

**Structural Equation Models for
Cooperative Small Group Contexts:
The Interplay of Theory and Method
in Goal-Directed Behavior**

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Two fundamental orientations in structural equation modeling

Substantive research

Methodological research

Synergy between theory and method and the theory-method gap

Wide gap

Narrow gap

Cooperative Small-group behavior

Family decision making

Team behavior within
organizations

Team behavior across
organizations

Need for a theory-based methodology

Existing approaches

Average responses of group members

Use only one role from each group

Use responses from all roles or all individuals at the
level of each person's characteristics or
psychological states

Multilevel research

A new approach

Group members view themselves as “we” and share
in
the action of a verb

What is a small group?

Tönnies (1963):

A community is a grouping of persons based on feelings of
togetherness.

Simmel ([1908] 1971):

Shared unity in the minds of group members: “The consciousness of constituting with the others a unity is actually all there is to this unity” (p. 75).

Weber (1978):

“In ‘action’ is included in all human behavior when and insofar as the acting individual attaches subjective meaning
to check it...[action becomes social when] by virtue of the subjective meaning attached to it by the acting individual(s) it takes account of the behavior of others

Plural subject theory

A *social group* is one where “each of a certain set of persons must correctly view himself and the rest, taken together, as ‘us*’ or ‘we*’” (Gilbert, 1989, p. 152). For Gilbert “we” refers to the self and one or more others “that share in the action of a verb” (e.g., doing things together). Under *plural subject theory*, collectivity concepts incorporate the idea of a plural subject into their meaning and contrast with singularism which is “the thesis that ...[collective] concepts are explainable solely in terms of the conceptual scheme of singular agency” (Gilbert, 1989, p. 12).

Plural subject theory (continued)

Plural subject theory advocates a kind of “intentionalism” which is “the view that according to our everyday collectivity concepts, individual human beings must see themselves in a particular way in order to constitute a collectivity” (Gilbert, 1989, p. 12). People must see themselves sharing in an action of doing something together.

Individual wills of group members are bound to a group “simultaneously and interdependently” such that “each expresses a *conditional commitment* of his will, understanding that only if the others express similar commitments are all of the wills jointly committed to accept a certain goal when the time comes” (Gilbert, 1989, p. 204).

Plural subject theory (continued)

A key concept in plural subject theory is the notion of a “we-attitude”, where attitude can be any mental state or event.

“A person has a we-attitude A (say a goal, intention, or belief) if he has A, believes that the others in his collective (group) have A and believes in addition that there is a mutual belief in the collective that the members have A” (Tuomela, 2002, p. 3).

Plural subject theory applied to a 3-person group for a we-intention to pursue a common goal

We-intention: “We intend to do x together”.

Each person in a 3-person group (persons A, B, and C) provides 9 judgments about we-intentions for the group.

For example, person A expresses (1) his/her own we-intention (self-expressed we-intention), (2) we-intentions of B and C (dyadic we-intentions), and (3) we-intentions about how B and C express we-intentions of A, B, and C (second-order we-intentions), for a total of 9 judgments.

