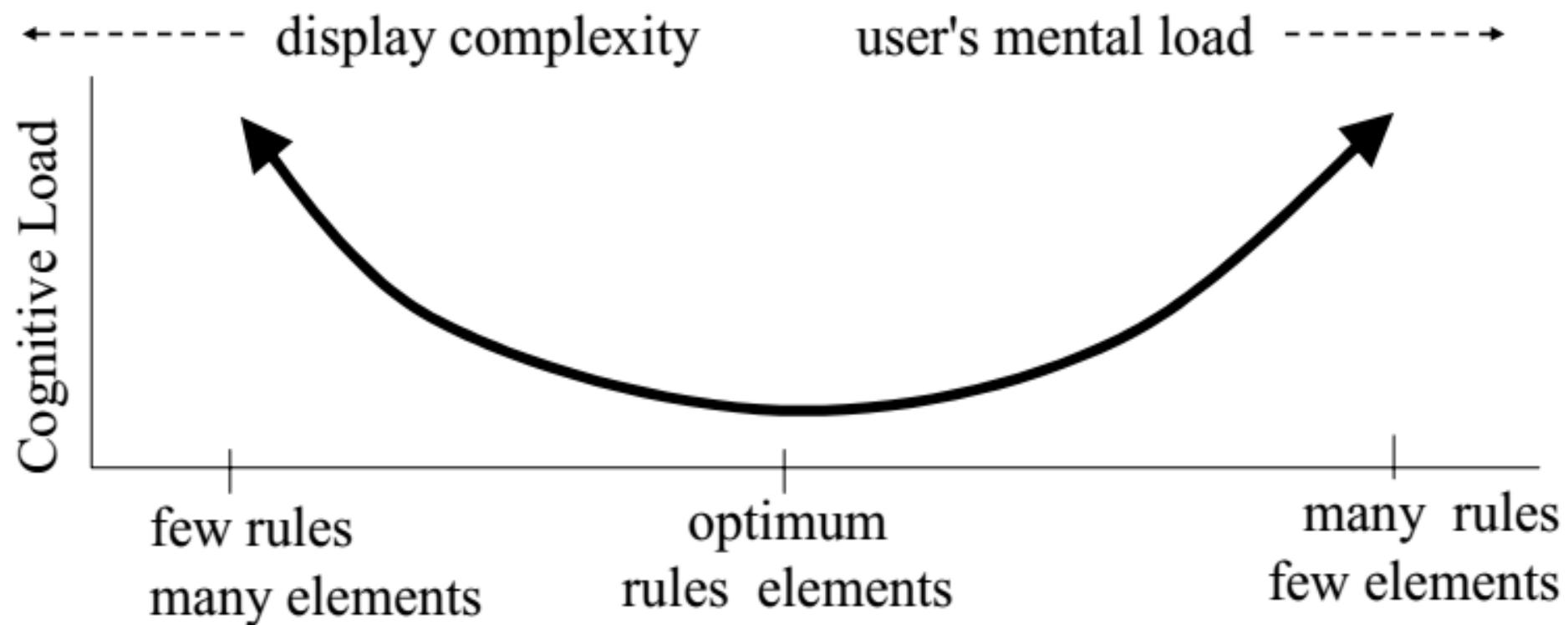
# Regulation

- Use regular shapes, simple contours, muted colors
- Make multiple similar forms visual properties identical (size, shape, alignment, spacing ...)
- Limit font variation to few sizes in two families
- Do not regularize *critical elements* -- make them stand out (novel)

# Leverage Design Rules /Elements

- Find multiple elements doing similar functions
- Design a combined element for the functions
- Do not overload the modality of elements.
- Design trade off between simple interface and cognitive load (rules for use)

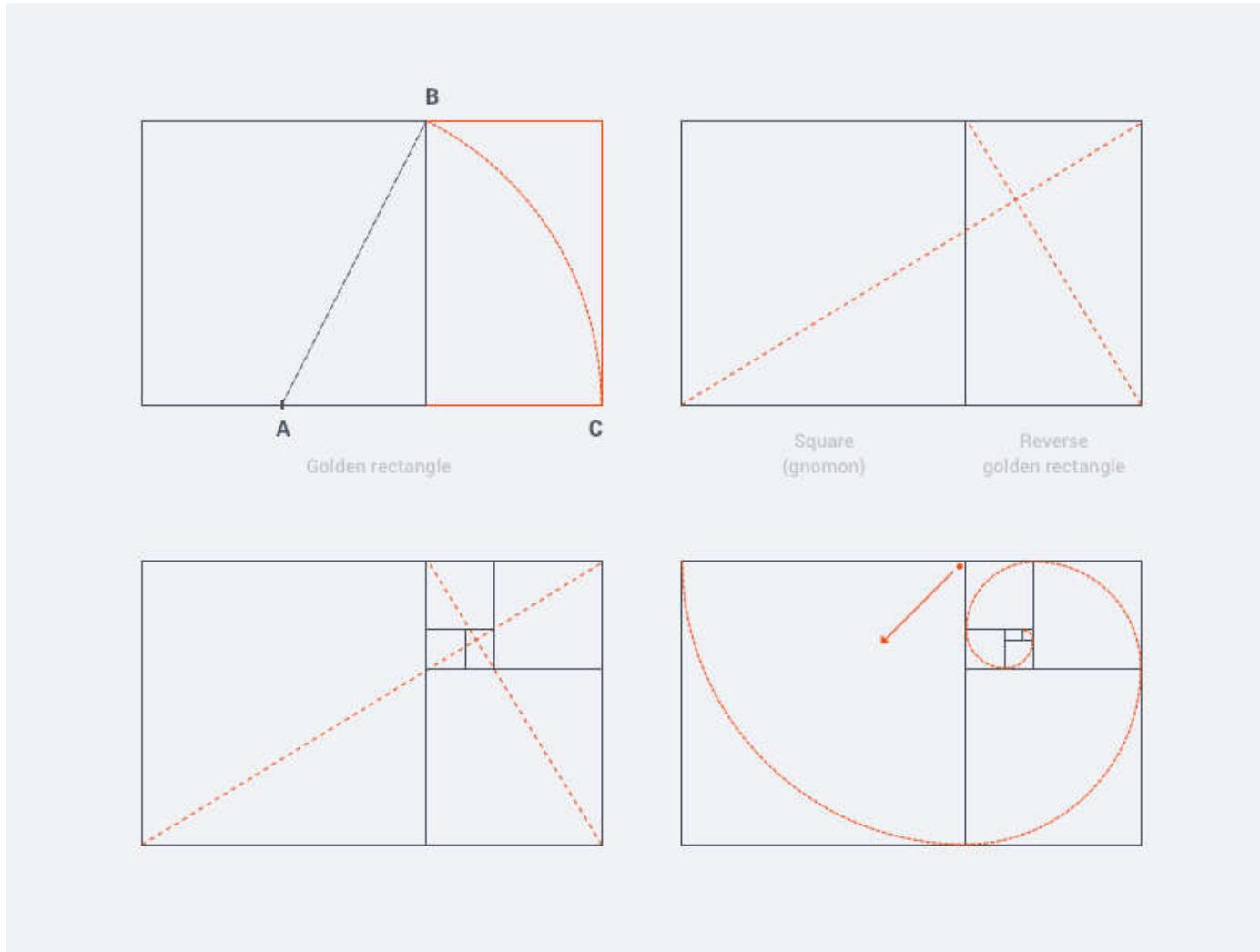
# Leverage Design Rules /Elements



# Geometry: Scale, Contrast & Proportion

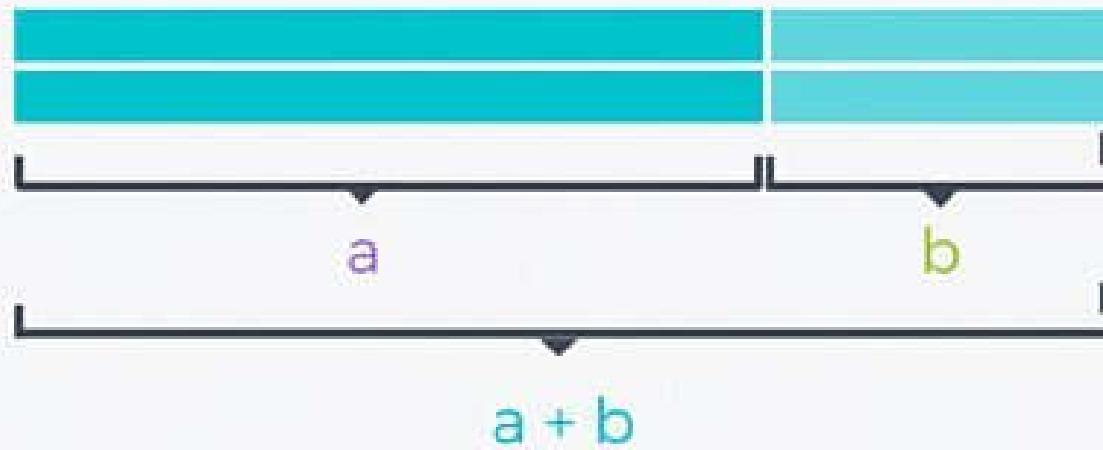
- Scale is the element's relative size (area)
- Contrast is an element's distinctive dimension.
- How is it differentiated from others?
  - size, value (greyscale), hue (color),
  - position, orientation, texture, shape
- Proportion is the ratio of sizes
  - Computer displays **1.33 to 1**
  - Golden (classical) rectangles **1.618 to 1**
  - Printed Paper A standard **1,414 to 1**
  - Talmud **22:78**
  - (empty)
- Scale and contrast are used to emphasize elements.
- Activity is how a design uses geometry to lead the visual search (view).
- Humans seek patterns, \ design should provide cues to group common, differentiate unique elements, and provide comparison (evaluation) information

# Geometry: Golden (classical) rectangles



# Geometry: Golden

## THE GOLDEN RATIO



$$\frac{a}{b} = \frac{a+b}{a} = 1.618\dots = \varphi$$

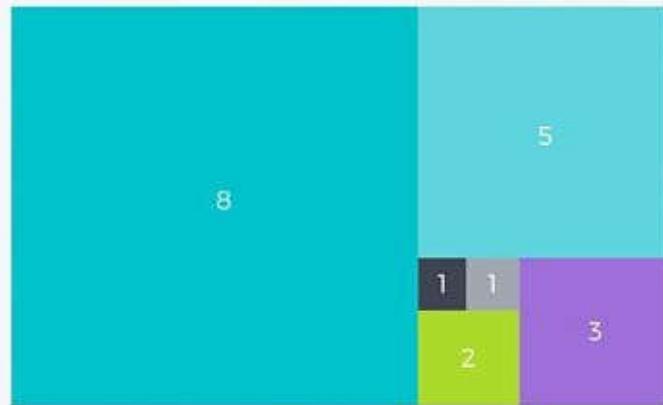
# Geometry: Golden

## THE GOLDEN RATIO

$$x = 1$$

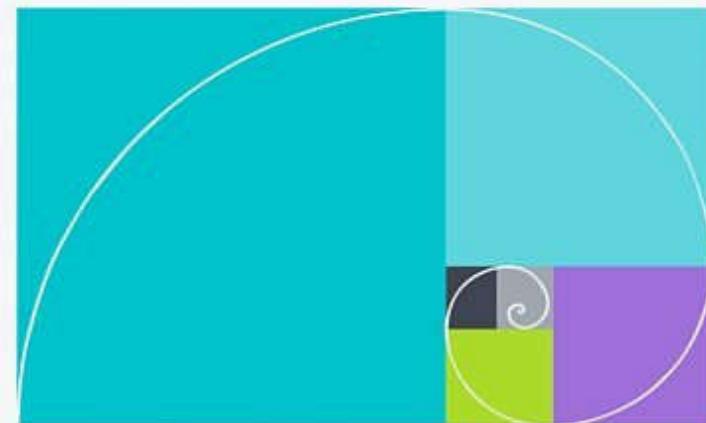
$$x = 1.618$$

## THE GOLDEN RATIO



Canva

## THE GOLDEN RATIO

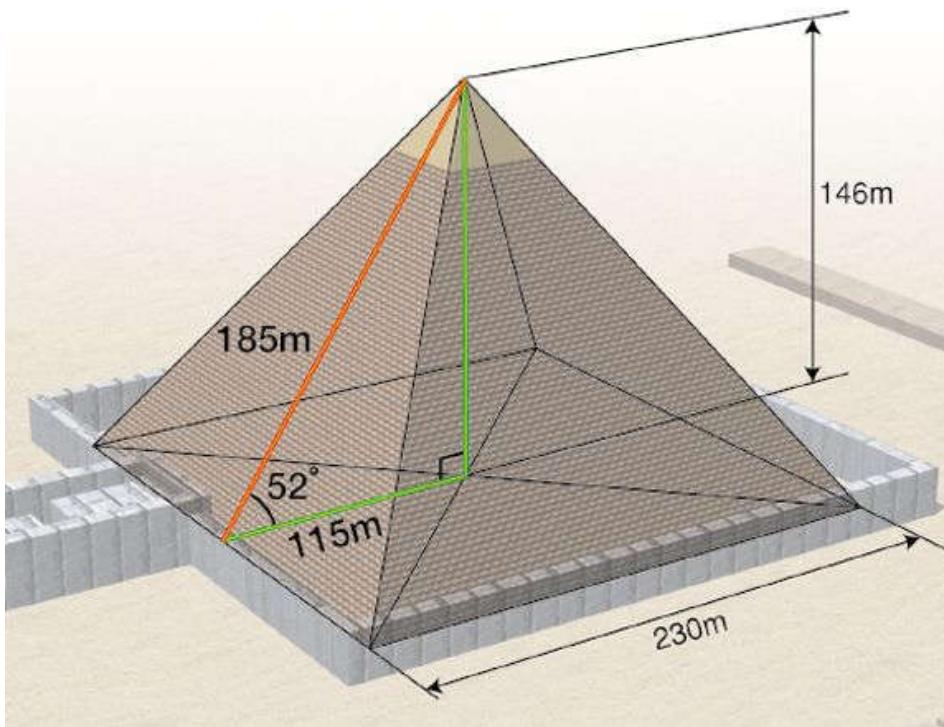
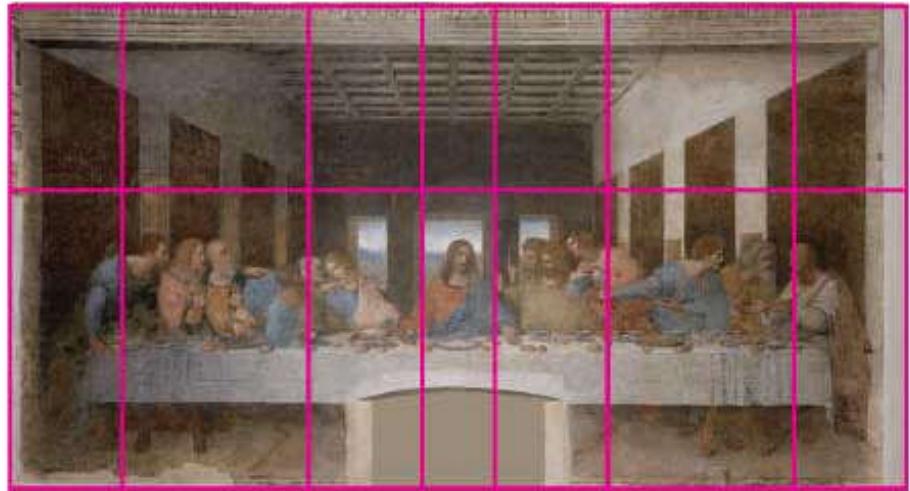
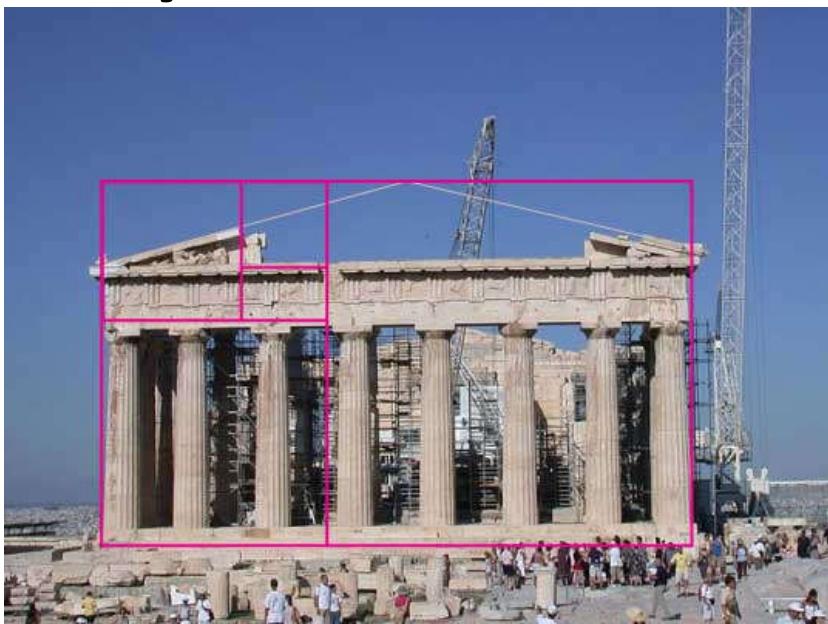


