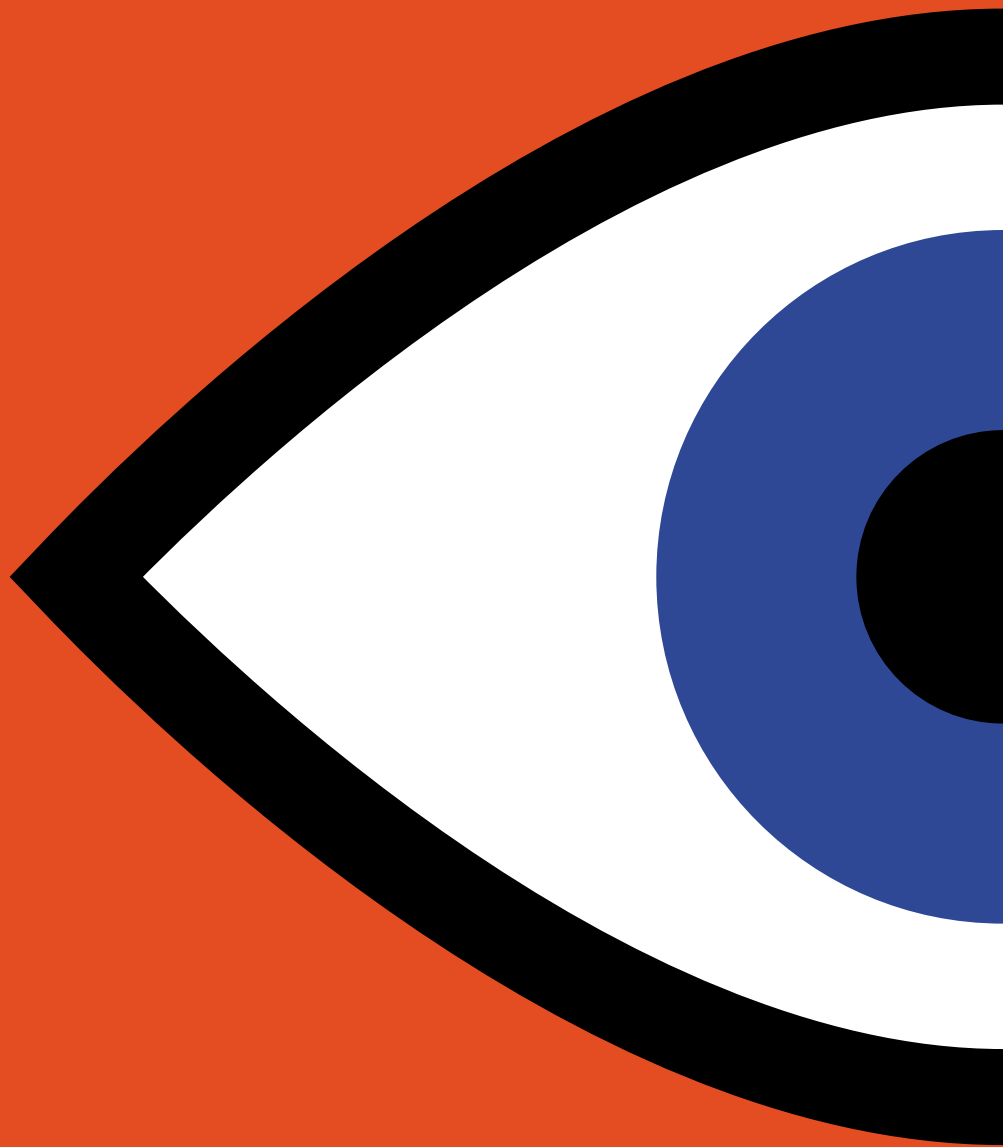


UXPin

Web UI Design for the Human Eye

Colors, Space, Contrast



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Introduction

A quick note from the authors

UI design is much more than just fitting together the puzzle pieces of a layout. To design an interface is to create function from form, to create structure while simplifying, and to illuminate while delighting.

The tricky part is that people will know within a couple of seconds whether or not they will stay on your site. Because vision is the dominant human sense, your site needs to provide all of the above value and meaning as clearly and smoothly as possible.

In this e-book, we cover topics spanning UX design, UI design, and human psychology.

Beginners can learn about how to practically apply Gestalt principles to web UI design. More advanced readers will learn how to take advantage of negative space, how to balance contrast and similarity in interface objects, and how to use color based on the desired emotion.

To make this book as actionable as possible, we've also included visual examples (with plenty of analysis) from 33 companies including **Tumblr, Etsy, Google, Facebook, Twitter, Medium, Intercom, Bose, AIGA,** and **zz.**

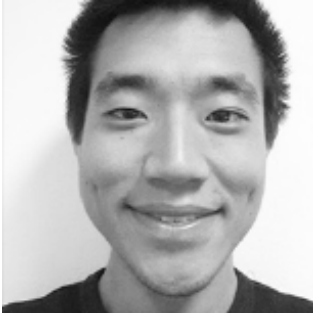
Like all of our other e-books, we've written this in a simple-to-read, practical format. We deconstruct the theory so you know why best practices exist, but we teach with example so you know how to apply them.

We'd love your thoughts on what we've written, and feel free to share if you find this book helpful.

For the love of UI design,

Jerry Cao

co-written by Kamil Zieba, Krzysztof Stryjewski, and Matt Ellis



Jerry Cao is a content strategist at UXPin where he gets to put his overly active imagination to paper every day. In a past life, he developed content strategies for clients at Brafton and worked in traditional advertising at DDB San Francisco. In his spare time he enjoys playing electric guitar, watching foreign horror films, and expanding his knowledge of random facts.

[Follow me on Twitter.](#)



Co-founder and head of product, Kamil previously worked as a UX/UI Designer at Grupa Nokaut. He studied software engineering in university, but design and psychology have always been his greatest passions. [Follow me on Twitter @ziebak](#)



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With a passion for writing and an interest in everything anything related to design or technology, Matt Ellis found freelance writing best suited his skills and allowed him to be paid for his curiosity. Having worked with various design and tech companies in the past, he feels quite at home at UXPin as the go-to writer, researcher, and editor. When he's not writing, Matt loves to travel, another byproduct of curiosity.

Practical Application of Gestalt to Web UI Design

Admit it, at some point in your life, you were impressed by an optical illusion.

It's fascinating how our eyes play tricks on us, and it's even more fascinating that we tend to side with our sight over our common sense. But optical illusions are often the result of the science of sight – the science of Gestalt.

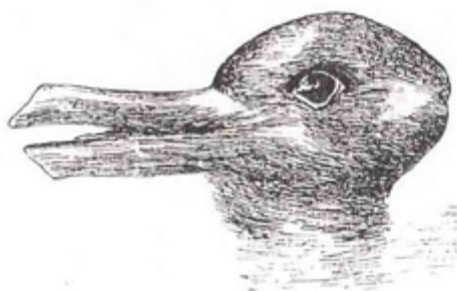


Photo credit: "Duck Rabbit Illusion." [Wikipedia](#). [Creative Commons 2.0](#).

The Gestalt principles are the theories that analyze the gray areas of how our sight works. These principles explain how people perceive visual objects, and how variations in arrangement, perspective, size, etc. can alter this perception.

In this piece, we'll take a quick look at the concepts behind Gestalt and only the most applicable principles for day-to-day UI design.

Gestalt principles bring to light the grey areas of human vision



Pillars of Gestalt for Design

Despite how it may seem, the Gestalt principles are not the life work of some guy named “Gestalt.” *Gestalt* is actually the German word for *shape* or *form*, and lent its name to an early 20th century psychology movement, where the Gestalt principles originated.

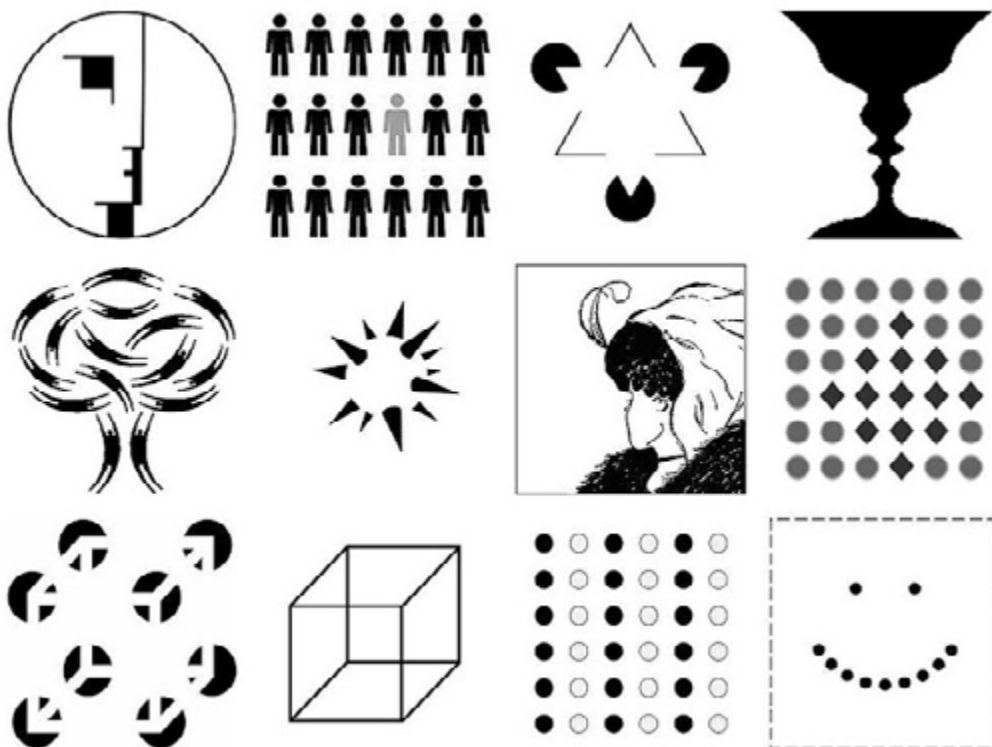


Photo credit: “Gestalt Principles Composition.” [Wikipedia](#). [Creative Commons 2.0](#).

As the legend goes, in 1910, psychologist Max Wertheimer watched the way the lights of a railroad crossing flickered on and off (like lights “encircling” a movie theater marquee). It created the illusion that the lights were moving in a circle, even though they were merely alternating with good timing. This division between how we perceive visual stimuli versus what we see fueled the Gestalt movement for the next couple decades.

Wertheimer, along with his colleagues, developed theories on sight perception that, more than half a decade later, are foundational to web design. The theories expound on Aristotle’s simplistic but classic axiom, “The whole is greater than the sum of its parts,” as applied to visuals. The Gestalt principles tend to revolve around a [handful of similar concepts](#). While relating to all sight perception, these ideas are especially applicable to web UI design.

Let’s take a look below at the 4 properties behind Gestalt.

1. Emergence

When trying to identify an object, we (humans) first attempt to identify the object’s outline, and then match it to outlines we already know. It’s only after this outline pattern identification that we start to notice the details of an object, the parts as separate from the whole.

[This picture is often cited](#) when explaining Gestalt principles. In it, the viewer identifies the dalmatian all at once, instead of

something like, “there’s a dalmatian leg, there’s a dalmatian head. Put them together, and...”

Application to Web Design: Shapes and contours should take precedence over lesser details (no matter how creative they are or how stunning they look). It doesn’t matter how fascinating a clickable button looks if your users don’t know it’s a button. Like we described in *Interaction Design Best Practices*, these “signifiers” help suggest the function (known as affordances).

2. Reification

Because visual stimuli is so inconsistent, our brains are wired to “fill in the gaps” when information is missing. This allows us to comprehend visuals even when they’re vague or limited.

