

Basics of Visual Communication

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Point, Line, Plane

- Point, line and plane are the building blocks of design
- From this elements, designer create images, icons, diagrams, animation and typographic systems
- There are numerous ways to experiment with these basic elements of two dimensional design: observing the environment around you, making marks with physical and digital tools, using software to create and manipulate images...

Point

- A point marks a position in space
- In pure geometric terms a point is a pair of x, y coordinates
- A point can be an insignificant fleck of matter or a concentrated locus of power
- A series of point forms a line, a mass of point becomes texture, shape or plane!



Line

- Line is an infinite series of points
- A line is the connection between two points, or it is the path of a moving point
- Lines are drawn with a pen, pencil, brush, mouse or digital code
- They can be straight or curved, continuous or broken
- When a line reaches a certain thickness it becomes a plane
- A graph is a rising and falling line that describes change over time, as in a waveform charting a heart beat or an audio signal



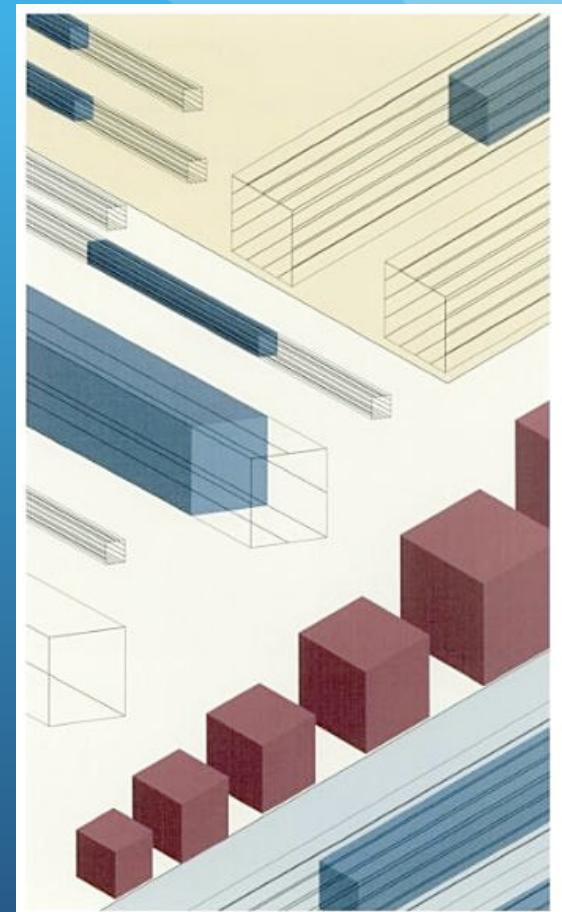
Plane

- A plane is a flat surface extending in height and width.
- A Plane is the path of moving line; it is a line with breadth
- Shapes are planes with edges
- In vector-based software, like flash, every shape consists of line and fill.
- Walls, floors and windows are physical planes
- A plane can be solid or perforated, opaque or transparent, textured or smooth



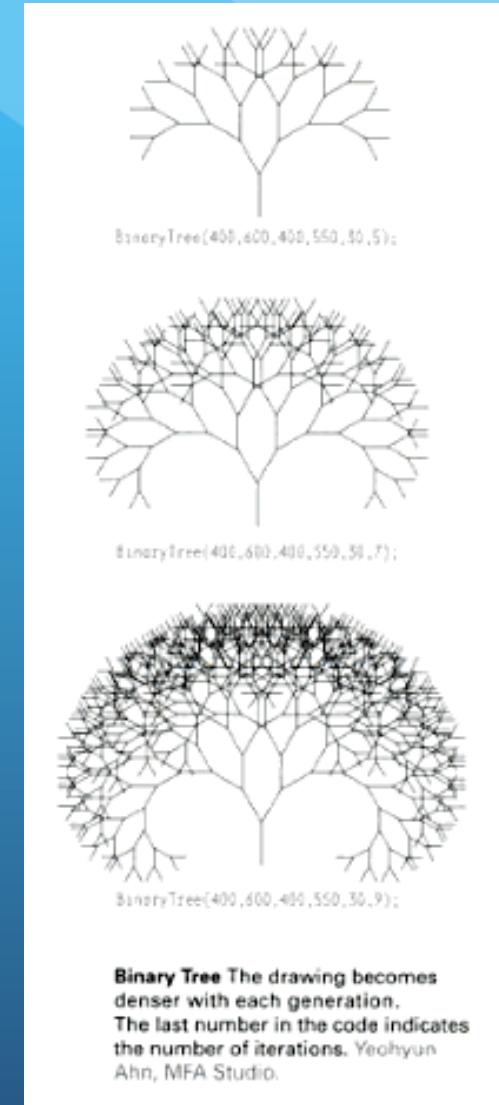
Space and Volume

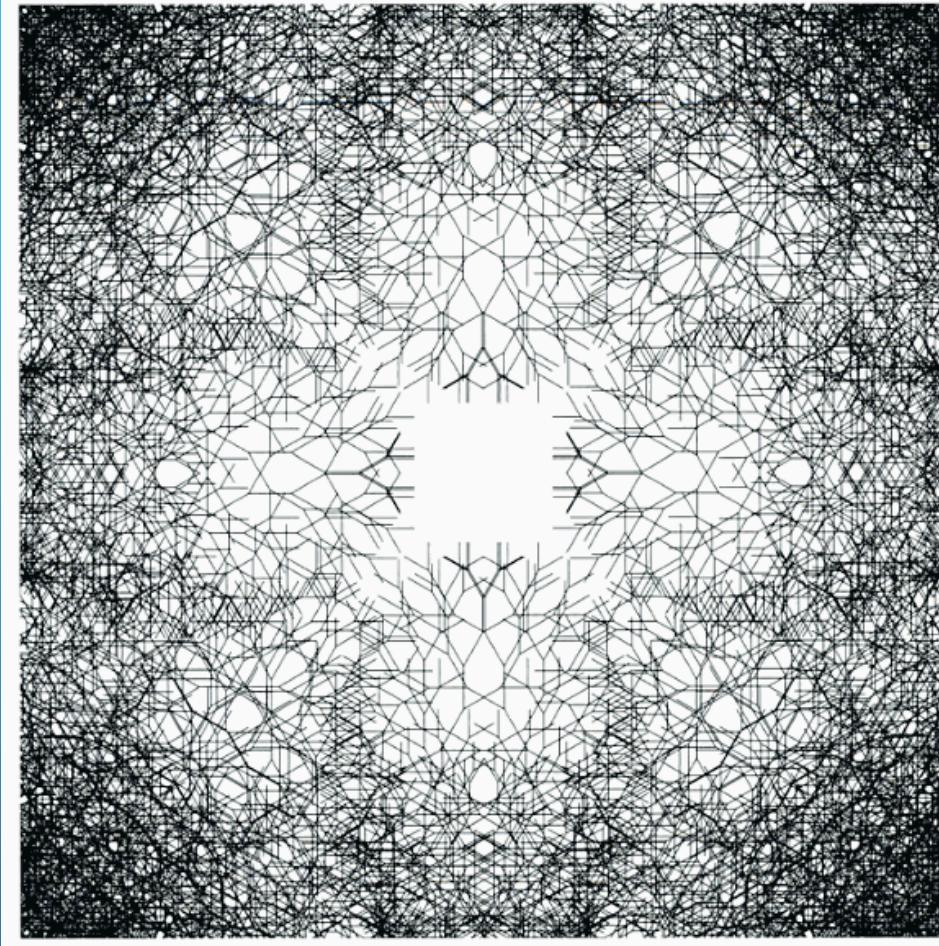
- A graphic object that encloses three-dimensional space has volume. It has height, width and depth
- A sheet of paper or a computer screen has no real depth, of course, so volume is represented through graphic conventions
- Linear perspective simulates optical distortions, making near objects appear large as far objects become small, receding into nothing as they reach the horizon