Canva

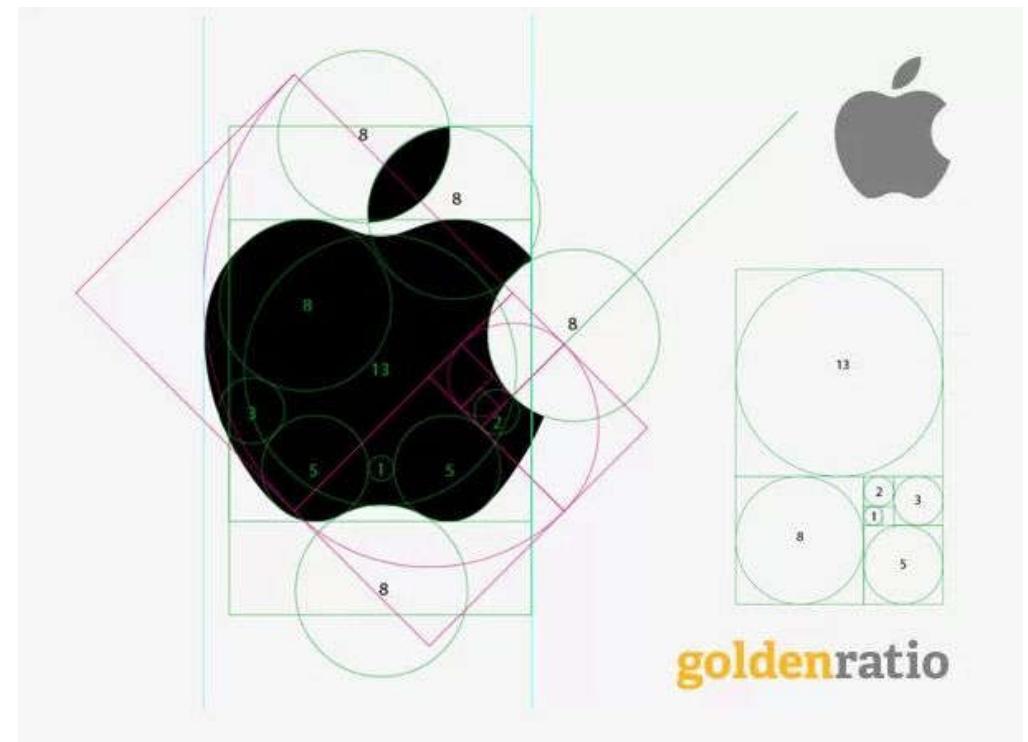
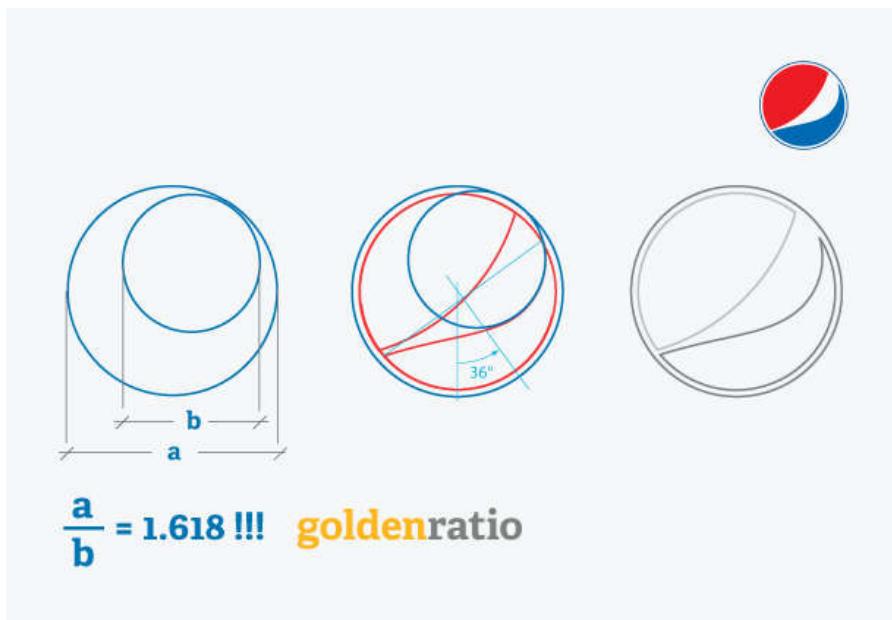
# Natural



# History



# Applying to Layout



# Applying to Layout

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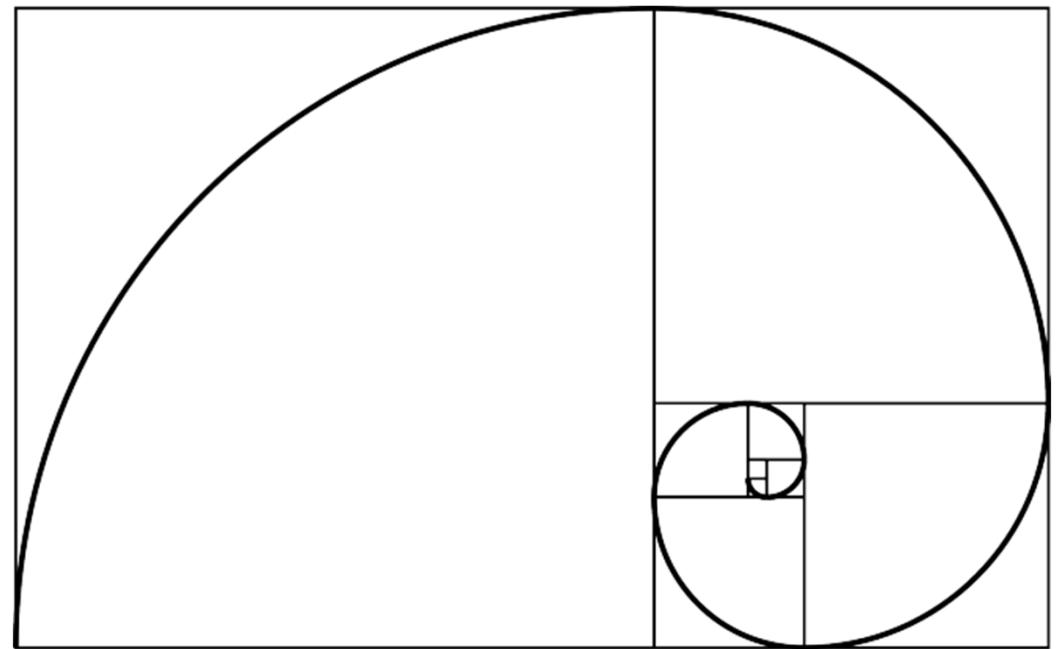
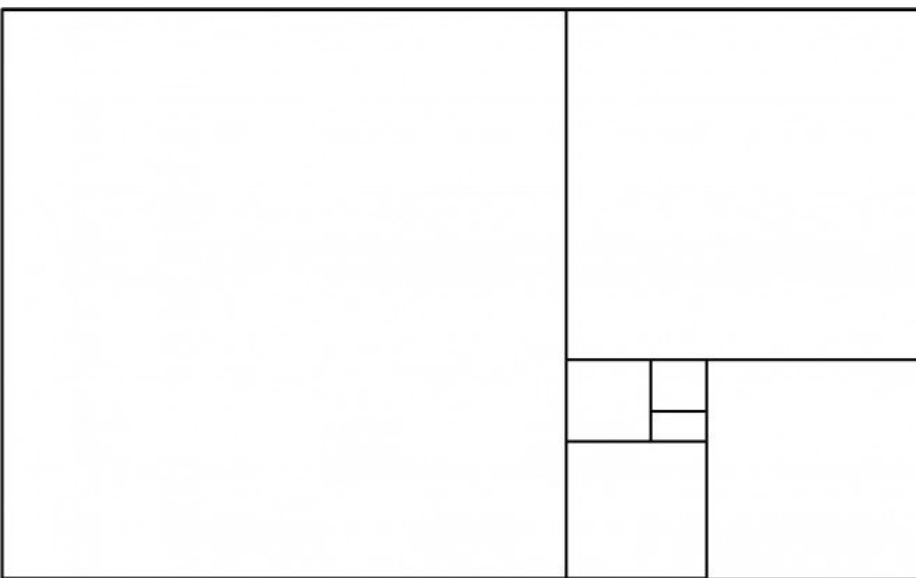
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### Popular in Photography

PHOTO OF THE DAY FACEBOOK

- Animals
- Nature and Weather
- Landscapes
- People and Culture
- Travel
- Underwater

# Prototyping

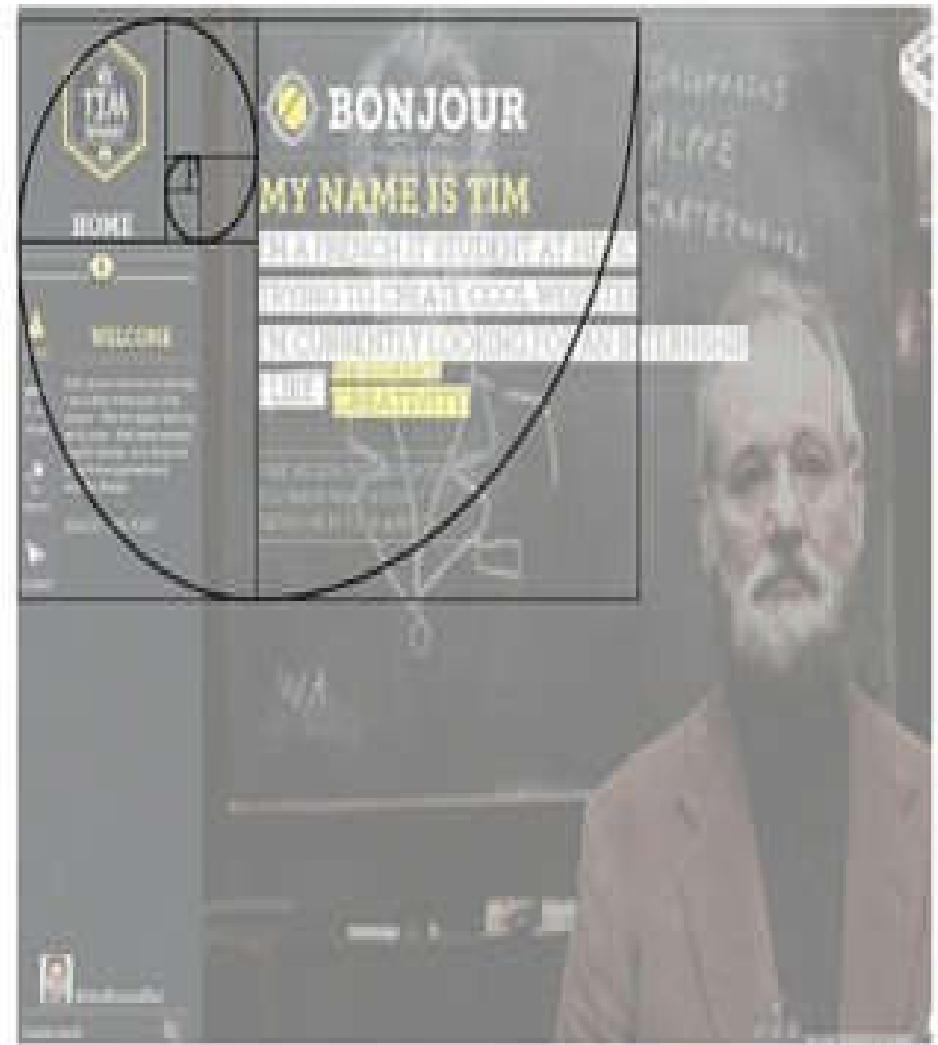


# Prototyping

A screenshot of the Twitter mobile interface. At the top, there's a search bar and navigation links for Home, Profile, and Messages. Below that, a large red circle highlights a tweet from user @ozanilbey. The tweet reads: "Dear #NewTwitter, 'good proportion' is one of the main design principles. Remember? @stop @design". The tweet has a timestamp of "hour ago via web", 33 favorites, 13 retweets, and 4 replies. Below the tweet, there are sections for "Mentioned in this tweet" (showing a reply from @design) and "Replies to this Tweet" (showing a reply from @ozansener). At the bottom, there's a section for "Tweets tagged with #NewTwitter".

A screenshot of the National Geographic Photography website. The header includes links for News, Video, Photography, The Magazine, Entertainment, Travel, Adventure, Television, Radio, Subscribe, and Shop. A large black spiral graphic overlays the page, starting from the top left and circling around the central content area. The main article visible is titled "A Voyage to the Heart of Africa: Traveling the Congo River Is an Exercise in Surrender". To the right, there's a sidebar with a circular graphic and a section titled "Popular in Photography" listing categories like Animals, Nature and Weather, Landscapes, and People and Culture.

