

23 Anthropomorphic and Geometric Aesthetics

Monday, April 13, 2020

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 - Aesthetic-Usability effects
 - Baby-face Bias
 - Uncanny Valley

- Geometric Aesthetics (if there's time)
 - Symmetry
 - Area Alignment
 - Rule of Thirds
 - Fibonacci
 - Golden Ratio

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20 Aesthetic-Usability Effect <https://www.linkedin.com/learning/universal-principles-of-design/aesthetic-usability-effect?u=42275329>

Anthropomorphic Aesthetics

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Anthropomorphic Form

A tendency to find forms that appear humanoid or exhibit humanlike characteristics appealing.

Humans are predisposed to perceive certain forms and patterns as humanlike—specifically, forms and patterns that resemble faces and body proportions. This tendency, when applied to design, is an effective means of getting attention, establishing a positive affective tone for interactions, and forming a relationship based, in part, on emotional appeal. To explore how anthropomorphic form can be applied, consider the design of three bottles.¹

The classic 1915 Coca-Cola “contour” bottle, often referred to as the “Mae West” bottle due to its distinctly feminine proportions, was a break with the straight and relatively featureless bottles of its day. In addition to its novelty, however, the bottle benefited from a number of anthropomorphic projections such as health, vitality, sexiness, and femininity, attributes that appealed to the predominantly female buyers of the time. The Mae West comparison is apt, because like the actress, the Coke bottle demanded (and got) the attention of all passersby.

Anthropomorphic forms do not necessarily need to look like a face or body to be compelling. Consider the Adiri Natural Nurser baby bottle. The bottle is designed to look and feel like a female breast, and not surprisingly it elicits the positive associations people have with breastfeeding. The affective tone set by the bottle is one of naturalness and caring. What parent would choose a traditional, inorganic-looking bottle when such a supple, natural-looking substitute for the real thing was available? This, of course, does not mean the bottle performs better than nonanthropomorphic bottle designs, but it does mean the general inference of most people, based on its appearance, is that it does perform better.

Lastly, the Method Dish Soap bottle, nicknamed the “dish butler,” brings a more abstract anthropomorphic form to bear. The bottle transforms the perception of dish soap bottles from utilitarian containers to be hidden beneath counters to sculptural pieces to be displayed proudly atop counters. The large bulbous head triggers baby-face bias cognitive wiring, reinforcing its aesthetic appeal as well as associations such as safety, honesty, and purity. Labeling is applied in what would be the chest region, with a round logo on top, giving it the appearance of a kind of superhero costume. It is more than a dish soap bottle—it is a helper, an art piece, and a symbol of sophistication and cleanliness.

Consider anthropomorphic forms to attract attention and establish emotional connections. Favor more abstract versus realistic anthropomorphic forms, as realistic depictions often decrease, not increase, aesthetic appeal. Use feminine body proportions to elicit associations of sexuality and vitality. Use round anthropomorphic forms to elicit babylike associations, and more angular forms to elicit masculine, aggressive associations.

See also Baby-Face Bias, Contour Bias, Uncanny Valley, and Waist-to-Hip Ratio.

¹ Empirical literature on anthropomorphic design is surprisingly nascent. See, for example, “From Seduction to Fulfillment: The Use of Anthropomorphic Form in Design” by Carl DiSalvo and Francine Gemperle, *Proceedings of the 2003 International Conference on Designing Pleasurable Products and Interfaces*, 2003, p. 67–72.



Mary Jane "Mae" West (August 17, 1893 – November 22, 1980) was an American actress, singer, playwright, screenwriter, and sex symbol.

https://en.wikipedia.org/wiki/Mae_West

Adiri Natural Nurser. Designed by Whipsaw Inc

<http://www.yankodesign.com/2008/12/04/better-bottle-for-baby-adiri-natural-nurser-review/>



petal vent



soft
supple
realistic

The Method Dish Soap bottle (left) designed by Karim Rashid put the Method brand on the map. Though not free of functional deficiencies (e.g., leaking valve), its abstract anthropomorphic form gave it a sculptural, affective quality not previously found in soap bottles. Contrast it with its disappointing replacement (right).