Drawing with Code

- The drawings shown here were created with Processing, an open-source software application
- The designs are built from a binary tree, a basic data structure. Binary trees are used to organize information hierarchies, and they often take a graphical form
- In code-based drawing, the designer varies the results by changing the inputs to the algorithm

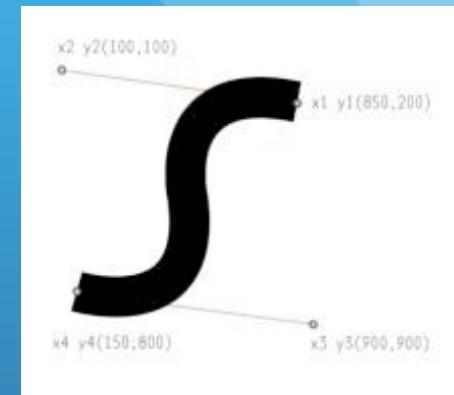




- **Binary Tree Pattern.** Produced with code, this textured drawing employs techniques that have been used across history to produce rhythmic patterns: **copying, repeating, rotating, inverting and connecting.**

Bezier Curves

- A Bezier curve is a line defined by a set of anchor and control points.
- Designer are accustomed to drawing curves using vector-based software and then modifying the curve by adding, subtracting, and repositioning the anchor and control points.



Rhythm and Balance

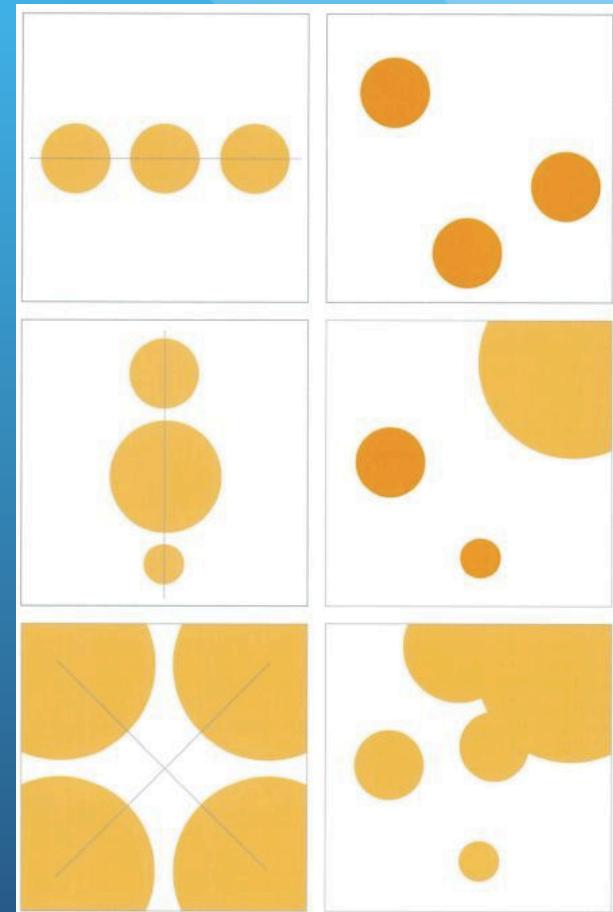
- Balance is a fundamental human condition: we require physical balance to stand upright and walk;
- Relationships among elements on the page remind us of physical relationships.
- Visual balance occurs when the weight of one or more things is distributed evenly or proportionately in space
- A symmetrical design, which has the same elements on at least two sides along a common axis, is inherently stable
- Yet balance need not be static. Designers employ contrasting size, texture, color and shape to offset or emphasize the weight of an object and achieve the acrobat's dynamic sense of balance

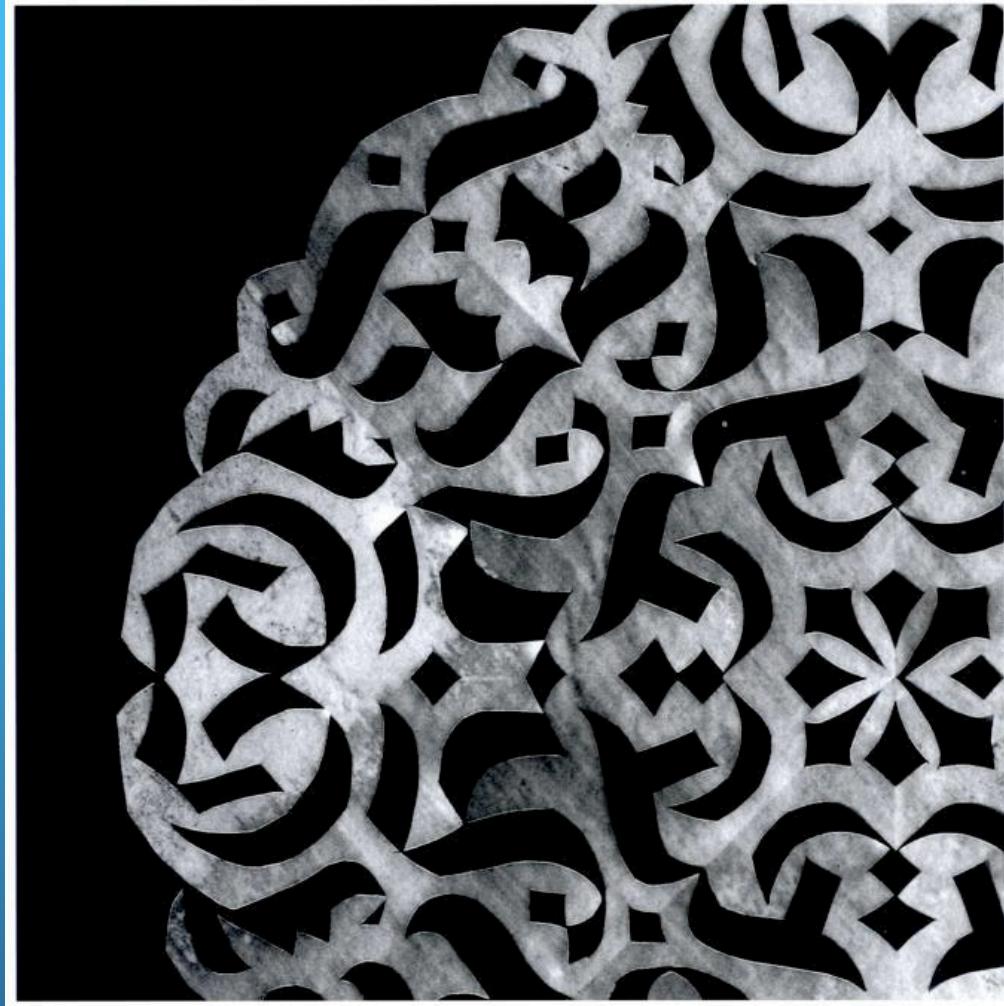
Rhythm and Balance

- Rhythm is a strong, regular, repeated pattern: the beating of drums, the patter of rain
- Graphic designers use rhythm in the construction of static images as well as in books, magazines, and motion graphics that have duration and sequence
- A book design, for example, seeks out a variety of scales and tonal values across its pages, while also preserving an underlying structural unity
- Balance and rhythm work together to create works of design that pulse with life, achieving both stability and surprise

