ECON 455, Discussion Section 1

TA: Shane Auerbach (sauerbach@wisc.edu) ; Date: 01/30/15
Office: SS 6470. OH: Wed 8:00-9:30am; Thu 4:15-5:45pm; or by appt.

1. (Blind dates experiment) Pick from each of the following blind date scenarios:

   (a) **Blind Date Choice A**

   Your friend is offering to set you up with either Adam/Anna or Bill/Brenda:

Adam/Anna:	very intelligent, plain-looking, well-off
Bill/Brenda:	intelligent, very good-looking, poor

   Which one would you pick? Keep track of the number 1 if Adam/Anna, 2 if Bill/Brenda.

   (b) **Blind Date Choice B**

   Your first date didn't work out, so your friend offers to set you up again:

Eric/Elizabeth:	fairly intelligent, good-looking, rich
Christian/Christina:	intelligent, very good-looking, poor

   Next to your first digit, write down 1 if you pick Christian/Christina, 2 if Eric/Elizabeth (so you now have a 2-digit #)

   (c) **Blind Date Choice C**

   Your second date also didn't work out, so one more try:

Ricardo/Rebecca:	fairly intelligent, good-looking, rich
Nathan/Naomi:	very intelligent, plain-looking, well-off

   Now add a third digit to the number you have so far: 1 if Ricardo/Rebecca, 2 if Nathan/Naomi.

2. (Speeding) There are n cars on the road, including you, each driving at w_i $(i = 1 \dots n)$ miles per hour. Suppose you are agent $i = 1$. The average speed of traffic is $\bar{w} = \frac{1}{n}\sum_i w_i$, and no car can go faster than 100 mph. The probability that a driver gets in a crash is $p = \frac{w_i \cdot \bar{w}}{10{,}000}$. Suppose n is large enough that $\frac{\partial \bar{w}}{\partial w_i} \approx 0$, i.e. there are enough cars that your speed doesn't materially affect the average. If a driver crashes, he destroys his car, costing him a dollar amount (the deductible on the insurance) of x. However, drivers like going fast – a driver's utility (in dollars) is $u_i(w_i) = 1000 \log w_i$. Assume drivers are risk neutral.

   (a) Find your optimal speed as a function of the average speed and the deductible. Why is it increasing/decreasing in those variables?

   (b) Suppose a symmetric equilibrium, i.e. $w_i = w_j = \bar{w}$. If the policy maker wants all drivers to drive 65mph, what is the insurance deductible x that she would impose.

3. (Review of constrained optimization) Do the following problems as instructed:

$$\mathbf{A}: \max_{c_1,c_2} 2\log c_1 + \log c_2 \;\; s.t. \;\; c_2 = 1 - c_1 \qquad \mathbf{B}: \max_{y} 32\log y - y^2 \;\; s.t. \;\; y \leq b$$

(a) Solve **A**.

(b) Solve **B** with $b = 6$.

(c) Solve **B** with $b = 2$.

4. (Allais Paradox) Choose between the following two lotteries, L1 and L2:

$$\textbf{L1} \text{ pays one million with probability (w.p.) } 1 \qquad \textbf{L2} \text{ pays } \begin{cases} \text{One million} & \text{w.p. } 0.89 \\ 0 & \text{w.p. } 0.01 \\ \text{Five million} & \text{w.p. } 0.10 \end{cases}$$

Now choose between the following two lotteries, L3 and L4:

$$\textbf{L3} \text{ pays } \begin{cases} \text{One million} & \text{w.p. } 0.11 \\ 0 & \text{w.p. } 0.89 \end{cases} \qquad \textbf{L4} \text{ pays } \begin{cases} \text{Five million} & \text{w.p. } 0.10 \\ 0 & \text{w.p. } 0.90 \end{cases}$$

Argue that choosing $L1$ in the first choice and $L4$ in the second is inconsistent with expected utility theory.