

***A Brief
Introduction to Dyadic
Data Analysis***

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What Is Dyadic Analysis?

- Two or more people in a relationship with each other are measured on *some* of the “same” variables.

Nonindependence: Definition

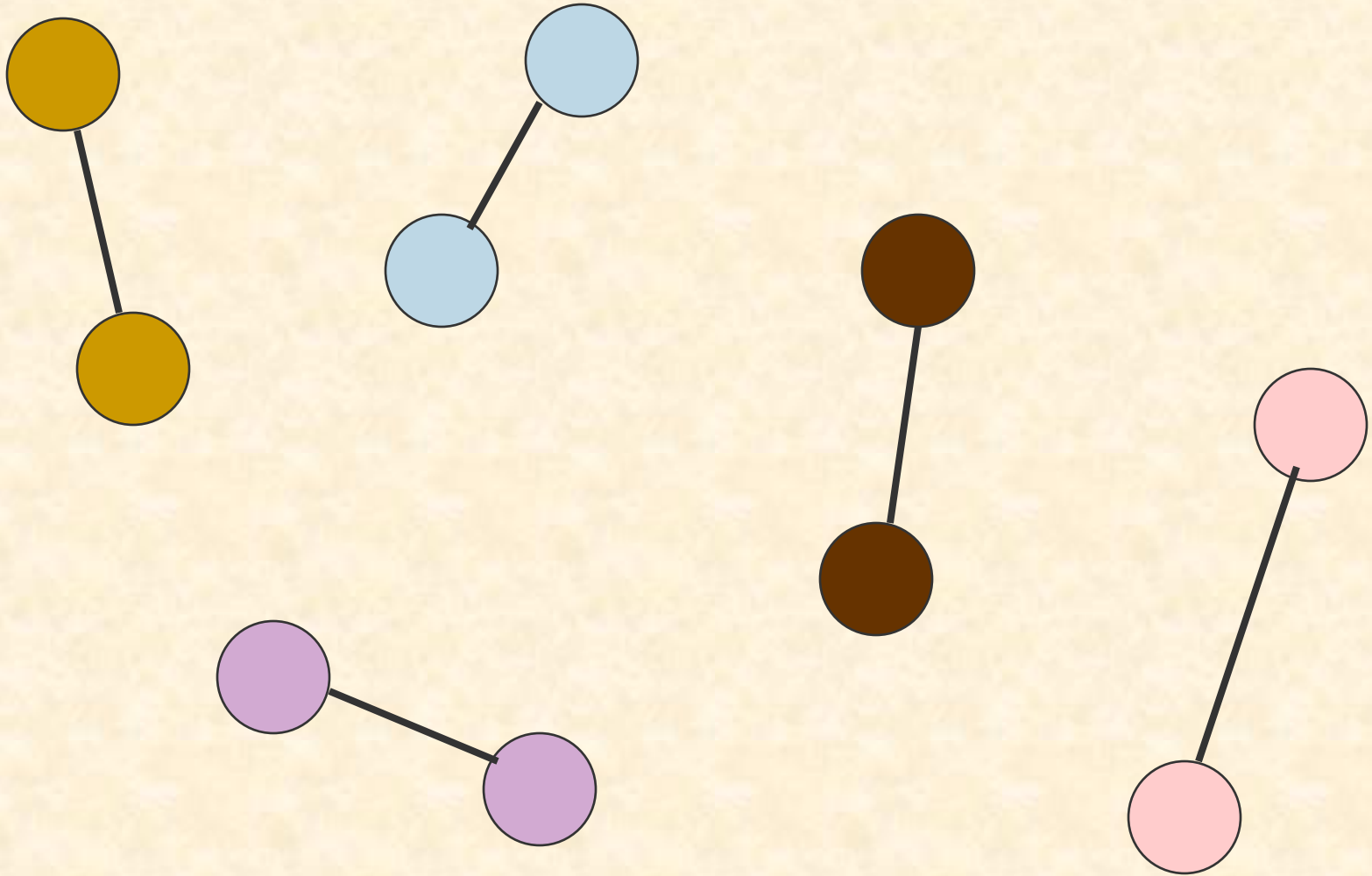
- Degree of greater similarity (or dissimilarity) between linked observations versus unlinked observations
- Nonindependence as the *correlation* between linked observations.
- Variance is sometimes used.
 - Cannot handle negative nonindependence
 - Treats negative correlation as if the data were independent