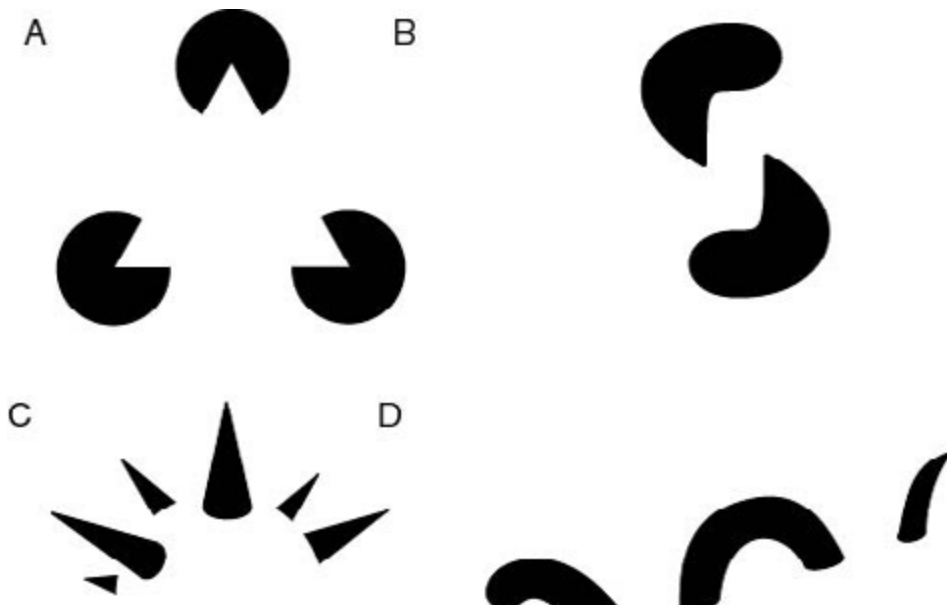


Photo credit: “Reification.” [Wikipedia](#). Creative Commons 2.0

Each of the above examples is a bit of a trick. In reality, they are all ambiguous and incomplete shapes, but our brains can still

make sense of them. For example, in Figure A, our brain tells us that the 3 incomplete circles are connected by a white triangle.

Application to Web Design: In addition to horseshoes and hand-grenades, “close” also counts in web design. As long as you have enough information to communicate an object, the user can fill in the rest. This means you’re allowed to be creative with your use of white space, treating it as another design tool instead of an empty canvas.

We’ll explain this further below when discussing Closure.

Treat white space as a design tool, not as an empty canvas.



3. Multistability

If an object has more than one interpretation, the mind will alternate between the different interpretations since it can’t see both simultaneously. The longer a viewer focuses on one interpretation over the other, the more dominant that interpretation becomes.



Photo credit: “My Wife and Mother in Law.” [Wikimedia](#). [Creative Commons](#).

This is the basis for many popular optical illusions, like the one above. Viewers can interpret it as an old woman or a young woman, but not both at the same time.

Application to Web Design: Avoid multiple interpretations! Double-check that your designs can only be seen the way you want them to be seen, strengthening your influence over how the UI affects the UX. Usability tests can help identify these problems, even if you get a fresh pair of eyes on a design from whoever's sitting next to you.

4. Invariance

Like Reification, invariance is another tactic our brains use to comprehend visuals despite glaring inconsistencies. Invariance shows that we recognize outlines and patterns of objects despite differences in perspective, rotation, scale, or even slight deformations.

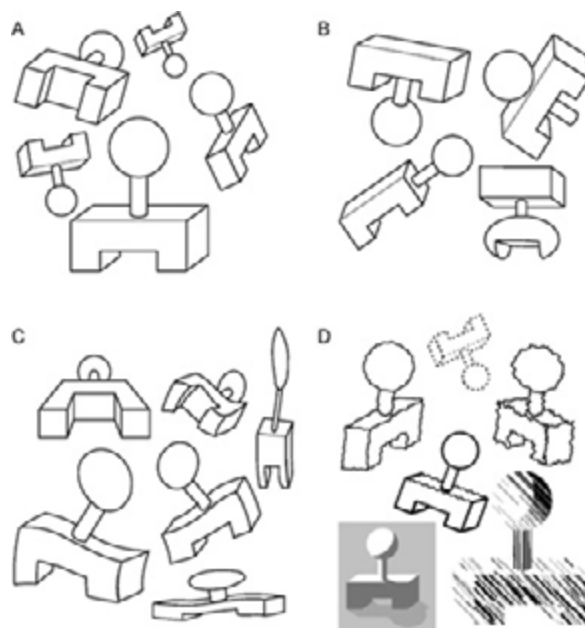


Photo credit: "Invariance." [Wikimedia](#). [Creative Commons](#).

In the above examples, we can distinguish the objects in A as different than the objects in B, even though they're similar. However, we also can understand that the objects in A are the same as the objects in C and D, even though they're distorted.

Application to Web Design: Invariance may not have as direct an impact on web design as the other tenements of Gestalt; however, it is often applied to CAPTCHA tests, as invariance is one advantage humans seem to still have over robots.

Our 5 Most Useful Gestalt Principles

In 1954, decades after Wertheimer first paused to stare at train lights, Rudolf Arnheim compiled and boiled down the Gestalt principles into the book *Art and Visual Perception: A Psychology of the Creative Eye*. As designer Carolann Bonner suggests, there are [five principles that are most helpful on a daily basis](#):

1. Similarity
2. Figure-Ground Relationship
3. Grouping
4. Closure
5. Continuation

We'll describe them in detail below:

1. Similarity

Objects that look similar are perceived as similar.

This has huge implications on web design, a field that values communicating information in the quickest and easiest terms possible. By creating two elements with a similar visual thread, you can explain each's purpose in a way that feels intuitive.

The similarities don't have to be glaring. As shown in the below example from design agency [Green Chameleon](#), the navigation icons all look different. However, the similarities in color, size,

spacing, and placement of icons all suggest that each icon represents the same level of navigation (top-level).

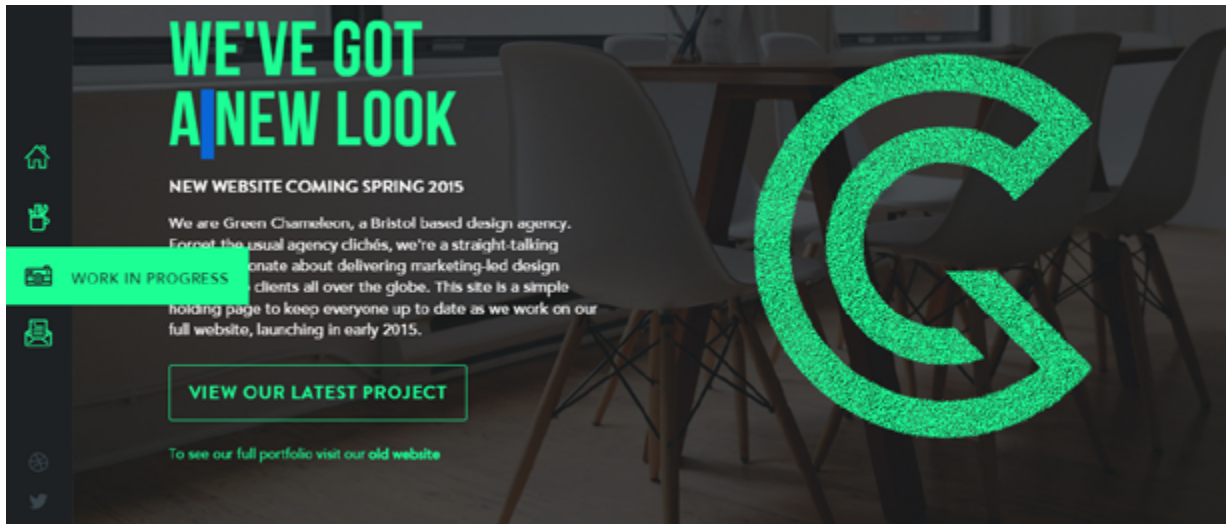


Photo credit: www.greenchameleondesign.com

Upon hover, an interaction is triggered that slides out the text to explain each site section further. This interaction pattern works especially well for vertical navigations since it saves space but doesn't sacrifice functionality (provided the icon metaphors make sense).

These relate to patterns and consistency, topics discussed in *Interaction Design Best Practices*. A clever designer will use similarity to convey meaning, saving time in explanation and smoothing the experience.

2. The Figure-Ground Relationship

Elements are perceived as either figures (distinct elements of focus) or grounds (the background on which the figures lie). [Steven Bradley lists the 3 types of figure-grounds relationships.](#)

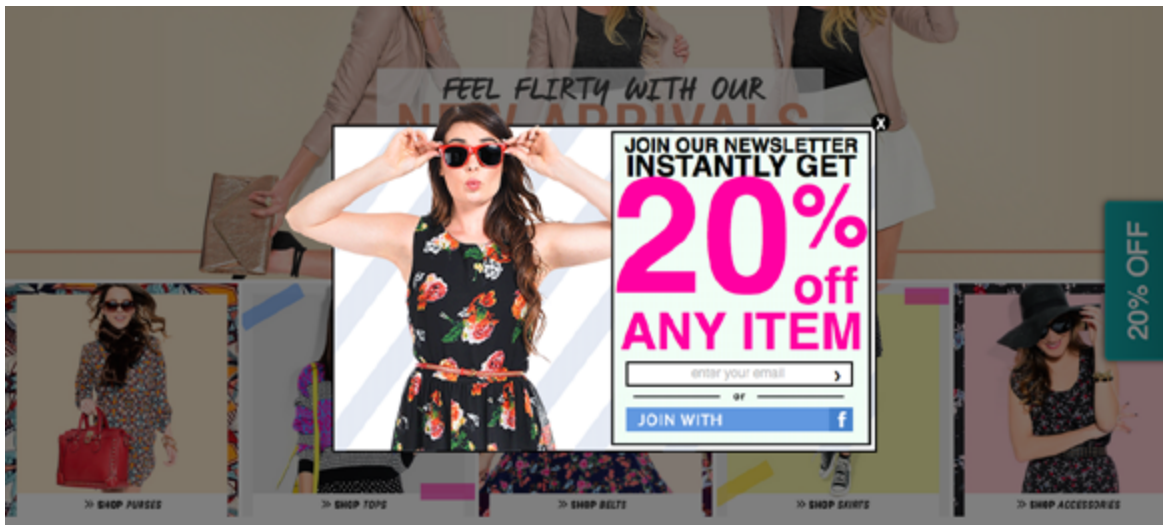


Photo credit: www.moddeals.com

In the above example, **Moddeals** shows a common pattern that exploits the figure-ground relationship. When the newsletter ad appears, the rest of the page goes darker, pushing in into the background. Additionally, the user can still scroll the page, however the newsletter ad remains in a fixed position, cementing it as the figure set apart from the ground.



Photo credit: <http://tannbach-modul.zdf.de/>

On a much subtler note, the site for the German film **Tannbach** takes a more layered approach to figure/ground.

To emphasize the human relationship in the film, the designer makes the two people sharp against a blurred rustic background. Through the use of color and typography, the actual interface becomes the “primary figure” with the couple becoming the “secondary figure”. As a result, the user visually connects with the couple but still understands how to navigate the site.

It’s a fairly clever implementation of a simple Gestalt principle and shows that you don’t need to interpret the meaning as just “make a menu pop out against a blurry background.”

3. Grouping

Items that are dissimilar can still be grouped together to appear similar. The Gestalt principles suggest at least 2 ways to utilize grouping to show relatedness:

Enclosure – Enclosing dissimilar objects together within a perceptible boundary will unify them in the viewer’s mind.

Proximity – Objects grouped closely together will be perceived as similar, especially if separated from other groups by even more space. This also ties into the time and spatial elements of [Hick’s Law](#), which we described in *Interaction Design Best Practices*.

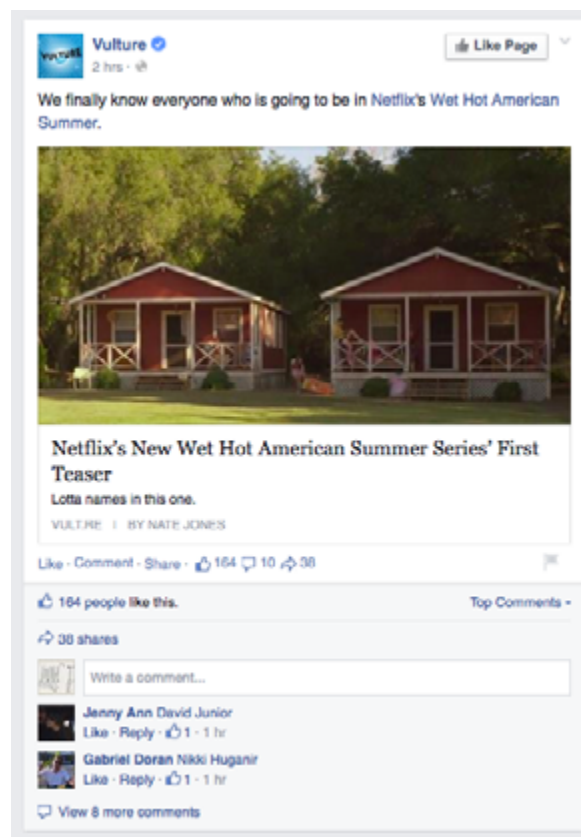


Photo credit: www.facebook.com

The above **Facebook** example applies the principles of enclosure and proximity.

