Homework 3

Sungkyu Jung

Read "The Visual Display of Quantitative Information" by Edward Tufte (or the mini-tufte, linked at the course webpage) and answer the following.

1.

The year is 1812, and Napoleon is doing pretty well for himself. He has most of Europe under his control, except for the UK. No matter how many times he tried to invade them, he couldn't break through their defenses. His plan was to place an embargo on them, forcing the other European countries to stop trade with the UK which would weaken them enough so that Napoleon could invade and take over easily.

Czar Alexander of Russia sees that Napoleon was becoming too powerful, so he refuses to participate in this embargo. Angry at Czar Alexander's decision, Napoleon gathers a massive army of over 400,000 to attack Russia in June of 1812. While Russia's troops are not as numerous as France's, Russia has a plan. Russian troops keep retreating as Napoleon's troops move forward, burning everything they pass, ensuring that the French forces could not take anything from their environment. Eventually the French army follows the Russian army all the way to Moscow during October, suffering major losses from lack of food. By the time Napoleon gets to Moscow, he knows he has to retreat. As winter settles into Europe and the temperature drops, Napoleon's troops suffer even more losses, returning to France from lack of food, disease, and weather conditions.

C. J. Minard created the following graphic to describe the fate of Napoleon's army. This graphic is based on many cases of six variables. What are the six variables?

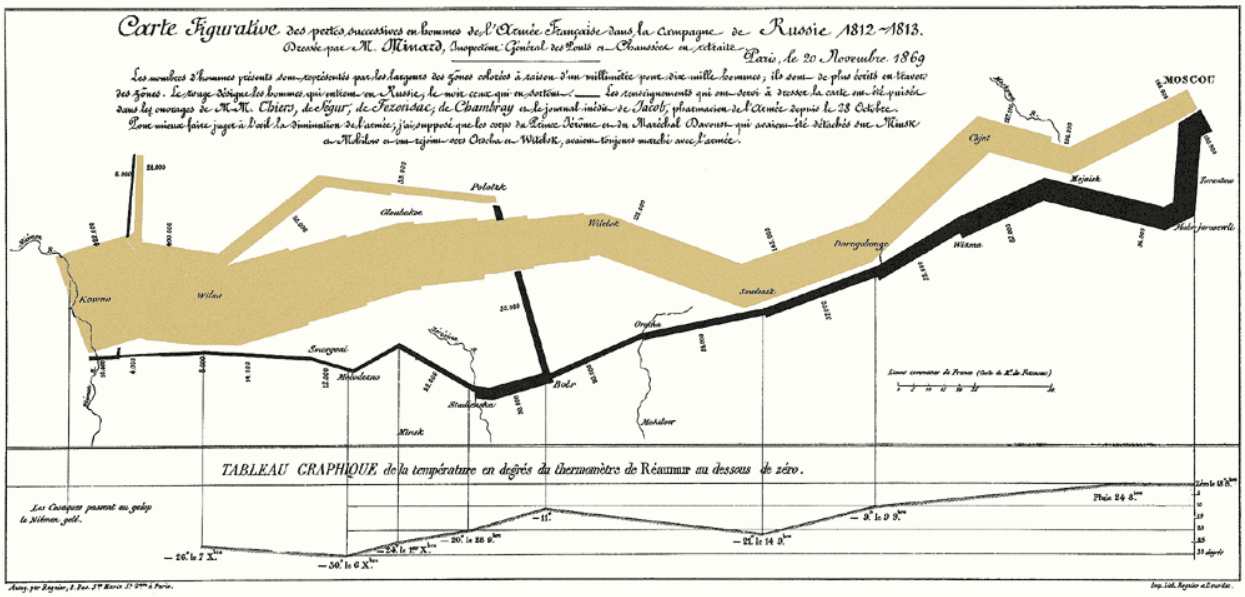

Figure 1: Minard's Visualization Of Napoleon's 1812 March

2.

The following graphic on Day Mines, Inc., fails to tell the truth. Identify the problem.