Symmetry and Asymmetry

- Symmetry can be left to right, top to bottom, or both. May natural organism have a symmetrical form
- Symmetry is not the only way to achieve balance, however.
- Asymmetrical design are generally more active than symmetrical ones
- Designers achieve balance by placing contrasting elements in counterpoint to each other, creating composition that allow the eye to wander while achieving an overall stability

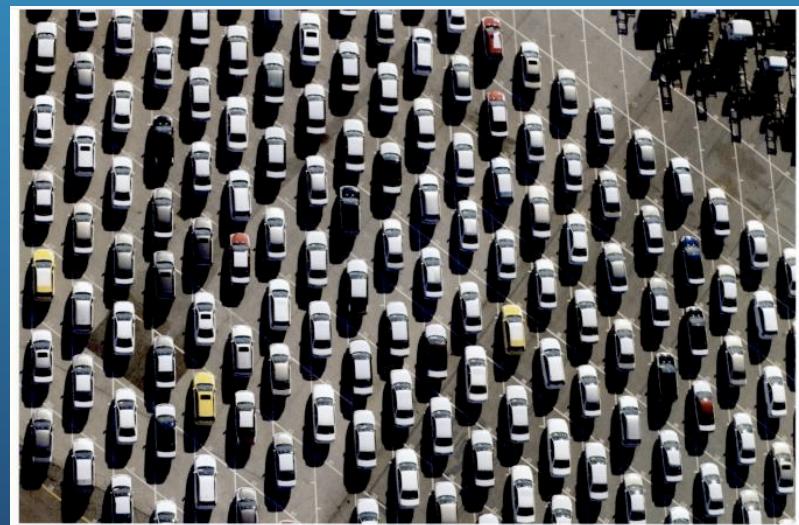
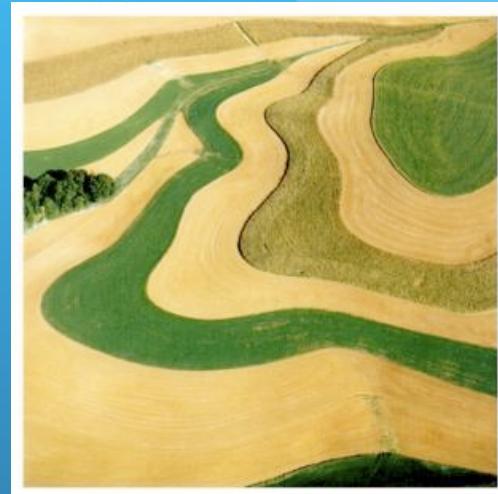




- **Symmetry and Asymmetry.** The designer has cropped a symmetrical form in order to create an asymmetrical composition. The larger ornamental form has been shifted dramatically off center, yielding **dynamic balance**.

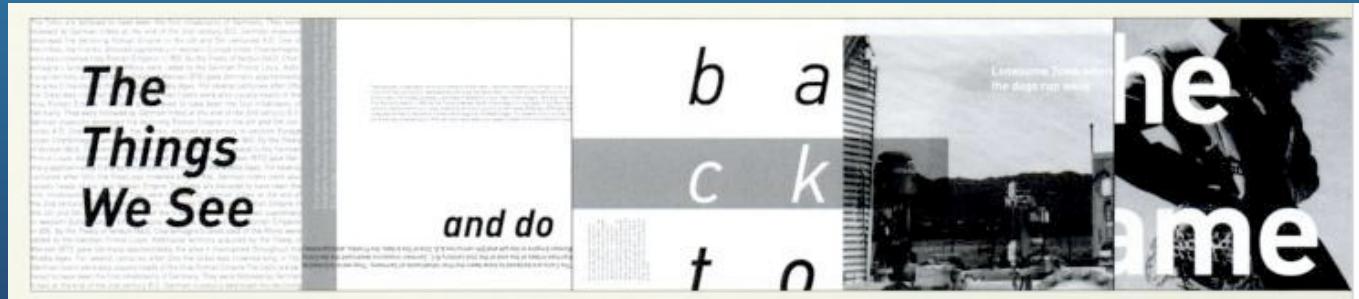
Repetition and Change

- From the flowing contours of a farmer's fields to a sea of car tucked into the lined compartments of a parking lot, repetition is an endless feature of the human environment
- Like melodic consonance and fervent discord in music, repetition and change awaken life's visual juxtapositions.
- Beauty arises from the mix



Rhythm and Pacing

- Designers often work with content distributed across many pages.
- As in a single-page composition, a sequential design must possess an overall coherence.
- Imagery, typography, rules, color fields, and so on are placed with mindful intention to create focal points and to carry the viewer's eye thought the piece