The entire post – title, photo, description, comments, etc. – are all enclosed within the same box, set apart from the gray background, which utilizes both enclosure and the figure-ground relationship. Within the post, options like “Like,” “Comment,” and “Share,” are all located in close proximity, suggesting that all are ways to personally interact with the post (not to mention their related size, font, and color utilize the principle of similarity).

By putting the controls next to the relevant item, the designer spares the user from the hassle of researching, memorizing, and

diving into complex user paths. This also relates to the point about [making clicks easy](#) because you want to minimize the path between the user and the goal. The simplification of the system allows basic common sense to triumph over lengthy and involved explanations.

4. Closure

Based on the principles of Reification that we talked about earlier in the chapter, closure is the principle that humans will provide their own closure to incomplete objects by filling in the gaps themselves. This can be used to a designer's advantage, firstly by affording them some leeway with partial designs, and secondly by encouraging minimalist styles that communicate elegance.

Take a look at the grid layout from [Abduzeedo](#) below. Even though there's no clear borders on each piece of content, the alignment helps our eyes complete the "grid" created by each of the 3 images. As such, we see three columns of text instead of one large chunk.

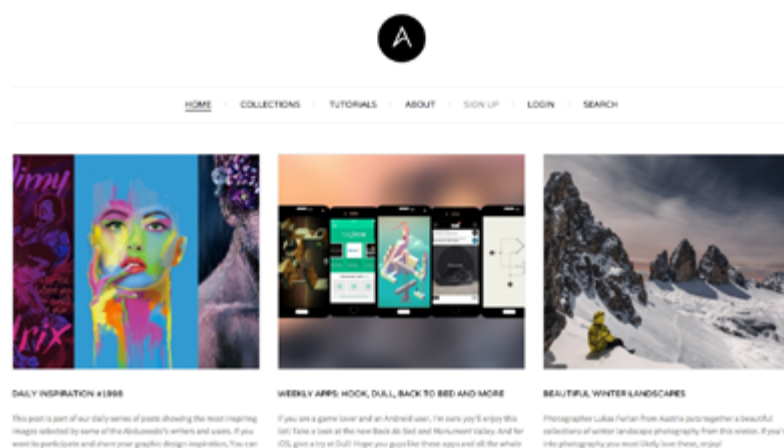


Photo credit: www.Abduzeedo.com

Closure also applies to interactions, creating meaning by filling in gaps within actions.

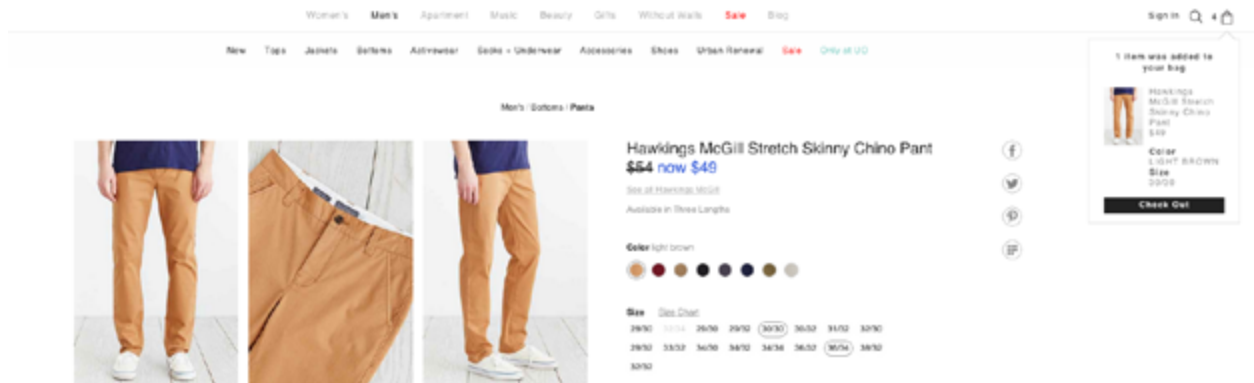


Photo credit: www.UrbanOutfitters.com

As designer Carolann Bonner explains, **Urban Outfitters** uses closure to skip a few steps, making the “Add to Bag” interaction very smooth. Click on [her GIF](#) to follow along as we describe the steps after clicking “Add to Bag”:

- The button text “Add to Bag” becomes “Added!”
- The number of items next to the shopping bag in the navigation updates accordingly.
- A small modal slides down from the shopping bag to visually confirm the item was added.

As a result, we understand when an item is added to our shopping cart without any implicit action. We don’t need to visit the shopping cart page to verify, or drag and drop any items (which increases friction). By skipping the right steps, the interface provides enough feedback while keeping the interaction weightless.

For more information, [Andy Rutledge wrote an excellent piece](#) on applying closure to web UI design.

5. Continuation

Related to closure, the principle of continuation states that a user's eye creates momentum as it moves from object to object, giving lines a special power in layout design.

In the below visual aid, viewers perceive a straight line and a curved line – *not* a bent blue line and a bent green line. This makes the power of continuation greater than that of colors, itself a powerful visual tool for showing similarity.

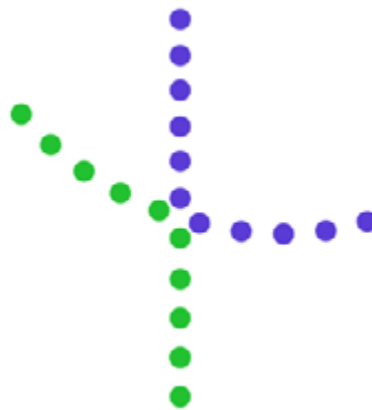


Photo credit: www.uxpin.com

What this means is that users perceive items on a line or curve to be similar to each other.

This has the most obvious effect on site navigation, since items on the same horizontal plane appear to have the same level of hierarchy.

In the below navigation example from [CreativeBloq](#), you can see that all navigation items on the first line represent *types* of content. All navigation items on the second line represent *categories* of content. The site doesn't need to call out this difference since it's communicated through the principle of continuation.



Photo credit: www.creativebloq.com

To learn more about Gestalt principles, check out this [helpful tutorial](#) from **Tuts+**.

Takeaway

Understanding Gestalt principles gives you greater control over your visual hierarchy, helps create [more harmonious designs](#), and increases the likelihood that your message is communicated to your audience. Combining the general principles – emergence, reification, multistability, and invariance – as well as the finer principles – similarity, closure, the figure-ground relationship, etc. – will open up an entirely new level of visual design for your web interface.

Designing for Space: Sculpture Through Subtraction

Effective use of space in UI design requires an understanding of aesthetics, functionality, and human behavior. In fact, spatial design is the link between the more stylistic dimensions of language and visuals, and the more practical ones of responsiveness, time, and user behavior. Space exists somewhere in the middle, dealing with issues on both sides of the spectrum.

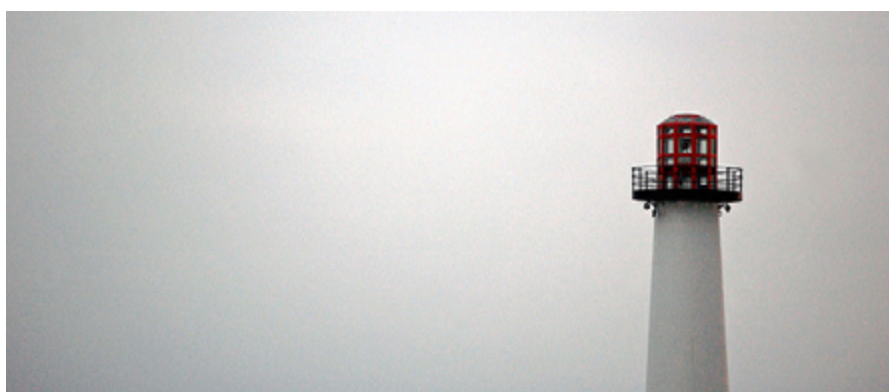


Photo credit: "Long beach lighthouse- negative space". Armando Maynez. Creative Commons.

We'll start our discussion on space by talking about it in its purest form – white space – and why you shouldn't fear it. Then we'll get into more practical tips on how to treat space so that your interface doesn't feel cluttered or isolated.

Negative Space Is Not Negative

White space can be daunting. As we discussed in [Web UI Best Practices](#), white space can feel like an empty canvas – something that you must replace with your brilliance, otherwise you’re not doing your job. But the truth is something completely different: the designer’s job is to create the best interface and experience possible, and that means using white space as just another design tool.

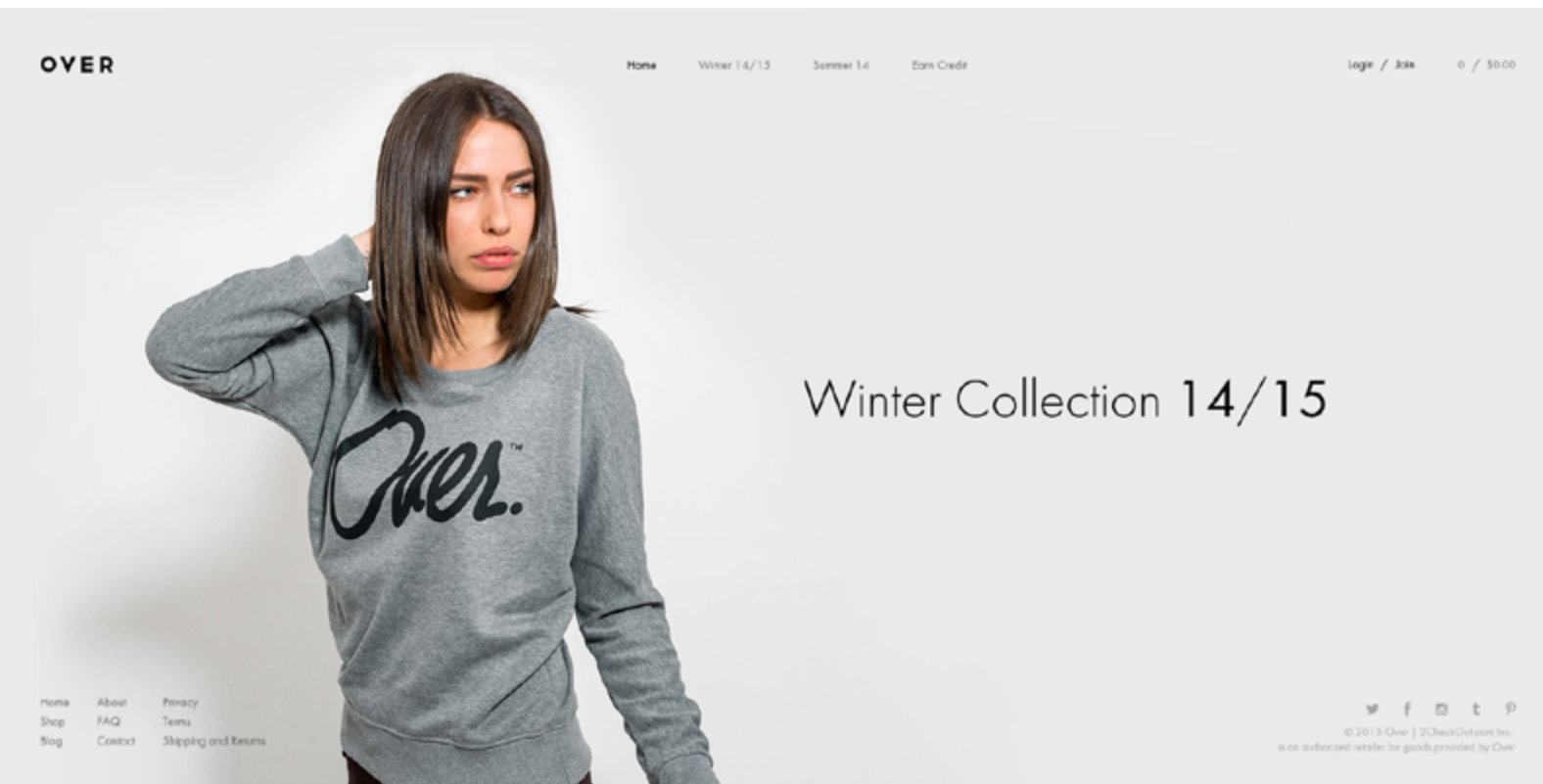


Photo credit: www.overclothing.com

All good visual artists understand the importance of [negative space](#), the empty area that draws attention to, and accents, the actual subject. Negative space (the artistic equivalent of a designer’s white space) is like the supporting cast whose duty is to make the star of the show stand out more by not standing out so much themselves.

If you don't think any part of your design should be intentionally blank, take a look at the [World's Worst Website Ever](#) for an extreme example of the damage caused by too many objects competing for attention.

In interaction design, white space serves three main functions: improving comprehension, clarifying relationships, and drawing attention.

1. Improving Comprehension

If cluttering your interface overloads your user with too much information, then reducing the clutter will improve comprehension. In fact, properly using white space between paragraphs and in the left and right margins has been proven to increase comprehension up to 20%, as pointed out by Dmitry Fadeyev, Creator of Usaura. The skill of using white space lies in providing your users with a digestible amount of content, then stripping away extraneous details.

White space can be broken down into four elements:

- **Visual White Space** – Space surrounding graphics, icons, and images.
- **Layout White Space**– Margins, paddings, and gutters.
- **Text White Space** – Spacing between lines and spacing between letters.
- **Content White Space** – Space separating columns of text.

Let's take a look at how these four elements create a sense of harmony and fluidity.

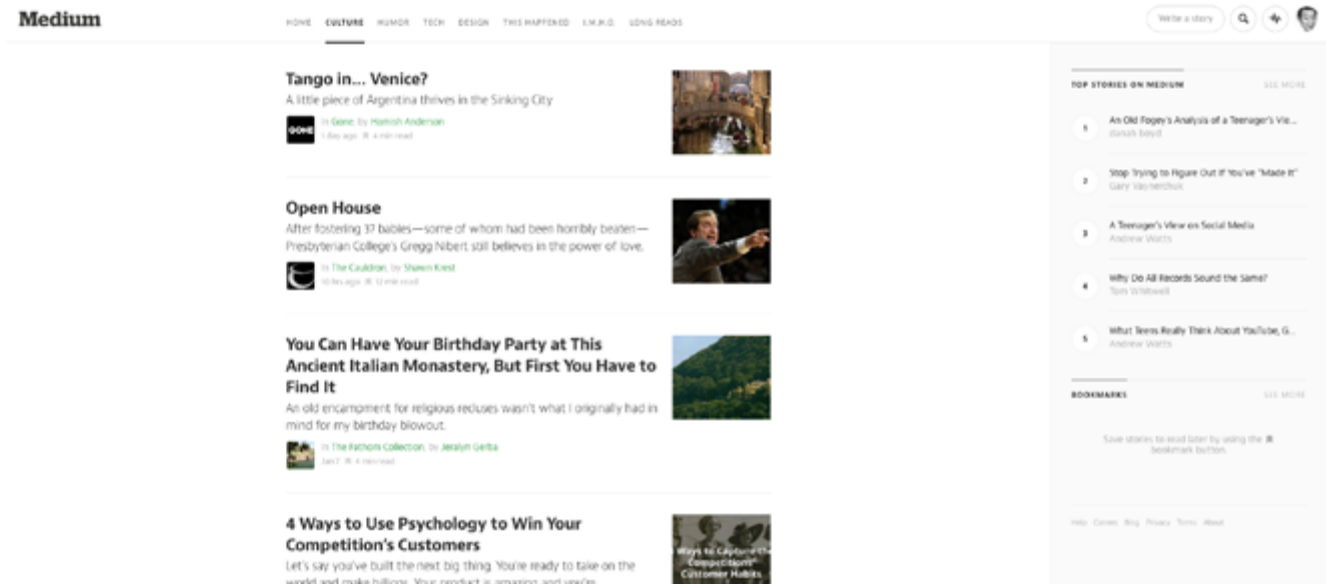


Photo credit: www.medium.com

Medium is a great example of striking a nice balance with all 4 elements of white space.

First, let's think about the goal of the user from an interaction standpoint: they want to access interesting content as quickly as possible. The homepage immediately facilitates that goal by placing content front and center, with plenty of white space on either side to add emphasis. There is ample space around visuals and between lines of copy, although the padding around images could be more uniform (notice how the space to the left of each image is not consistent with space below).

Beyond improving comprehension, white space also helps create mental maps. Minimal white space is used between the top

navigation and content stream since both serve similar functions in driving the user deeper into content (and similar functions should be grouped together). Because the right-side navigation focuses more on creating and saving content, more white space separates it from the content stream. In this case, white space helps users assign different functionalities to different parts of the interface.

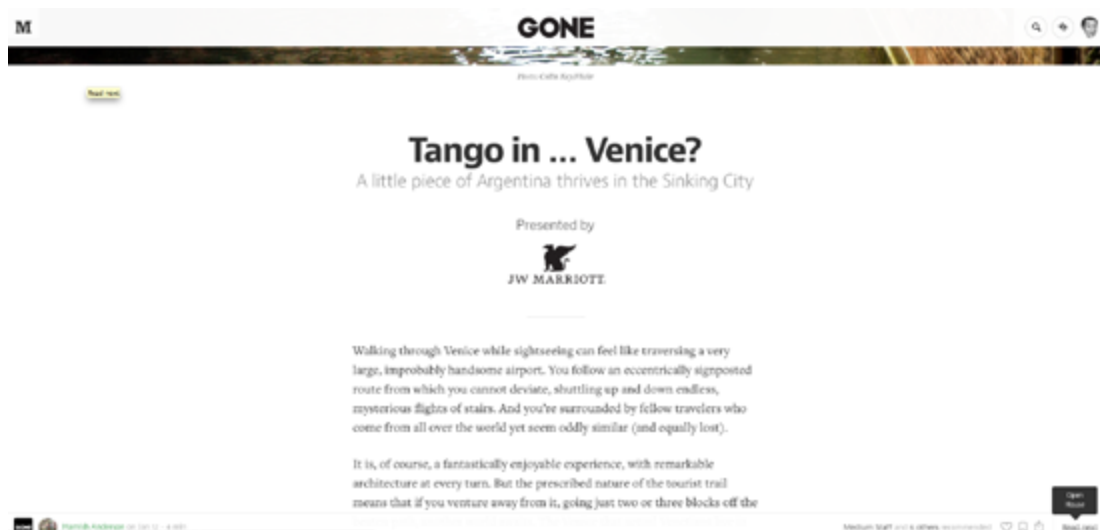


Photo credit: www.medium.com

Once you click through to an article, white space helps focus the user on what they care about most: the content. Notice how the extra spacing between each line of text improves readability. On a subtler note, the space around the JW Marriott logo calls attention to the brand without feeling intrusive (a perfect counter-argument against the “Make the logo bigger!” remarks).

Just like the homepage, you can see that plenty of white space once again creates distance between groups of objects that serve different functions. For example, notice the amount of space

between the primary content and the commenting/ favoriting/ share features on the bottom right.

Ultimately, proper use of white space eliminates waste in your interface. Each interaction with the user, therefore, feels necessary in helping them accomplish their goal. Think of it as what we described in *The Guide to Mockups* as “subtractive sculpture.” As you remove more stone, you create more space and emphasis for your sculpture:

You start out with a big slab of rock, and slowly chip away to get the rough shape of the form you’re creating. You take another pass at it to get a better sense of the object you’re trying to extract from the stone. You take another pass to start getting a bit more detailed. Eventually, you start honing in on a particular aspect of the form: a face, the arms, or the torso. Slowly but surely you detail each section of the sculpture until you’ve arrived at the final form.

To learn more about white space, check out **Smashing Magazine’s** listing of [22 expert pieces](#) and take a peek at these [21 inspiring examples](#).

White space is subtractive sculpture. As you simplify your design you emphasize the beauty of what remains.



2. Clarifying Relationships

When observing how individuals organize visual information, Gestalt psychologists stumbled on what they call the **Law of Proximity**, which states that images near to each other appear similar. For example, [take a look at this picture](#).

Almost everyone sees 2 groups of dots, rather than simply 20 dots. The dots are all identical and the only thing differentiating them is the white space that separates them. This behavioral observation has [several important applications](#) to interaction design, especially with regards to input forms:

1. **Place labels closest to the relevant fields** – [As you can see in this example](#), information is communicated far more clearly when labels are placed closer to the fields they relate to.

As described in [Web UI Best Practices](#), research has shown that even the slightest hesitation can hurt form completion. In this case, merely adjusting the spacing increases the user's confidence in filling out the form, which of course improves completion rate.

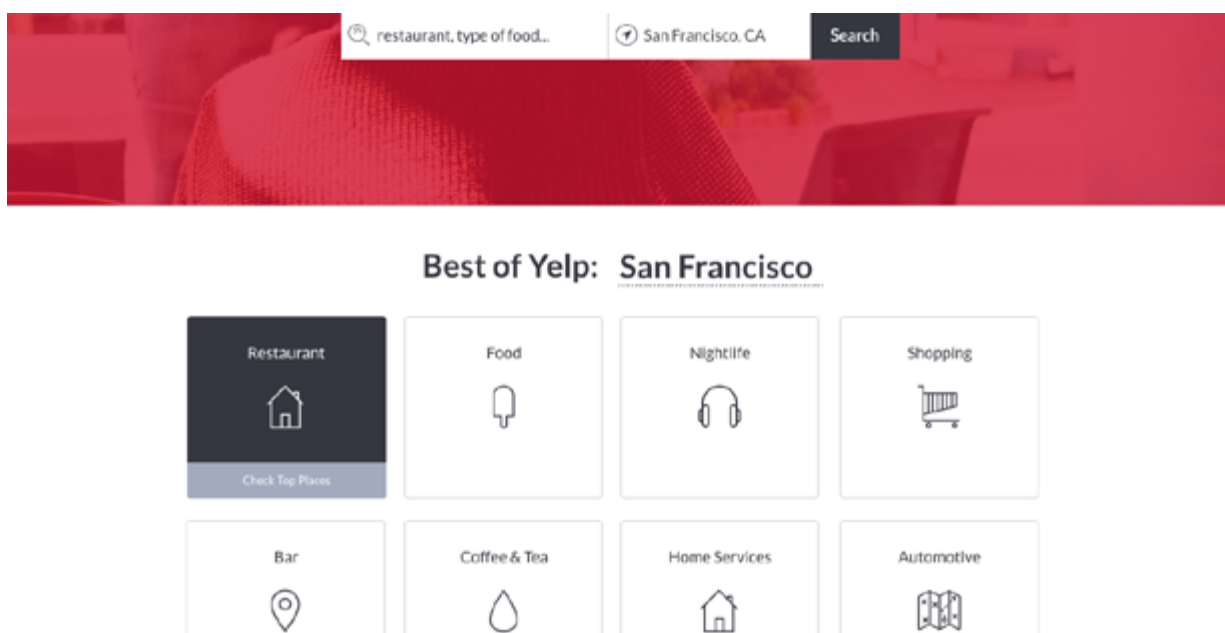
2. **Group related topics together** – When dealing with long forms, the task of filling them out can seem so overwhelming, some users will quit before even trying. Breaking the information up into appropriate groups can help make it feel more manageable.

As you can see in this image, in the form on the right, just categorizing the 15 fields into 3 groups makes the process feel easier. The amount of content is the same, but the impression on users is much different.

