

Ulrich Klocke (klocke@rz.hu-berlin.de)

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# How to Improve Decision Making in Small Groups:

## Dissent, Preference-consistency and unshared information

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# Contents

1. Defective processes in small group decision making
2. Interventions against these processes
3. Evaluation of two interventions in a laboratory group experiment
4. Experimental effects on process variables and decision quality
5. Correlations between process variables and decision quality
6. Summary and conclusion

# Decision Making in Small Groups

- ... is especially useful in *hidden profile* situations which are characterized by two conditions:
  1. each group member has relevant unshared (i.e. unique) information
  2. optimal decision only by integrating these unshared information
- However, groups seldom outperform a simple aggregation of members' initial preferences (e. g. Stasser & Titus, 1985).
- Two defective processes responsible
  1. Neglection of unshared information
  2. Preference-consistent processing

# 1. Neglect of Unshared Information

- *Common knowledge effect*: Higher impact of shared (compared to unshared) information on group decisions (Gigone & Hastie, 1993, 1997; Stasser & Titus, 1985). **Reasons:**
  1. Higher probability of exchanging (= introducing and repeating) shared information (*Biased sampling model of discussion*, Stasser, Taylor, & Hanna, 1989; Stasser & Titus, 1985, 1987)
  2. Higher information evaluation (relevance and credibility) of shared information (Greitemeyer & Schulz-Hardt, 2003; Greitemeyer, Schulz-Hardt, & Frey, 2003)
    - Social validation (Greitemeyer & Schulz-Hardt, 2003)
    - Ownership Bias (Van Swol, Savadori & Snizek, 2003)

## 2. Preference-consistent Processing

- Early expression of individual preferences and negotiation about these preferences instead of information (Gigone & Hastie, 1993; Mojzisch and Schulz-Hardt, 2005).
- Preference-consistent information exchange (Dennis, 1996; Wittenbaum, Bowman, & Hollingshead, 2003)
- Preference-consistent evaluation (relevance and credibility) of information (Greitemeyer & Schulz-Hardt, 2003)

# How to Improve Decision Making in Small Groups?

- Authentic **dissent** improves group decision making, mediated by more intense and less biased information exchange  
(Brodbeck, Kerschreiter, Mojzisch, Frey, & Schulz-Hardt, 2002; Schulz Hardt, Brodbeck, Mojzisch, Kerschreiter & Frey, in press)
- But what if there is **consent** in a decision making group?
- Instructing group members to reduce defective decision processes yielded inconclusive results with regard to decision quality (Larson, Christensen, Franz, & Abbott, 1998 ; Larson, Foster-Fishman, and Keys, 1994; Mennecke, 1997; Stasser et al., 1989)

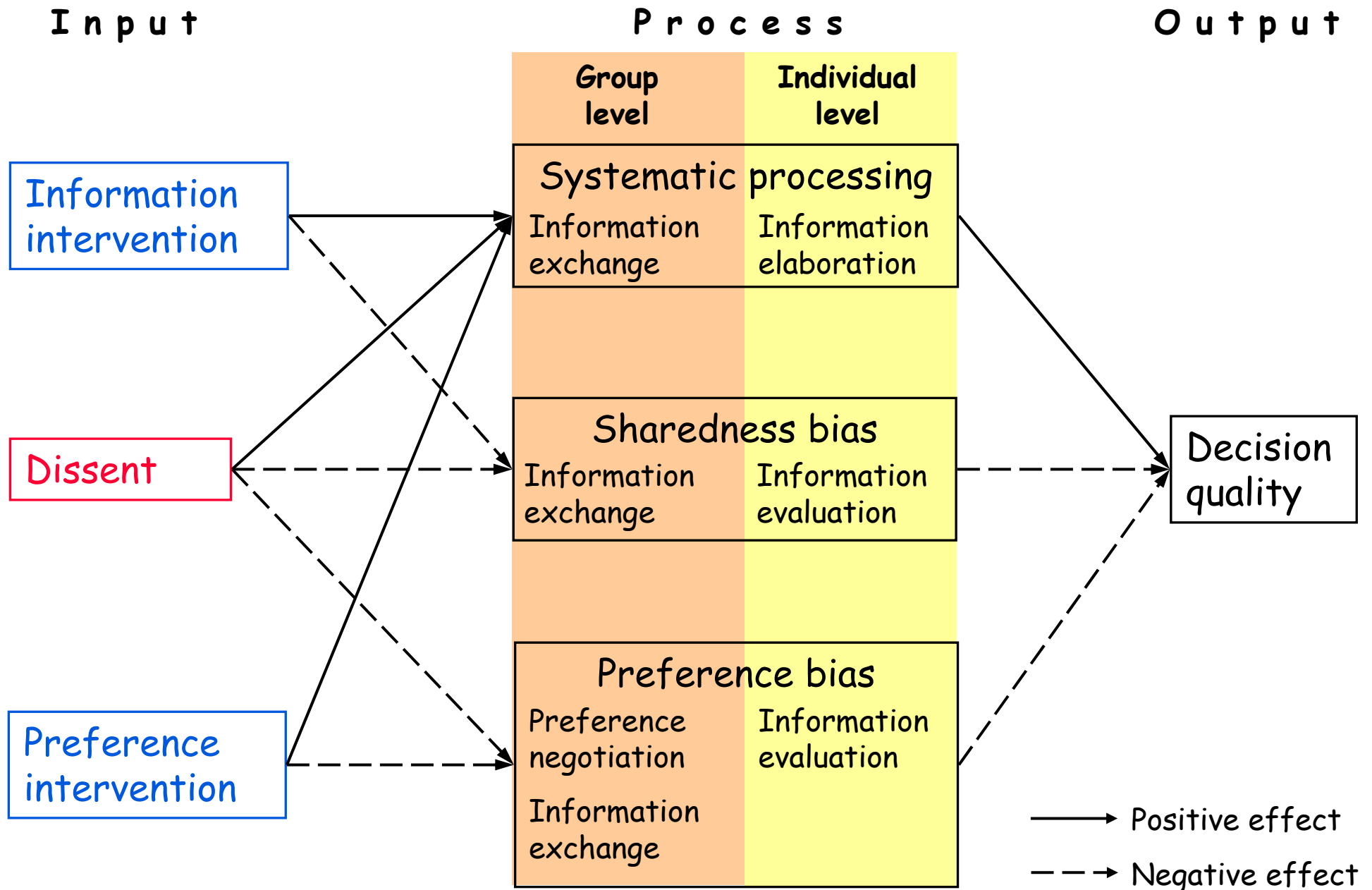
## ⇒ Aims of the present study

- Enrich instructions with a group exercise to demonstrate defective processes
- Also demonstrate *individuel-level* processes and not only *group-level* processes