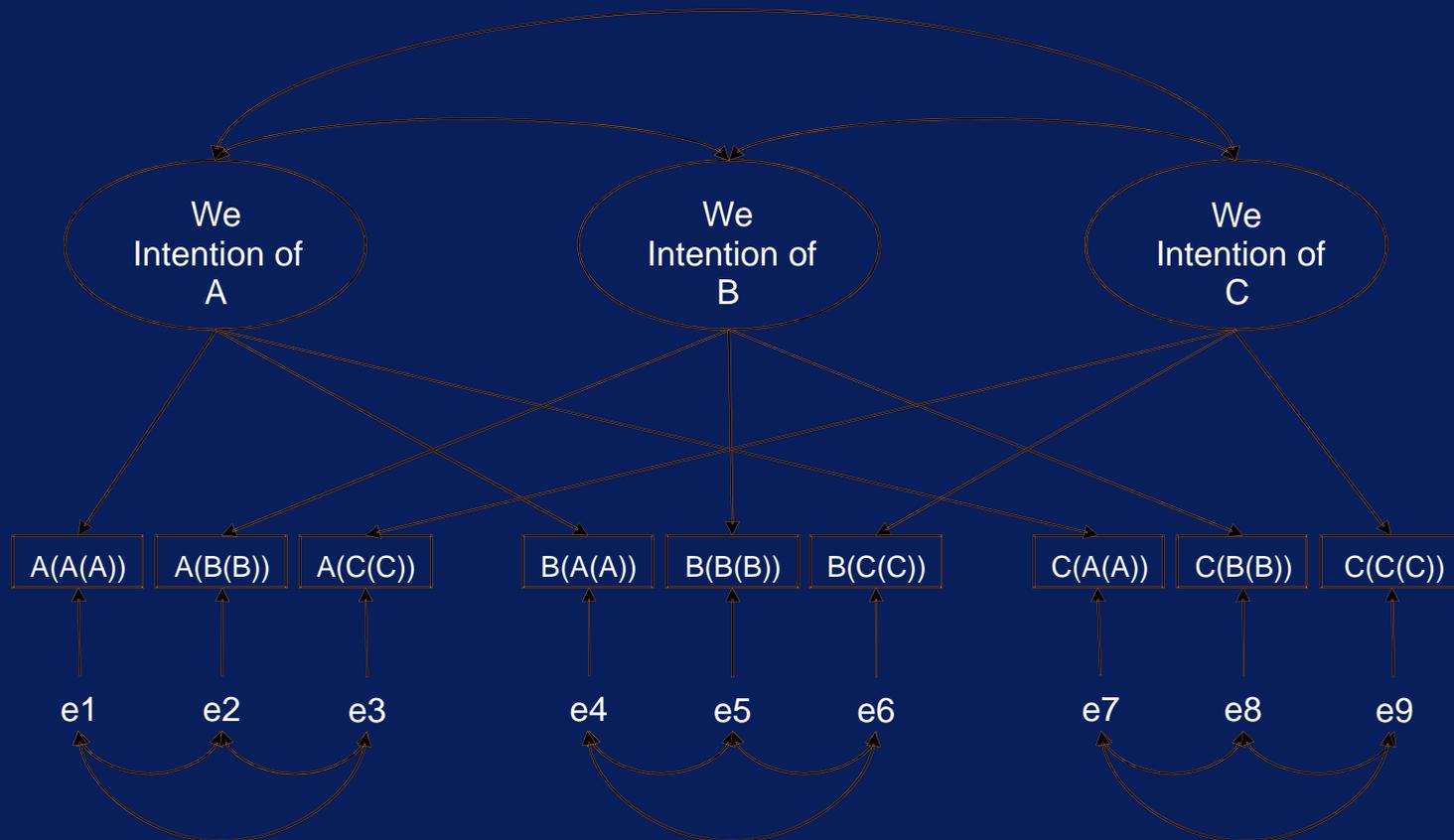
Likewise by B, and by C, for a sum total of 27 judgments.