Form fields usually present the most friction to users, but the same principles can also apply to navigation and site content. Instead of a top navigation menu with 20 items, you can create a dropdown menu with 4-7 top-level items and the rest categorized under submenus.

3. Attracting Attention

As we've mentioned before, the lack of other elements will only make existing elements stand out more. Let's take a look at our redesign of **Yelp** below (pulled from our free ebook *User Testing & Design*).



Source: *User Testing & Design*

In the above [high-fidelity](#) prototype, we added plenty of white space to separate the categories from the search function. In doing so, the category icons are much more noticeable (and less cluttered than their current vertical format). Combined with an animation-like color fill that's triggered on hover, the category section now attracts even more attention while providing better feedback to the user.

But because humans have a [selective attention that leads to tunnel vision](#) – like tuning out banner ads (known as [banner blindness](#)) – you also need to know when spacing between content should be reduced and altered.

For example, in the above left image from **Westfield London**, the retailer wanted usability consultant Jakob Nielsen to show a timeline of events via lightbox popups. But the design on the left fails because the year “2000” went unnoticed. Users are instead drawn immediately to the image and body copy. Luckily, in the [new image](#), a quick and simple adjustment to the placement of “2000” solves the problem.

Ultimately, you need to understand that the power of white space comes from the limits of human attention and memory.

Just look at the comparison between **Yahoo** and **Google** below. Yahoo tries to get the user to consider too many actions at once. Google understands the bottom line that people just want to use

search engines to find stuff. By being realistic about the user goal, Google’s design encourages more effective interaction.



Photo credit: www.yahoo.com



Photo credit: www.google.com

Chunk Your Content

Most designers subscribe to the “don’t make the user think” school of thought.

It’s not that users are just lazy, it’s that they already have a lot on their mind, and cramming extra information just makes it harder

to complete their tasks. The amount of strain an interface design creates is called “**cognitive load**,” and a usable and enjoyable UI will reduce this as much as possible.

As complicated as the human brain is, its shortcomings are surprisingly predictable. Take the studies of George Miller, for example – in 1956, the scientist released his findings that our **short-term memory can usually retain data of between 5-9 items** – an average of 7 – before forgetfulness sinks in. While the exact number has been contested (3-6 is the current ideal), Miller’s findings have proven effective and led to important IxD methods, including “chunking.”

Chunking is the practice of grouping relevant information together to make it easier to process and remember. **In this image**, it’s easier to remember the first group of shapes because they’re chunked out.

However, chunking has since been overanalyzed and misinterpreted, looking nowadays as something more like a superstition than a best practice. For example, some designers insist that menus, drop-downs, or bullet lists should never contain more than 6 items – but this is not recommended use of the practice.

Chunking is not a hard-and-fast rule, but one that depends upon the context. In brief, chunking is ideal for the following situations:

- When your product naturally requires a great deal of information that must be memorized for later use.

- The UI must compete against external stimuli for your user's attention (mobile apps, for example).
- E-learning applications (since users must later recall the information).

On the other hand, you don't need to chunk your content if it's meant to be searched or browsed. There are exceptions, of course, as you can see below with **Etsy**.

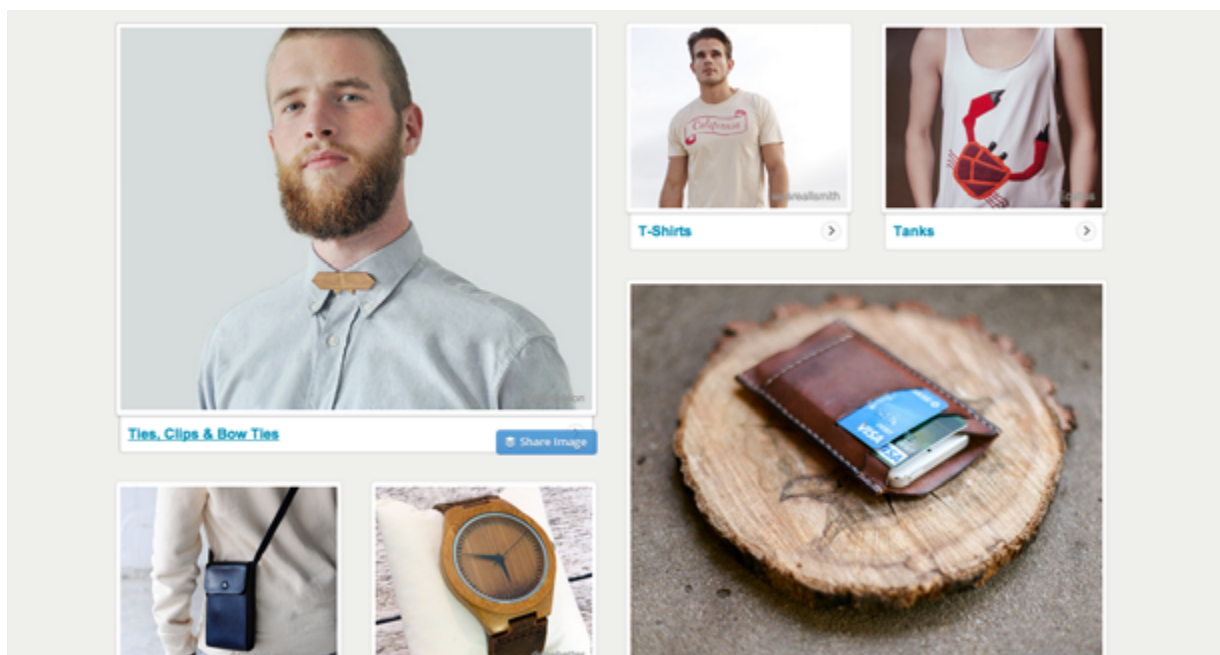


Photo credit: www.etsy.com

While users don't need to memorize the categories, chunking out the content on the category-level adds visual hierarchy. Once you click into the category, the chunking disappears and the items are listed. It wouldn't make sense to apply chunking at the item-level since you can understand the frustration from browsing only 5-6 items per page.

Etsy's treatment allows users to enjoy the best of both worlds. A large amount of products are presented, but users don't feel overstimulated. In the example above, there are 32 different products on the screen. Using any other design, the user could feel lost or distracted. Thanks to chunking, users can process all the information while honing in on the "chunks" that most interest them.

Takeaway

Space can either take away or add value to your content – it all depends on how you use it.

Create too much space between related interface objects and your design becomes frustrating. Cram too many objects together, and your design becomes too cluttered. Pay attention to space when creating your layouts, particularly its relationship to user memory and how proximity can convey meaning better than a wordy explanation. Space holds a lot of weight in interaction design – which is saying a lot for something that is technically nothing.

The Visual Relationships Born from Contrast & Similarity

If you're looking at the dictionary definitions, contrast and similarity seem like complete opposites with little in common. But in web design, they're two sides of the same coin.



Photo credit: "Ying Yang Sign". Wikimedia. Creative Commons.

Contrast and similarity are both two approaches to showing relationships between a page's elements – which saves a lot of time and user effort since its done visually.

We'll start by explaining how each one works on its own, then demonstrate how they can be applied simultaneously to enhance each other's effects.

Contrast

As discussed in the free e-book [Web UI Best Practices](#), contrast – when used properly – can instill drama and intrigue and highlight important differences between functionalities. It boils down to primitive human instincts: we're hard wired to notice differences, because it helped us survive at one point in our evolution.

Contrast is explained in more detail by Brandon Jones, who looks at how these affect first impressions of [objects in an interface](#). When most people look at [this image](#), they don't just see two circles, but a black circle and a red circle. The significance of this great, especially in interface items – differentiation is a generic and common human response.

Contrast also instantly communicates boundaries in the layout. For example, contrasting the color of the top navigation from the main content immediately tells people where the information is located.

1. Light and Dark

Everyone who's used computer or smartphone in the last decade is aware of the light and dark contrast applied to buttons.



Photo credits: www.dribbble.com

The central idea behind this is that darkening out of “pressed” button makes it seem more realistic, mimicking shading in the 3D world. Aside from that, the differentiation signals to the user that some action has been performed. This kind of contrast goes beyond merely improving the visuals, it’s actually a quite useful tool when designing an interface.

As Dmitry Fadeyev, founder of Usaura, [points out](#), the light/dark contrast can be applied in two useful ways to web UI design:

1. It accents anywhere you want the impression of depth – buttons, sliders, switches, etc.
2. You can guide the user’s attention more to light objects by contrasting them with dark.

Even if your site leans more towards a flat UI treatment, at the very least, the shading and darkening will still add a 3D appeal. The German design agency [Dunckelfeld](#) is best-in-class example of the power of proper color and contrast, but let’s take a look at how they treat their buttons. On the main menu, the buttons reverse contrast as you hover over them, providing users instant feedback and adding an extra level of interaction.



Photo credits: www.dunckelfeld.de

Contrast remains a core element in their interaction design, as you can see below. Again, this minimalist treatment reverses the contrast on hover, helping to blend navigation into the main content without feeling intrusive.

BULLS
THE RIDE YOU WANT

The German bicycle producer BULLS is the first address for mountain, racing and hybrid bikes. A good price, the use of high-class components and an excellent manufacturing make BULLS to one of the most favorite bicycle brands of Europe.



Photo credits: www.dunckelfeld.de

2. Clashing Colors

Using contrast in colors is a vital technique to grasp, as it can help guide the user's eye, affect their mood, signal cues, and give your site its own distinct style. When discussing contrast, colors can be divided into two conflicting groups: warm and cold.

- **Warm Colors** – Reds, oranges, yellows. These tend to be invigorating, energizing, or otherwise aggressive.

- **Cool Colors** – Greens, blues, purples. These lean closer towards relaxing, calming, subduing, and passivity.

How can you use this to your advantage?

It's simple if you know one easy rule: warm colors tend to dominate cool colors. For example, making a call-to-action button red can help attract attention to it, but setting that red call-to-action button against a blue or green background will draw even more attention.

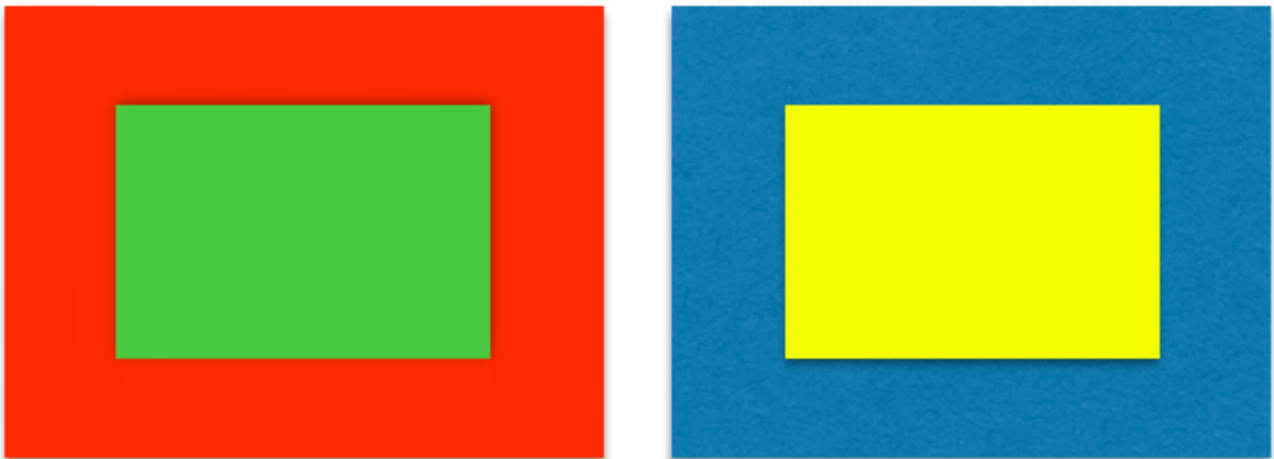


Photo credit: www.uxpin.com

See how clearly yellow stands out over the blue in the above example? Likewise, the red takes the attention from the green, almost shrinking it.



Photo credits: TV Safety.org

Utilizing the contrast between warm and cool colors can draw attention to – or away from – certain areas of the interface. Just look at the above example from on TV Safety.org, especially how the red navigation buttons stand out because they're offset by the green. We talk a little bit more about this can be used in design patterns in our [Web UI Patterns 2014](#).

