

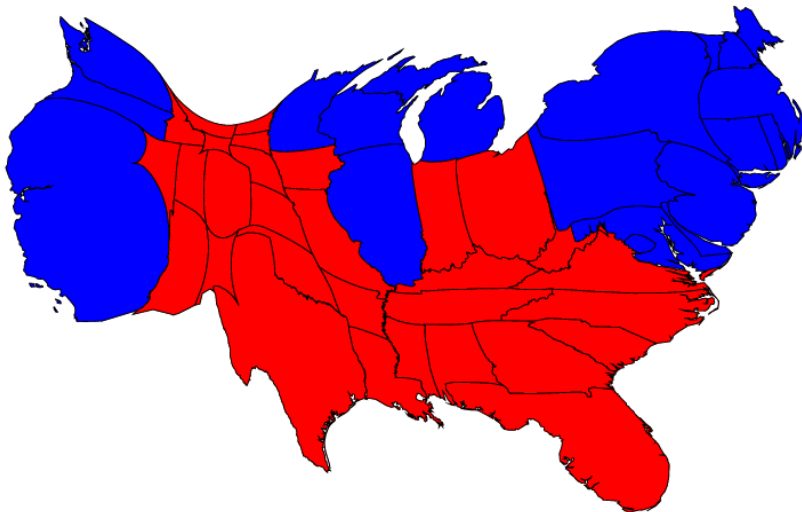
## Cartogram

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**Definition:** A cartogram is a diagram which uses the form of a map to present numeric information while maintaining some degree of geographic accuracy. Because a cartogram does not depict geographic space, but rather changes the size of objects depending on a certain attribute, a cartogram is not a true map. Cartograms vary on their degree in which geographic space is changed; some appear very similar to a map, however some look nothing like a map at all. There are three main types of cartograms, each have a very different way of showing attributes of geographic objects- Non-contiguous, Contiguous and Dorling cartograms.

In a non-contiguous cartogram, topology is sacrificed in order to preserve shape. In a contiguous cartogram, the reverse is true- topology is maintained (the objects remain connected with each other) but this causes great distortion in shape (as seen in the example below). A Dorling cartogram maintains neither shape, topology nor object centroids. To create a Dorling cartogram, instead of enlarging or shrinking the objects themselves, the cartographer will replace the objects with a uniform shape, usually a circle, of the appropriate size (Bortins and Demers, 2002).

**Application:** The example below is a contiguous cartogram representing the 2004 presidential election results, in which the sizes of states have been rescaled according to their population and are colored red or blue to indicate whether a majority of their voters voted for the Republican candidate (George W. Bush) or the Democratic candidate (John F. Kerry) respectively (M.T. Gastner, C.R. Shalizi, and M.E.J. Newman, 2004).



States are drawn with a size proportional not to their sheer topographic acreage -- which has little to do with politics -- but to the number of their inhabitants, states with more people appearing larger than states with fewer, regardless of their actual area on the ground. Thus, on such a map, the state of Rhode Island, with its 1.1 million inhabitants, would appear about twice the size of Wyoming, which has half a million, even though Wyoming has 60 times the acreage of Rhode Island.

This cartogram was made using the diffusion method of Gastner and Newman. Population data were taken from the 2000 US Census (M.T. Gastner, C.R. Shalizi, and M.E.J. Newman, 2004).

### References/Sources:

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