# Two Interventions in this Experiment

Procedure ↓	1. Information use	2. Preference consistency
Jigsaw puzzle in the group	Everybody has shared and unshared pieces Relevance of un-shared pieces gets obvious	1. <i>Indiv.</i> puzzle of picture with same shape but differ. colours 2. <i>Group</i> puzzle: Goal „all one colour picture“ is only attainable with a <i>new</i> colour
Clarification of the analogy	Pieces = information in group decision	individ. successful colour = initial preference in a group decision
Decision example: Dest. for vacation	Some infos shared, others unshared	Everybody has preference for specific destination
Clarification of defective processes	Reasons for neglecting unshared information	Consequences of initial preferences for group decisions
Request	... to focus on introducing <i>new</i> information	... not to introduce preferences but information in an unbiased way

# Model of the Effects of the Interventions





# Research Design and Sample

	Control condition	Information Interv.	Preference Interv.
Consent	5 Groups	5 Groups	5 Groups
Dissent	5 Groups	5 Groups	5 Groups

- Control condition: Same jigsaw puzzle introduced as „training in group problem-solving“ and jointly performed; no subsequent clarifications; everybody had access to all pieces
- Group members knew each other in advance
- 93 % students of different subjects, 41 % psychology
- Age:  $M = 24.0$  years,  $SD = 2.8$  years
- 49 % female, 51 % male

## Group Task

- Hidden-profile task: selecting a pilot for long-distance flights (adapted from Kerschreiter, Mojzisch, Schulz-Hardt, Brodbeck & Frey, 2002)
  - 40 pieces of informationen (shared and unshared) described the four candidates and were distributed over the three group members.
  - Best (=correct) candidate could only be identified when all information were simultaneously considered.
1. 20 minutes for individual evaluation of candidates and to memorize information
  2. 30 minutes maximum for group decision (paper and pencil available)

# Manipulation of Dissent

- Manipulation of group members' initial preferences by the information distribution:
  1. **Consent**: All three members prefer same suboptimal candidate.
  2. **Dissent**: All three members prefer different suboptimal candidates.
- Preference induction successful for 88 % of participants
- In the dissent condition, much more disagreement was perceived than in the consent condition ( $\text{Eta}^2 = .65$ ,  $p < .001$ ).

## Possible Covariates

- 9 % of participants initially preferred the correct candidate
  - ⇒ relative initial preference for correct candidate as covariate
- Other covariates were included in analyses in case of medium effects on dependent variable:
  - Age
  - Grade of university entrance exam (Abitur)
  - Proportion of female group members
  - Proportion of undergraduate psychology members
  - Expected quality of teamwork

# Systematic processing: Measures

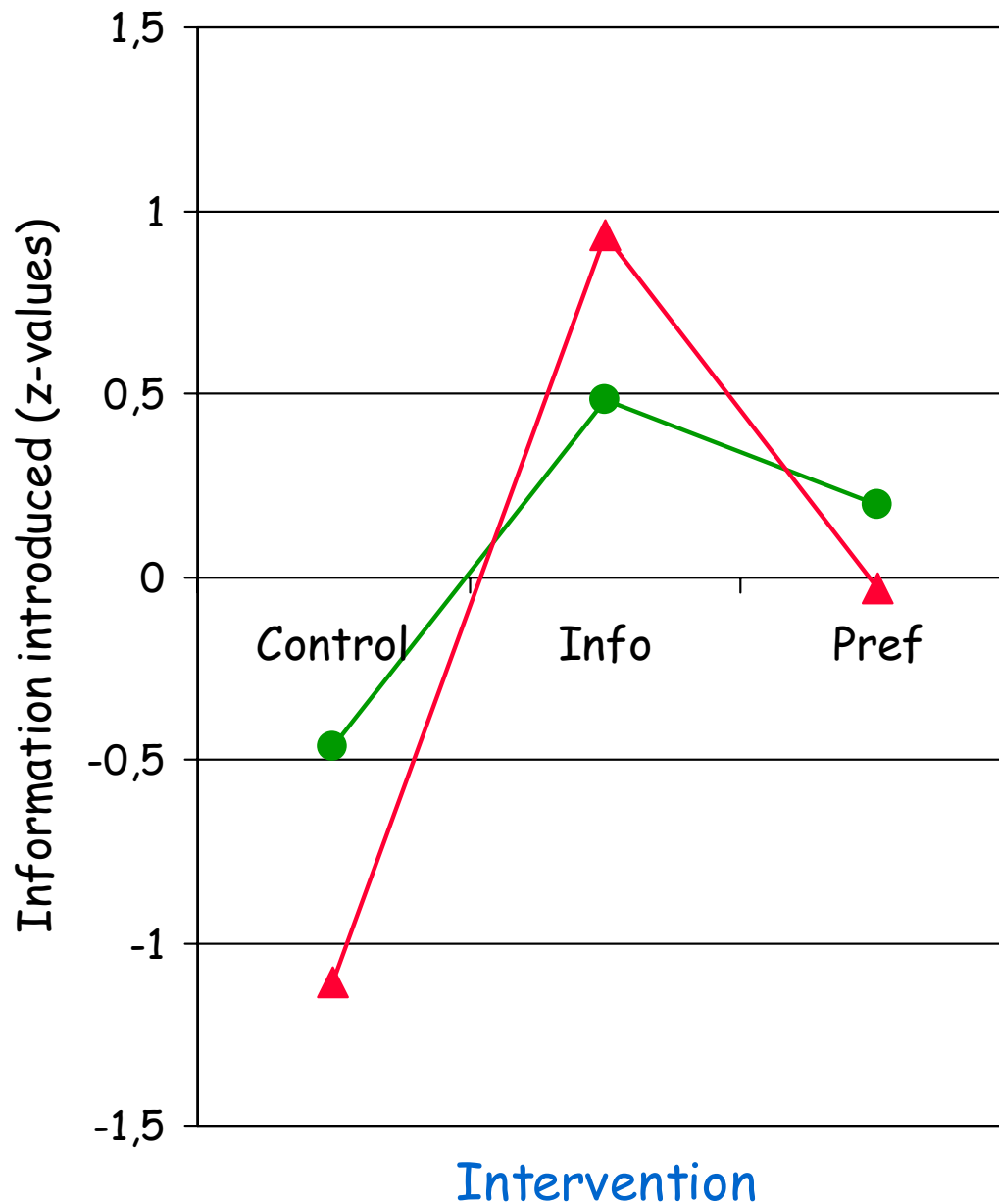
## Group level

- Amount of **information introduced** in the discussion  
(unadjusted intraclass-correlation =  $ICC_u = .85$ )

