

Principles of Visual Design LCC 2720

Instructor: Brian Schrank

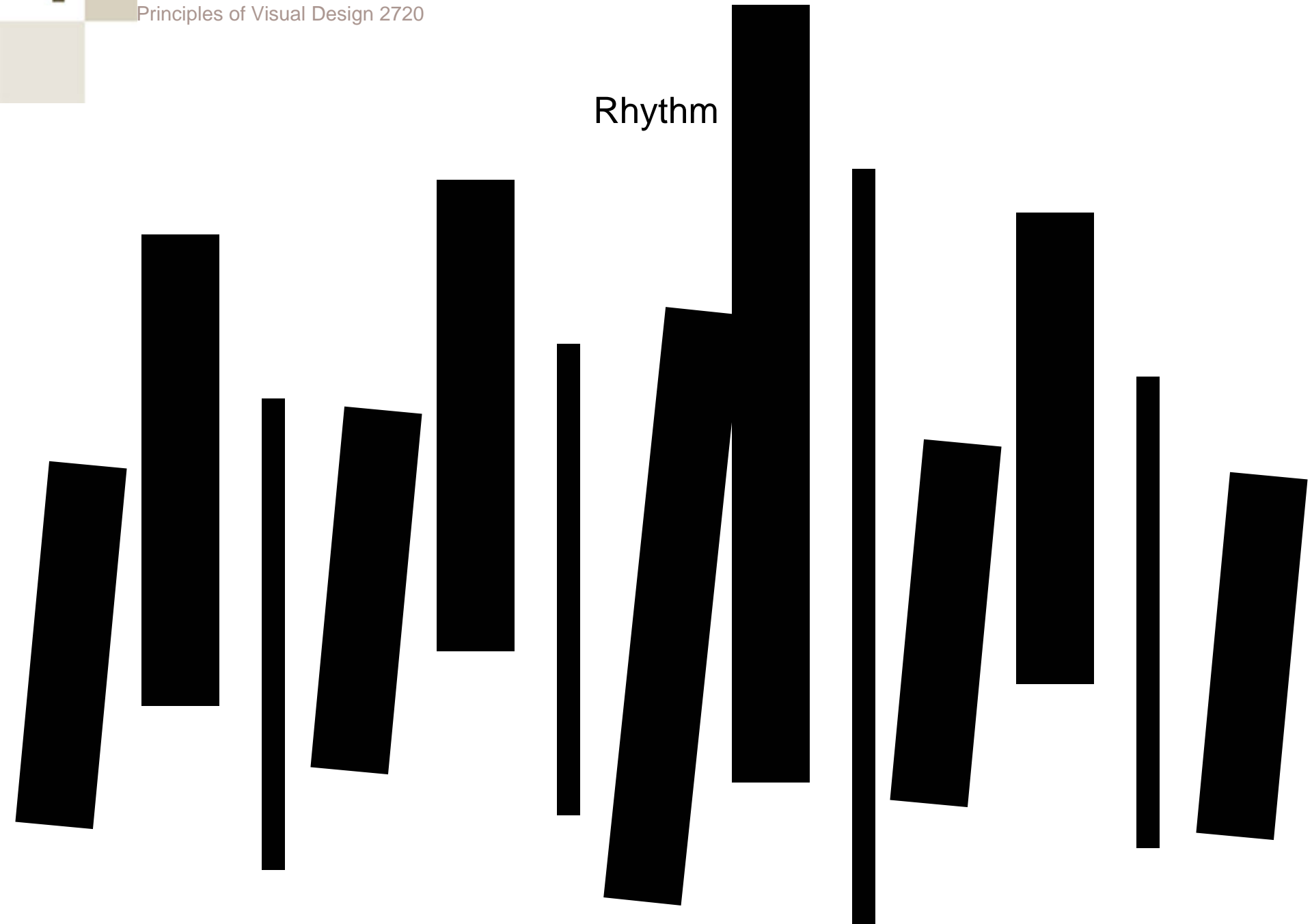
Design Theory, Gestalt and Composition

## 100 Thumbnail Compositions Assignment

You will be graded on how consistently you can create various and interesting compositions. The compositions will be abstract representations of topics. You can convey a lot through form, so explore as much as you can. Here are some examples...

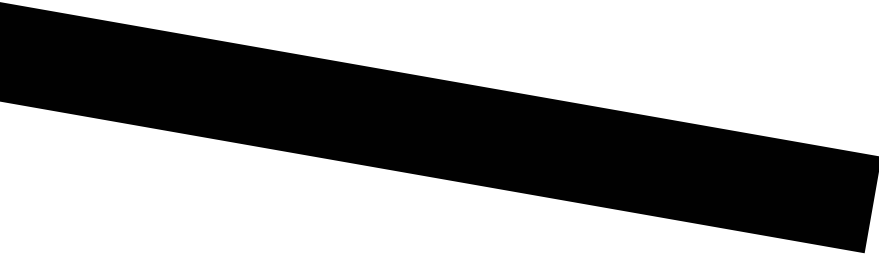


# Rhythm



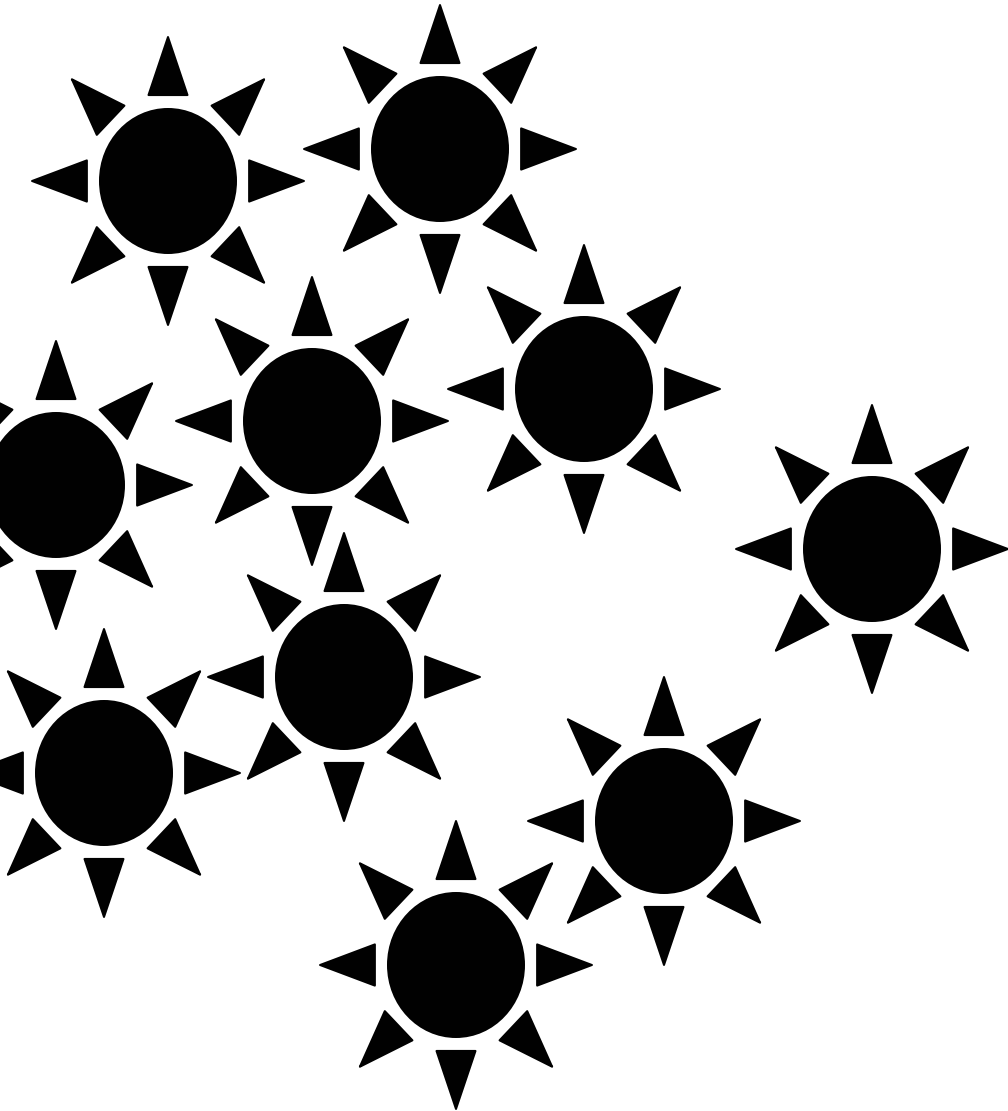


# Direction

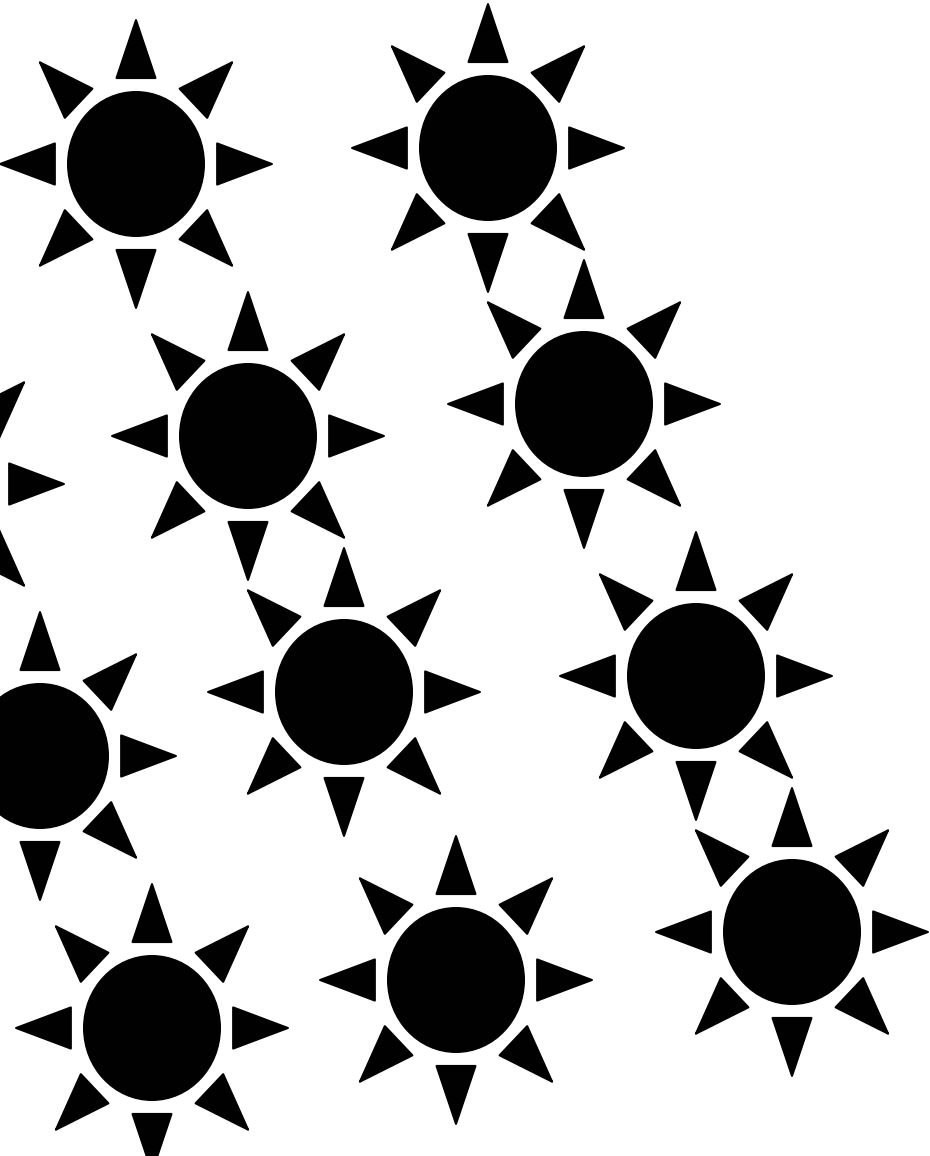




# Unity



# Conformity





Tension

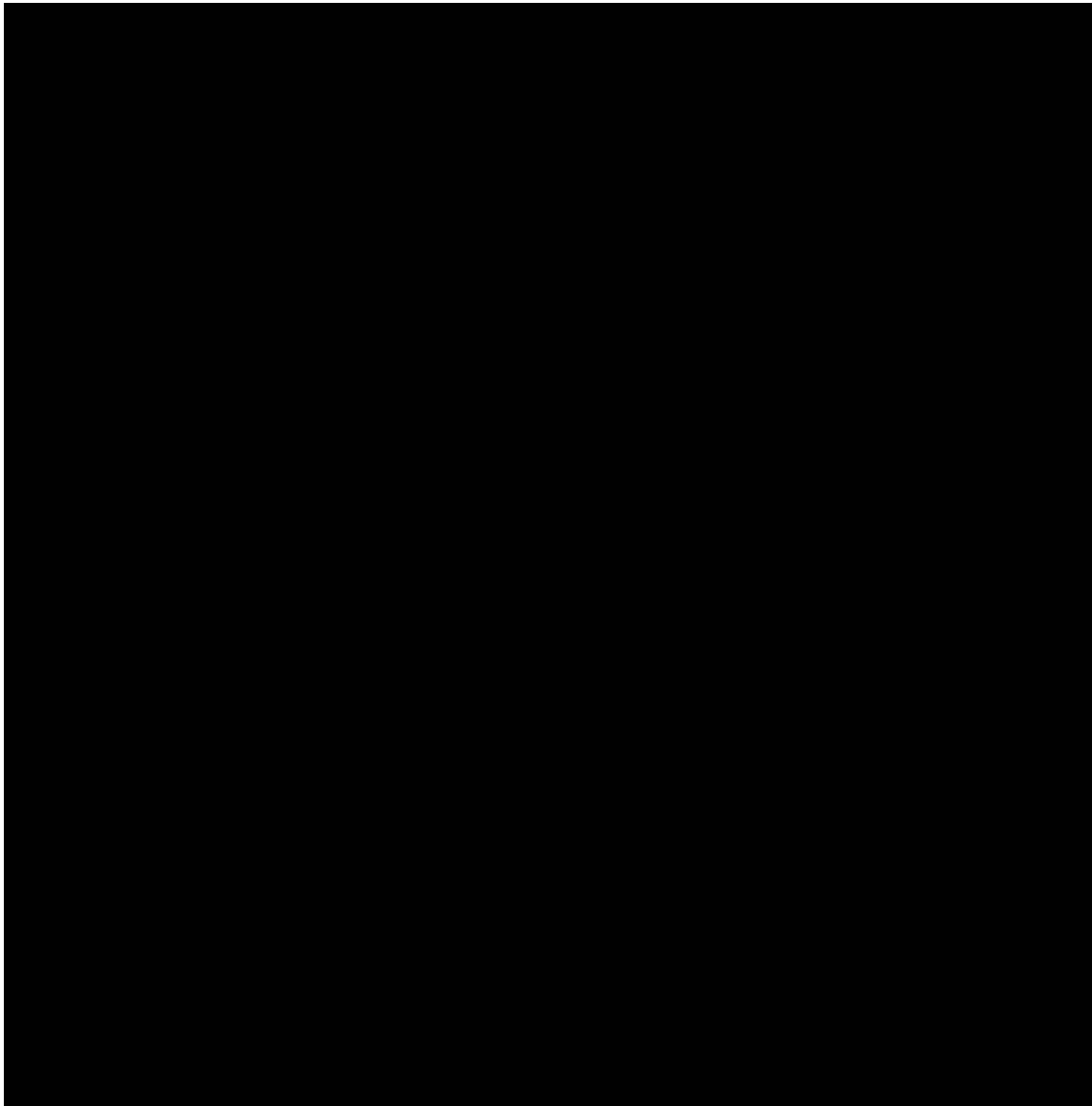


... looseness... ...vastness... ...peace...



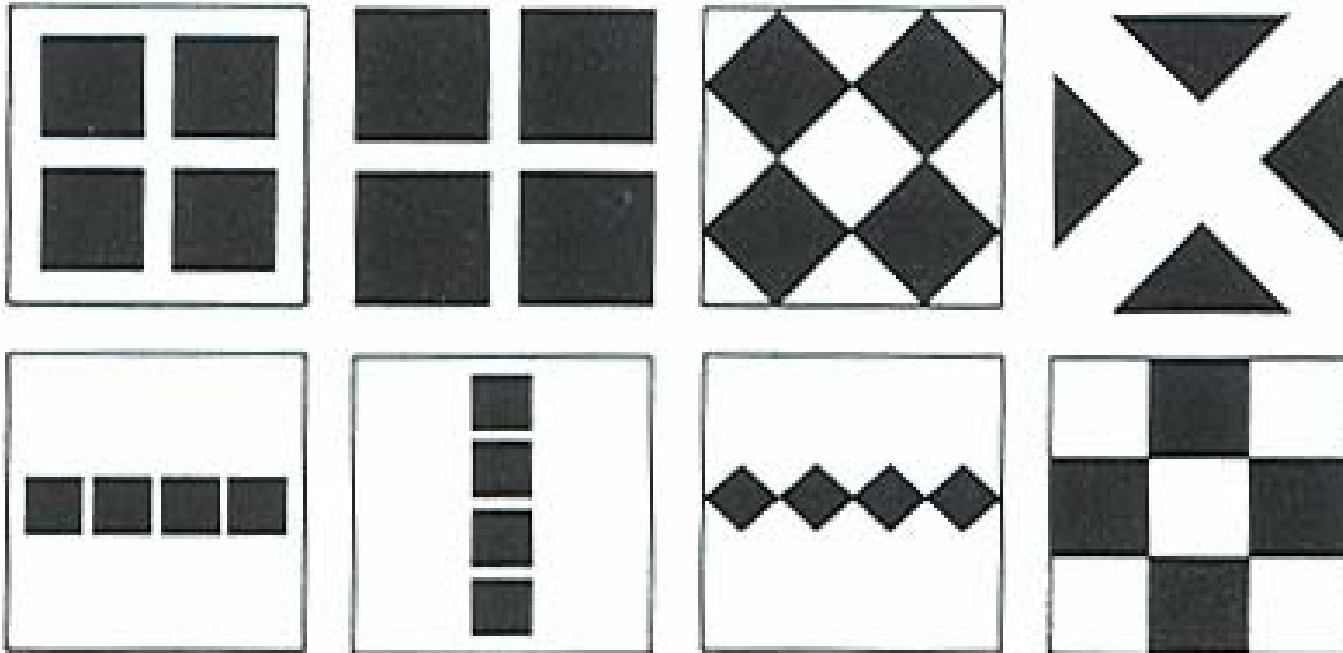


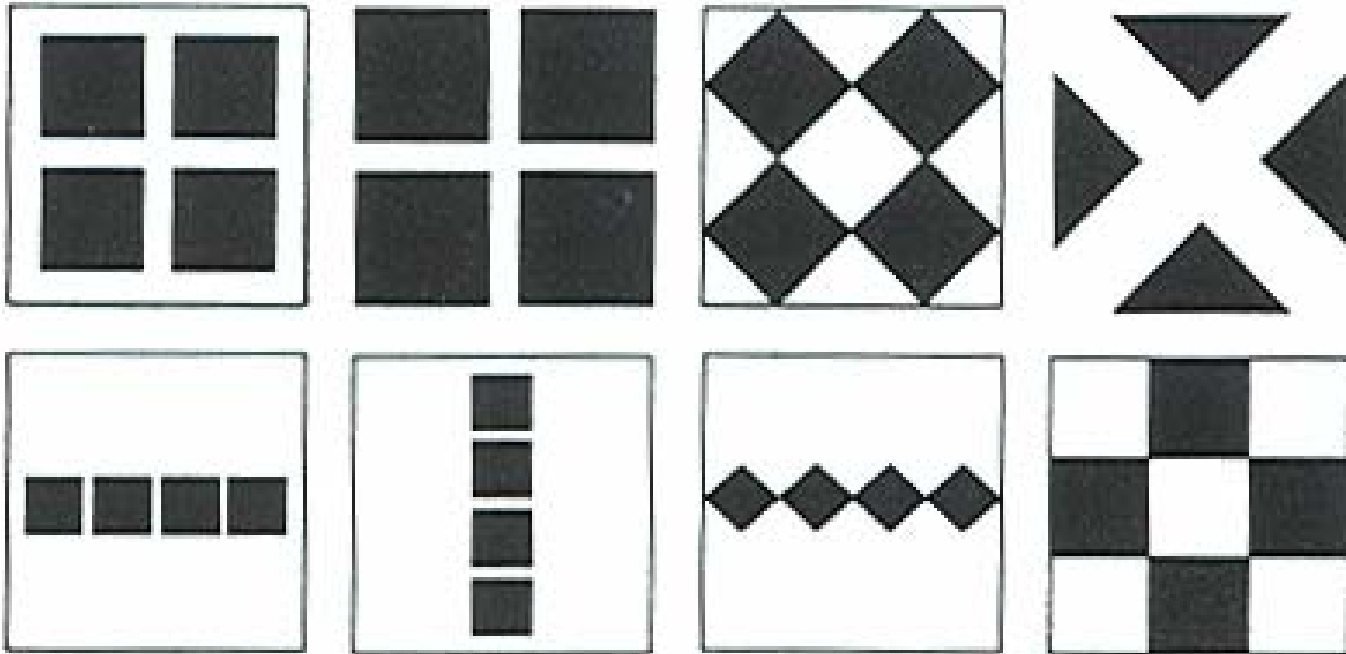
# Scale





What do these seem to represent?

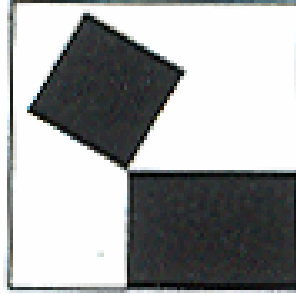
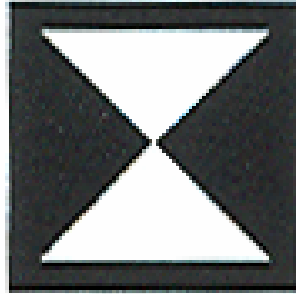
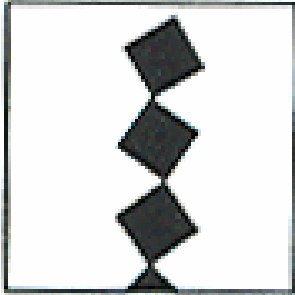
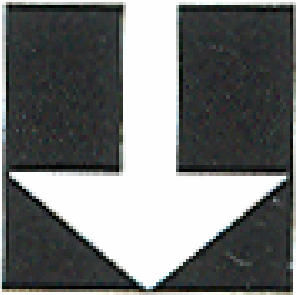
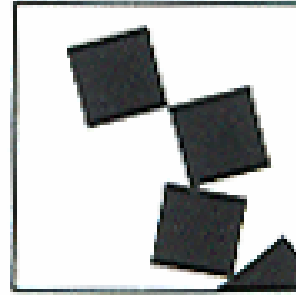
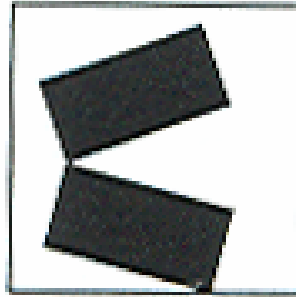
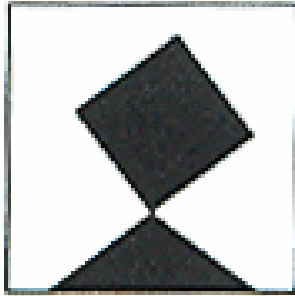
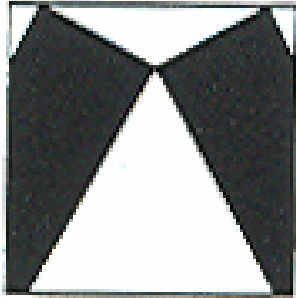


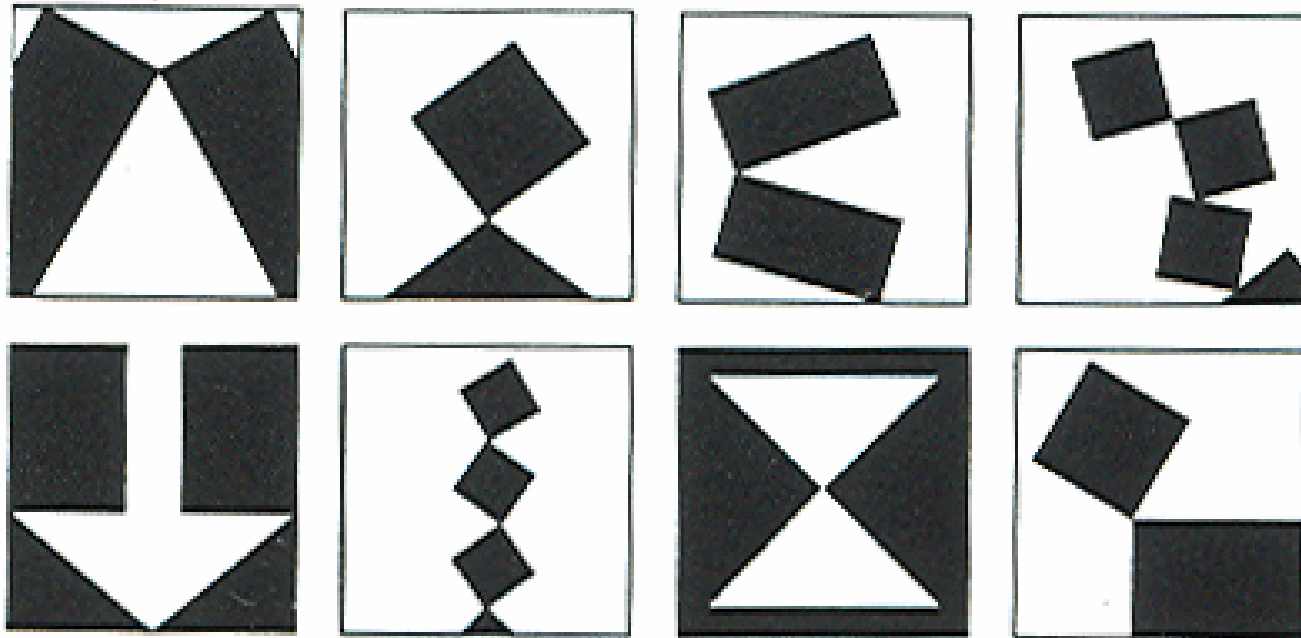


ORDER



and these?

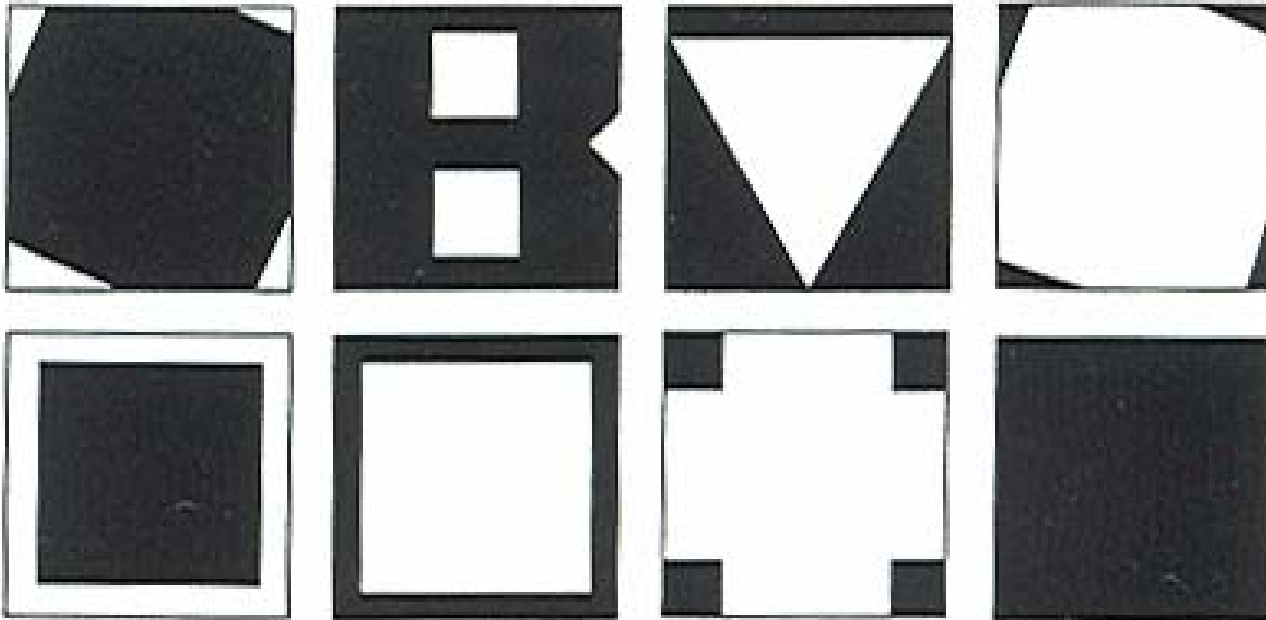


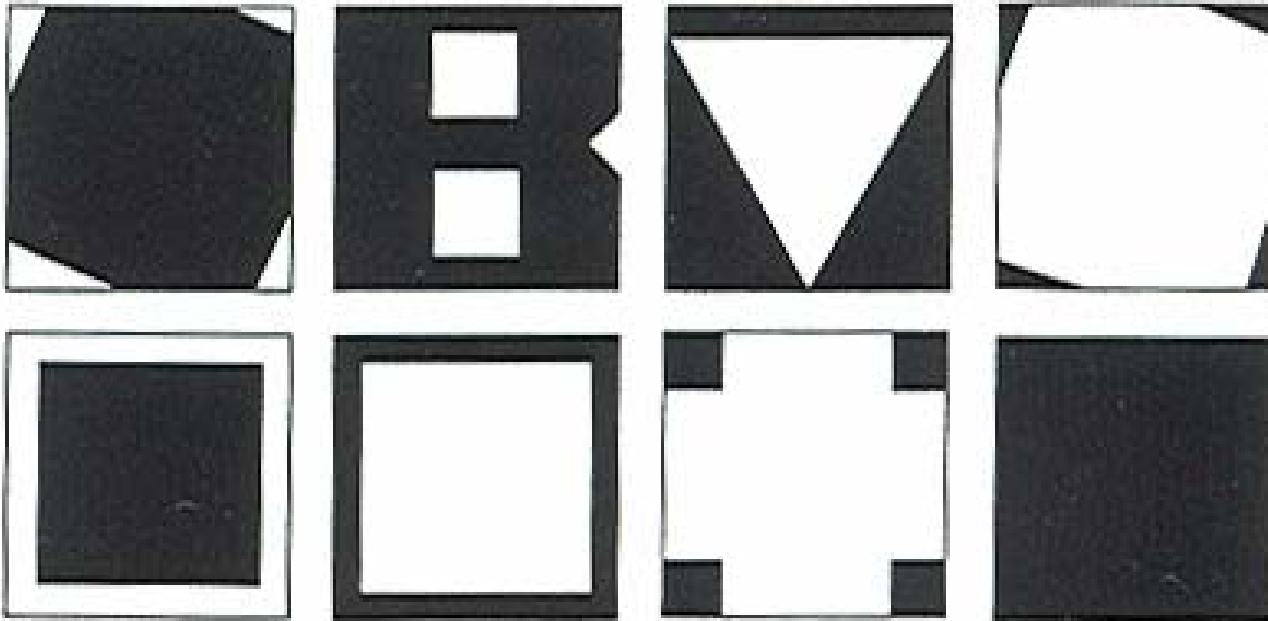


TENSION



and these?

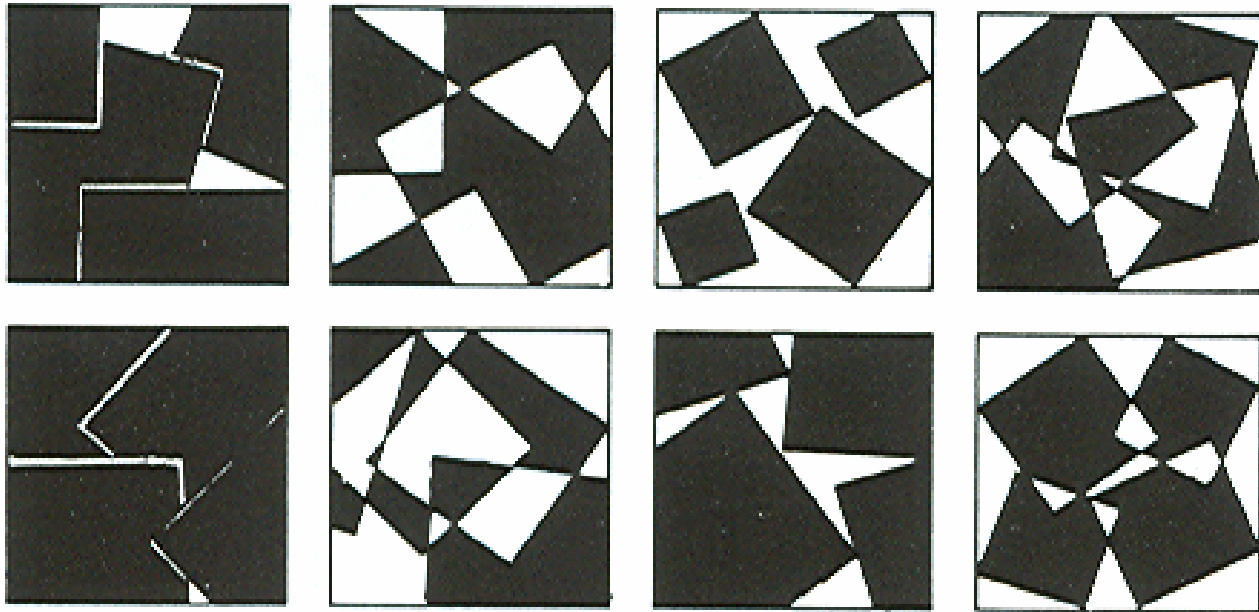


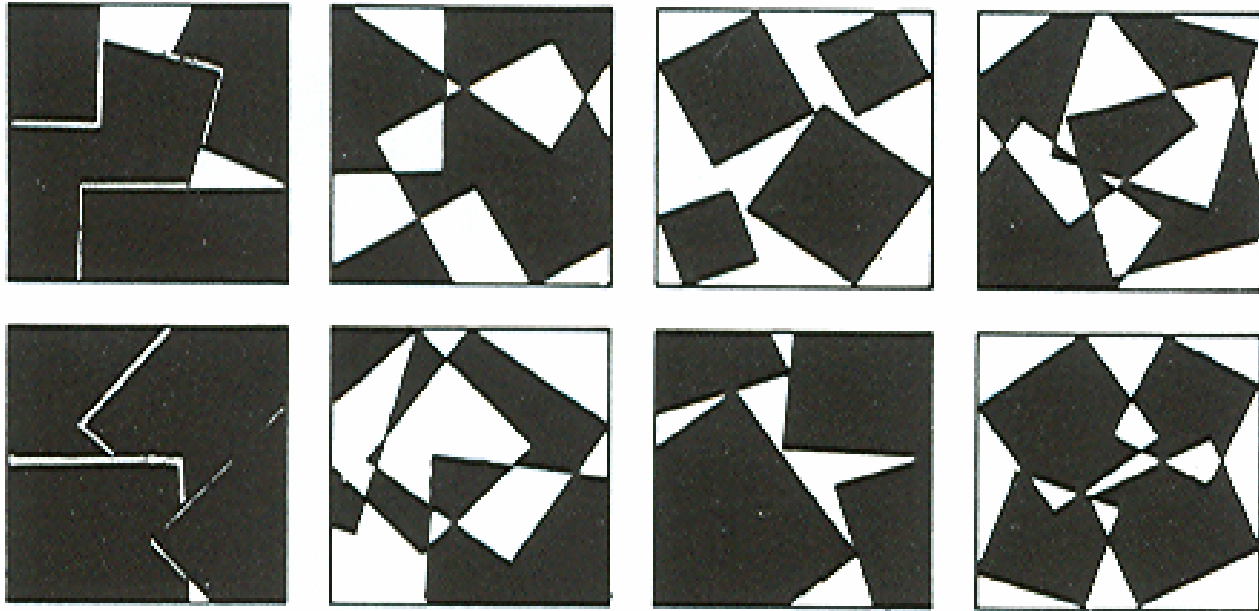


**BOLD**



and these?





CONGESTED



# Introduction to Design Lecture

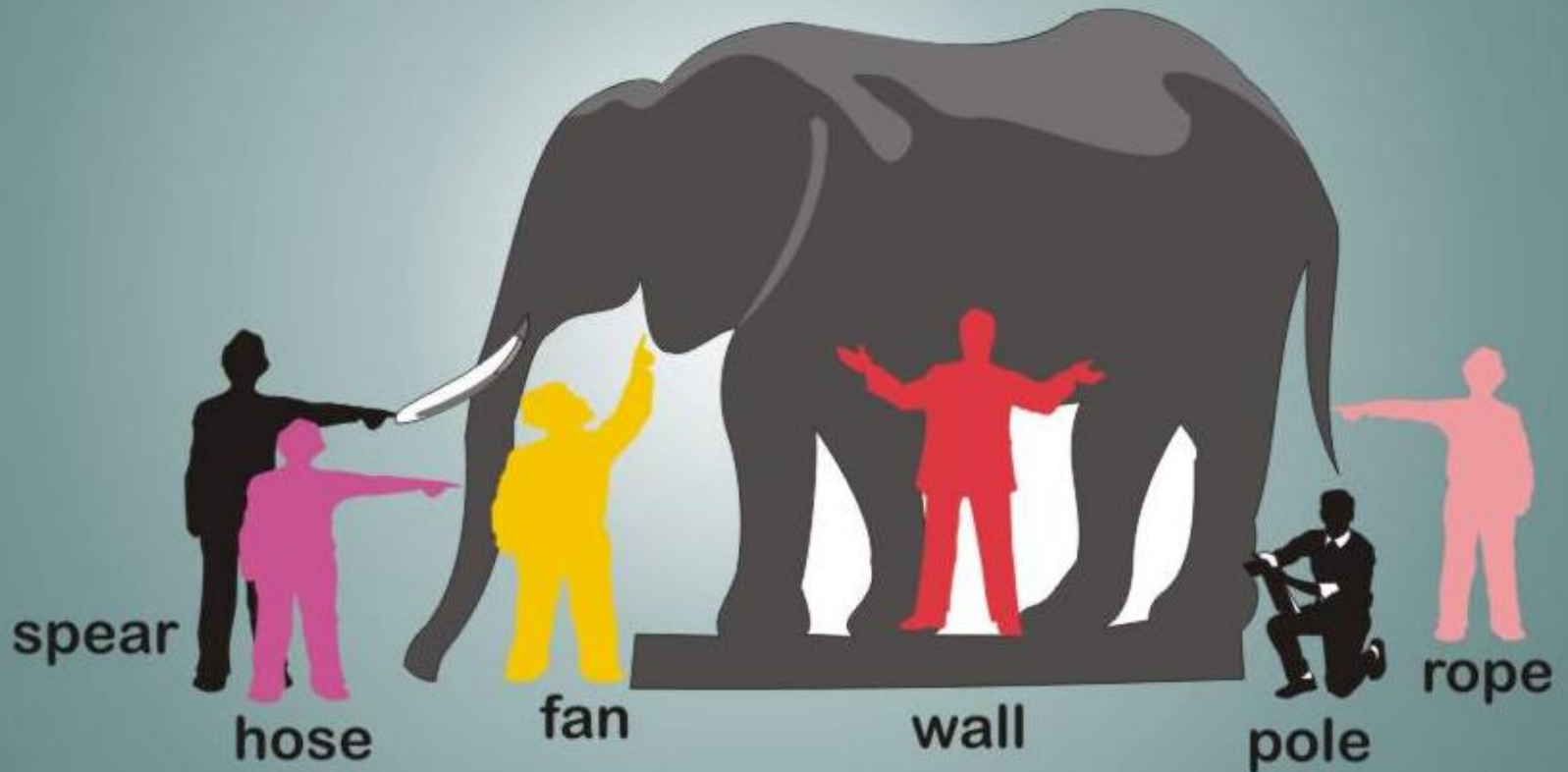


Grey is every theory and eternally green is the golden tree of life  
-Goethe



(grain of salt)

# THE ELEPHANT METAPHOR OF REALITY



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## What is Design?



Design is a plan for arranging elements in such a way as to accomplish a particular **purpose**.

-Charles Eames



## Architectural Design





## Design is like Beauty



Beauty- the adjustment of all parts proportionately so that one cannot add, subtract or change them without impairing the harmony of the whole.

-Leon Battista Alberti



Soooo... is design like art, then?

Absolutely Not!





Absolutely Not!

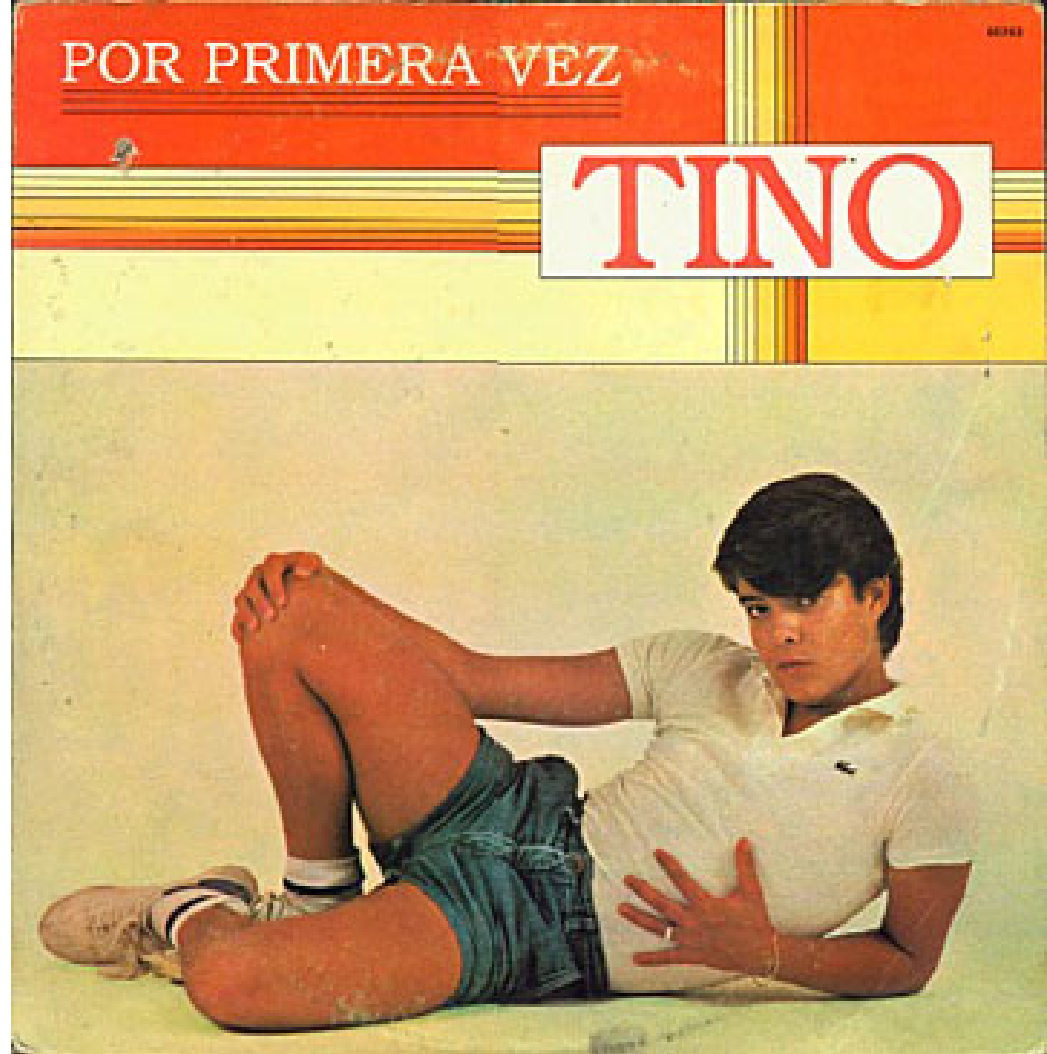
Art is whatever the artist says it is, with or without purpose or beauty...





Absolutely Not!

Art is whatever the artist says it is, with or without purpose or beauty... and since we're all artists, art can be anything.





Soooo... art is, um, crap?

Absolutely Not!

Art is not what you see, but  
what you make other's see.  
-Edgar Degas

But this is by William Blake →



Blake was a sloppy designer with awkward compositions and distracting choices of cropping and framing...