Proposed design for a three-person group

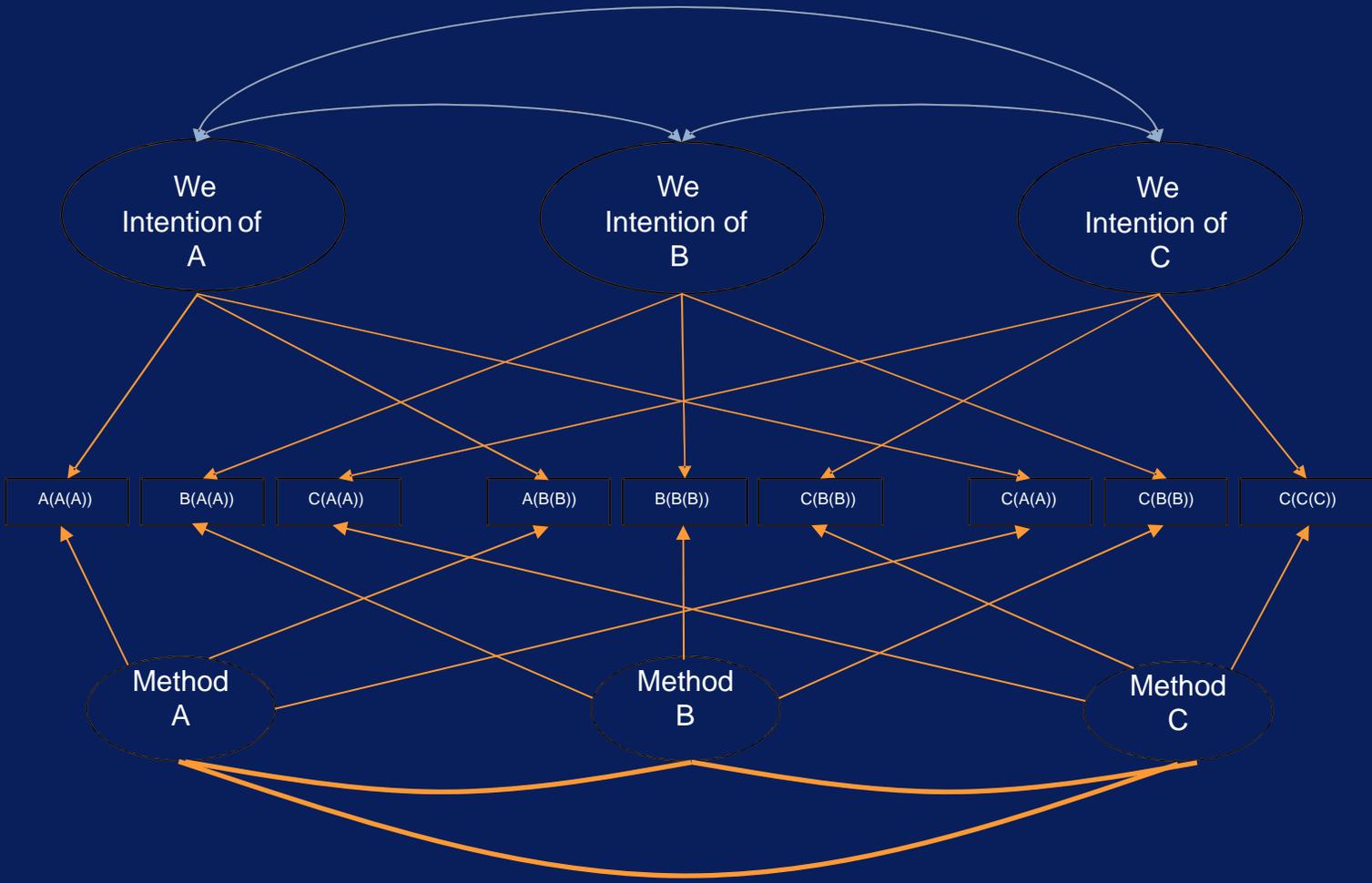
Judge		Target partner		
	Actor	A	B	C
Judge A	A	A(A)	A(B)*	A(C)*
	B	A(B(A))	A(B(B))	A(B(C))
	C	A(C(A))	A(C(B))	A(C(C))
Judge B	A	B(A(A))	B(A(B))	B(A(C))
	B	B(A)*	B(B)	B(C)*
	C	B(C(A))	B(C(B))	B(C(C))
Judge C	A	C(A(A))	C(A(B))	C(A(C))
	B	C(B(A))	C(B(B))	C(B(C))
	C	C(A)*	C(B)*	C(C)

Note: A, B, and C refer to the three team-mates and express judge(actor(target)) information. Entries with an asterisk refer to the generalized round robin design suggested by Bond, Horn and Kenny (1997). The key informant model includes first-order evaluation entries enclosed in rectangles.

Key informant correlated trait, correlated uniqueness model concerning we-intention construct



Key informant trait, method, error model concerning we-intention construct



I-intentions versus We-intentions

I-intentions constitute the received view in social psychology and many applied fields.

An I-intention is “a person’s motivation in the sense of his or her conscious plan to act *him- or herself alone*” (Eagly and Chaiken, 1993, p. 168).

We-intentions are shared intentions of two or more persons to act together.

Two versions of We-intentions

An intention to perform a group act.

“a commitment of an individual to participate in joint action involves an implicit or explicit agreement between the participants to engage in that joint action.” (Tuomela, 1995, p. 2).

For example: the wife in a husband-wife dyad might have the intention to wash dishes *with* her husband this evening.

A communal or collective intention rooted in a person's self-conception as a member of a particular group (e.g., a family) or a social category (e.g., one's gender). Action is conceived as either the group or category acting, whereby actors function as agents of, or with, the group or category.

For instance: “We plan to visit Disney World”.