# Prototyping

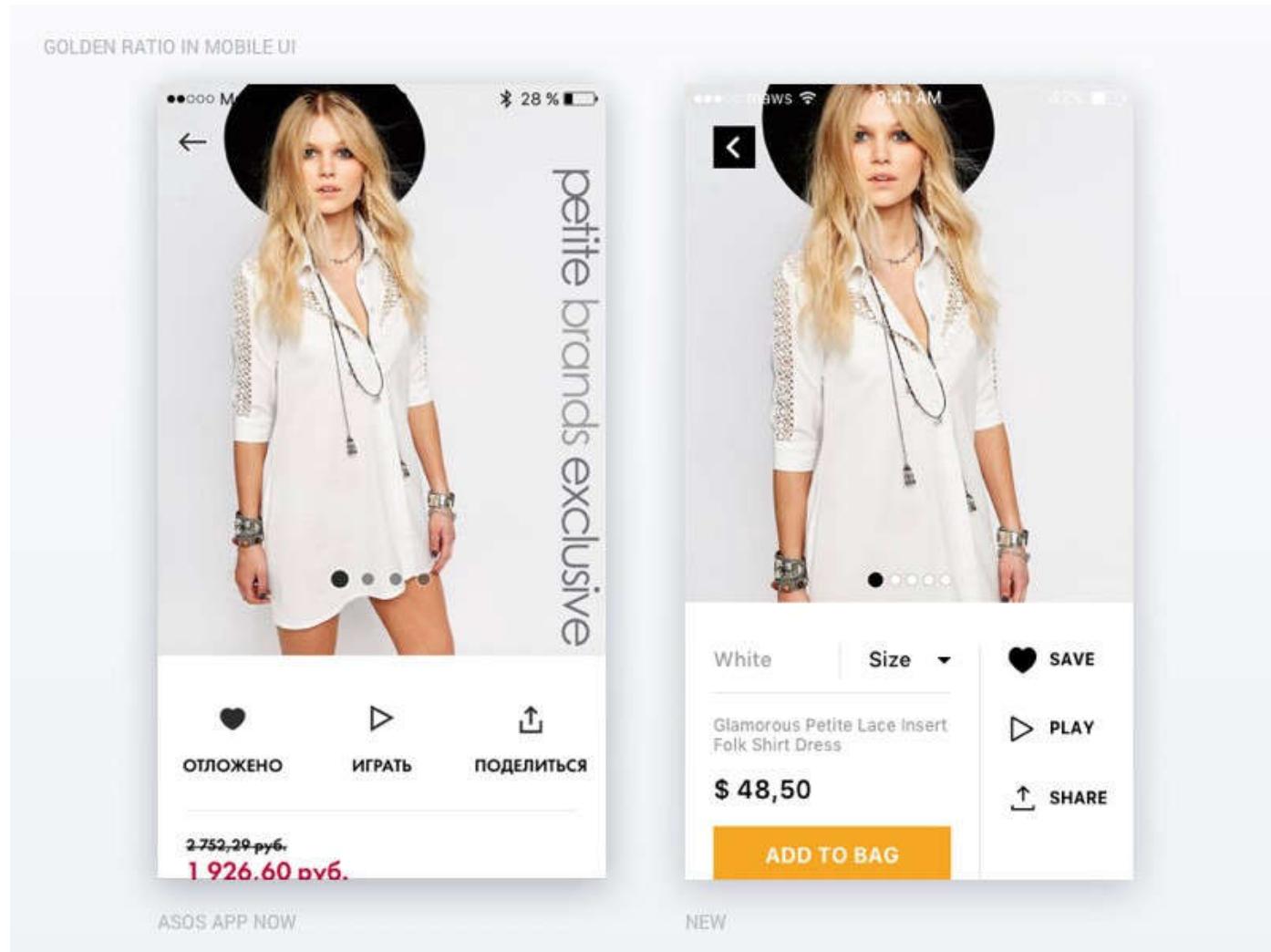


# Prototyping

The image shows the BMW UK website homepage with several user interface components highlighted by hand-drawn circles and lines.

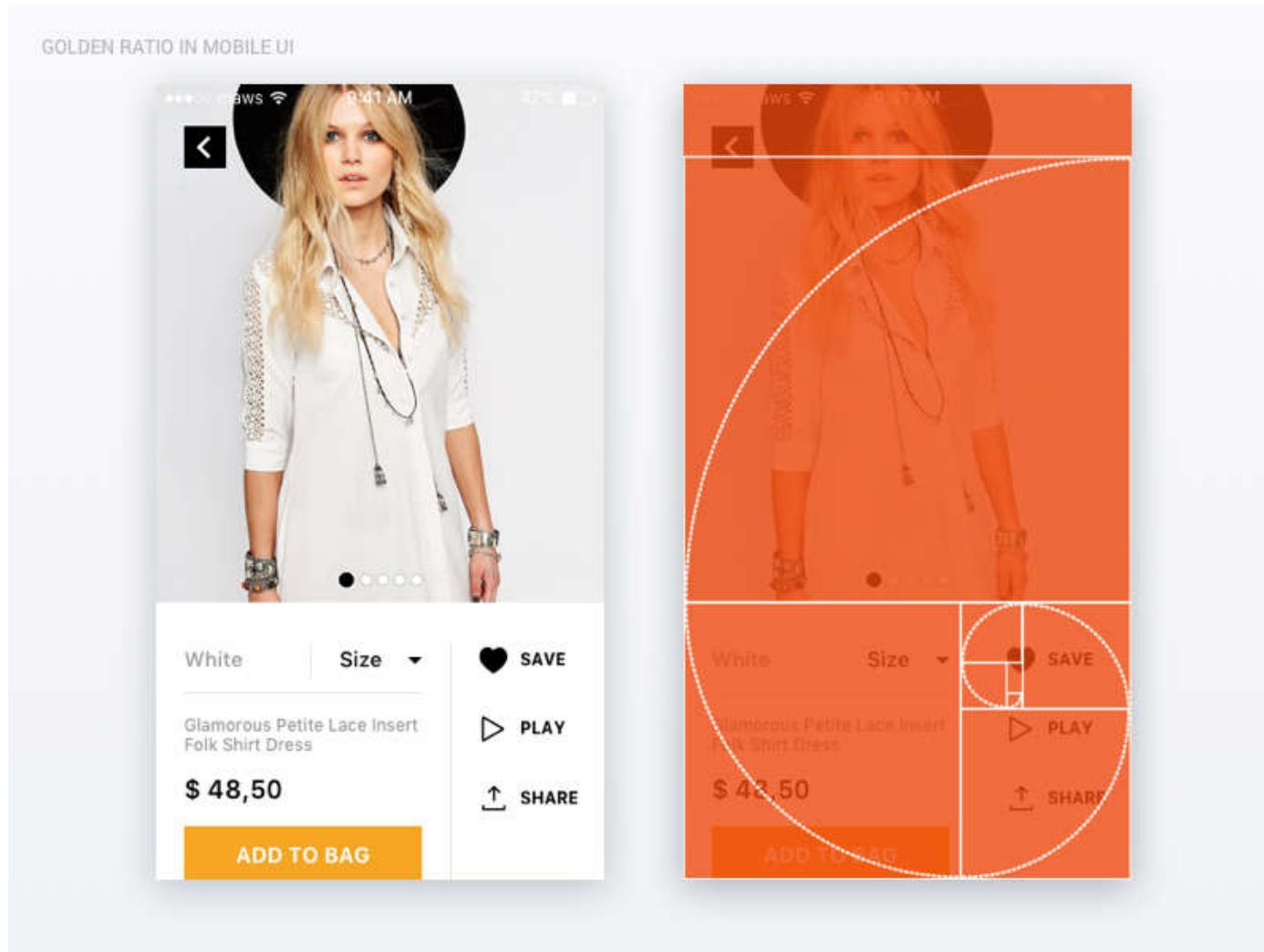
- Header:** A red circle highlights the "Quick model selector" bar at the top left, which includes model names: 1 3 5 6 7 X Z4 M.
- Header:** A green circle highlights the main navigation menu at the top right, which includes links like "BMW model range", "Find an Approved Used BMW", "BMW Owner area", "BMW Corporate Sales", "BMW EfficientDynamics", "Find a dealer", "About BMW", "Financial Services", "Motorrad", and "News".
- Hero Image:** A large green circle highlights the main hero image featuring a BMW 6 Series Gran Coupe parked on a hillside under a sunset sky.
- Hero Text:** A red circle highlights the headline "THE ALL-NEW BMW 6 SERIES GRAN COUPE. BEAUTY. SELDOM SEEN." and a blue button below it labeled "Discover the beauty".
- Grid Content:** Three columns of cards are highlighted:
  - Discover BMW:** Shows two cars (blue and red) and text about learning more about the BMW range.
  - Choose your BMW:** Shows a car and text about customizing options.
  - Find your BMW:** Shows a man standing next to a red car and text about finding a new or used car.
- Quick Links:** A red circle highlights the "Quick links" sidebar on the right, which includes links to "Test drive a BMW", "Request a brochure", "BMW Accessories", "BMW Service", and "Corporate Sales".
- Sponsor:** A green circle highlights the "Official partner of the Olympic and Paralympic Games" section, featuring the London 2012 logo.
- Facebook:** A blue circle highlights the "Find us on Facebook" section with the BMW UK page link and a "Like" count of 130,067.
- News:** A green circle highlights the "Latest news" section with a link to "View all news".

# Geometry: Golden (classical) rectangles



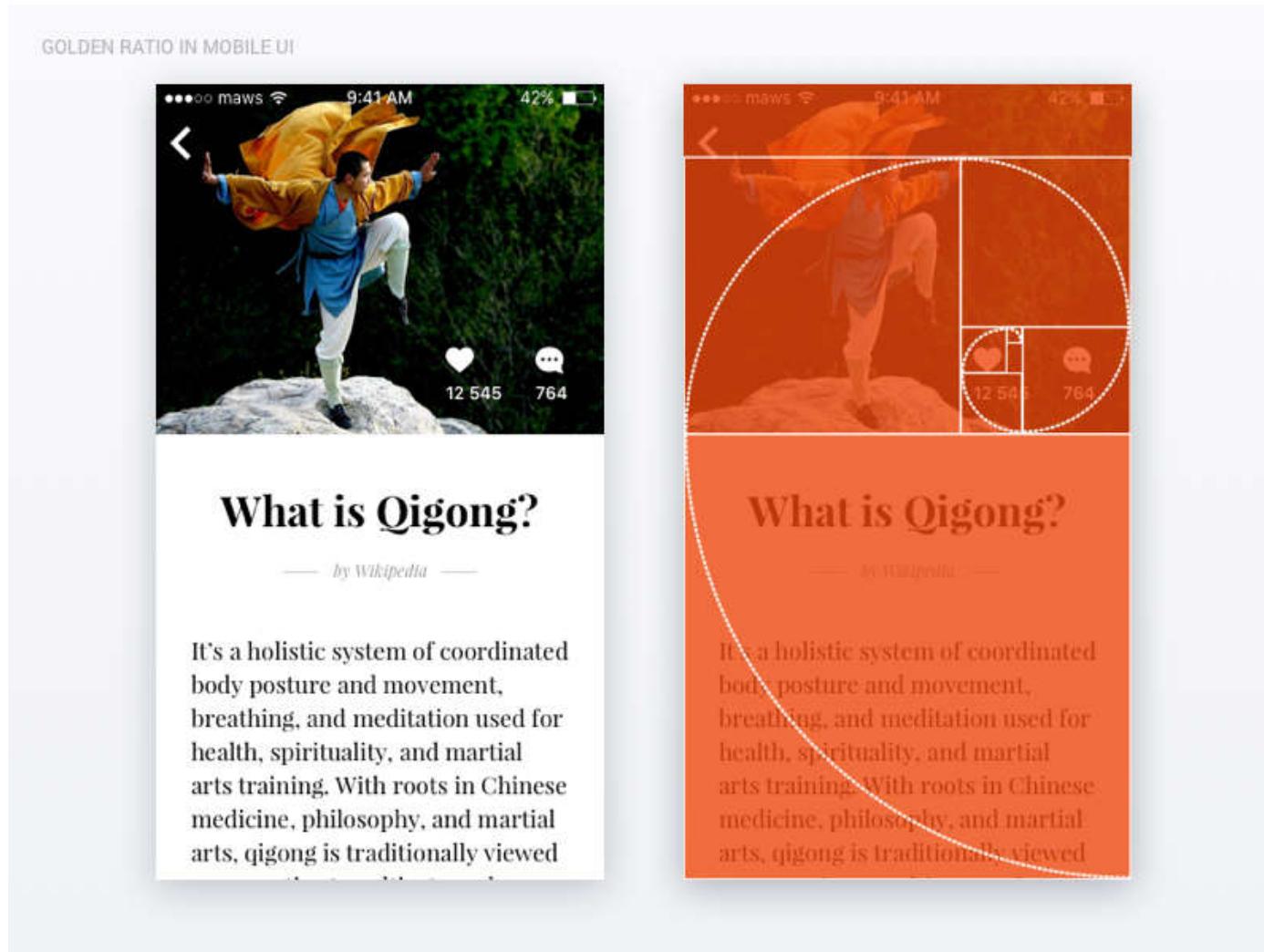
<https://blog.prototypypr.io/golden-ratio-in-ui-design-8d11e66582c3>

# Geometry: Golden (classical) rectangles



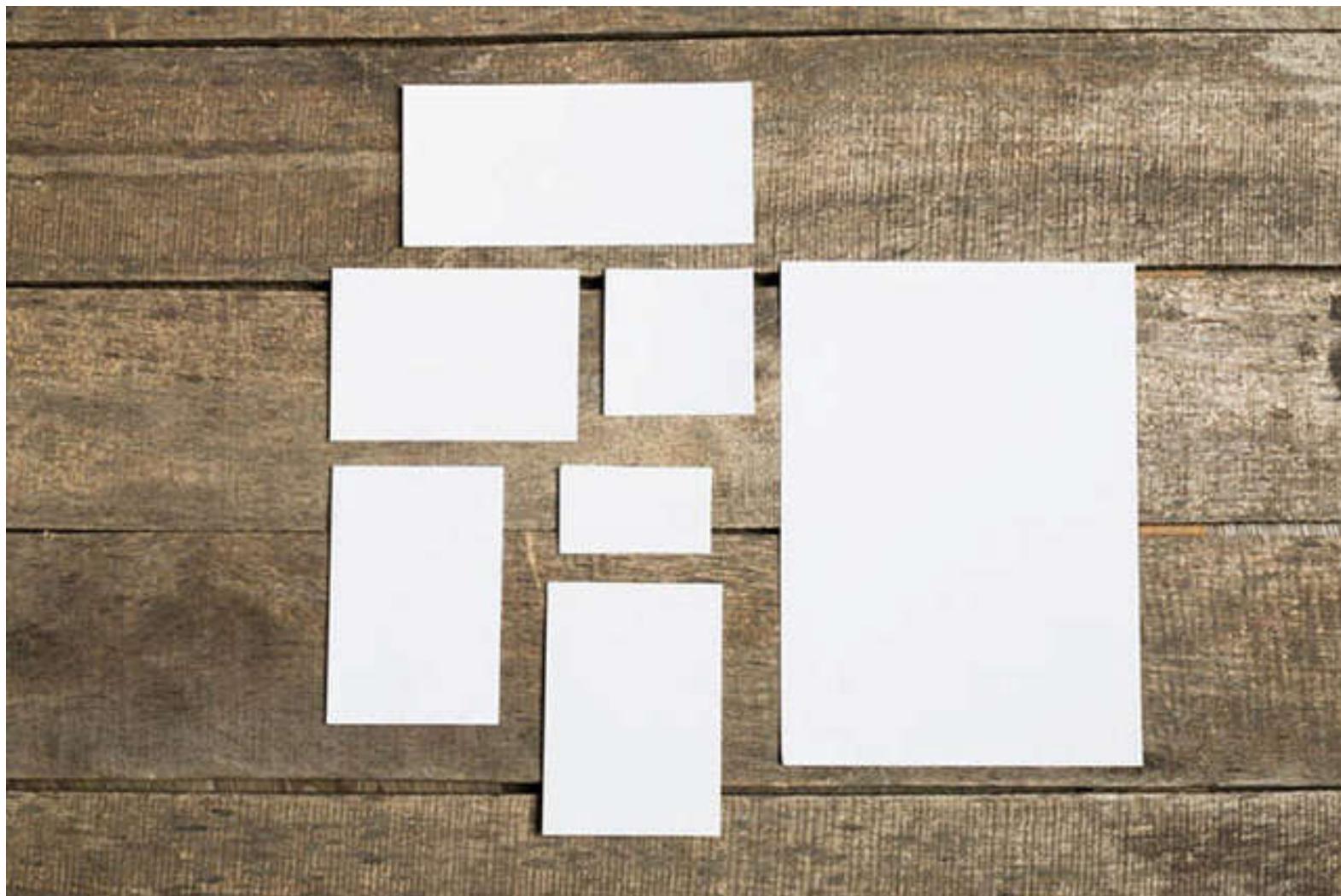
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# Geometry: Golden (classical) rectangles

