Question 1. In research on moral philosophy, participants are presented with two options and have to select which option they feel is better. Berman & Kupor (2020) reported studies comparing moral decisions in two conditions that have both good and bad aspects. Some participants were asked to choose between a “small harm, small good” option and a “larger harm, larger good” option, for example, based on using an ecologically damaging fertilizer to feed hungry children. Participants could select an option to use less fertilizer to have damage but also feed fewer people (small harm, small good) or select an option to use more fertilizer with more damage but also would feed more people right now (more good). In the other experimental condition, participants had to choose between “large harm, large good” and “very large harm, very large good” options with larger values for both the damage caused and the good done.

1. What is the IV of this study? (5 pts)

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1. What is the DV and what type of variable is it? (5 pts)

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1. The researchers hypothesized that in the condition with smaller stakes, participants would prefer the less harmful approach (small harm, small good) but when forced to choose between conditions with more overall harm, would prefer the approach that did the most good (very large harm, very large good). What statistical test would be used if the data supported this hypothesis? (5 pts)

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1. Moral philosophy questions are often sensitive to cultural factors. The researchers’ hypothesis above is based on data from undergraduates at US universities. Suggest a different participant sample from somewhere else in the world that might show a different effect and briefly explain your hypothesized different results. (5 pts)

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1. A researcher wanting to further explore these kinds of decisions hypothesized that exposing people to fake news about the environment might change their opinions about this moral decision task. In their study, half the participants (randomly assigned) first read about a debunked attack on the science of climate change to minimize concerns about environmental damage. The other half read an unrelated story. Instead of a decision between options, participants rated along a scale about how much fertilizer they would recommend using from none (no harm, no good) to a very large amount. What statistical tool would be used to test for the effect of the debunked story on the participants’ response? (5 pts)

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1. For the study in (e), we might worry that some people are more altruistic than others and this might affect their scores. Since participants were randomly assigned to conditions, does this confound the experiment? Why or why not? (5 pts)

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1. If the study in (e) did not produce a statistically reliable result, can we conclude with confidence that exposing people to debunked news stories has no effect on their moral behavior? Why or why not? (5 pts)

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Question 2. Online surveys have shown that the amount of time people spend using electronic devices (hours/day) has been negatively associated with their amount of sleep (hours/night).

1. What statistical tool would be used to establish a reliable relationship between hours of device use and hours of sleep? (5 pts)

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1. Are these data based on an experimental design? How does this affect our ability to conclude that device use causes less sleep? (5 pts)

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1. Researching this general question, Nathanson and Beyens (2018) found that for children, higher scores on an “effortful control” questionnaire was reliably related to spending fewer hours per day they spend on devices. Give two alternatives to the hypothesis that “having high effort control causes less device use” interpretation of this result. (5 pts)

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1. To see if this idea could be used practically, researchers designed an intervention study aimed at college students. Participants were recruited who were self-described “internet addicts.” Two intervention ideas were tested. Half the participants had an app installed on their device that popped-up hourly to remind them to manage their use. Separately, half the participants were assigned to an intervention condition where they completed a training protocol aimed to increase their self-control. The conditions were organized as a between-participants 2x2 factorial design with equal numbers of participants in each condition. If 100 participants were recruited, how many participants received both the training intervention and the app? (5 pts)

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1. Describe average data for (d) that would be consistent with a finding of a main effect of the pop-up app reducing use and an interaction such that the training was particularly effective for participants who also had the app. Note that you will need to give hypothetical numbers for each of the experimental conditions. (5 pts)

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1. When applying for research approval, the IRB requested detailed information about maintaining the privacy of the particular participants recruited for this study. Why? (5 pts)

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1. What is the ethical issue related to “justice” that needs to be considered for this kind of intervention-based research and how would that be done? (5 pts)

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Question 3. Emotional influences on memory have been found in many experiments. Devitt & Schacter (2018) combined emotion with the idea of predicting the ending of a story. Consider a study where participants read part of a story and then were randomly assigned to describe either a happy ending to the story or a sad ending. After their prediction, they were told either a happy ending or a sad ending to the story. After a delay, participants were given a memory test for elements of the story.

1. This is a factorial design. What are the two factors and what are the two levels of each factor? (5 pts)

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1. Simulated data are shown in the graph and the accompanying ANOVA output table from R. Describe the results of the main effects and interaction (3 contrasts) giving the standard (APA) statistical reporting format and the direction of the effect (15 pts total)

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> print(anova\_result)

$ANOVA

Effect DFn DFd F p p<.05 ges

2 Pred 1 76 5.388078 2.295753e-02 \* 0.06620230

3 Outcome 1 76 6.880115 1.052725e-02 \* 0.08301285

4 Pred:Outcome 1 76 38.725018 2.451982e-08 \* 0.33754641

1. Based on the results described in (b), would you say it is a good idea or a bad idea to try to predict the ending of a story when you are part way through. Consider the example of watching a show series (e.g., on Netflix of HBO) and pausing halfway through the show to predict whether there will be a positive or negative ending. Do you think that would lead to better memory later for the show? Why or why not? (5 pts)

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1. One of the challenges of research on emotional memory is the ethics of creating a controlled experience of a strong emotion in a laboratory setting, especially for negative emotions. What are the relevant ethical principles related to randomly assigning participants to a very strong negative emotional condition for research? (5 pts)

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