Key variables and processes in social action

An example with two key informants: Husband and wife family consumption decisions (Gaur, Bagozzi, and Tiwari, 2017)

Social influence and intentional social action in family consumption decisions

Decision: to eat together in a restaurant over the next month with nuclear family members

Three kinds of social influence: social identity, group norms, and subjective norms

Sample: 155 husbands and wives in India

Example measures for husband-wife study

Social identity

Affective component: “My feelings of attachment/belongingness towards my family, as per my own estimate, are...”; and “My feelings of attachment/belongingness towards my family, as per my family members’ estimates, are...”.

Cognitive component: “My estimate of how much my self-image overlaps with the identity of my family is...”; and “My family member’s estimate of how much my self-image overlaps with the identity of our family is...”.

Evaluative component: “My value/importance to my family, as per my own estimate is...”; and “My value/importance to my family, as per my family members’ estimate is...”.

Example measures for husband-wife study (continued)

Group norms: “The extent to which I share values, goals, and beliefs with my family members as per my own estimate is...”; and “The extent to which I share values, goals, and beliefs with my family members as per my family members’ estimates is...”.

Subjective norms: “Most of my family members feel that I...” “should not” to “should” “have meals at restaurants with my family members sometime during the next month”; and “Most of my family members would...” “disapprove” to “approve” “having meals at restaurants with my family members sometime during the next month.”

Intentions: “The strength of my intention to have meals at restaurants along with my family members, as per my own estimate is...” and “The strength of my intention to have meals at restaurants along with our family members, as per my family members’ estimates is...”.