3. Foreground & Background

While each [Gestalt Principle](#) addresses similarity and contrast in some way, contrast is critical to determining the relationship between figures versus the background and asserting visual dominance. As designer Steven Bradley of Vanseo Design [points out](#), too much contrast will ruin the harmony of design, so let's look at two important applications:

- **Foreground & background** – Upon first impression of a design, we naturally distinguish between [figures and the background](#). This important relationship provides the context for the design. Therefore, they must contrast otherwise users won't even be able to separate the two.
- **Points of focus** – These elements are designed to stand out from surroundings (through contrast), and the most noticeable element is considered dominant. Remaining elements that also stand out (but to a lesser extent) are considered focal points.

As you can see in [this image](#) by Bradley, the green circles are similar to other green circles, and the orange bars are similar to other orange bars. But they stand in direct contrast compared to each other.

Remember to use contrast sparingly. If everything tries to capture the user's attention, then nothing will stand out. Pick just the most important elements that must stand out, then move on.

To learn more about contrast as a means of visual hierarchy, check out this [great piece by Steven Bradley](#).

Similarity

As we mentioned in the first chapter, similarity between objects' appearances communicates similarity between their functions.

For example, on most navigation menus, the text of each object is the same size and font to signal that each is a clickable option. While this UI pattern is useful on its own, a savvy web designer will delve deeper, exploring different levels of similarities and how they create different relationships between objects.

Not all types of similarity are created equal. Some communicate strongly, while others are more subtle – and don't forget about the context. Let's explore the types of similarities and how they apply to web UI design.

1. The 3 Main Similarities

Expounding on the Gestalt principles, Andy Rutledge [analyzed the use of similarity in web design](#) and described the main types of similarities, and how strongly they suggest a relationship. We've found his work on the topic of similarity to be some of the most thorough and practical advice available.

Take a look at his [first illustration](#) and see which objects look most related.

Even though the objects are all the same color, most viewers cite shape as the relationship that is the clearest. Despite differences in size, the small squares are related to large squares, and the small circles are related to the large circles. Pretty simple, right?

But what if the items were all [the same shape and color](#)?

Now, you'll likely conclude that the large squares are related to each other and the small squares are related to each other. Because differences in size can create contrast, we can also create consistencies of size to communicate relationships.

Finally, take a look at Rutledge's [third image](#) to see what happens when we use the same shapes, but change the size and color.

With all the same shapes, the viewers here will mentally divide the items by color rather than size.

As Rutledge explains, that puts the hierarchy of similarities, from most to least potent, as color, then shape and size.

This hierarchy owes itself to evolutionary psychology. When scanning our surroundings, size and shape might be hard to determine due to all the visual intricacies, but colors immediately pop out to us. Just think about how you innately know that a bright red snake is not to be messed with.

But knowing about the different options is only half the battle. Knowing how to apply them is what matters.

2. Applying Similarity to Web UI Design

Every designer must provide visual hints about which interface objects relate to each other. Since users know [within 10 seconds](#) whether or not they'll leave a site, you need to convey an immediate organization of the interface.

Let's take a look at how to apply similarity to the treatment of links, content, and overall UI organization.

1. Links

Links always need to contrast with other text, but they must be similar to each other.

Typically sites will make links blue, sometimes underlined. As we described in [Web UI Patterns 2014](#), this pattern plays off of users' preexisting knowledge of blue text being links, which requires less thinking/learning on their part.

For a traditional link treatment, let's take a look at Reddit. As you'll see below, it's nothing revolutionary and exactly what you expect for a site whose foundation is the links themselves.

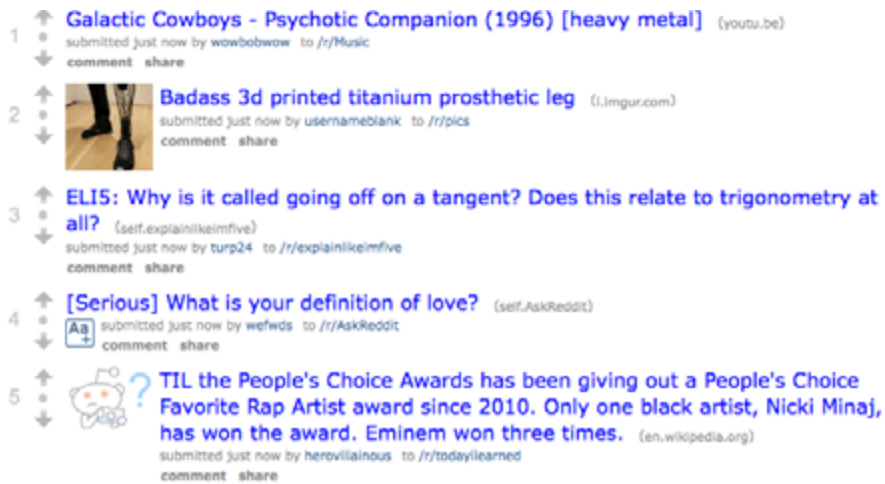


Photo credit: www.reddit.com

When you have different categories of links, you can apply different similarities to create more elaborate relationships. On Reddit, all blue links go to other pages. Meanwhile, grey links indicate user actions (like commenting or sharing).

The username links and subreddit links are the same color, but smaller in size than than content links. This plays into the hierarchy of similarities (color, size, shape) we just discussed: the blue color immediately indicates that all blue text are links, while the different size of the username and subreddit indicates they're not the same as links to content.

Now let's look at the comment and share links. The designer's priority is ensuring the user understands that these links prompt user action. In that case, changing the color is the quickest way to visually communicate the difference. But to ensure the text still stands out as a link, the designer bolds the text (which is a slight change in shape).

2. Content

Aside from categorizing links, one of the designer’s most important tasks is displaying relationships between content. When created correctly, these relationships reinforce hierarchies and imply structure without needing to “wall off” sections of content.

Let’s look at how the ZURB homepage communicates relationships through similarity.

We’re a nimble team, doing mighty things! We’re empowering businesses and teams to put Design first by helping them roll up their sleeves and apply customer-centric product design practices to their daily work.

Have a project or training that you want to get started? Give us a call at 408.341.0600 or email us at getstarted@zurbin.com. Learn more about our Studios work.



Photo credit: ZURB.com

ZURB applies a consistent visual treatment to its different products. The similar color palette and square shape immediately communicate that the 4 objects are somewhat related. Once you read the description for a product, say Foundation, you can quickly assume that all the other similarly styled objects are also products created by ZURB. In this case, consistency of visual presentation suggests consistency of category and context.

Because the square treatment contrasts so much with the other content on the page, the visual similarity between products stands out even more. As such, we don't need to use methods like a title that reads "products" to explicitly call out what these square objects represent.

Now, let's take a look at [PatternTap](#). This site uses similarity to convey that every card represents a link to the UI pattern. All the cards also display the same behavior when you hover over them, creating an experience that reinforces the similarity.

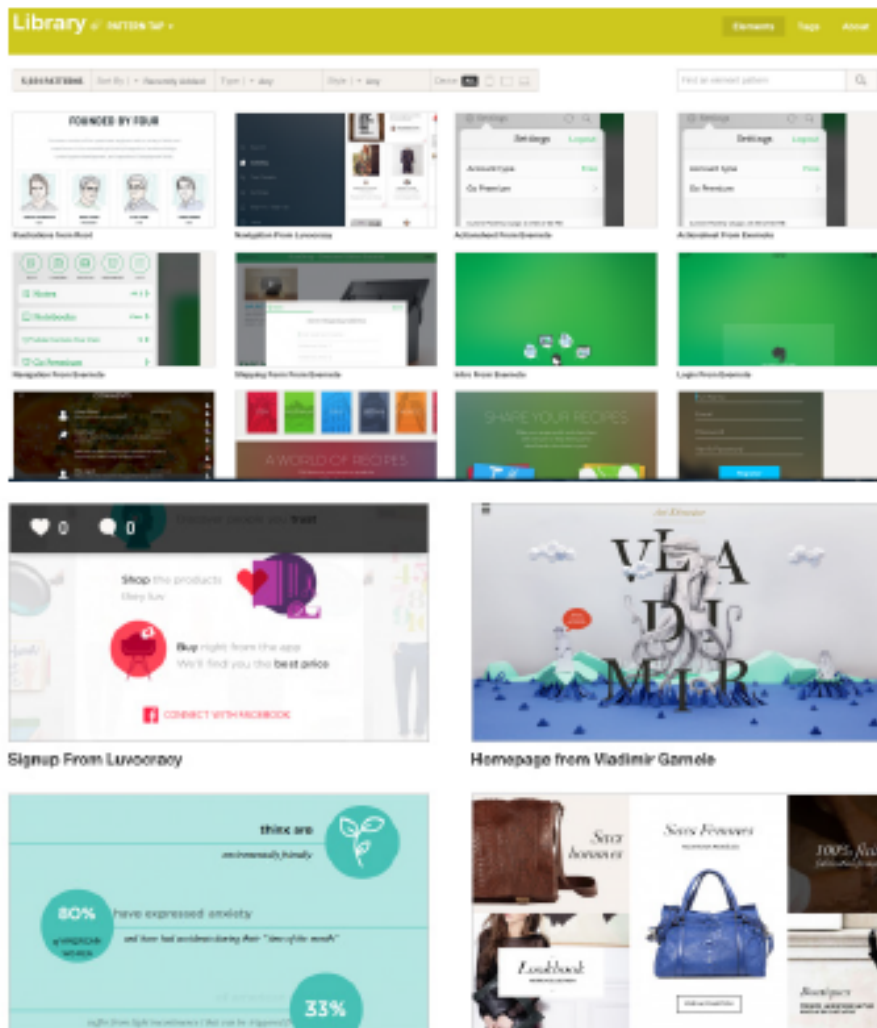


Photo credit: www.Patterntap.com

As we discussed in [Web UI Patterns 2014](#), this split-second visual understanding is why cards are one of the most effective patterns for content-heavy sites. In fact, Intercom has even gone so far as calling it the [future of the web](#).

3. Organization

[According to Rutledge](#), similarities in design also creates page-wide structure.

You can see in [his example](#) that no distinction exists. Every element looks the same, so they all look related.

Now, let's see what happen when designer you play around with color. You can see [in his picture](#) that color can create shapes (in this case, a column) out of elements that otherwise look the same.

We can also split the elements into two categories, as you'll see in Rutledge's [third image](#). The blue squares look related and the green squares look related. Every element has the same physical characteristics (squares of the same size), yet our eye sees two separate categories.

The takeaway here is that you don't need physical structure to create page structure and relationships between content. You can suggest structure purely from clever use of contrast and consistency.

For example, let's take a quick look at Craigslist. Yes, we know it's not the prettiest site and could benefit from a visual overhaul. But it does do a few things right with its content structure.

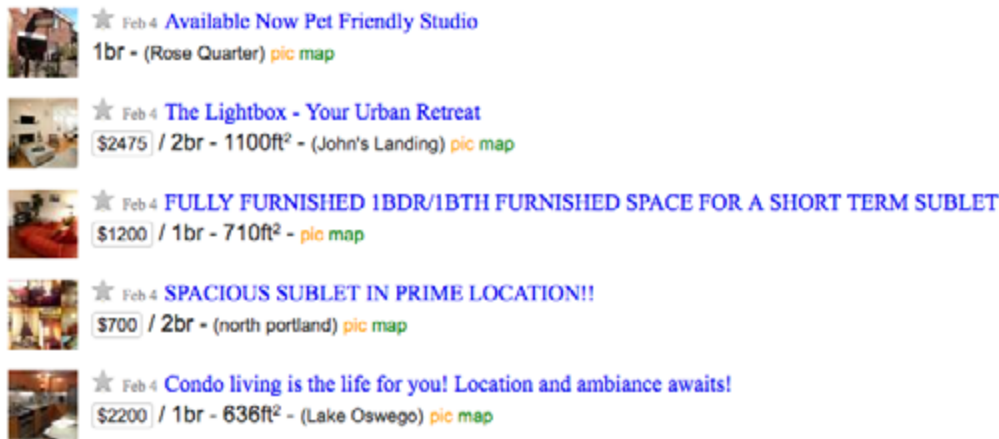


Photo credit: www.craigslist.org

Each of the listings follows the same format: picture at left, clickable title at top and in blue, plus the price, date, space size, and location all in the same place. If any of the listings deviated from this similarity, it would raise suspicion and suggest the listing were somehow different.

