



HOMEWORK WEEK 10

Recall the red bus/ blue bus paradox that has been seen in the lecture. Travelers initially face a decision between two modes of transportation: car and blue bus. The travel times of both modes, car and bus, are equal. Travel time is also the only variable considered in the utility. Then, we suppose that a third mode, namely the red bus, is introduced and that the travelers consider it to be exactly like the blue bus.

1. In the case of a logit model, what will the choice probability of each of the three modes be? Use the IIA property to derive these probabilities.
2. Are the resulting choice probabilities intuitive? If not, explain why and describe what you would expect them to be?
3. Assume that the error terms for the red and blue bus are correlated and that the correlation is 95%. Derive the scale parameter (μ_m) and calculate the probabilities of choosing car and bus¹.

mbi/ ek/ afa / mp

¹Note that μ is normalized to one.