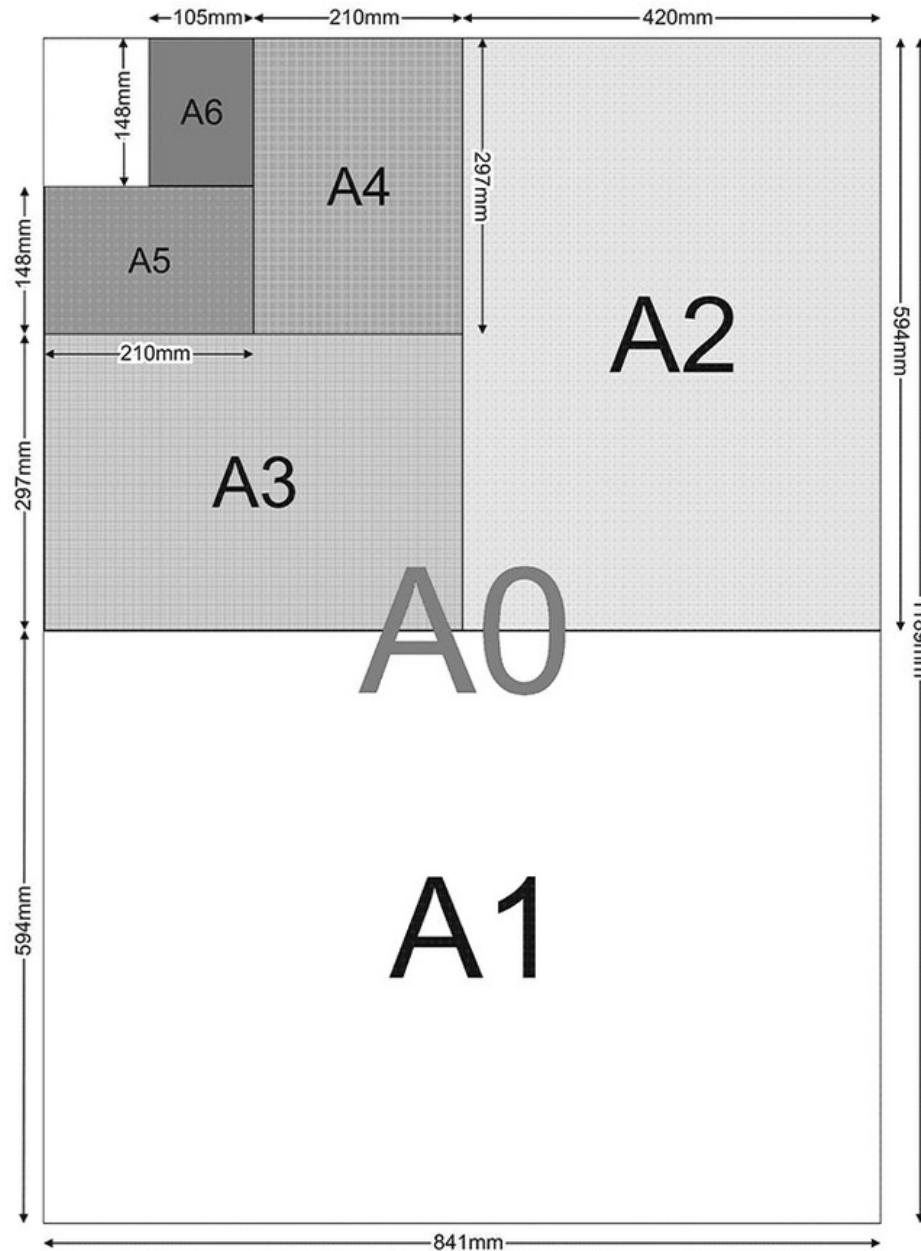


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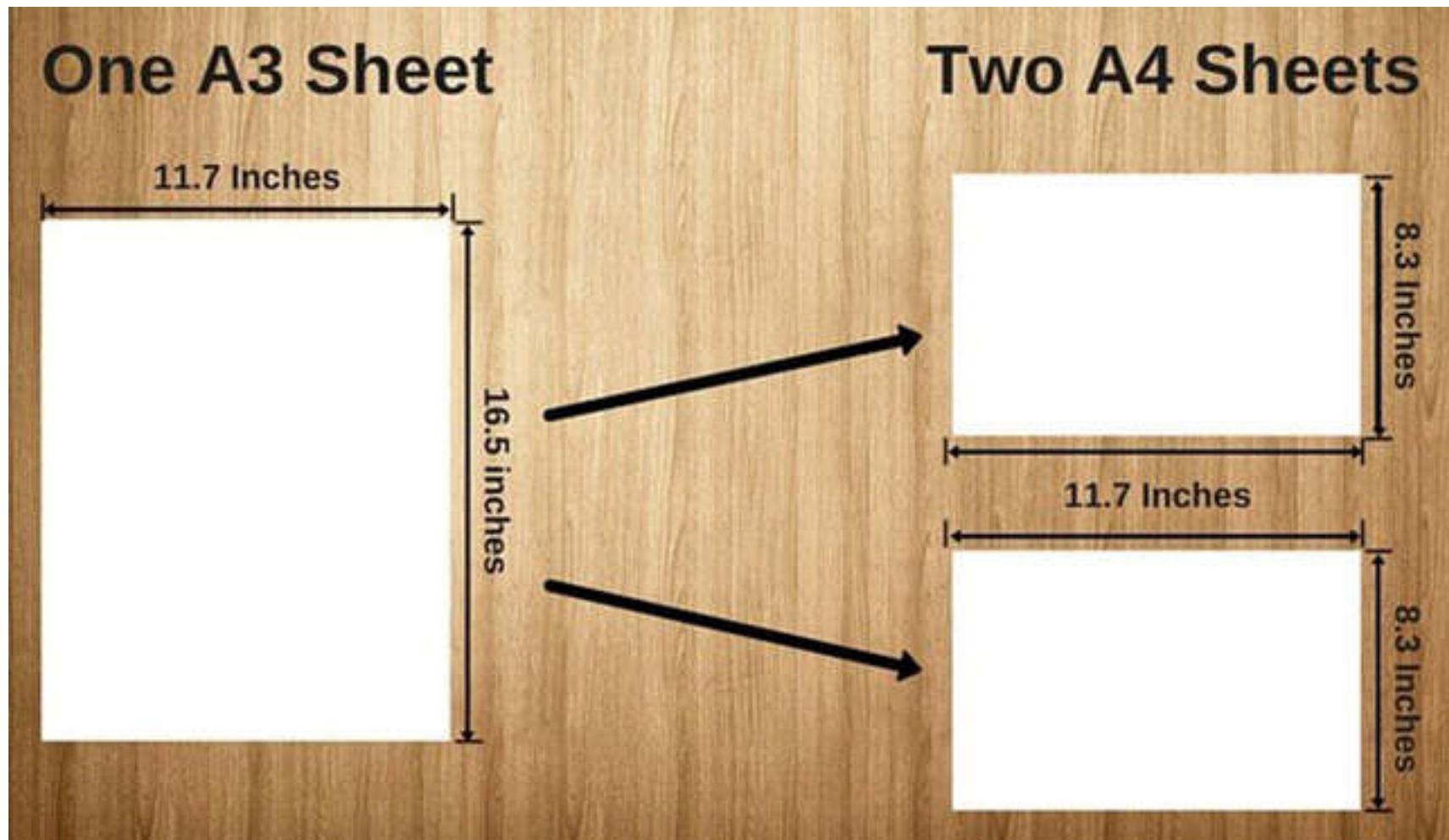
# Geometry: Printed Paper A standard

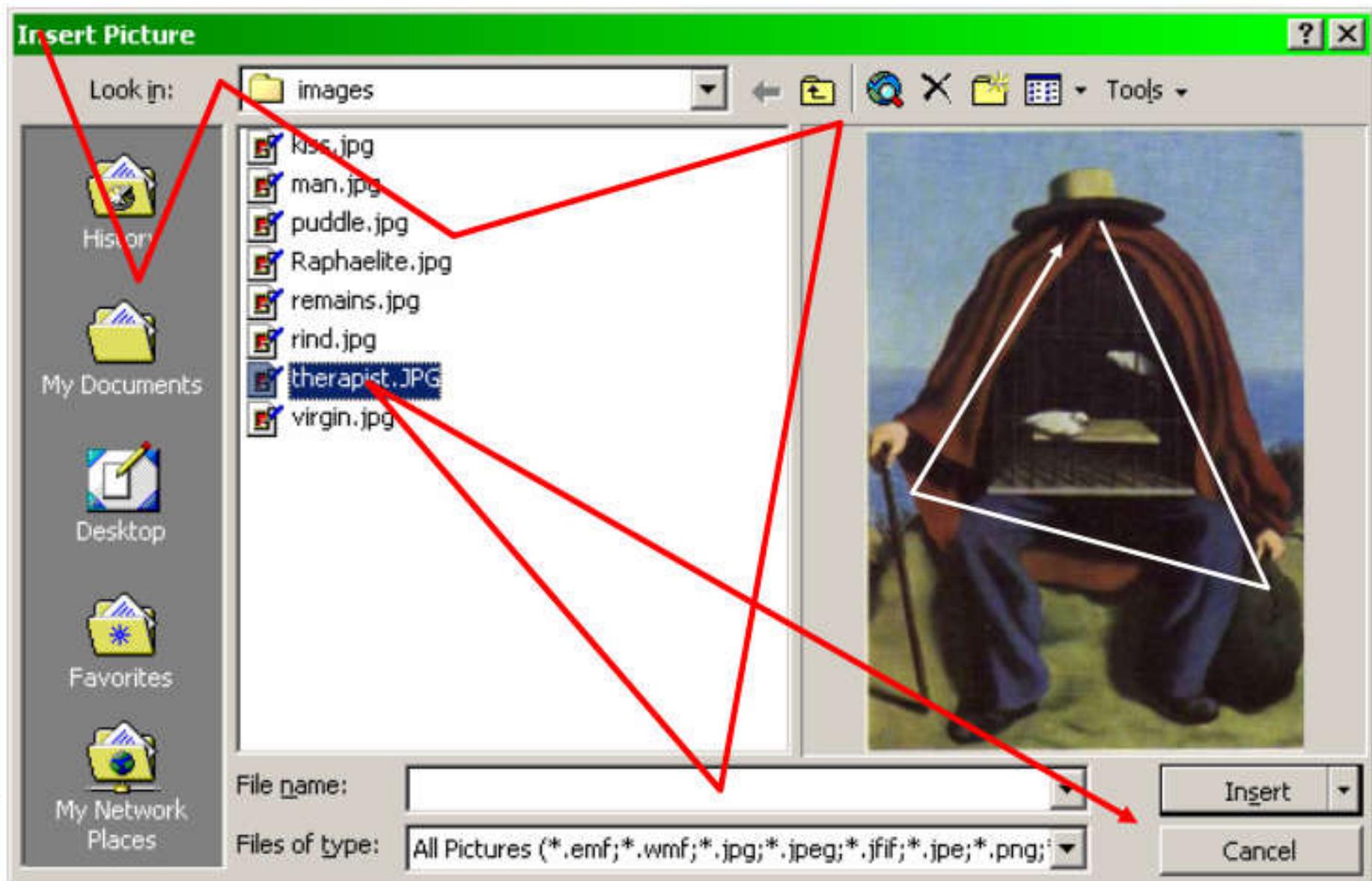


# Geometry: Printed Paper A standard



# Geometry: Printed Paper A standard





# Visual Variables

- **Associative:** independent of other variables. Most variables are associative.
  - size and value are dissociative - they affects visibility of other variables. (e.g. line to thin to see color)
- **Selective Perception:** viewing isolates all group members into an image.
  - shape is not selective.
- **Ordered Perception:** viewing can determine ordering (ranking).
  - Ordering reduces need for legends (keys).
  - Position, size and value enable ordering
- **Quantitative Perception:** viewing can determine relative amount of difference not just ranking. Must be easily apparent.
  - size (area) and position are quantitative

# Color Usage

- 3 interacting variables of color vision:
  - Hue color
  - Brightness intensity (bright - dull)
  - Saturation %color in field
- Opponent process theory of color vision
  - These colors can't be seen in same patch of light (adjacent).
  - They produce shadows and edges.
  - Avoid use of opponent (opposite) colors.
- Blue is the hardest color to see small changes in hue
- Selection / Applicability
  - Color is very useful to have user selected items stand out in a display.
  - Color can also be used to indicate whether a menu option is valid in the current state or not ("greyed options")

# Color Usage

- **Alert / Attention:** Change of color represents change in state or mode
  - ( Traffic signals: green, yellow, red).
  - Use few colors that are easy to discriminate
  - Use warning colors sparingly.
  - Consistent system wide analysis of color use.
- **Element Discrimination:** Color provides contrast and improves discrimination. Need high contrast difference. Contrast a function of luminance or hue

# Color Usage

- **Category grouping & field definition:** Color can help group display elements and facilitate visual search. Visual search is affected by:
  - number of items
  - color separation of categories
  - legibility of coded symbols
  - relationship between color coding and targets
- As screen density increases color effect increase. Color can define visual fields on display- weather maps

# Size & Visual Acuity

- As number of colors increase size of text should also increase.
- Color can't be assumed! Redundantly code display.
- Designer's color perception != user's color perception
  - color & text codes (categorization)
  - color, size & text
  - color, size, text & icon ....
- Color Memory: 5 - 7 color memory for codes. Don't tax Working
- Memory use around 4 colors!

# Grouping guidelines

- Group into a small number ( $7 \pm 2$ )
- Rank the importance of the groups
- Show hierarchical relations with size
- Show non-hierarchical groups with hue
- Maximize differences between groups  
Minimize differences within groups.