But he was a brilliant artist in his ability to transcribe his vision.





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But he was a brilliant artist in his ability to transcribe his vision.

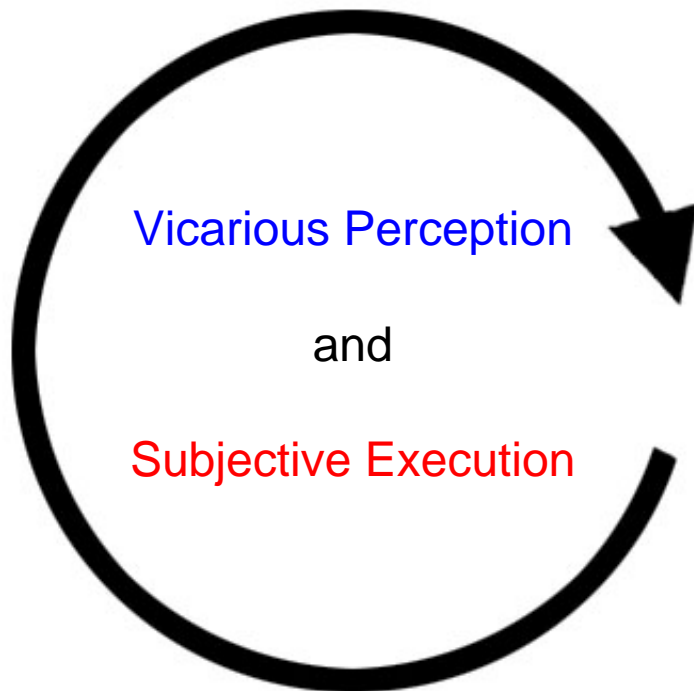




Design is 100%  
about clearly leading the  
audience toward a well-  
articulated, predetermined  
c o n c l u s i o n .



## Design is a Cyclical Process of



On one hand you must understand how other people will See, Interpret, Use and Understand the message of a design or function of an interactive design the way you intend.

On the other hand you must focus your attention to the moment of creation. You must not be distracted by the uncertainty as to how others will perceive your work. Concentrate...

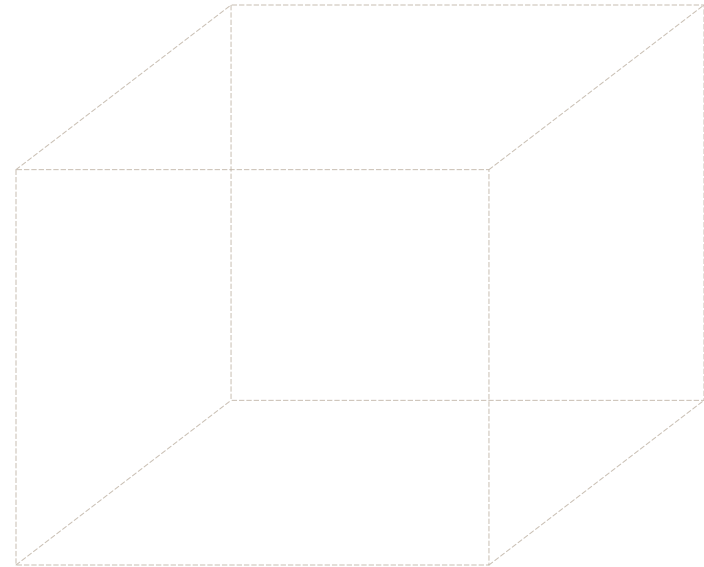
## How does Design Work?

Design purposefully manipulates the guest through his/her:

- Visual Intelligence
  - Gestalt Psychology
- Signs, Appropriation of Meanings
  - Indexical
  - Symbolic
  - Iconic
- Expectations
  - Past experience
- Maslow's Hierarchy of Needs
  - Fear
  - Pain
  - Desire

## What is Visual Intelligence?

The application of knowledge and experience of the physical world to abstracted phenomena to derive meaning- usually in accordance to established norms of our species.

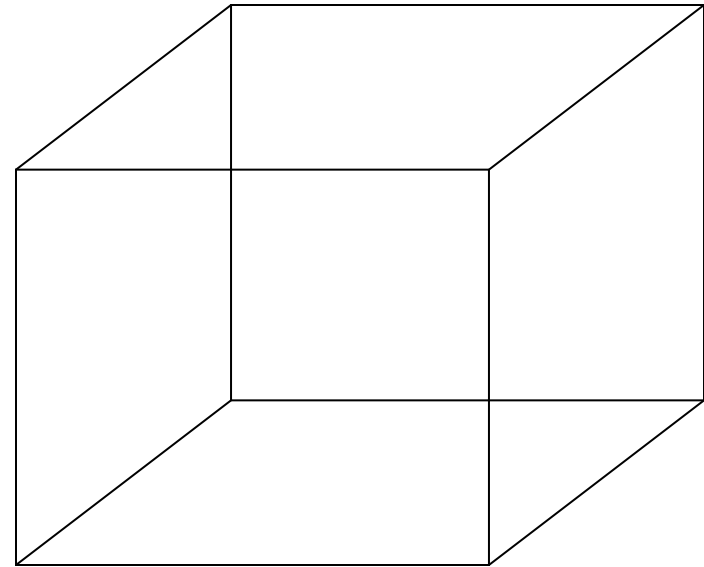


In other words...

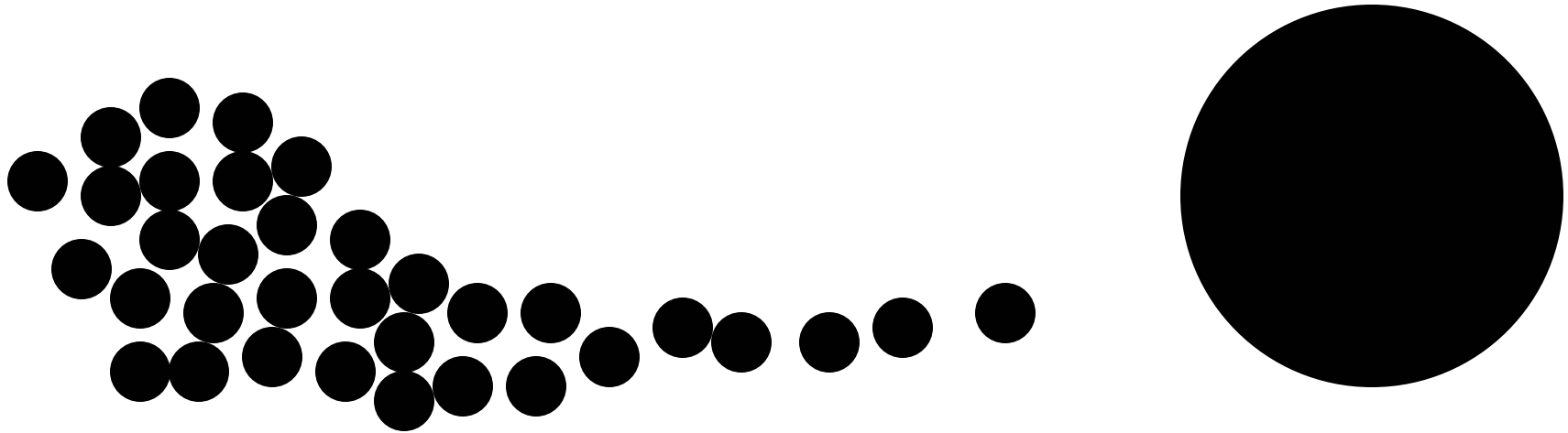
We organize pieces into patterns,

construct wholes out of parts,

and find meaning where there was none before...



## What is a Gestalt?

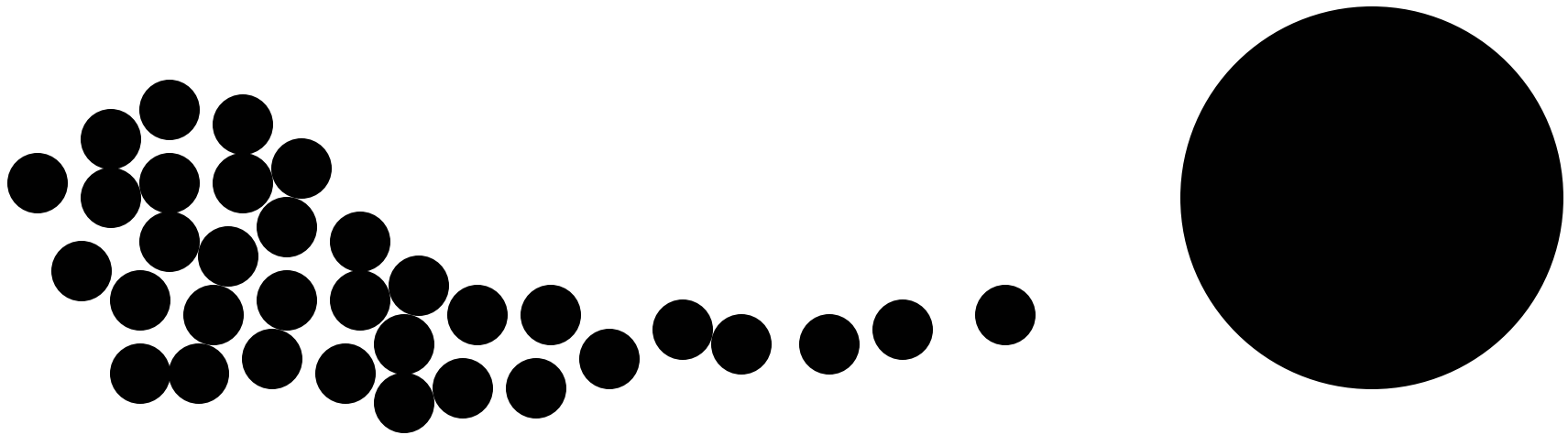


'Gestalt' means 'pattern' in German.

A gestalt is a configuration, pattern, or organized field having specific properties that cannot be derived from the summation of its component parts.

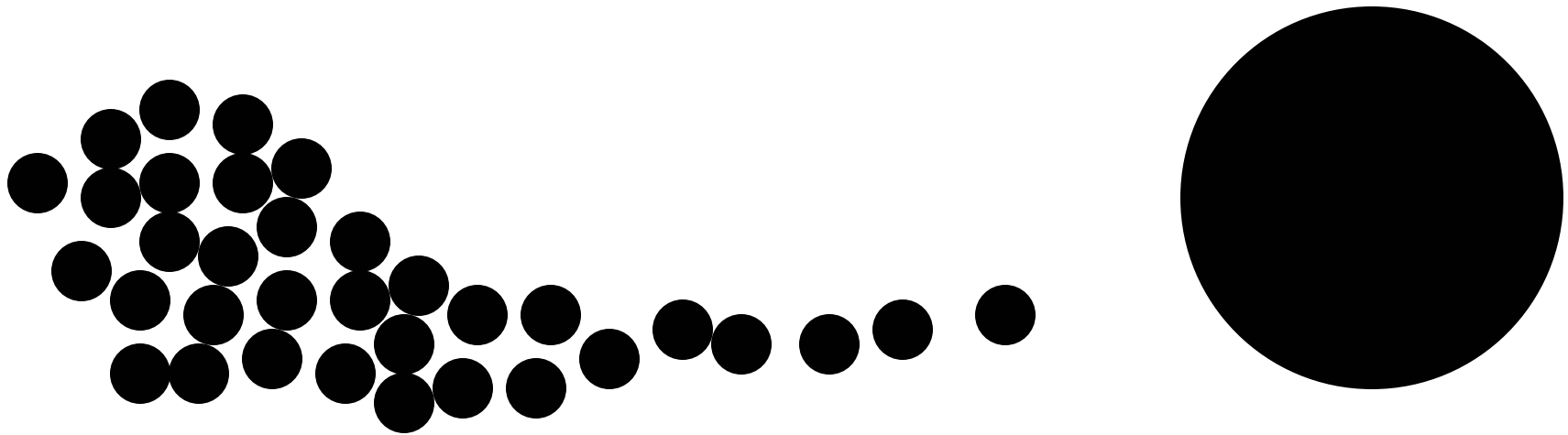
A gestalt is a unified whole.

## What is Gestalt Psychology?



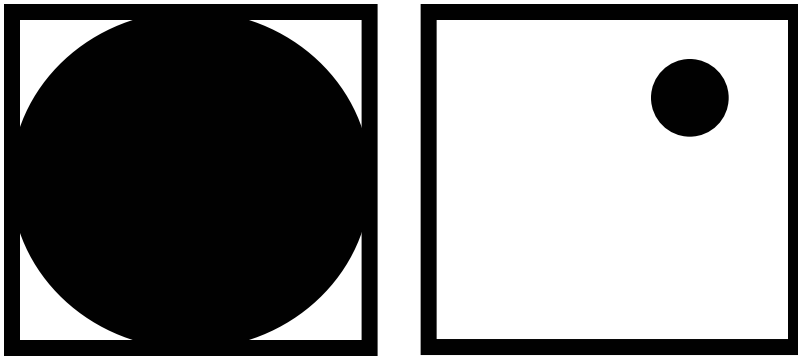
Gestalt Psychology is the theory or doctrine that physiological or psychological phenomena do not occur through the summation of individual elements, as reflexes or sensations, but through gestalts functioning separately or interrelatedly.

## What is Gestalt Psychology?



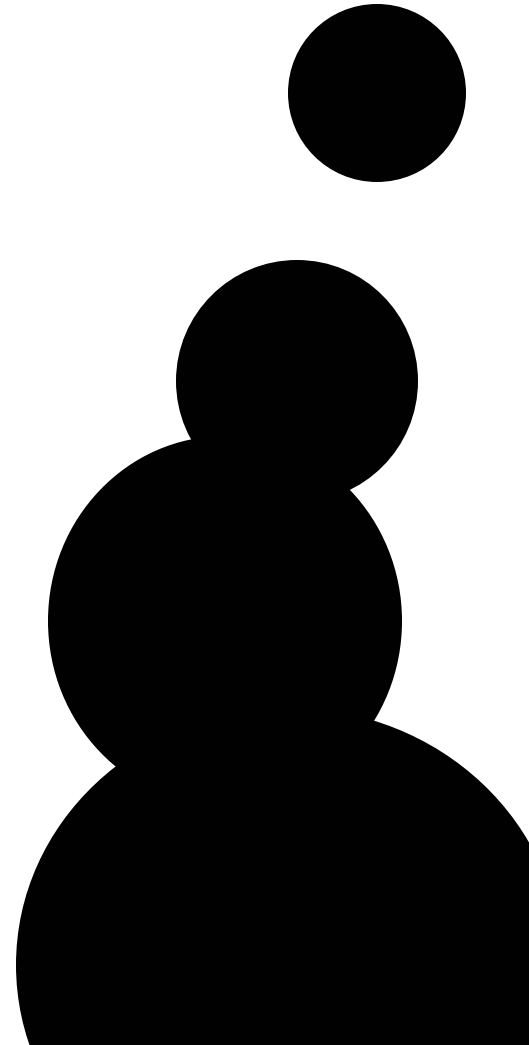
What is your gestalt of the images above? What is the meaning beyond random circles?

## What is Gestalt Psychology?



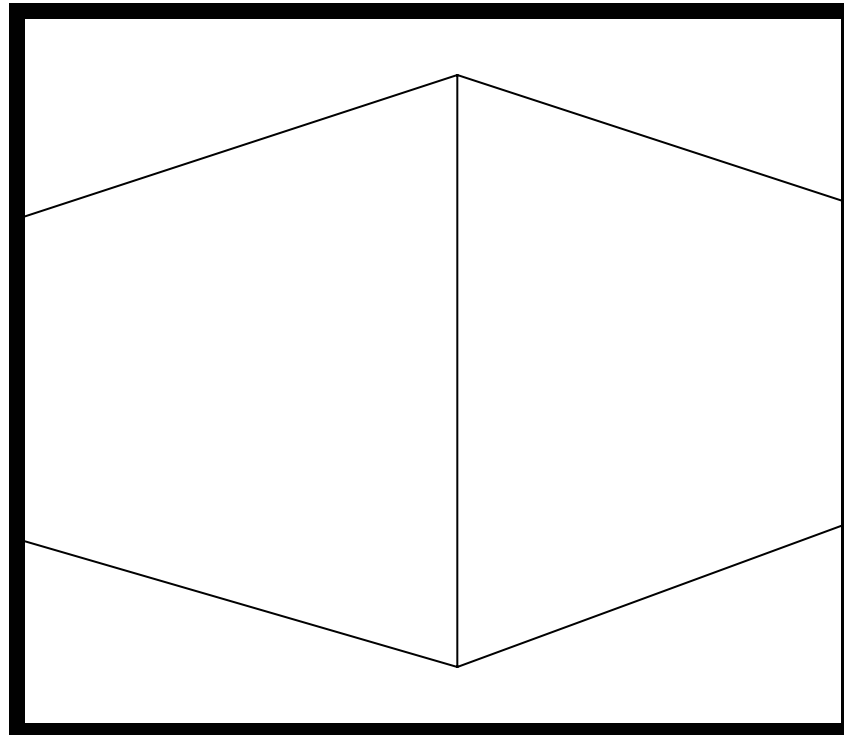
Although we may not be aware of it consciously, because we tend to relate what we see to our own bodily reactions to situations in space, shapes appear to fall or be pulled by gravitational forces, appear to lean over, to fly, to move fast or slow, to be trapped or be free.

-Sausmarez



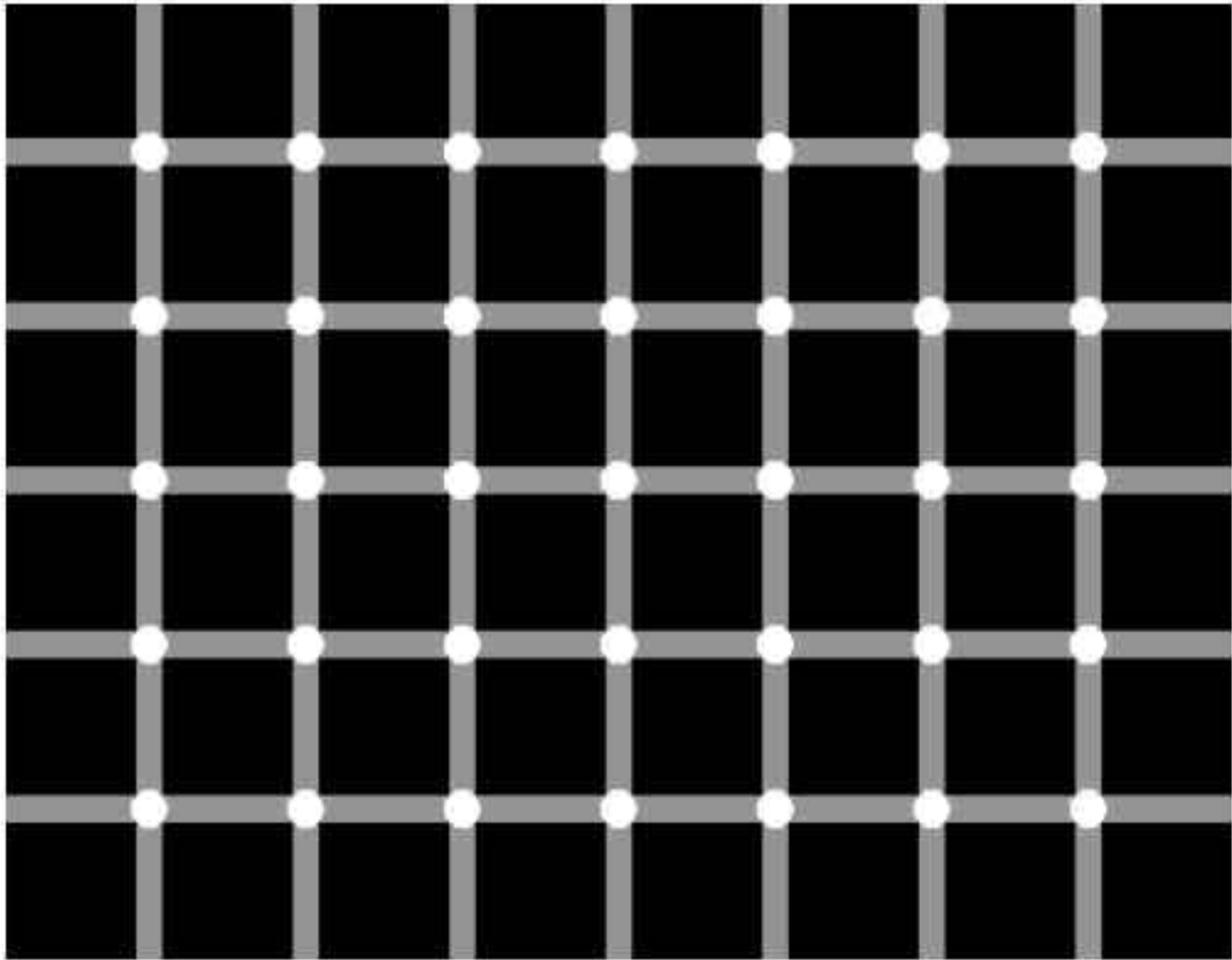
## Gestalts are Constructed from Nature and Nurture

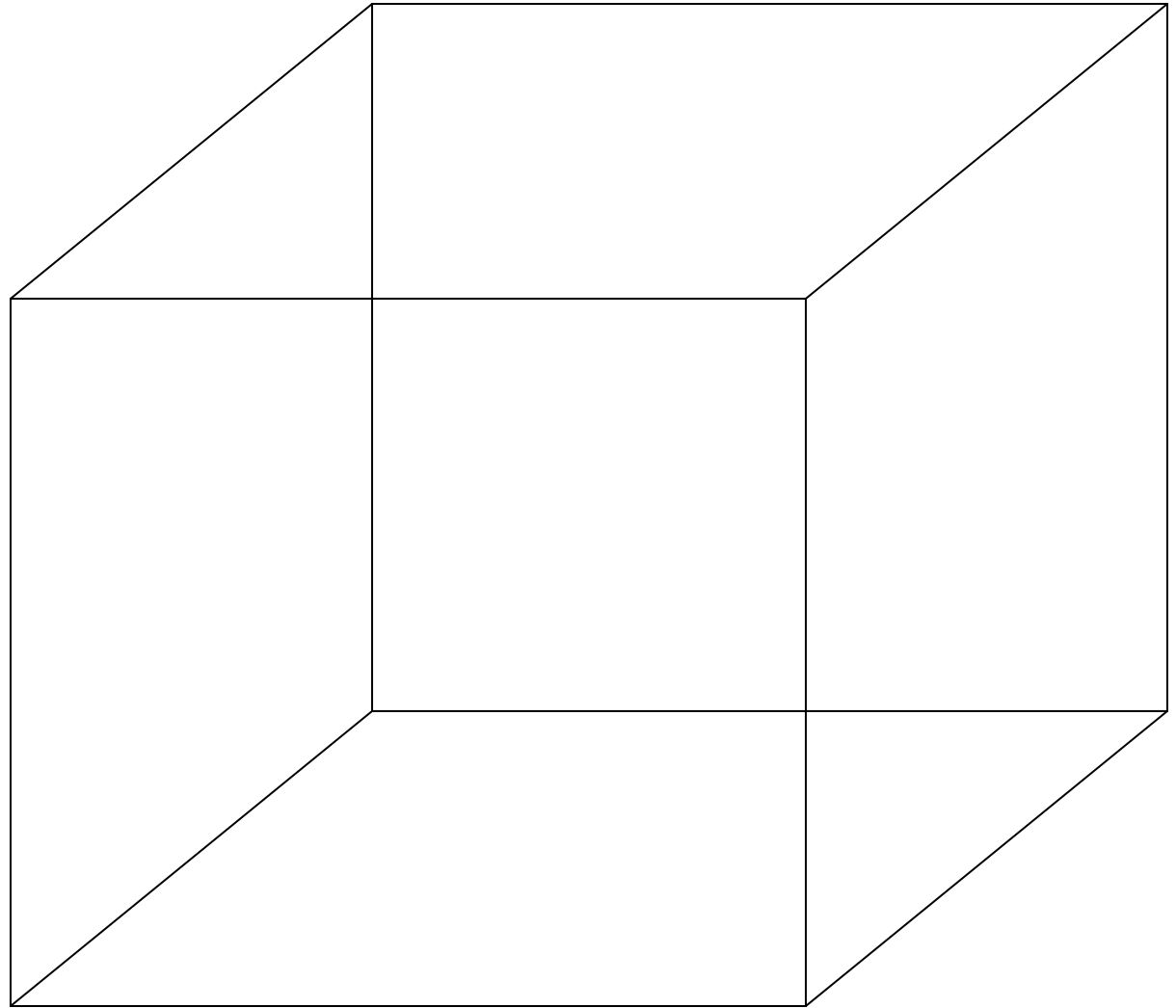
Architecture and our rectangular world has had a dramatic Influence on our Interpretation of Lines.



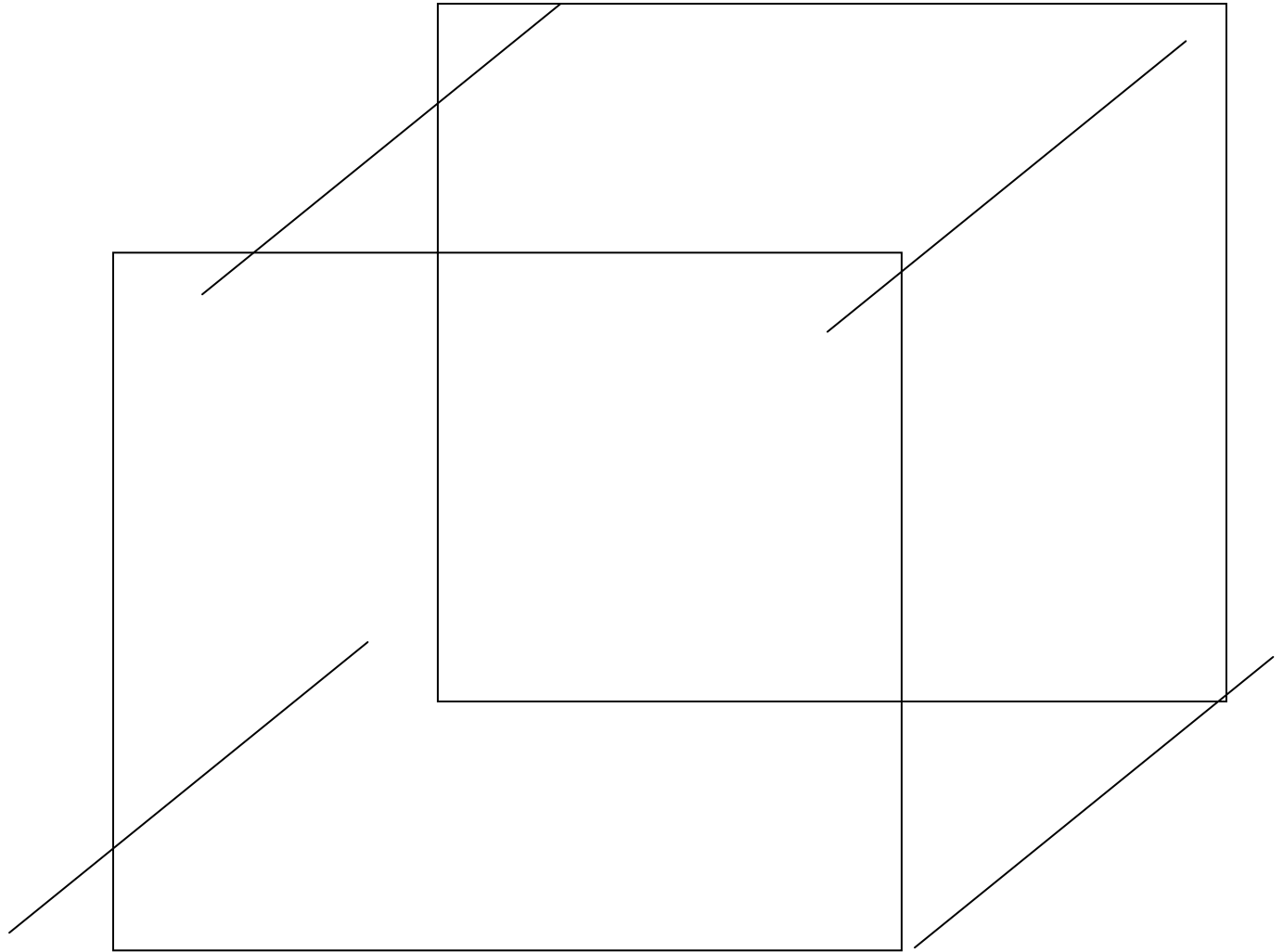
## Gestalts are Constructed from Nature and Nurture

Even more physically wired Gestalts are prevalent, such as how we tend to naturally 'fill in' lacunas...





Gestalt is also subtle...



Do you feel the quiet desire for the cube to be complete and neat?

## Some examples of Visual Gestalt

- Equivocation
- Continuance
- Closure
- Common Fate
- Constancy

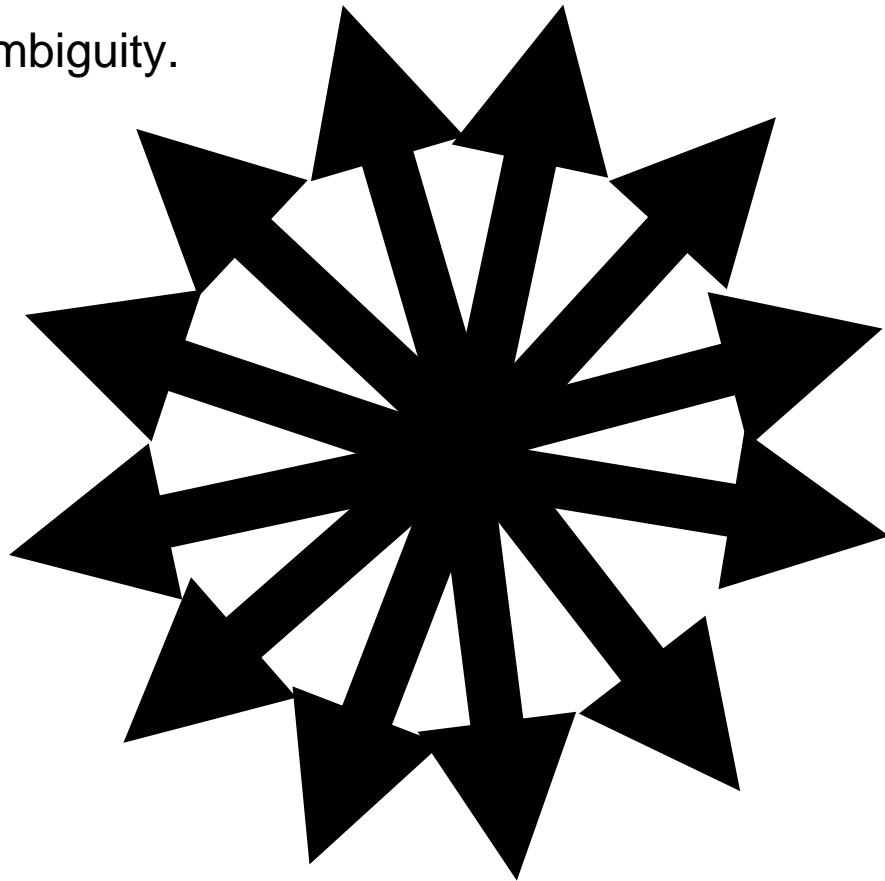


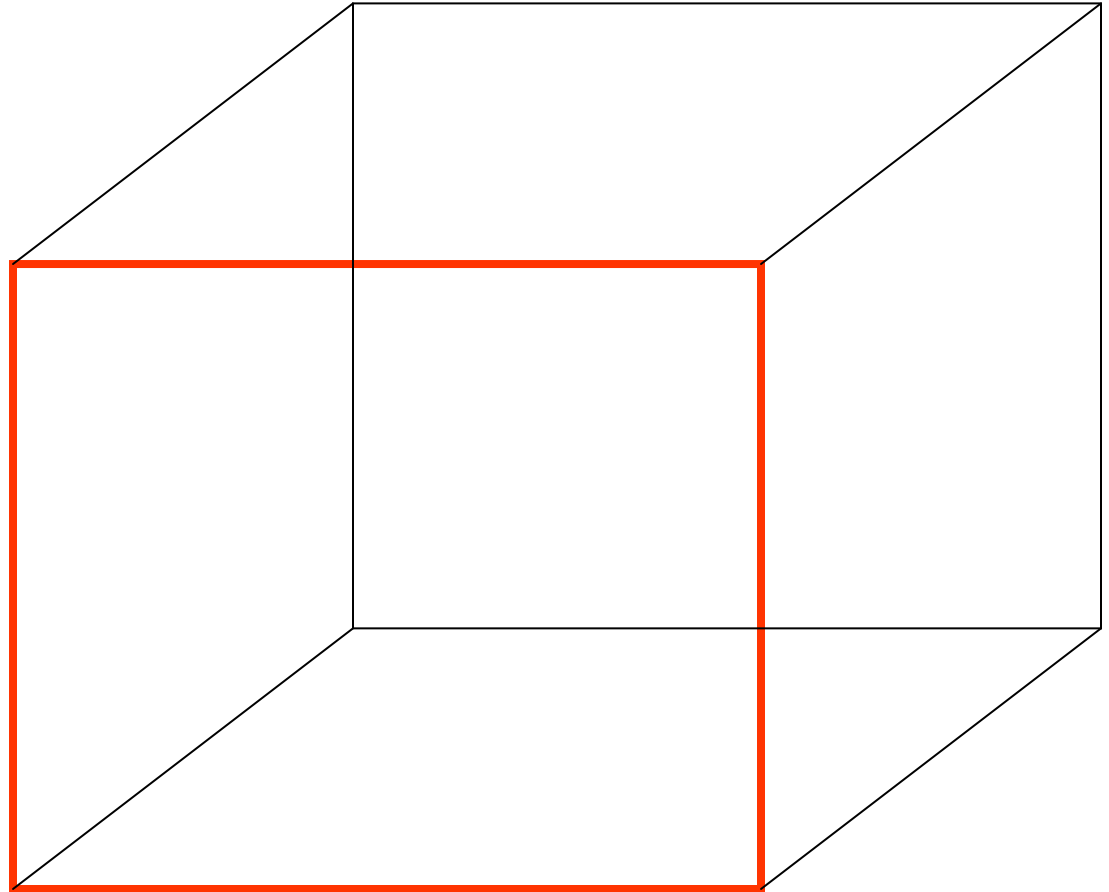
## Equivocation

Equivocation is perceptual ambiguity.

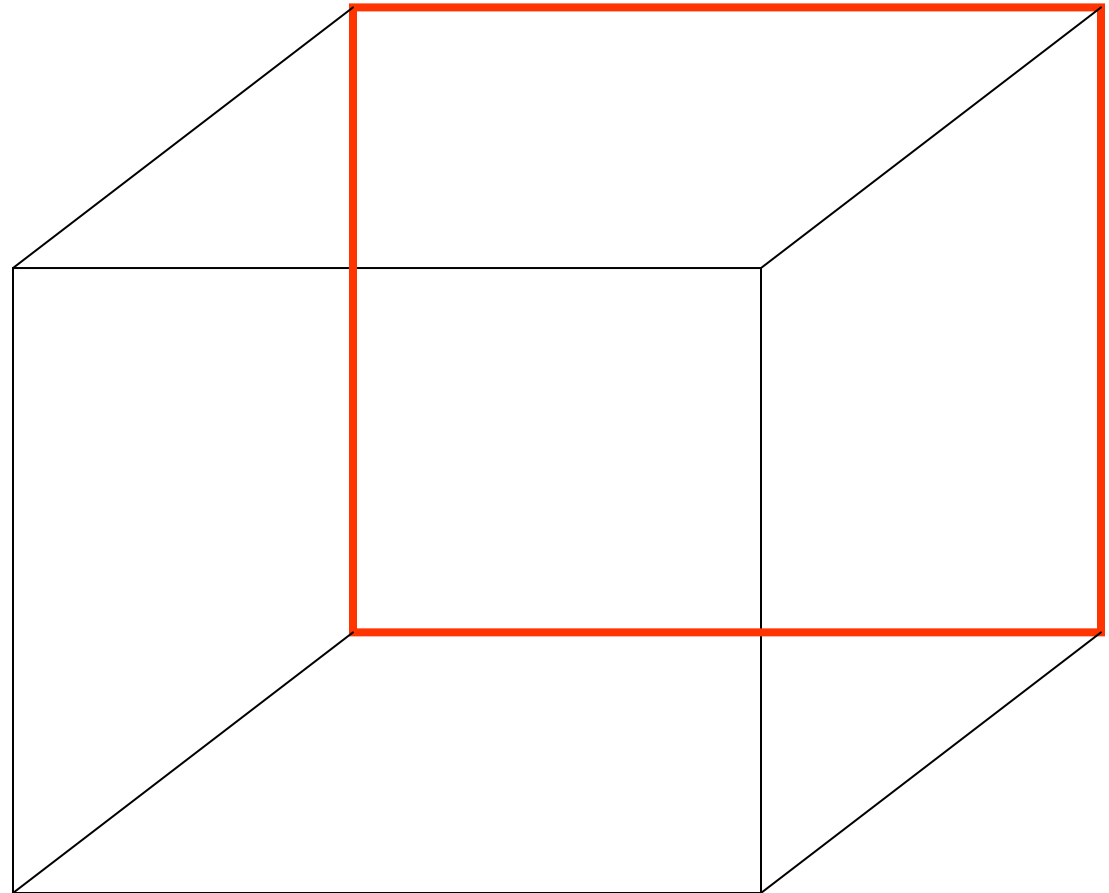
For example,  
Do you see the parts?  
(The radial of arrows)

Or the whole?  
(The spiked wheel or sun)





**Equivocation** in the Necker Cube oscillates the **closest plane** between the two planes facing the viewer.



**Equivocation** in the Necker Cube oscillates the **closest plane** between the two planes facing the viewer.

## Continuance

We tend to connect similar phenomena, psychologically constructing a timeline through them as a sequence...

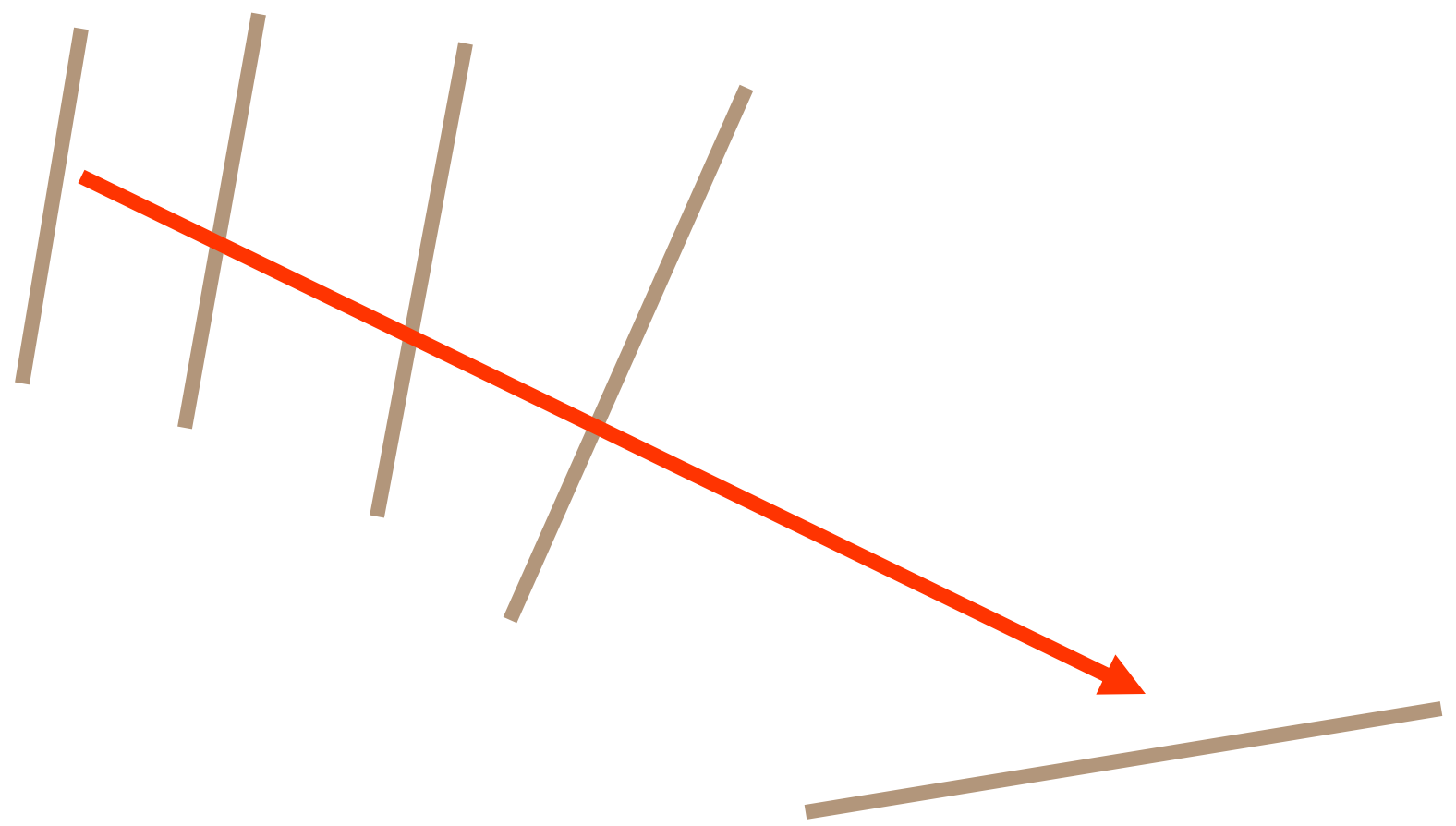


# Continuance

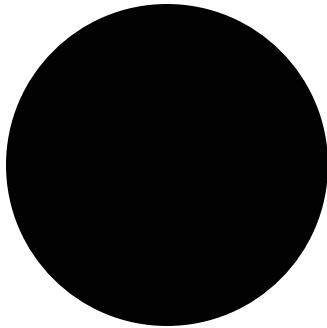




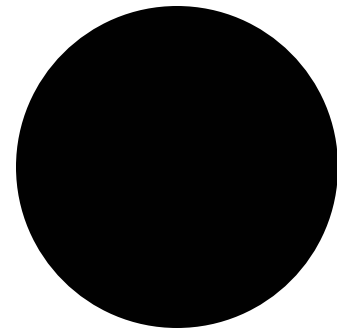
# Continuance



Continuance... Is it the same circle?



Continuance... Is it the same circle?



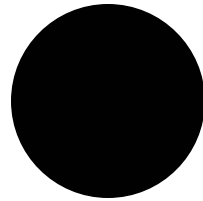
Continuance...



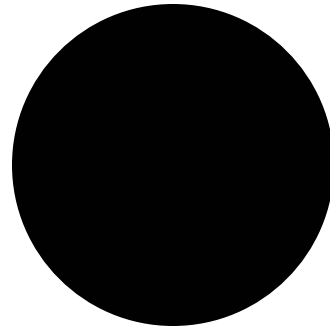
Continuance... Is that circle approaching us?



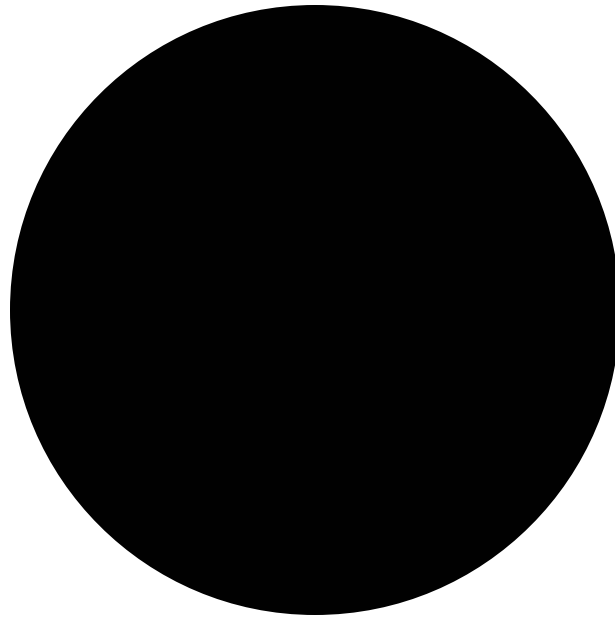
Continuance... Is that circle approaching us?



Continuance... Is that circle approaching us?

