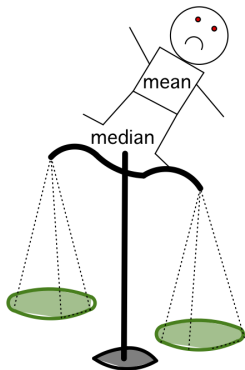


Here is a data set that measures population growth rates in the US from 1910–1919:

2.1	1.56	1.56	1.96	1.92	1.44	1.4	1.27	-.06	1.26
1910	1911	1912	1913	1914	1915	1916	1917	1918	1919

How would 1918 impact the mean/average?  
Use a scale balancing idea

- a) drag the mean down from the median
- b) drag the mean up from the median
- c) would not impact the mean

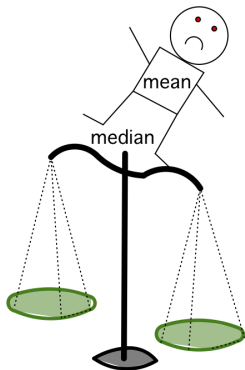


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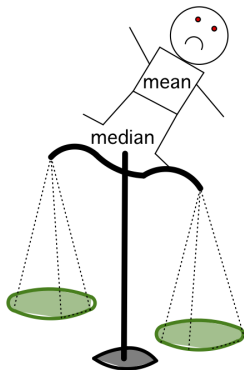
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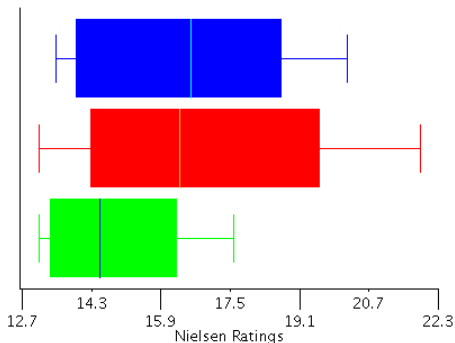
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What happened in 1918?  
median: 1.56. mean: 1.48.

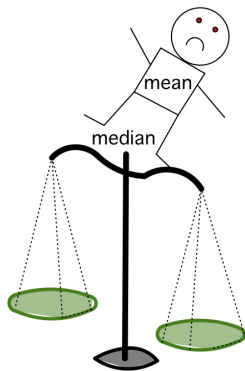
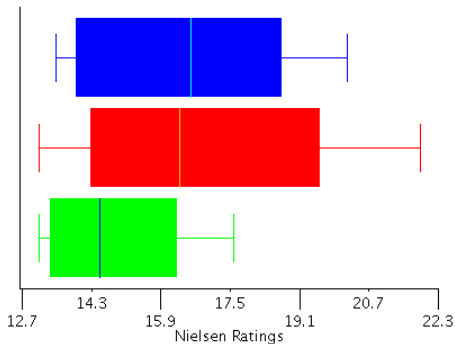
Here is Nielsen ratings (roughly represent the percentage of households tuned in). Use the boxplots to award “best network”



- a) ABC (top boxplot)
- b) CBS (middle)
- c) NBC (bottom)
- d) There should be more than 1 winner
- e) other

Next discuss how to spin the statistics positively for each network: Here's good news, we are the best network because...

Which is true for CBS, the middle boxplot?



- a) The mean is probably higher than the median
- b) The mean is probably lower than the median
- c) The mean is probably about the same as the median

With regard to the 1936 Landon and Roosevelt election Literary Digest poll, which predicted the winner as Landon

- a) the sample size was not large enough
- b) the sample was not diverse enough
- c) Landon would have won—but Roosevelt's win was due to a last minute change in sentiment
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## The Literary Digest

NEW YORK

OCTOBER 31, 1936

### Topics of the day

#### LANDON, 1,293,669; ROOSEVELT, 972,897

Final Returns in The Digest's Poll of Ten Million Voters

Well, the great battle of the ballots in the Poll of ten million voters, scattered throughout the forty-eight States of the Union, is now finished, and in the table below we record the figures received up to the hour of going to press.

These figures are exactly as received from more than one in every five voters polled in our country—they are neither weighted, adjusted nor interpreted.

Never before in an experience covering more than a quarter of a century in taking polls have we received so many different varieties of criticism—praise from many; condemnation from many others—and yet it has been just of the same type that has come to us every time a Poll has been taken in all these years.

A telegram from a newspaper in California asks: "Is it true that Mr. Hearst has purchased THE LITERARY DIGEST?" A telephone message only the day before these lines were written: "Has the Repub-

lican National Committee purchased THE LITERARY DIGEST?" And all types and varieties, including: "Have the Jews purchased THE LITERARY DIGEST?" "Is the Pope of Rome a stockholder of THE LITERARY DIGEST?" And so it goes—all equally absurd and amusing. We could add more to this list, and yet all of these questions in recent days are but repetitions of what we have been experiencing all down the years from the very first Poll.

**Problem**—Now, are the figures in this Poll correct? In answer to this question we will simply refer to a telegram we sent to a young man in Massachusetts the other day in answer to his challenge to us to wager \$100,000 on the accuracy of our Poll. We wired him as follows:

"For nearly a quarter century, we have been taking Polls of the voters in the forty-eight States, and, especially in Presidential years, and we have always merely mailed the ballots, counted and recorded those

returned and let the people of the Nation draw their conclusions as to our accuracy. So far, we have been right in every Poll. Will we be right in the current Poll? That, as Mrs. Roosevelt said concerning the President's reelection, is in the 'lap of the gods.'

"We never make any claims before election but we respectfully refer you to the opinion of one of the most quoted citizens to-day, the Hon. James A. Farley, Chairman of the Democratic National Committee. This is what Mr. Farley said October 14, 1936:

"Any sane person can not escape the implication of such a gigantic sampling of popular opinion as is embraced in THE LITERARY DIGEST straw vote. I consider this conclusive evidence as to the desire of the people of this country for a change in the National Government. THE LITERARY DIGEST poll is an achievement of no little magnitude. It is a Poll fairly and correctly conducted."

In studying the table of the voters from

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Literary Digest, October 31, 1936



Which of the following in the hw readings did you find most compelling?

- a) inconsistencies in scaling can lead to false interpretations
- b) the average American or average salary of Lakeside school can be very misleading. Half of the people are not necessarily below average.
- c) sampling pitfalls such as convenience sampling, voluntary responses, and asking unclear or misleading questions
- d) other



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collecting data: reproducibility, consensus, and random sampling if possible

presenting data: entire data set versus numerical or visual snapshots of it

all can be subject to bias and distortion, and are definitely subject to probability and random variations