# Uniform Connectedness

Elements that are connected by uniform visual properties, such as color, are perceived to be more related than elements that are not connected.

The principle of uniform connectedness is the most recent addition to the principles referred to as *Gestalt principles of perception*. It asserts that elements connected to one another by uniform visual properties are perceived as a single group or chunk and are interpreted as being more related than elements that are not connected. For example, a simple matrix composed of dots is perceived as columns when common regions or lines connect the dots vertically, and is perceived as rows when common regions or lines connect the dots horizontally.[1]

There are two basic strategies for applying uniform connectedness in a design: common regions and connecting lines. Common regions are formed when edges come together and bound a visual area, grouping the elements within the region. This technique is often used to group elements in software and buttons on television remote controls. Connecting lines are formed when an explicit line joins elements, grouping the connected elements. This technique is often used to connect elements that are not otherwise obviously grouped (e.g., not located closely together) or to imply a sequence.

Uniform connectedness will generally overpower the other Gestalt principles. In a design where uniform connectedness is at odds with proximity or similarity, the elements that are uniformly connected will appear more related than either the proximal or similar elements. This makes uniform connectedness especially useful when correcting poorly designed configurations that would otherwise be difficult to modify. For example, the location of controls on a control panel is generally not easily modified, but a particular set of controls can be grouped by connecting them in a common region using paint or overlays. In this case, the uniform connectedness resulting from the common region will overwhelm and correct the poor control positions.

Use uniform connectedness to visually connect or group elements in a design. Employ common regions to group text elements and clusters of control elements, and connecting lines to group individual elements and imply sequence. Consider this principle when correcting poorly designed control and display configurations.

See also Chunking, Figure-Ground Relationship, and Good Continuation.

[1] The seminal work on uniform connectedness is "Rethinking Perceptual Organization: The Role of Uniform Connectedness" by Stephen Palmer and Irvin Rock, 1994, *Psychonomic Bulletin & Review*, vol. 1, p. 29–55.
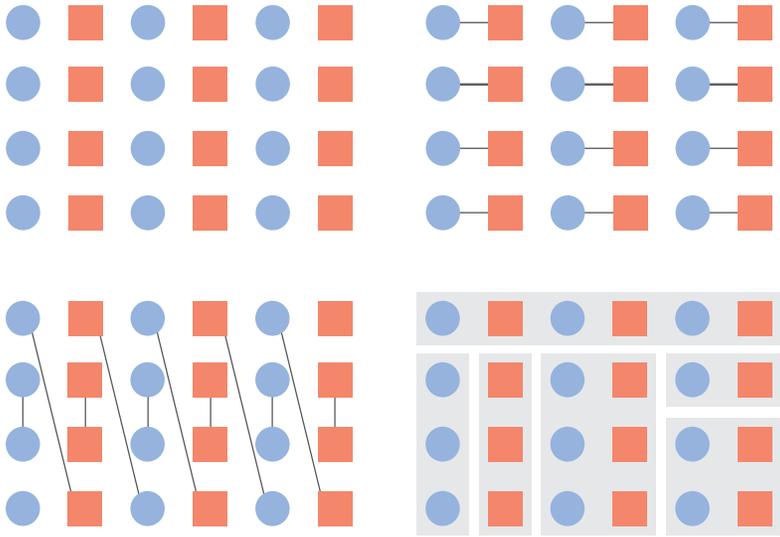
The use of common regions and connecting lines is a powerful means of grouping elements and overwhelming competing cues like proximity and similarity.
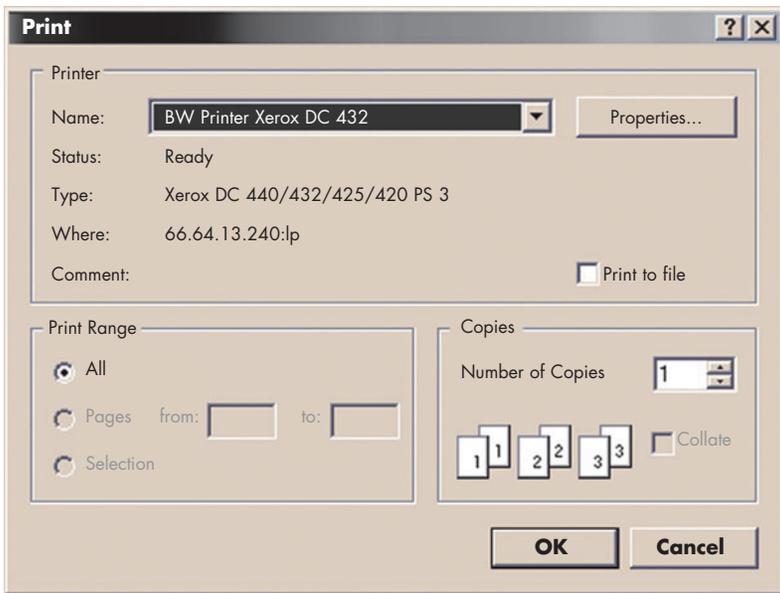


Common regions are frequently used in software interfaces to group related controls.
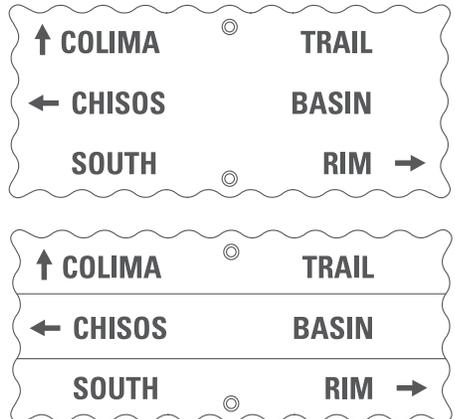


The proximity between unrelated words (e.g., *Chisos* and *South*) on this rendering of a sign at Big Bend National Park lends itself to misinterpretation. Grouping the related words in a common region would be a simple way to correct the sign.