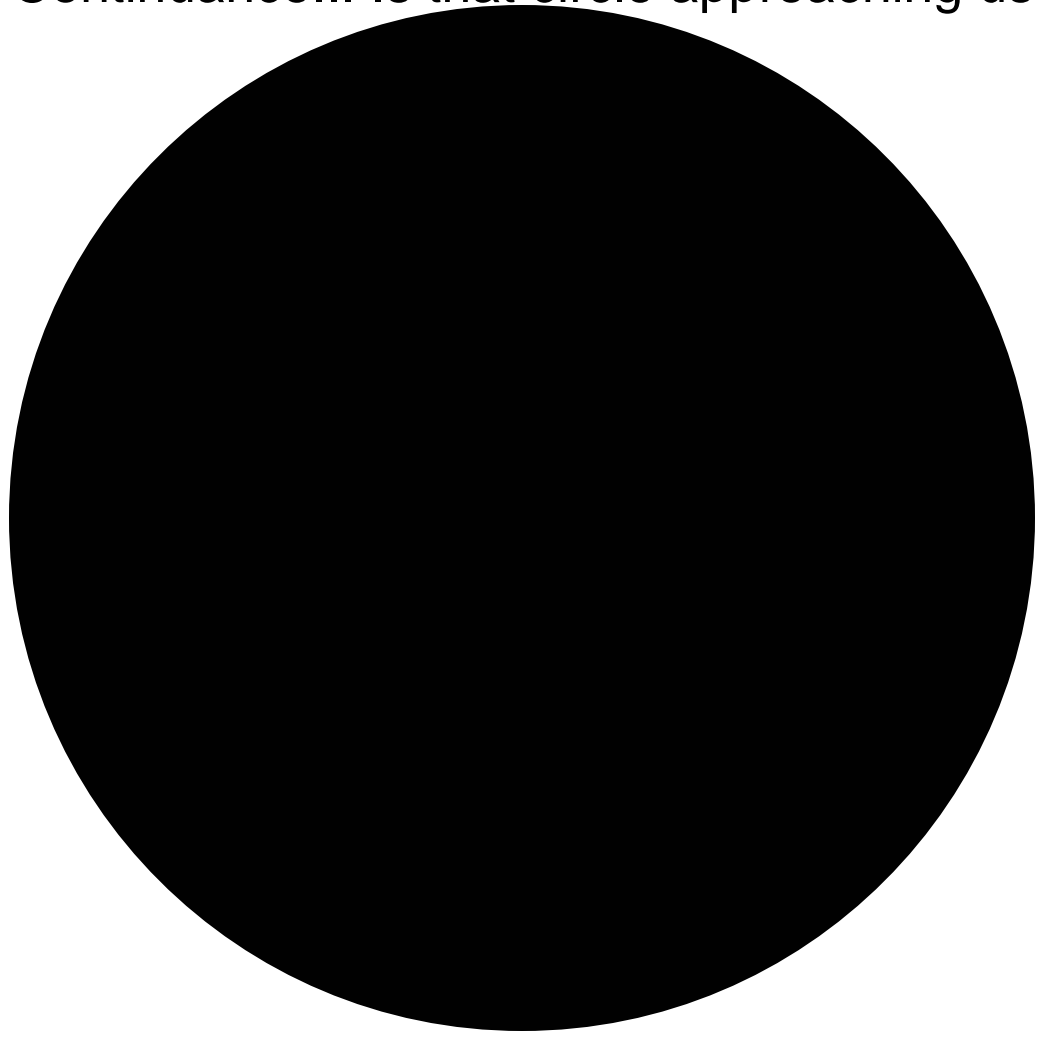


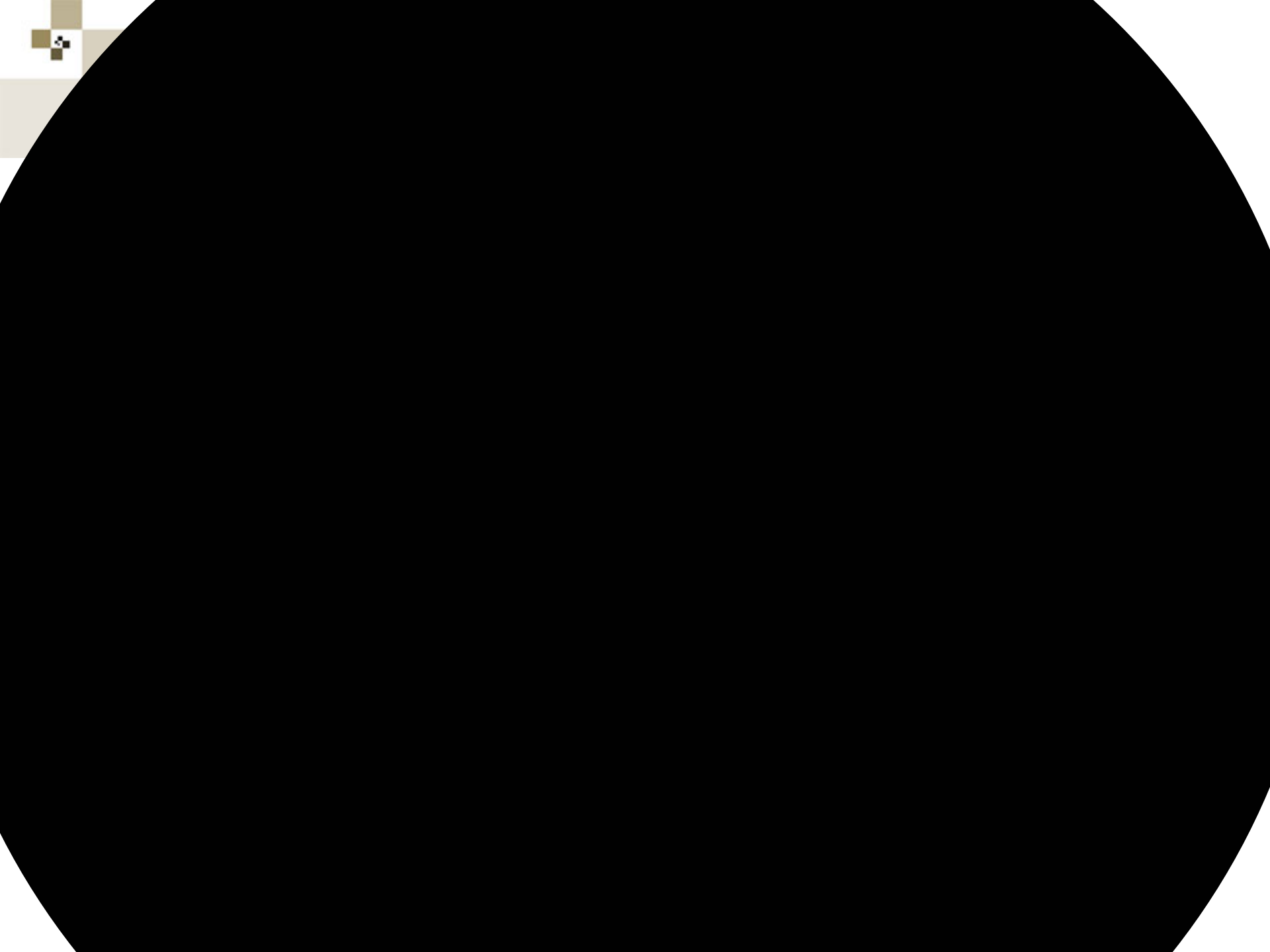
Continuance... Is that circle approaching us?





Continuance... Is that circle approaching us?

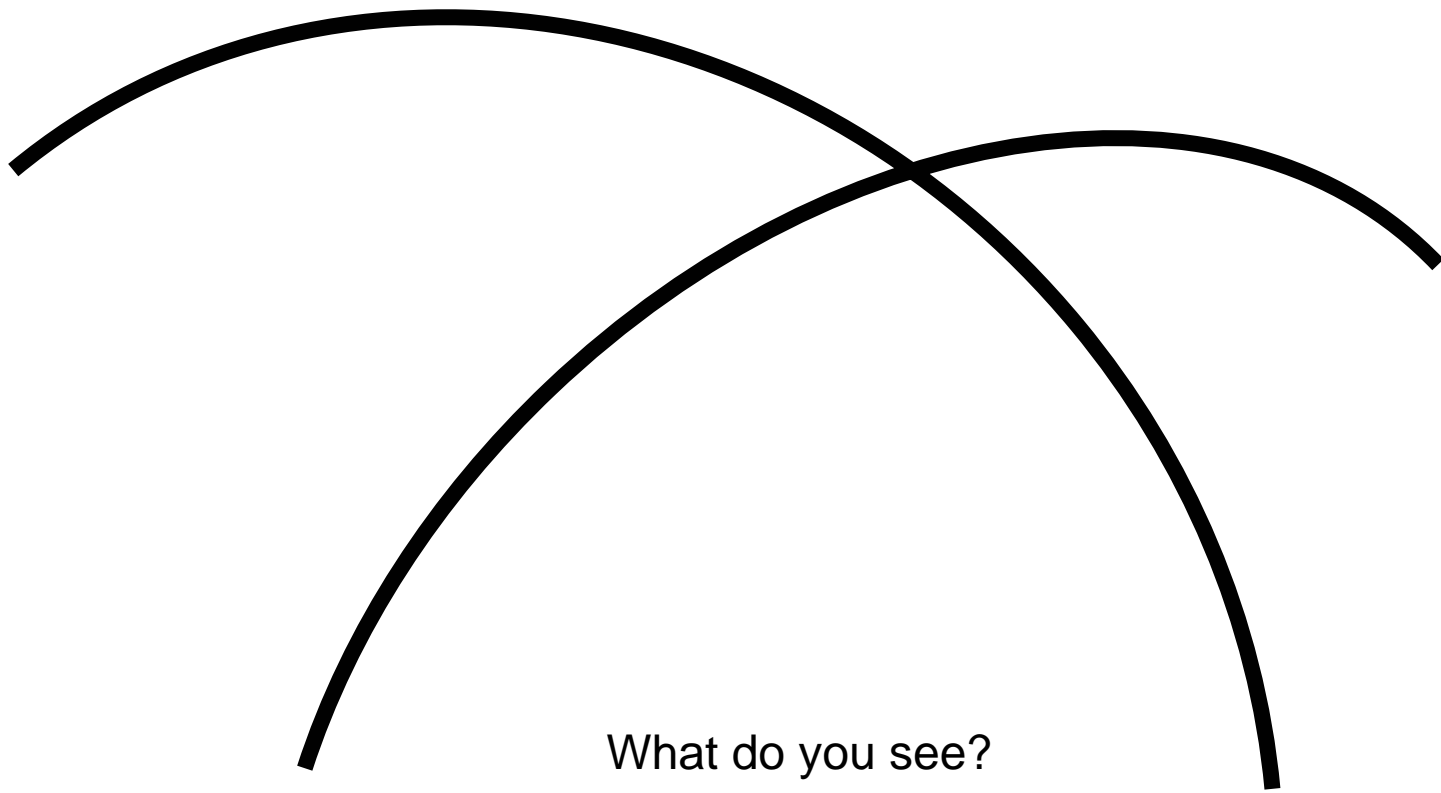






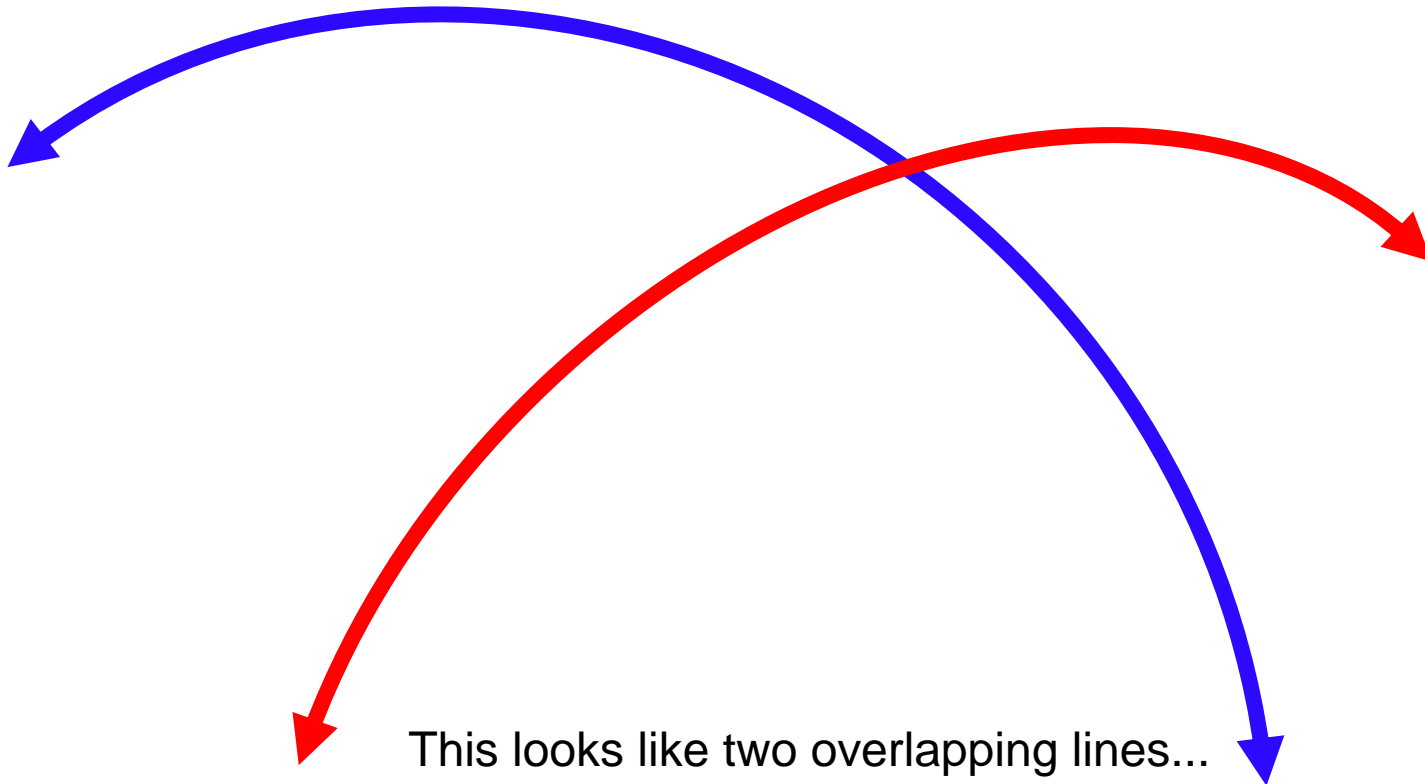


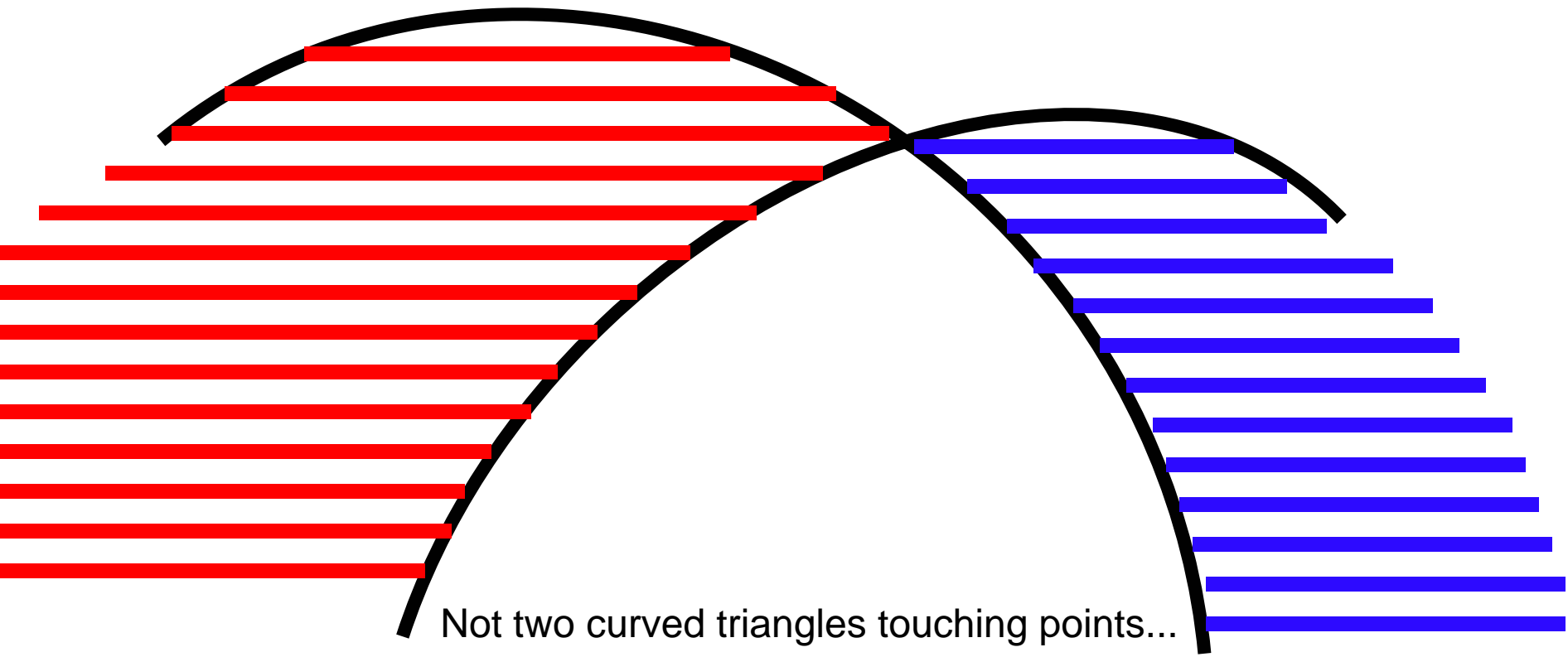
## Continuance (cont'd)



What do you see?

## Continuance of Line





Not two curved triangles touching points...

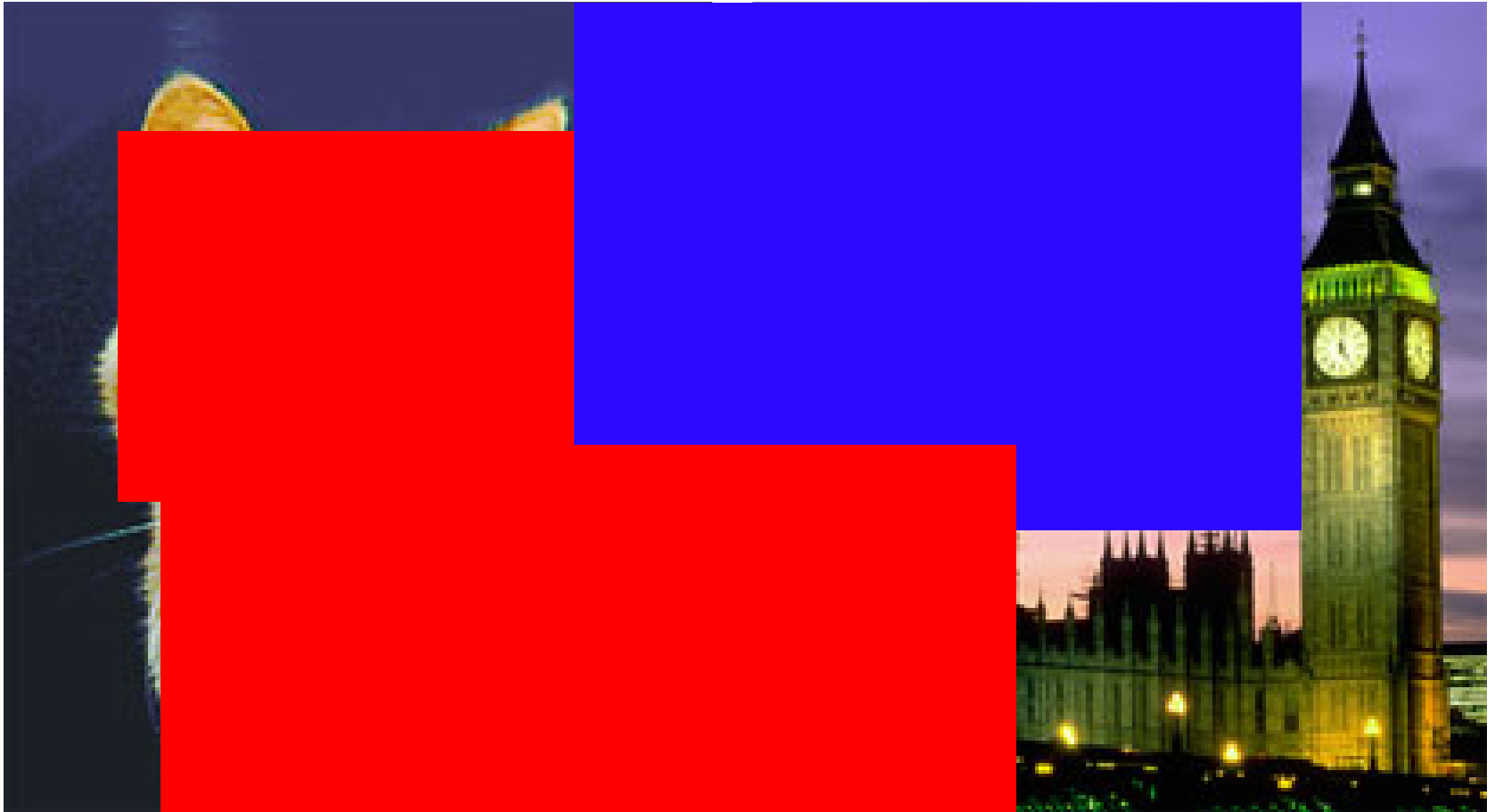


## Beware of Unintended Continuance



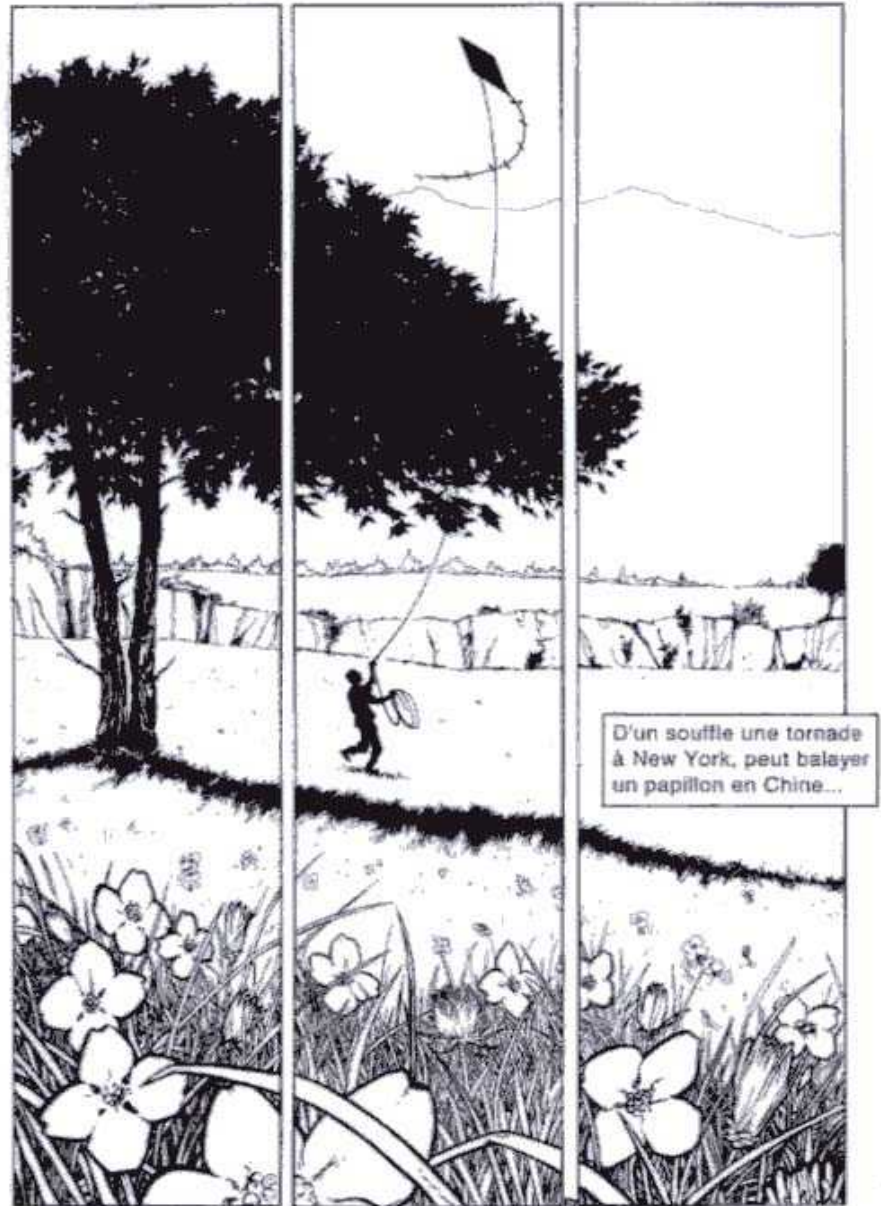


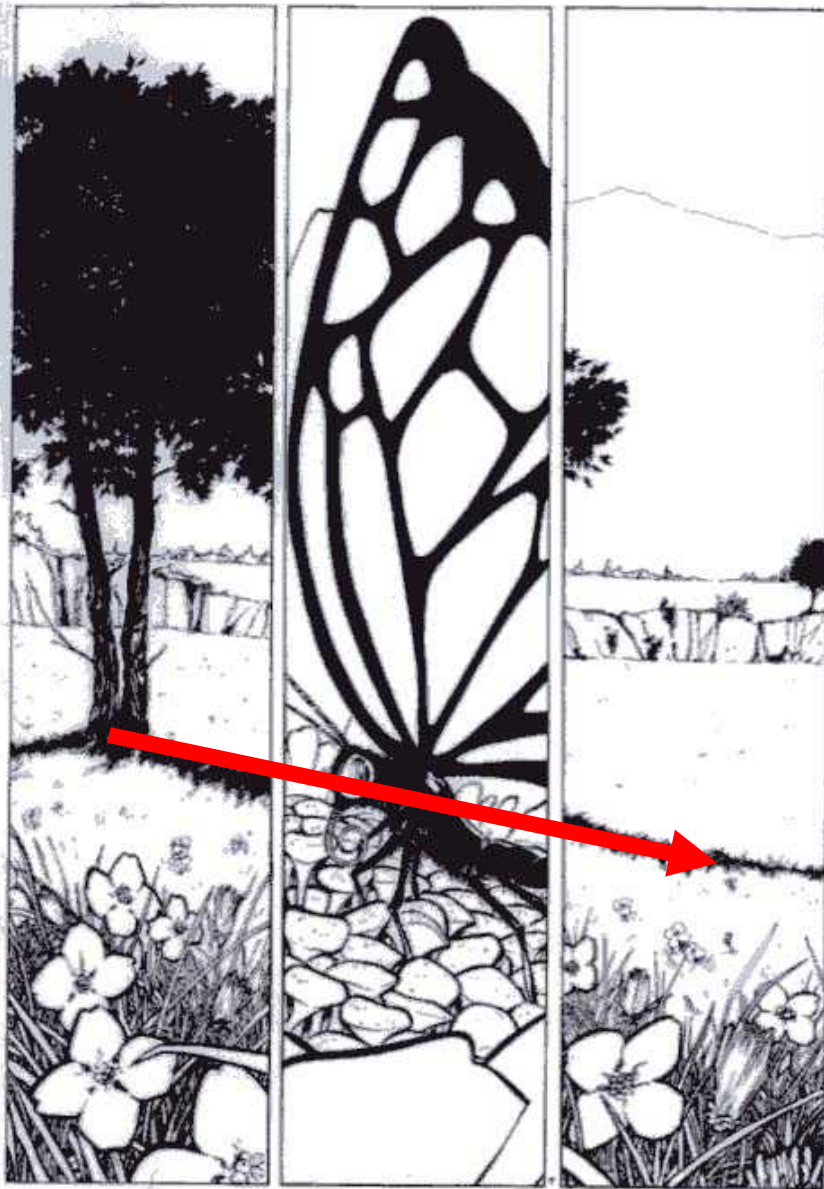
## Beware of Unintended Continuance





However, blending images through continuance can be beautiful...





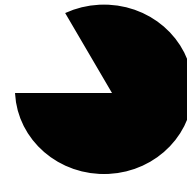
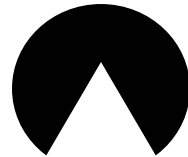
## Closure



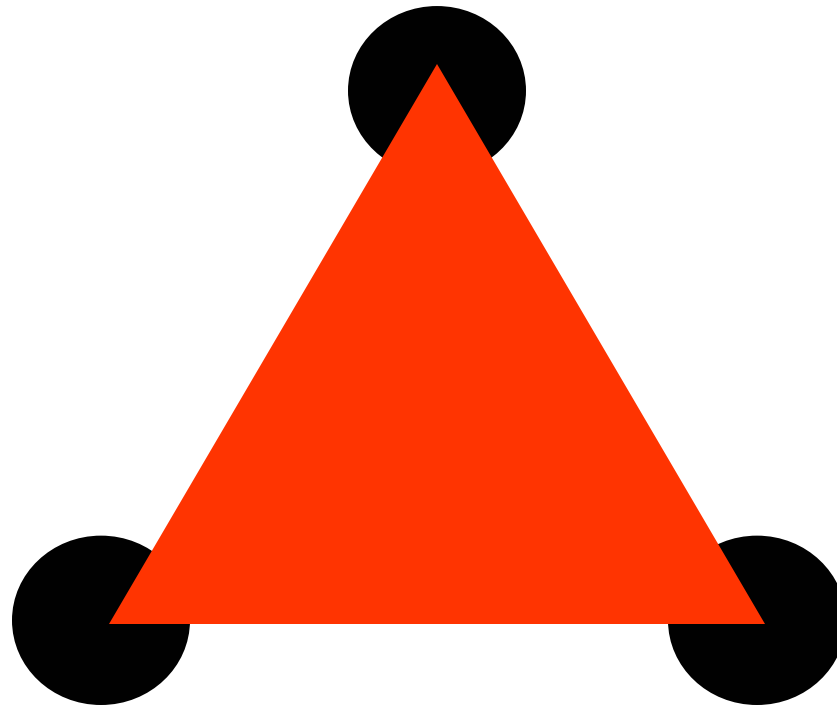
Closure is the tendency to psychologically complete an incomplete picture or element.



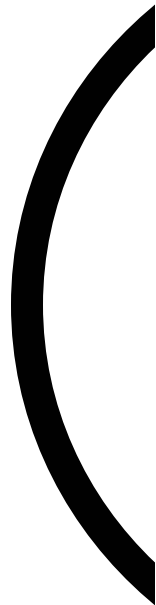
Closure is most effective with recognizable shapes and images.



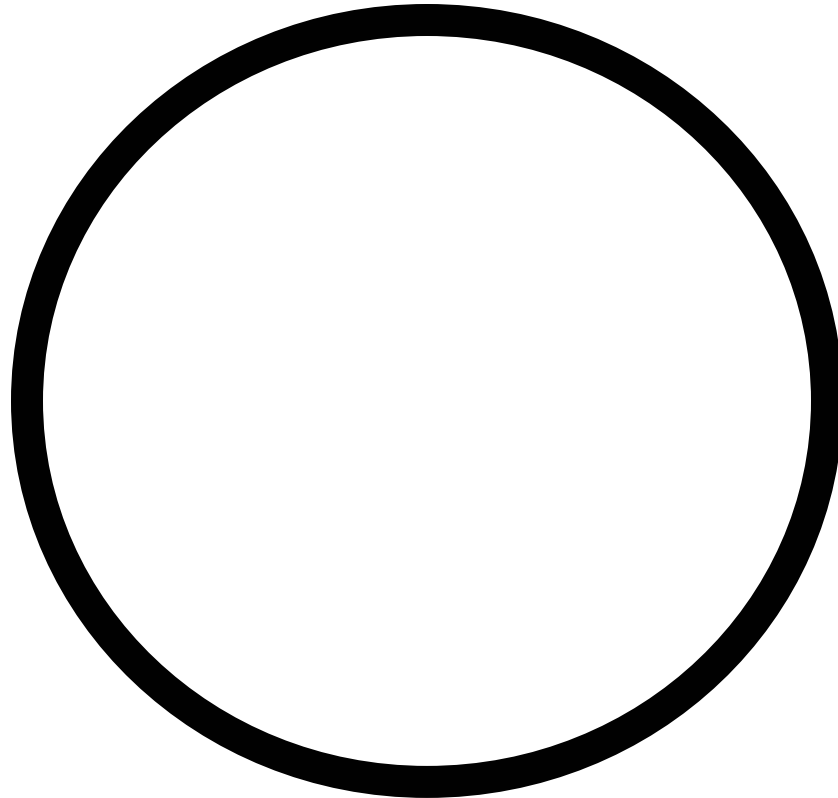
Closure is most effective with recognizable shapes and images.



Closure is most effective with recognizable shapes and images.



Closure is most effective with recognizable shapes and images.



Closure isn't foolproof. However, any guess at all is better than no guess when it comes down to survival.







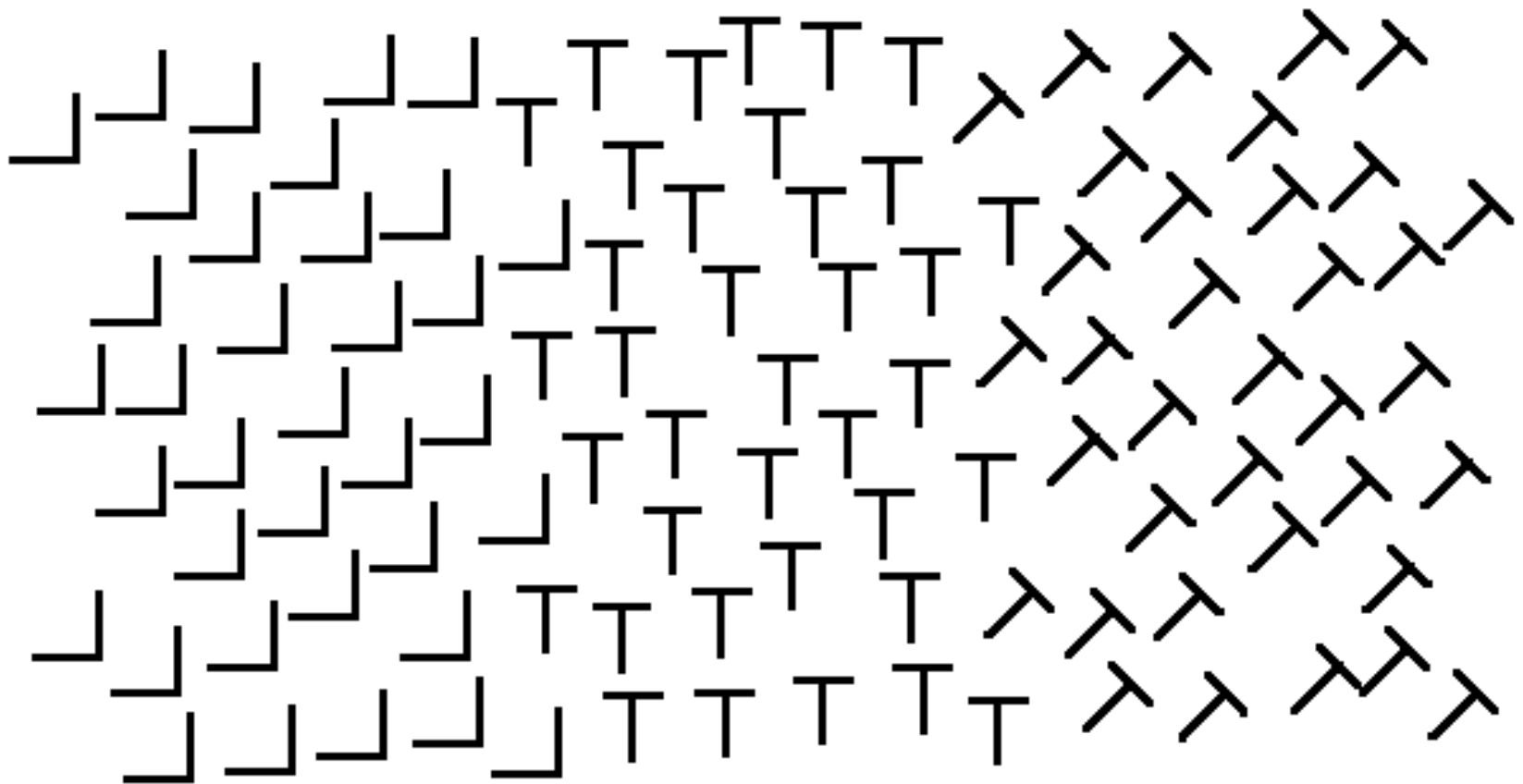
**SHINING**

## Grouping



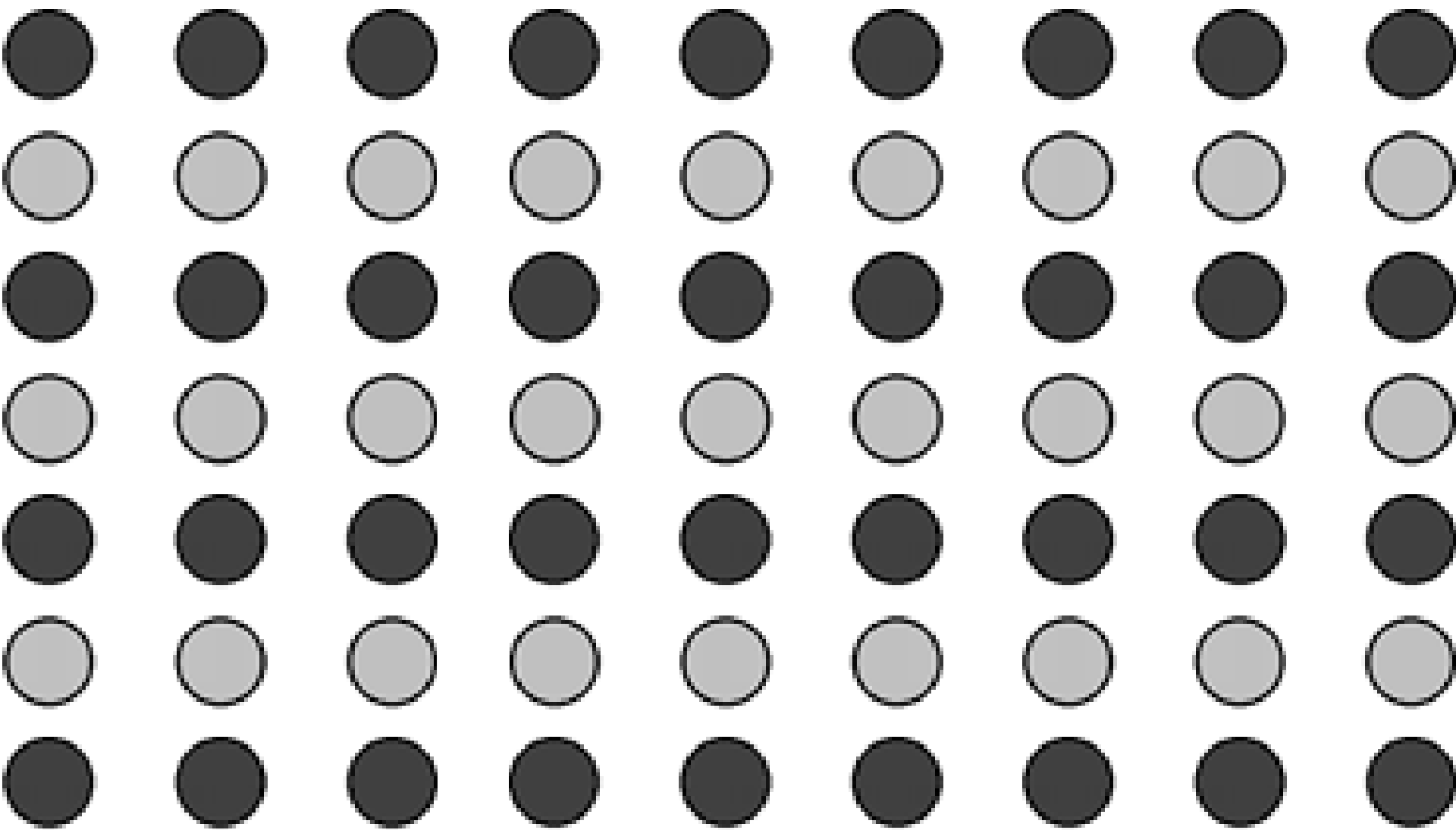
We ascribe a group relationship to elements in a visual field based on various attributes they have in common.

