Actor-Partner Interactions

Introduction
- Between-Dyads Variable
  - Both members have the same score.
- Centering
  - Remove the mean from actor and partner variables.
  - Use one mean from the pairwise data set.
- Sequence of Testing
  - Test with actor and partner effects in the model
  - Do not trim non-significant actor or partner effects

Measurement
- Standard Product Approach
  - make sure variables centered
  - interpretation
    - positive: the partner effect increases as one's score increases
    - negative: the partner effect increases as one's score decreases
- Discrepancy Score (absolute difference)
  - Similarity – Negative Coefficient (smaller absolute difference bigger outcome)
  - Dissimilarity – Positive Coefficient (larger absolute difference smaller outcome)

Hypothetical Example

Outcome: Satisfaction in Roommates
Predictor: Agreeableness
Actor and Partner Main Effects: Assumed to be positive
Possible Effects:
- Product Approach
  - Positive Coefficient: Being Agreeable makes you more satisfied but this effect is stronger the more Agreeable your roommate is (seems more likely).
  - Negative Coefficient: Being Agreeable makes you more satisfied but this effect is weaker the more Agreeable your roommate is.
- Discrepancy Score (Absolute Difference)
  - Positive Coefficient: The more dissimilar the two roommates are in Agreeableness, the more they are satisfied.
  - Negative Coefficient: The more similar the two roommates are in Agreeableness, the more they are satisfied (seems more likely).

Acitelli Example

Model: Spouse → Satisfied
with actor and partner effects, dyad members indistinguishable

Product Approach: Partner Effect Depends on the Actor Variable
Discrepancy Score: Seeing Each Other the Same Way

SPSS Syntax

```
Comment Compute Descriptives.
DESCRIPTIVES VARIABLES= OtherPos_A OtherPos_P
  /STATISTICS=MEAN STDDEV MIN MAX.

Comment Center Variables.

COMPUTE COtherPos_A = OtherPos_A - 4.2635.
COMPUTE COtherPos_P = OtherPos_P - 4.2635.
EXECUTE .

Comment  Compute discrepancy.

COMPUTE Spouse_Disc = ABS(COtherPos_P-COtherPos_A) .
EXECUTE .
```

Because the three-way interactions with Gender are not statistically significant (p = .179 for the product and p = .540 for discrepancy, Gender is dropped from the model.

```
Comment Actor-Partner Interaction: Product Term.

Mixed Satisfaction_A  WITH COtherPos_A COtherPos_P  Gender_A
  /FIXED = COtherPos_A COtherPos_P  COtherPos_A*COtherPos_P
  /PRINT = SOLUTION TESTCOV
 /REPEATED=Partnum | SUBJECT(CoupleID) COVTYPE(CSR).
```

Parameter	Estimate	Std. Error	df	T	Sig.
Intercept	3.621647	.029820	145.000	121.449	.000
COtherPos_A	.405854	.046909	273.382	8.652	.000
COtherPos_P	.293401	.046909	273.382	6.255	.000
COtherPos_A * COtherPos_P	-.295319	.124644	145.000	-2.369	.019

Comment Actor-Partner Interaction: Discrepancy.

```
MIXED
  Satisfaction_A  WITH COtherPos_A COtherPos_P  Gender_A Spouse_Disc
  /FIXED = COtherPos_A COtherPos_P  Spouse_Disc
  /PRINT = SOLUTION TESTCOV
  /REPEATED = partnum | SUBJECT(coupleid) COVTYPE(CSH) .
```