Found Rhythms

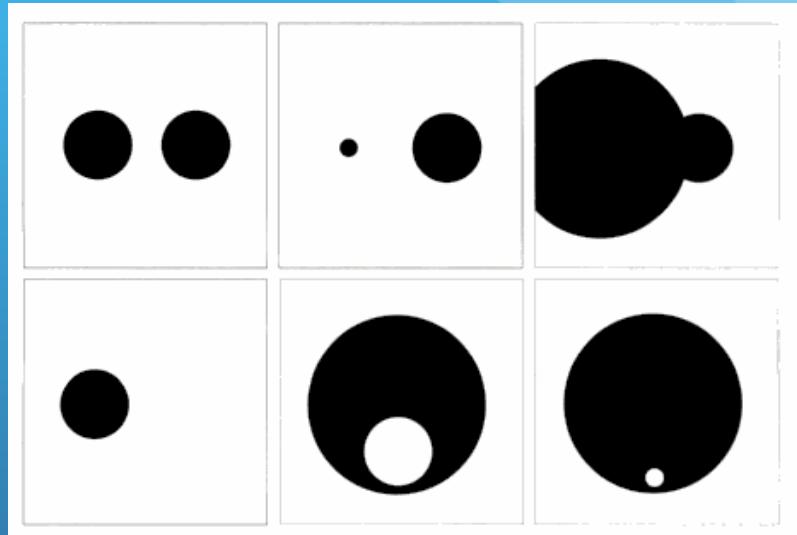


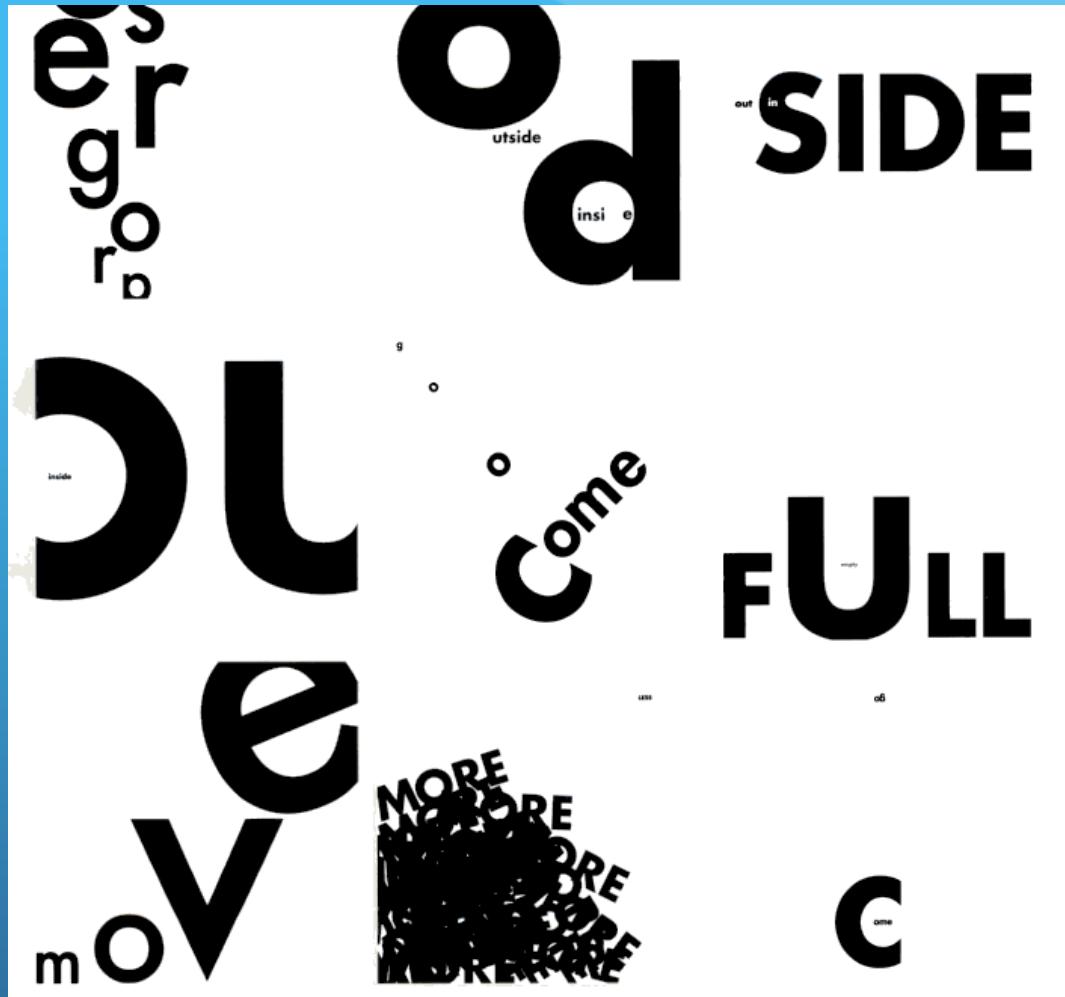
Scale

- Some projects are designed to be reproduced at multiple scales, while others are conceived for a single site or medium
- Scale can be considered both objectively and subjectively
- In objective terms, scale refers to the literal dimensions of a physical object or to the literal correlation between a representation and the real thing (maps, Model car)
- Subjectively, scale refers to one's impression of an object's size

Scale i relative

- A graphic element can appear larger or smaller depending on the size, placement, and color of the element around it
- When elements are all the same size can create a sense of tensions as well as a felling of depth and movement.
- Small shapes tend to recede; large one move forward



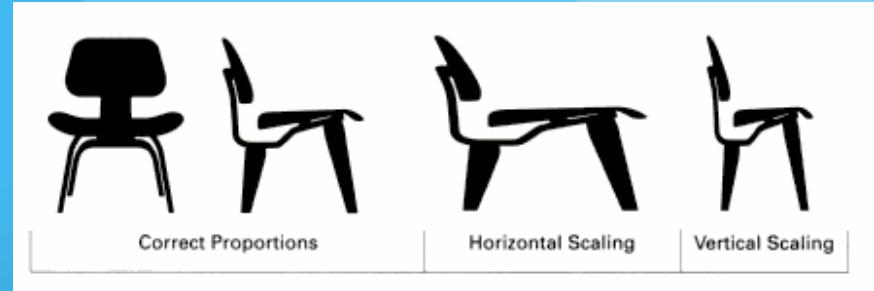


- **Scale, depth, and motion.** In this typographic composition, designers worked with words and used changes in scale as well as placement on the page to convey the meaning of the words. Contrasts in scale can imply motion or depth as well as express differences in importance

Ambiguos Scale



Scale is a Verb



- To scale a graphic element is to change its dimensions.
- Software makes it easy to scale photographs, vector graphics and letterforms. Changing the scale of an element can transform its impact on the page or screen
- BE CAREFUL, however: it's easy to distort an element by scaling it disproportionately
- Vector graphics are scalable, meaning that they can be enlarged or reduced without degrading the quality of the image
- Bitmap images cannot be enlarged without degrading the quality .

Color

- Color can convey a mood, describe reality, or codify information.
- We cannot perceive color until light bounces off an object or is emitted from a source and enters the eye
- Our perception of color depends not solely on the pigmentation on physical surfaces, but also on the brightness of ambient light
- We also perceive a given color in relation to the other colors around it. For example, a light tone looks lighter against a dark ground than against a pale one
- Color changes meaning from culture to culture. Colors carry different connotations in different societies. White signals virginity and purity in the West, but is the color of death in Eastern cultures

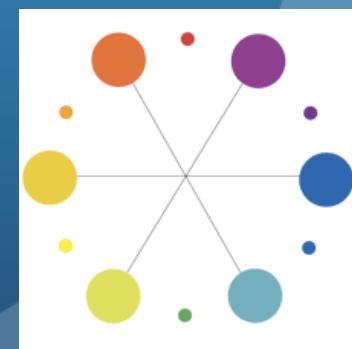
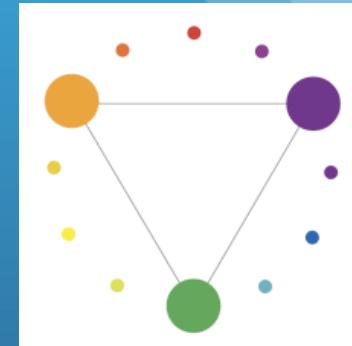
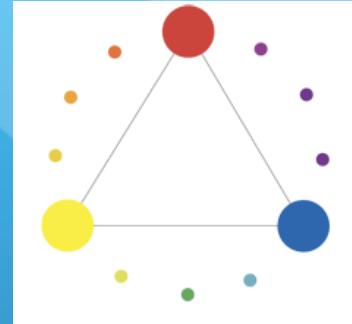
Basic Color Theory



- In 1665 Sir Isaac Newton discovered that a prism separates light into the spectrum of colors. He organized the colors around a wheel.
- Colors sitting near each other on the spectrum or close together on the color wheel are analogous. Using them together provides minimal color contrast and an innate harmony. Analogous colors also have a related color temperature
- Two colors sitting opposite each other are complements. Each color contains no element of the other, and they have opposing temperatures (warm vs cool)
- Deciding to use analogous or contrasting colors effects the visual energy and mood of any composition