Distinguishability

- Two members of the dyad are said to be distinguishable if there is a variable on which they can be differentiated.
 - Examples: Husbands and wives; parent and child; patient and support provider
- Two members of the dyad are said to be indistinguishable if there is not a variable to order the two.
 - Examples: Gay or lesbian couple; twins

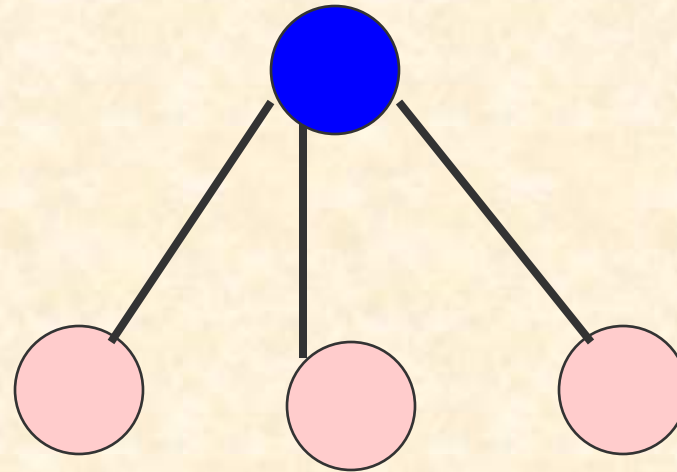
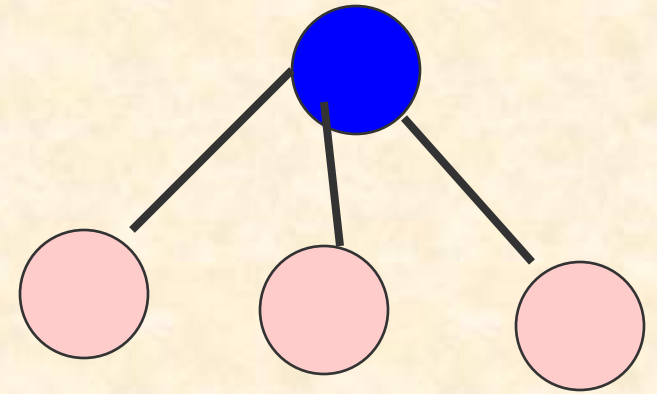
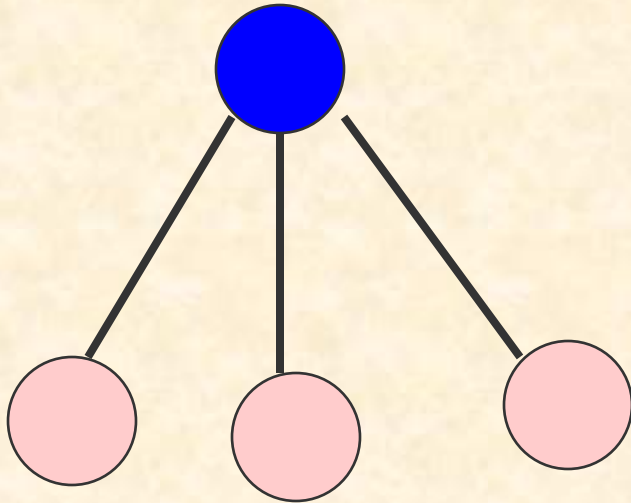
Dyadic Data Organization

- Individual
 - One record for each individual
 - Only that individual's data on the record
- Dyad (useful for distinguishable dyads)
 - Each record one dyad
 - Different variables for each person
- Pairwise (useful for distinguishable dyads)
 - One record for each person
 - The person's data and partner data included (each data point included twice)

