



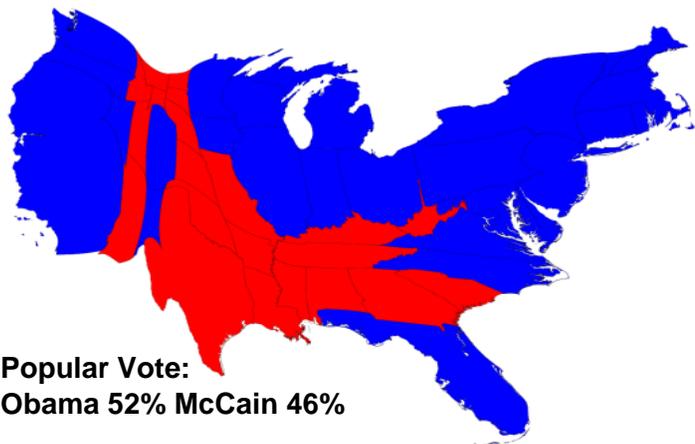
Mapping the 2008 US presidential election results



The states are colored red or blue to indicate whether a majority of their voters voted for the Republican candidate, John McCain, or the Democratic candidate, Barack Obama, respectively. **Since there is rather more red on the map than blue, this map gives the impression that the Republicans won the election handily.** In fact, the reverse is true – the Democrats won by a substantial margin. The explanation for this apparent paradox is that the map fails to take account of population distribution—the population of the red states is on average significantly lower than that of the blue ones. **The blue may be small in area, but they represent a large number of voters, which is what matters in an election.**

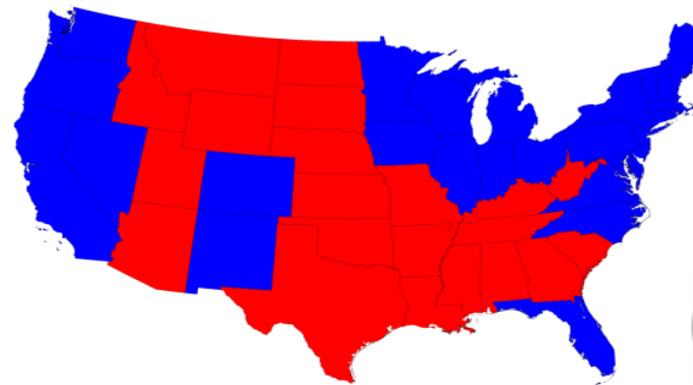
2. We can correct for this by making use of a *cartogram* in which the sizes of states are rescaled according to their population. That is, states are drawn with size proportional not to their acreage but to the number of their inhabitants. On this map the state of Rhode Island, with its 1.1 million 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.

Here are the presidential election results on a population cartogram of this type.



As you can see, the states have been stretched and squashed, some of them substantially, to give them the appropriate sizes, though it's done in such a way as to preserve the general appearance of the map, so far as that's possible. **On this map there is now clearly more blue than red.**

1.



21 states red, 28 states blue



3.

The presidential election, however, is not actually decided on the basis of the number of people who vote for each candidate but on the basis of the electoral college. Under the US electoral system, each state in the union contributes a certain number of electors to the electoral college, who vote according to the majority in their state. The candidate receiving a majority of the votes in the electoral college wins the election. The electors are apportioned roughly according to states' populations, as measured by the census, but with a small bit deliberate bias in favor of smaller states.

Scaling the sizes of states to be proportional to their number of electoral votes gives a map that looks like this:



**Electoral Votes:
McCain 174, Obama 365**

This cartogram looks similar to the first, but it's not identical. Wyoming, for instance, has approximately doubled in size, precisely because of the bias in favor of small states. The areas of red and blue on the cartogram are now proportional to the actual numbers of electoral votes won by each candidate. Thus this map shows at a glance both **which states went to which candidate** and **which candidate won more electoral college votes** – something that you cannot tell easily from the normal election-night red and blue map.