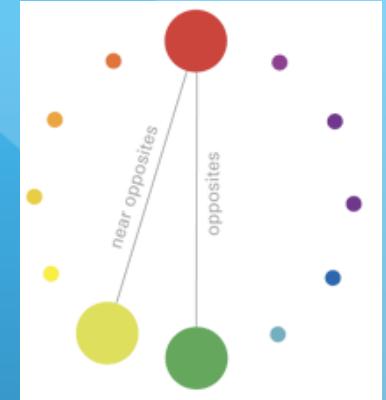
Basic Color Theory

- Primary Colors. Red yellow and blue are pure; they can't be mixed from other colors. All of the other colors on the wheel are created mixing primary colors
- Secondary Colors. Orange, purple and green consist of two primaries mixed together
- Tertiary Colors. Colors such as red orange and yellow green are mixed from one primary and one secondary color

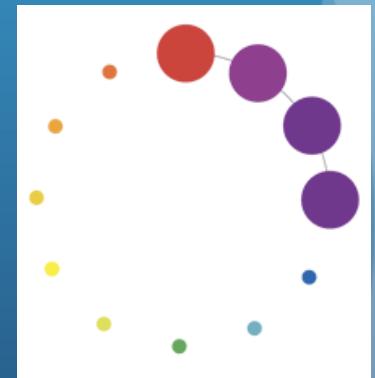


Basic Color Theory

- Complements. Red/green, blu/orange and yellow/purple sit opposite each other on the color wheel.



- Analogous Colors. Color schemes built from hues that sit near each other on the color wheel have a minimal chromatic differences



Aspect of color

- Every color can be described in relation to a range of attributes.
- Understanding these characteristics can help you make color choices and build color combinations
- Using colors with contrasting values tends to bring forms into sharp focus, while combining colors that are close in value softens the distinction between elements

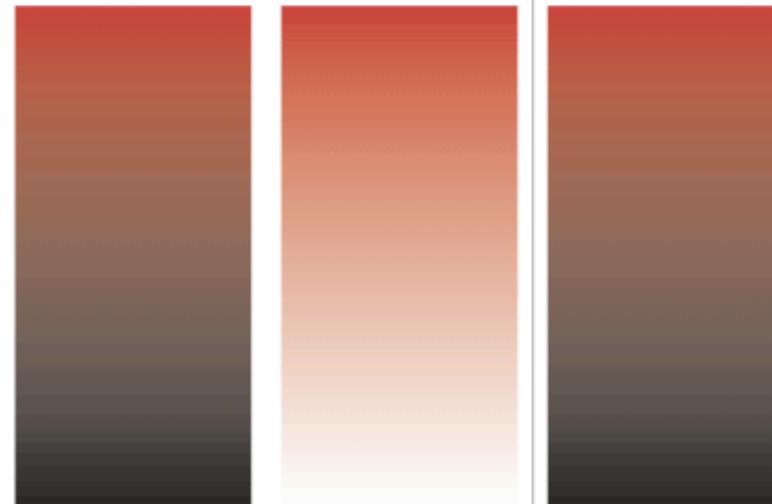
Aspect of color



Hue is the place of the color within the spectrum. A red hue can look brown at a low saturation, or pink at a pale value.

Intensity is the brightness or dullness of a color. A color is made duller by adding black or white, as well as by neutralizing it toward gray (lowering its saturation).

Value is the light or dark character of the color, also called its luminance, brightness, lightness, or tone. Value is independent of the hue or intensity of the color. When you convert a color image to black and white, you eliminate its hue but preserve its tonal relationships.



Shade is a variation of a hue produced by the addition of black.

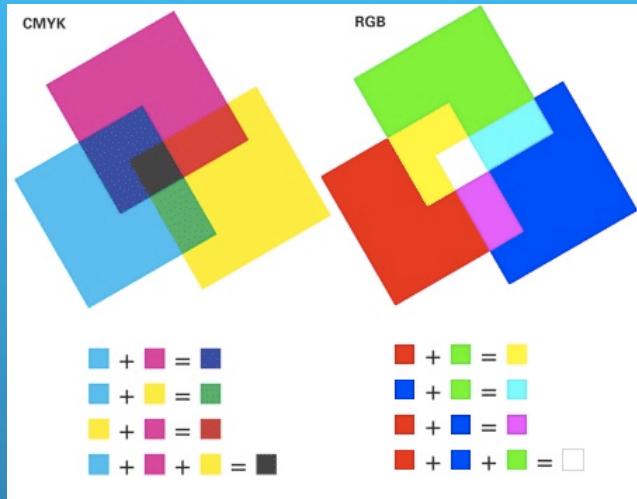
Tint is a variation of a hue produced by the addition of white.

Saturation (also called chroma) is the relative purity of the color as it neutralizes to gray.

Color Models

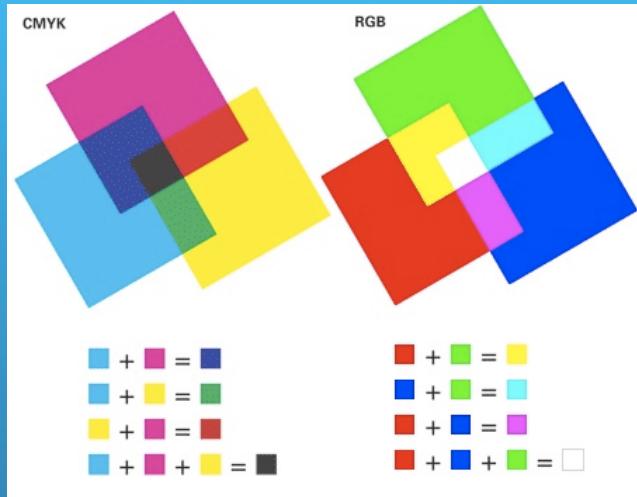
- Surfaces absorb certain light waves and reflect back others onto the color receptors (cones) in our eyes.
- The light reflected back is the light we see. The true primaries visible light are red, green and blue.
- The light system is called ADDITIVE because the three primaries together create all the hues in the spectrum
- In theory, combining red and green paint should produce yellow. In practice, however, these pigments combine into a blackish brown. This is because pigments absorb more light than they reflect, making any mix of pigments darker than its source colors.
- Thus pigment based color systems are called SUBTRACTIVE

CMYK VS RGB



- CMYK is used in the printing process. Printing ink uses this set of colors: cyan, magenta, yellow and black
- In principle C M and Y should produce black, but the resulting mix is not rich enough to reproduce color images with a full tonal range. Thus black is needed to complete the four-color process

CMYK VS RGB



- RGB is the additive system used for designig on screen. Different percentages of red, green and blue liht combine to generate the colors of the spectrum.
- White occurs when all three colors are at full strenght
- Black occours when zero light is emitted