## Individual level

- Amount of **information recalled** after discussion ( $ICC_u = .99$ )

# Experimental Results: Information Introduced



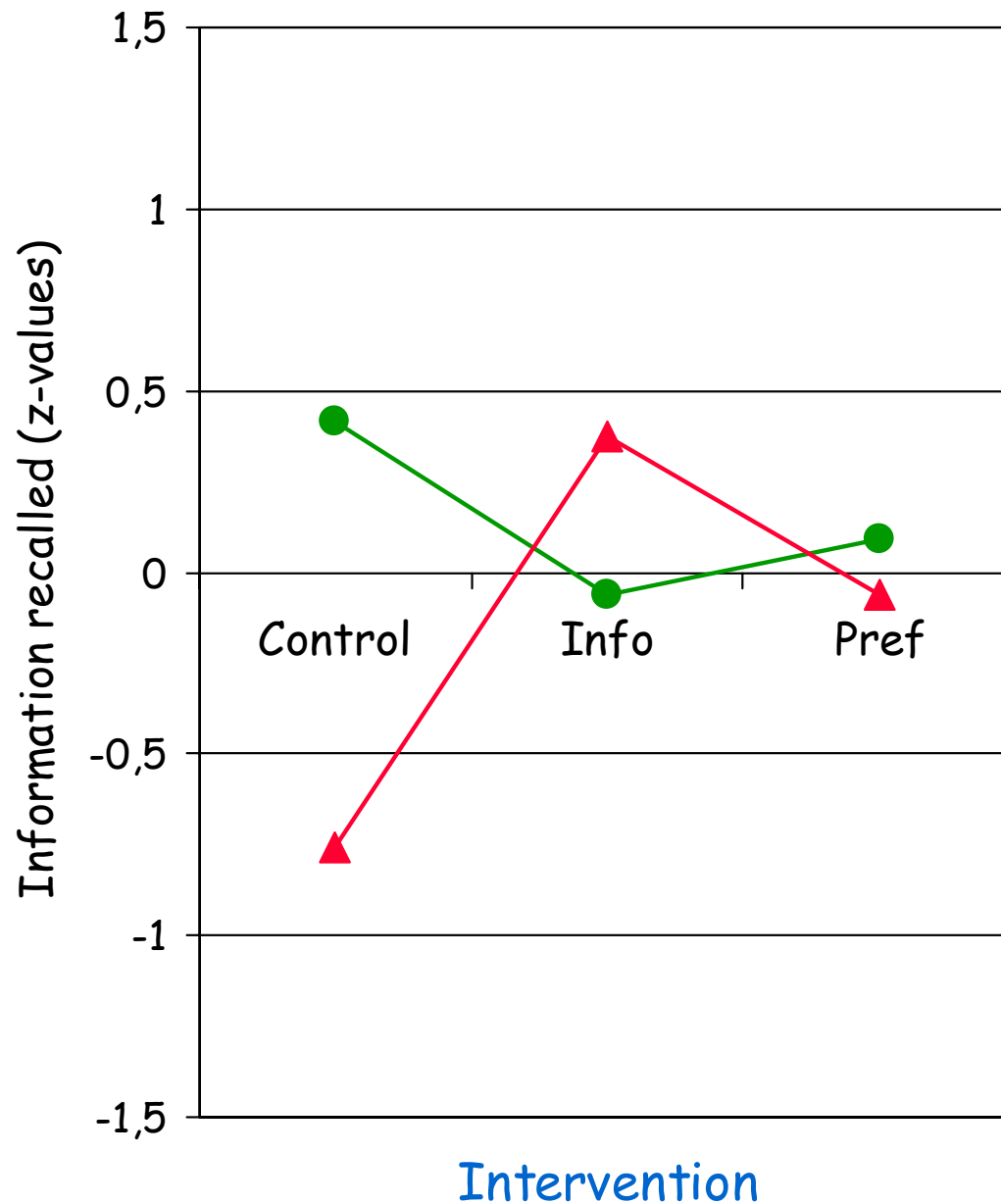
	<i>Eta</i> <sup>2</sup>
Dissent vs. consent	.01
Intervention	*** .38
Dissent x intervention	.07

\*\*\*  $p < .05$



As expected, both interventions enhanced amount of information introduced into discussion.

# Experimental Results: Information Recalled



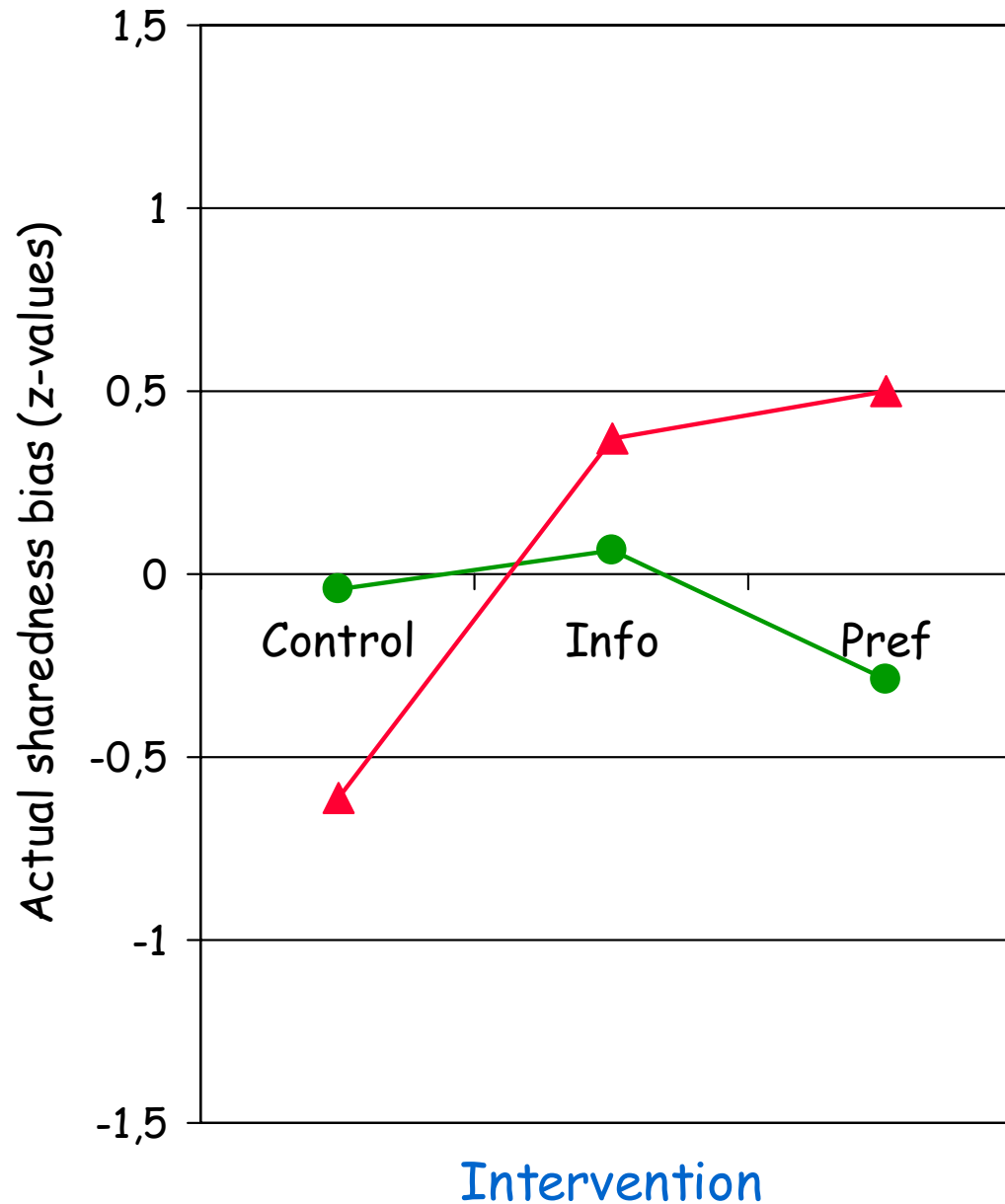
	<i>Eta</i> <sup>2</sup>
Dissent vs. consent	.04
Intervention	.03
Dissent x intervention	.16
No significant effect (all p's > .15)	

