Assignment for Friday, March 31

Before class, do the following:

Read FPP ch. 13, pp. 221-236. Do the following exercises:

- Set A, pp. 225-226: 1-3, 5.
- Set B, p. 227: 1-4. Pay special attention to "Technical Notes" at the end of the section.
- Set C, pp. 229-230: 1-3, 7. You need to memorize the multiplication rule. Also, pay special attention to the differences between (a) and (b) in questions 1-3.
- Set D, p. 232: 1-7. Note that independence is a critical concept to everything we do for the rest of the semester. Make sure you understand it.

In class, we'll do review exercises 2-7 and 9 together.

Make sure you review the chapter summary on p. 236 before class.

For one-half point extra credit in the class, you can do the following and hand it in at the beginning of class. Hand-written is fine.

Suppose two events A and B.[1] Below, I've written two facts from the chapter using the notation described in the "Technical Notes" on p. 227. Use these two facts to derive or prove a simpler version of the multiplication rule for independent events.[2] Be sure to write this simpler multiplication rule in the notation I use below. Hint: Like most proofs, this doesn't require a profound insight.

Multiplication rule: $P(A \text{ and } B) = P(A) \times P(B|A)$

Independence: Say that A and B are independent if and only if $P(A) = P(A|B)$.[3]

[1] For concreteness, you might think of A as rolling a six with a six-sided die and B as drawing an ace from a 52-card deck, but the events are arbitrary.

[2] This simpler rule is dicussed in the box on p. 232.

[3] Note that dependence is symmetric ($P(A) = P(A|B)$ if and only if $P(B) = P(B|A)$), so we can consider either case.