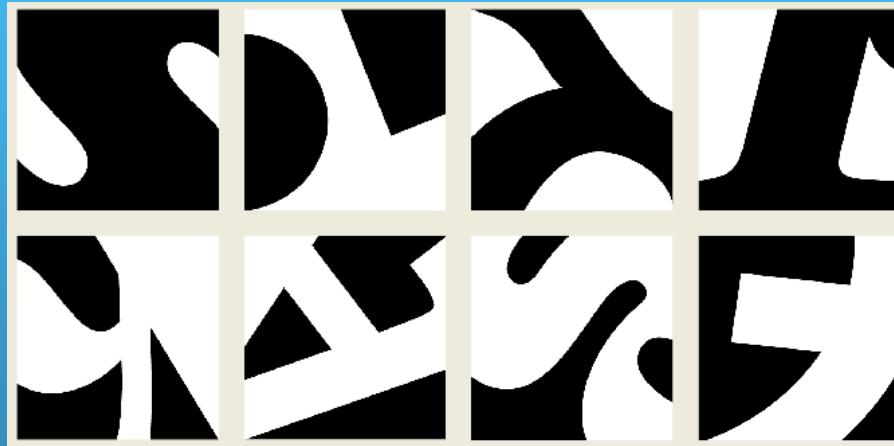
Figure/Ground



Lisa Bienermann

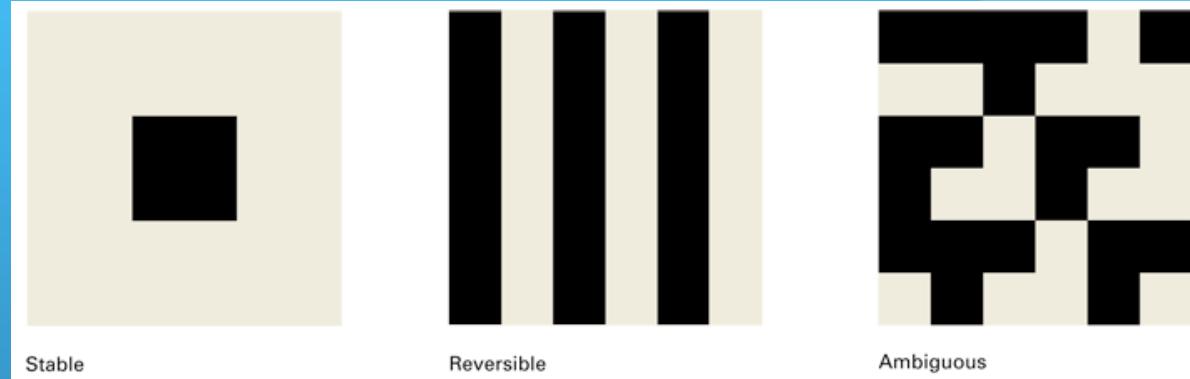
- A figure (form) is always seen in relation to what surrounds it (ground, or background): letters to a page, a building to its site, a sculpture to the space within it and around it, the subject of a photograph to its setting and so on.
- A black shape on a black field is not visible; without separation and contrast, form disappears.
- Graphic Designers often seek a balance between figure and ground, using this relationship to bring energy and order to form and space.
- They build contrasts between form and counter form in order to construct icons, illustrations, logos, compositions, and patterns that stimulate the eye.

Figure/Ground



- The ability to create and evaluate effective figure/ground tension is an essential skill for graphic designers.
- Recognizing the potency of the ground.
- Working with figure/ground relationships gives designers the power to create and destroy form.

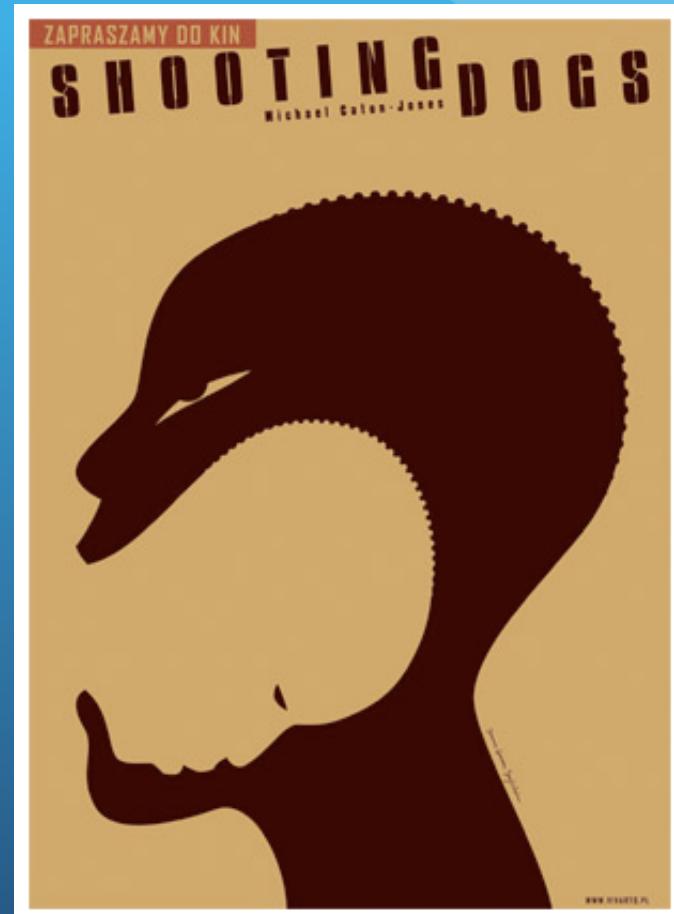
Stable, Reversible, Ambiguous



- A stable figure/ground relationship exists when a form or figure stands clearly apart from its background.
- Reversible figure/ground occurs when positive and negative elements attract our attention equally and alternately, coming forward, then receding, as our eye perceives one first as dominant and next as subordinate.
- Images and compositions featuring ambiguous figure/ground challenge the viewer to find a focal point.
Figure is enmeshed with ground, carrying the viewer's eye in and around the surface with no discernable assignment of dominance.

Figure inside of figure

- Designer illustrator and photographer often play with figure/ground relationship to add interest and intrigue to their work.
- This poster (Homework, Joanna Gorska and Jerzy Skakun) reveals its subject at second glance. The tension between figure and ground acquires an ominous energy



Framing

- A picture frame sets off a work of art from its surroundings, bringing attention to the work and lifting it apart from its setting.
- Cropping, borders, margins, and captions are key resources of graphic design. Whether emphasized or erased, frames affect how we perceive information.
- Frames create the conditions for understanding an image or object.
- The mechanical eye of the camera cuts up the field of vision in a way that natural eye doesn't.
- Every time you snap a picture with a camera, you make a frame!

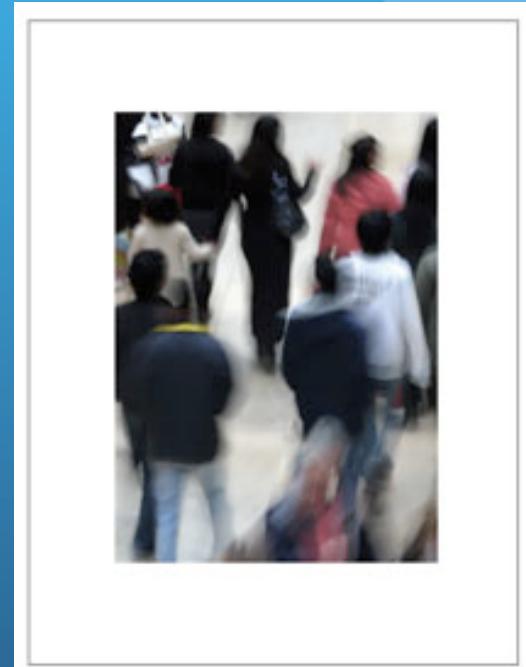
Cropping

- By cropping a photograph or illustration, the designer redraws its border and alters its shape, changing the scale of its element in relation to the overall picture.
- A vertical image can become a square, a circle acquiring new proportions.
- By closing in on detail, cropping can change focus of the picture, giving it new meaning and emphasis.

