Exam Applied Mathematical Statistics for the Social and Behavioral Sciences Part 1

Take home exam

You can make the assignment in any way you like. You do not have to make use of R, although that may help you out a lot. Send your answer to me in a word doc, and include R or excel or whatever files, as well. Send your answer to me by e-mail (m.a.l.m.vanassen@uvt.nl) before November 30, 6:03 a.m. I will not assign points for answers sent later than this deadline.

Good luck and have fun!

Consider the experiment where you toss six fair dice, three blue and three red. When tossing the dice, create a variable Y that is equal to maximum of the six dice minus two times the minimum of the red dice, or Y = max(Blue1,Blue2,Blue3,Red1,Red2,Red3) – 2*min(Red1,Red2,Red3).

- **a.** What is the probability mass function of Y?
- **b.** What is the expected value of Y?
- **c.** What is the variance of Y?

You now play a game called Skippy, where, you gain an amount of money equal to Red1+Red2+Red3 if Y >0, and you lose 10 euros otherwise.

- **d.** What is the probability that you win money in Skippy?
- **e.** What is the expected value of Skippy?
- **f.** What is the expected value of Skippy, given that the sum of the three Red dice equals 6?