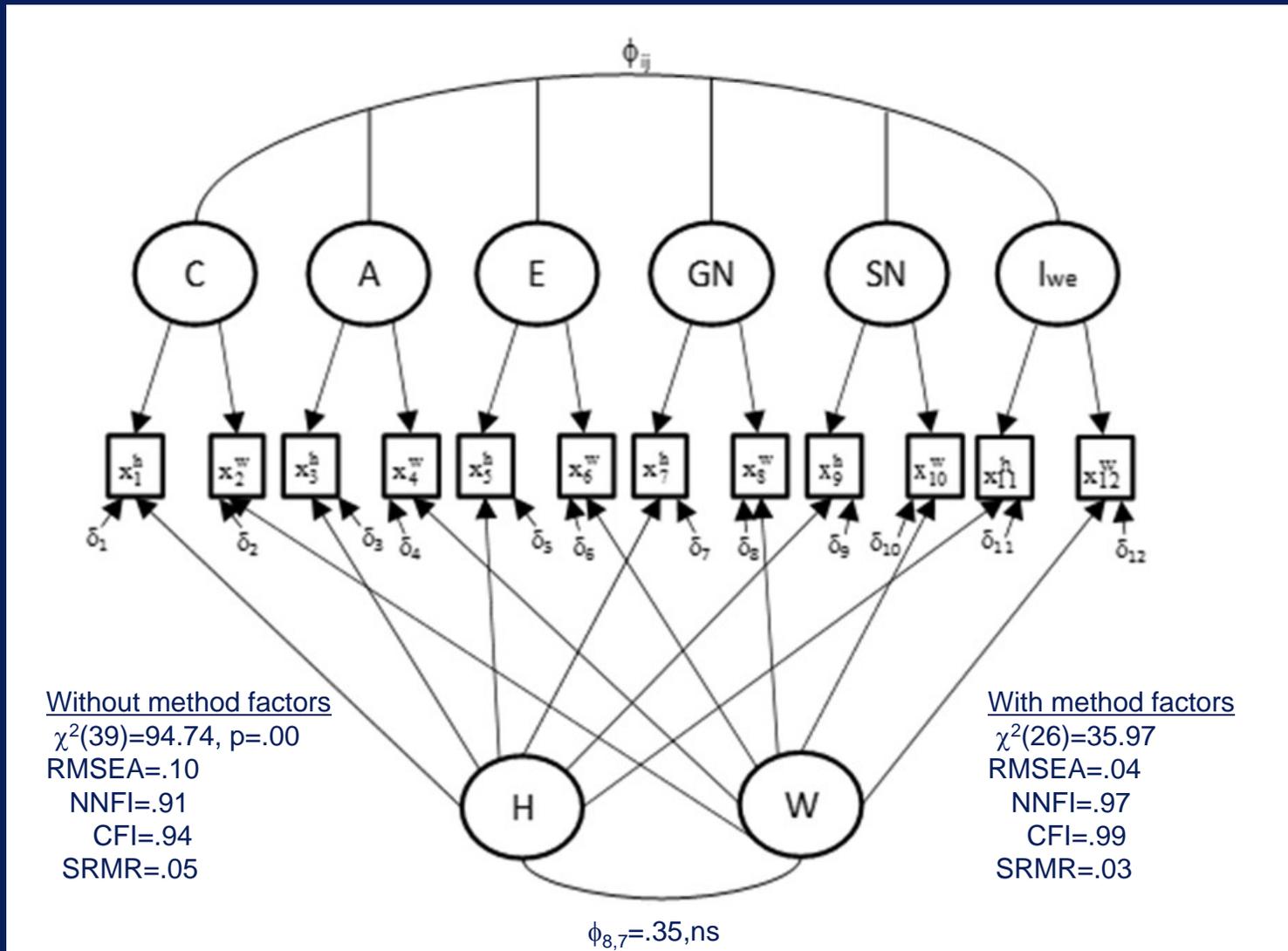
Example measures for husband-wife study

Behavior. One month after answering the social influence and intention items, respondents, answered two questions:

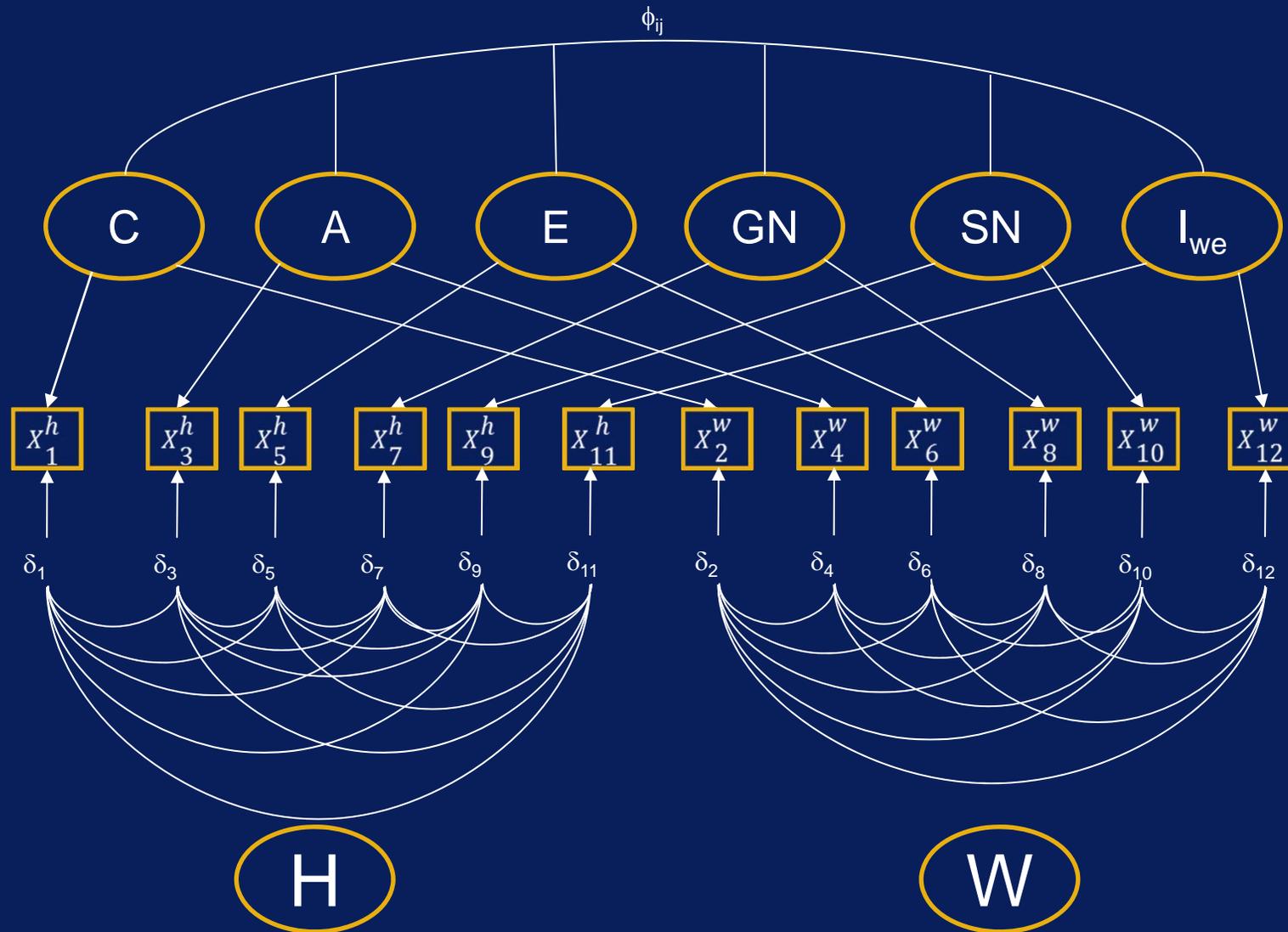
“How many times did you go for meals at restaurants with your family members in the past month?”