## Grouping through Orientation

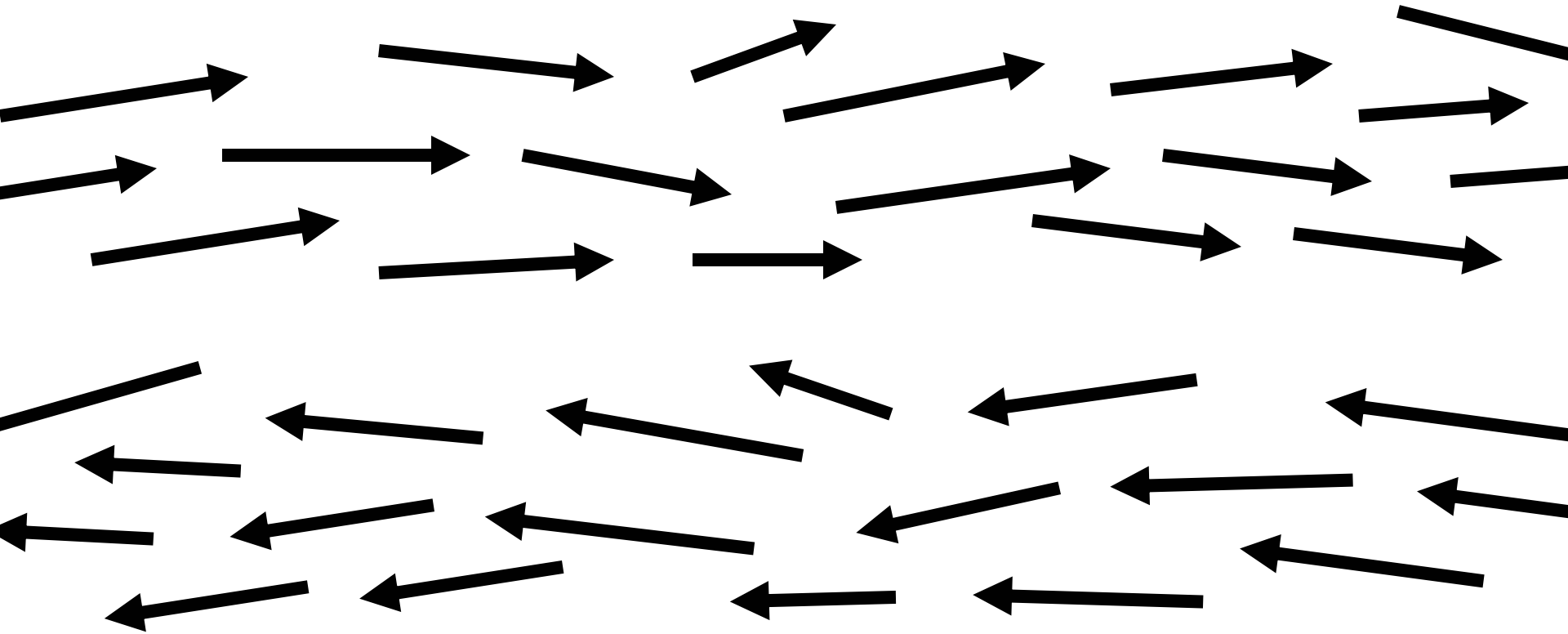




Grouping by color can outweigh alignment:



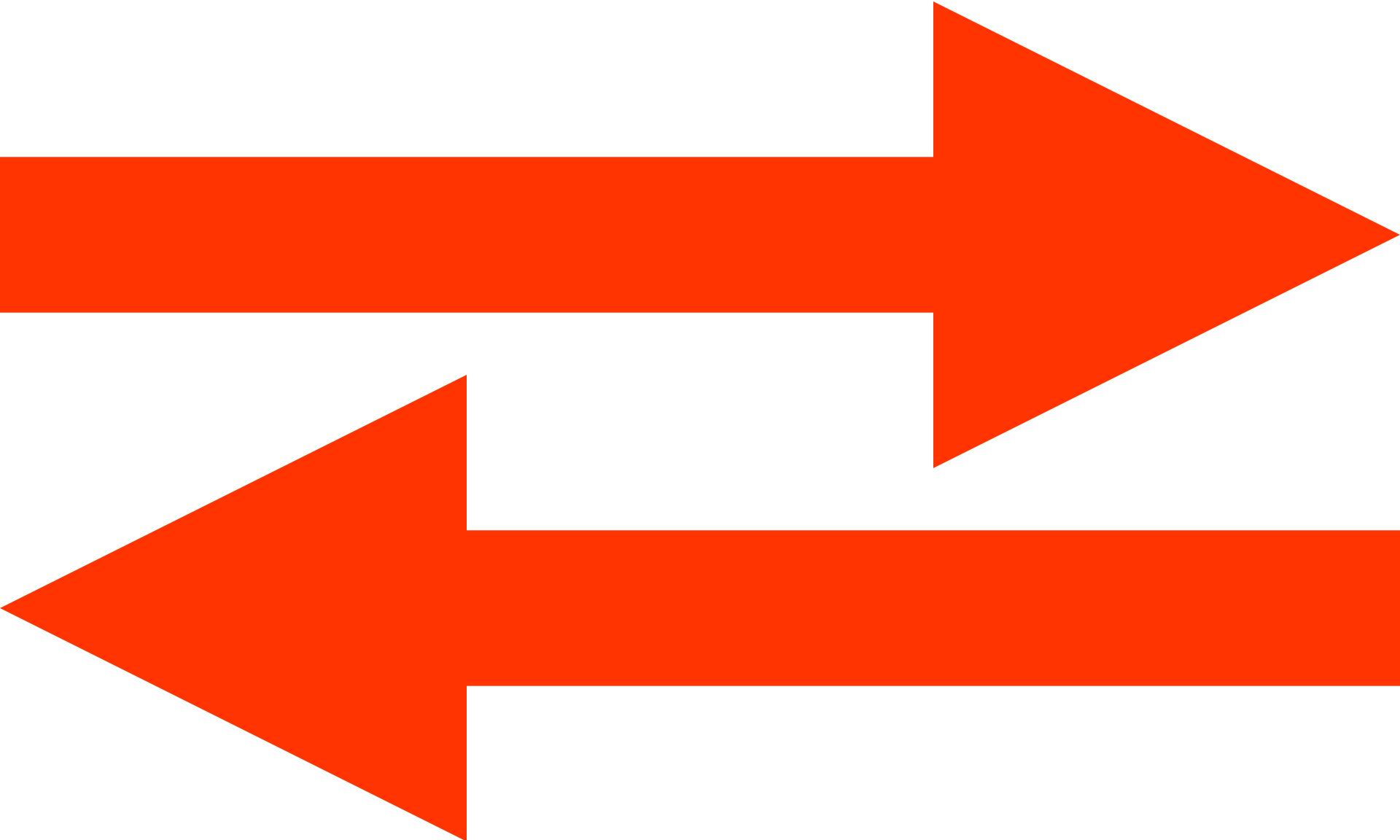
## Common Fate



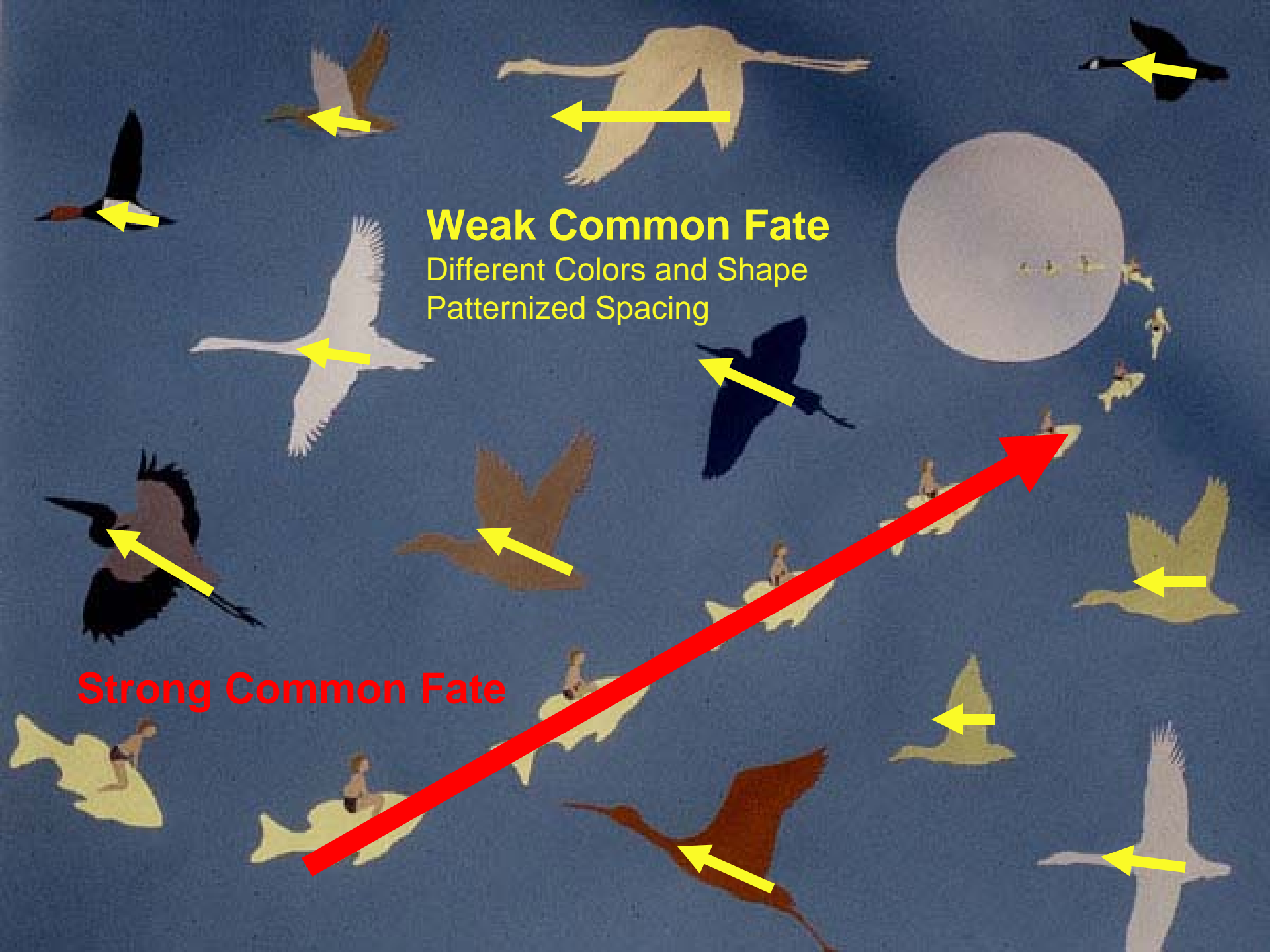
Parts of the visual field exhibiting the same motion are grouped together.



# Common Fate







**Weak Common Fate**  
Different Colors and Shape  
Patternized Spacing

**Strong Common Fate**



## Scale Constancy

A form tends to preserve its proper shape, size and color... An object is perceived correctly as to the size or intensity within a wide range of actual stimulus variations. An automobile seen at a distance of 100 yards does not appear smaller than one seen at 20 yards even though there is a greater disparity in the size of the retinal image.

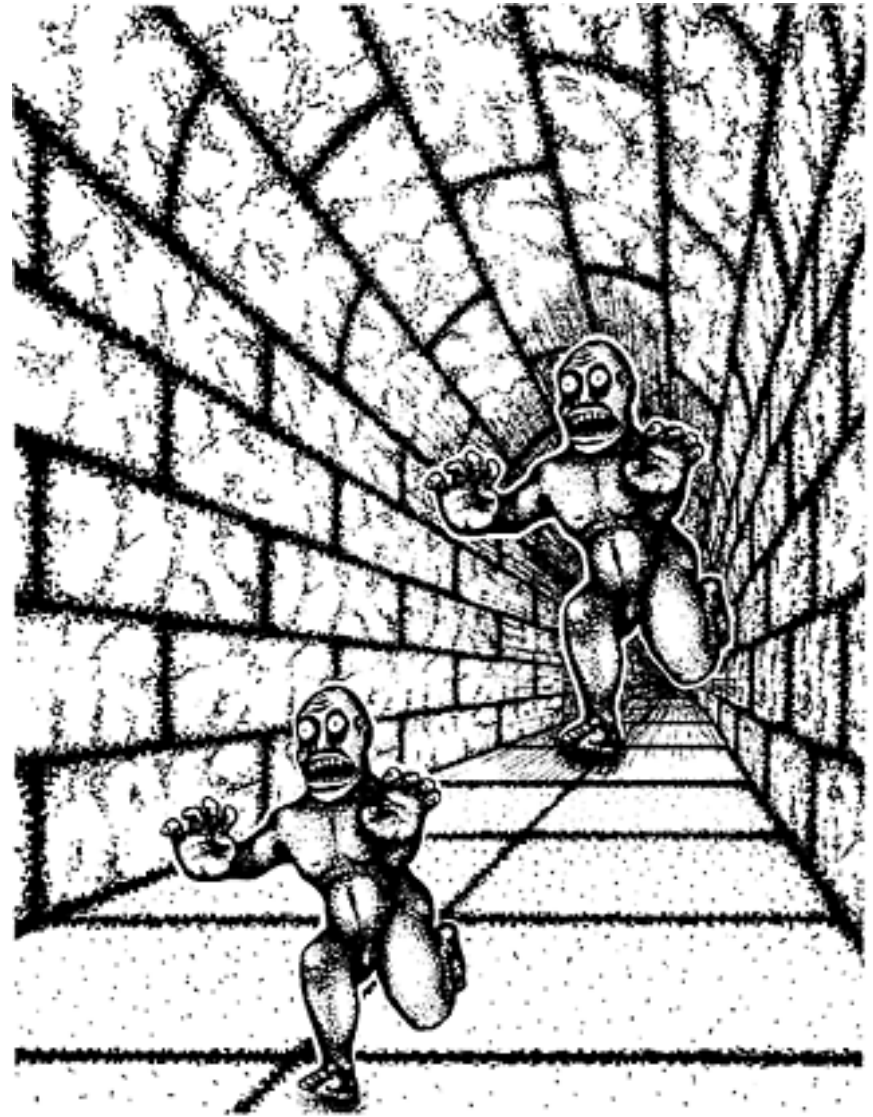
-Fryer



## Scale Constancy

A form tends to preserve its proper shape, size and color... An object is perceived correctly as to the size or intensity within a wide range of actual stimulus variations. An automobile seen at a distance of 100 yards does not appear smaller than one seen at 20 yards even though there is a greater disparity in the size of the retinal image.

-Fryer



Reversing scale constancy to retain context. The figures are actually the same measurement.



## Color Constancy

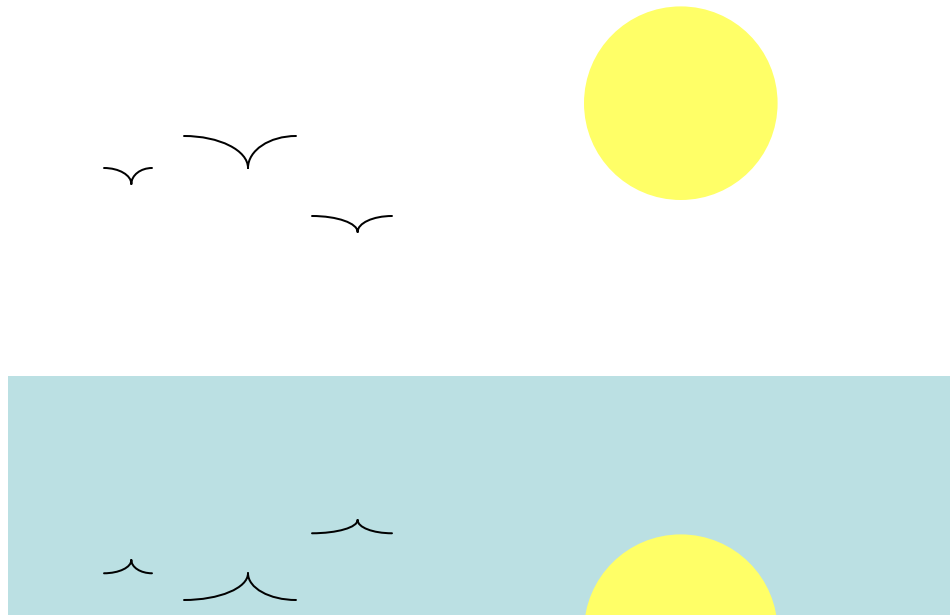
A lawn is seen as the same shade of green, even though part of it lies in bright sunshine and part in shadow.

-Fryer



The impressionists tried to reverse this gestalt and paint what they see before their mind makes sense of it, stripping away the richness of reality (of course, squinting helps).

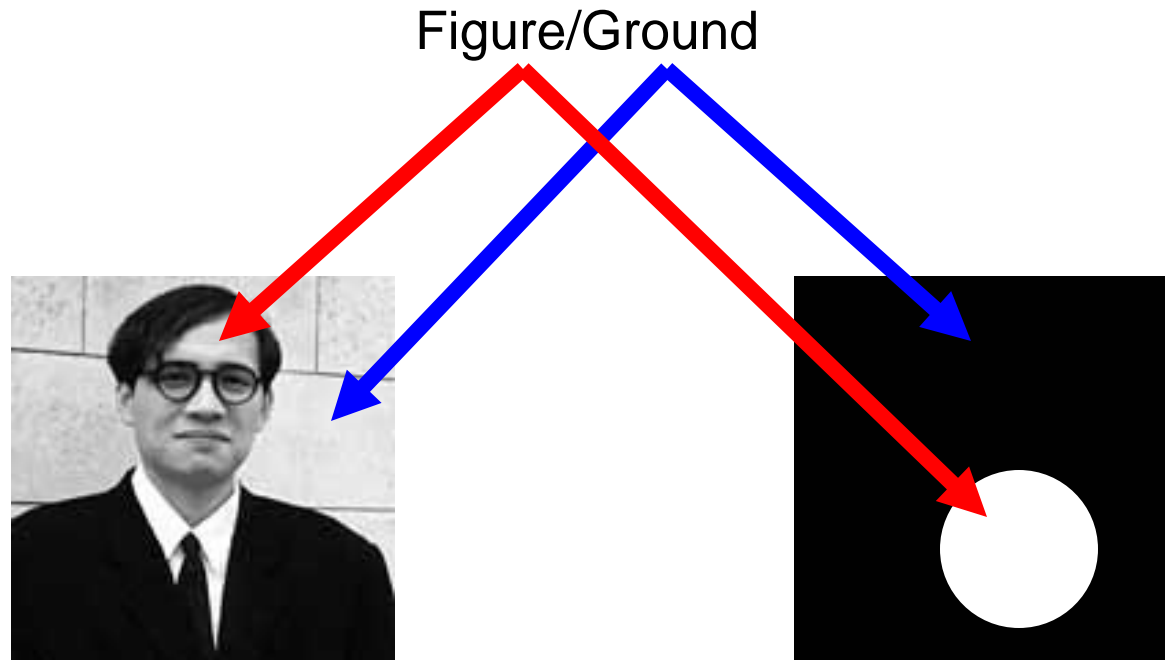




a **Composition** is a combination of elements to make a unified whole.

## A Starter Collection of Compositional Elements

Space  
Balance  
Direction  
Weight  
Unity  
Scale  
Beauty  
Visual Tension  
Positive/Negative Space  
Alignment  
Figure/Ground  
Directional Dynamics  
Nature of the Frame  
Elementary Forms  
Rhythm  
Line  
Contour  
Contrast  
Depth  
Pattern  
Texture  
Proportion  
Perspective  
Chiaroscuro  
Foreground  
Midground  
Background  
Grouping



A form tends to be a figure set upon the ground, and a figure-ground dichotomy is fundamental to all perception.

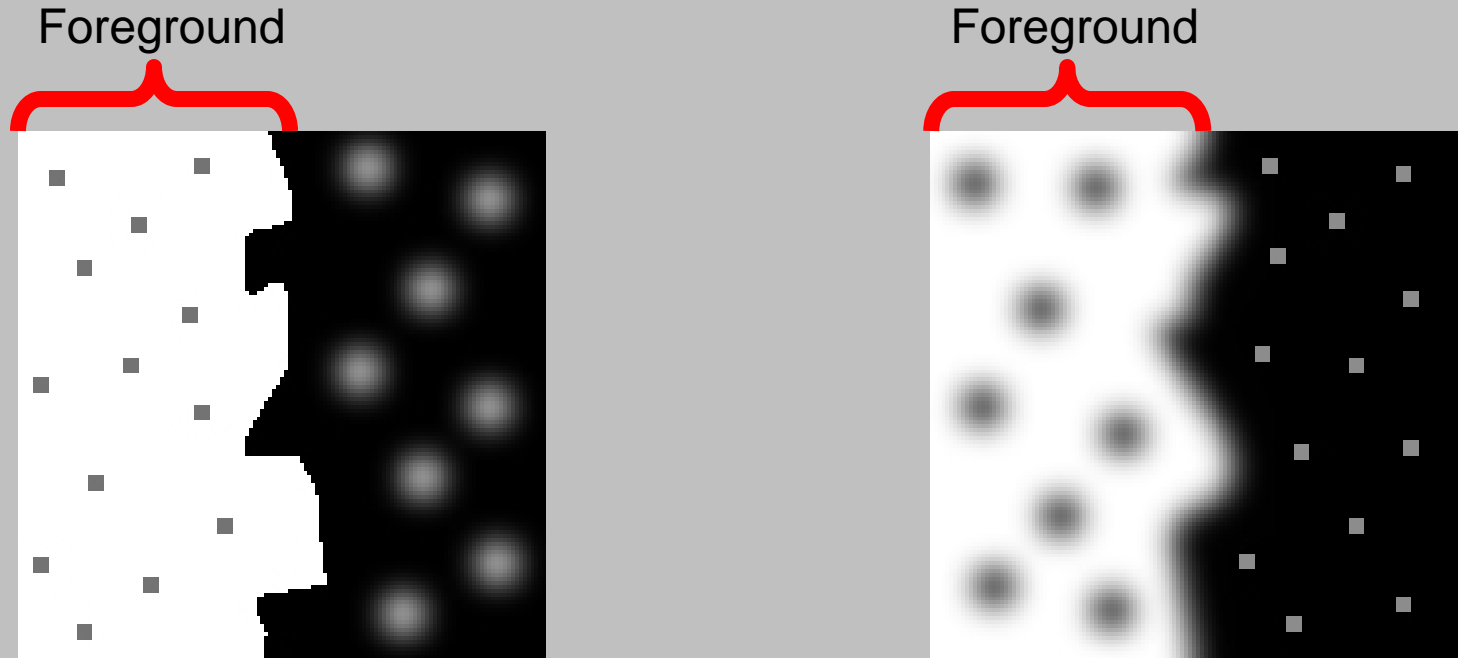
-Fryer

## Figure/Ground



Attributes such as sharpness, contrast and contour can effect the perceived figure/ground relationship.

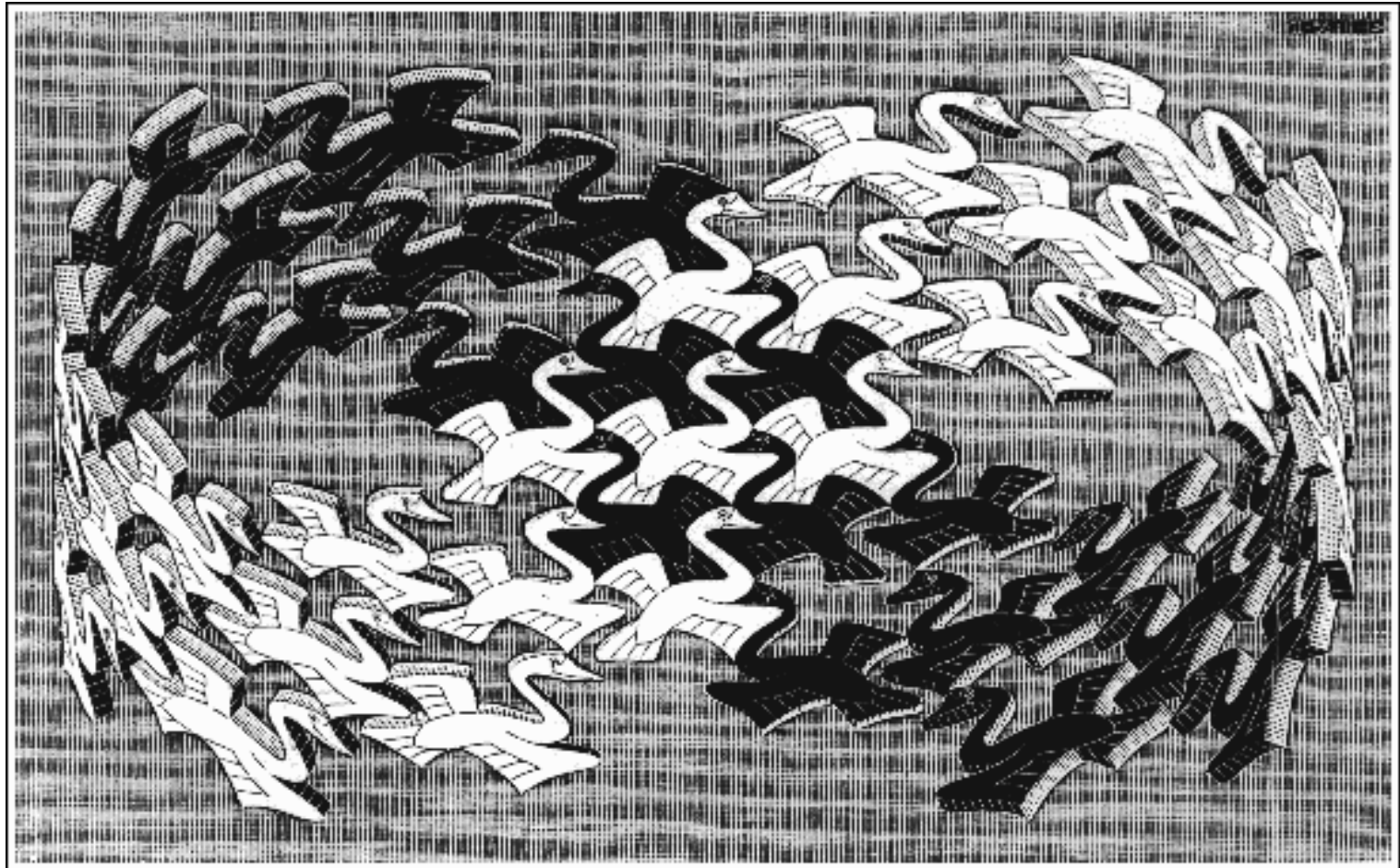
## Figure/Ground Grouping



In these examples, the middle divisions become grouped with the elements of the same sharpness.

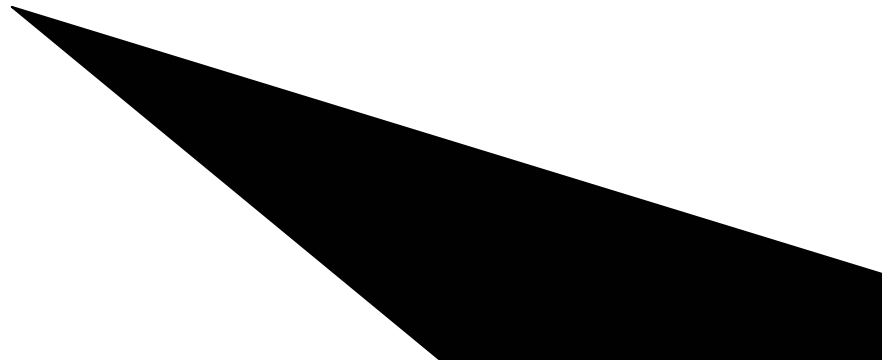
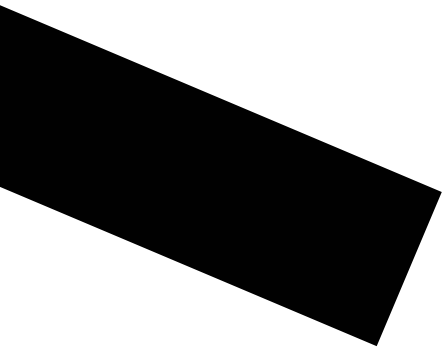
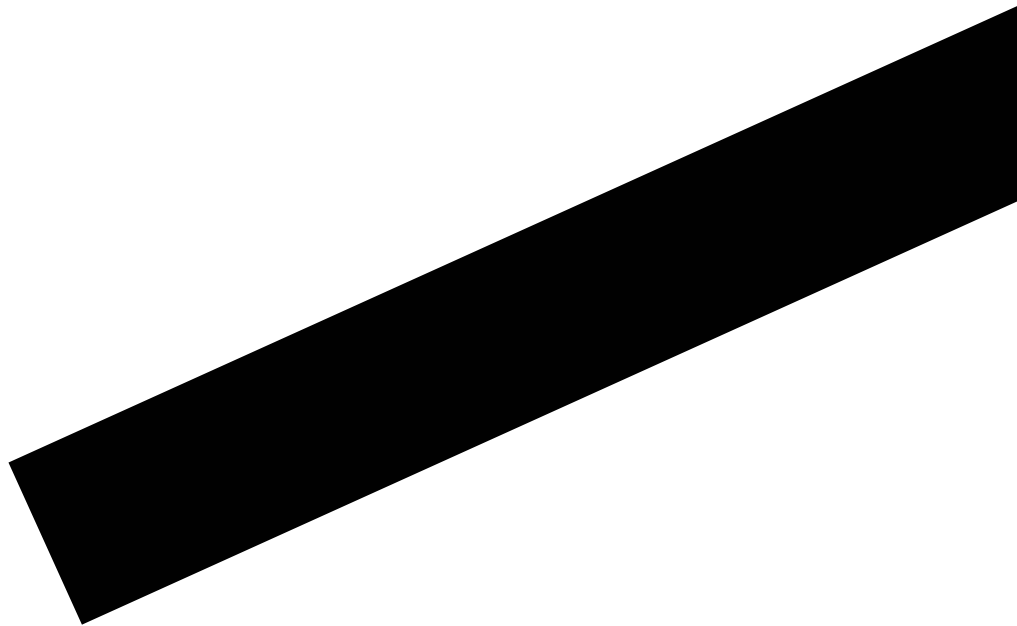


## Figure-Ground Equivocation





As the figures grow in size the figure-ground relationship begins to equivocate as well...

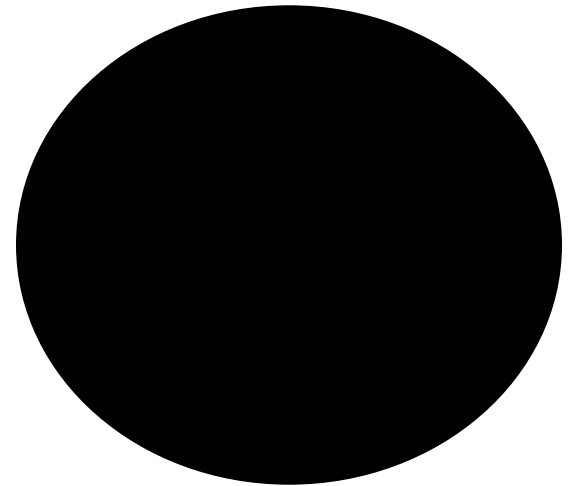


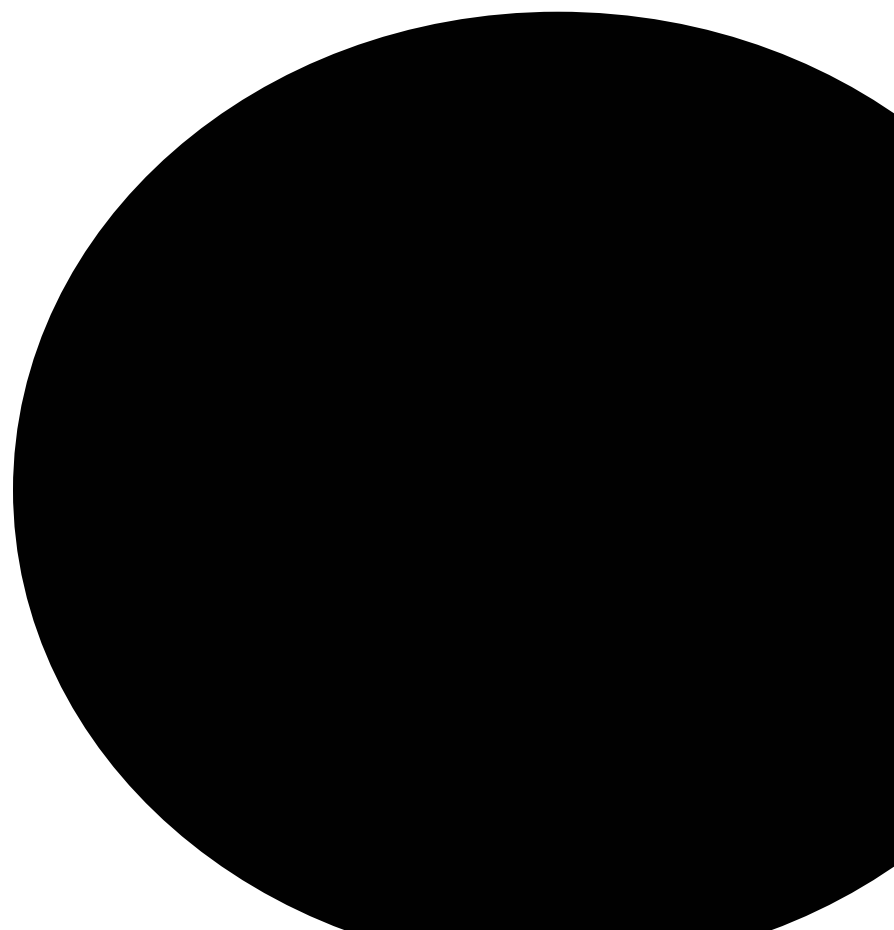
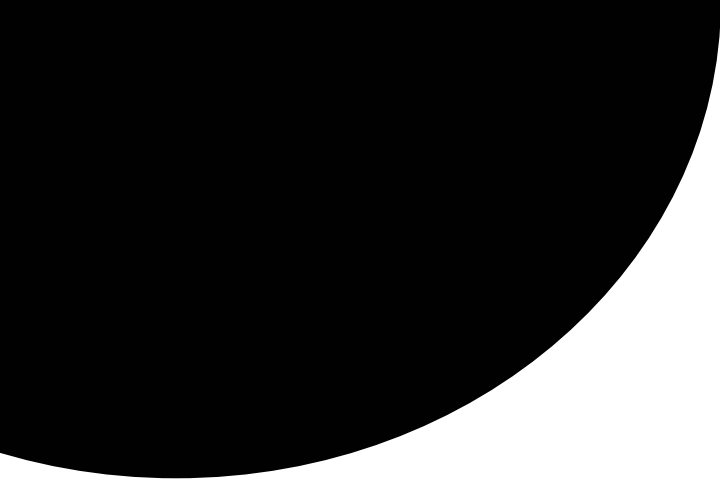


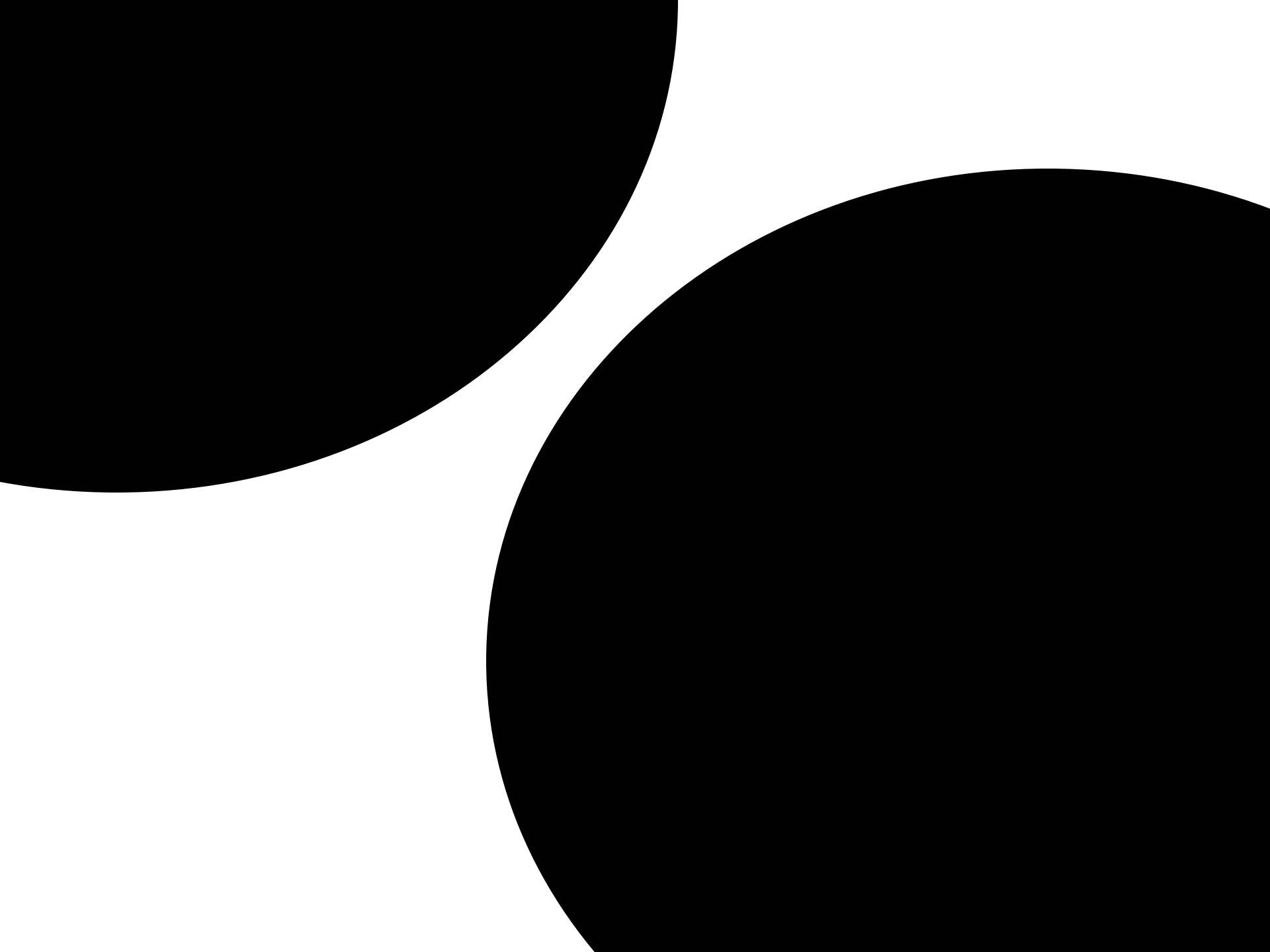


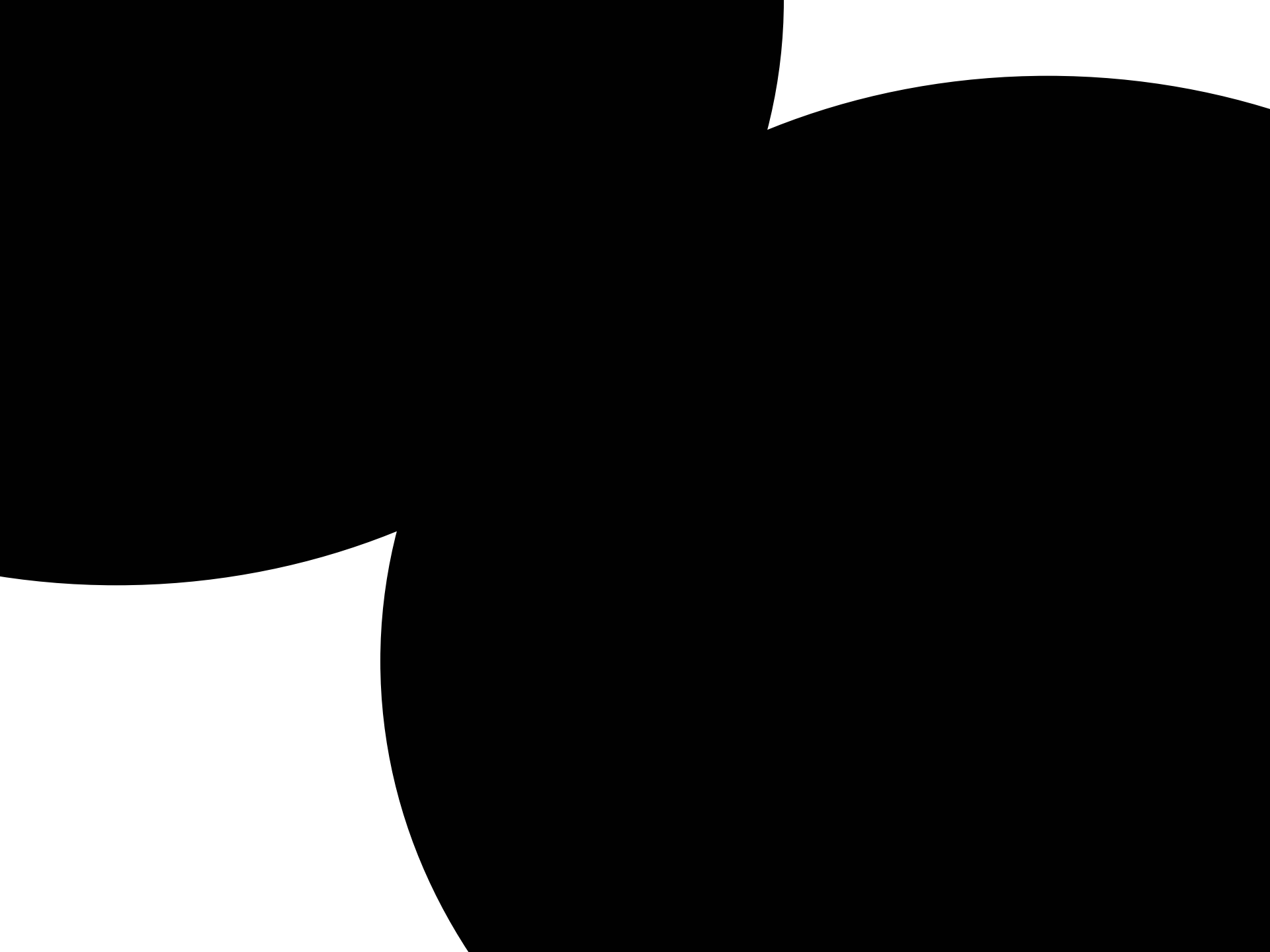


Again...





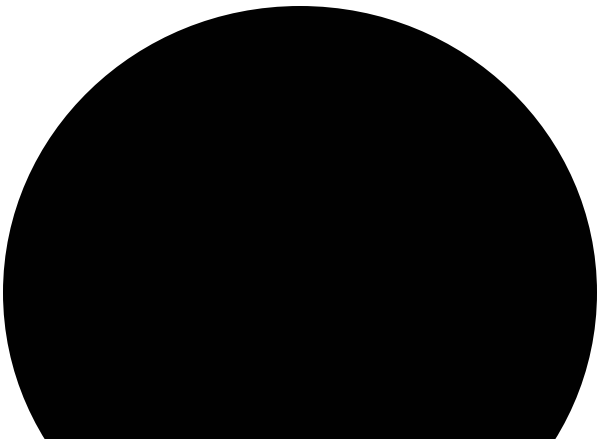
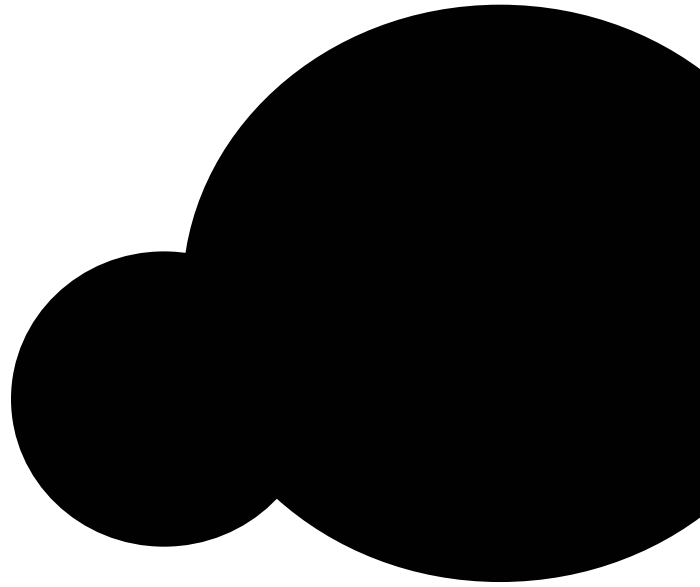


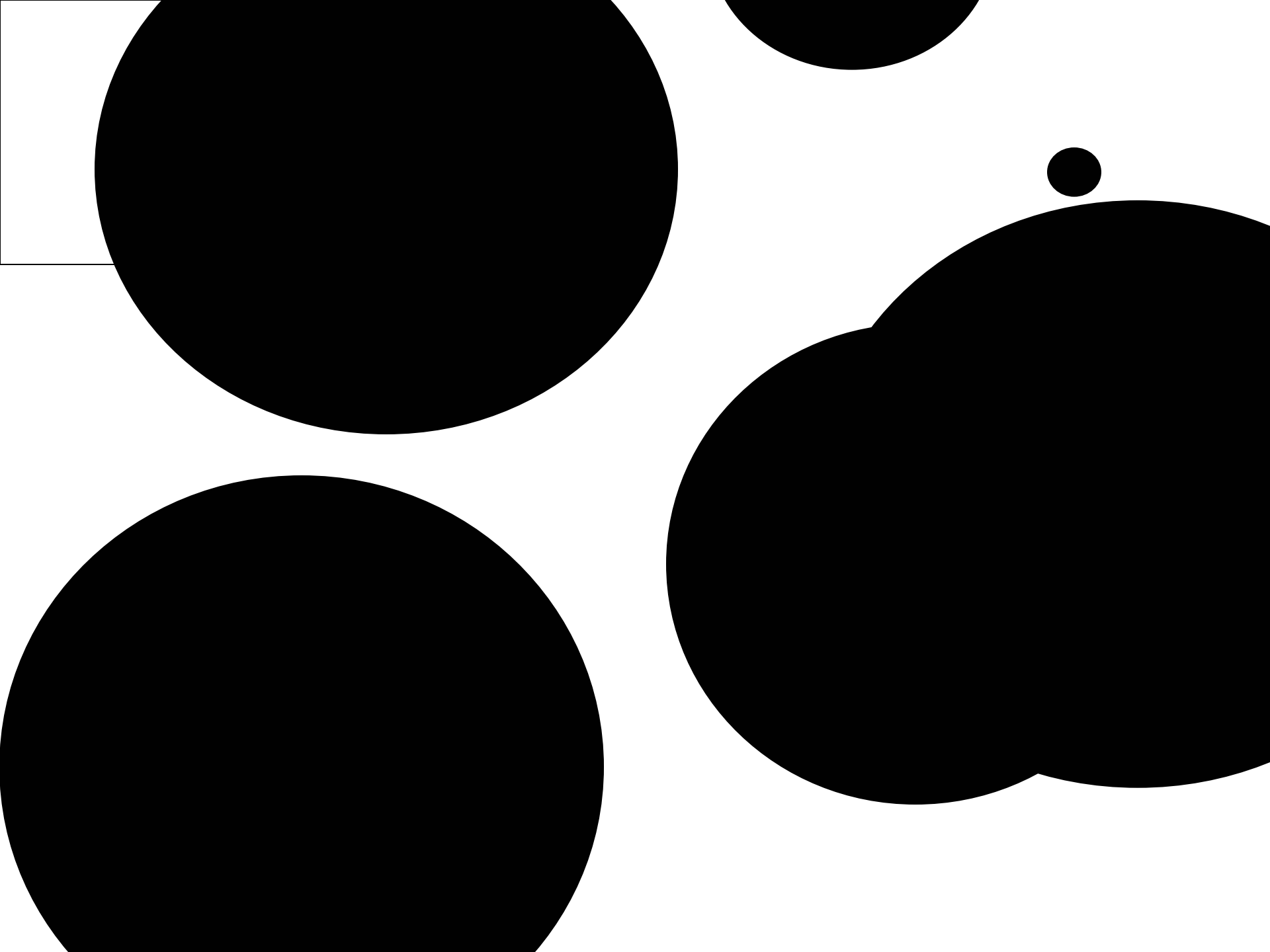






More complex and ambiguous forms are less conducive to figure/ground equivocation due to the readability of their contours...





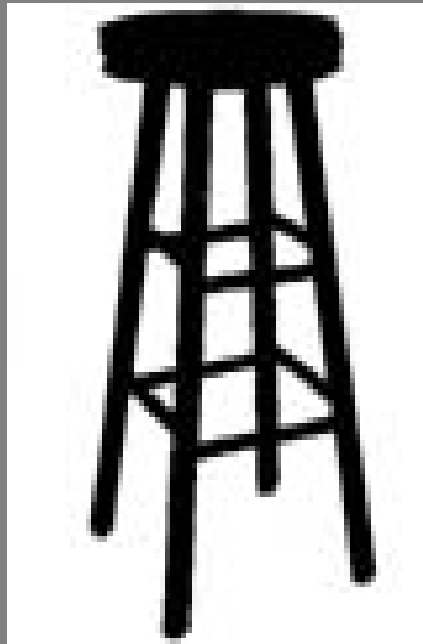


## Negative/Positive Space



Negative space is defined by the edge of the figure to the ground.

## Negative/Positive Space



Negative space is defined by the edge of the figure to the ground.

# Space



To take possession of space is the first gesture of living, men and beasts, plants and clouds, the fundamental manifestation of equilibrium and permanence. The first proof of existence is to occupy space.

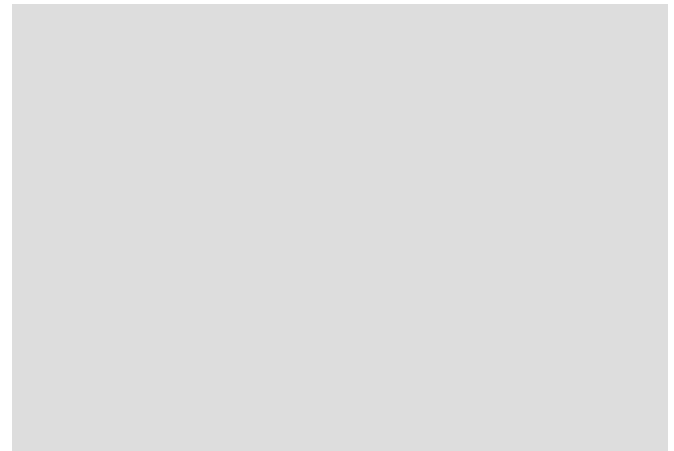
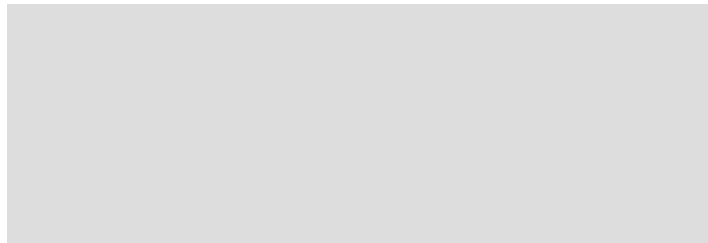
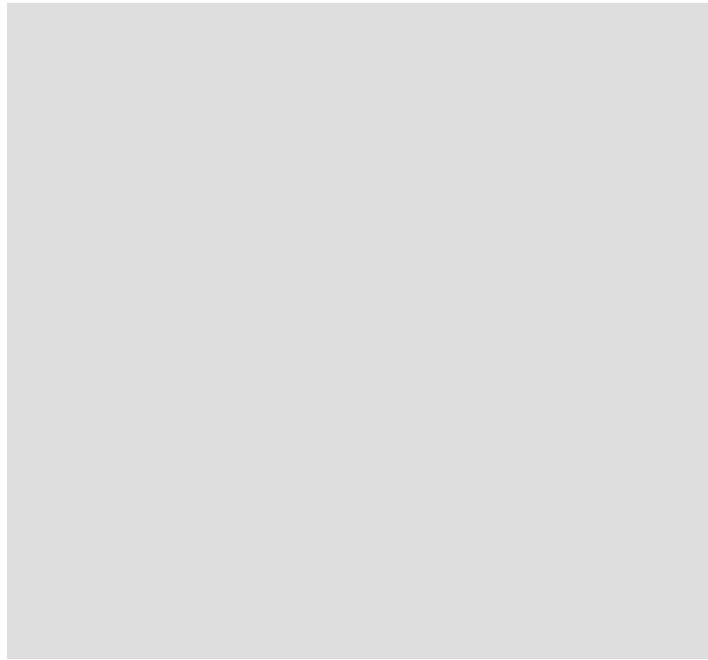
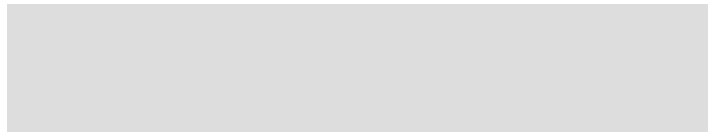
-Le Corbusier

# Space

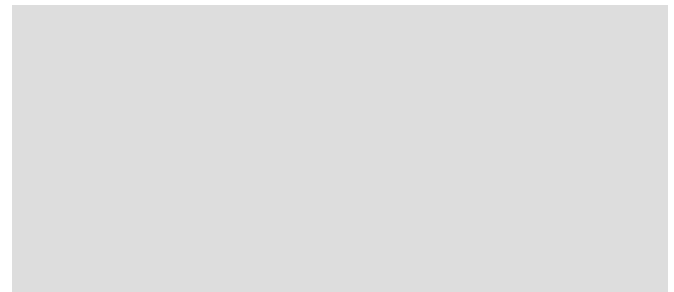


We psychologically map out 2D designs as if they are physical space, applying all the same connotations.

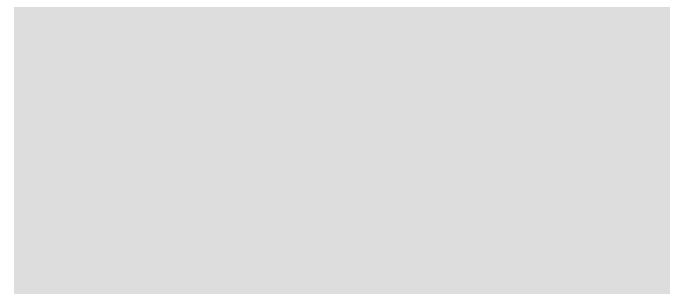
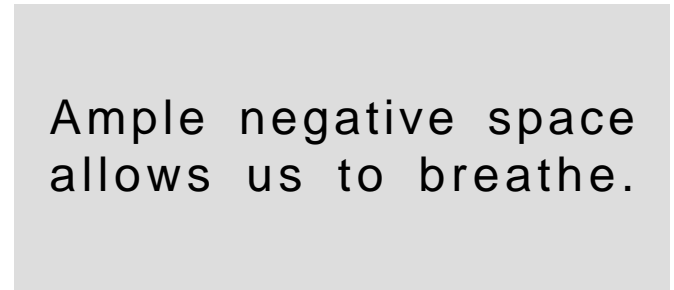
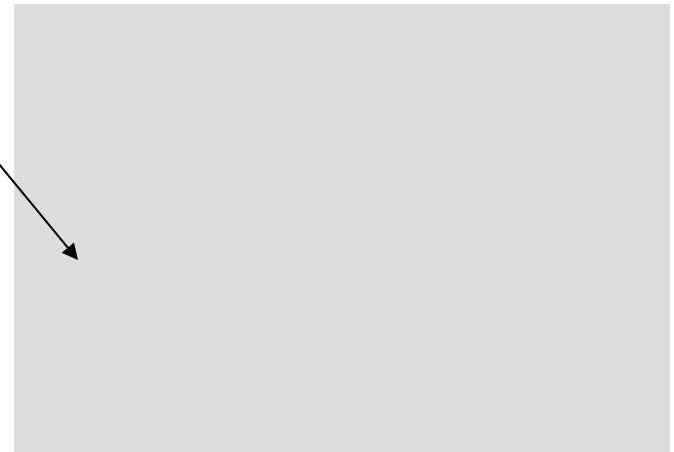
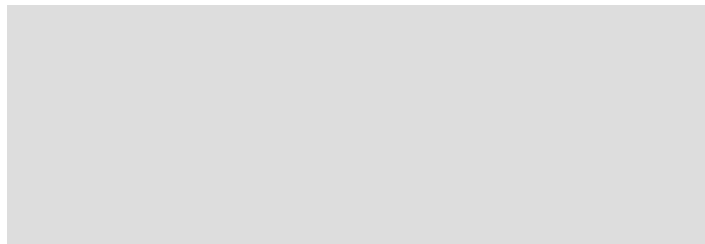
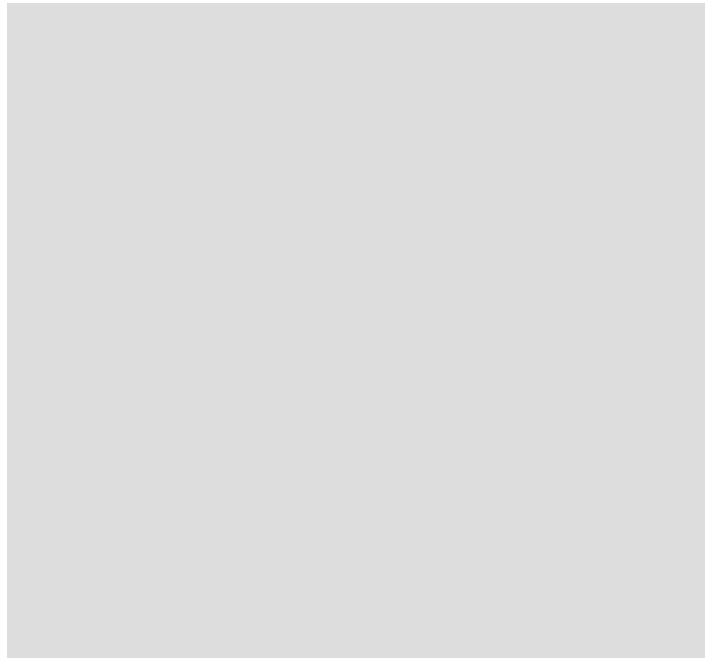
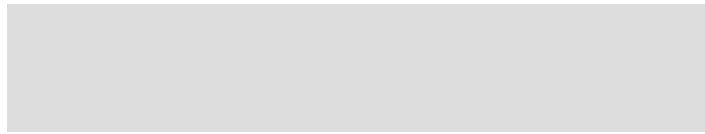
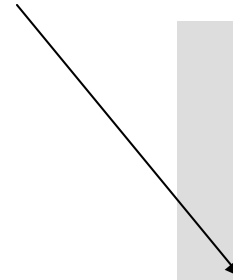
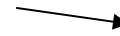




Ample negative space  
allows us to breathe.

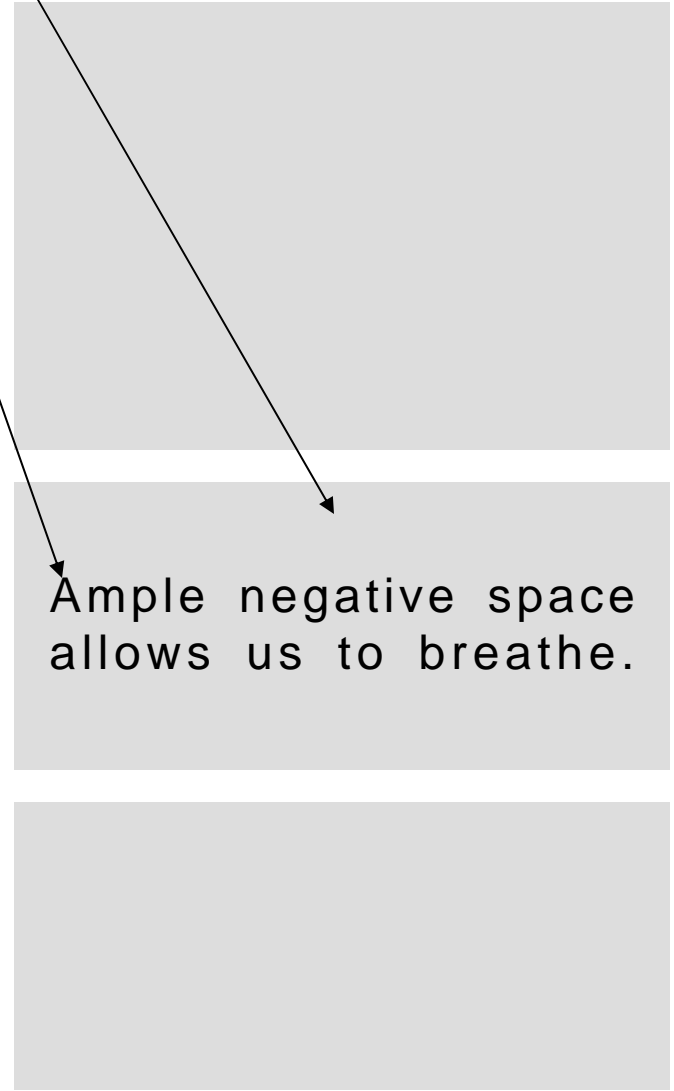
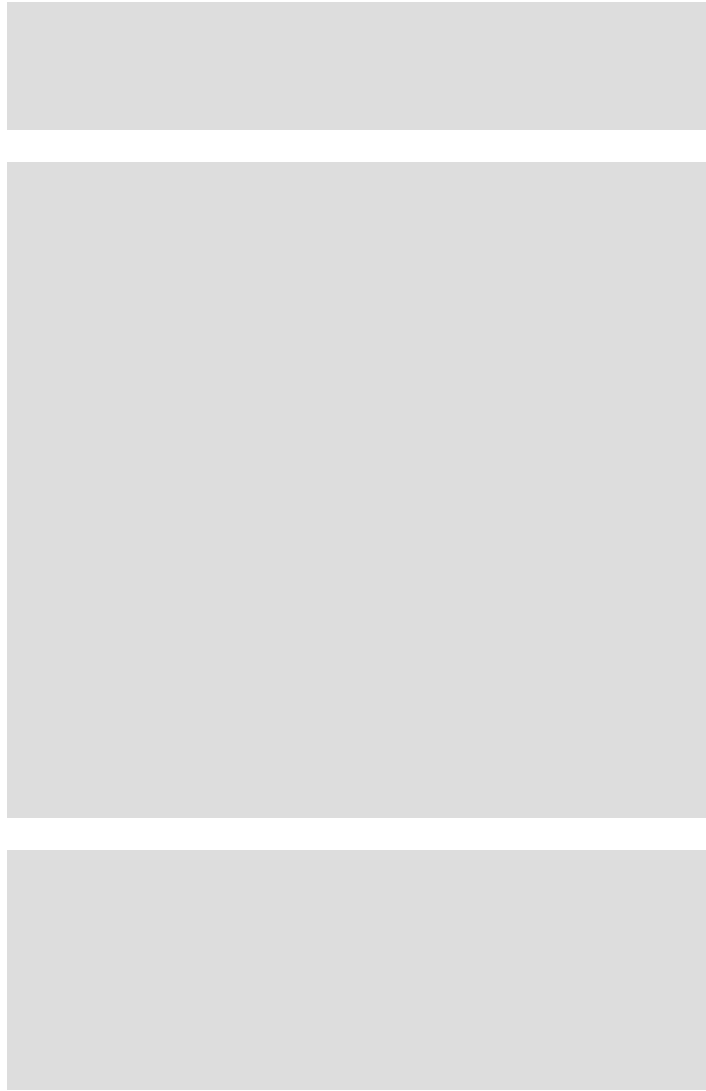


Figure/Ground



Ample negative space  
allows us to breathe.

## Figure/Ground



Ample negative space  
allows us to breathe.



An excess of negative space usually feels luxurious -as it does when we have a lot of personal space to spare.



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Conversely, a lack of negative space usually feels uncomfortable -as it does when our personal space is invaded or cramped...

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**PRICE CHALLENGE!!**  
SEEN IT SOMEWHERE FOR LESS?  
WE WILL BEAT IT  
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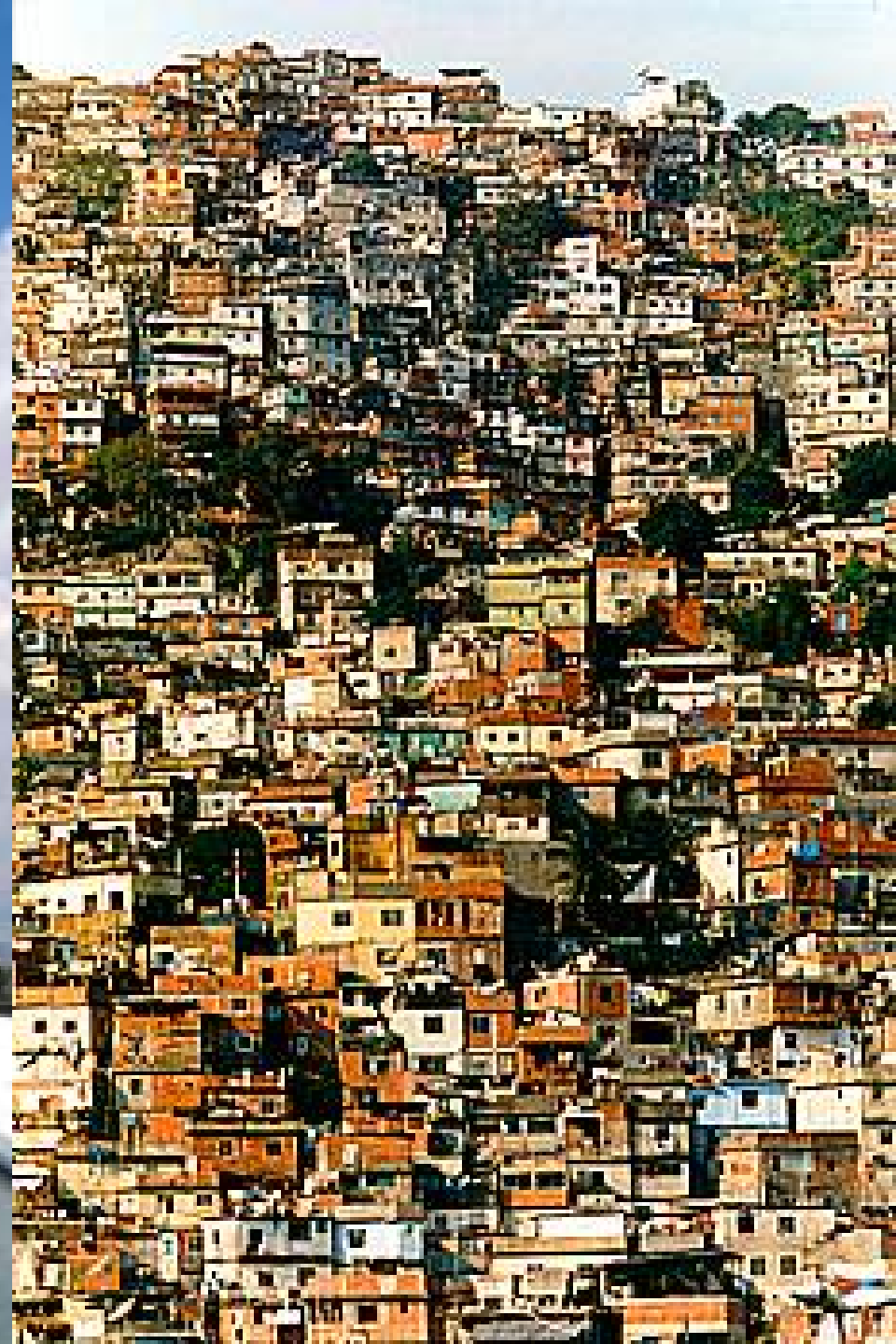


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Where's the subliminal message in the logo?

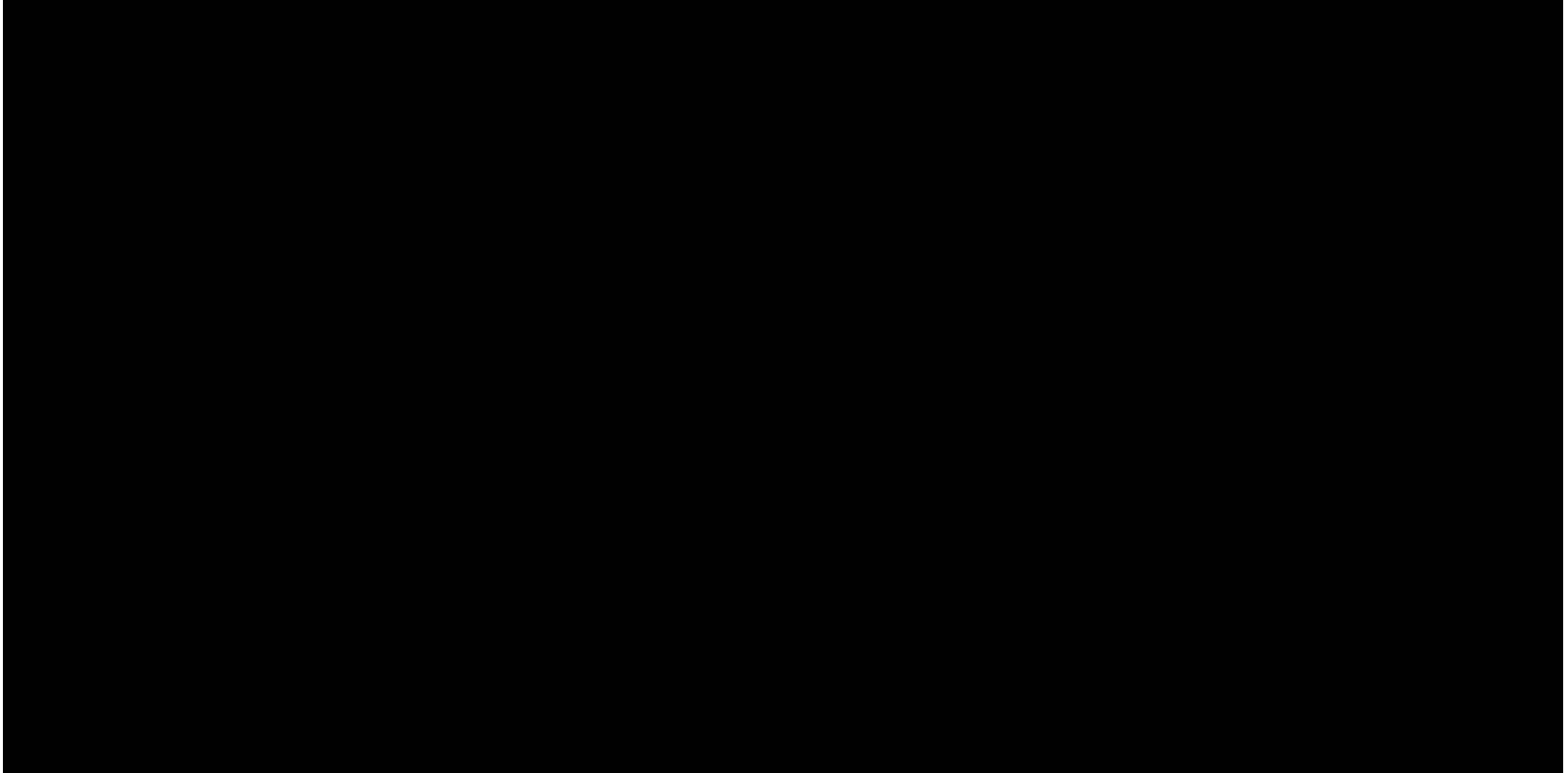




# Purposeful Equivocation of Negative Space

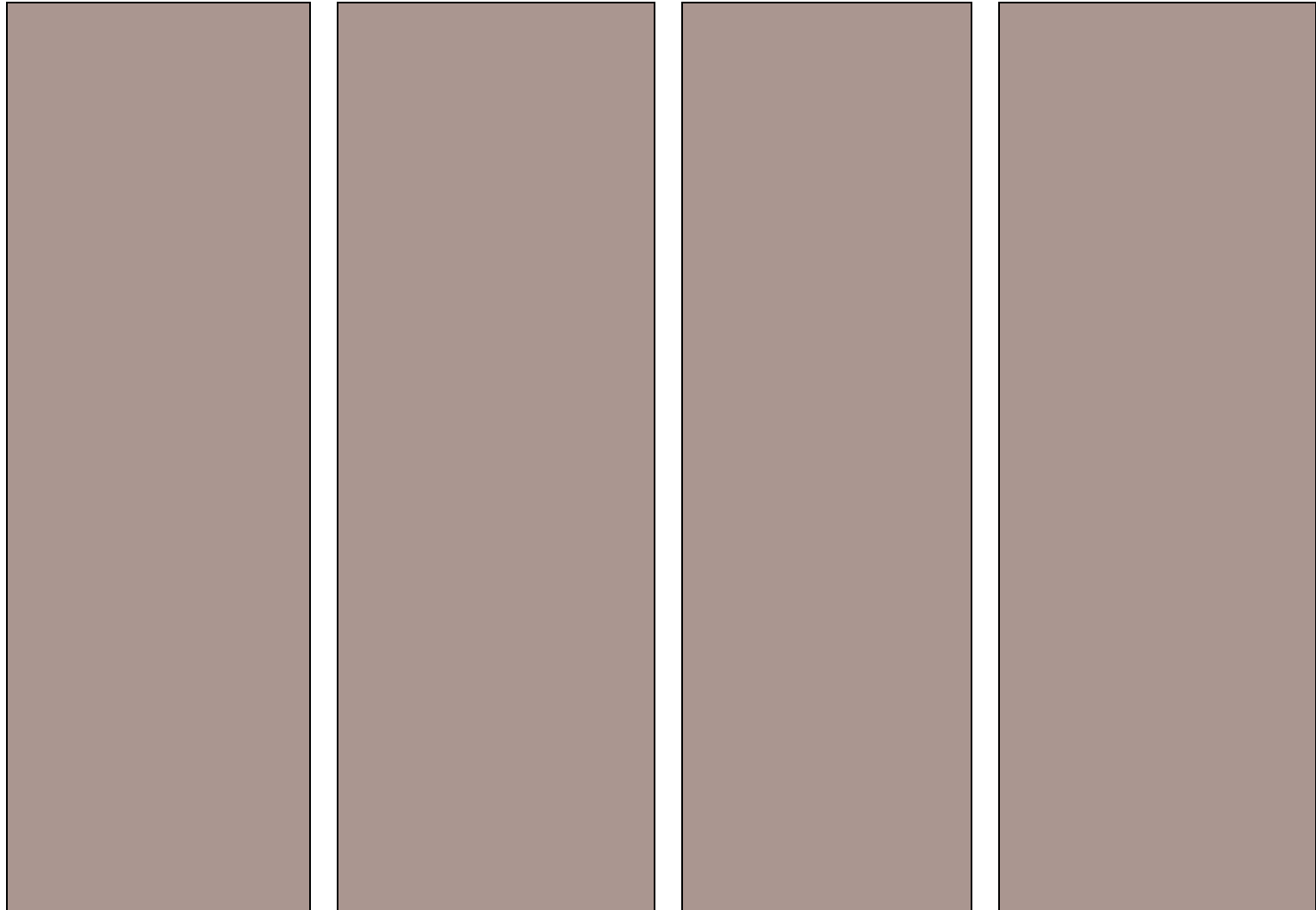


## Inactive Space

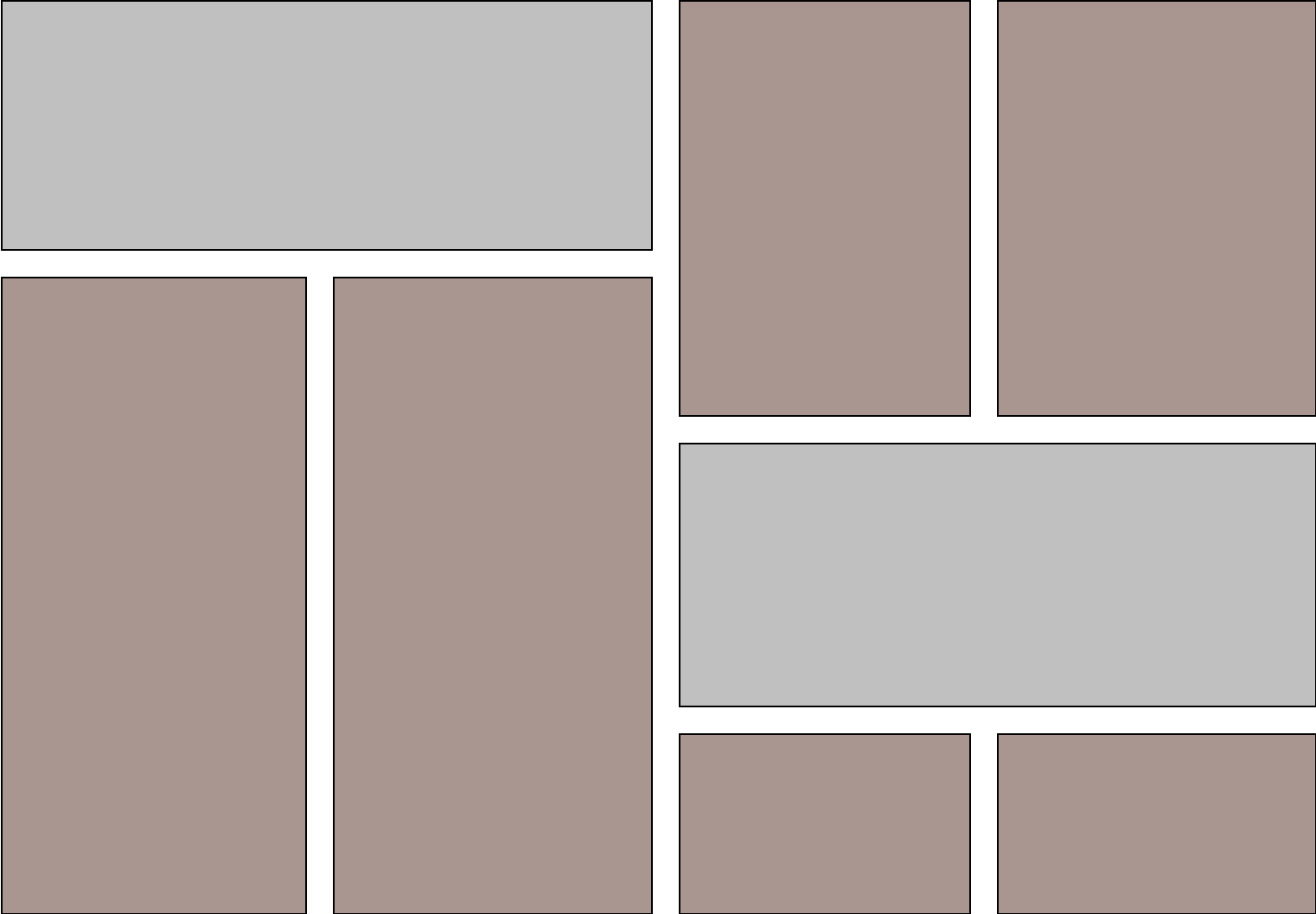


Inactive space seems impenetrable and solid.

This is why rigidly dictated compositions may be unappealing, as they seem to represent inescapable conformity...



By breaking up the composition the space becomes activated.

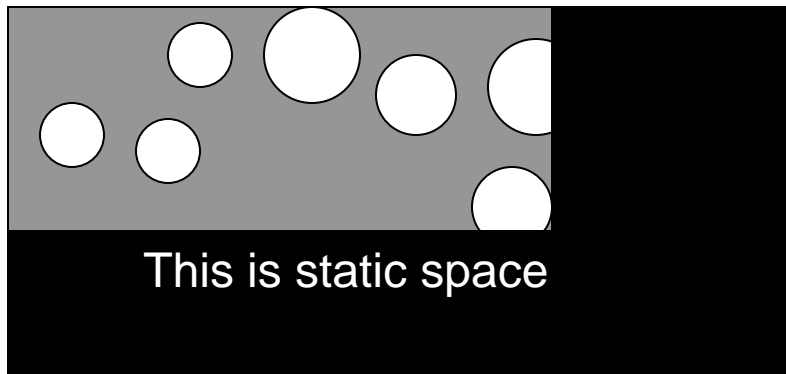






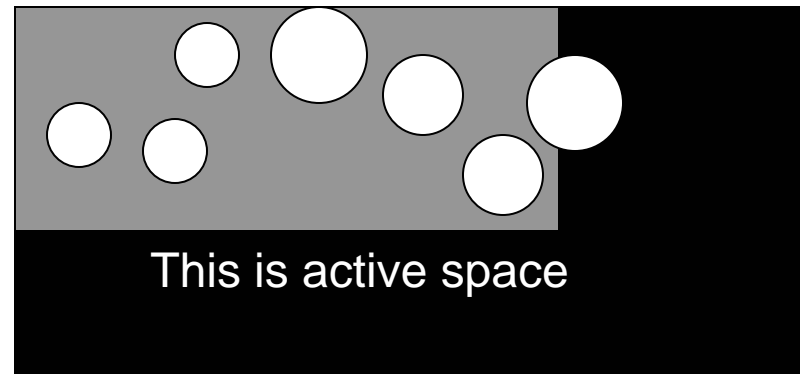
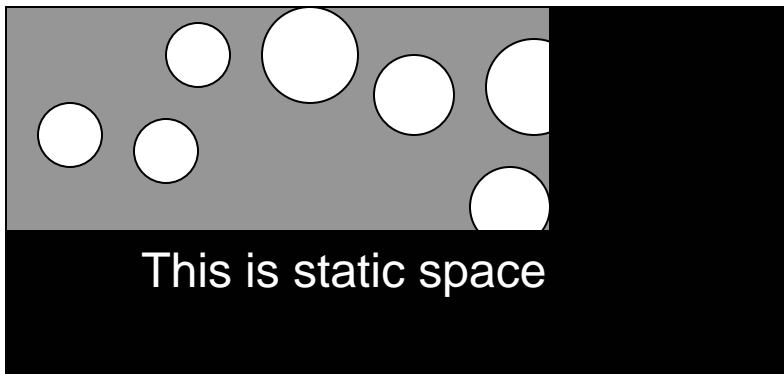


## Active vs. Inactive Space





## Active vs. Inactive Space

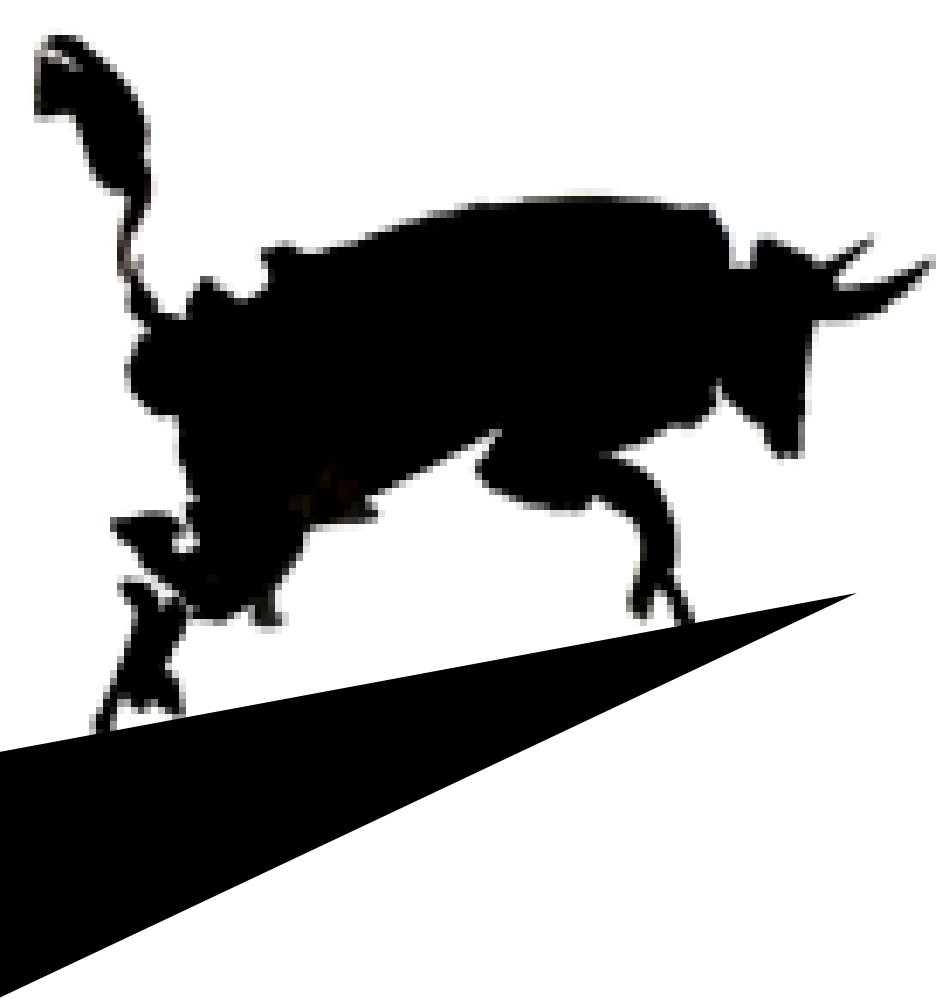


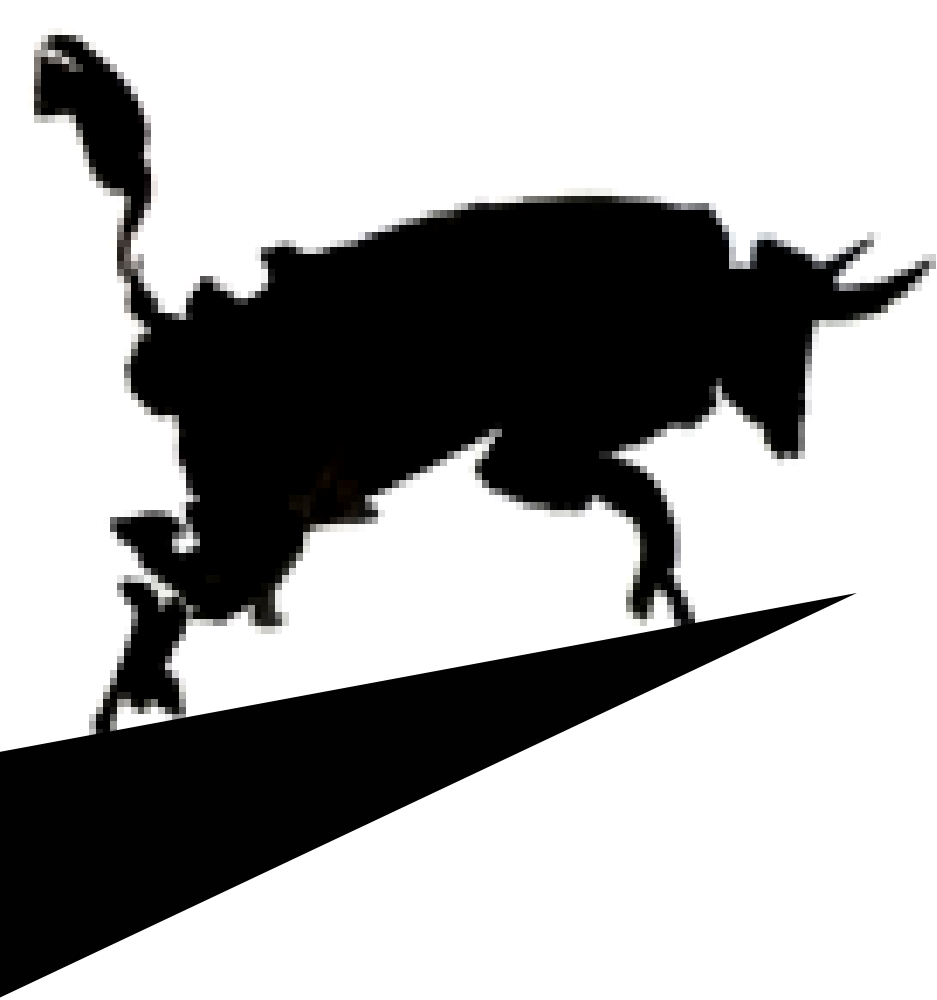




Active Space

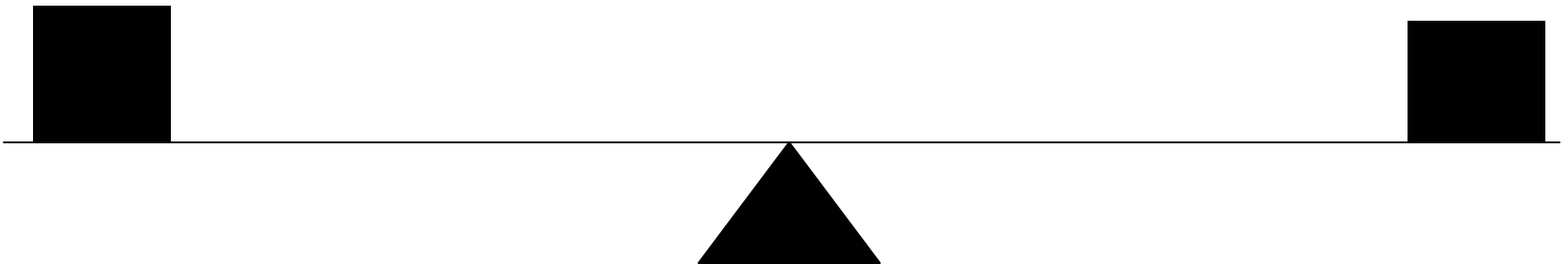
(Somewhat) Inactive Space



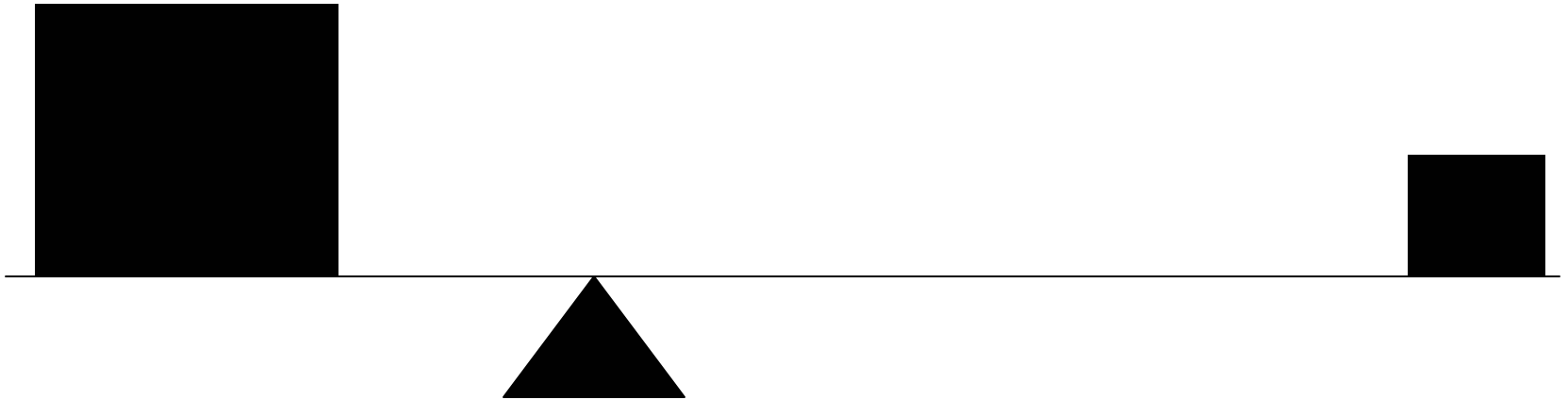


The bull's apparent intent fully activates this space.

# Balance

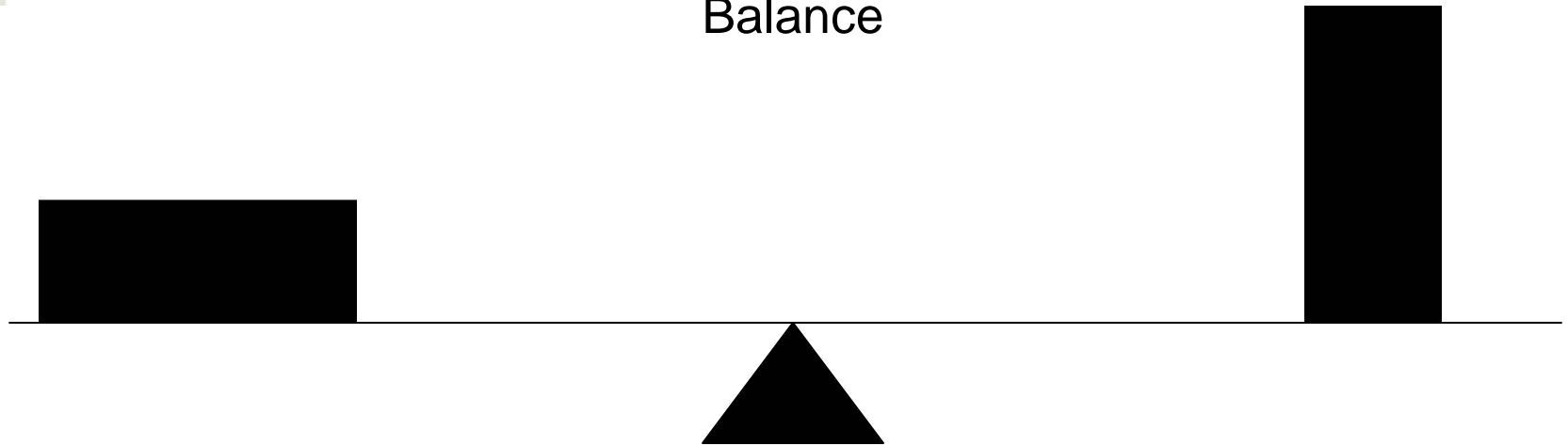


## Balance



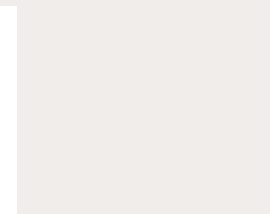
Our judgment of balance is based largely on mechanical laws. A composition must appear to be stable; that is, a large component such as a tower must not be situated so far from what we take as a center of gravity as to appear capable of tipping the remainder of the structure.

## Balance



Our judgment of balance is based largely on mechanical laws. A composition must appear to be stable; that is, a large component such as a tower must not be situated so far from what we take as a center of gravity as to appear capable of tipping the remainder of the structure. In physics we would apply the term 'moment'. Each mass must be multiplied by its distance from the center of gravity, thus determining its moment.

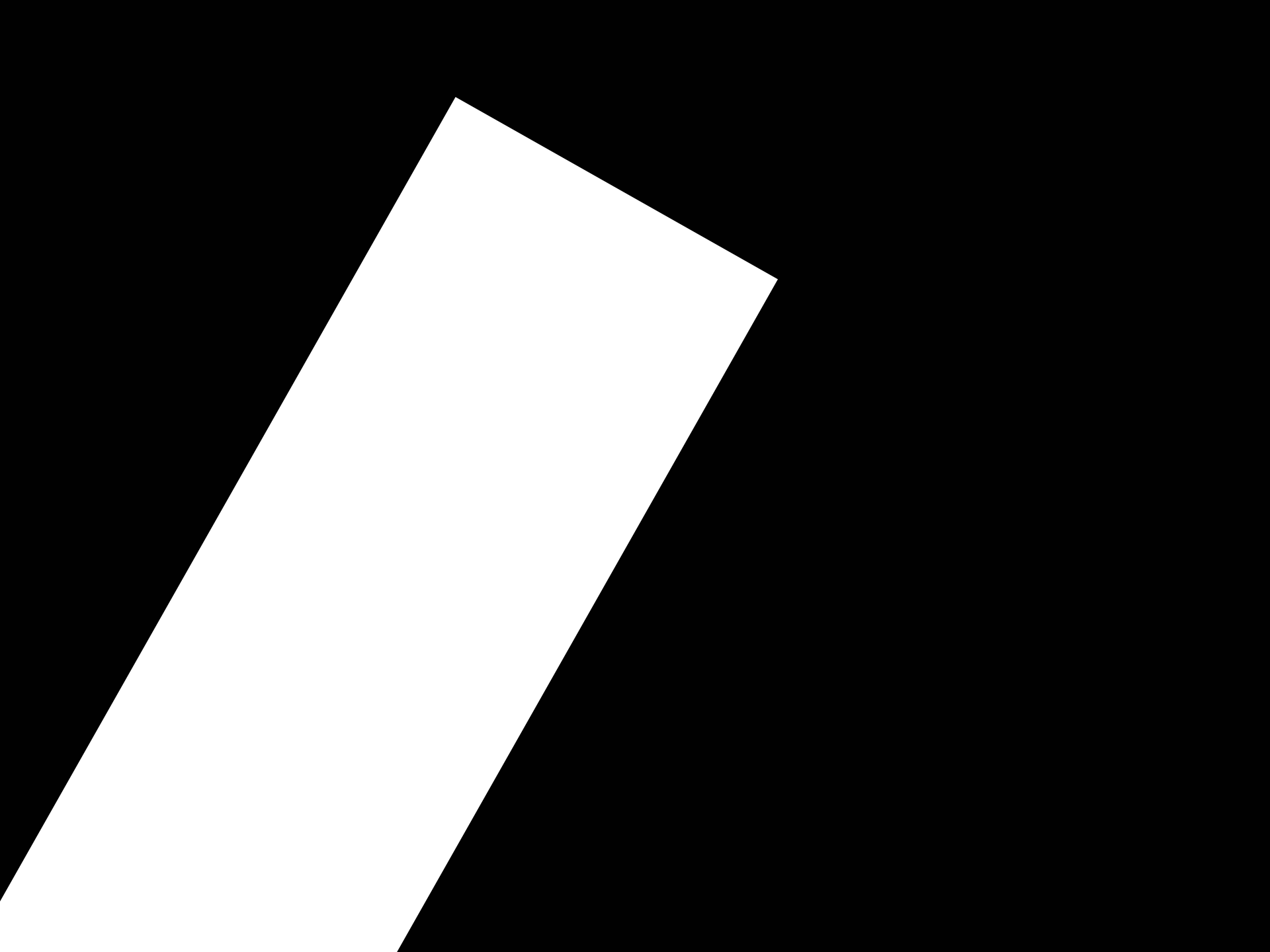
# Balance

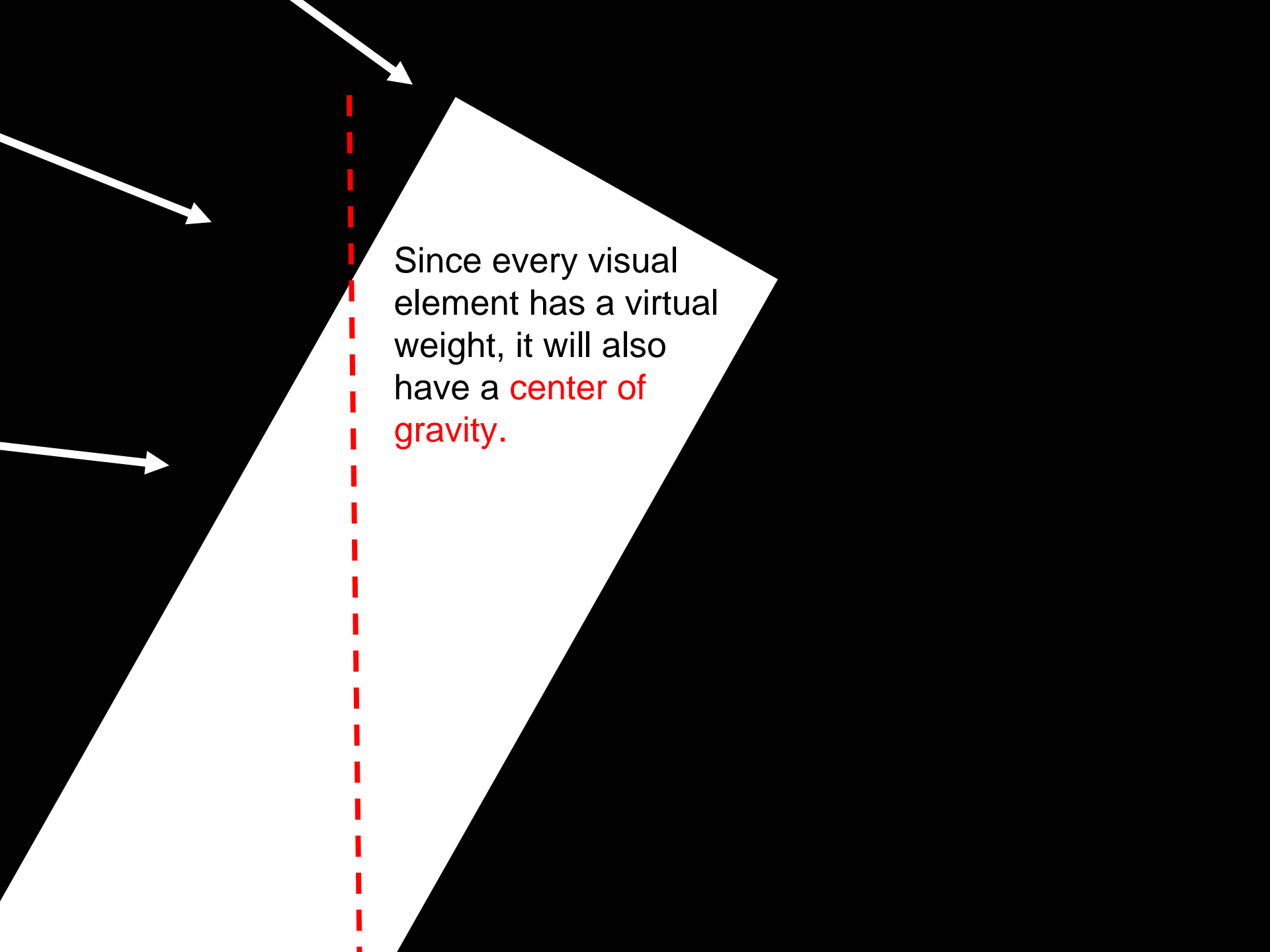


Our judgment of balance is based largely on mechanical laws. A composition must appear to be stable; that is, a large component such as a tower must not be situated so far from what we take as a center of gravity as to appear capable of tipping the remainder of the structure. In physics we would apply the term 'moment'. Each mass must be multiplied by its distance from the center of gravity, thus determining its moment. For a building or other composition to appear stable the sum of these moments must zero; that is, those tending to turn the figure in one direction must be counterbalanced by those tending to turn it in another direction.

-Forrest Wilson



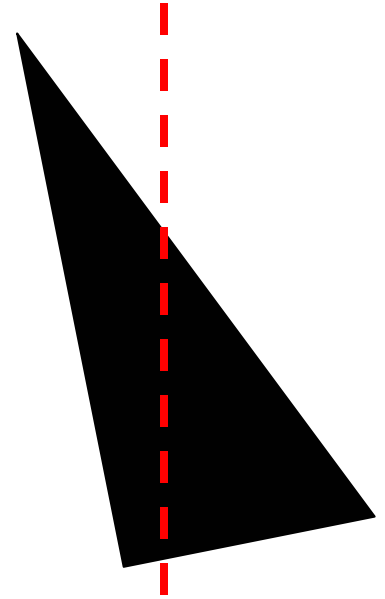
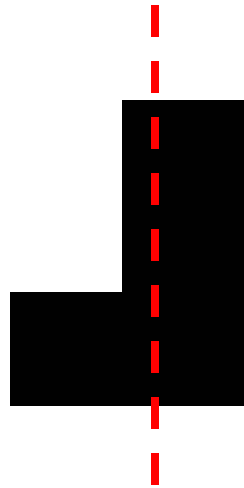
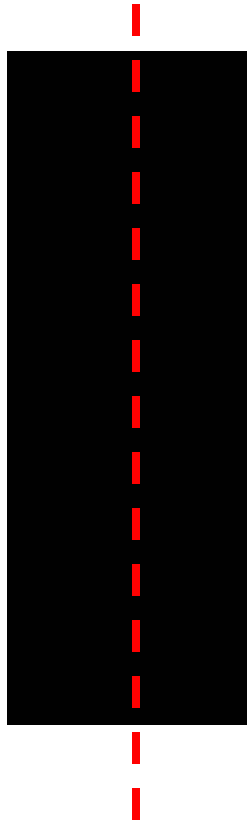
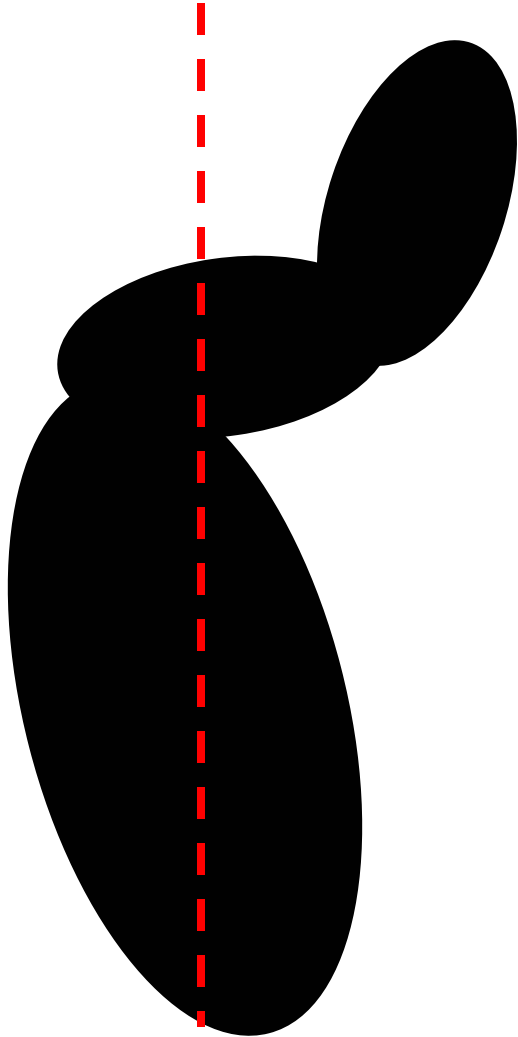


A white triangle is positioned on a black background. Three white arrows point towards the triangle from the left side. A vertical dashed red line is drawn to the left of the triangle's left edge. The text 'Since every visual element has a virtual weight, it will also have a center of gravity.' is written inside the triangle, with 'center of gravity' in red.

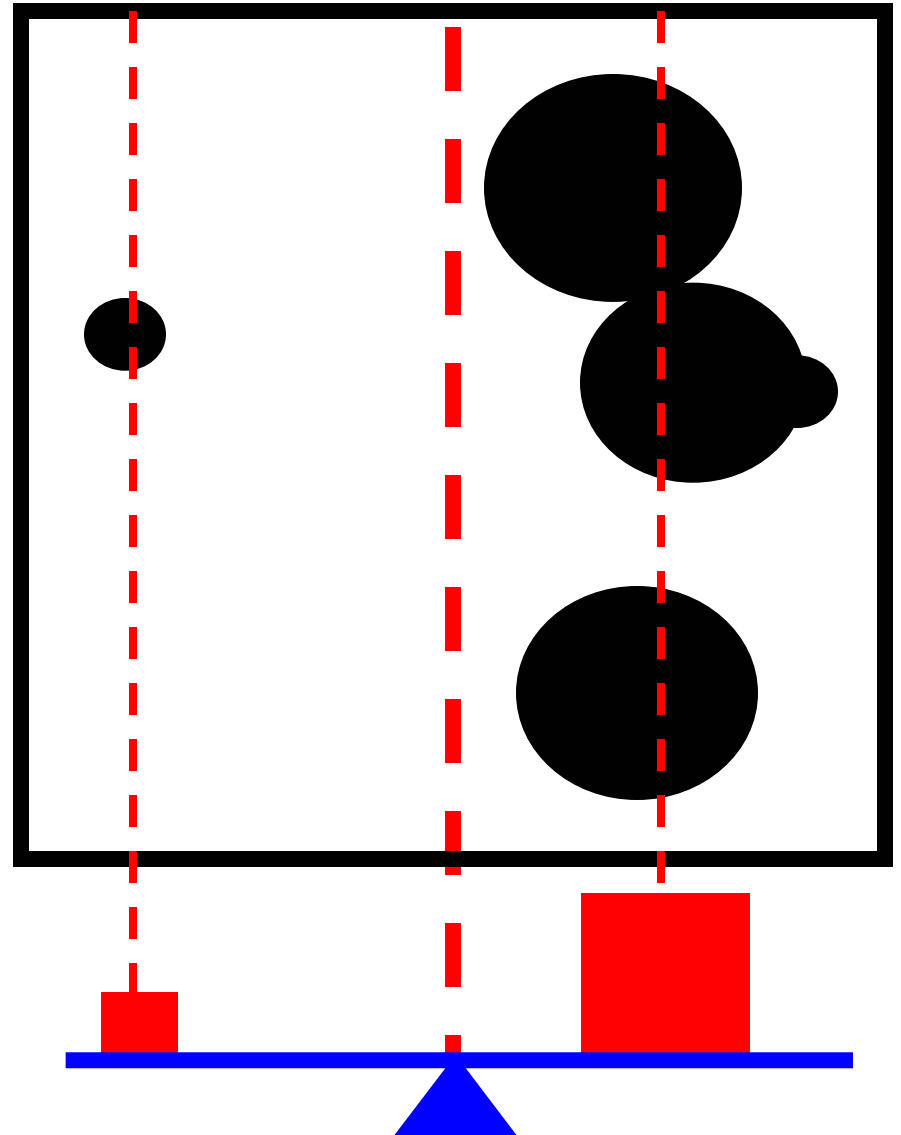
Since every visual element has a virtual weight, it will also have a **center of gravity**.

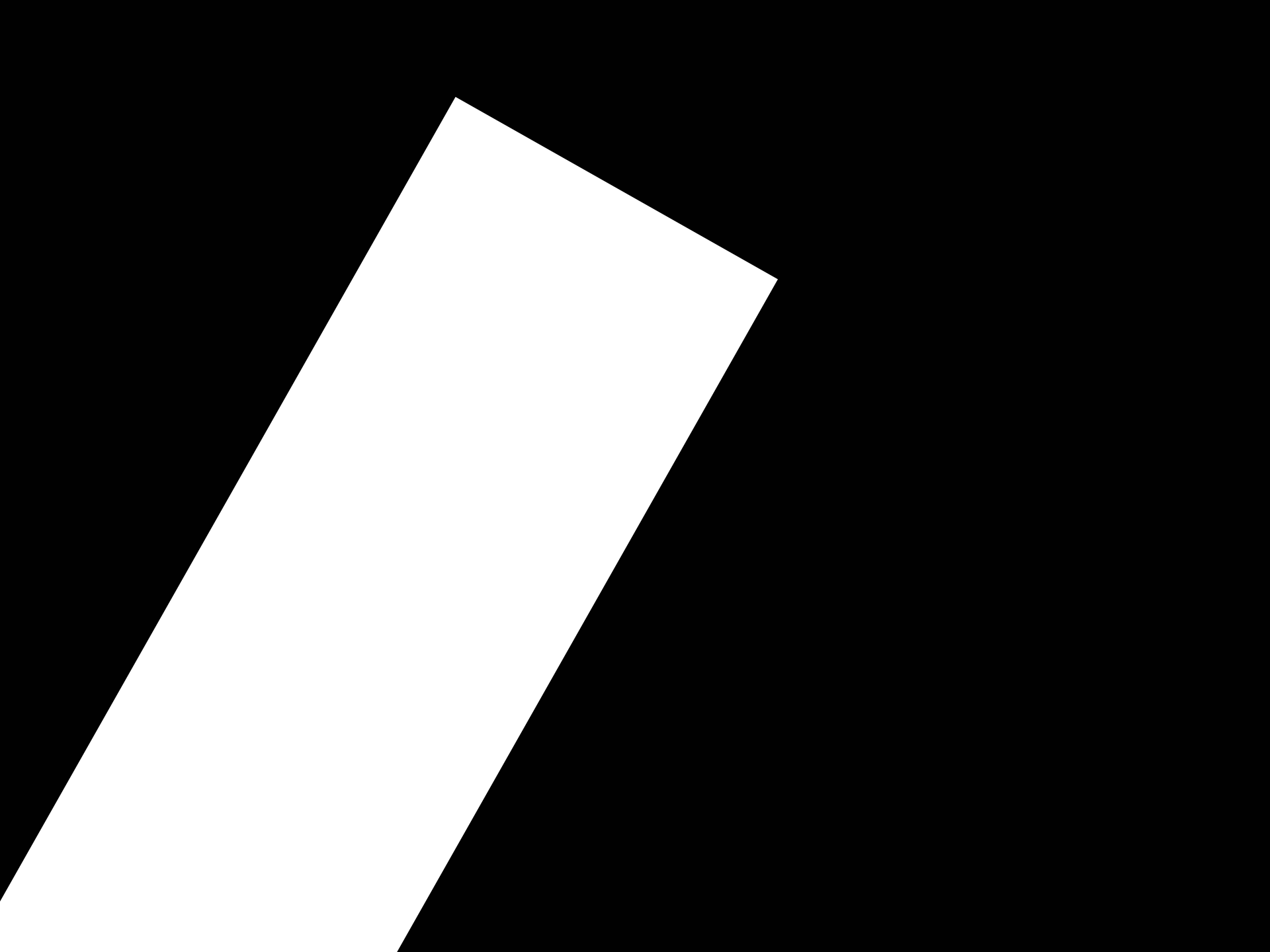


## Centers of Gravity

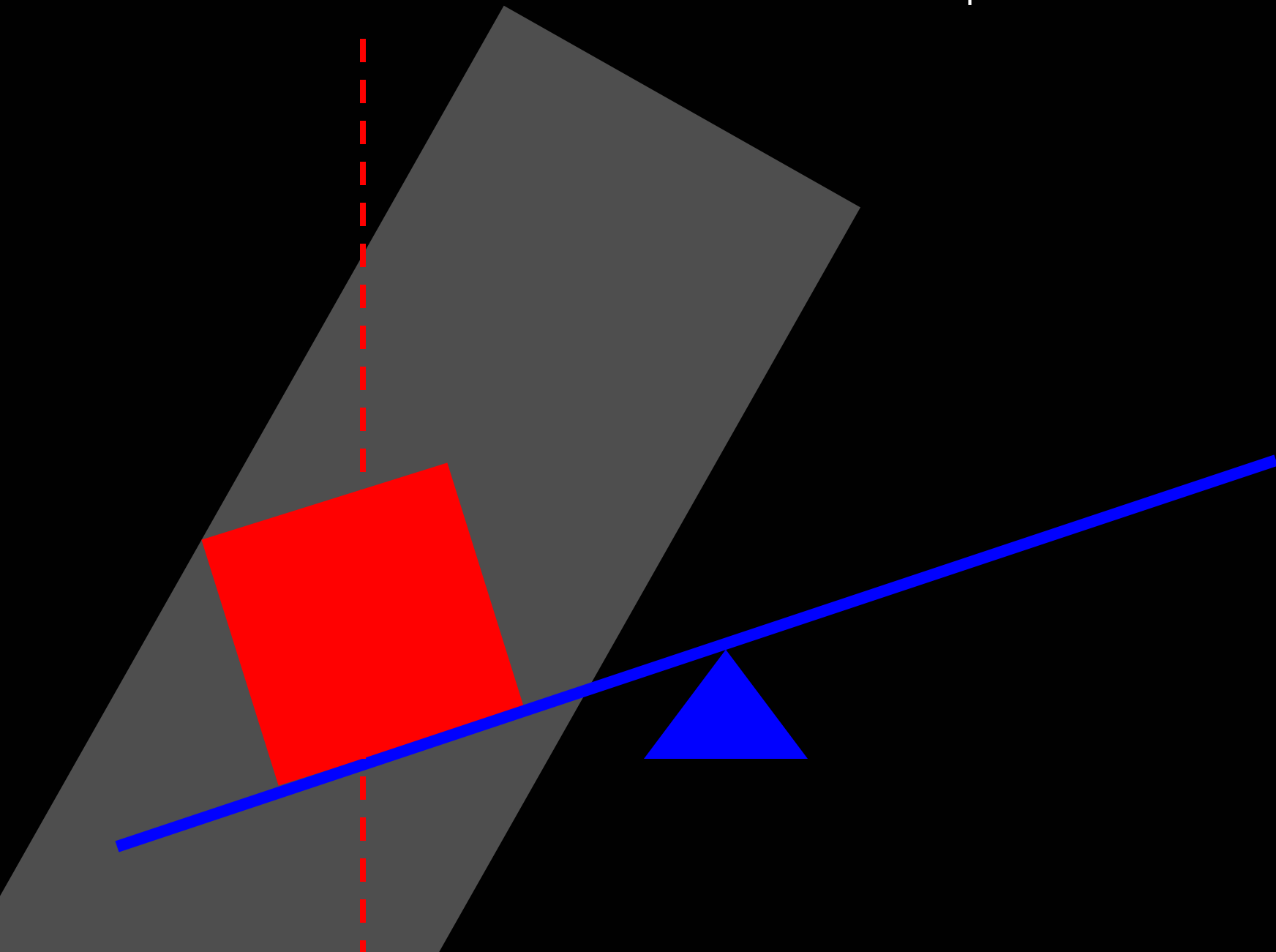


The center of gravity for entire compositions are often in the center (unless it serves the purpose of the design not to do so).





# Compositional Imbalance



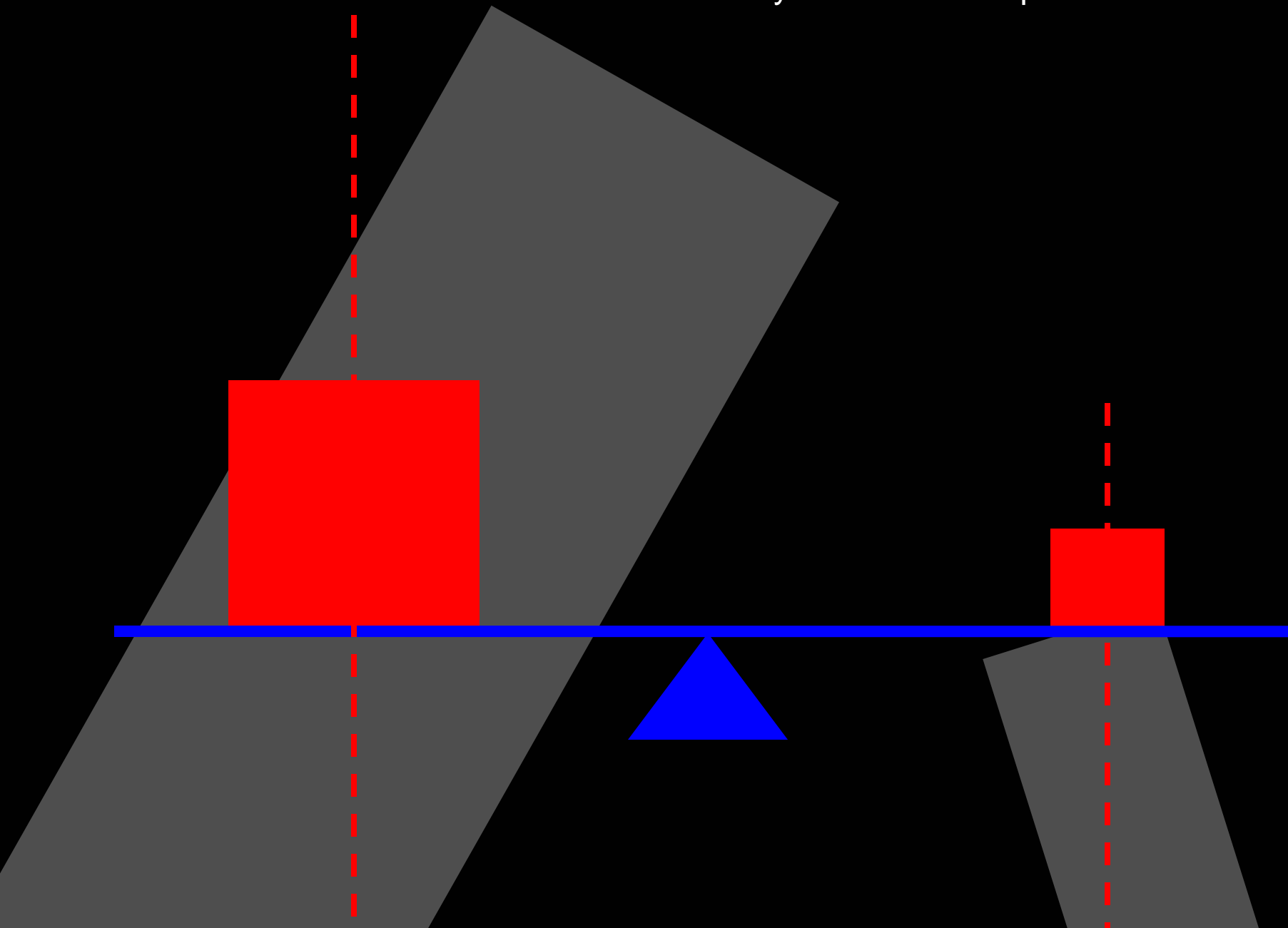




Imbalance might be the goal of your design,  
but if it's not...



# Asymmetrical Compositional balance







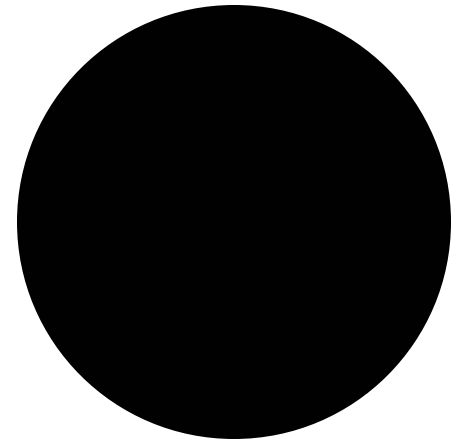
This is a better design for 'Resist' anyway because the center of the frame is the strongest position...



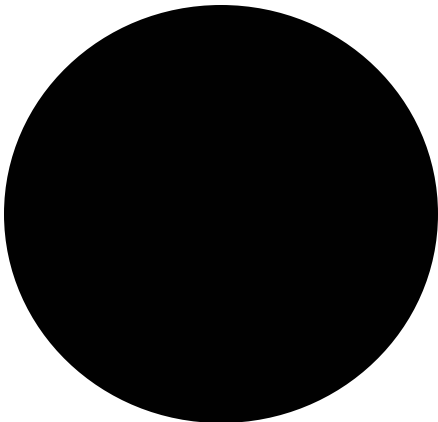
# The Frame



## Virtual Gravity



The Virtual weight of an element depends on its location within the frame. An element nearer the top of the frame will appear 'heavier' than a lower one.



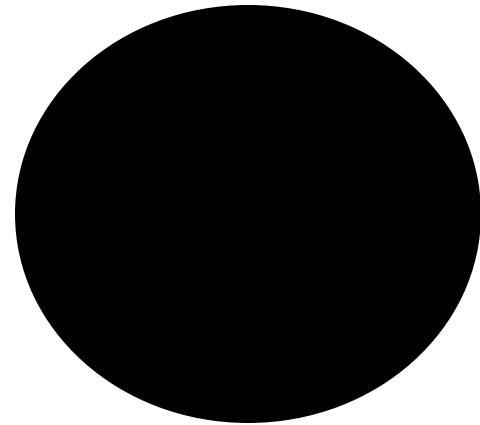


# Virtual Distance



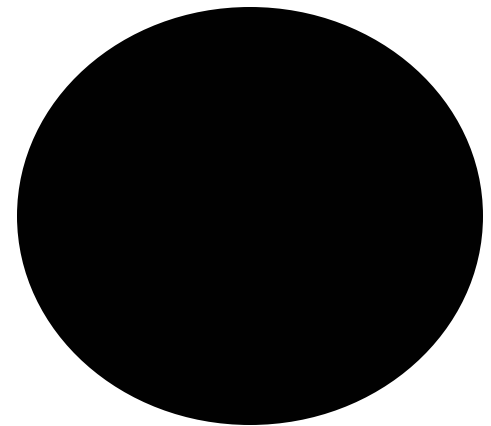
There's more than just virtual gravity and distance at work...

The edges, corners and center of the frame each seem to pull and push on elements causing tension. For example, an element lying on the edge seems stuck to it, which draws more attention to the edge itself than the element.



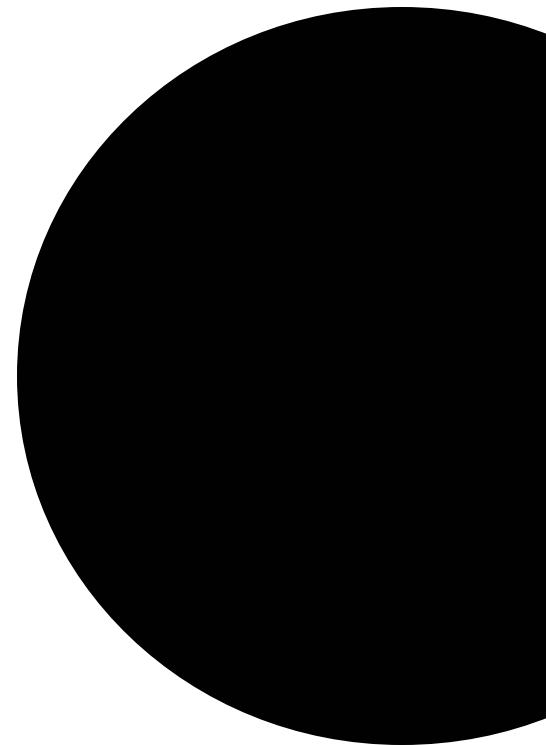


While the element is still free-floating the frame is less apparent so we tend to see through it like a window and not think about it.





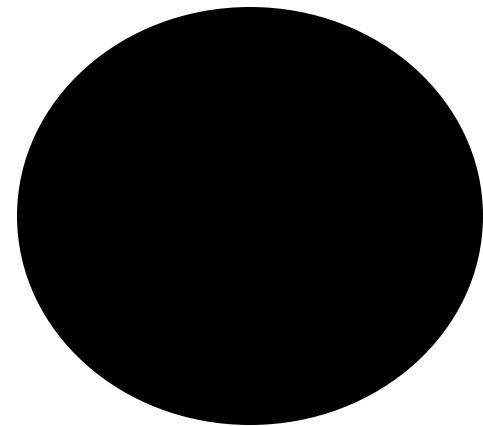
If the frame sufficiently crops the element, the frame is less apparent as well, but not as invisible as when the element was floating.

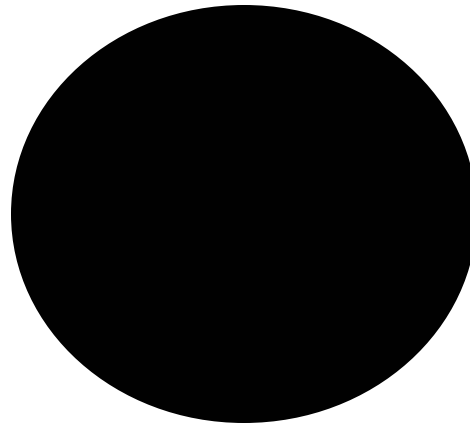




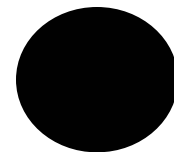
In this example, is the element supposed to be touching the edge or not?

If the element is simply near the edge but not touching it, it may seem as if the edge is pulling on it with great force, but for some reason the element is resisting it. It's an ambiguous placement that may cause us to question what the designer intended.



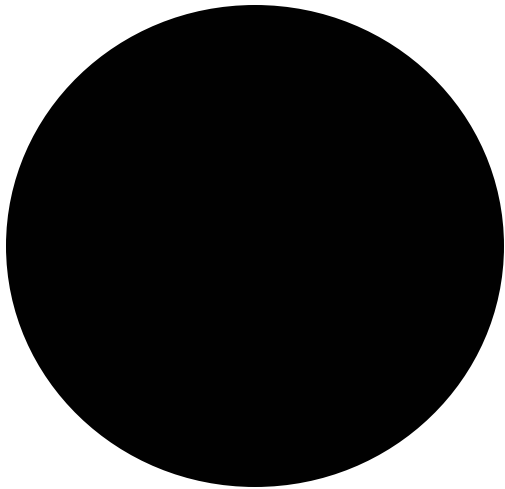


The same is true with the center of the frame. If the element is only a little bit off it can cause ambiguous perceptions which can be distracting.



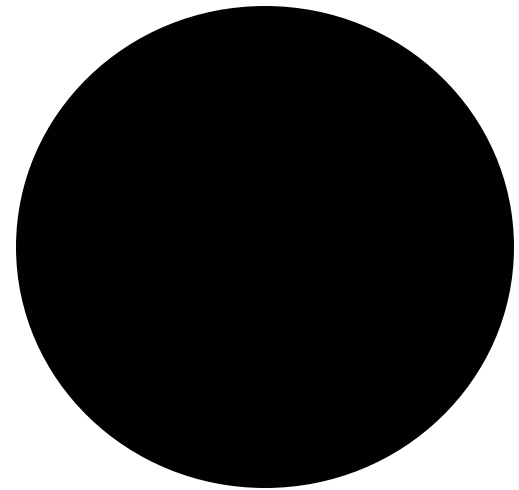
The same is true with the corner of the frame.

## Left to Right Balancing



Elements on the left will appear closer and less heavy than those on the right because we feel psychologically closer to the left.

## Left to Right Balancing



Objects on the right feel farther away and much heavier.



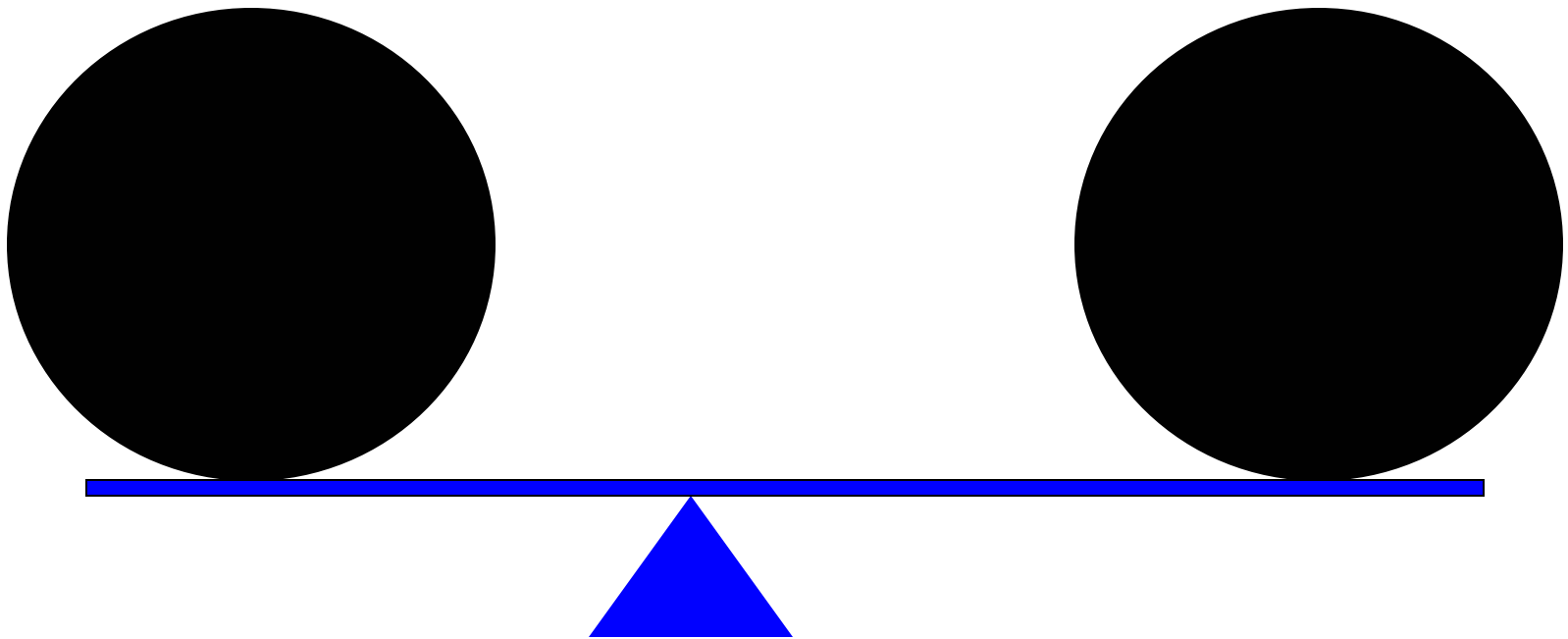
Compare the balance of these two compositions.



This figure pulls the composition down dramatically when he's on the right but not on when he's on the left.

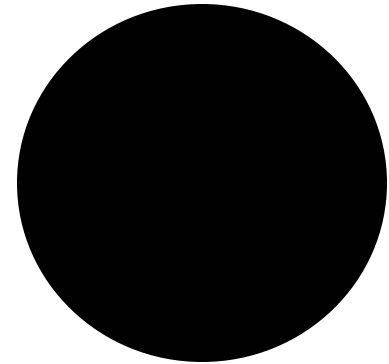
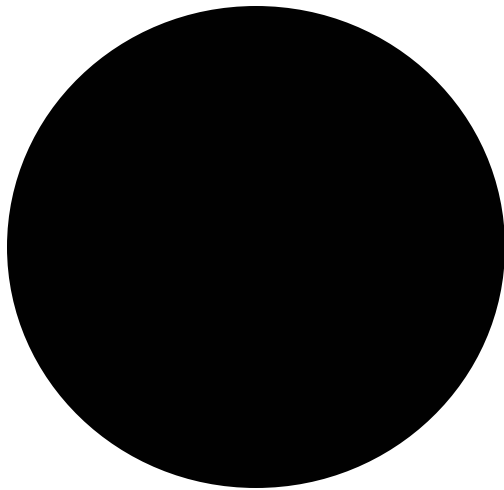


## Left to Right Balancing



Our fulcrum of vision may lie somewhere around here.

## Left to Right Balancing

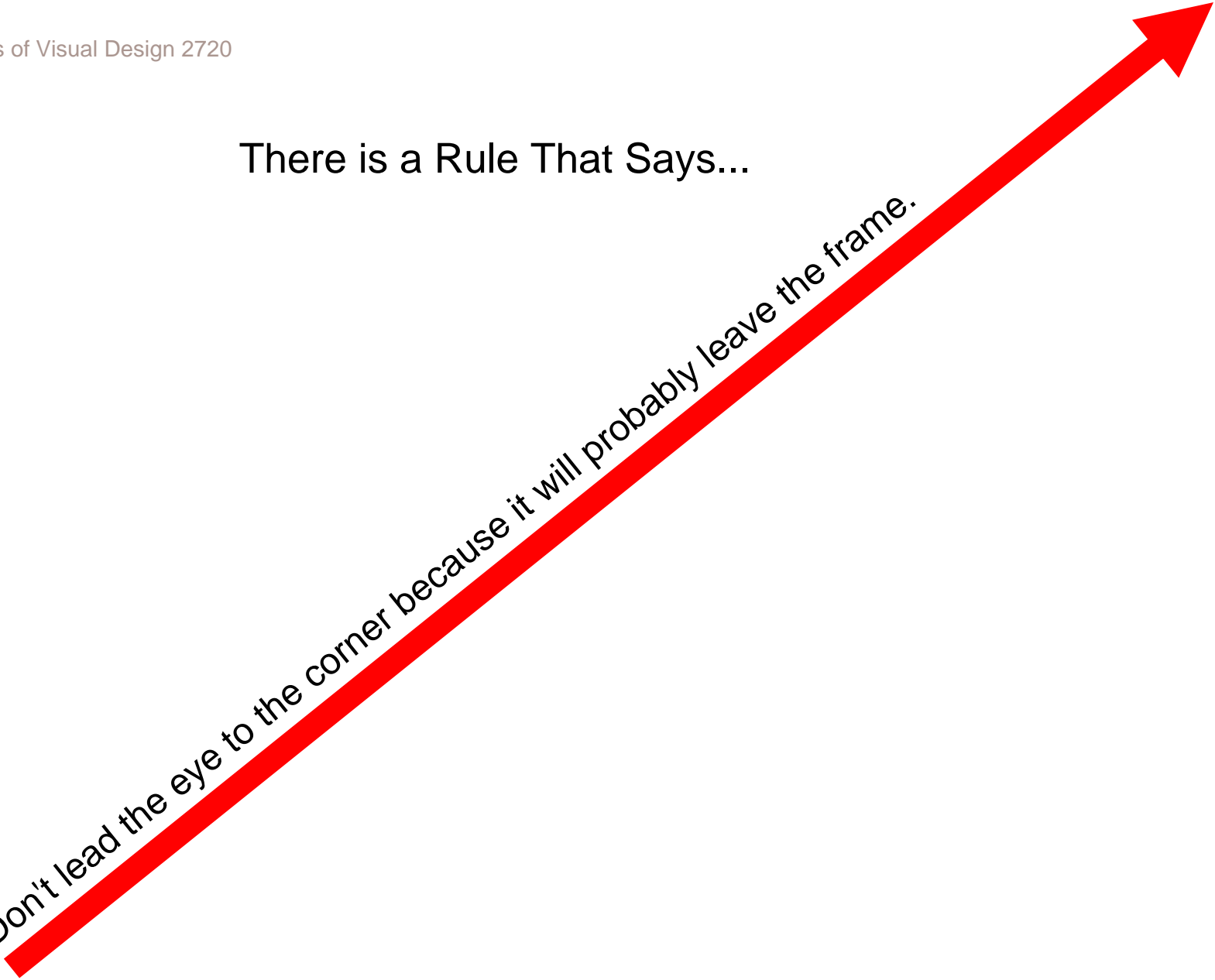


So to balance the design we could lessen the impact of the right-most element.



There is a Rule That Says...

Don't lead the eye to the corner because it will probably leave the frame.

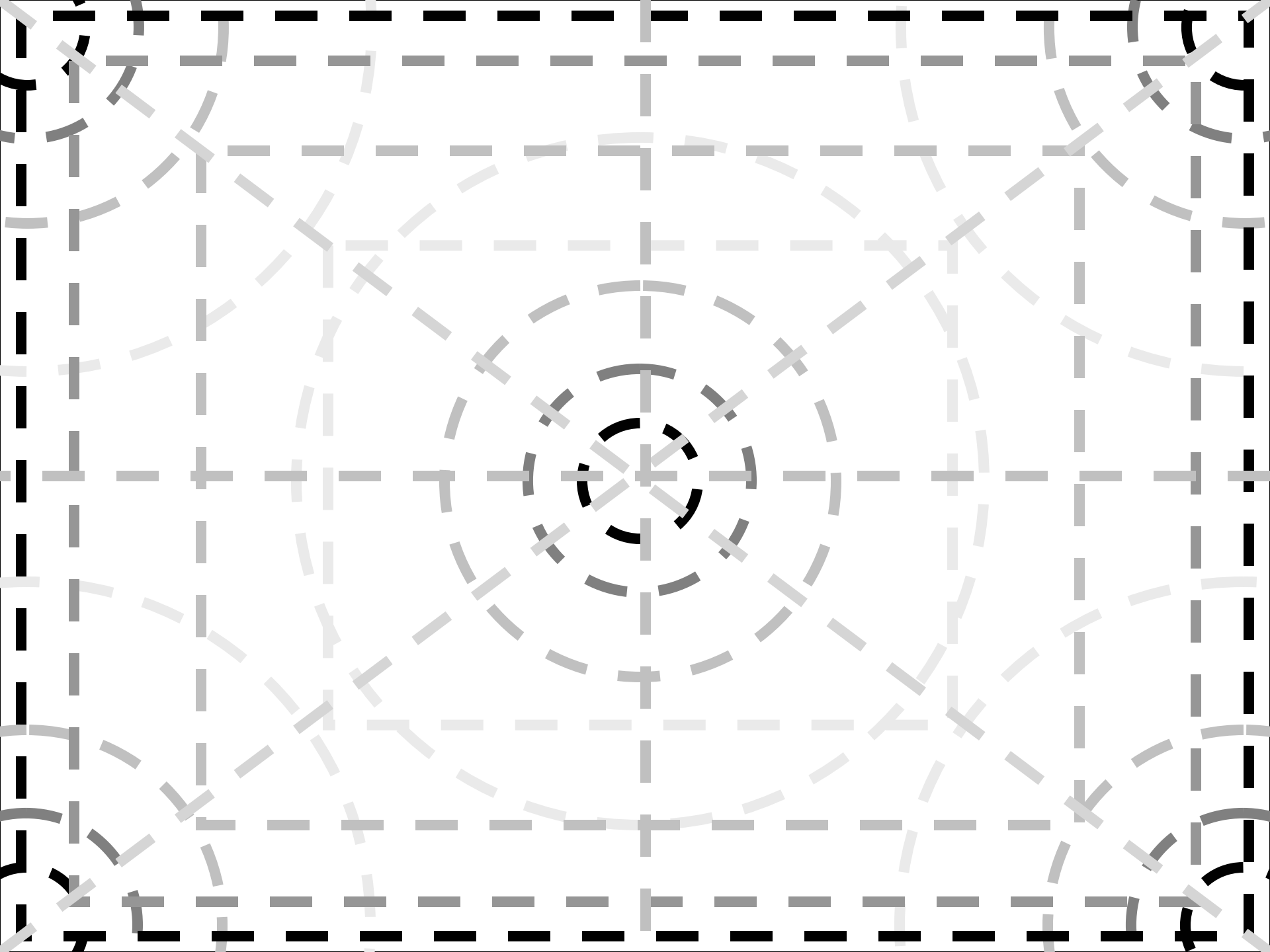


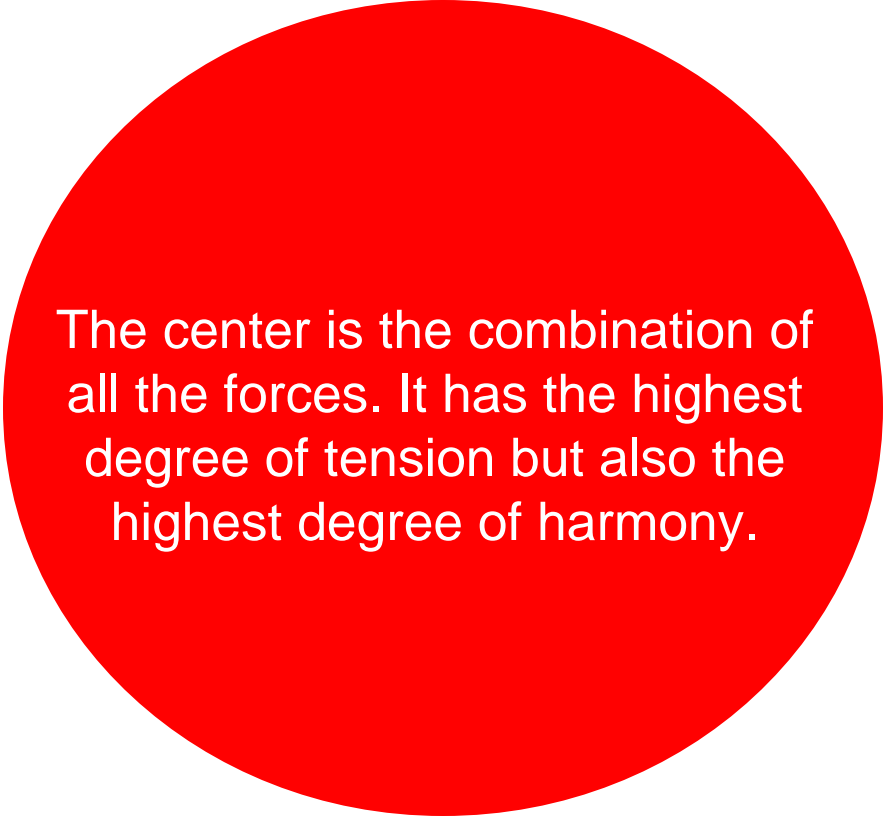


Every rule is there to be broken. Because the rule is so forcefully broken here, it becomes the crucial dominant feature of an effective design.



Can we map out these hidden structural forces of the frame?

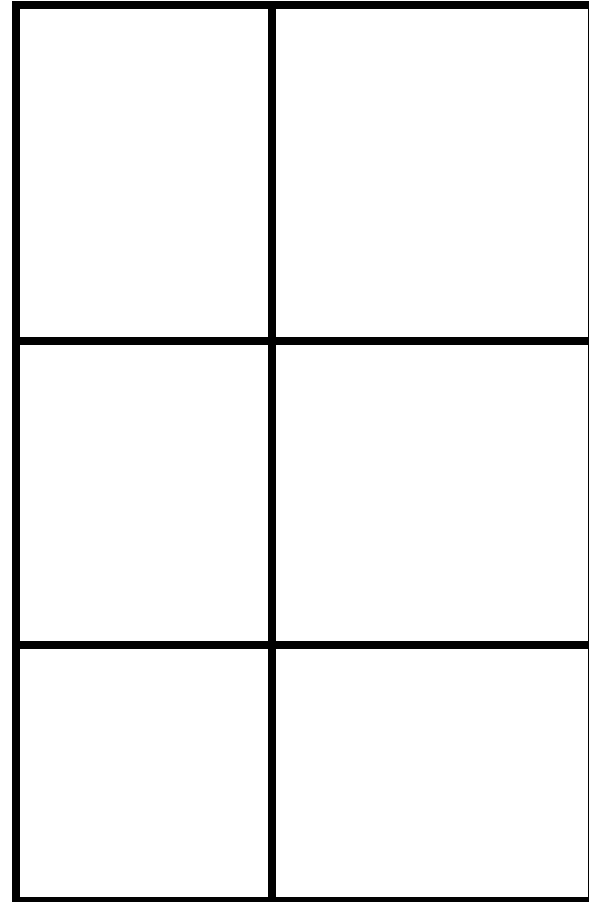
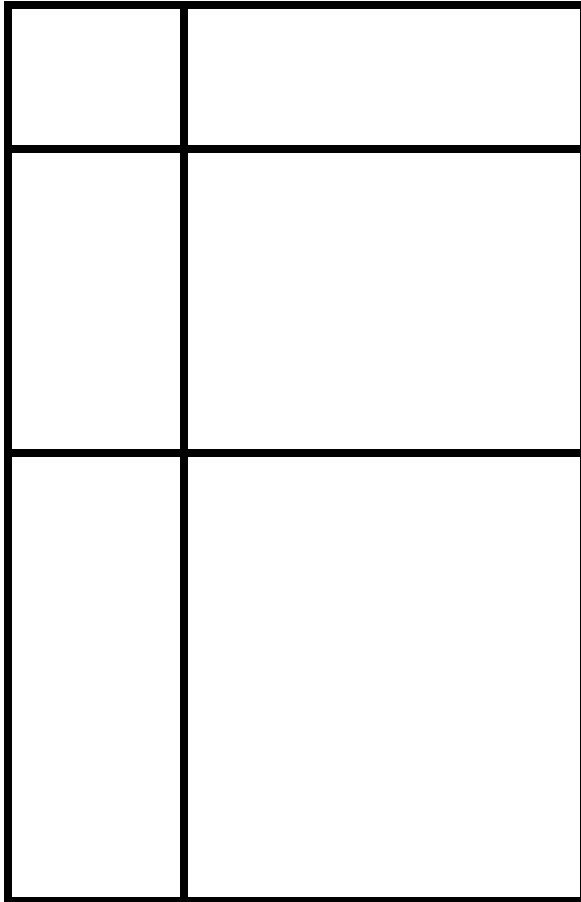


A large, solid red circle is centered on a white background. Inside the circle, there is a paragraph of text in white, sans-serif font. The text is centered within the circle and reads: "The center is the combination of all the forces. It has the highest degree of tension but also the highest degree of harmony."

The center is the combination of all the forces. It has the highest degree of tension but also the highest degree of harmony.

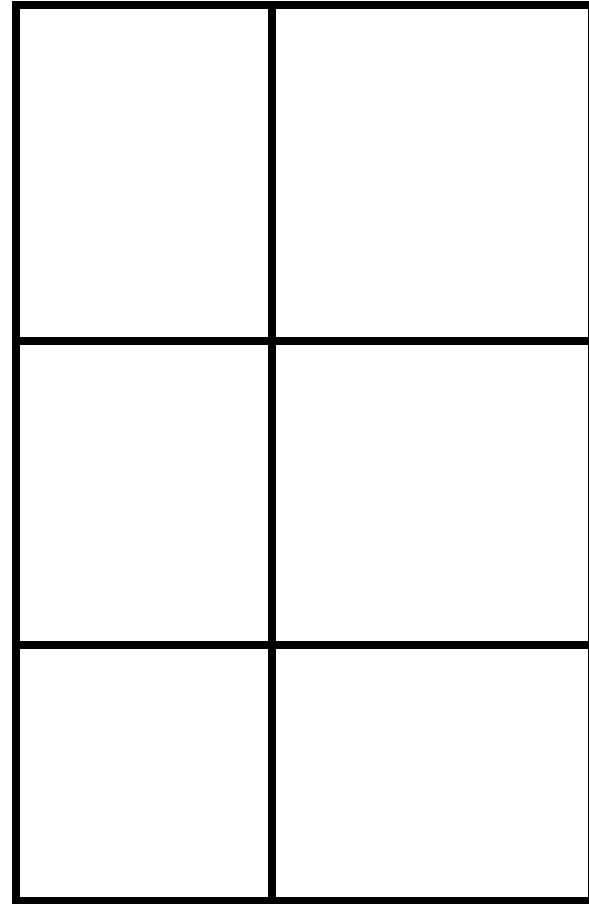
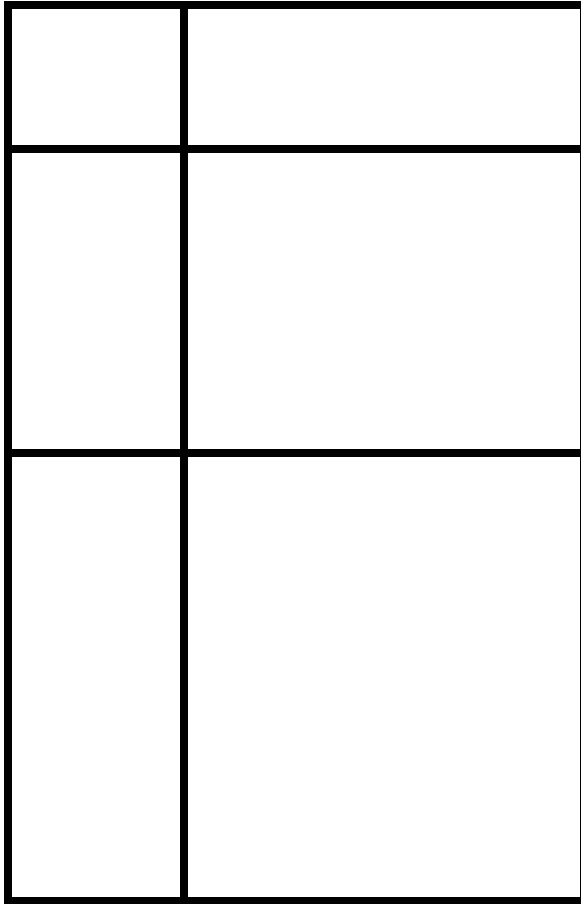


An Old-Fashioned Test of the Designer...  
Which is the more 'beautiful' composition?

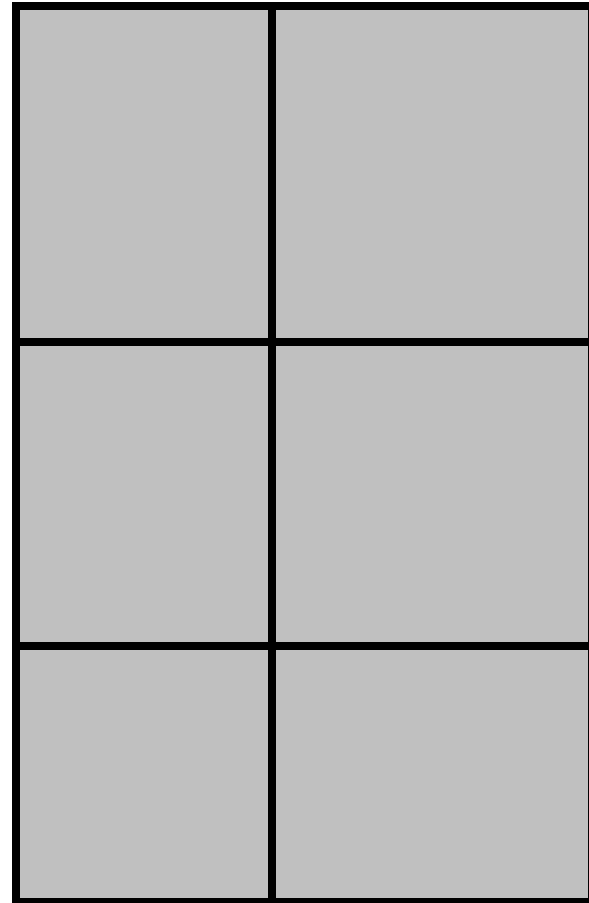
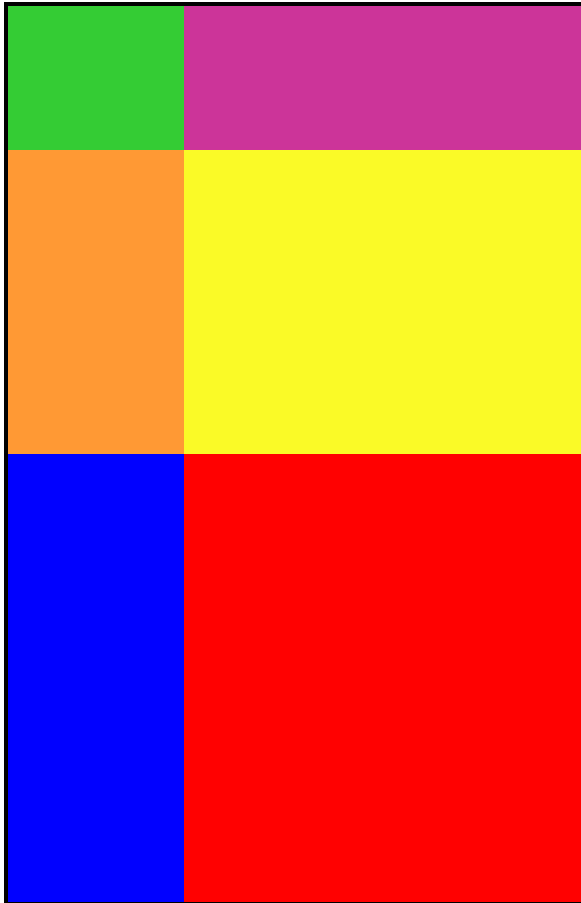




The answer lies in the elementary concept of difference and sameness...

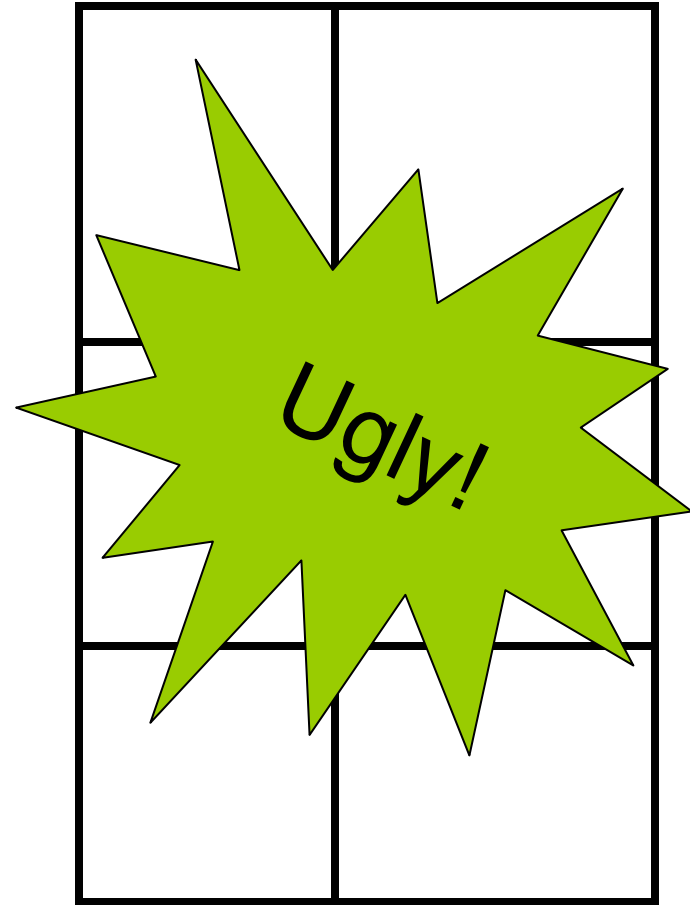
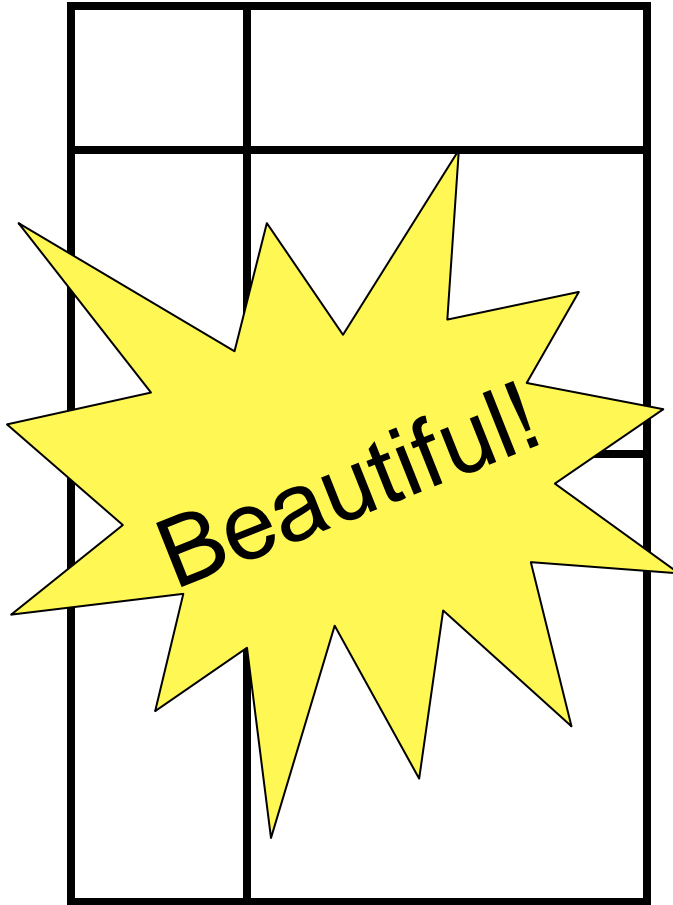


Ambiguity in congruence is unappealing. The compositional elements on the left exhibit sufficient differences so we can tell them apart through size and shape. In the composition on the right it is more difficult to do so.



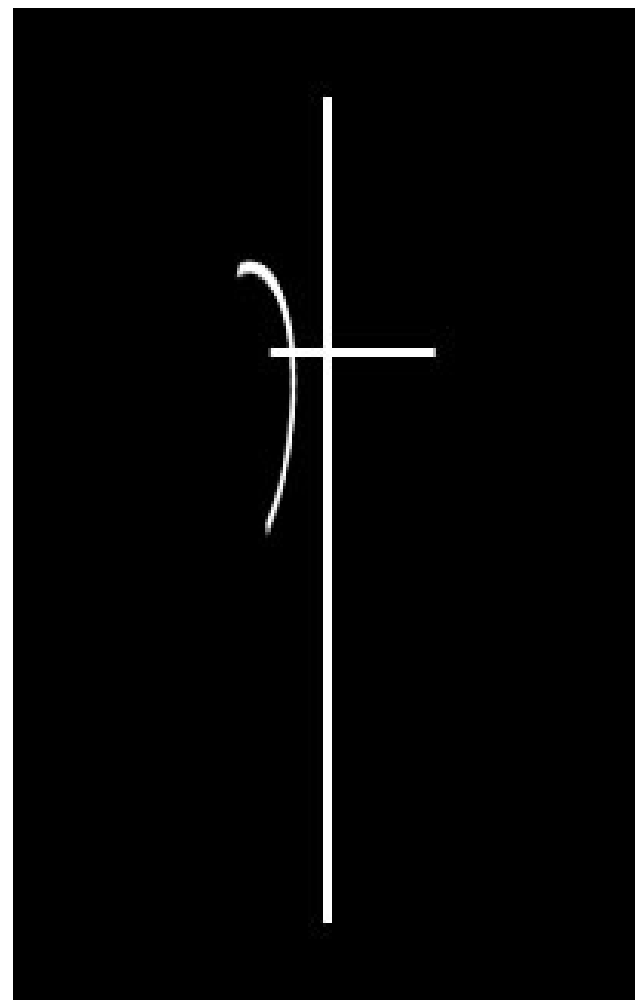
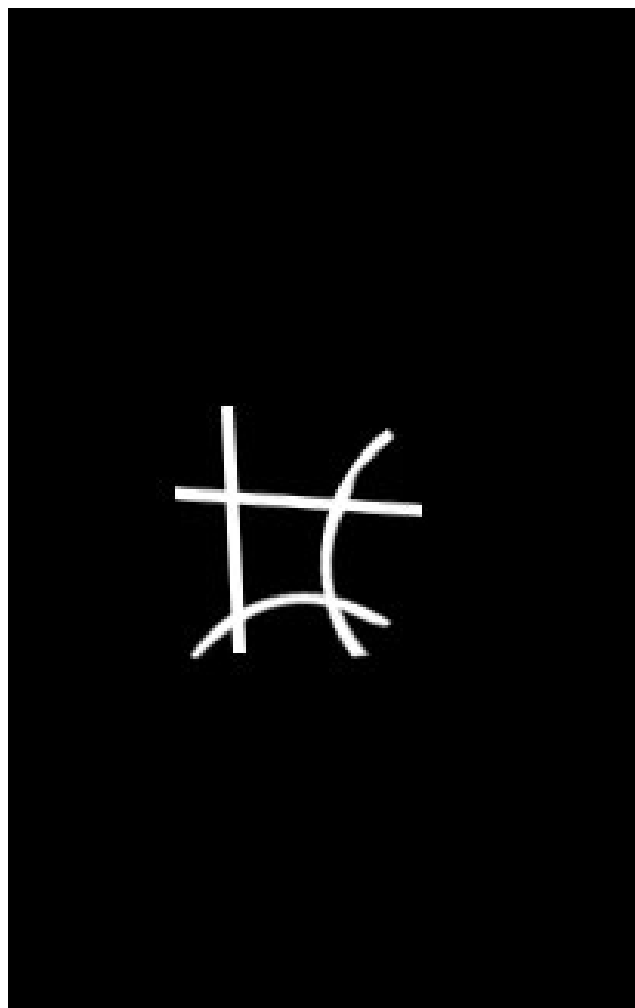


Although this is a good lesson, if only design were this simplistic...



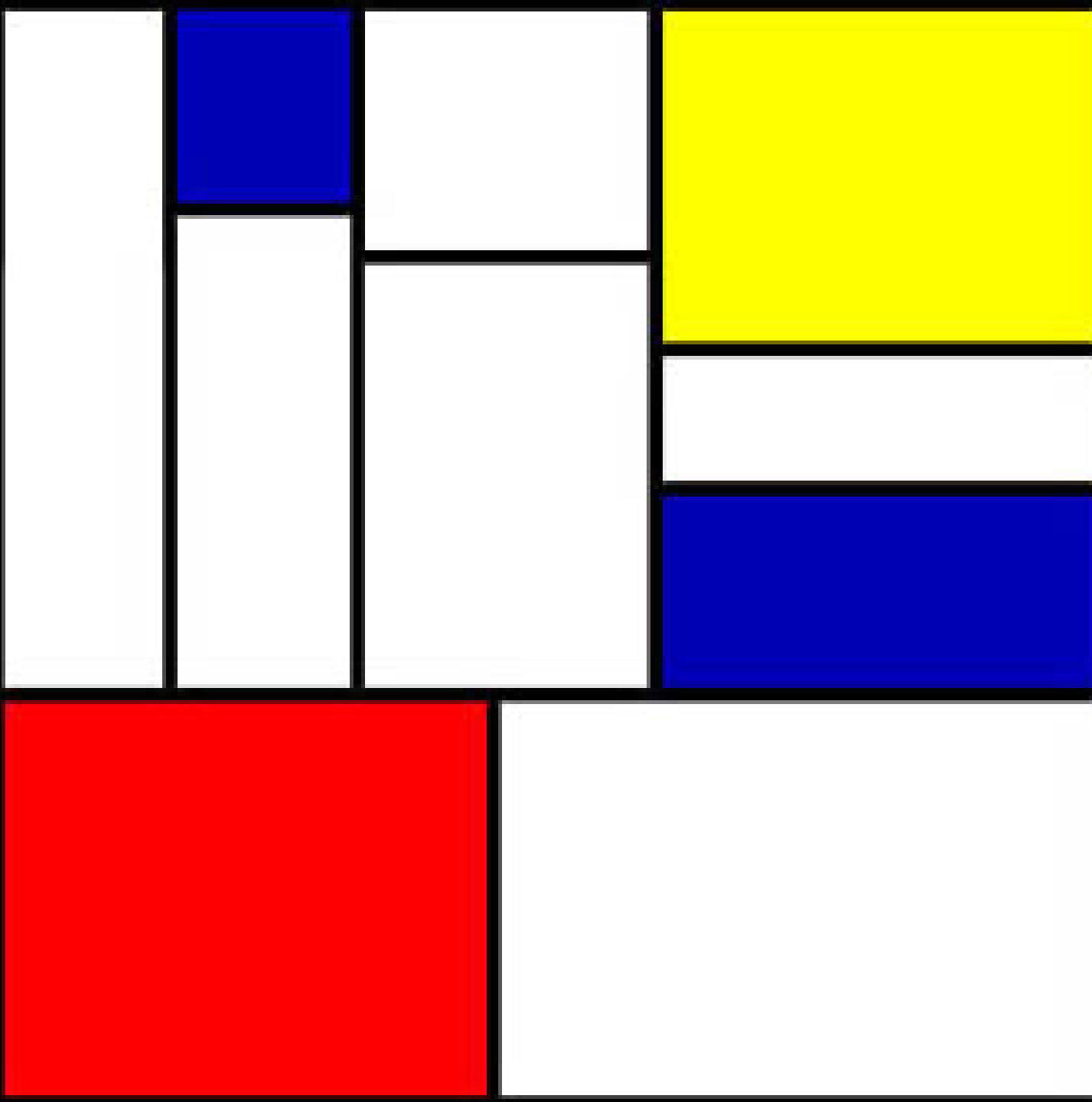


Which is more 'beautiful' and why?



Again, it is far from this simple...



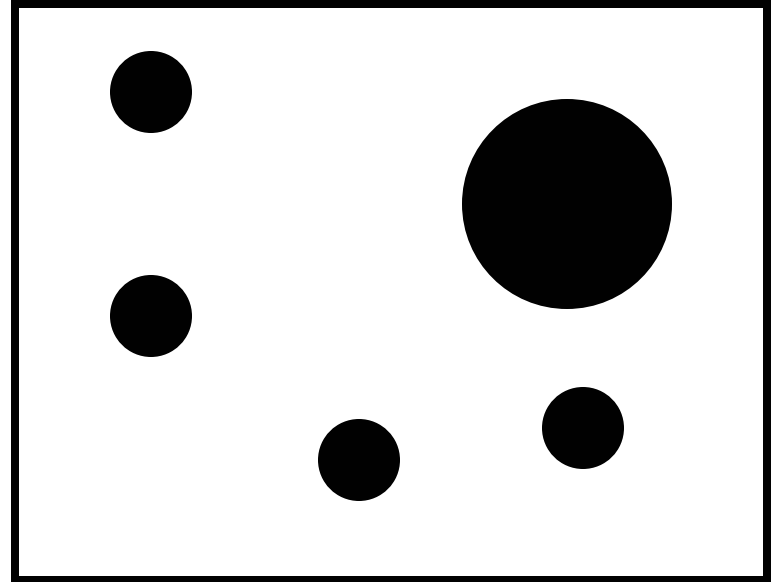
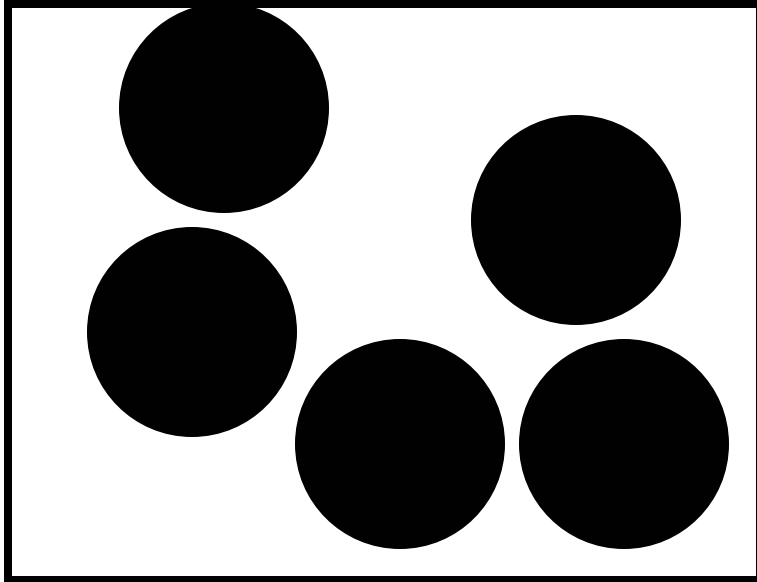


# Salience

Salience is an element's level of impact.

In the designs that were considered 'beautiful' each element had it's own distinct salienc which adds up to a higher degree of salienc in the design as a whole.

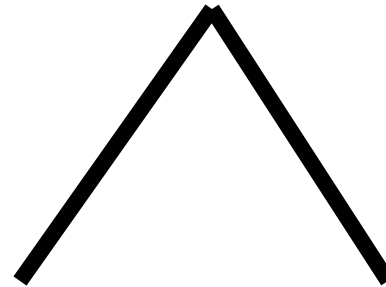
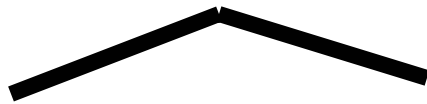
## Saliency



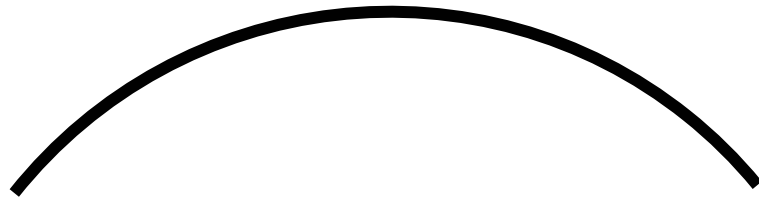
Internal as well as external factors effect the measure of saliency...

For example, in these two compositions there is a similar black circle. However, on the right is has greater saliency due to its uniqueness.

## Saliency through Exaggeration

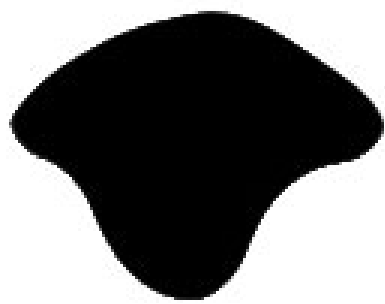
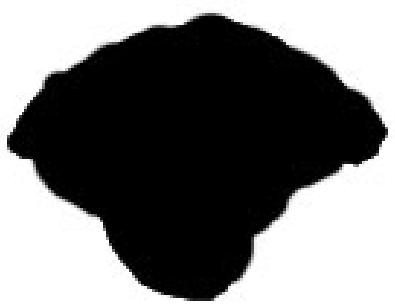


## Salience through Scale



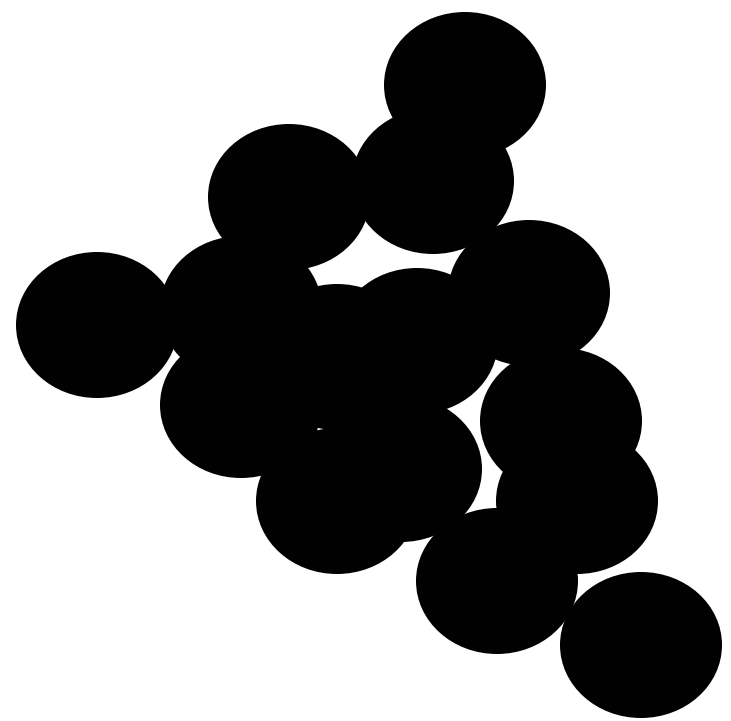
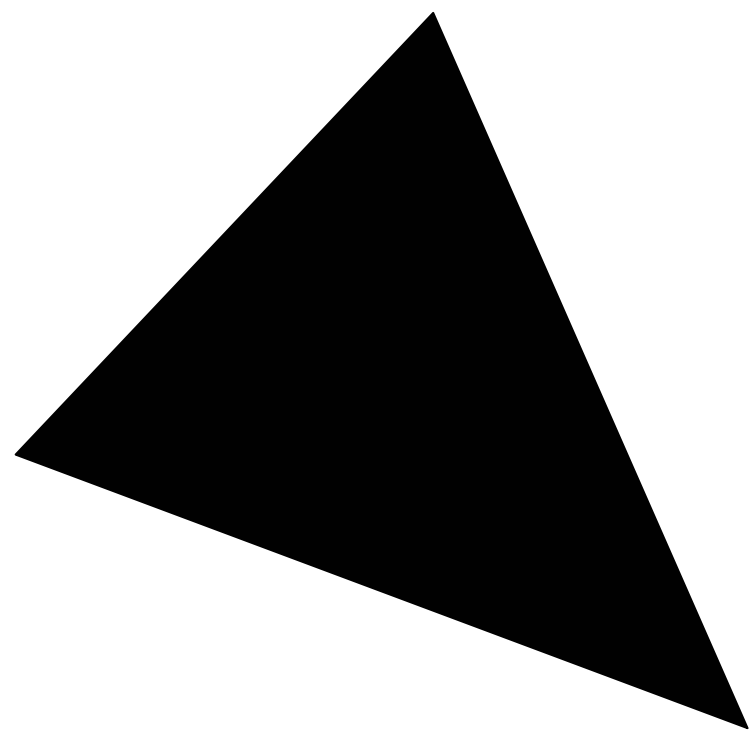


## Saliency through Clarity of Contour

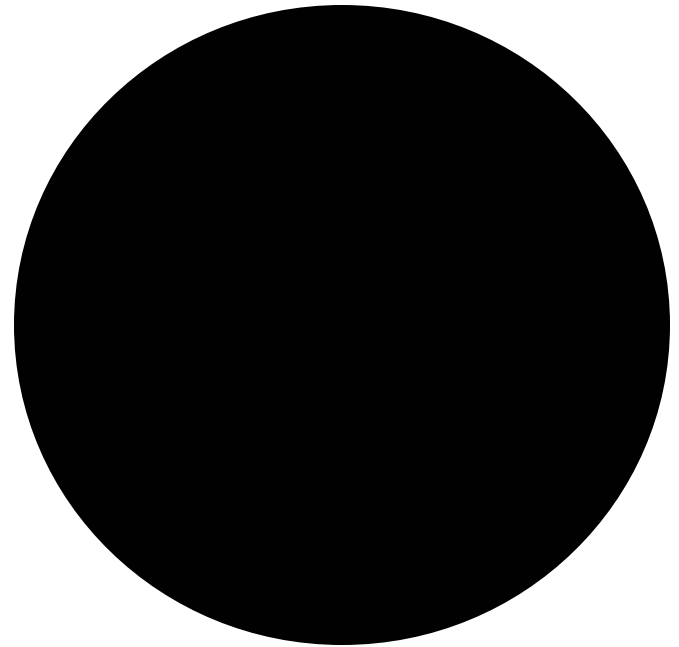




## Saliency through Strength of Form

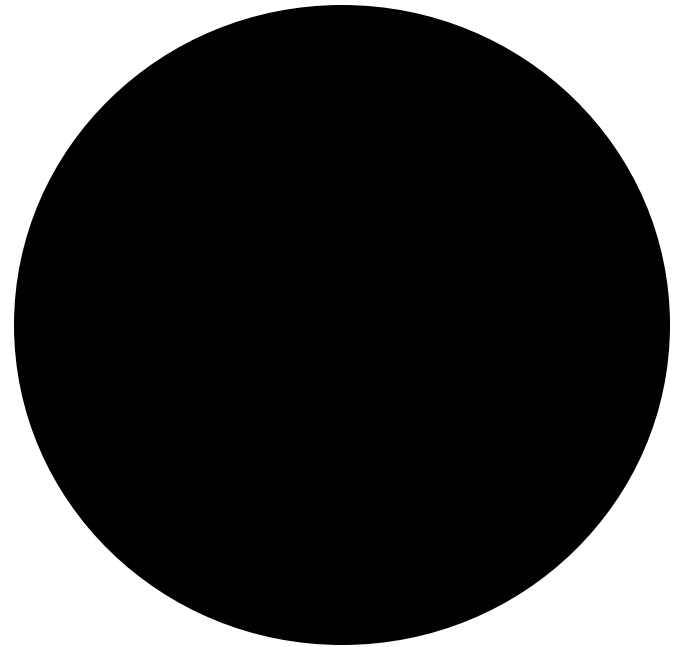


## The Dominant



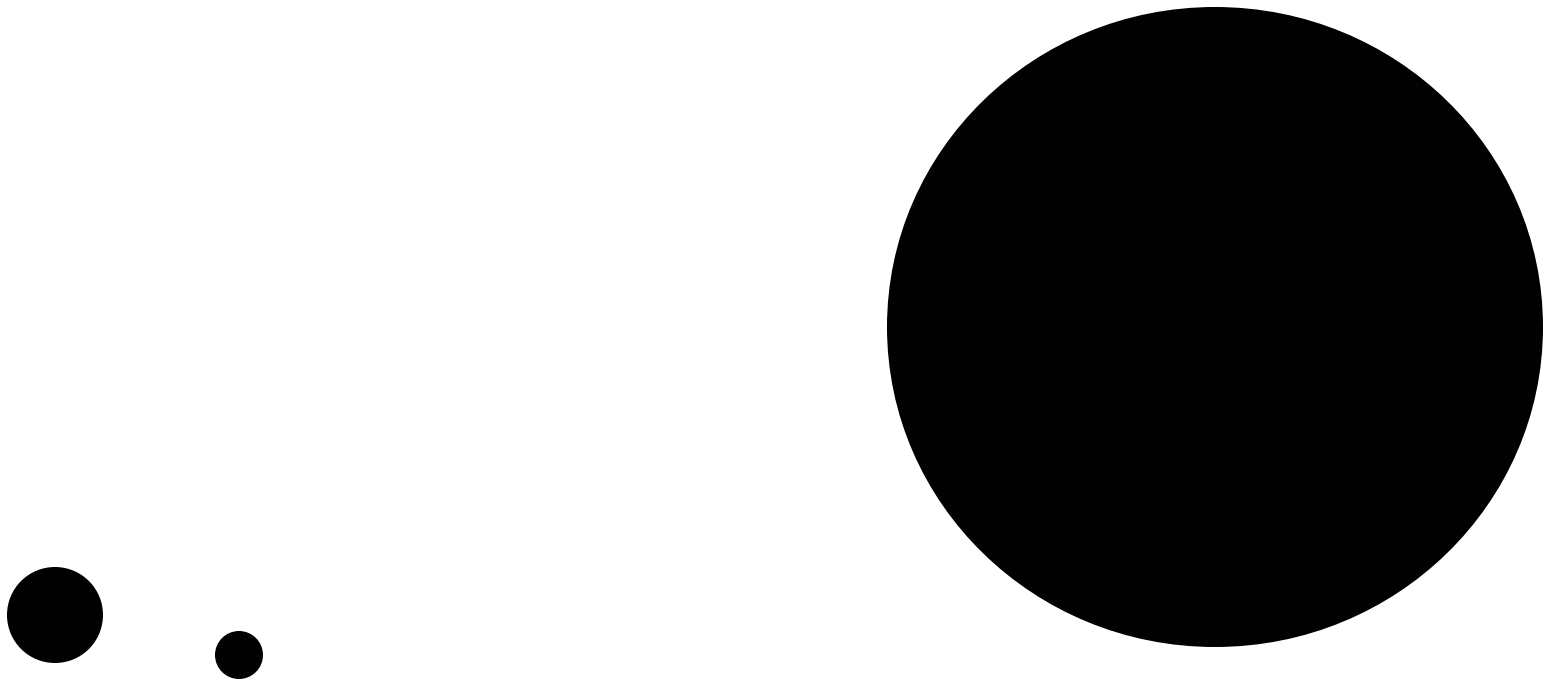
Many designs have a dominant. It's simply the element the guest will probably look at first.