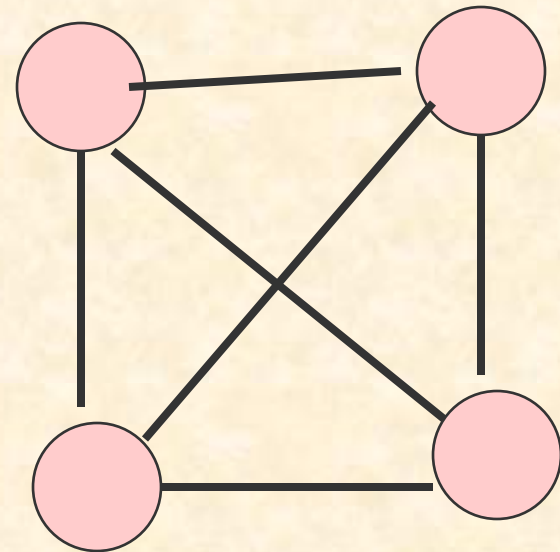
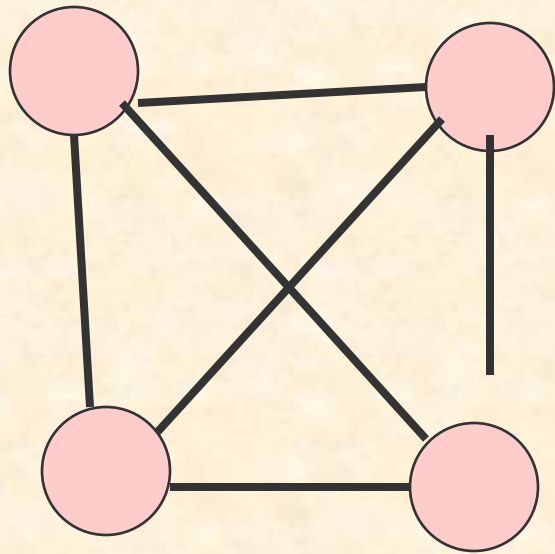


Standard Design

One-with-Many Design

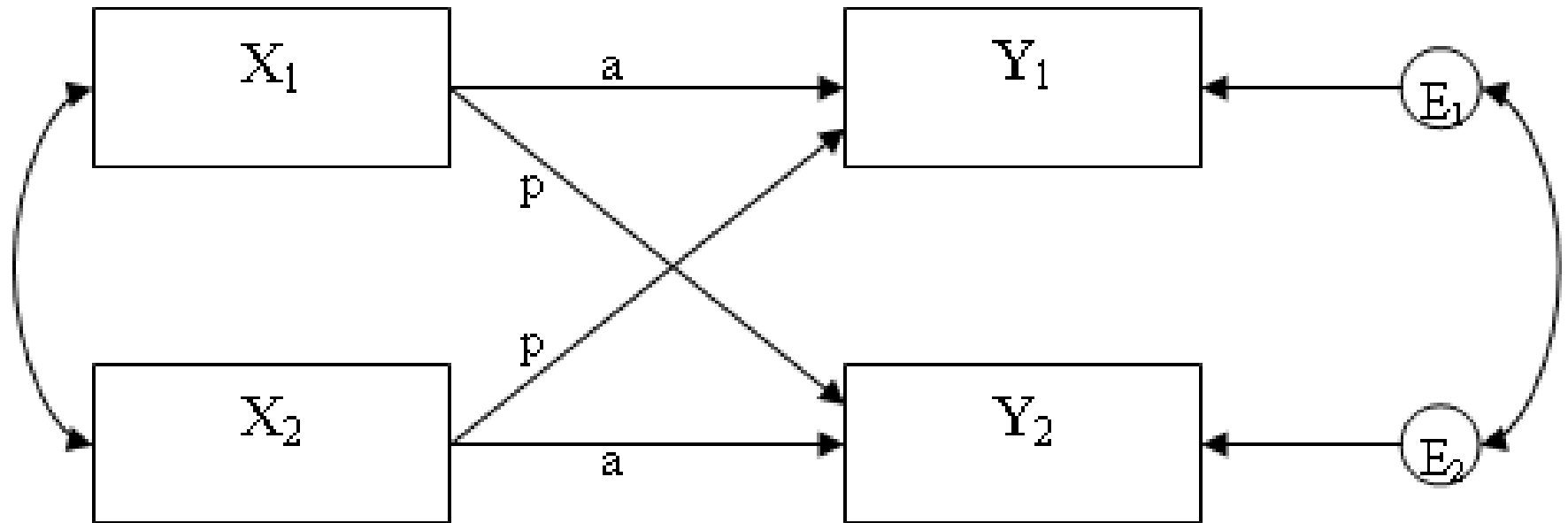


SRM Designs



The remaining part of the presentation considers only the standard design which is used in about 75 percent of dyadic studies.