6-point scale: “1 time”, “2 times”, “3 times”, “4 times”, “5 times”, and “other (specify number)”.

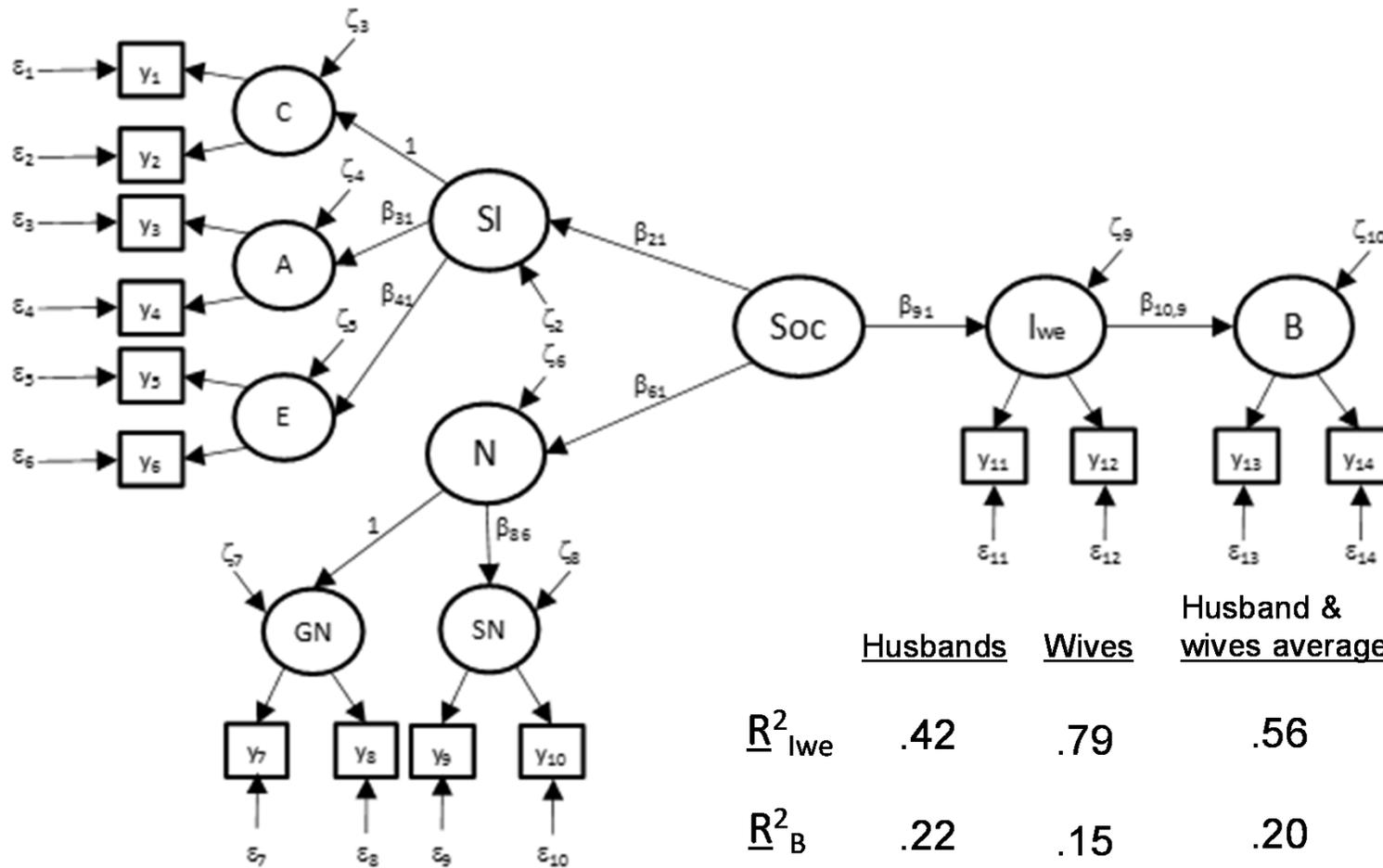
Structural equation model for multi-trait, multi-method matrix to test for convergent and discriminant validity of measures