Anthropomorphic Aesthetics

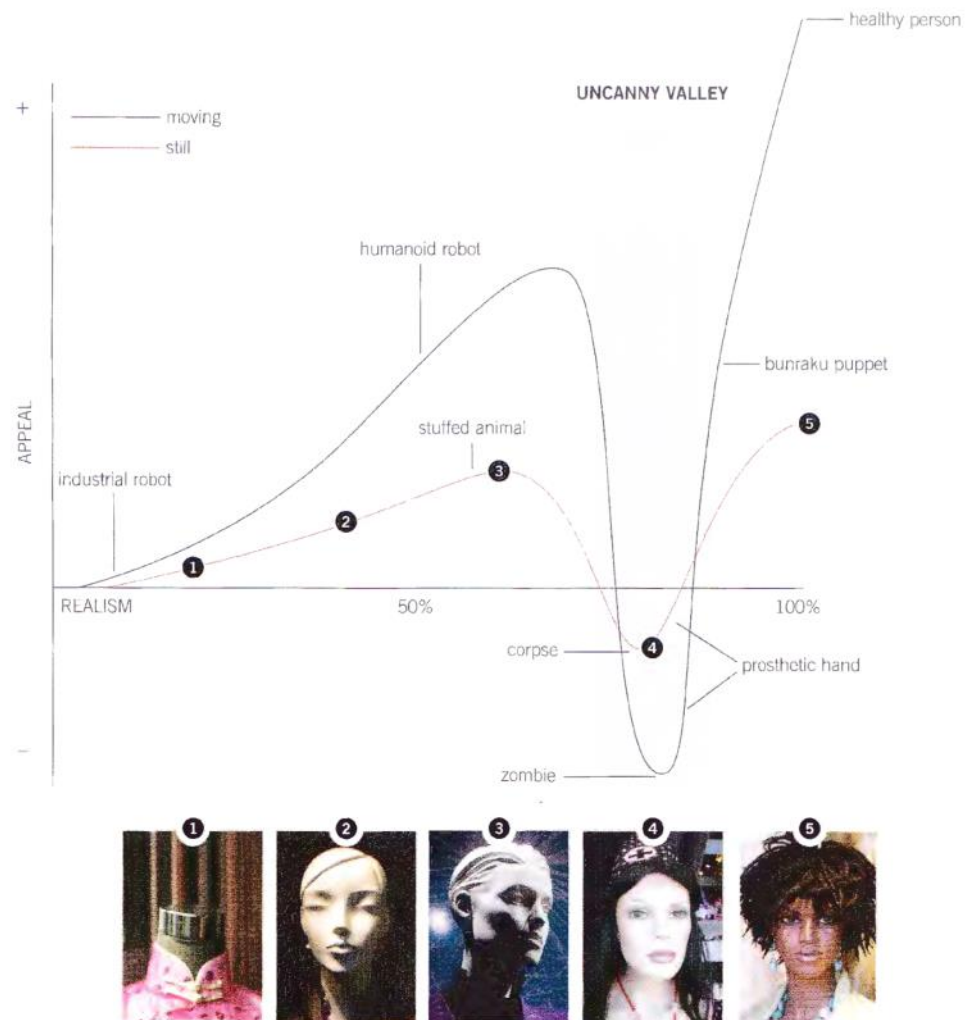
26 Anthropomorphic Form

34 Baby-Face Bias (video)

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242 Uncanny Valley

240 Top-Down Lighting Bias (video) <https://www.linkedin.com/learning/universal-principles-of-design/top-down-lighting-bias?u=42275329>



Masahiro Mori's classic graph plots familiarity or appeal of an anthropomorphic form against its degree of realism. The uncanny valley resides to the right of the continuum, dipping sharply just before the likeness of a

genuine healthy person. The mannequin images illustrate the benefits of abstraction and total realism in depicting human likenesses, as well as the perils of the uncanny valley.

It may seem like a subtle thing, but the eyes have gone from looking like they were painted onto the character to having actual depth and expression."

Uncanny Valley

Anthropomorphic forms are appealing when they are dissimilar or identical to humans, but unappealing when they are very similar to humans.

Applies to other natural forms; flowers, plants etc.

Anthropomorphic forms are generally appealing to humans. However, when a form is very close but not identical to a healthy human—as with a mannequin or computer-generated renderings of people—the form tends to become distinctly unappealing. This sharp decline in appeal is called the “uncanny valley,” a reference to the large valley or dip in the now classic graph presented by Masahiro Mori in 1970.¹ Though some have disputed the existence of the effect altogether, attributing any negative affective response to a simple lack of familiarity with artificial and rendered likenesses, more recent empirical research suggests the uncanny valley is a real phenomenon. The cause likely regards innate, subconscious mechanisms evolved for pathogen avoidance—that is, detecting and avoiding people who are sick or dead.²

Although a full understanding of the variables required to take an anthropomorphic likeness into the uncanny valley has not yet been realized, some conditions have been identified. The strength of the negative reaction seems to correspond to the fidelity of the likeness—a highly realistic likeness that is identifiable as artificial will evoke a stronger negative reaction than a less realistic likeness. Abnormally proportioned or positioned facial features, asymmetry of facial features, subtleties of eye movement, and unnatural skin complexions are all sufficient conditions to trigger uncanny valley effects.