Actor-partner Interdependence Model (APIM)



Actor Effect

- Definition: The effect of my X on my Y
- Indistinguishable Dyads – one actor effect
- Distinguishable Dyads (husbands and wives)

Partner Effect

- Definition: The effect of my X on my partner's Y
- Indistinguishable Dyads – one partner effect
- Distinguishable Dyads (husbands and wives)
 - From husband's X to wife's Y or ρ_{WH}
 - From wife's X to husband's Y or ρ_{HW}

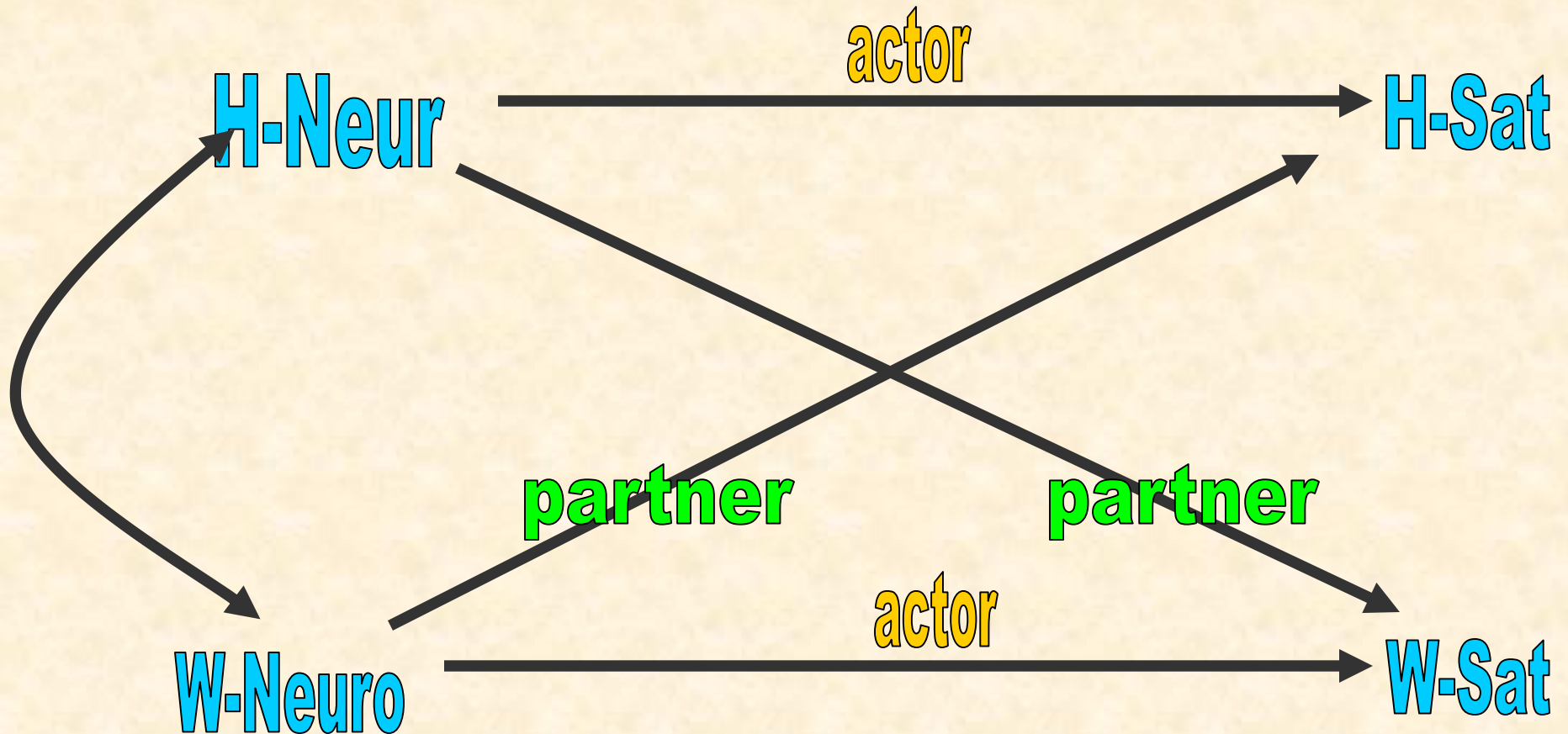
Important Patterns

- Couple Model
 - Equal Actor and Partner Effects
 - My X is your X
 - Average or sum as the predictor
- Social Comparison Model
 - Actor Plus Partner Equals Zero
 - Difference (my X minus your X) as the predictor