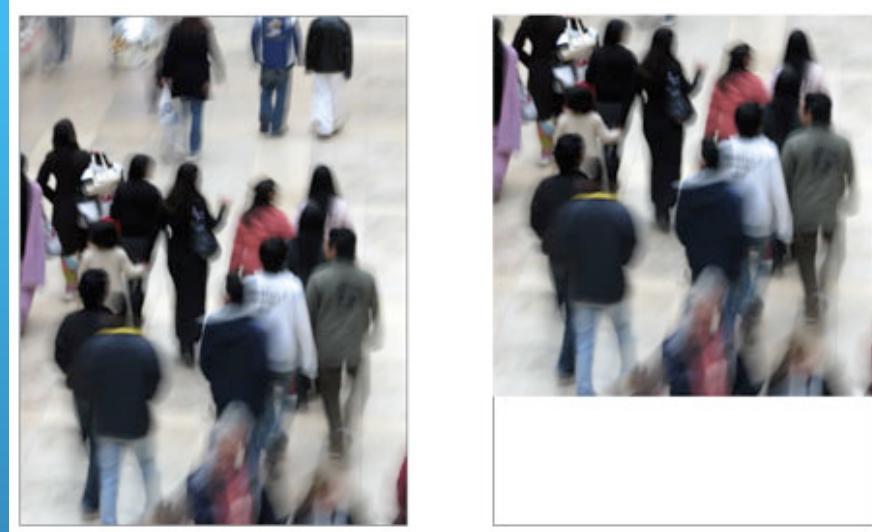


Margin and Bleeds

- MARGIN: provide a protective frame around the contents of a publication.
- They also provide space for information such as page numbers and running heads.
- Wider margins can emphasize a picture or a field of text as an object, calling our attention to it.
- Narrower margins can make the content seem larger than life, bursting at its own seams.

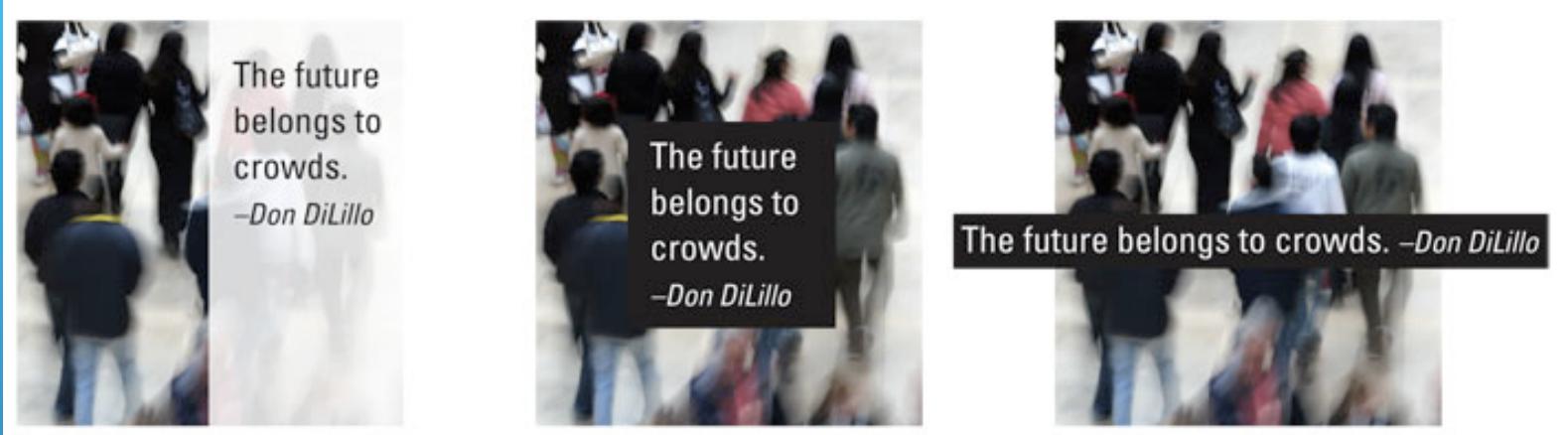


Margin and Bleeds



- BLEEDS: An image “bleeds” when it runs off the edges of a page.
- The ground disappears, and the image seems larger and more active.
- An image can bleed off one, two, or three sides.

Framing Image and text



- An image seen alone, without any text, is open to interpretation.
- Adding text to a picture changes meaning. Text and image combine in endless ways.
- Text can be subordinate or dominant to a picture; it can be large or small, inside or outside, opaque or transparent, legible or obscure. Text can respect or ignore the borders of an image.
- Boxes, bars, and transparent color fields are some of the ways designers deal with the problem of separating text from image.

Borders

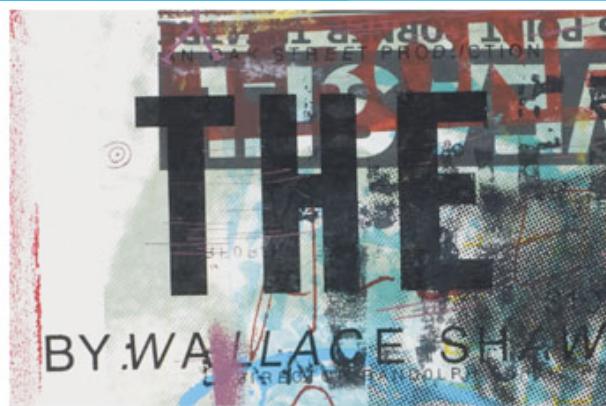


- A border is the frontier between inside and outside, marking the edge of a territory.
- A border appears where an image ends and its background begins.
- While many images hold their own edges, a graphic border can help to define an image that lacks an obvious edge.
- Some borders are simple lines; others are detailed and complex.

Layers



Aeronautical map



Paul Sahre and David Plunkert

- **Layers** are simultaneous, overlapping components of an image or sequence.
- They are at work in countless media software programs, from Photoshop and Illustrator to audio, video, and animation tools, where multiple layers of image and sound (tracks) unfold in time.
- Maps use overlapping layers to associate and separate different levels of data, allowing each level to contribute to the whole while maintaining its own identity.
- Printing techniques use multiple layers of ink to build a single image.

Cut and Paste

- The cut-and-Paste function used in nearly every software application today refers to the physical process of collage
- Each time you copy or delete a picture or phrase and insert it into a new position, you reference the material act of cutting and pasting.