# Sharedness Bias: Measures

- **Actual sharedness bias** as a combination of
  1. Repetition bias in favor of shared information ( $ICC_u = .84$ )  
= Repetition rate of shared information / (repetition rate of shared info + repetition rate of unshared info)
  2. Recall bias in favor of shared information ( $ICC_u = .98$ )  
= Proportion of recalled shared info to all recalled information
- Correlation between both indicators = .57
- **Motive for sharedness bias** (Cb. Alpha = .60)
  - Postquestionnaire: e. g. „During discussion, it was important to me to confirm arguments mentioned by other members.“

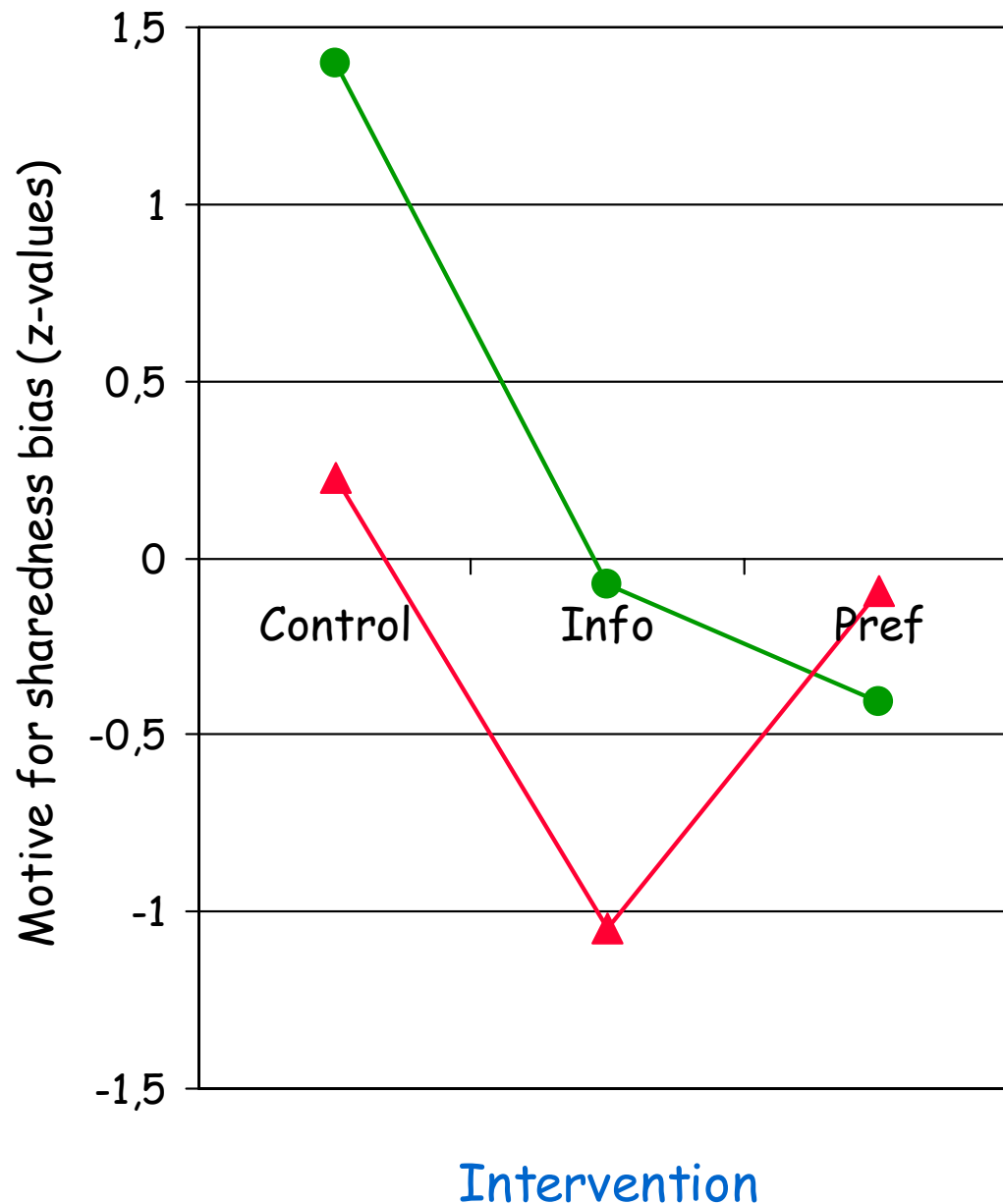


# Experimental Results: Actual sharedness bias



	<i>Eta</i> <sup>2</sup>
Dissent vs. consent	.01
Intervention	.09
Dissent x intervention	.12
No significant effect (all p's > .23)	

# Experimental Results: Motive for sharedness bias



	<i>Eta</i> <sup>2</sup>
Dissent vs. consent	** .19
Intervention	*** .43
Dissent x intervention	* .22

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$



As expected, the motive to confirm other's information and be confirmed by others was reduced by dissent or by information intervention, but also by preference intervention.