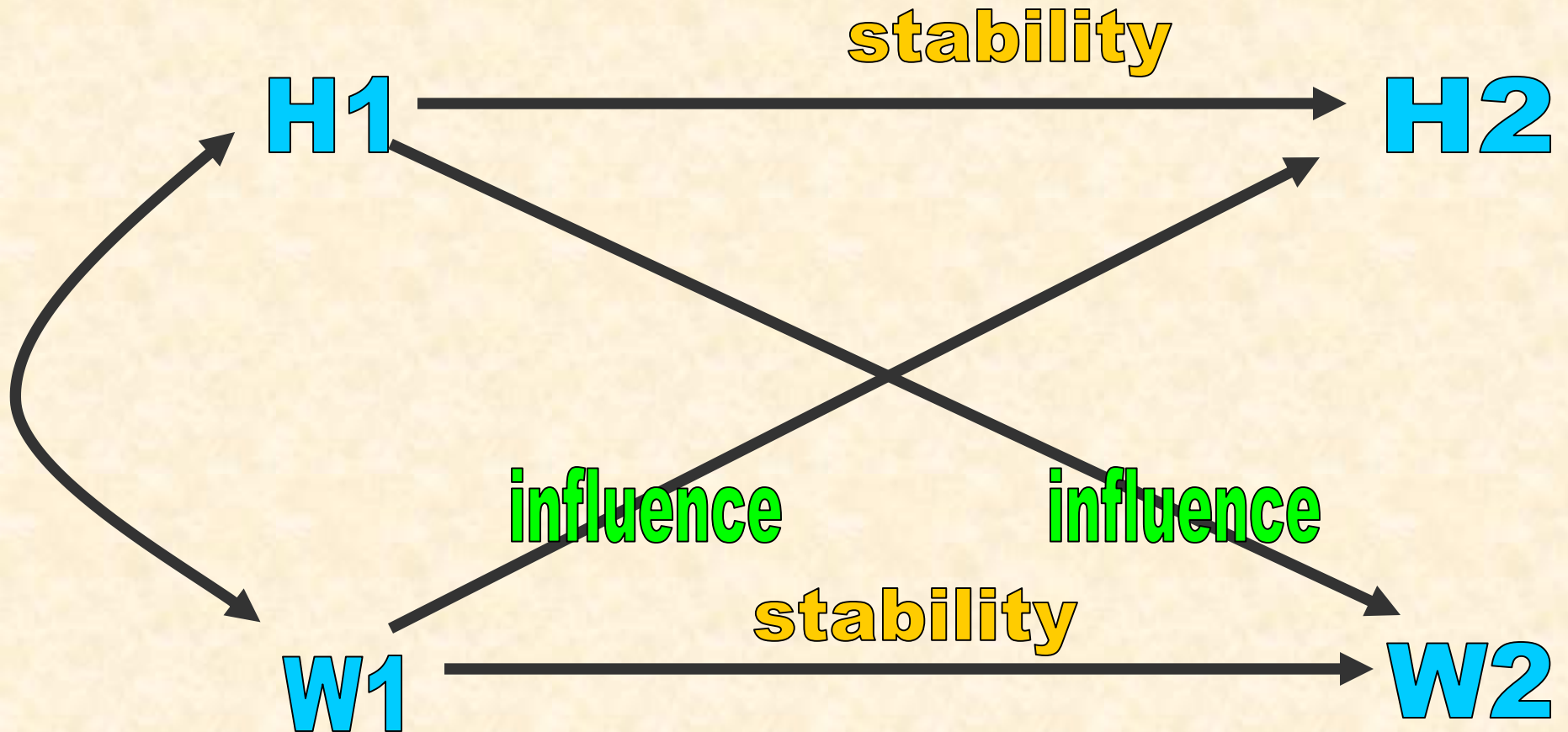
Estimation

- Multilevel Modeling
 - Requires a pairwise data set
 - Can use SPSS
- Structural Equation Modeling
 - Requires a dyad data set
 - Basic model is saturated.

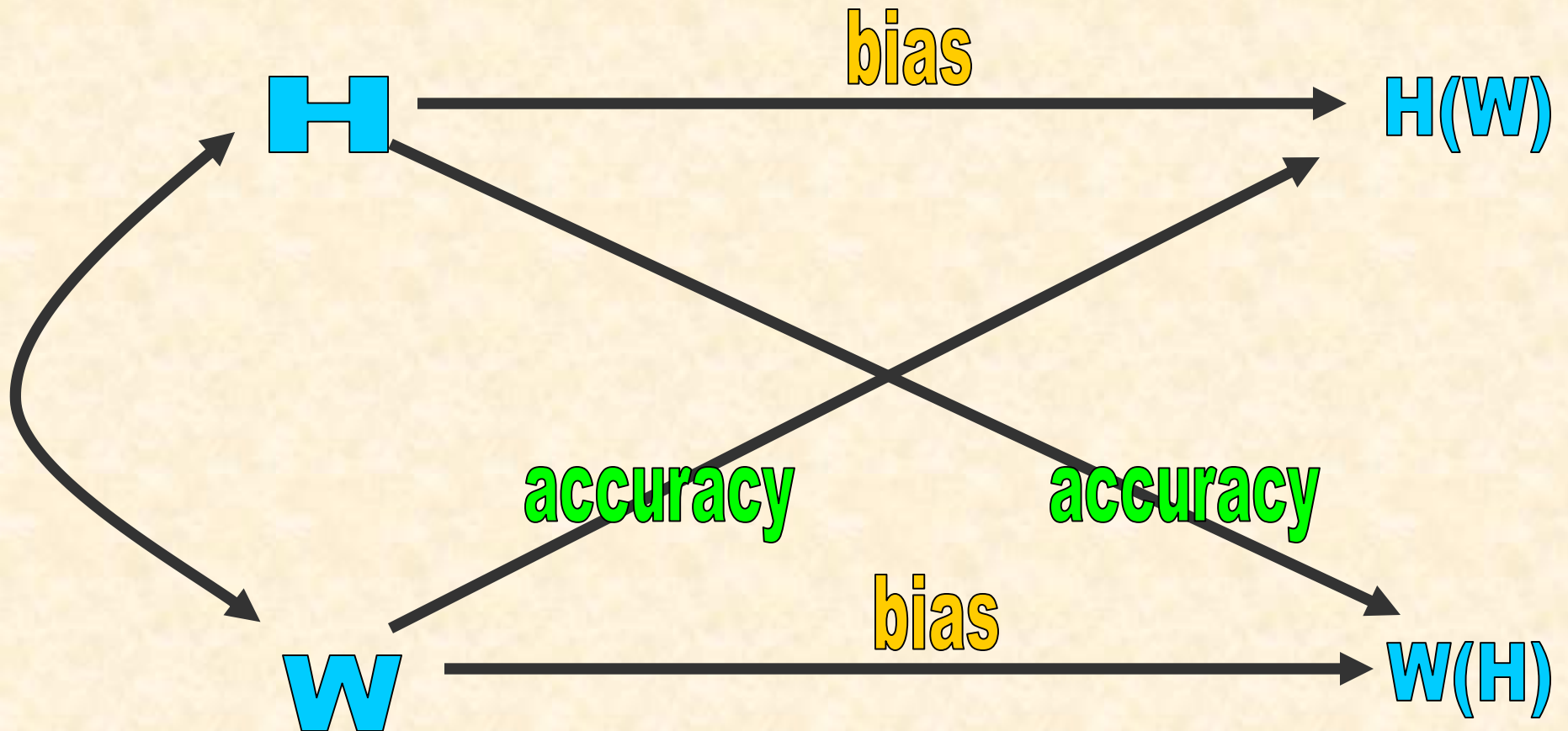
Personality and Marital Satisfaction



Influence: Who Changes?



Bias and Accuracy



Many Other Topics

- APIM can be extended.
 - Actor-partner interaction (similarity)
 - Multiple variables
 - Mediation and moderation
- Different designs with more than two people.
- Other models
 - Mutual influence
 - Common fate



Dyadic
Data Analysis

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References

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- Kenny, D. A., & Acitelli, L. K. (2001). Accuracy and bias in the perception of the partner in a close relationship. *Journal of Personality and Social Psychology*, 80, 439-448.
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