Although the uncanny valley is generally observed by animators and roboticists, there are plenty of examples where the caveats of the principle are not abided. For example, director Robert Zemeckis decided to depict computer-generated characters with a high degree of realism for the movie *The Polar Express*. The resulting effect was both impressively realistic and eerie. The movie raised awareness of what is called “dead eye syndrome,” where the lack of eye movements called *saccades* made the characters look zombie-like, taking the Polar Express straight through the uncanny valley. Another example is found in retail contexts. There is a general perception among retailers that the effectiveness of mannequins is a function of their realism. However, barring a mannequin that is indistinguishable from a real person, the uncanny valley suggests that retailers would be better served by more abstract versus highly realistic mannequins.

Consider the uncanny valley when representing and animating anthropomorphic forms. Opt for more abstract versus realistic anthropomorphic forms to achieve maximum acceptance. Negative reaction is more sensitive to motion than appearance, so be particularly cognizant of jerky or unnatural movements when animating anthropomorphic bodies and faces.

See also Anthropomorphic Form, Threat Detection, and Top-Down Lighting Bias.

¹ The seminal work on the uncanny valley is “Bukimi No Tani [The Uncanny Valley]” by Masahiro Mori, *Energy*, 1970, vol. 7(4), p. 33–35.

² See, for example, “Too Real for Comfort? Uncanny Responses to Computer Generated Faces” by Karl MacDorman, Robert Greena, Chirri-Chang Hoa, et al., *Computers in Human Behavior*, May 2009, vol. 25(3), p. 695–710; and “The Uncanny Valley: Effect of Realism on the Impression of Artificial Human Faces” by Jun'ichiro Seyama and Ruth Nagayama, *Presence*, Aug. 2007, vol. 16(4), p. 337–351.

strandbeest
https://en.wikipedia.org/wiki/Janse_n's_linkage

https://www.youtube.com/watch?v=LewVEF2B_pM

Geometric Aesthetics

Classical Composition

Much comes from classical painting composition, dating far back. These rules are made to be broken. Rules are empirical, not supported by science.

https://en.wikipedia.org/wiki/Composition_%28visual_arts%29

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Leading the audience's attention;
what to touch first, what second?

Modern implementation in 2D graphic design, part of **Human-Computer Interface (HCI)** research
Ware, Colin. *Visual Thinking For Design*. Morgan Kaufmann, 2010. Whole pdf in our AesDes Zotero library

Table of contents: http://www.amazon.com/Visual-Thinking-Kaufmann-Interactive-Technologies/dp/0123708966#reader_0123708966

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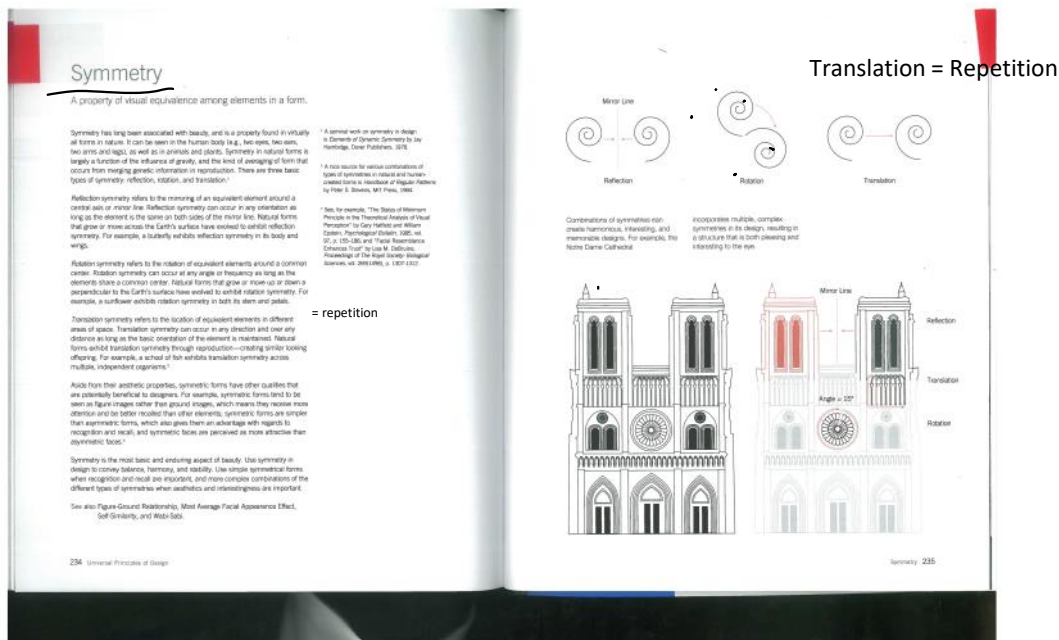
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Universal Principles of Design topics



Good symmetry works. Asymmetry works. Broken symmetry is tricky.