# Preference Bias: Measures

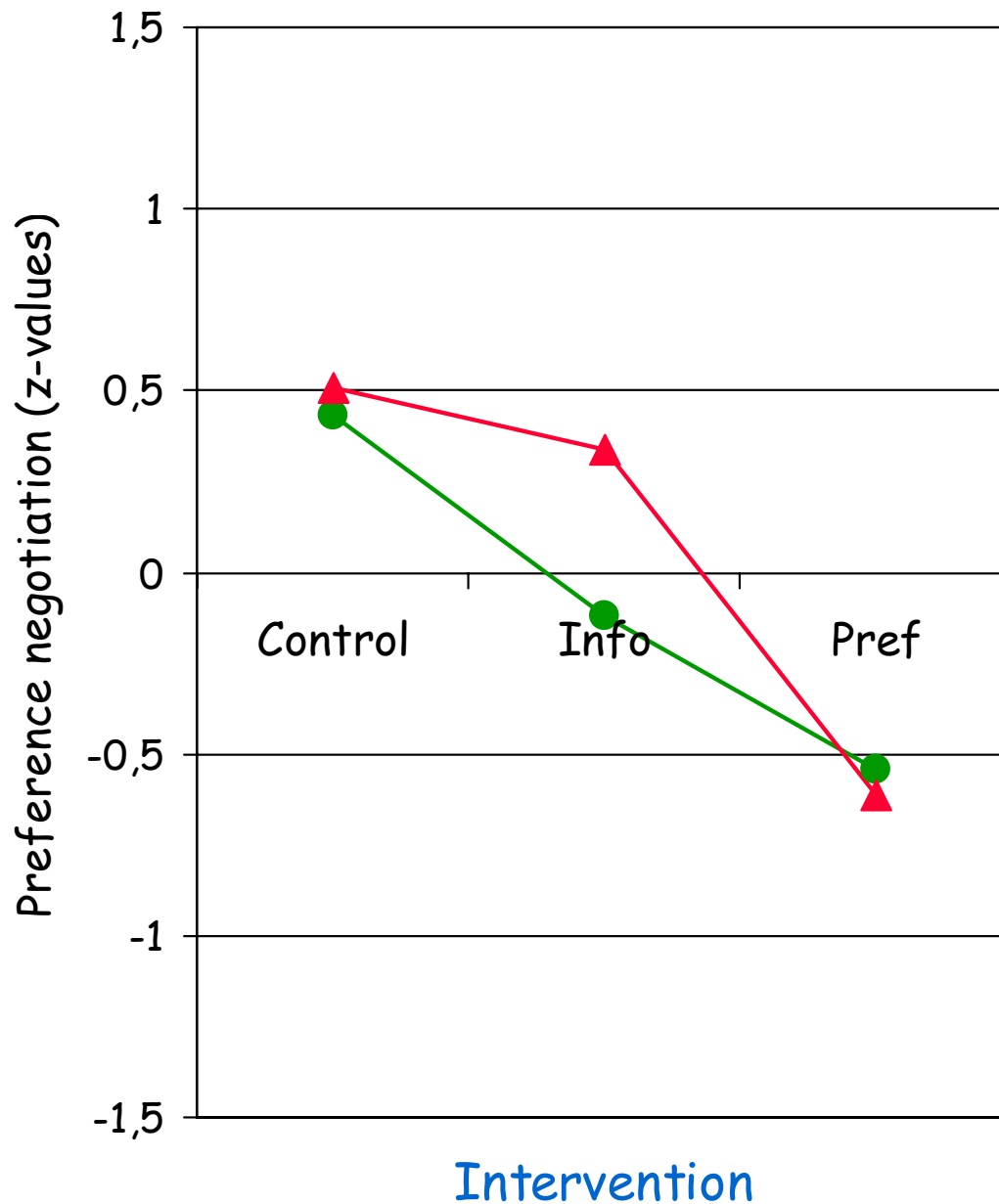
## Group level

- **Preference negotiation** ( $ICC_u = .88$ ) as a combination of
  1. Proportion of preference expressions to all expr. (z-stand.)
  2. Info mentioned before first pref. expr. (z-stand. and reversed)
    - Correlation between both indicators =  $-.35$
- **Preference-consistent information exchange** ( $ICC_u = .89$ )
  - Prop. of mentioned pref.-cons. to all mentioned evaluative info

## Individual level

- **Preference-consistent information evaluation** as a combination of
  1. Proportion of recalled preference-consistent info ( $ICC_u = .98$ )
  2. Motive for preference bias (Cb. Alpha =  $.62$ )
    - Postquestionnaire: e. g. „During discussion, I considered information against my favorite candidate convincing.“ (reversed item)
- Correlation between both indicators =  $.62$