Alternative structural equation model for multi-trait, multi-method matrix to test for convergent and discriminant validity of measures (correlated uniqueness approach)

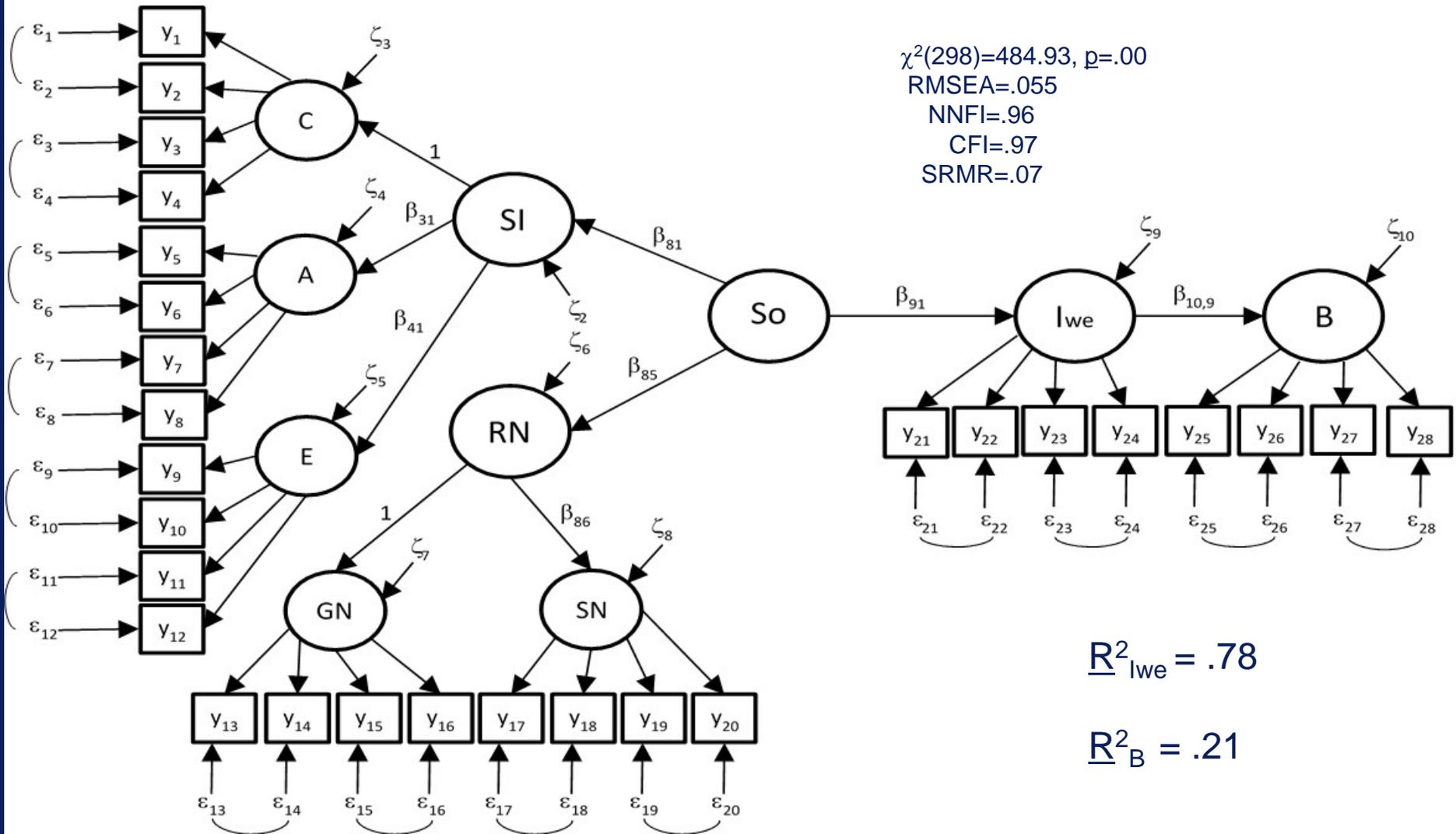


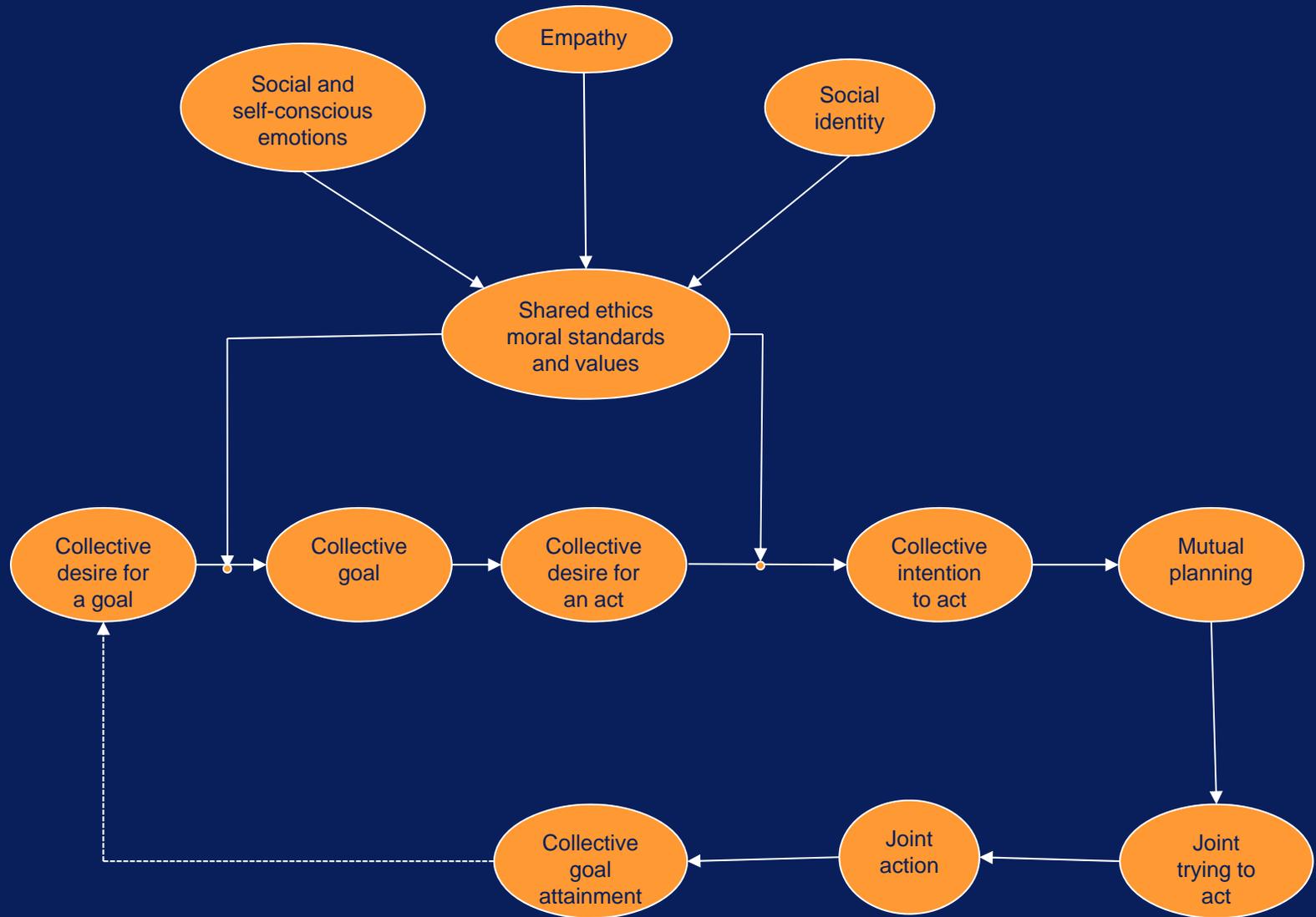
Structural equation model for husbands, wives, and the aggregation of husbands and wives



	<u>Husbands</u>	<u>Wives</u>	<u>Husband & wives average</u>
R^2_{Iwe}	.42	.79	.56
R^2_B	.22	.15	.20

Structural equation model for the dyadic key informant model





Key variables and processes in social action

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Methods-related

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