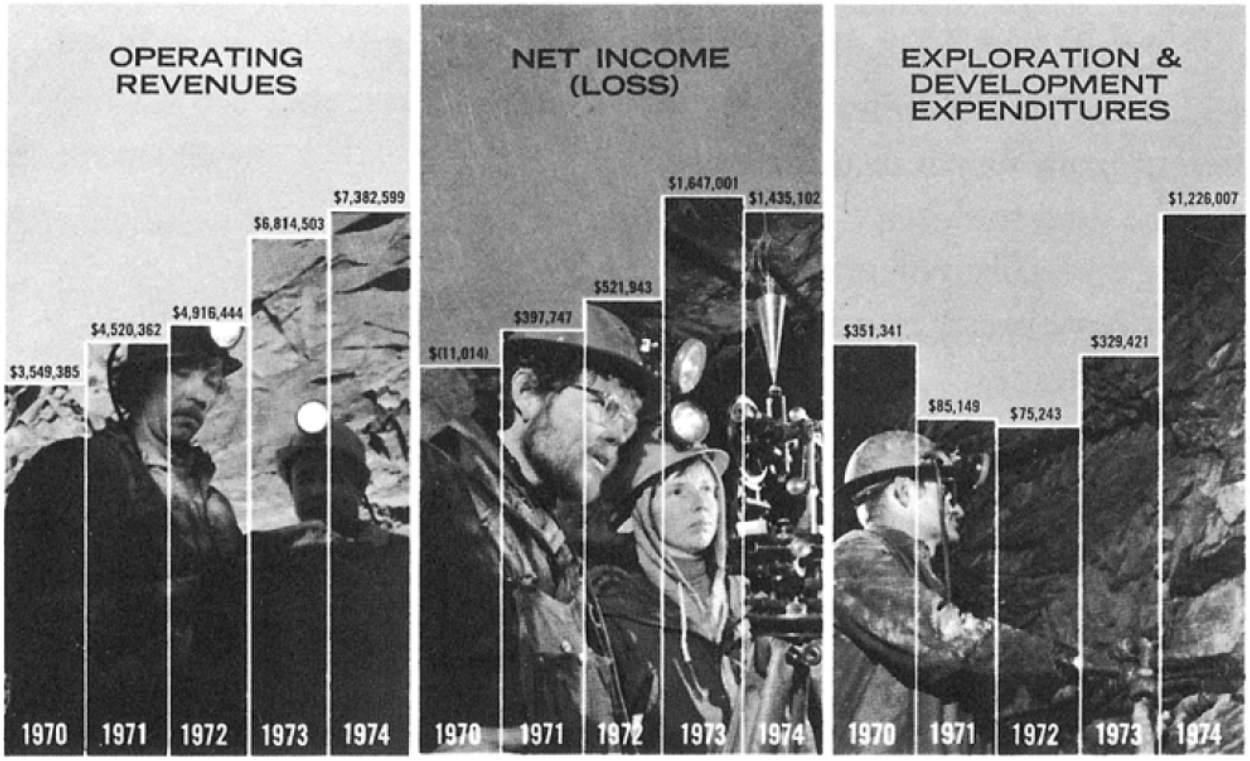

Figure 2:

3.

The above graphic is also difficult to read due to its low data-ink ratio and redundant data-ink.

(a) What is an example of non-data-ink in the graphic?

(b) What are the redundant data-inks used in the graphic?

(c) Suggest ways to improve the graphics.

4.

The following graphic fails to reveal an important and apparent relationship between two variables.

(a) Identify the variables that are potentially associated.

(b) Suggest a better visualization that can potentially reveal the association.