# Using Perceptual Distinction

- Determine range of variation (min .. max) for sizes, color dimensions.
- Use logarithmic > linear scaling for discrimination.
- At least double each level!

# Balanced use of figure / ground

- Determine and equalize the visual weight of figure / ground.
- Use internal padding to surround the figure and separate it from borders.
- Spend valuable screen real estate for internal spacing!
- Position the figure w/in the ground.
- Centering is usually most appropriate.
- White (Negative) Space is not wasted
- White space is needed for figure / ground integration.
- White space helps spatial separation / organization.
- Increase white space around critical elements

# Balanced use of figure / ground



# Alignment and Visual Relationships

- Elements should be aligned with boundaries and margins.
- Alter size and proportion when needed to support alignment.
  - Extend elements beyond margin with respect to sharpness of adjacent angles.
  - Greater the acuteness of angle the greater the extension
  - Proportional fonts use optical adjustment.
- Items not aligned to anything on display should be proportional to display

# Visual Perception Structure

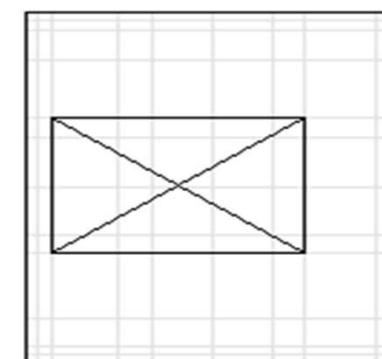
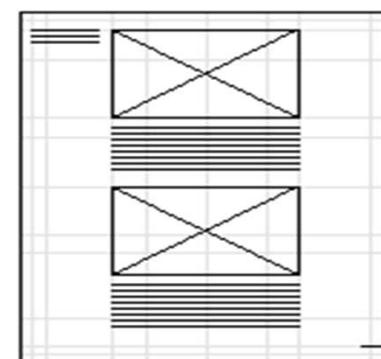
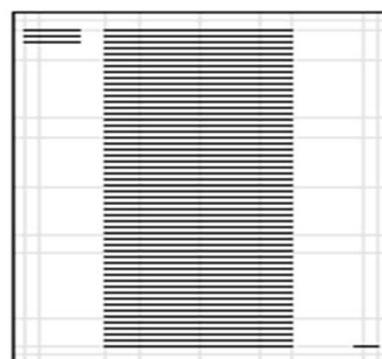
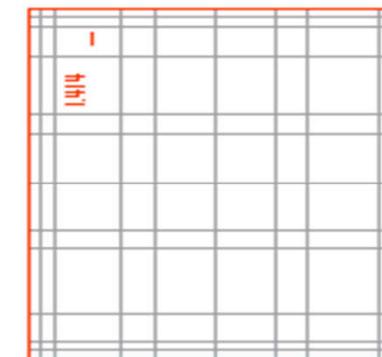
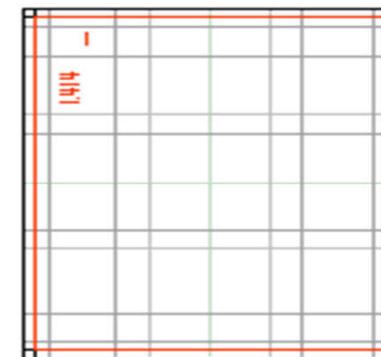
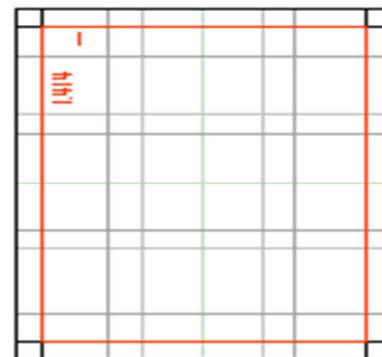
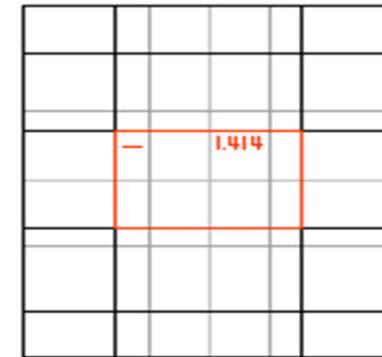
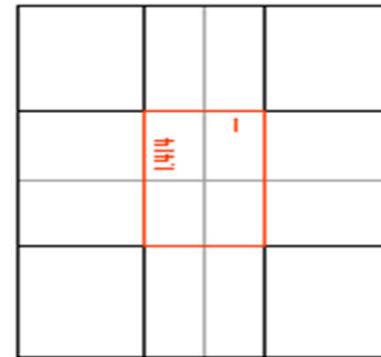
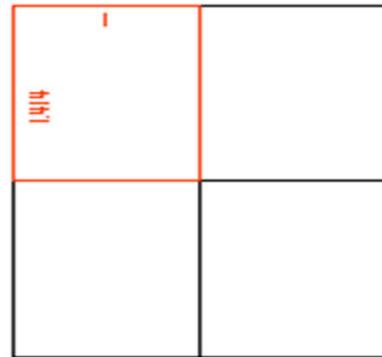
Gestalt principles:

1. Principle of proximity
2. Principle of similarity
3. Principle of closure
4. Principle of continuation
5. Principle of enclosure
6. Figure-ground principle
7. Principle of symmetry
8. Principle of connection
9. Principle of common fate

# Grids

- Modularity in visual structure GUI Design
- Regular visual structures are predictable, flexible, and efficient.
- Grids benefit design and provide "scalability" to a GUI application. As screens and dialogs increase in numbers a grid layout simplifies design and increases use.
- Canonical grid layout enables 6, 4, 3, and 2 division of elements on a display.
- Any remaining visible grid lines should be half intensity in final display

# Grid



# Example

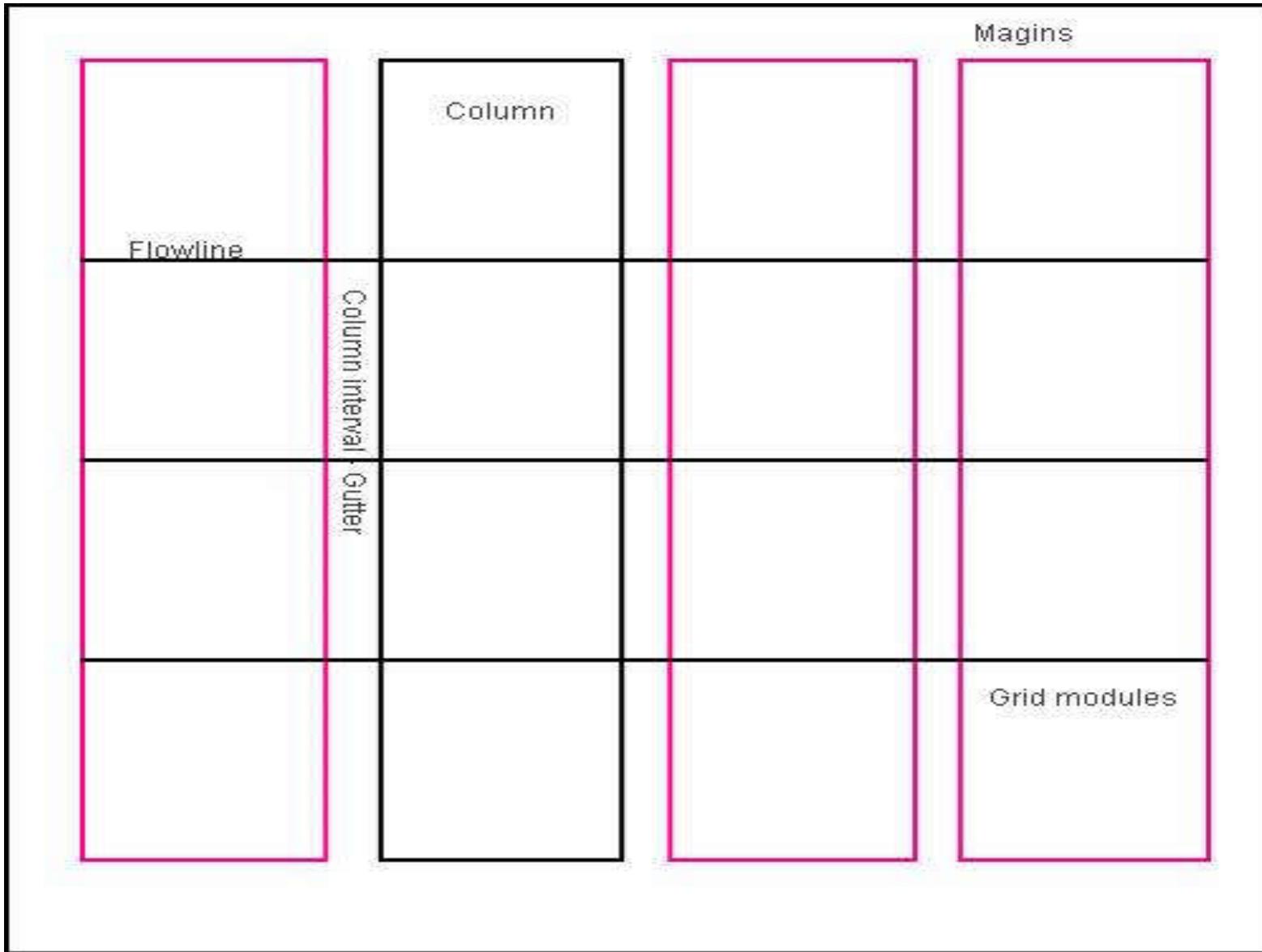
The screenshot shows the homepage of the 960 Grid System. At the top left is the Twitter logo with the handle @NATHANSMITH. The main title "960 GRID SYSTEM" is displayed in large, stylized, metallic letters. Below the title is a section with download links for various software and a GitHub repository. To the right of the title is an advertisement for "ADS BY FUSION" featuring a "LET'S GO TO LAS VEGAS" banner with five stars. Below the title are three buttons: "CUSTOM CSS GENERATOR", "HTML LAYOUT GENERATOR", and "GRID OVERLAY BOOKMARK". The main content area is divided into three columns: "Essence", "Dimensions", and "Purpose". The "Essence" column describes the 960 Grid System as an effort to streamline web development workflow by providing commonly used dimensions based on a width of 960 pixels. It mentions two variants: 12 and 16 columns, and includes a link to a demo. The "Dimensions" column explains that the 12-column grid is divided into portions that are 60 pixels wide, and the 16-column grid consists of 40 pixel increments. It notes 10 pixels of margin on the left and right, creating 20 pixel wide gutters between columns, with a link to a demo. The "Purpose" column states that the system is ideal for rapid prototyping and can be integrated into production environments, mentioning printable sketch sheets, design layouts, and a CSS file with identical measurements. At the bottom, there are two more sections: "More Columns" and "Source Order", each with its own descriptive text.

[Download](#) - Templates: Acorn, Fireworks, Flash, InDesign, GIMP, Inkscape, Illustrator, OmniGraffle, Photoshop, Visio, Exp Design. Also: PDF sketch sheets + CSS files. Repository at [GitHub](#).

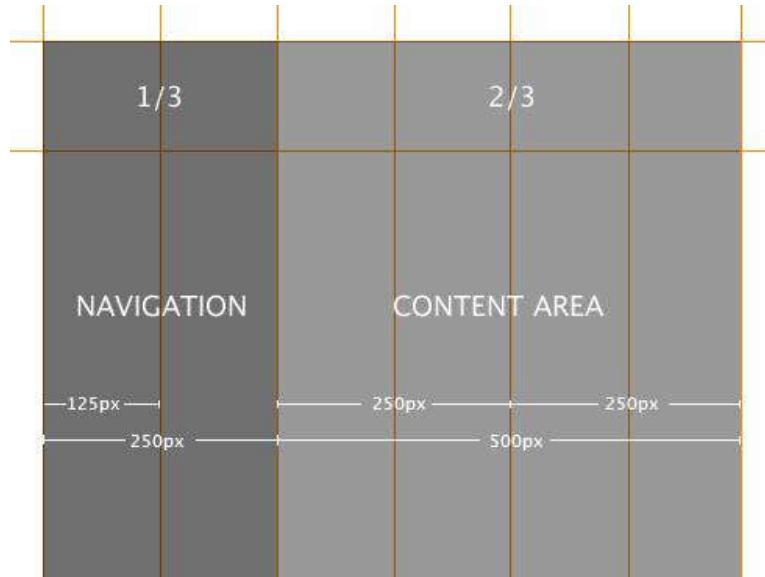
CUSTOM CSS GENERATOR    HTML LAYOUT GENERATOR    GRID OVERLAY BOOKMARK

Essence	Dimensions	Purpose
The 960 Grid System is an effort to streamline web development workflow by providing commonly used dimensions, based on a width of 960 pixels. There are two variants: 12 and 16 columns, which can be used separately or in tandem. <a href="#">Read more.</a>	The 12-column grid is divided into portions that are 60 pixels wide. The 16-column grid consists of 40 pixel increments. Each column has 10 pixels of margin on the left and right, which create 20 pixel wide gutters between columns. <a href="#">View demo.</a>	The premise of the system is ideally suited to rapid prototyping, but it would work equally well when integrated into a production environment. There are printable sketch sheets, design layouts, and a CSS file that have identical measurements.
More Columns	Source Order	
For those more comfortable designing on a 24-column grid, an alternative version is also included. It consists of columns 30 pixels wide, with 10 pixel gutters, and a 5 pixel buffer on each side of the container. This keeps text from	By utilizing the <code>push_XX</code> and <code>pull_XX</code> classes, elements can be rearranged, independent of the order in which they appear in the markup. This allows you to keep more content info higher in the HTML without sacrificing precision in	

# Margin



# Grid Layout



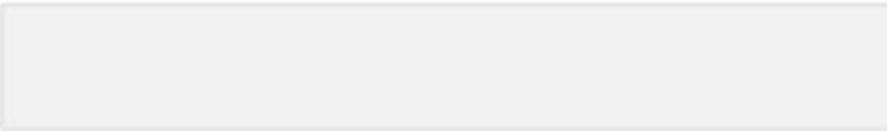
# Grids

- GUI Windows are rectangular: grids are the first display layout considered.
- Determine vertical unit that allows any two controls to be adjacent
- When spacing of multi-line controls consider labels as controls (in layout)
- Horizontal unit 3 x as wide as vertical unit
- Use 5-7 column divisions of horizontal units

# F Layout

## The F Layout

LINK LINK LINK LINK LINK SIGN UP



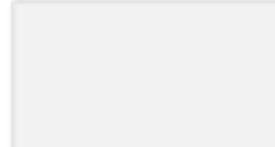
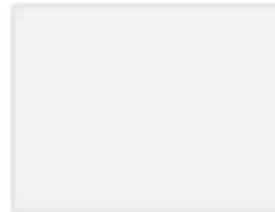
**This is a Headline**

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque justo erat, consequat in venenatis sit amet, convallis et mauris.

---

**This is a Headline**

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque justo erat, consequat in venenatis sit amet. convallis et mauris.



## The F Layout

LINK LINK LINK LINK LINK SIGN UP

This is a headline or mission statement for the website.



**Use Catchy Words**

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque justo erat, consequat in venenatis sit amet, convallis et mauris.



