

In the first part of the problem I did something similar to what you have. I also created a separate indicator variable for each of the two treatment types. Afterward, I see that you also made it into a multiple linear regression model that includes a bias term. I noticed that it was not specified anywhere, but I also included the interaction term. In the problem, it does mention the possibility of interaction between the two treatments, so I suppose that having an interaction term is quite logical. In your next step, I also similarly created a table to show all the different treatment level combinations in addition to showing the expected difference. I am not actually sure who could be 'correct,' but my interpretation was that it asked us to also write out explicitly the expected difference for the three different scenarios. That being, the expected difference between A and B , between a and b , and between Aa , Ab , Ba , Bb . I notice that you seem to include the last scenario, but what I did might be extra in that I had shown the first two scenarios that left the x_1 or x_2 variable as being 'still random.'

In the second part, I have a similar answer. I actually looked at one of the questions for the homework and it seems to refer to what we have in this situation. The ANOVA model that you have written out I believe is for one-factor ANOVA (i.e., only a single treatment). The homework question includes in the problem itself the formula for two-factor ANOVA (i.e., two treatments). Based on my thinking, I am guessing that you may have possibly made a mistake on the second part. To show the expected difference, I did something similar to part a), except I was taking the expected value of Y_{ijk} . Interesting responses, thanks for being part of the discussion.