# Experimental Results: Preference Negotiation



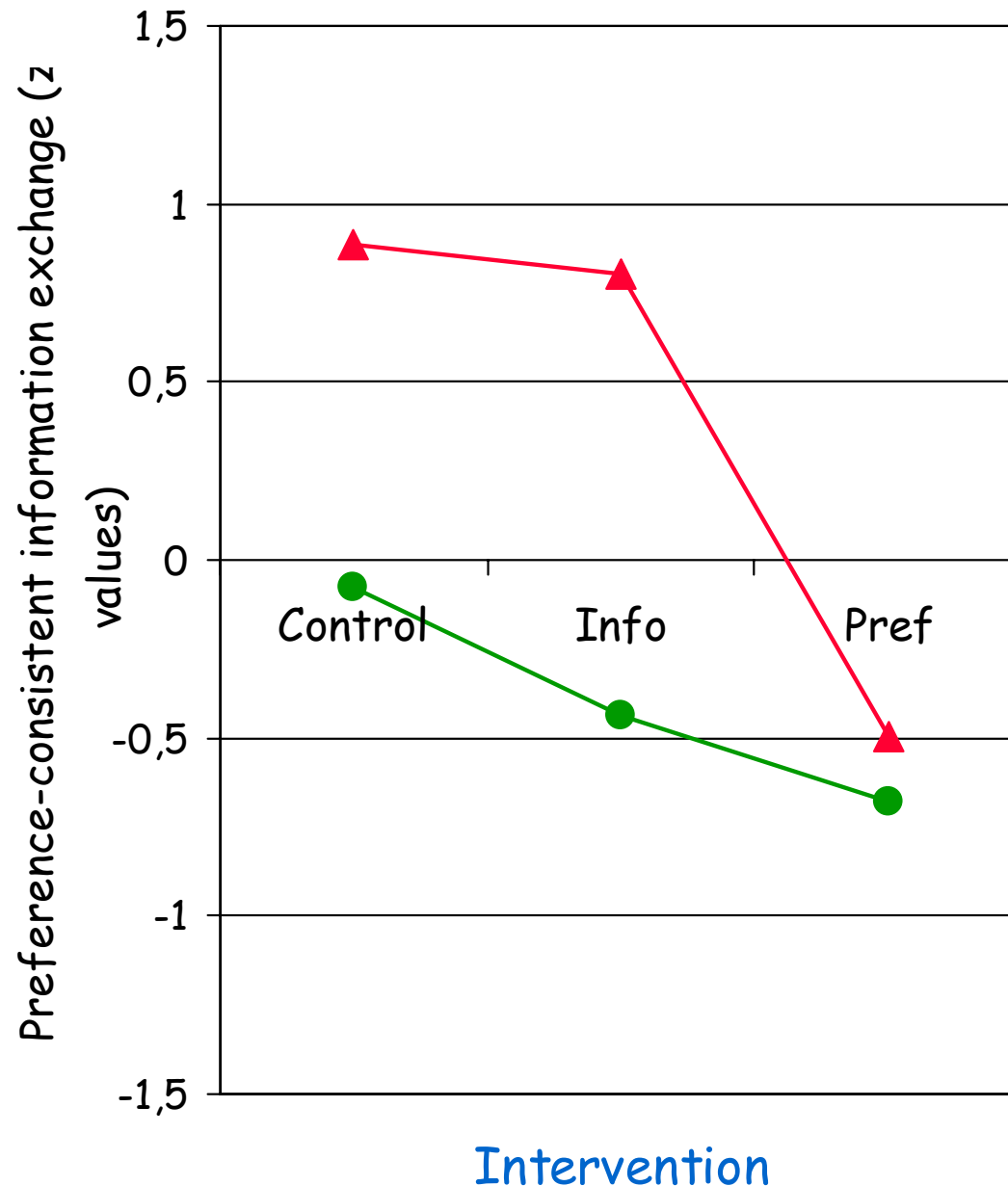
	<i>Eta</i> <sup>2</sup>
Dissent vs. consent	.01
Intervention	* .23
Dissent x intervention	.02

\*  $p < .10$



As expected, expression of many evaluations early in the discussion was reduced by preference intervention.

# Exp. Results: Preference-consistent Information Exchange



	<i>Eta</i> <sup>2</sup>
<b>Dissent</b> vs. <b>consent</b>	** .27
<b>Intervention</b>	** .31
Dissent x intervention	.10

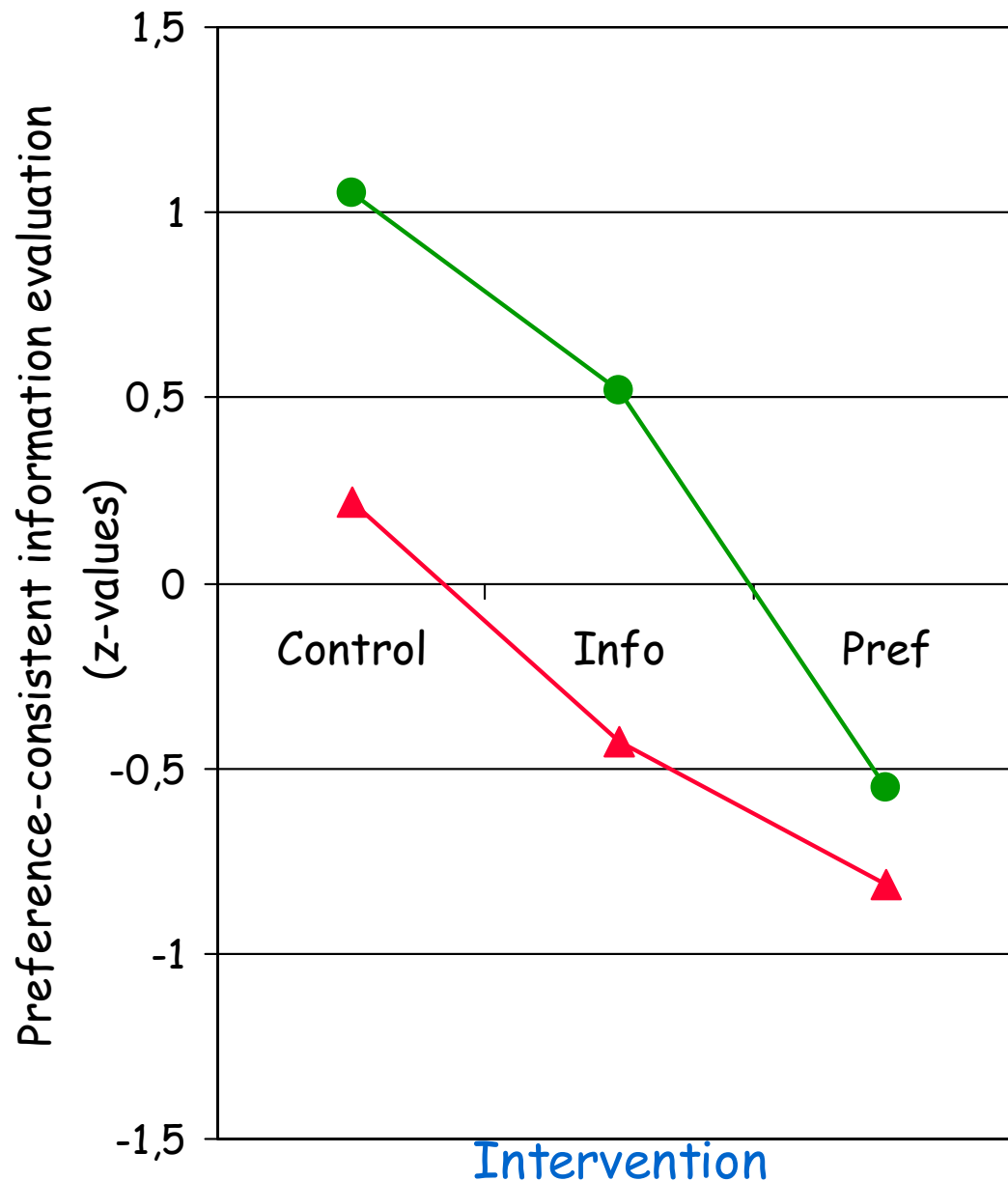
\*\*  $p < .05$



As expected, preference-consistent information exchange was reduced by preference intervention.

Interestingly, dissent enhanced argumentation for own preference.

