

31 Oct 2014
Math 181

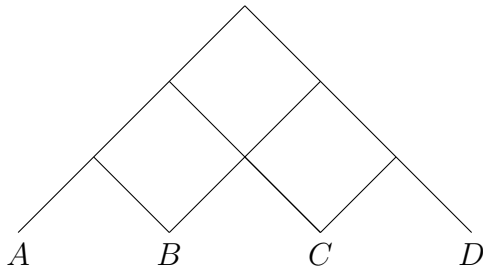
Doing the experiment from last time for 100 trials, here are two results:

WWLWWLWVWWWWWLWVWVWWWWWVLLVWVWWWWWVWWWWWVWWWWWVWWLWV
 WWLWVWVWVWWWWWLWVWVLLVWWWWWVWVWVWVWVWVWVWVWVWVWVWVWVWVWVWV
 81 wins (81%), longest run 17

LLLWWWWWVWVLLLVWVWVWWWWWVLLLVWVWVWVWVWVWVWVWVWVWVWVWVWVWVWV
 WWLWVWVWVWWWWWVLLVWWWWWVLLLVWWWWWVWVWVWWWWWVWVWVLLVWVWVWV
 64 wins (64%), longest run 7

I let it run for 10,000,000 trials! There were 7,221,918 wins (72.2%), and a longest run of 48.

Activity 1: Start at the top of the following diagram and flip a penny. If it is heads, go down one level to the left; otherwise, go down one level to the right. Following this rule, flip the penny two more times, and record which letter you ended at.



Each person should do this process 10 times, recording results in the table below.

A	B	C	D

- For the entire group, how many times did A occur? How about B, C, and D?
- Do you think all outcomes equally likely?
- Draw a *probability histogram* (see page 290) of your results.

Activity 2: Take a page from the newspaper and circle ALL of the numbers that occur on that page (exclude phone numbers, zip codes, and page numbers). In the table below, tally how many numbers begin with 1, 2,

1	2	3	4	5	6	7	8	9

- Were all digits equally likely to begin a number?
- How does this relate to Benford's Law?

I encourage you to go to <http://testingbenfordslaw.com/> and see some instance where Benford's law applies.

Homework: Due Wednesday, Nov 5.

Page 314: #11–14.

Page 317–218: #28–29.