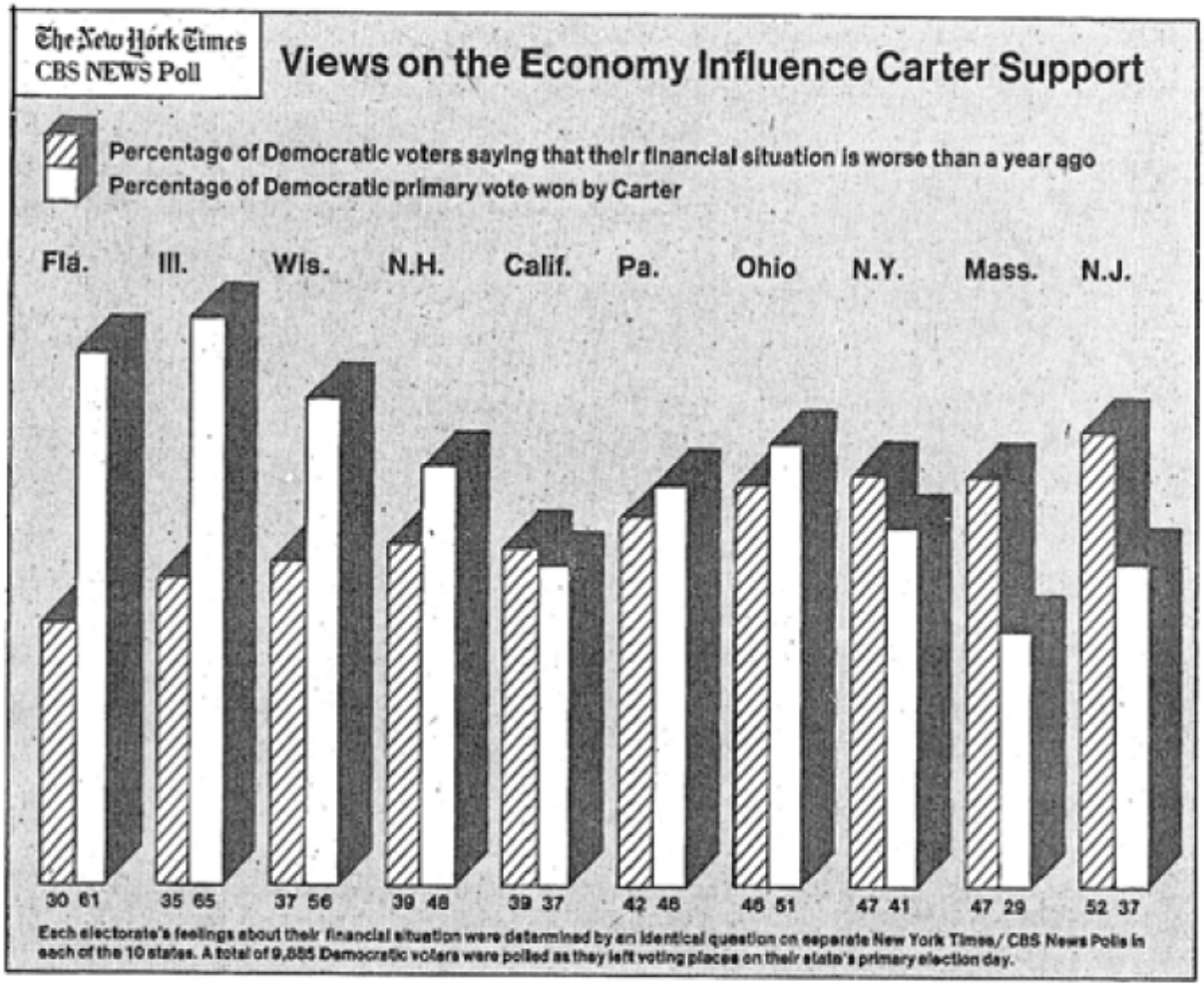
The New York Times
CBS NEWS Poll
Views on the Economy Influence Carter Support
Percentage of Democratic voters saying that their financial situation is worse than a year ago
Percentage of Democratic primary vote won by Carter
Fla.
Ill.
Wis.
N.H.
Calif.
Pa.
Ohio
N.Y.
Mass.
N.J.
30 61
35 65
37 56
39 48
39 37
42 46
46 51
47 41
47 29
52 37
Each electorate's feelings about their financial situation were determined by an identical question on separate New York Times/ CBS News Polls in each of the 10 states. A total of 9,885 Democratic voters were polled as they left voting places on their state's primary election day.

Figure 3: