PSYCHOLOGY 515--EXPERIMENTAL DESIGN
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Homework No. 3

1. In a study of color preferences of paradise fish, four groups of 5 fish each are used. Each subject (i.e., fish) is given 10 trials in a two color choice situation—one of two colors is "chosen" by the fish on each trial. The data below give the number of choices of color 1 (out of 10 trials) for each fish. Assume that past research using paradise fish in tasks of this type has shown that it is reasonable to treat the trials as independent. The four groups are to be compared.

Wild males	Domestic males	Wild females	Domestic females
3	6	3	2
4	8	4	1
5	7	8	0
2	7	4	3
2	9	5	3

a) What transformation is appropriate? Describe clearly the variable to be transformed.
b) If we assume that all fish within a group have identical "true" (long-run) probabilities of selecting a particular color (i.e., there are no individual differences within a group in their preferences), what is the expected variance of the transformed measurements within each group?
c) Under the assumption of part (b) what is the standard error of the mean of the transformed data for each group likely to be?
d) Use JMP to transform the data and carry out the analysis. Are there differences in color choices among the groups?
e) Use the analysis to test the assumption made in part (b).

2. As part of her master's thesis study, Angie Lombardo randomly assigned 35 subjects to each of 3 emotional video viewing conditions (negative, neutral, and positive emotional content). After viewing the video, *S*s performed a lexical decision ("Is it a word?") task with stimuli presented to left and right visual fields. Reaction time (RT) to decide if the stimulus was a word was measured. The correlations within each video condition between RT for words presented to the right visual field and a measure of psychopathy (the Eysenck P scale) are given below.

Video Condition		
Negative	Neutral	Positive
-.09	.26	.35

Test whether these correlations differ significantly among the 3 video conditions. What do you conclude?