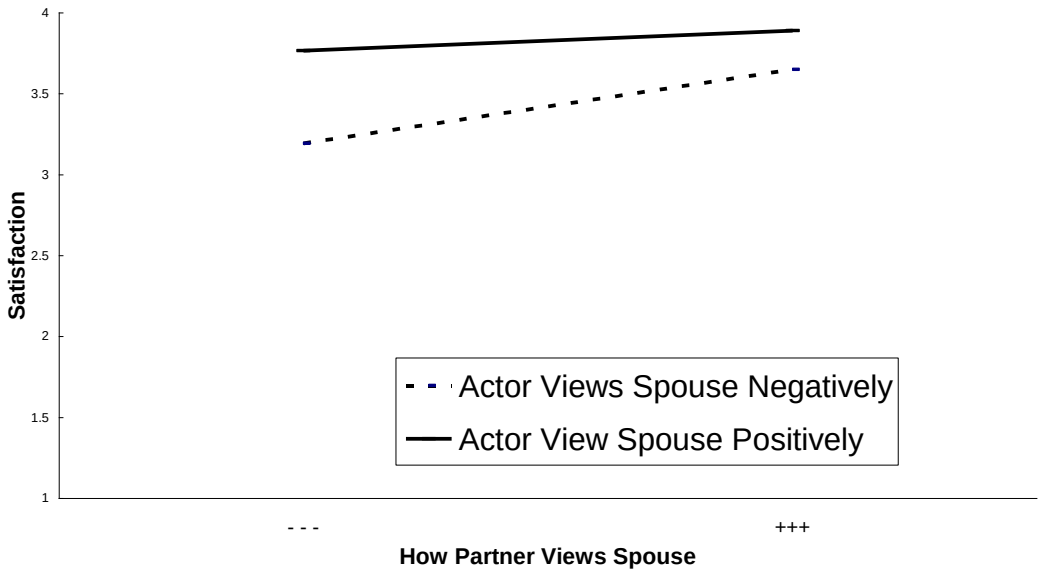
Parameter	Estimate	Std. Error	Df	t	Sig.
Intercept	3.595306	.050550	145.000	71.124	.000
COtherPos_A	.402806	.048537	266.374	8.299	.000
COtherPos_P	.290353	.048537	266.374	5.982	.000
Spouse_Disc	.019035	.082993	145.000	.229	.819

Method	Coefficient	*p*	Possible Interpretation
Product:	-.295	.019	The partner effect increases as the actor sees the spouse less favorably or the actor effect declines as the partner sees the spouse more favorably.
Discrepancy	.019	.819	Couples are less satisfied when they see each other the same way.

To graph the interaction, we take one standard deviation above and below the mean on Other Positivity (0.49842). We find

High Actor Positivity High Partner Positivity
3.897 = 3.622 + (0.406)*(0.49842) + (0.293)*(0.49842) + (-0.295)*(0.49842)*(0.49842)
High Actor Positivity Low Partner Positivity
3.752 = 3.622 + (0.406)*(0.49842) + (0.293)*(-0.49842) + (-0.295)*(0.49842)*(-0.49842)
Low Actor Positivity High Partner Positivity
3.639 = 3.622 + (0.406)*(-0.49842) + (0.293)*(0.49842) + (-0.295)*(-0.49842)*(0.49842)
Low Actor Positivity Low Partner Positivity
3.200 = 3.622 + (0.406)*(-.49842) + (0.293)*(-.49842) + (-0.295)*(-.49842)*(-.49842)

(some rounding error in these calculations)



We can obtain the predicted values by obtaining the least squares means for +1sd and -1sd above the mean for actor and partner variables.

```
/EMMEANS=TABLES(overall) WITH(COtherPos_A=0.49842 COtherPos_P=0.49842)
/EMMEANS=TABLES(overall) WITH(COtherPos_A=0.49842 COtherPos_P=-0.49842)
/EMMEANS=TABLES(overall) WITH(COtherPos_A=-0.49842 COtherPos_P=0.49842)
/EMMEANS=TABLES(overall) WITH(COtherPos_A=-0.49842 COtherPos_P=-0.49842)
```

+1 sd actor variable and +1 sd partner variable

1. Grand Mean[b]

			95% Confidence Interval	
Mean	Std. Error	df	Lower Bound	Upper Bound
3.897[a]	.052	145.000	3.795	3.999

a. Covariates appearing in the model are evaluated at the following values: COtherPos_A = .50, COtherPos_P = .50.

b. Dependent Variable: Satisfaction_A.

+1 sd actor variable and -1 sd partner variable

2. Grand Mean[b]

Mean	Std. Error	df	95% Confidence Interval	
			Lower Bound	Upper Bound
3.751[a]	.056	236.995	3.641	3.861

a. Covariates appearing in the model are evaluated at the following values: COtherPos_A = .50, COtherPos_P = -.50.

b. Dependent Variable: Satisfaction_A.

-1 sd actor variable and +1 sd partner variable

3. Grand Mean[b]

Mean	Std. Error	df	95% Confidence Interval	
			Lower Bound	Upper Bound
3.639[a]	.056	236.995	3.529	3.749

a. Covariates appearing in the model are evaluated at the following values: COtherPos_A = -.50, COtherPos_P = .50.

b. Dependent Variable: Satisfaction_A.

-1 sd actor variable and -1 sd partner variable

4. Grand Mean[b]

Mean	Std. Error	df	95% Confidence Interval	
			Lower Bound	Upper Bound
3.200[a]	.054	145.000	3.094	3.306

a. Covariates appearing in the model are evaluated at the following values: COtherPos_A = -.50, COtherPos_P = -.50.

b. Dependent Variable: Satisfaction_A.