## A Subdominant



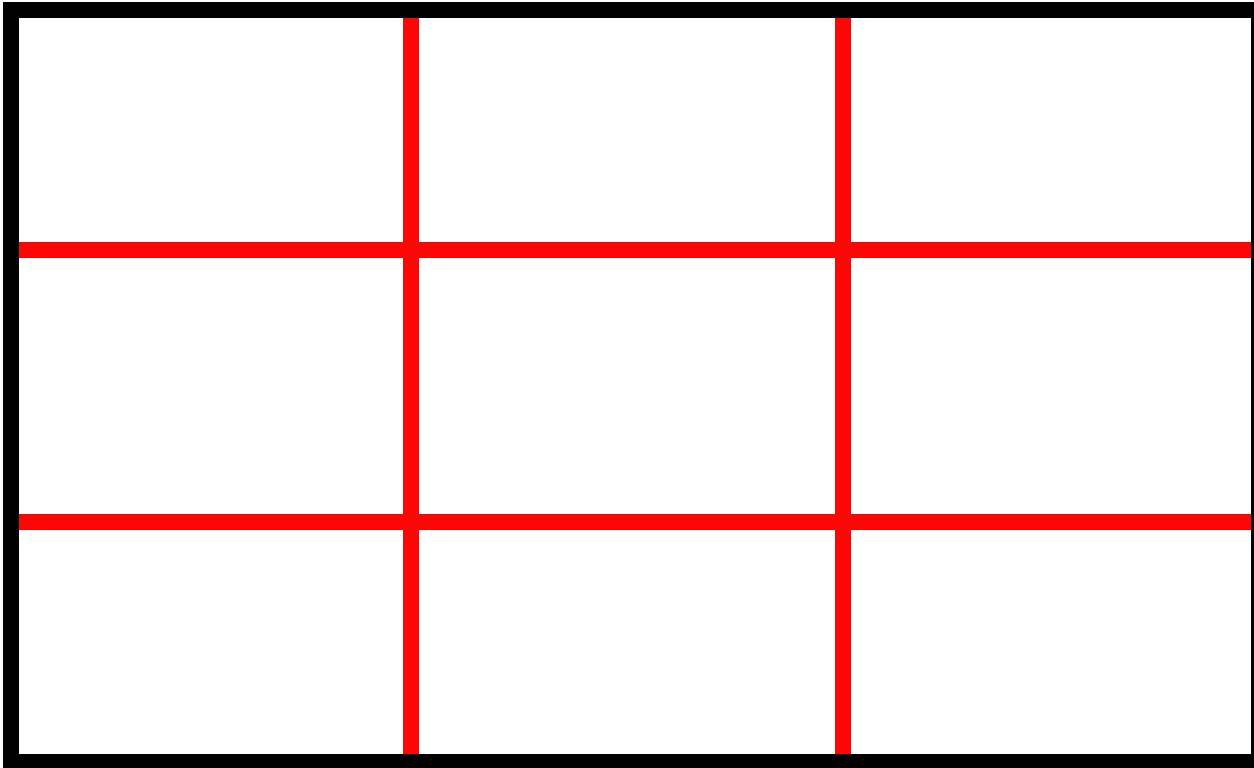
It's the element the guest will probably look at next.

## The Second Subdominant



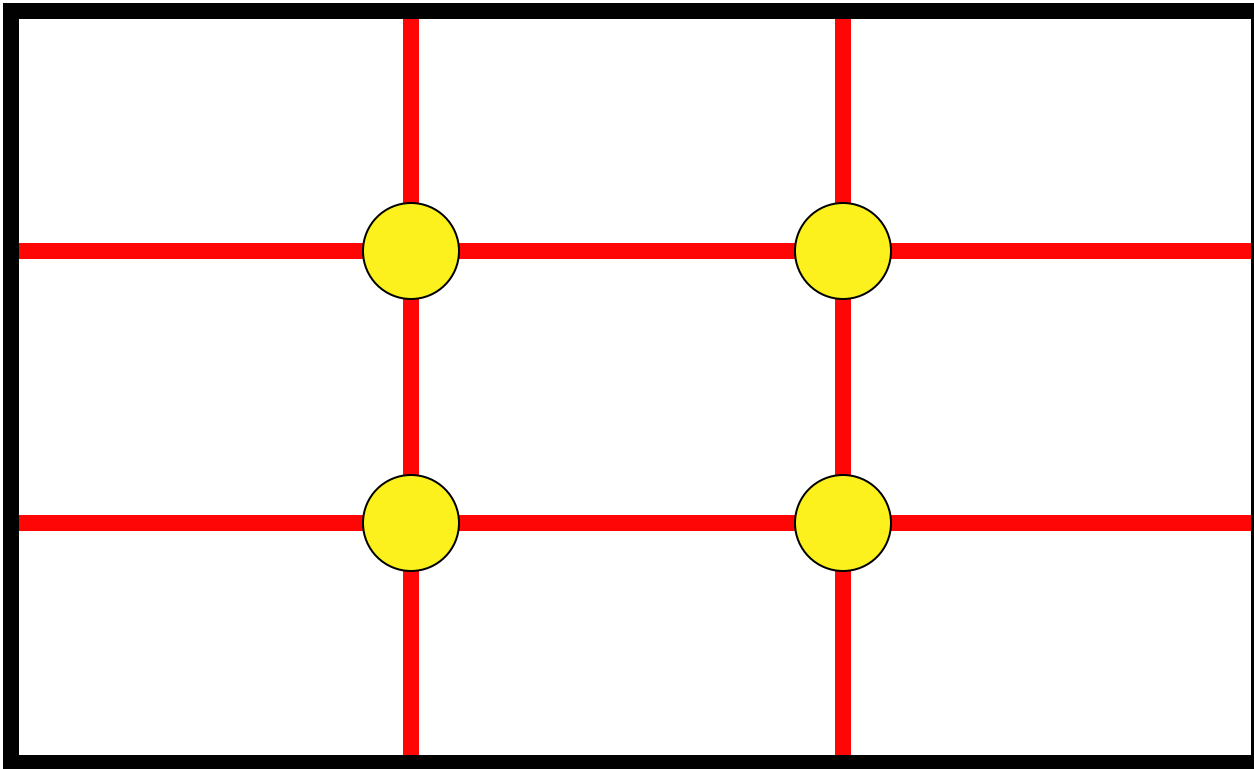
It's the element the guest will probably look at after the subdominant.

The Rule of Thirds:  
Break up the composition into nine areas of equal size...





The Rule of Thirds:  
locate the four intersections of the dividing lines...





The Rule of Thirds:  
and put the dominant near one of the four intersections.





The Rule of Thirds:  
and put the dominant near one of the four intersections.





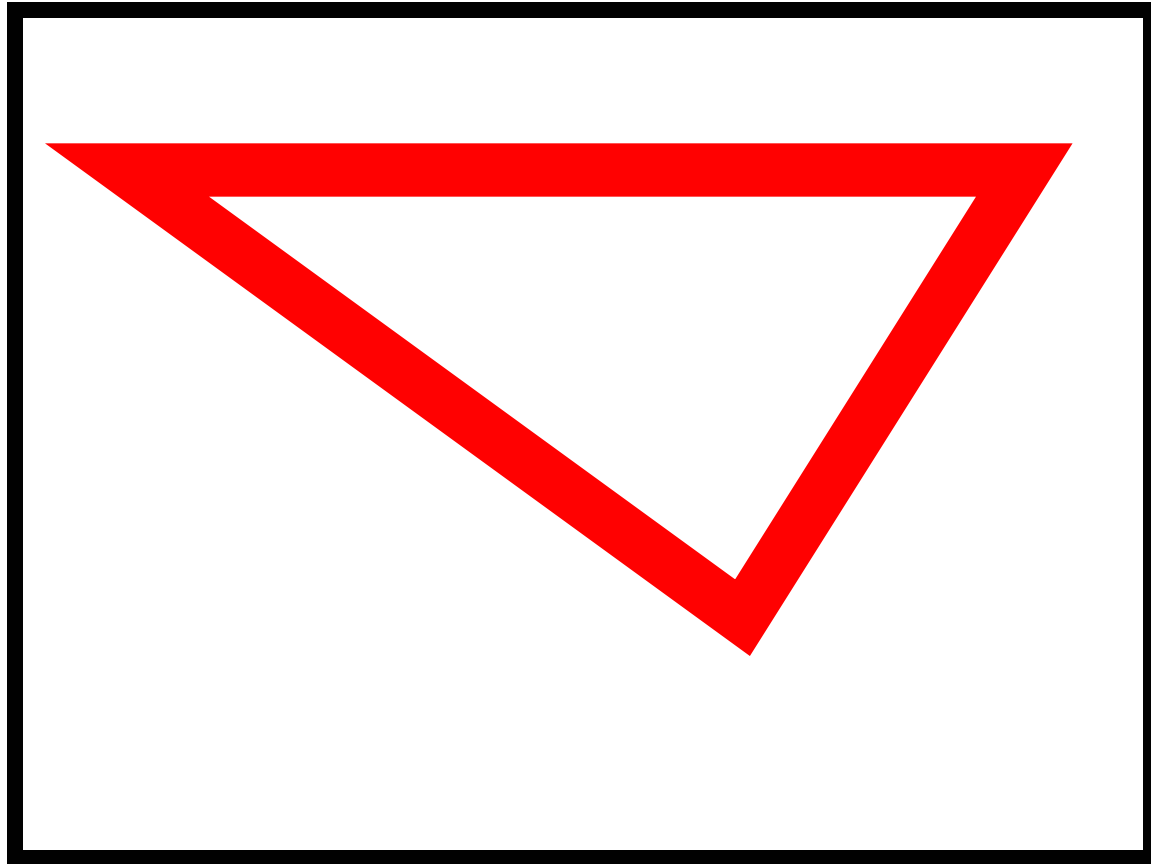
## The Rule of Thirds



The Rule of Thirds doesn't always apply...



## How to Build A Compositional Triangle





## How to Build A Compositional Triangle



Create a Dominant

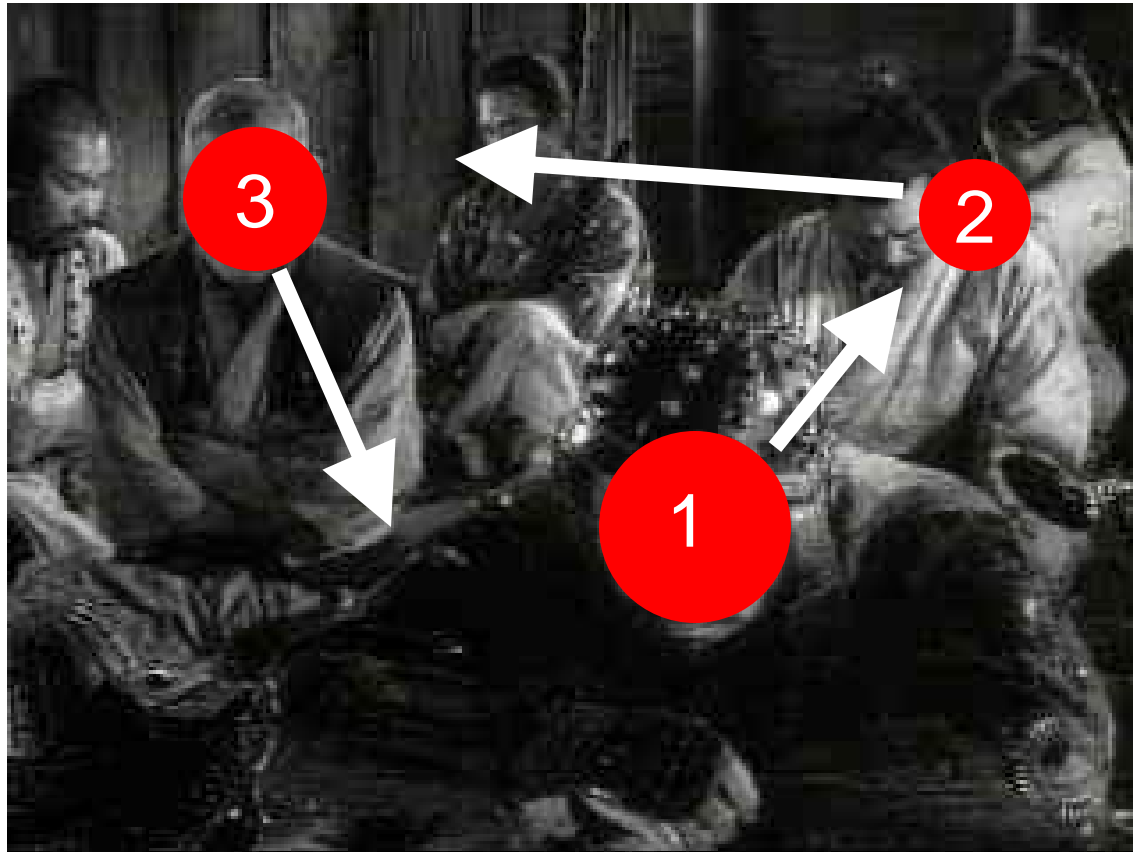


## Building The Compositional Triangle



Create the Subdominants

## Building The Compositional Triangle



Together, these determine the initial path the eye will follow when first exposed to the design.



## Building The Compositional Triangle

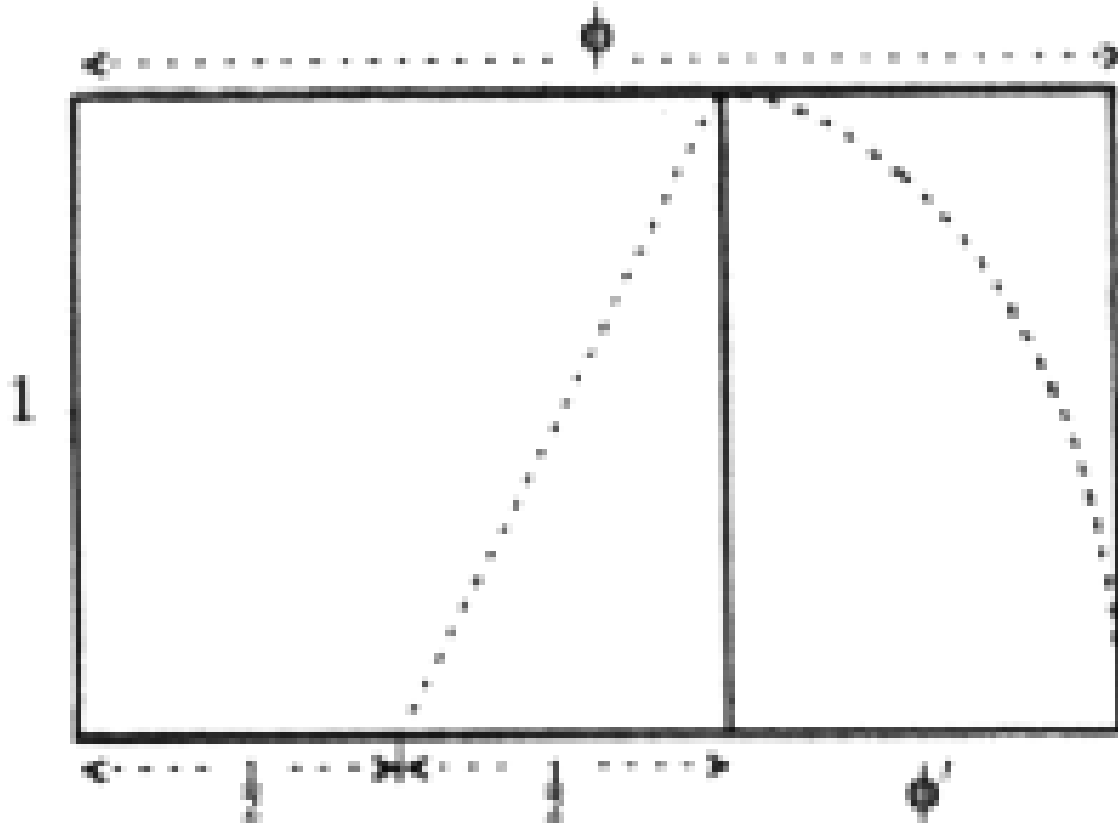


## Golden Rectangle (defined by Phi, the Golden Ratio)



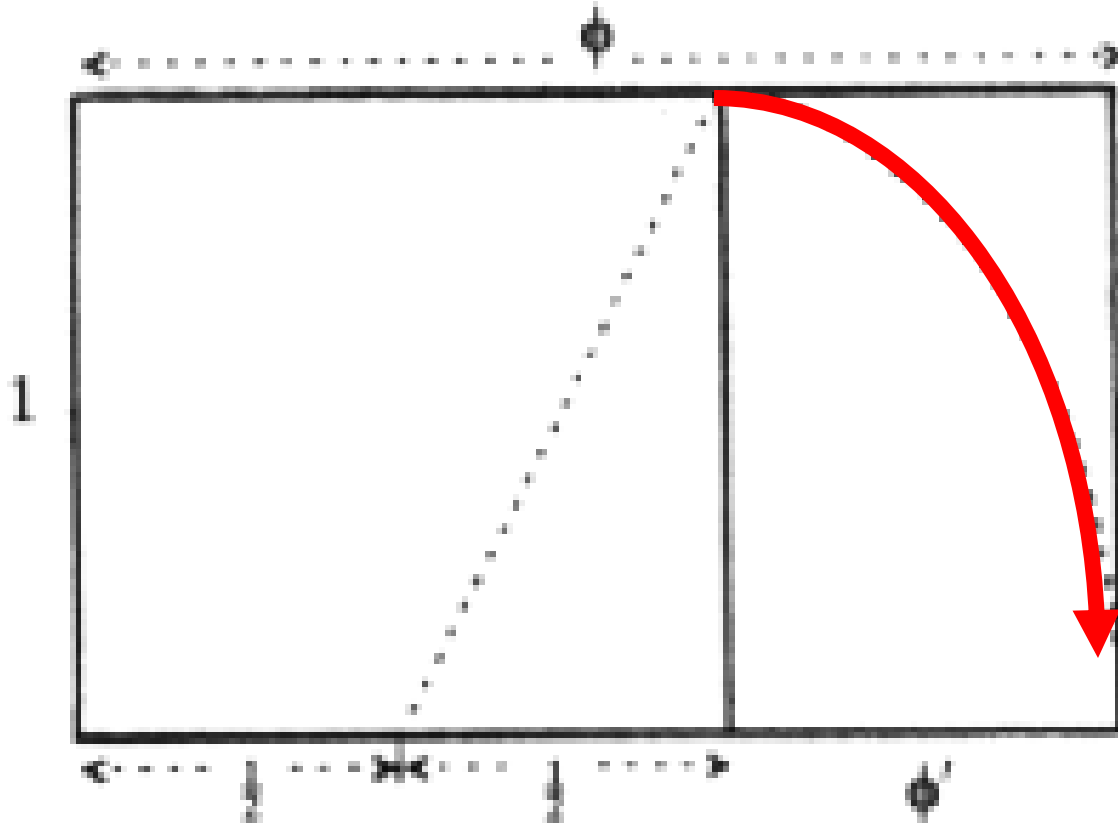
Shapes defined by the golden ratio 1:1.618 have long been considered aesthetically pleasing in Western cultures, reflecting nature's balance between symmetry and asymmetry.

## Golden Rectangle (using the Golden Ratio)



To draw one use the diagonal of one half of a square applied as an arc to extend the square into a rectangle.

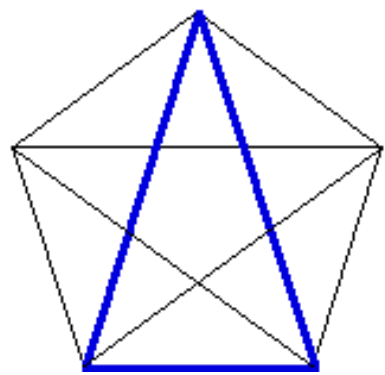
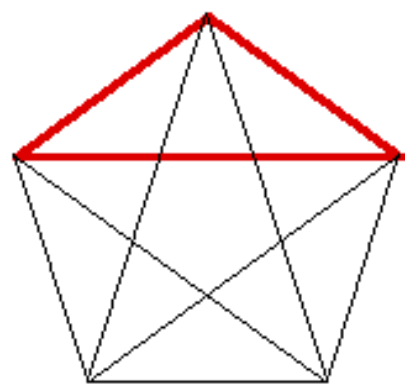
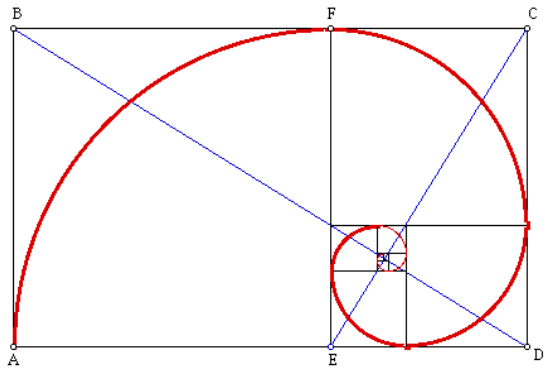
## Golden Rectangle (using the Golden Ratio)



To draw one use the diagonal of one half of a square applied as an arc to extend the square into a rectangle.

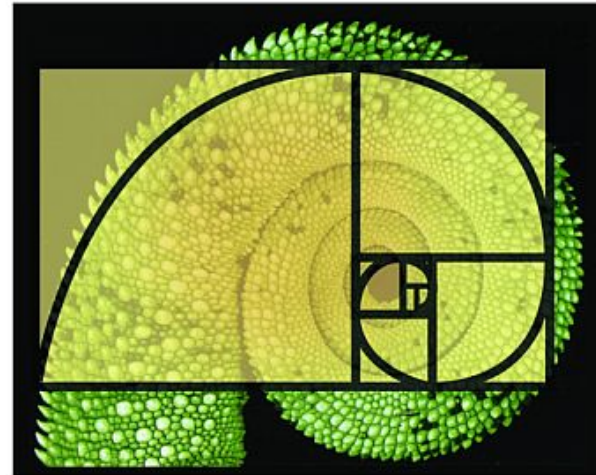
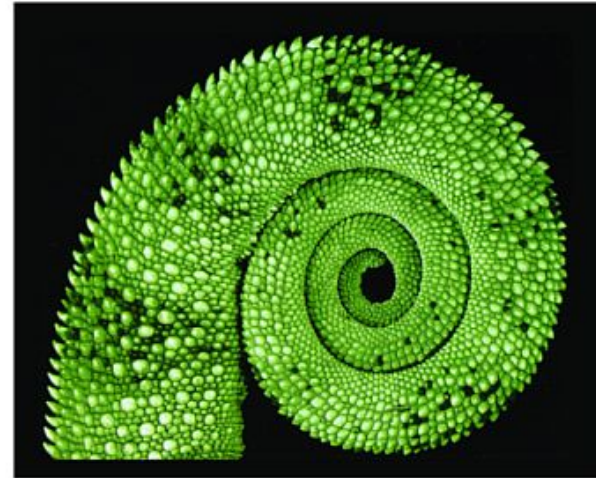
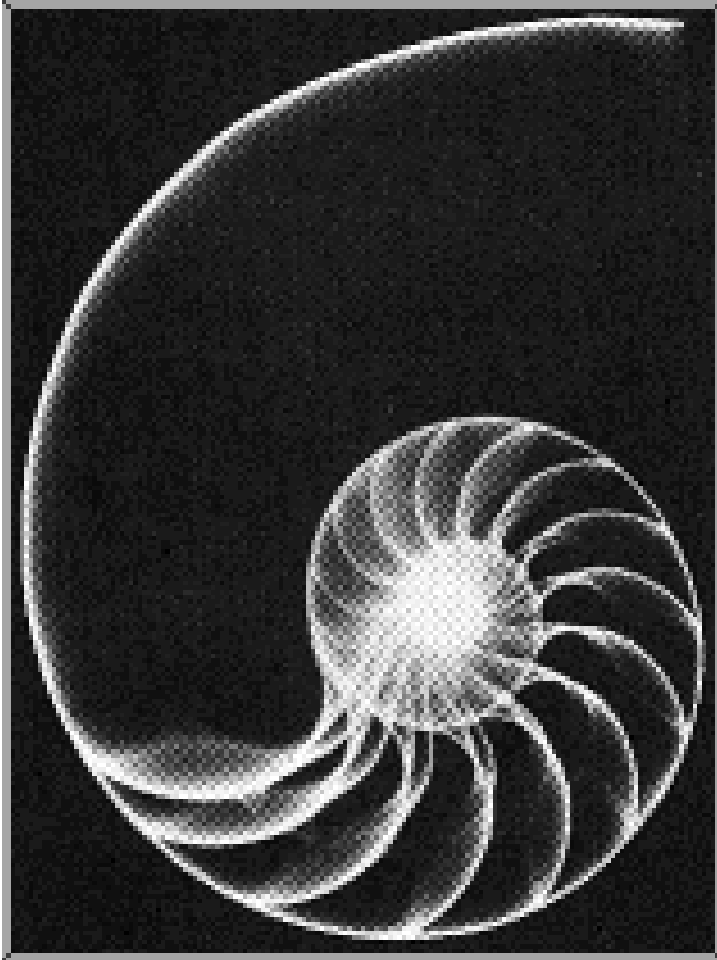


# Golden Ratio in Mathematics





## Golden Ratio in Nature





## Golden Ratio in Nature



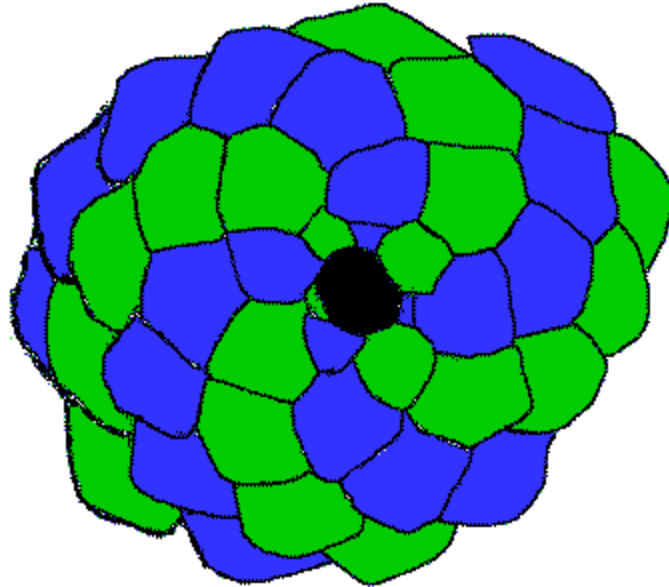


## Golden Ratio in Nature



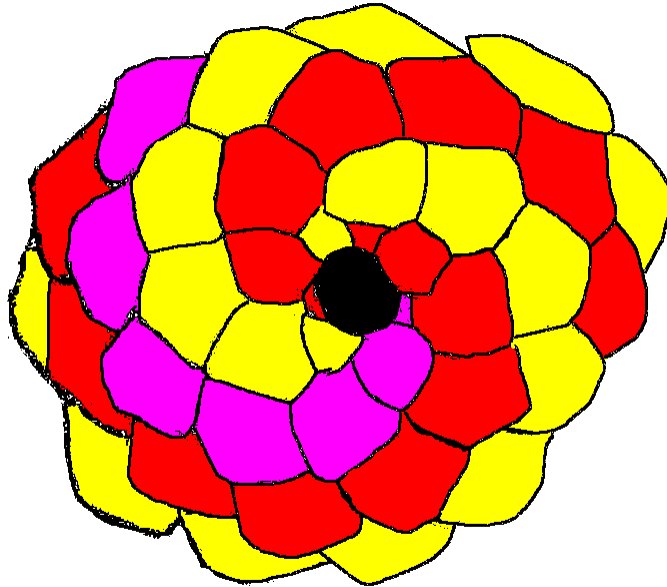


## Golden Ratio in Nature





## Golden Ratio in Nature





irony is a beautiful thing...

## Fibonacci Numbers and the Golden Section

This is the **Home page** for Ron Knott's Surrey University [multimedia](#) web site on the Fibonacci numbers, the Golden section and the Golden string.

The **Fibonacci numbers** are **0, 1, 1, 2, 3, 5, 8, 13, ...** ([add the last two to get the next](#))

The **golden section numbers** are  **$\pm 0.61803\ 39887\dots$  and  $\pm 1.61803\ 39887\dots$**

The **golden string** is **1 0 1 1 0 1 0 1 1 0 1 1 0 1 1 0 1 ...**

a sequence of 0s and 1s which is closely related to the Fibonacci numbers and the golden section.

**There is a large amount of information at this site (more than 200 pages if it was printed), so if all you want is a quick introduction then [the first link](#) takes you to an introductory page on the Fibonacci numbers and where they appear in Nature.**

The rest of this page is a brief introduction to all the web pages at this site on **Fibonacci Numbers** the **Golden Section** and the **Golden String** together with *their many applications*.

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[What's New? - the FIBLOG](#)

16 August 2005

## Fibonacci Numbers and Golden sections in Nature

### ■ [Fibonacci Numbers and Nature](#)

Fibonacci and the original problem about rabbits where the series first appears, the family trees of cows and bees, the golden ratio and the Fibonacci series, the Fibonacci Spiral and sea shell shapes, branching plants, flower petal and seeds, leaves and petal arrangements, on pineapples

## Connotation of a Horizontal Line

---

Cold Rest

## Connotation of a Vertical Line

Hot Rest



## A Diagonal Line to the Upper Right

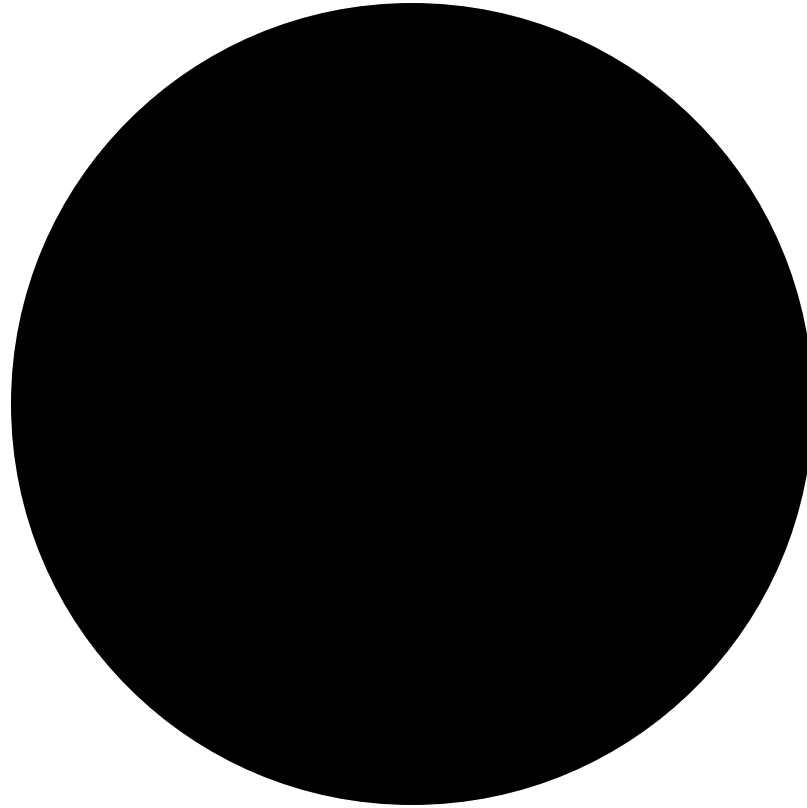
Appealing Energy and Action



## A Diagonal Line to the Upper Left

Unappealing Energy and Action

## Connotation of a Circle



Purity and Potential

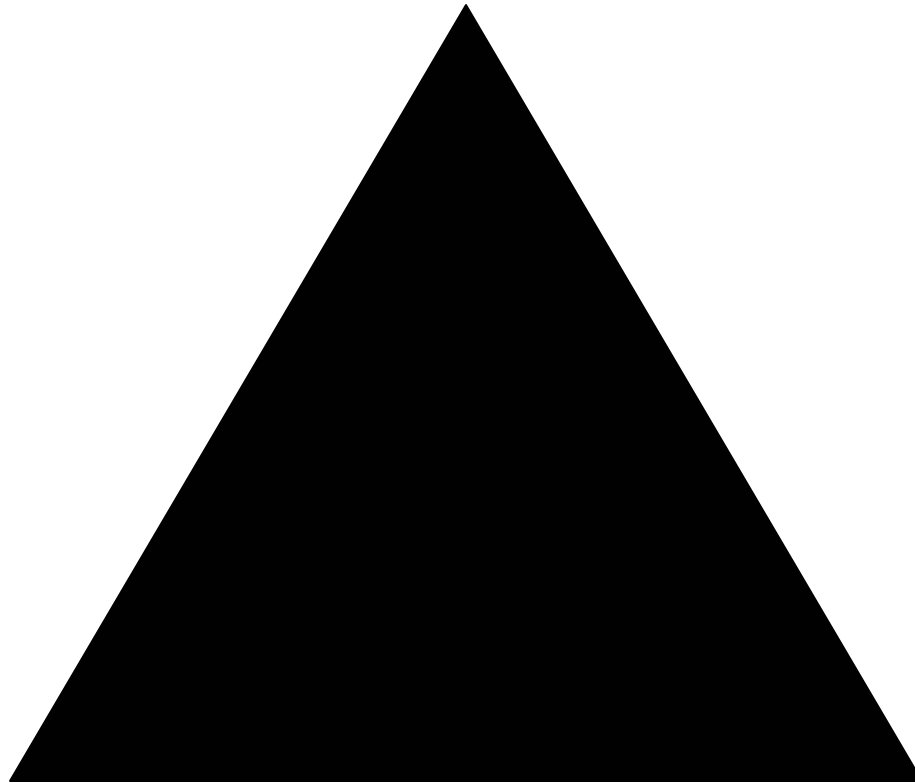
Alberti "Nature enjoys the round forms above all else."

## Connotation of a Square



The icon of man's dominance over nature

## Connotation of a Triangle



Unity, trust and permanence

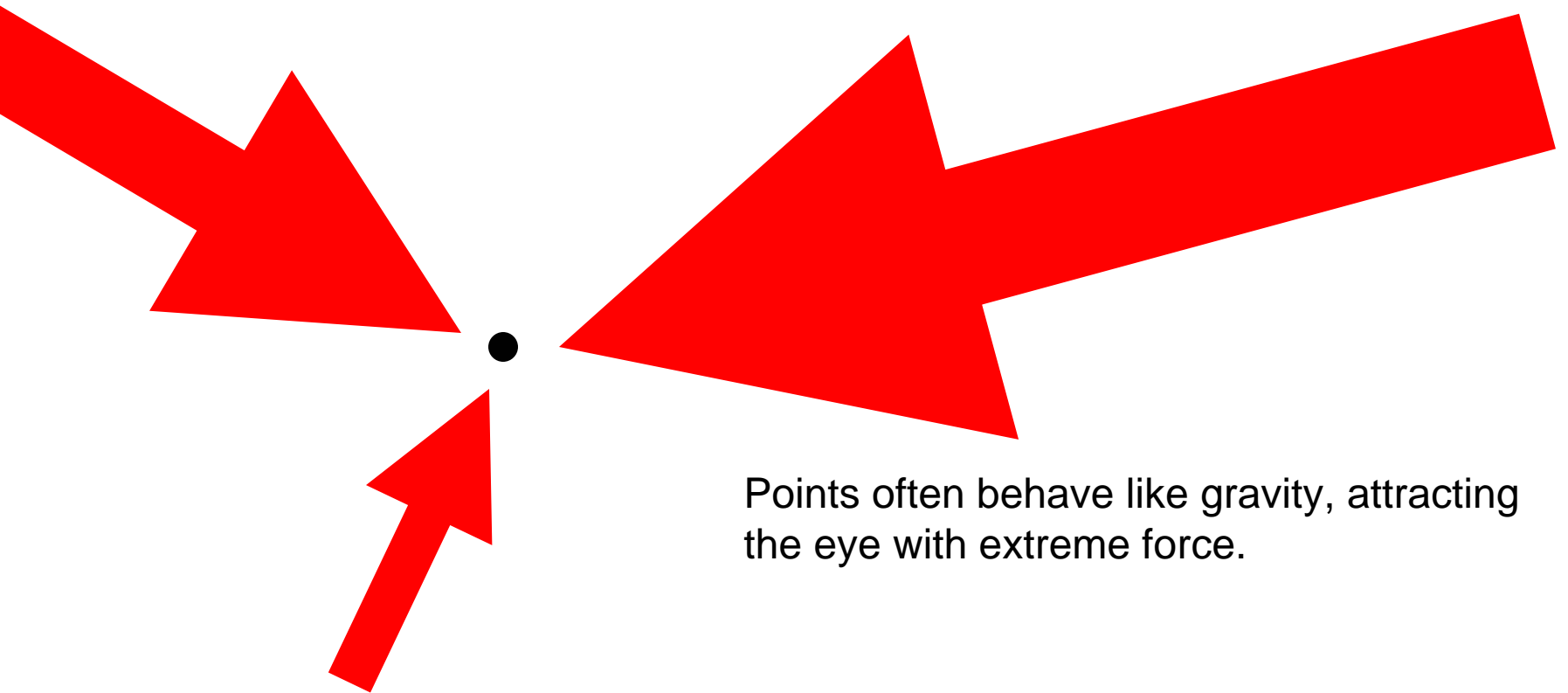
## Connotation of a Point



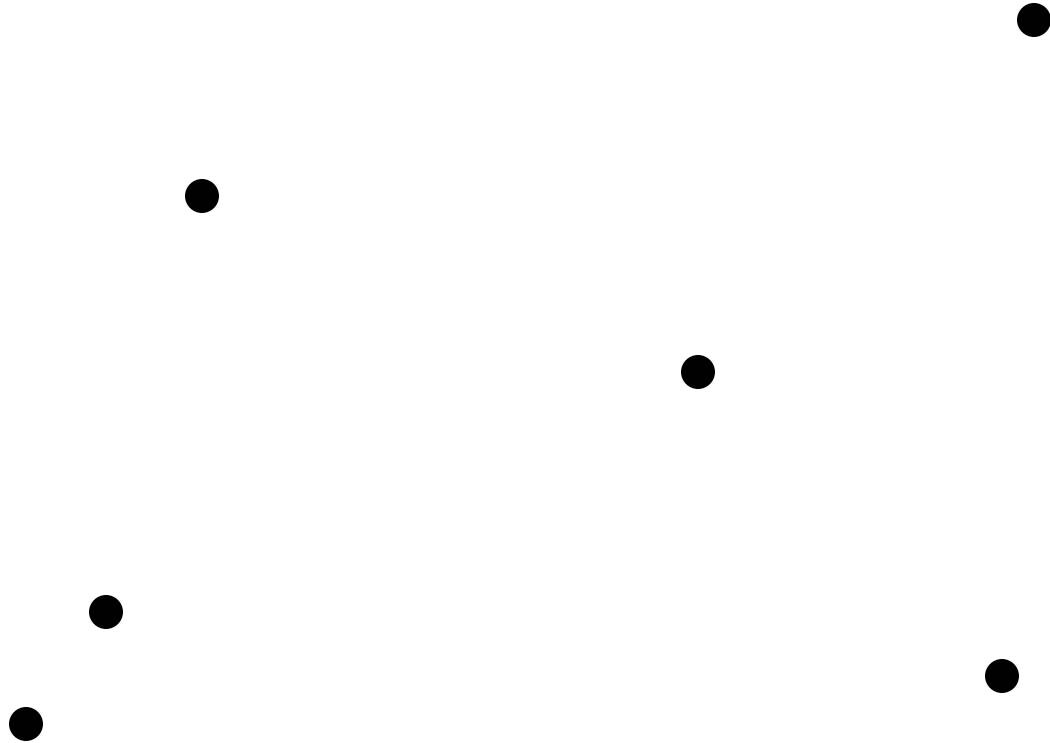
Points often behave like gravity, attracting the eye with extreme force.



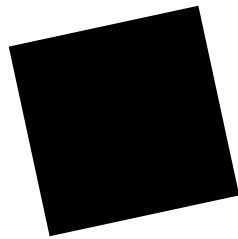
## Connotation of a Point



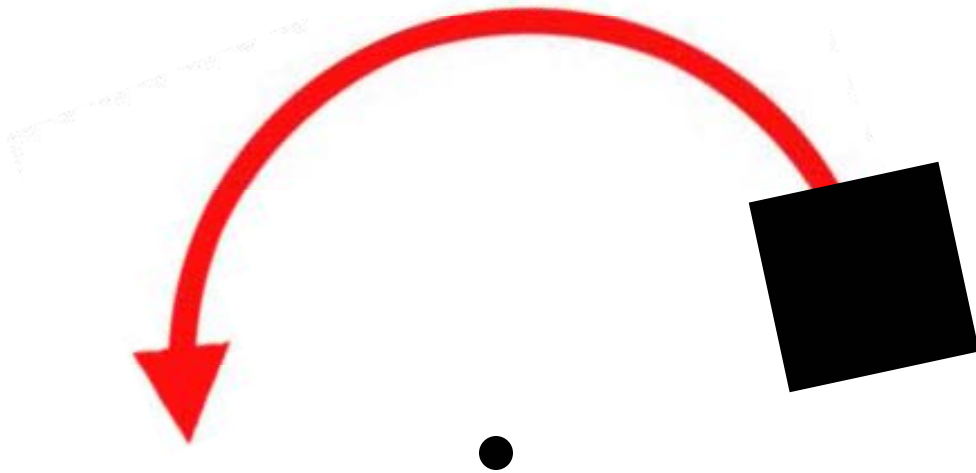
Points often behave like gravity, attracting the eye with extreme force.



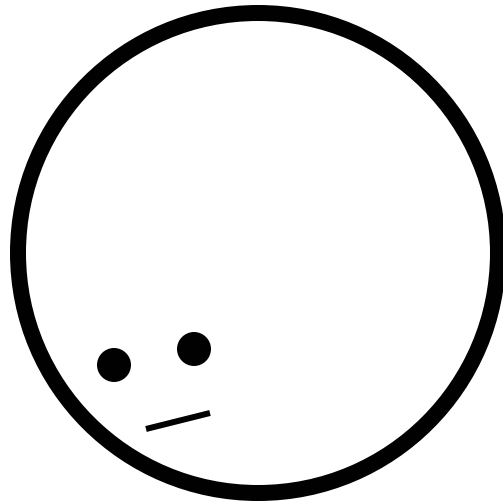
Of course, they may seem to dance around like dust or insects when put into that context...



but they can also seem like an immobile axis for another element...



but they may also seem like an immobile axis for another element...

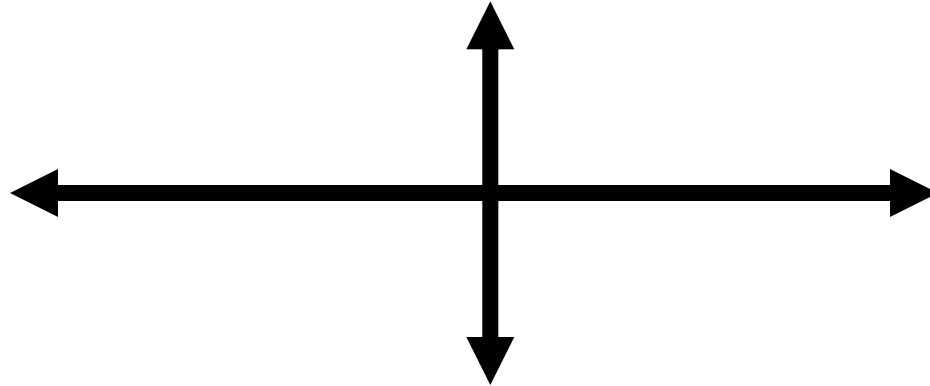


or immobile in another way, like they're embedded into another element.

Anything small enough will act like a point.



## Symmetry



Symmetry is beauty of forms arising from balanced proportions.

[Symmetry] is a proper agreement between the members of a work itself, and relation between the different parts and whole general scheme in accordance with a certain part selected as a standard. Thus in the human body there is a kind of symmetrical harmony between forearm, foot, palm, finger and other parts; and so it is with perfect buildings...

-1st century BC, Vitruvius

Questions?