# Exp. Results: Preference-consistent Information Evaluation



**Dissent** vs. **consent**

**Intervention**

Dissent x intervention

$Eta^2$

\*\* .18

\*\*\* .36

.04

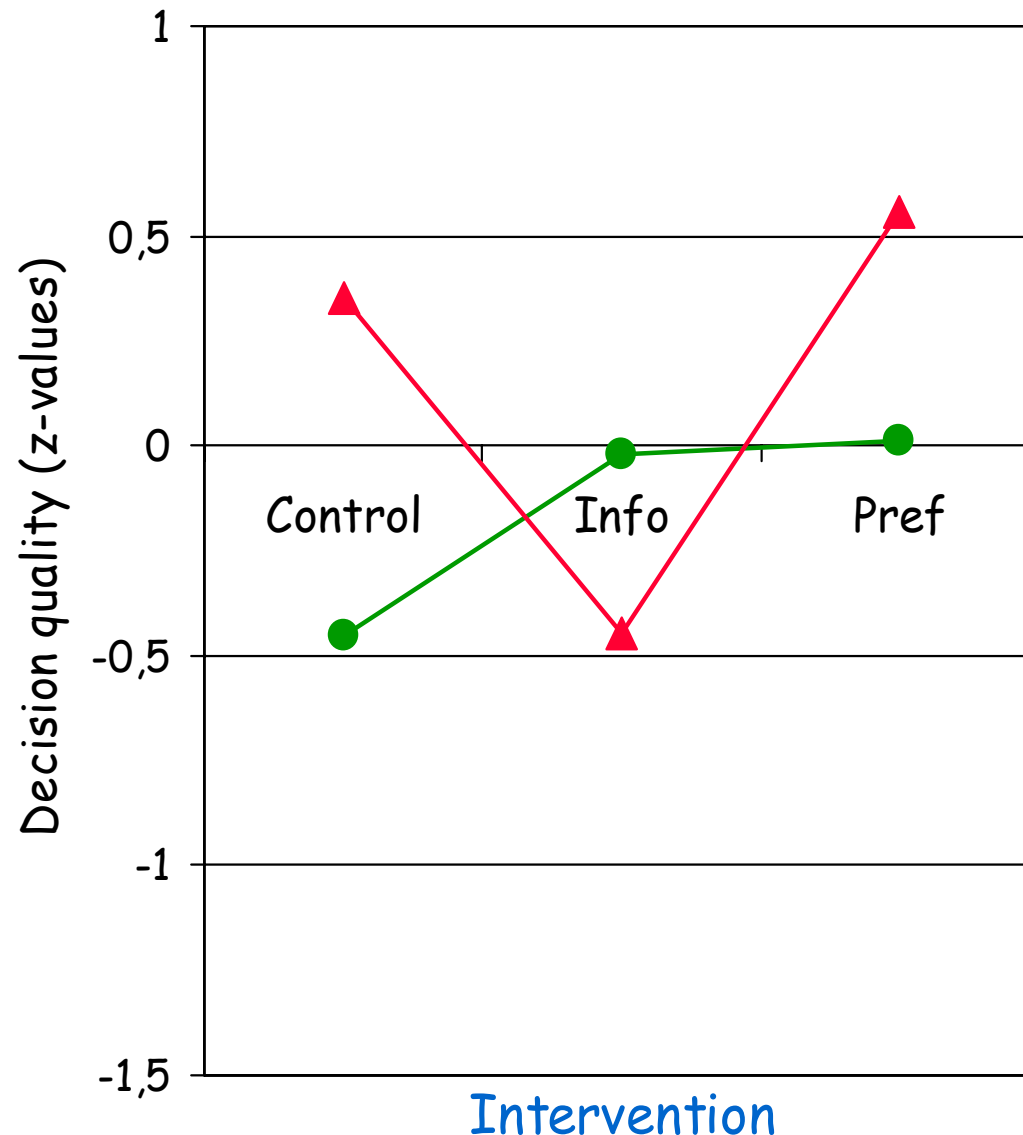
\*\*  $p < .05$ , \*\*\*  $p < .01$



As expected, also preference-consistent information *evaluation* was reduced by **preference intervention** as well as by **dissent**.

# Experimental Results: Decision Quality

After selecting one candidate, groups should rank order the other candidates. Decision quality = Reversed rank position of correct candidate.



	<i>Eta</i> <sup>2</sup>
<b>Dissent</b> vs. <b>consent</b>	.04
<b>Intervention</b>	.07
Dissent x intervention	.09

No sign. global effect (all  $p$ 's > .37).

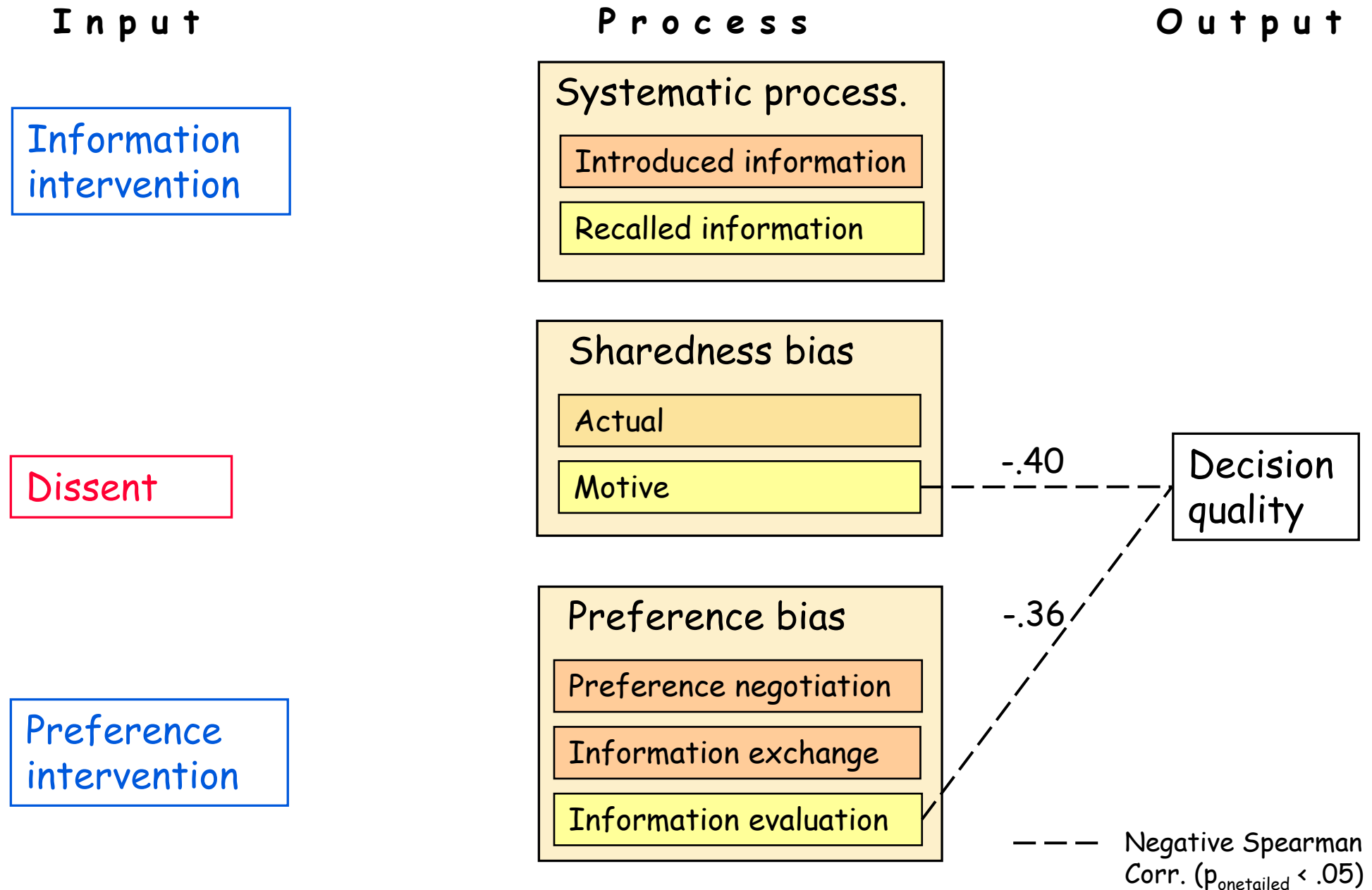
But: sign. dissent-contrast within control condition ( $p_{\text{onetailed}} < .10$ )