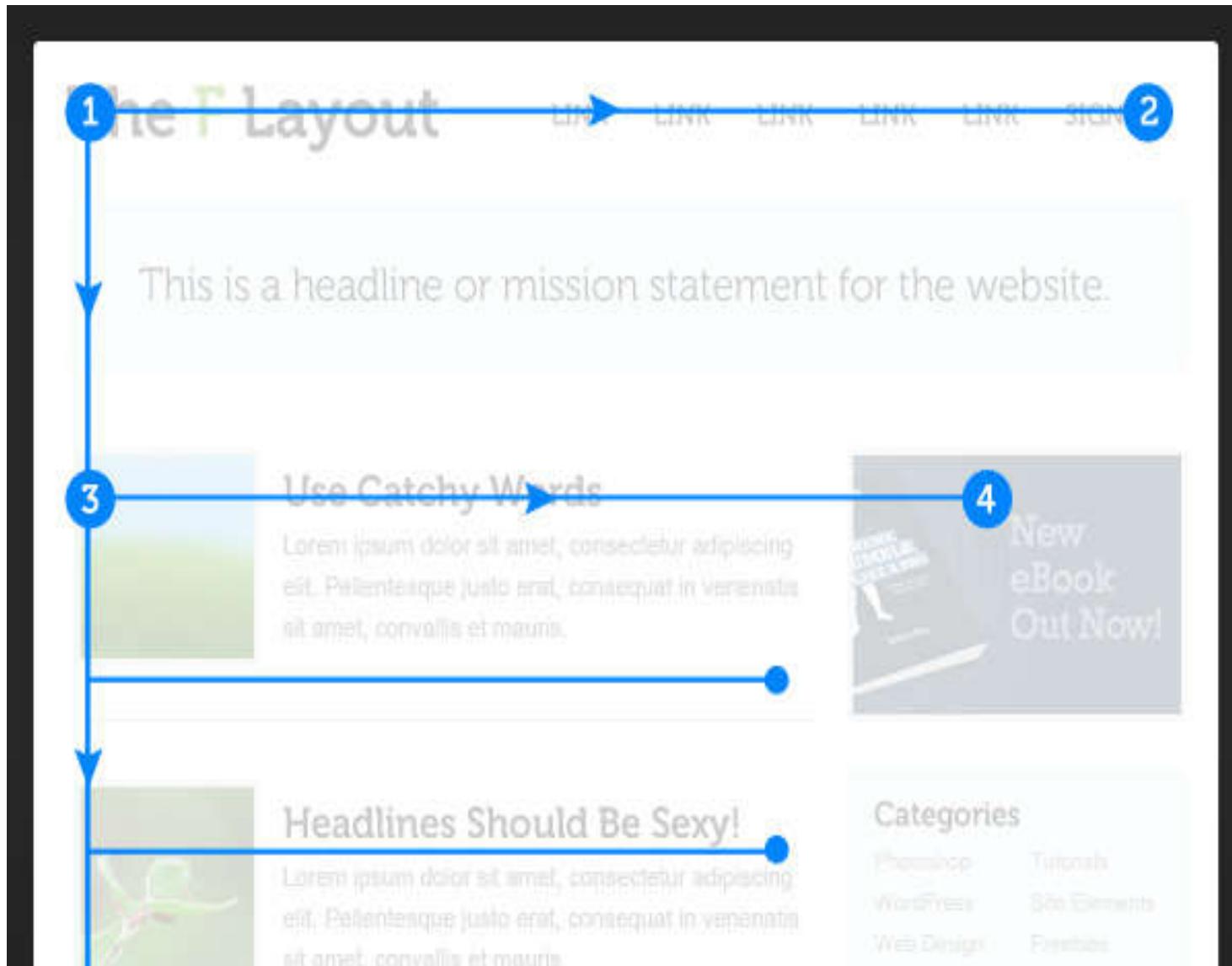
**Headlines Should Be Sexy!**

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque justo erat, consequat in venenatis sit amet. convallis et mauris.

**Categories**

Photoshop	Tutorials
WordPress	Site Elements
Web Design	Freebies

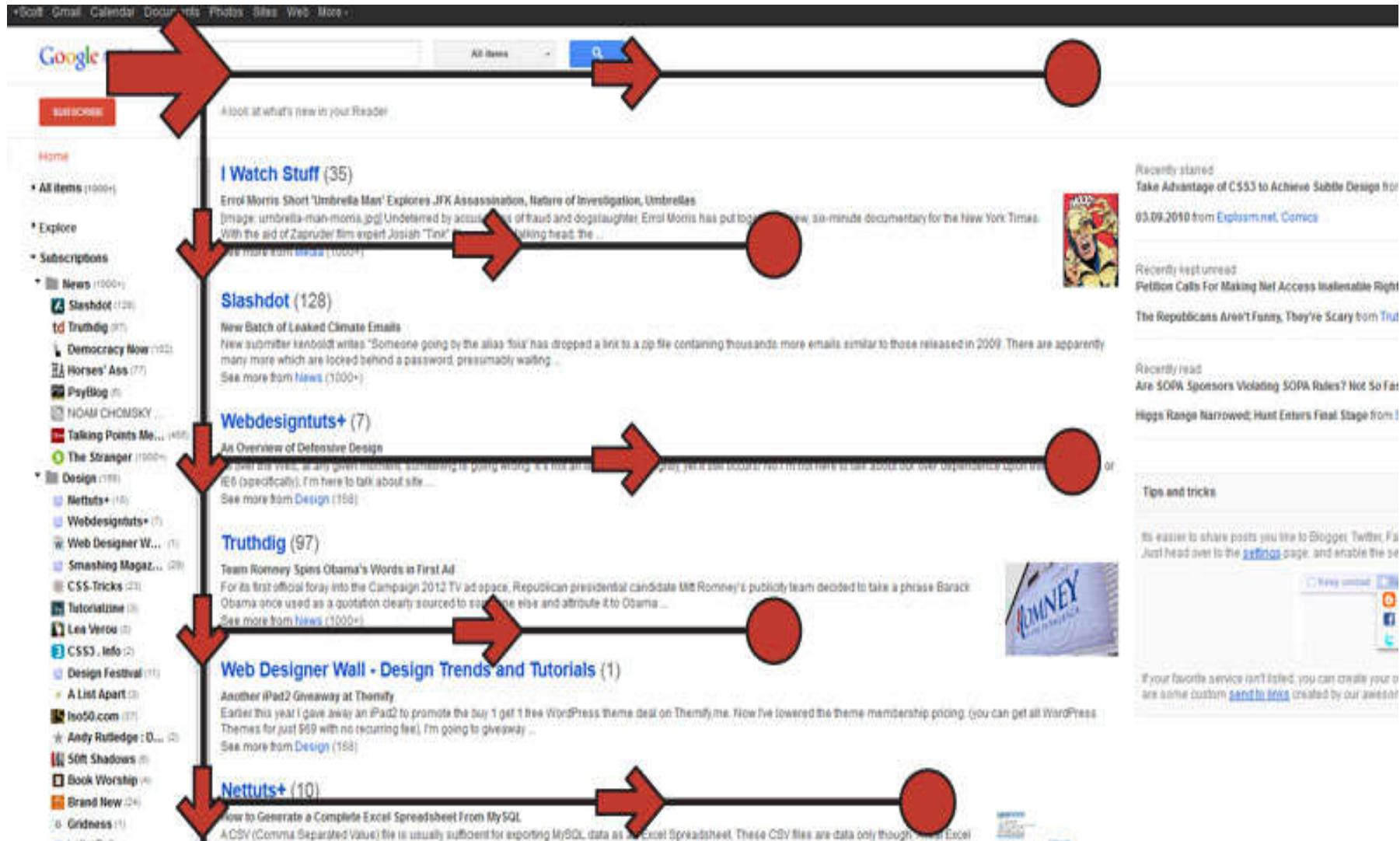
# F Layout



# F Layout



# F Layout



# F Layout

**Blake Imeson**  
\*Innovatreprenuer

HOME ABOUT CONNECT RESUME CONTACT

Subscribe via RSS

ARCHIVES

- 1 Kompu Image Effects - Pro Accounts Giveaway!
- 2 AlphaLab Entrepreneur Shares Startup Tips
- 3 Thanksgiving Apps Special
- Teach Thyself.
- Shared Links - More WordPress? Yep.
- 8 Solid SEO Tips Your Business Needs to Use Now
- Shared Links - from Grove
- Social Media - Radically changing the way we communicate.
- The Coffee Table of the future wants the Remote's Job

Shared Links - new WP plugins & more

**1**

**2**

**3**

**incuba800**

If you are in the area let us know!

[StumbleUpon](#) [Digg](#) [Twitter](#) [Facebook](#) [LinkedIn](#) [Flickr](#)

**Rollip Image Effects - Pro Accounts Giveaway!**

January 10, 2010 | No Comments | Posted in Uncategorized

Just a quick note to share that my good friend and new business partner David is going to give a presentation on WordPress at the Incuba800 Conference which is going on from January 22-23.

**Rollip Image Effects - Pro Accounts Giveaway!**

December 10, 2009 | No Comments | Posted in Innovation

So today I have something special to give away to readers of my blog. Rollip allows you to **easily add cool image effects to your pictures**. I messed around with it a little and here are some examples of what it can do:

So these are some fun pictures of me goofing around with a light bulb, good idea? Narcissistic?...nah.

About the Blog

Blog of Blake Imeson. I write on all kinds of internet phenomena.

Good chance some of what you find here has to do with: **Entrepreneurship, Blogging, WordPress, Social Media or Search Engine Optimization**. More about Blake...

Subscribe to my feed! What is RSS? 171 Readers

# Example

The screenshot shows the homepage of photo tuts+. At the top, there's a navigation bar with links for Home, Tutorials, Articles, Tips, Printables, Basic, Videos, and a NETWORK dropdown. On the right side of the header are buttons for RSS, SUBSCRIBE, and social media links (Twitter, Facebook), along with a search bar and a magnifying glass icon.

Below the header, there's a promotional banner for "CREATE A PORTFOLIO FOR YOUR POCKET" featuring business cards with various images. To the right of the banner is a circular button with the text "CREATE YOURS NOW!" and "Mike Jolley".

The main content area features a large image of fireworks against a dark background. Below the image, the title "70+ Fantastic Firework Photos (And How to Shoot Them!)" is displayed in bold black text. The author's name, "Joel Bankhead", and the date, "Nov 2nd 2010", are shown below the title, along with a link to "1 comment".

The article text begins with: "It's November again, and for those of us who live in England, that means Bonfire Night! It's the perfect excuse to let off some fireworks and build a massive fire (something you do really need an excuse for...). For us photographers it also happens to create the ideal opportunity for beautiful, and perhaps unforgettable, photos!"

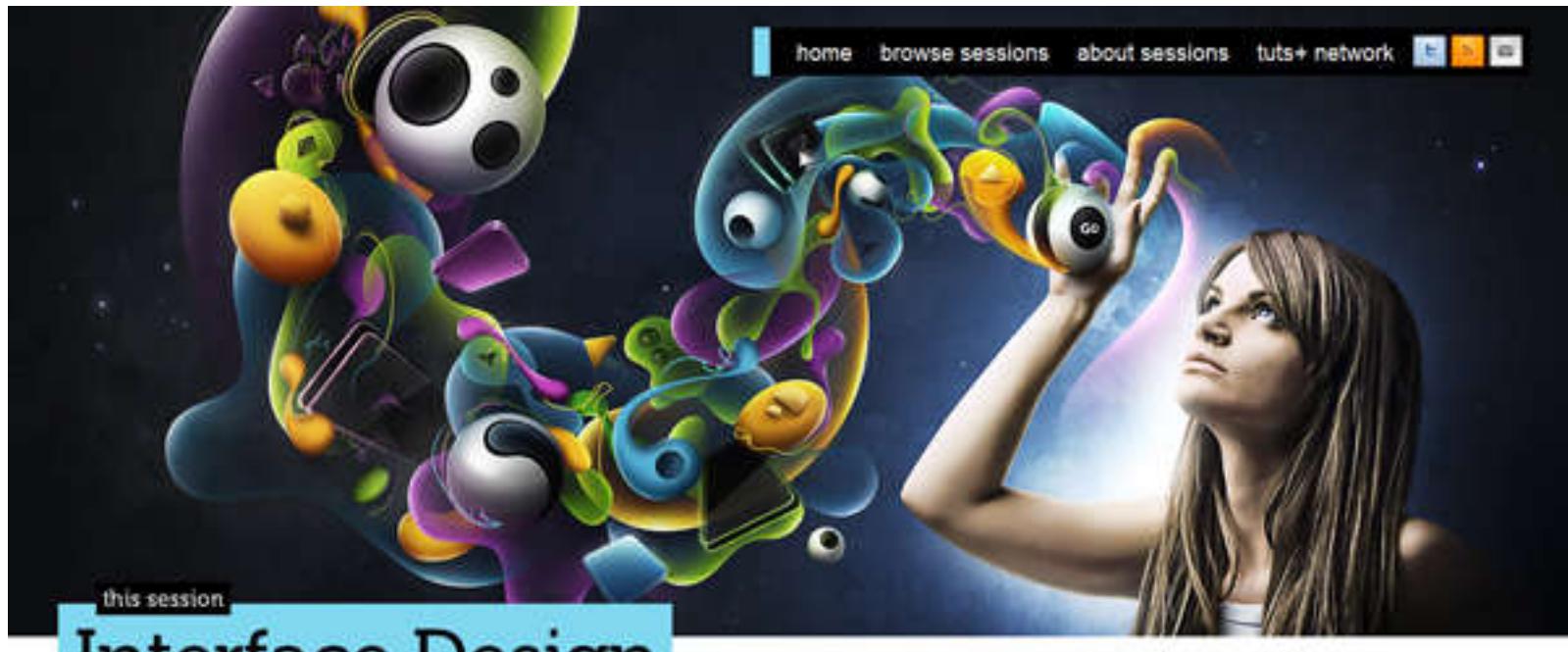
Following this, there's a snippet: "Today we're building on our [firework photography guide](#) last week, with a few more tips and lots of photo inspiration for the avid firework photographer!" and a "(Continue)" link.

On the right side of the page, there are several sidebar ads:

- "WORDPRESS THEMES FOR PHOTOGRAPHERS" featuring a "BUY NOW" button for "Photopreneur's 101 Ways To Make Money From Your Photos".
- "design your FUTURE HERE" with a "Register now" button.
- "ADOBE'S CREATIVE SUITE' 5" with a "Register now" button.
- "How to Be a Rockstar Freelancer" with a thumbnail image of a book cover and a brief description: "Use your photography skills to build a freelance business with this authoritative guide on freelancing written by the authors of the super popular FreelanceSwitch blog." and a "Find Out More" link.
- "Top Selling" with a "Themedotcom" link and a small orange logo.

At the bottom of the page, there are footer links for "Articles" and "Hardware".

# Example



**creative** sessions

Successful interfaces allow you to use them easily – they should feel seamless with the device you're accessing with, and the experience you're having. Successful interface designers have a theoretical foundation in numerous fields, which focus on planning and delivering great user experiences, as well as a strong graphic sensibility which they use to create interfaces that are attractive and fun to interact with. In this session we cover numerous subjects on interface design.