Craigslist keeps it stupidly simple. The site feels like a low-fidelity version of a real site, but one of the few reasons it's still usable is because it's structured logically.

To learn about creating harmony between contrast and similarity, we highly recommend checking out designer [Steven Bradley's article](#) on Smashing Magazine. Then, to see examples of harmony between similarity and contrast, check out [Codrops' article featuring 25 examples of emphasis in web design](#).

Takeaway

Don't make the mistake of deciding whether to use either contrast or similarity, use both for the best results.

Leaning too much on one will reduce the impact of the other, so a clever designer strikes a balance between the two – after, of course, mastering the nuances of each. If you ever feel lost in this area, just take a quick look around the web: you'll see the subtle uses of contrast and similarity of every page.

Colorful Emotions: Visual Vibrancy in Web UI Design

The skill of using colors is no less than an artform.



Photo credit: "ex removal screen cross". Brett Jordan. [Creative Commons](#).

Across human history, master painters and other artists have earned global recognition from their ability to manipulate colors. In the modern era, the artform now opens up a lot of new commercial and business applications, first in advertising, and now in web design. With an almost bottomless depth, the skill of color usage can be improved and refined endlessly.

We'll explore the fundamentals of color theory and color scheme, then examine the emotional effects of certain colors.

Color Theory

The topic of color could fill a whole book on its own, so we'll stick to what's relevant to UI design here. We can break down color theory into **3 parts** with regards to web UI design:

- **Contrast** – Every shade of color has a set opposite – an “arch-nemesis” whose contrast is far greater than any other color. You can use the color wheel below to find each specific color's opposite. Simply locate the color on the opposite end of the circle.

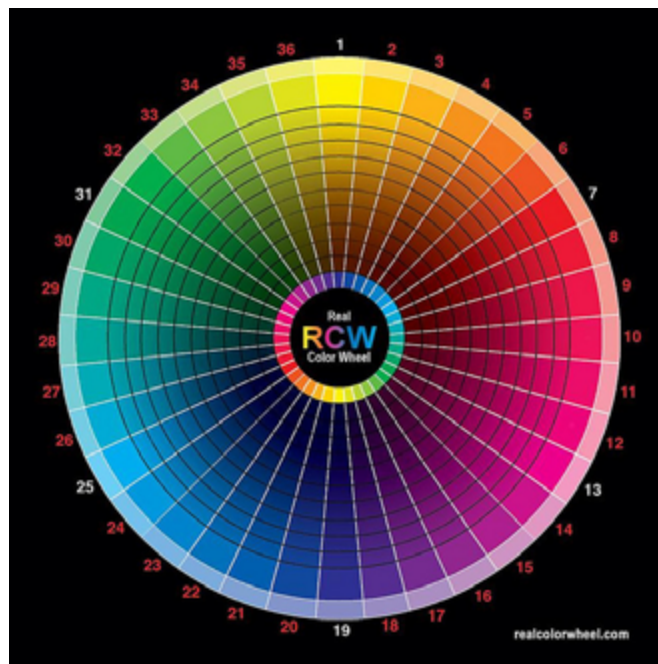


Photo credit: “color wheel”. Michael Hernandez. Creative Commons.

- **Complementation** – Colors aren't always at odds with each other: complementary colors accent each other and bring out their best, the opposite of contrast. These are the colors immediately next to each other on the color wheel, for example, purple's complements are blue and pink.

- **Vibrancy** – Each color evokes a specific mood: the brighter warm colors (red, orange, yellow) tend to energize a user and make them more alert, while darker cool shades (green, blue, purple) tend to be more relaxing and tranquil. **CNN** uses a red banner in their top navigation to heighten alertness, a color decision that suits the site's breaking news content.



Photo credit: <http://www.edition.cnn.com/>

Color theory in web design is more than just a visual garnish, it can have game-changing effects on your business. If you don't believe us, read conversion consultant Jeremy Smith's [article explaining how the psychology of color can expand your business](#).

Color theory is a science of its own. Just tweaking the saturation can completely change your interface.



Vibrancy: Emotional Implications of Color

There's no denying the link between emotions and colors: in fact, the human race has been [documenting the psychological impact of color since the Middle Ages](#). Naturally, any web designer wants to harness this as well, since the right colors create the right moods and atmosphere for your site.

We've analyzed the advice of the [researchers at Vandelay Design](#) and [Smashing Magazine](#), and filtered it through our own experience at UXPin.

Please note that different cultures around the world perceive colors differently. We describe emotional associations that are most relevant to Western cultures. For a more in-depth look of how different cultures perceive color, [read this thorough piece](#) from **Web Designer Depot**.

Red

Promotes: *power, importance, youth*



Photo credit: www.nowaynsa.com

The most stimulating color, red is so energizing it has been used to increase blood circulation. Representing passion and power, red is the color that will attract the most attention, which is why it is commonly used for warnings and important notices.

Red is very appropriate for the **No Way NSA** website, whose purpose is calling alarm to a perceived threat from the NSA. Using red in the first section of the single-page site is especially clever because it calls attention to the primary message while physiologically inducing people to “get out of the danger zone” by scrolling downwards. This, of course, only makes the user engage with more content.

However, this could work against you, as red can incite anger, or at least overstimulation. If you’re going for a more relaxed atmosphere, use it sparingly (or at least in a lighter shade) or not at all.

Orange

Promotes: *friendliness, energy, uniqueness*



Photo credit: www.fanta.com

As the most muted of the warm colors, orange is uniquely versatile. As a primary color it can be engaging and energizing, and as a secondary color it also retains these properties in an unobtrusive way. Orange also helps to create a sensation of movement and energy.

Aside from it being part of the brand style, orange works well with **Fanta's** lighthearted and cartoonish site. The color shows creativity while retaining familiarity.

Yellow

Promotes: *happiness, enthusiasm, antiquity (darker shades)*



Photo credit: <http://flashmediagency.com/home>

Yellow is one of the more versatile colors, depending on the shade.

A bright yellow is the most energetic of the colors, without the severity of red. Middle shades of yellow give a sense of comfort while still feeling invigorating. Darker shades (including gold) can give the impression of antiquity, and lend an air of timelessness, wisdom, and curiosity.

In the above example from web design agency **Flash Media**, the darker shade of yellow exudes energy, curiosity, and authority. This makes a lot of sense for a company who thrives on the value of their consultancy and skills.

Green

Promotes: *growth, stability, financial themes, environmental themes*

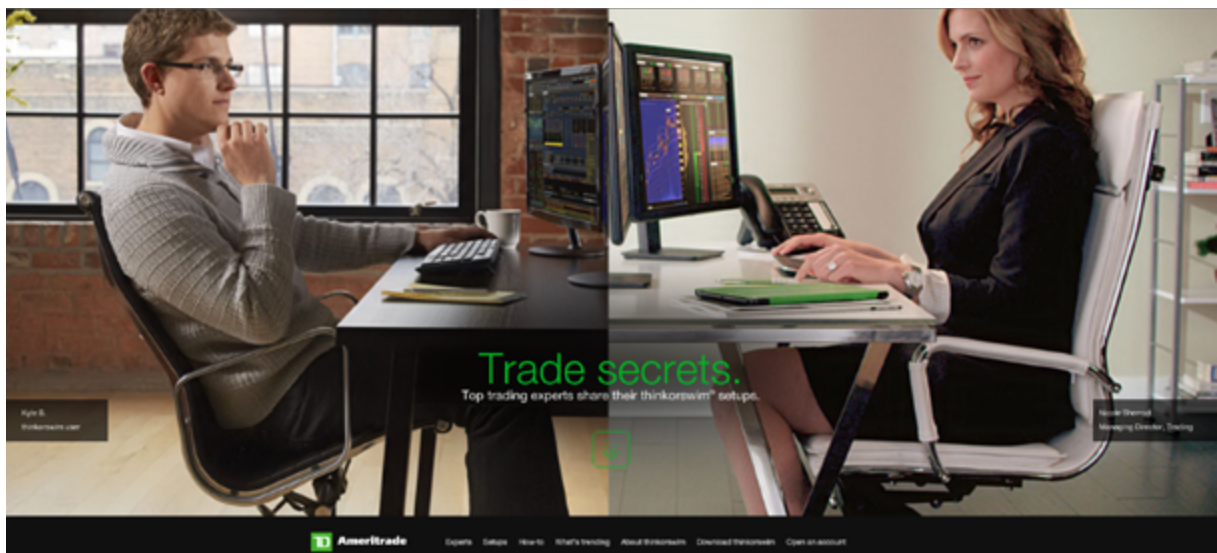


Photo credit: <http://portfolio.erinandsmith.com/tda-thinkorswim-sharing/>

Green bridges the gap between warm and cool colors, though tends to be more of a cool color. This means green has the same relaxing effects of blue, but still retains some of the energizing qualities of yellow. As such, it creates a very balanced and stable atmosphere. Darker shades give off more of the money/affluence feelings which you can see with **Ameritrade** above.

Blue

Promotes: *calm, safety, openness (lighter shades), reliability (darker shades)*



Photo credit: <http://www.vanvlietandtrap.com/#/>

Like yellow, blue's meaning varies greatly depending on the shade. All blues are universally relaxing and safe, but the lighter shades will seem more friendly while the darker ones seem more somber. Social media sites like Twitter and Facebook take advantage of light and medium shades, while corporate websites prefer dark shades' tones of strength and reliability.

Van Vliet & Trap, an event design agency, makes clever use of dark blue. By using the blue in the flowers in the background, they visually hint at their expertise in floral design while also exuding trust and reliability. It makes a lot of sense since they plan high visibility (and somewhat nerve-wracking) events like weddings.

Purple

Promotes: *luxury, romance (lighter shades), mystery (darker shades)*



Photo credit: <https://www.cadbury.co.uk/>

Historically associated with royalty, purple retains the tone of luxury, even to the point of decadence.

Purples suggests lavishness and wealth in general, making it a popular choice for fashion and luxury goods (and even chocolate, like the **Cadbury** example above). Lighter shades like lavender (with pink hues) are considered romantic, while darker shades seem more luxurious and mysterious.

Black

Promotes: *power, edginess, sophistication*

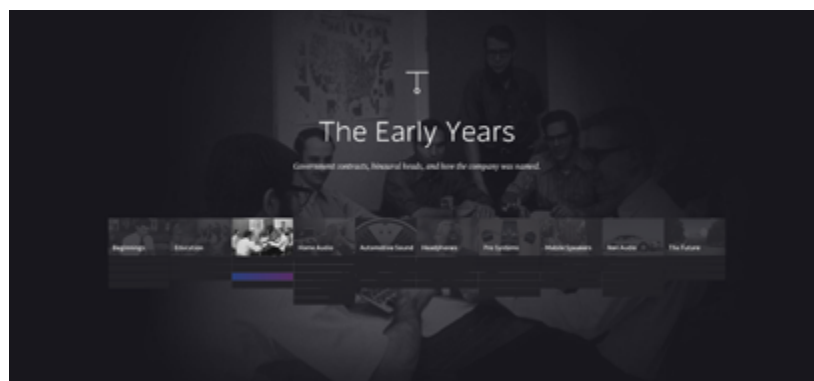


Photo credit: http://dreamandreach.bose.com/en_US/explore

The strongest of the neutral colors, black exists on almost every website.

It can take on varying characteristics depending on its supporting colors, or dominate all of them if used in excess. Its strength amidst neutrality makes it the color of choice for long blocks of text, but as a primary color can give the impression of edginess, sophistication, or even evil.

For most websites, black is used to create an instant feeling of sophistication and timelessness. The feeling of elegance is especially strong well when paired with white font and set against a minimalist layout, as you can see in the “[Dream and Reach](#)” [microsite](#) from **Bose**.

White

Promotes: *cleanliness, virtue, simplicity*



Photo credit: <http://mzkmzk.com/>

White is the color most associated with virtue, purity, and innocence in Western cultures.

Minimalist and simplistic sites most often use it as a background. By drawing the least attention of all the colors, white is the best for accenting the other colors on the page.