**Dissent** enhanced decision quality only when no intervention was applied.

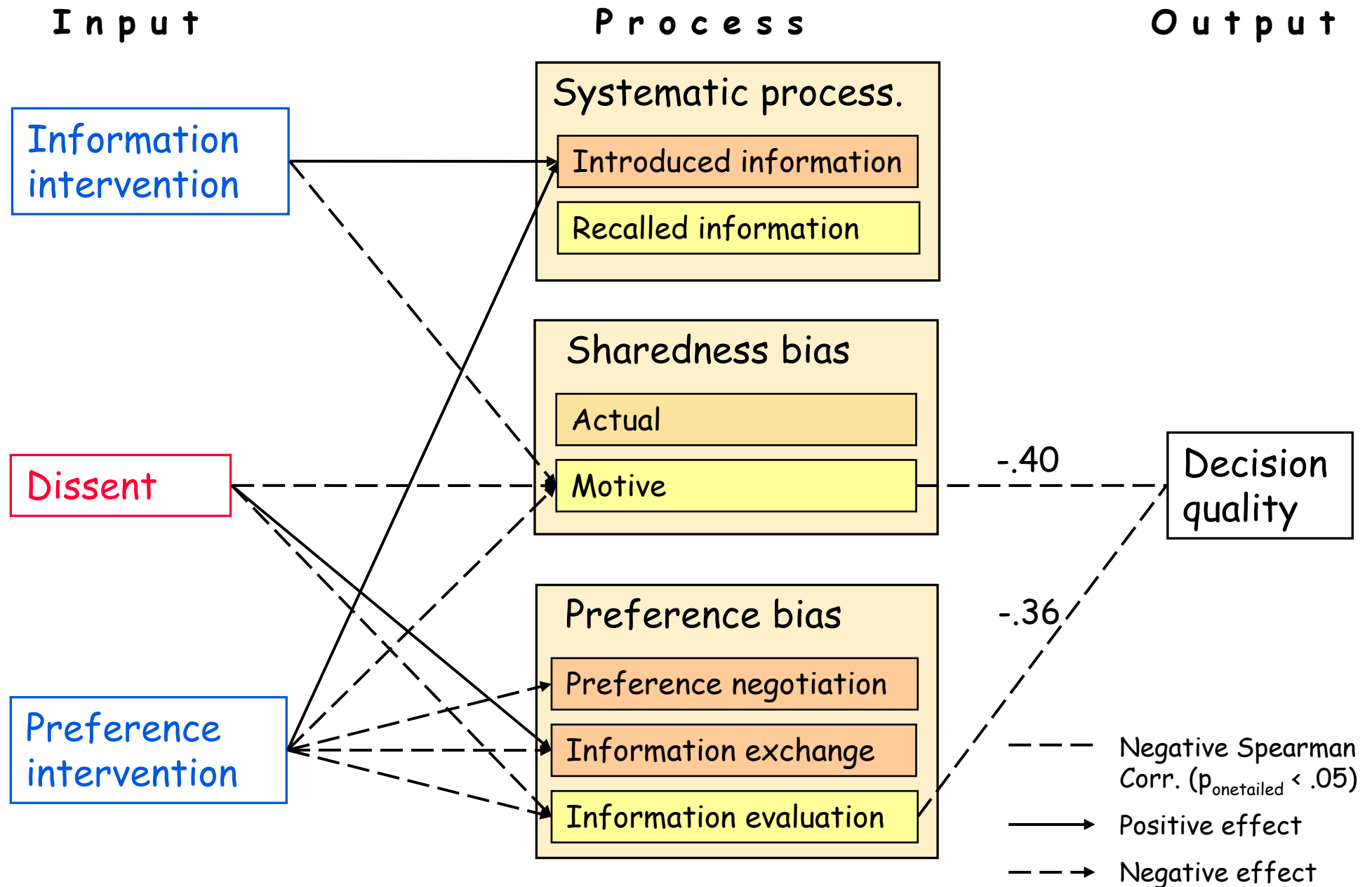
Unexpectedly, the **interventions** were not able to improve decision quality.

# Correlations: Process Variables and Decision Quality





# Correlations and Experimental Effects



## Summary and Conclusion: Interventions

- A clarification of defective decision processes combined with a group exercise
  - reduces biased processing in favor of *own preference* (at group and individual level),
  - reduces motive for biased processing in favor of *shared information*,
  - enhances information pooling,
  - but does not improve decision quality.
- Decision quality
  - is influenced by improved *evaluation* of preference-inconsistent and unshared information (individual level variables)
  - but not by information *exchange* (group level variables);
  - might be improved by a **combination of both interventions** and a stronger focus on individual processing.

## Summary and Conclusion: Dissent

- Dissent
  - has opposite effects on preference bias at group versus individual level:
    - enhances preference-consistent information exchange (stronger effort to convince the others),
    - but reduces preference-consistent information evaluation (more unbiased, divergent thinking)
  - enhances decision quality only when no intervention is applied.

Thank you very much  
for your attention!