**Assignment 3**

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PSYC 6380: Multivariate Statistics

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**Part 1**

**Questions**

***1***

I tested the homogeneity of variance assumption using a Levene’s test. This test suggested that there was no population-level difference in the variances of awkwardness ratings between each of the four cells (i.e., not eccentric/new couple; not eccentric /established couple; eccentric/new couple; eccentric / established couple), *F*(3, 496) = 0.40, *p* = .752. Thus, the parametric assumption of homogeneity was met.

***2***

I then conducted the multiple ANOVA analysis. The main effect of couple type significantly predicted participants’ awkwardness ratings, *F*(1, 496) = 272.67, *p* < .001, *partial η2* = .35, 95% *CIs* = [.29, .41]. Inspection of the 95 percent confidence intervals around the standardized effect size suggested that the main effect of couple type may plausibly (though not certainly) uniquely predict between 29 and 41 percent of the population-level variance in awkwardness ratings (population-level effects outside of this range are possible but are relatively less probable), holding the effects of wheel type and the couple type \* wheel type effects constant.

***3***

*MNewCouple* = 6.47

*MEstablishedCouple* = 4.94

Below is the equation:

This model predicts awkwardness ratings as a function of whether participants have established a partner (1, 2). The intercept, 6.47, is the mean of the control group—New Couple. The mean of the Established Couple is this intercept minus the slope coefficient associated with that group (6.47 – 1.53 = 4.94).

***4***

Yes, results support the idea of an interaction: the couple type\*wheel type interaction significantly predicted participants’ awkwardness ratings, *F*(1, 496) = 7.79, *p* < .005, *partial η2* = .02, 95% *CIs* = [.00, .04].

***5***

Cohen’s *d* = 1.84, *95% CIs* = [1.54, 2.14]. Inspection of the 95% confidence intervals around the standardized effect size suggested that the population-level mean difference in awkwardness ratings between these two groups could plausibly (though not certainly) range from 1.54 standard deviations 2.14 standard deviations, holding all other effects constant.