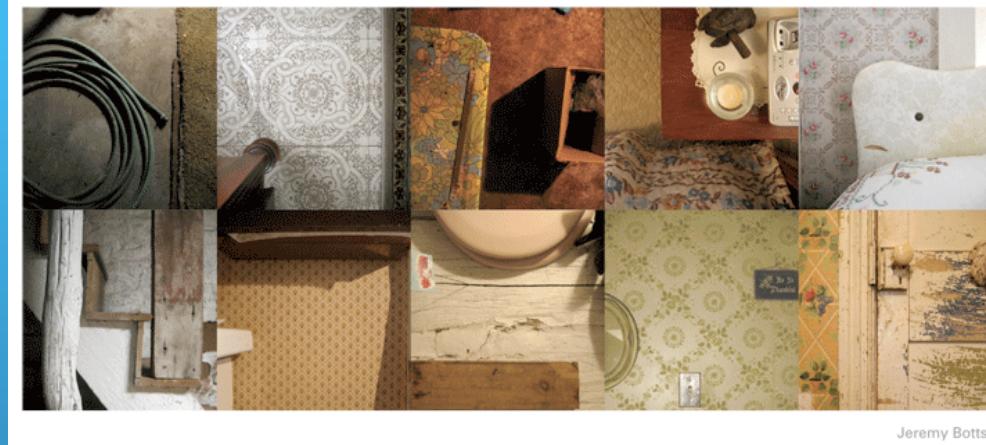


Transparency

- Any surface in the physical world is more or less transparent or opaque: a piece of wood has 100 percent opacity, while a room full of air has nearly zero
- Image-editing software allows designers to adjust the opacity of any picture. Software lets you see through wood, or make air into a solid wall.
- Transparency can serve to build complexity by allowing layers to mix and merge together
- When used in a conscious and deliberate way, transparency contributes to the meaning and visual intrigue of a work of design.

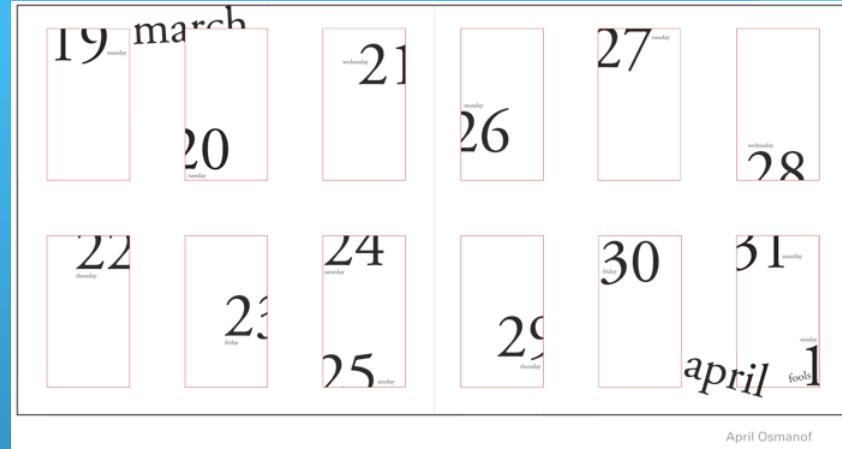


Grid

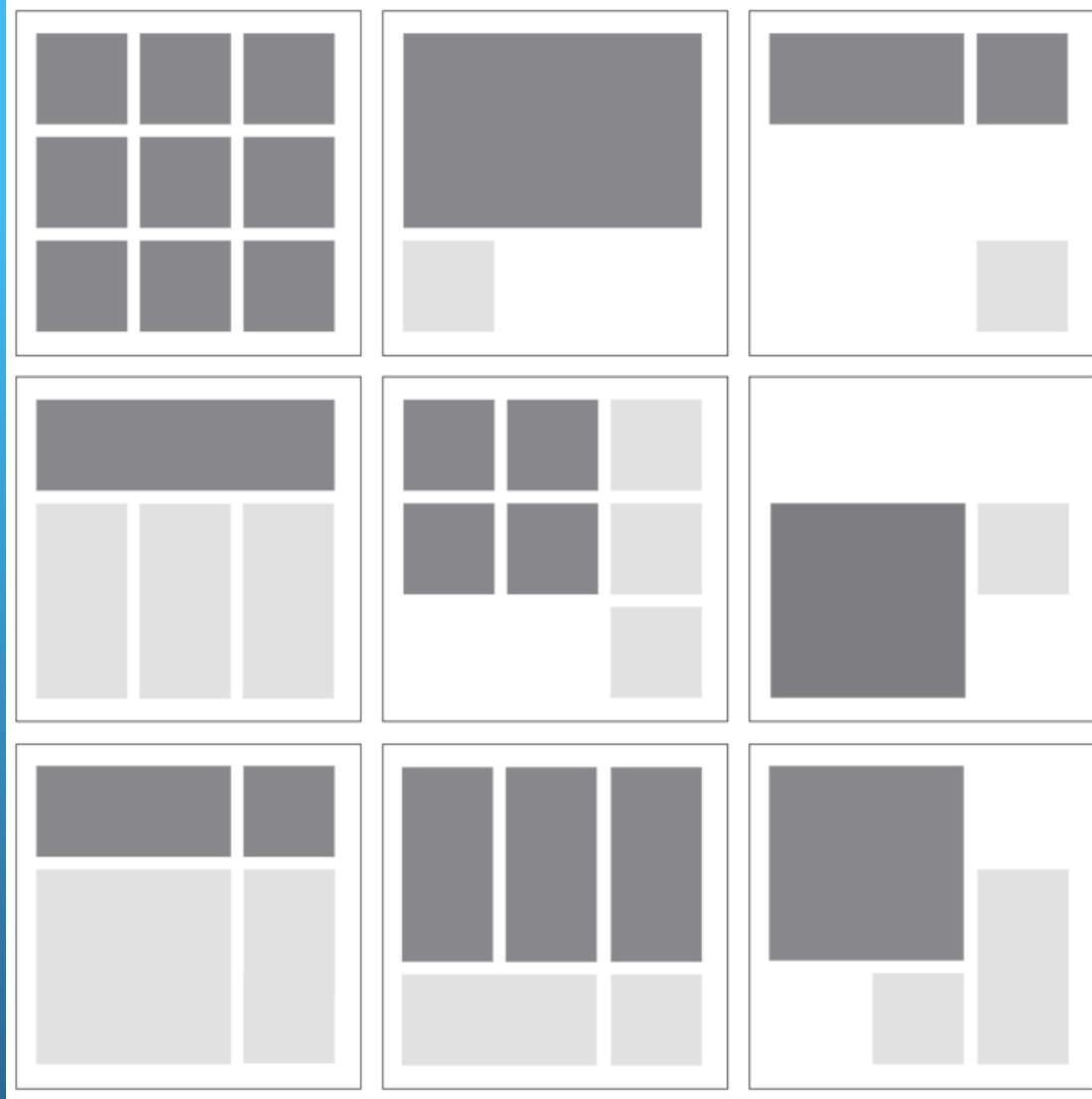


- A grid is a network of lines. It is a tool for generating form, arranging images, and organizing, information.
The grid can work quietly in the background, or it can assert itself as an active element.
- The grid becomes visible as objects come into alignment with it.
- Some designers use grids in a strict, absolute way, while others see them as a starting point in an evolving process.

Grid



- A well-made grid encourages the designer to vary the scale and placement of elements without relying wholly on arbitrary judgements.
- The grid offers a rationale and a starting point for each composition, converting a blank area into a structured field.
- By breaking down space into smaller units, grids encourage designers to leave some areas open rather than filling up the whole page.



- You can construct composition, layout and patterns by dividing a space in a grid