Get a free email template  
design for a limited time.  
Sign up today!

powered by ZILION

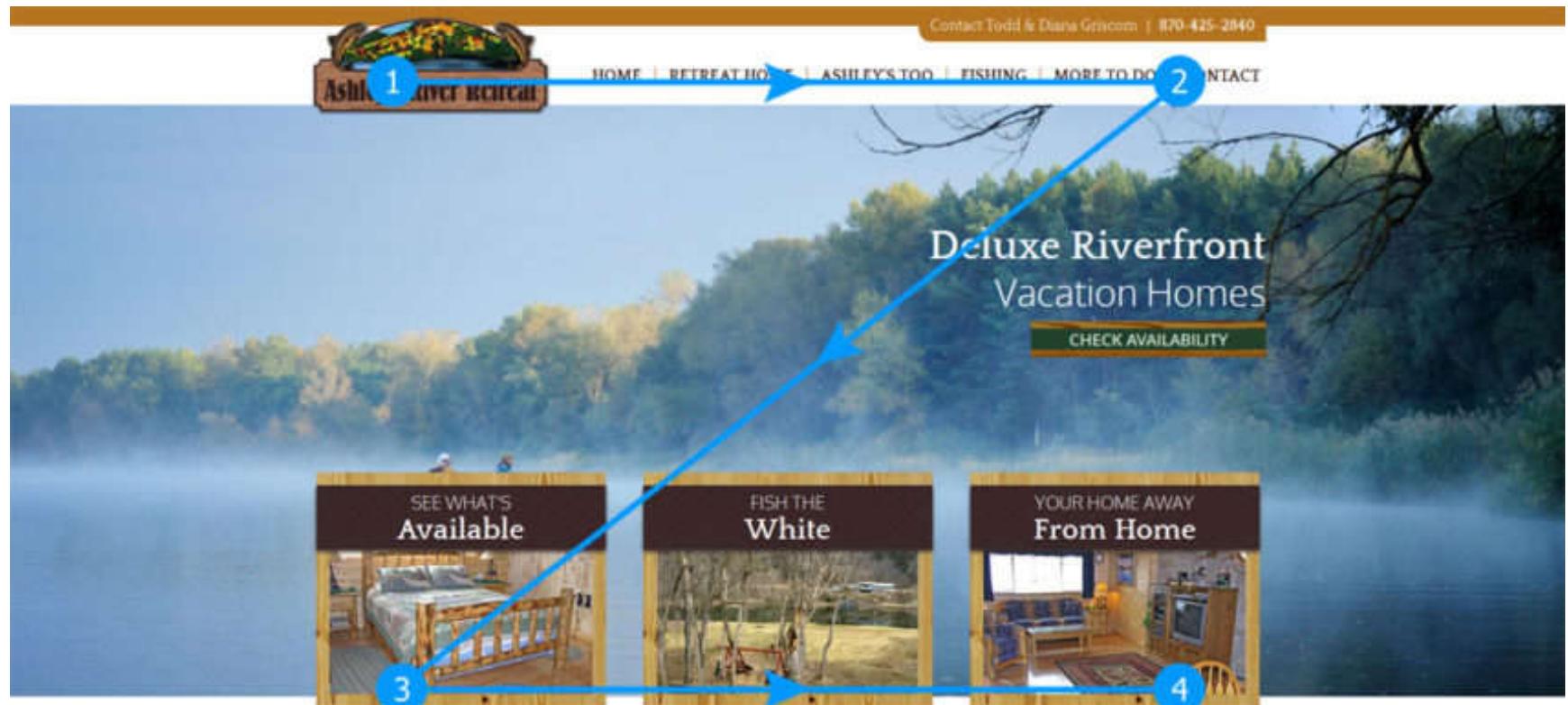
# Example

The screenshot shows the homepage of DesignSnack. At the top, there's a dark header bar with the DesignSnack logo (a yellow circle with a bite taken out of it) and the text "DesignSnack" in white. Below the logo, it says "the ultimate inspiration tool." There are links for "GET SIGNED IN OR BECOME A MEMBER", a search bar with a "GO!" button, and navigation links for "GALLERY", "ABOUT", "SUBMIT", "BLOG", "Contact", and "Advertise".

The main content area has a green background. It features a large call-to-action: "Share your designs with the world." Below this, a green box contains the text: "Promote your portfolio on our featured-rich, interactive and socially-powered web design gallery." Another text block below states: "We don't just showcase websites, we showcase the designer. We've taken the standard CSS/XHTML and Flash web design gallery and made it fun, providing the users with the power to create their own inspiration gallery." To the right, there are three sections: "WHAT IS DESIGN SNACK?", "ALREADY A MEMBER?", and "READY TO SHARE?". Each section includes an icon (laptop, heart, pencil), a link ("Show me More", "Get Signed In", "Join Design Snack"), and a "HIDE" link.

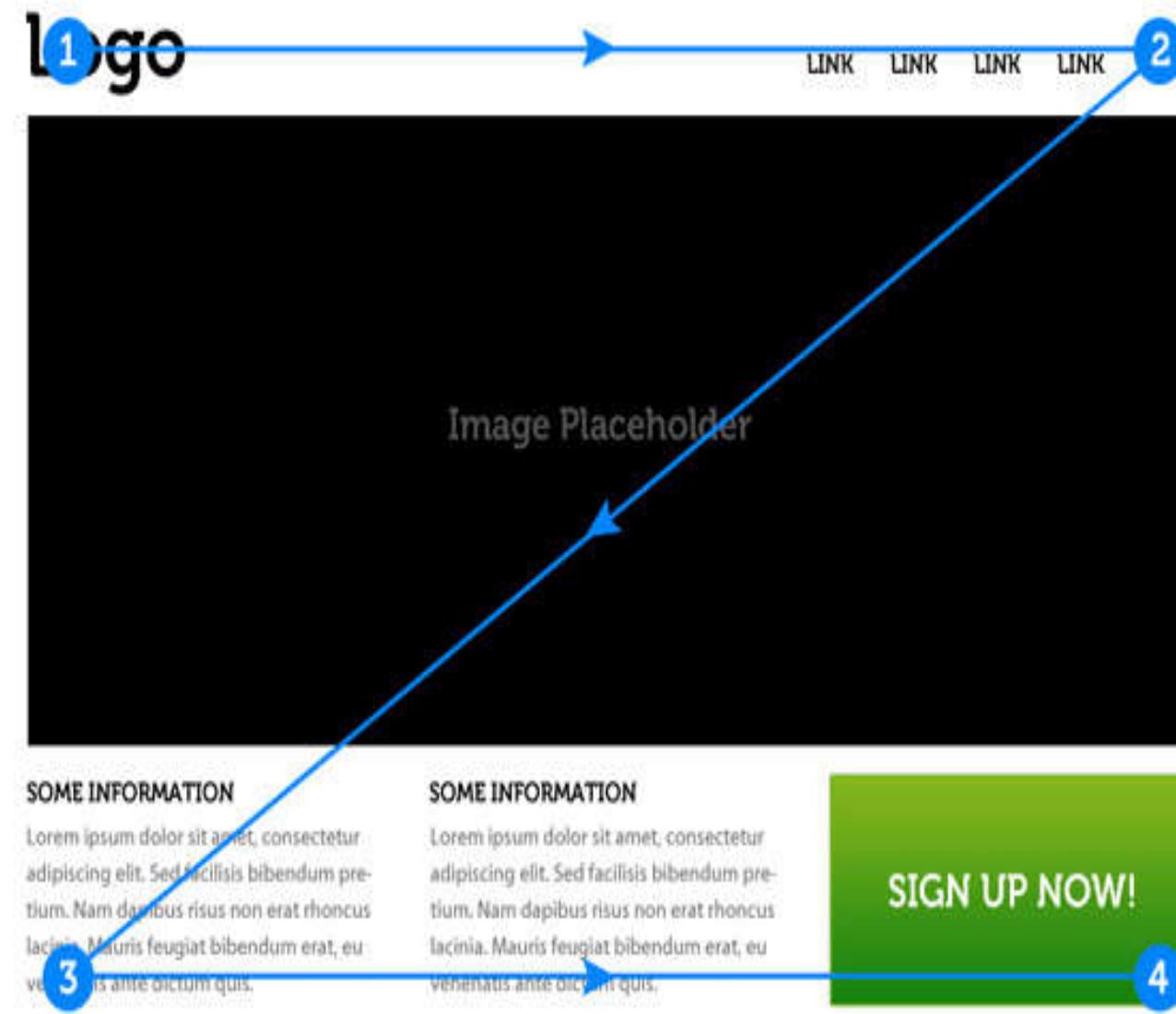
At the bottom, there are tabs for "TOP DESIGNS", "RECENT SUBMISSIONS", and "FROM THE BLOG". Below these, a message says "Don't see what you're looking for? Click here to filter this list." A navigation menu at the very bottom includes "Home", "Portfolio", "About Us", "Blog", and "Contact Us". On the right side, there's a sidebar with social media links for "Subscribe", "Twitter", "Facebook", and a "Like" button for "Design Snack on Facebook".

# Z Order Layout



“ We visit Ashley's every year. It's our favorite week, and we love the time we get to spend with our family.  
- John Doe ”

# Z Order Layout

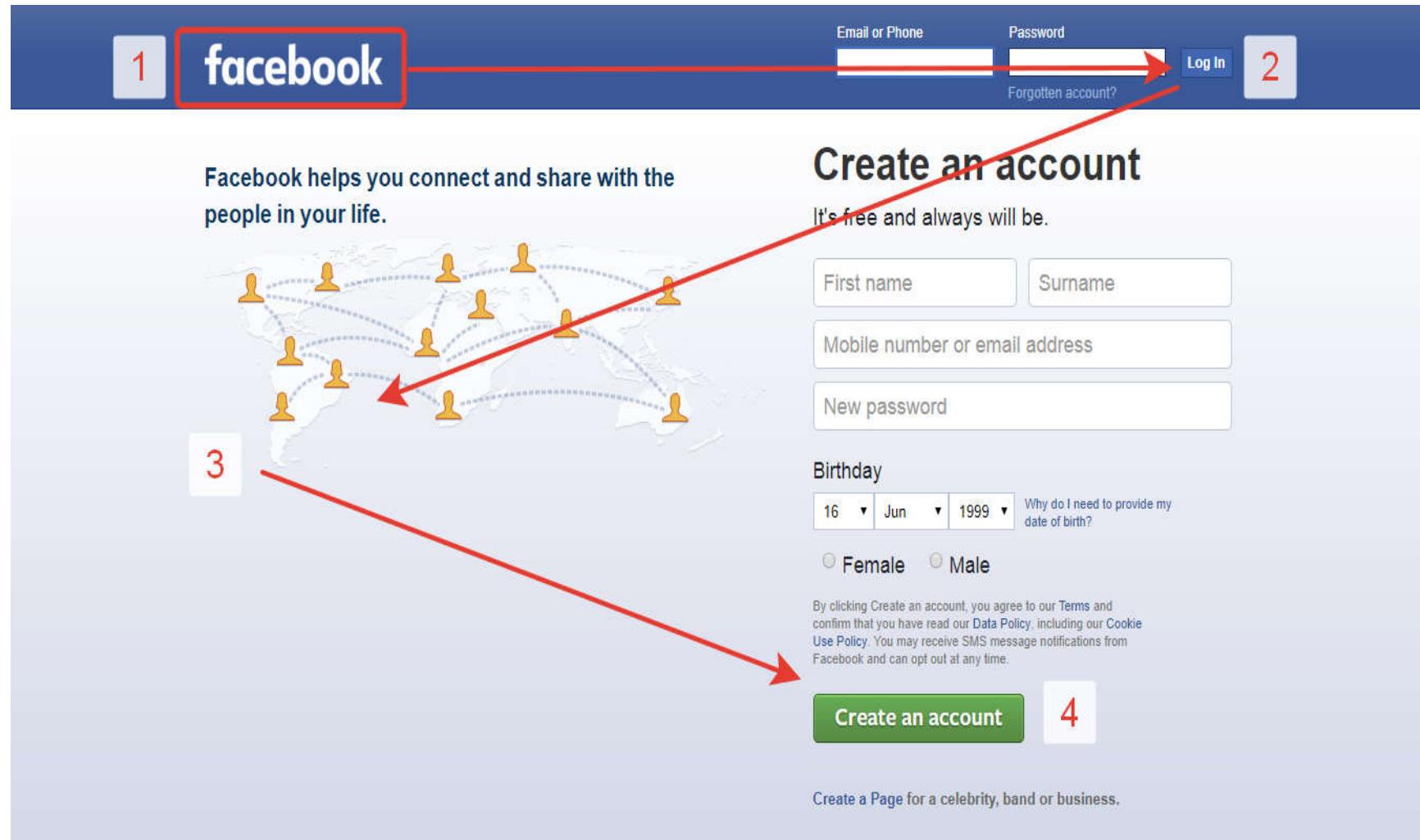


# Z Order Layout

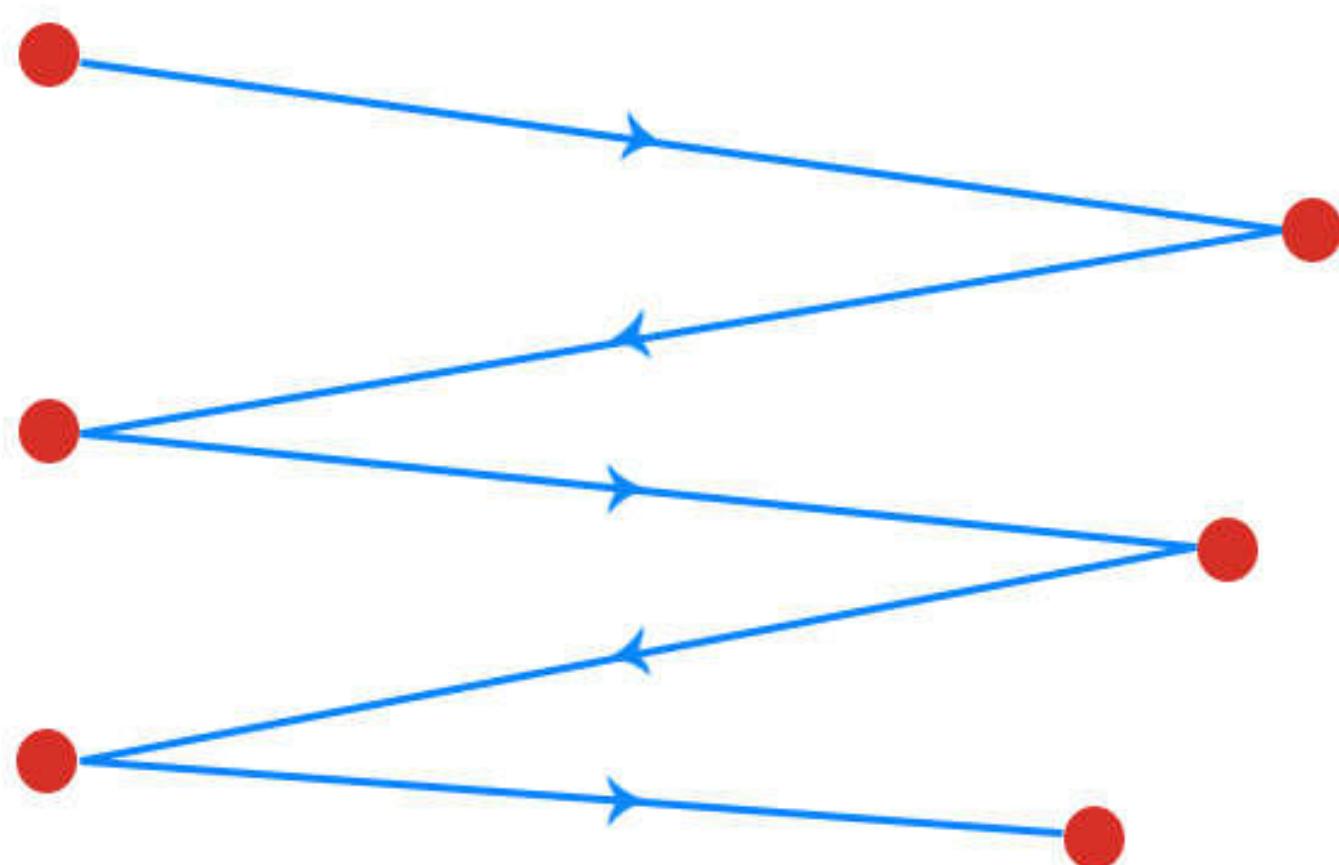
The screenshot shows the Loot Crate homepage. A blue diagonal line highlights the Z-order hierarchy from top to bottom:

- Header:** The navigation bar at the top contains links for "Subscribe", "How it Works", "Past Crates", "Share", "Log In", and "Ship to" with a dropdown menu showing the USA flag.
- Middle Content:** Below the header, there's a promotional message: "Order by the 19th at 9pm PT to receive March's crate. Offer ends in 02 days!".
- Image:** A large image of various Loot Crate items, including a grey t-shirt with a "LOOTCRATE" logo, a Mario figurine, a bear figurine, a Batman figurine, and several smaller items.
- Text:** The text "A MONTHLY BOX OF GEEK & GAMER GEAR" is displayed prominently.
- Text:** The text "\$40+ Retail Value in every crate!" is shown.
- Text:** The text "Membership in an active, growing community." is displayed.
- Text:** The text "Chance to win Mega Crate with \$2,000+ Value!" is shown.
- Price:** The price "\$13.95 /mo + \$6 S/H" is listed.
- Call-to-Action:** A large orange button labeled "SUBSCRIBE" is located at the bottom right.

# Z Order Layout



# ZigZag Order Layout



# ZigZag Order Layout

My Portfolio



My Portfolio



# Example

facebook Search for people, places and things: Amit S Name

W Webdesigntuts+ Timeline Now Liked

Quick and Easy Documentation Using Markdown <http://enva.to/R8A57u>



Like Comment Share 19 people like this. Write a comment...

W Webdesigntuts+ 21 hours ago

Introducing Stacey: the Lightweight CMS Alternative <http://enva.to/T9soem>

Likes See All

m Mobiletuts+ 1 friend also likes this. Like

v Vectortuts+ Website Like

cg Cgtuts+ 1 friend also likes this. Like

a Audiobtuts+ Website Like

a Actutis+ Education Website Like

W Webdesigntuts+ 14 hours ago

Numero 4 - and she's a corker..

```
color: burlywood;
background: crimson;
border-color: peachpuff;
```

# Example

Store Mac iPod iPhone iPad iTunes Support

iPad mini

Features Design Built-in Apps From the App Store iOS iCloud Tech Specs Buy Now!

## iPad mini

Every inch an iPad.

Watch the keynote Watch the video Watch the TV ads



**The full iPad experience.**  
There's less of it, but no less to it.  
Everything you love about iPad — the beautiful screen, fast and fluid performance, FaceTime and iSight cameras, thousands of amazing apps, 10-hour battery life\* — is everything you'll love about iPad mini, too. And you can hold it in one hand.  
[Learn more »](#)



**Beautiful 7.9-inch display.**  
A screen worthy of iPad.  
Colors are vivid and text is sharp on the iPad mini display. But what really makes it stand out is its size. At 7.9 inches, it's perfectly sized to deliver an experience every bit as big as iPad.  
[Learn more »](#)



**Over 275,000 apps.**  
If it's made for iPad, it's made for iPad mini.  
Right from the start, apps made for iPad also work with iPad mini. They're immersive, full-screen apps that let you do almost anything you can imagine. And they make iPad mini practically impossible to put down.  
[Learn more »](#)



**Ultrafast wireless.**  
Fast connections. The world over.  
With advanced Wi-Fi that's up to twice as fast as any previous-generation iPad and access to fast cellular data networks around the world, iPad mini lets you download content, stream video, and browse the web at amazing speeds.  
[Learn More »](#)



# Example

The screenshot shows a product page for the Surface with Windows RT. At the top, there's a large image of the tablet with its pink Type Cover keyboard. Below it, another image shows the tablet standing upright with its kickstand deployed. The main headline reads "Surface with Windows RT" with a price of £399. A "Buy now" button is prominent. The page features several sections: "Timeless. Tough." (describing the device's engineering), "Kick. Start." (describing the kickstand), "Click. Type." (describing the keyboard cover), and "Connect. Share." (describing connectivity options). Each section includes a "Learn more" button and some descriptive text.

The screenshot shows a blog post titled "Beauty" on the BuzzBlog platform. The header features the BuzzBlog logo and navigation links for Home, Categories, Post forums, About me, Features, Gallery, Contact, and Log in. The main content area has a pink header with the word "Beauty". Below it, there's a sidebar with a search bar and a "Slideshow Post Type Gallery" section showing images of a man and a woman. The main post by Daniel Jackson and Christy Turlington is visible, featuring a photo of a man holding a small white dog. The post discusses a photoshoot for W&J Magazine. Below the post, there's a "Continue reading..." link and social sharing icons. Another post titled "Look of the day" is partially visible at the bottom.

# Example

The screenshot shows the homepage of the website [operativnik.ru](http://operativnik.ru). The top navigation bar includes links for **УСЛУГИ**, **ПРОДУКЦИЯ** (highlighted in green), **ПРАЙС-ЛИСТ**, **УСЛОВИЯ**, and **КОНТАКТЫ**. The top right corner features a search icon and phone numbers +7 (495) 625-49-24 and +7 (495) 628-9439.

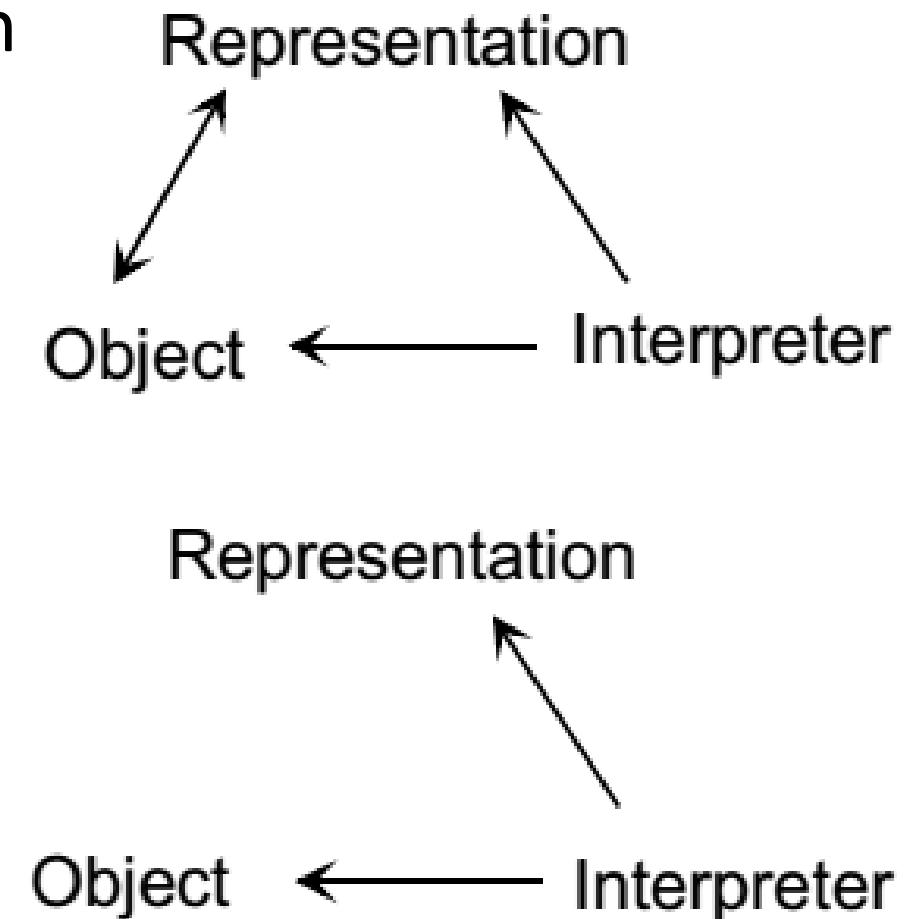
The main header features a rocket ship launching from clouds, with the text "РЕКЛАМНАЯ ПОЛИГРАФИЯ" and a subtext: "Мы делаем полиграфию профессионально, и точно знаем, как сделать кусочек бумаги достойным носителем наших идей". A "просчитать заказ" button is located to the right.

The page is divided into several sections:

- УСЛУГИ**: Categories include **ДОПЕЧАТНЫЕ** (Фирменный стиль, Дизайн, Верстка, Редактирование, Сканирование, Цветокоррекция, Перевод, Фотосъемка), **ПЕЧАТНЫЕ** (Цифровая печать, Офсетная печать, Термографическая печать, Широкоформатная печать), **ПОСЛЕПЕЧАТНЫЕ** (Биговка, Ламинация, Фольгование, Тиснение, Флексография, Печать на бумаге, Нумерация, Переплетно-бумажное), and **ДРУГИЕ** (Цветное копировение, Выезд на цветной принтер, Пластиковый резет Цветоприбора, Переезд, Фотосъемка).
- ПРОДУКЦИЯ**: Categories include **КОРПОРАТИВНАЯ** (Бизитки, визитки, Брошюры, Годовые отчеты, Каталоги, Конверты, Папки, Фирменные бланки, Прейс-листы, Меню, Пластиковые диски, Карты), **РЕКЛАМНАЯ** (Плакаты, флаеры, Рекламные блокноты, Напоминчики, Проспекты, Записники, Визитники, Пакеты), **ПРЕЗЕНТАЦИОННАЯ** (Паспорта участников, Портфолио, Календари, Календари настенные, Календари настольные, Календари кухонные), and **ДРУГАЯ** (Обложки, Комплекты документов, Сертификаты, Бирки, Карточки оплаты).
- ПРАЙС-ЛИСТ**: A button to view the price list.
- ОТЗЫВЫ**: Testimonials from users like "TERMOS KONTAINER" and "TERMOS KONTAINER".
- КОНТАКТЫ**: Contact information including email [INFO@OPERATIVNIK.RU](mailto:INFO@OPERATIVNIK.RU), phone numbers +7 (495) 628-9439, +7 (495) 628-6435, +7 (495) 628-9439, address: М. «Чистые пруды», «Тургеневская», СРЕТЕНСКИЙ БУЛЬВАР, Д.2, ОФИС 414, and business hours: Пн - Пт, с 10.00 до 19.00. It also includes fields for "НАПИШИТЕ НАМ:", "ИМЯ", "Е-MAIL", and "ТЕКСТ СООБЩЕНИЯ", with a "отправить" (Send) button.
- МЫ В СОЦСЕТЯХ**: Social media icons for Facebook, Twitter, and Google+.
- УСЛУГИ**, **ПРОДУКЦИЯ**, **ПРАЙС-ЛИСТ**, **УСЛОВИЯ**, **КОНТАКТЫ**: Navigation links at the bottom.

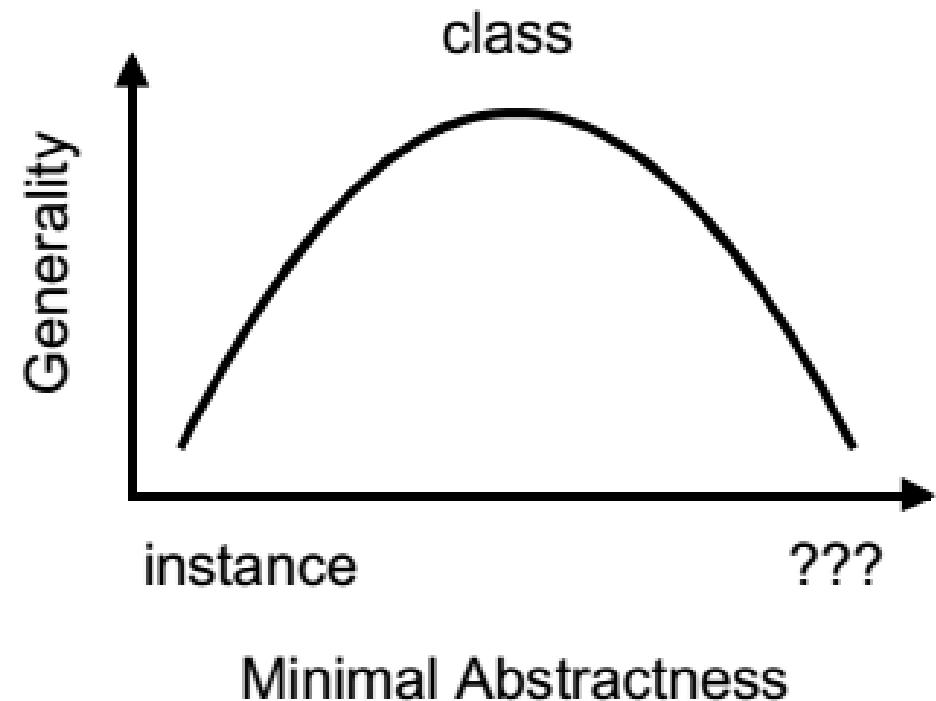
# Semiotics -- GUIs as signs

- Iconic sign: representation resembles object
- Symbolic sign: viewer associates representation and object



# Semiotics -- GUIs as signs

- Abstractness helps iconic generality
- Realistic icons represent instances
- Stylized (minimalistic) icons represent a class



# Icon Selection

- Use iconic representation when communication goal is concrete & familiar.
- Can use symbolic representation for repetitive concepts (learned).
- Use text for abstract or complex (subtle) representations (processes).
- Avoid mixing textual, iconic and symbolic signs w/in image set

# Icon Refinement

- Determine the level of abstraction.
- Try simplifying shapes into regular geometric forms.
- Try using negative space to determine contour

# Coordinating Icons

- Use a similar perspective & point of view
- Use a similar style of representation -- don't combine icons with symbols.
- Use consistent size, orientation, layout, color, and visual proportion (weight / area) to each image. Grids help internal structure.
- Use the same elements when possible in your image set {lines, rules, textures} -- limit the visual vocabulary

# Mastering Style

- Read style guides -- learn the conceptual model from the user's point of view.
- Respect the visual language of the style.
- Learn the usage and methods of user customization -- fonts, color and how they can possibly degrade the style

# Working across (with) many Styles

- Develop a translation table across the style set
- Extend the widget set to fill out gaps in the translation table.
- Use menu and control mechanisms of the style.
- Focus on high level orienting features -- keep similar structure when possible

# Q&A