Area Alignment

Alignment based on the area of elements versus the edges of elements.

With the advent of professional design and engineering software, elements in a design can be aligned with existing precision. However, the alignment supported by software is based on the edges of elements—including center alignment, which calculates a center based on the edges. This method works well when elements are relatively uniform and symmetrical, but less well when the elements are nonuniform and asymmetrical. In these latter cases, it is preferable to align based on the visual weight or area of the elements, a technique that must be performed using the designer's eye and judgment. Using edge alignment when area alignment is called for is one of the most common errors in graphic design.

A satisfactory area alignment can be achieved by positioning an object along the axis of alignment such that an equal amount of area or visual weight hangs on either side—if the object had mass, it would be balanced on the axis. Unlike the straight edge achieved by left- or right-aligning similar elements based on their edges, alignment based on area invariably creates a ragged edge. This occurs because the points of elements hang on the gutters or margins when aligned with strongly rectangular elements, but it represents the strongest possible perceived alignment that can be achieved for nonrectangularly dissimilar elements.

The principle applies to text as well as graphical elements. For example, the horizontal center of a left-aligned text chunk with a right ragged edge, based on its area, would be to the left of a horizontal center based on its width—area alignment recalculates the horizontal center in consideration of the residual area of the ragged right edge, moving the horizontal center to the left, whereas edge alignment simply calculates the horizontal center as though the text chunk were a rectangle, with the right edge determined by the rightmost character. Other common text designs include pull quotes, which should be aligned based on the text edge and not on the quotation marks, and numbered or bulleted items, which should be aligned based on the text edge and not on the numbers and bullets, unless the specific intent is to subordinate the listed items.

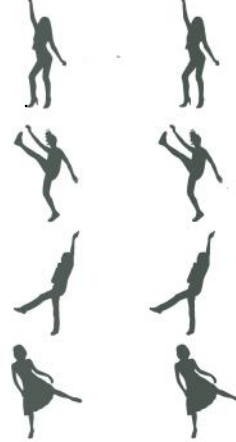
Consider area alignment when incorporating dissimilar elements into a composition. When objects are simple and symmetrical, align based on their edges; otherwise, align based on their area. Unless there is some extraordinary overriding consideration, design using pull quotes, hanging numbers and bullets when listing items, except when the latter are meant to be subordinate.

See also Alignment, Good Composition, and Uniform Connectedness.

edge aligned

Centroid aligned

The left column is center aligned based on the edges of the objects. The right column is center aligned based on the area of the objects. Note the improvement achieved by using area alignment.



Rule of Thirds

A technique of composition in which a medium is divided into thirds, creating aesthetic positions for the primary elements of a design.¹

The rule of thirds is a technique derived from the use of early grid systems in composition. It is applied by dividing a medium into thirds both vertically and horizontally, creating an invisible grid of nine rectangles and four intersections. The primary element within a design is then positioned on an intersection of the grid. The asymmetry of the resulting composition is intended to look at, and generally agreed to be aesthetically.

The technique has a long history in design circles due to its use by the Renaissance masters and its rough relationship to the golden ratio. Although dividing a design into thirds yields a ratio different from the golden ratio (i.e., the 2/3 section = 0.666 versus golden ratio = 0.618), the users of the technique may have decided that the simplicity of its application compensated for its rough approximation.

The rule of thirds generally works well, is easy to apply, and should be considered when composing elements of a design. When the primary element is so strong as to imbalance the composition, consider centering the element rather than using the rule of thirds—especially when the strength of the primary element is reinforced by the surrounding elements or space. If the surrounding elements or space do not reinforce the primary element, use the rule of thirds and add a secondary element (known as a counterpoint) to the opposing intersection of the primary element to bring the composition to balance. In designs where there is a strong vertical or horizontal element, it is common practice to align the element along one of the grid lines of corresponding orientation.²

See also Alignment, Golden Ratio, and Symmetry.

¹ Also known as golden grid rule.

² A nice introduction to compositional concepts is *Design and Composition* by Nathan Goodman (Pittsboro 1961, 1987).



The strongest element in the composition is the boxer in the light. Although the boxer is not at the center of the image, the boxer is at the intersection of the grid lines, creating a strong visual focus.



https://en.wikipedia.org/wiki/Rule_of_thirds#/media/File:RuleOfThirds-SideBySide.gif

The rule of thirds was first written down by John Thomas Smith in 1797.

Fibonacci Sequence

A sequence of numbers in which each number is the sum

