Exercises: Module 4

These questions are based on the Witness data set.

1. The following model regresses Perceived Accuracy on Sex of the Witness. Results include the regression coefficients table and the marginal means for each group.

Variable Coding

		Value Label	N
SEX_WITN	1	Male	117
	2	Female	103

Regression Coefficients

Dependent Variable: ACCURATE

Variable	B	se	t	p
Intercept	4.175	.109	38.273	.000
Witness's Sex=1	.082	.150	.546	.586
Witness's Sex=2	0	.	.	.

Overall Mean

Dependent Variable: ACCURATE

Mean	se
4.216	.075

Means by Witness's Sex

Dependent Variable: ACCURATE

Witness's Sex	Mean	se
1 Male	4.256	.102
2 Female	4.175	.109

What is the coding scheme for Sex of the Witness in the data set?
Which category is the reference group? How do you know? What was its original coding in the data set?

What is the intercept? What does it tell you?

What is the coefficient for Witness's Sex=1? For each, write a single sentence that explains what it means.

What is the overall mean of Perceived Accuracy? What is the mean Perceived Accuracy score for each Sex of Witness? How do these means compare to the regression coefficients?

2. The following adds MEMORY to the model. Interpret each of the coefficients.

Regression Coefficients

Dependent Variable: ACCURATE

Variable	B	se	t	p
Intercept	1.524	.268	5.674	.000
Witness's Sex=1	-.040	.123	-.323	.747
Witness's Sex=2	0	.	.	.
Memory	.611	.058	10.468	.000

3. The following model uses MEMORY centered at its mean. Do the results change? How? Interpret each of the coefficients.

Regression Coefficients

Dependent Variable: ACCURATE

Variable	B	se	t	p
Intercept	4.242	.089	47.476	.000
Witness's Sex=1	-.040	.123	-.323	.747
Witness's Sex=2	0	.	.	.
Memory Centered	.611	.058	10.468	.000

4. The following model adds HONEST and SENIOR_S to the model, both centered at their means. Now interpret each of the coefficients.

Regression Coefficients

Dependent Variable: ACCURATE

Variable	B	se	t	p
Intercept	4.219	.086	48.932	.000
Witness's Sex=1	.039	.120	.327	.744
Witness's Sex=2	0	.	.	.
Memory Centered	.550	.062	8.937	.000
Honest Centered	.233	.070	3.324	.001
Time w/Seniors Centered	.030	.022	1.312	.191

5. Add an interaction term between SEX_WITN and MEMORY.

Regression Coefficients

Dependent Variable: ACCURATE

Variable	B	se	t	p
Intercept	4.216	.086	48.795	.000
Witness's Sex=1	.038	.120	.320	.750
Witness's Sex=2	0	.	.	.
Memory Centered	.514	.080	6.436	.000
Honest Centered	.221	.072	3.054	.003
Time w/Seniors Centered	.030	.023	1.346	.180
Witness's Sex*Memory	.084	.117	.716	.474

Is it significant? How does it change the meaning of the other parameters in the model? Reinterpret each of your parameter estimates with the interaction in the model. What does it tell you about the relationship between perceptions of a witness' memory, their sex, and how accurate they seem to be?