Hypothesis Testing: 4 possible outcomes

For each cell of each table below, indicate whether the researcher would have made a correct decision, a type 1 error, or a type 2 error. State what this would mean **for that specific research project**. Work on this assignment by yourself.

1. Is video game preference related to sex? To find out, a researcher asks 50 men and 50 women 18-25 years old whether they prefer violent or non-violent games. He records the number of people falling into each category combination (men-violent, men-nonviolent, women-violent, women-nonviolent).

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|  |  Retain Ho |  Reject Ho |
| Ho is true in reality |  |  |
| Ho is false in reality |  |  |

2. Does adding hot spice to food and increasing water consumption promote weight loss? Participants were assigned to a spicy vs. bland diet. Within each of these groups, 1/3 were then assigned to a low, medium, or high water consumption group. Six months later, the amount of weight lost or gained was recorded for each participant in the 6 groups.

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| Ho is false in reality |  |  |
| Ho is true in reality |  |  |

3. Does choice of sport depend on gender? Men and women were asked whether they preferred to play team vs. individual sports.

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| Ho is true in reality |  |  |
| Ho is false in reality |  |  |

4. Does wearing “bling” during a speed dating session yield more dates? A group of 20 women participated in 30 individual speed dating sessions. Half the time, they wore “bling”, the other half the time they did not. Otherwise, what they said and their behavior toward the men was kept constant. The number of dates yielded per woman in the bling and non-bling conditions was recorded.

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| Ho is false in reality |  |  |
| Ho is true in reality |  |  |

5. Is oxytocin hormone replacement therapy an effective treatment for women convicted of child abuse? To find out, a researcher assigned women convicted of child abuse to either an oxytocin or placebo control group. After 6 months, the researcher records the number of nurturing, neutral, and aggressive behaviors toward a realistic, but cyborg child in a 24 hour period.

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| Ho is true in reality |  |  |
| Ho is false in reality |  |  |

6. Does dog breed preference depend on the owners’ socioeconomic status (SES)? Three dog breed groups were studied: toy, sporting, working. The number of owners who fell into low, medium, and high SES within each group was recorded.

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|  |  Ho is false in reality |  Ho is true in reality |
| Retain Ho |  |   |
| Reject Ho |  |  |

7. Does consuming a high caloric drink immediately before a test improve test scores? To find out, participants consumed either a low or high caloric drink immediately before taking a multiple choice statistics test (lucky them!). The scores for the two groups were then compared.

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8.  Do extraverts and introverts respond differently to different public displays of affection? 100 people were classified as either an extravert or an introvert. Each participant then watched three 30 second videos of a couple in a busy park in random order: holding hands, kissing, kissing and hugging. After each video, they were asked to rate how acceptable they believed the couple’s behavior to be on a 5 point scale (1 completely unacceptable to 5 completely acceptable).

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|  |  Ho is true in reality |  Ho is false in reality |
| Reject Ho |  |  |
| Retain Ho |  |  |

9. Do the number of swearwords in a two hour movie affect viewers’ perception of the movie’s level of violence? Participants were randomly assigned to watch one of three movies: no swearwords, 10 swear words, 100 swearwords. Perceptions of violence were assessed on a 10 point scale (1 entirely nonviolent to 10 extremely violent).

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|  |  Retain Ho |  Reject Ho |
| Ho is true in reality |  |  |
| Ho is false in reality |  |  |

10.  Do highway speeds increase with or decrease with the number of decals displayed on vehicles? Highway cameras equipped with radar took pictures of vehicles as they passed a checkpoint. The researcher then counted the number of decals on each vehicle and the speed of each vehicle in mph. to see if they are related.

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|  |  Retain Ho |  Reject Ho |
| Ho is false in reality |  |  |
| Ho is true in reality |  |  |