

# Gestalt Principles and Pre-Attentive Attributes: Takeaways



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## Concepts

- The overarching idea behind Gestalt principles is that humans generally perceive patterns rather than individual objects. From a practical point of view, Gestalt principles tell us what sort of pattern we can expect people to see when we show them our data visualizations.
- When we see distinct objects close to each other, we perceive them as a group — this is the principle of proximity.
- When we see distinct objects that are similar to one another, we perceive them as a group — this is the principle of similarity.
- Similarity can apply to color, shape, size, or other visual qualities.
- When we see distinct elements enclosed inside a visual form, we perceive them as part of the same group — this is the principle of enclosure.
- When we see distinct objects connected by some kind of a visual form (usually a line), we perceive them as part of the same group — this is the principle of connection.
- Some of the Gestalt principles are stronger than others, and they create a visual hierarchy. We need to create data visualization with visual hierarchy in mind — if connection cancels out similarity without intention, we can communicate incorrect information.
- Connection and enclosure typically have similar strengths, and they are both stronger than proximity and similarity.
- Thicker lines and stronger color can mean a stronger connection and a weaker enclosure. Dotted lines along with a strong-colored enclosing form can mean stronger enclosure and weaker connection.
- Similarity can be stronger than proximity in some cases, and vice-versa.
- A visual object that is different from the rest stands out and signals where to look. We can use this visual effect to guide our audience's attention. If people look where we want them to, we can more easily deliver our information.
- Our brain typically becomes aware of different objects before we consciously direct our attention toward them. Because they come before conscious attention, we call them pre-attentive.
- Pre-attentive attributes can take many forms: color, size, shape, enclosure, width, length, etc.
- Pre-attentive attributes can become inefficient if we overuse them, and although pre-attentive attributes can be useful, they aren't essential. If you don't need one for your graph, then don't add it.

## Resources

- [Pre-attentive processing](#)
- [Gestalt psychology](#)

