**Exercise #4. Factorial Experiments**

*(15 points)*

**1.** You may have heard the terms “explicit” and “implicit” memory. If not, explicit memory is memory shown when, for example, you are asked to study a list of words or a concept and then to later recall it. With implicit memory, you are not asked to recall something directly, but evidence of memory shows up in your behavior or performance. For example, when you get in a car to drive, you show implicit memory of how to drive by not having to sit there and try to explicitly recall what to do with a steering wheel. The most dramatic place where we can see the differences between these forms of memories is in those with anterograde amnesia. Those with anterograde amnesia can recall (explicitly) events from their past prior to whatever caused the amnesia but they cannot learn new information in an explicit sense. That is, if you give them a list of words to remember and ask them a few minutes later to recall them, they cannot do this task very well. However, they can learn new information implicitly. For example, if you give them a puzzle they’ve never done before, at first tit will take them a while to complete it, but soon when you bring that same puzzle in, while they’ll have no explicit memory of having ever seen it before, they will be bale to complete it much quicker than before. Below is a set of means from a task where researchers tested those without amnesia (“normal”) and those with on both explicit memory tests and implicit memory tests. The numbers represent the percentage correct on the test.

Describe the main effects (or lack thereof) and the interaction. You do not need to include numbers in your descriptions, but you will want to compute marginal means and probably draw a graph to help you describe the interaction. (Consider differences of 10+ as significant*). [6 points]*

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| --- | --- | --- | --- |
|  | | Test Type | |
| Explicit | Implicit |
| Diagnosis | “Normals” | 70 | 40 |
| Amnesia | 10 | 42 |

**2.** I once got into an argument with my great friend Maya over just how piggish men are. Having just gone through an ugly breakup with her four-year boyfriend, she adamantly lamented that men are indeed swine’s of the greatest magnitude. I, trying to salvage any modicum of dignity for men, argued that we aren't so bad. After all, she and I had been friends for decades. Suppose we decided to wager a bet and conduct an experiment to settle this friendly dispute. Let’s suppose we decided to test this through the “beer goggles” effect. This presumed effect occurs when, after a number of drinks, people tend to see others differently, perhaps as being better looking than they would have judged another person prior to imbibing. OK, suppose Maya and I headed down to a local pub to give this a whirl. Let’s assume we tested this so-called “beer goggles” effect by going to a local pub and having patrons rate the level of attractiveness of photographs of opposite sex people prior to consuming nothing or after having consume four pints of beer. (Of course, let’s imagine could randomly assign them and that they all had the identical drinks in the same amount of time… just play along for now). So far, so good. But, to really test our wager we need to do this with female and mal patrons, so we selected 48 patrons: 24 males, 24 females. Again, we have each of these patrons rate photos of potential dates prior to consuming and after 4 pints. We used a scale of 0 = umm.. I’d pay large sums of money to get a plane ticket to get as far away as possible from that person to 100 = I’d pay large sums of money for that person’s phone number right this second. This is a 2 (Patron: Male/Female) x 2 (Drinks: None/4 pints) between-subjects factorial design. The data is available on Moodle (BeerGoggles.omv) Analyze it and tell me what you discover (i.e., describe each main effect and the interaction in a sweet APA-style results paragraph). *[9 points]*