This works particularly well for the [awwwards-winning website of artist Kaloian Toshev](#). The white background draws attention to his vibrant artwork, while creating an art-gallery aura of elegance.

Gray

Promotes: *neutrality, formality, melancholy*

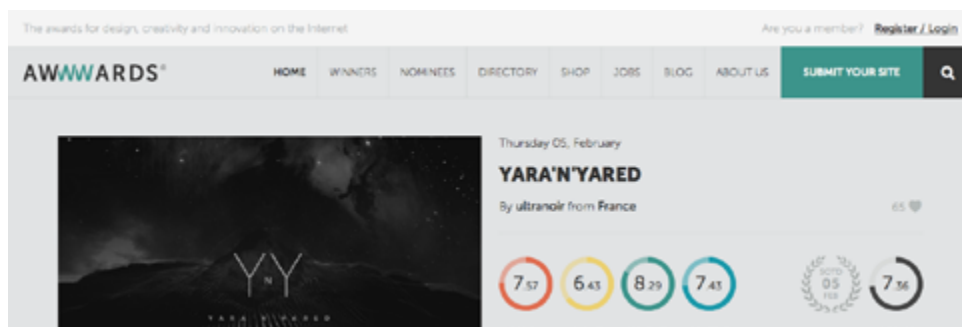


Photo credit: www.awwwards.com

While in certain situations it can seem brooding or sad, gray is nonetheless a popular choice for looking traditional or professional. However, one of the greatest advantages of gray lies in varying its hues – changing the shade can give you a customized mix of properties from white and black, a powerful tool in skillful hands.

When paired with brighter colors and presented in a flat UI, the grey background of [awwwards](#) feels much more modern than it does somber.

Beige

Promotes: *traits of surrounding colors*



Photo credit: <http://www.dishoom.com/>

Beige is the wildcard of the colors, as its main use is in drawing out other colors.

On its own, beige is dull, though this can be used to symbolize humility. However, it will take on the characteristics of the colors around it, making it an interesting design tool. For these reasons, beige is almost always a secondary or background color.

Darker shades of beige (like on the **Dishoom** site) will create an earthy and almost paper-like texture, while lighter shades feel fresher. In this case, the lighter shade around the brand name, which darkens outwards, help create the feeling that the restaurant is a fresh modern take on earthy cuisine.

Ivory

Promotes: *comfort, elegance, simplicity*



Photo credit: <http://artinmycoffee.com/>

In terms of emotional response, ivory (and cream) are slight variations on white.

Ivory is seen as warmer (or less sterile) than white, making it more comforting while still exuding the same minimalistic and complementary aspects. Ivory should be used in place of white to soften the contrast between it and darker colors. For the **art in my coffee** site, an orange/brown accent is added to the cream background (which looks slightly greyish) to create a sense of warmth.

If you'd like to read more analysis of color and emotion, check out [this piece](#) by 1stWebDesigner which deconstructs color use from 20 top brands.

Color Scheme

Every site has a color scheme, the primary colors it uses for its main areas. As we've been discussing, the repeated use of these colors will affect the user's mind and mood, typically subconsciously, so choose them well.

While there are lots of different ways to mix colors together, we're going to focus on the 3 most successful, and common, ones:

- **Triadic** – The triadic is the most basic and balanced of the three structures. Using vibrancy and complementation, but straying from the trickier contrast, the triadic structure is the safest and most reliable scheme. On the 12-step color wheel, select any 3 colors located 120 degrees from each other: one color for the background, and two for content and navigation.



Photo credit: "BYR Color Wheel". Wikimedia. Creative Commons. Edited from original.

- **Compound (Split Complementary)** – The next scheme gets a little trickier to pull off, but can be rewarding if done well. The concept uses four colors: two contrasting pairs and two complementary pairs.



Photo credit: “BYR Color Wheel”. Wikimedia. Creative Commons. Edited from original.

Look at how stunning the page for **Florida Flourish** looks just based on its colors alone. The red and green contrast together with the text tags and plants, plus the blue and orange with the sky atop the desert. At the same time, the red/orange and blue/green complements really bring the whole view together nicely.



Photo credit: www.floridaflourish.com

- **Analogous** – Lastly there is the analogous scheme, which focuses exclusively on complementary colors. This one really highlights the vibrancy of the colors chosen, for example, a red-orange-yellow analogous scheme will seem very energetic and lively. While this scheme is relatively easy to pull off, the trick is in deciding which vibrancy of color to use, as it will be exaggerated.



Photo credit: “BYR Color Wheel”. [Wikimedia](#). [Creative Commons](#). Edited from original.

By using blues, turquoise, and greens for their analogous site, **Blinksale** creates a subdued and even safe atmosphere for its site. Notice how they use the contrasting yellow to draw attention to their call-to-action.



Photo credit: www.blinksale.com

What we've just discussed are just the fundamentals of how color theory can enhance your UI design, but there's no limit to how in-depth you can go with colors on your site. If you'd like to know more, you can check out this piece in Smashing Magazine on [how to create your own color palette](#).

Color Assistance Tools

Thankfully, there are plenty of tools to help you put color theory into practice. Check out these pre-made color palettes so you don't need to start from scratch.

- **Adobe Color CC** – Once known as Kuler, this has been regarded for a while as one of the most trusted color assistance tools available.
- **Paletton** – If you're in need of a tool for speed or a simplified ease-of-use, this minimal tool can help you. Great for beginners.
- **Flat UI Color Picker** – While for flat UI designs only, this is still a useful and convenient tool for color selection.

To further shorten the learning curve, you can also check out this [list of 28 website color tools](#).

Takeaway

No one's expecting you to be Michelangelo, but a basic understanding of color usage is solid prerequisite for web design.

As we've just explained, colors carry with them a lot of extra weight that sometimes goes unnoticed. No matter what colors you choose, they have a definite influence on the design as a whole – from communicating contrast or similarity, to evoking precise emotions.

The 5-Second Test for Visual Hierarchy

Studies have shown that **it only takes users about 1/10th of a second** to form an impression of your site. To keep users engaged, your site needs to have an instant visual hierarchy that logically structures all of the elements we've discussed (color, space, contrast, etc.).

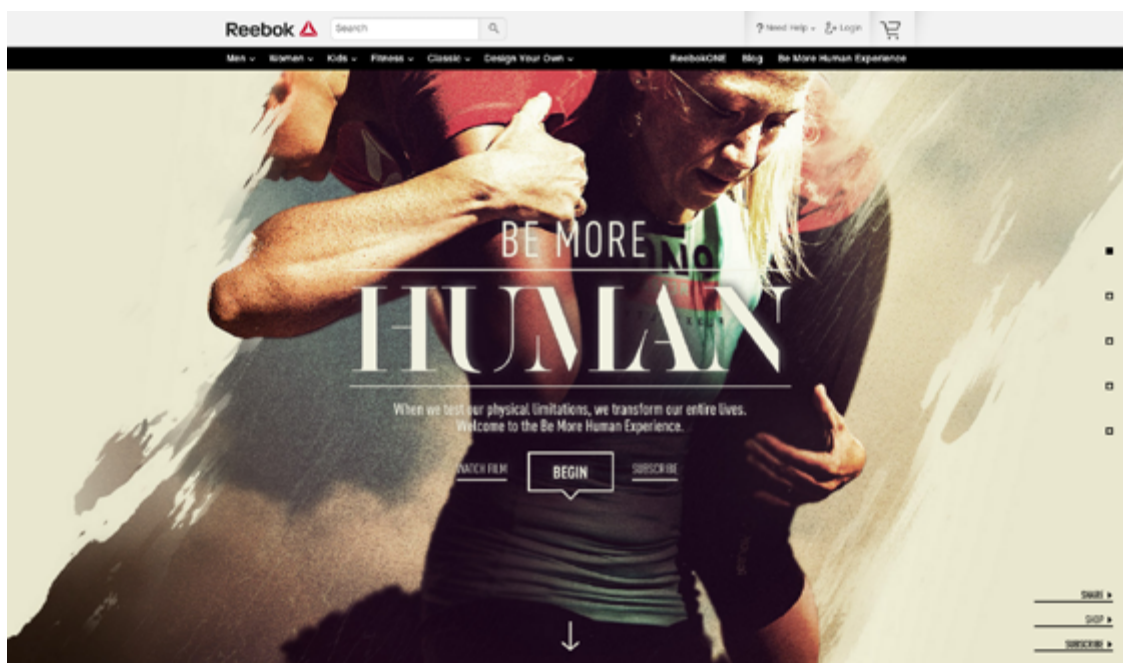


Photo credit: <http://fitness.reebok.com/be-more-human/>

Now, let's look at how you can blur your designs to make sure they communicate as clearly as possible.

The Blur Test

At its core, the [blur test](#), as designer Lee Munroe explains, is looking at a blurred version of your site and see what elements stand out.

If it's not what you want to stand out, it's time to go back and make some revisions. Looking at a blurry version of your page will reveal the bare bones of your visual hierarchy, letting you see the layout with fresh eyes. The actual blurring of the site can be done in Photoshop, by adding a 5-10 px Gaussian blur on a screenshot.

Once you've applied the effect, you'll see results like the below example.



Source: [Visual Hierarchy](#)

What stands out for you on **Wufoo's** homepage? Sign up buttons and product features are both still prominent, while lesser content

takes second stage. The colors of the buttons pop out against the background (a contrasting color), while the white space centers focus on the product features.

Alternative Approaches

If you don't want to blur your design, you could just blur your vision and stand about 3 feet away from the screen. It's simple, even sounds a little stupid, but it definitely works.

On the other hand, if your design already lives in the browser, you can try this quick trick with Chrome.

- **Open** up your dev tools (F12) in Chrome.
- **Navigate** to the body element and add `-webkit-filter: blur(5px)`. You can adjust the blur pixels to your liking, but we recommend somewhere between 5 to 10 pixels.

Repeating the Process

After your first blur test, you might find that a few tweaks to visual hierarchy are needed.

In that case, as [Lee Munroe suggests](#), you'd want to look at adjusting elements such as:

- Size
- Contrast

- Color
- Shape
- Spacing & padding
- Orientation & position

Once you're done, repeat your blur test and keep iterating until it matches the user priorities. If you used the Photoshop or Chrome trick, you can try again with a 10 pixel blur to test if any unwanted elements are still sticking out.

Takeaway

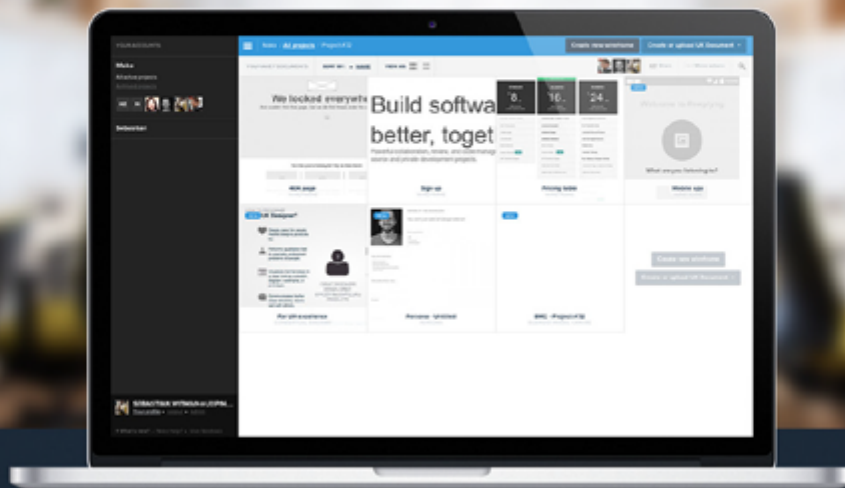
More than being creative, a good artist must also consider subtleties like composition, colors, size, what to include, and – perhaps more importantly – what to leave out. That’s no easy feat, which is why we hold the masters like da Vinci and Van Gogh in such high regard.

The 3 different blur tests we’ve described will help ensure that all the design elements on your page culminates into a single moment of meaning. Studies have shown that [vision is our dominant sense](#), so make sure your first impression leaves the right lasting impression.

We hope you’ve found the tips in this e-book helpful and actionable. Now, it’s time to start designing your interface.

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