



TANJA OSTERMANN

## BACK AND FORTH: *Bidirectionality in reasoning*

### Abstract

It was recently shown that besides reducing dissonance after a decision has been made there is another way to reach cognitive consistency: the biased processing of information before a decision has been made (see Brownstein, 2003, for an overview). Simon, Snow, & Read (2004) call the coherence-driven reevaluation of information *coherence shifts*. Based on these results an experiment was conducted to test whether the distribution of cues influences the strength of coherence shifts. Evidence suggests that the lesser the amount of dissonant elements in relation to consonant elements, the higher the strength of coherence shifts.

### ► Introduction

Dissonance theory (Festinger, 1957): the **postdecisional** reevaluation of alternatives depends on the number of dissonant elements in relation to consonant elements:

	Car A	Car B
Low price	✗	✓
High economy	✓	✗
High power	✗	✓
Looks	✗	✓

**Low dissonance:**  
2 dissonant elements vs.  
6 consonant elements

	Car A	Car B
Low price	✓	✗
High economy	✓	✗
High power	✗	✓
Looks	✗	✓

**High dissonance:**  
4 dissonant elements vs.  
4 consonant elements

Simon et al. (2004) observe bidirectionality in reasoning (**predecisional**): due to automatic processes of maximizing consistency the valuations of facts are changed to be coherent with the emerging decision (*coherence shifts*).

Glöckner, Betsch, & Schindler (under review) generalize the findings to decisions based on probabilistic inferences (*city size paradigm*): the subjective assessment of the predictive power of cues (*cue validity*) is changed during the process of decision making.

Glöckner & Betsch (2008) developed a parallel constraint satisfaction model which regards consistency maximizing processes as the core mechanism of decision making.

### ► Research Questions

Which factors have an influence on the predecisional reevaluation of information?

- Does the relation between dissonant and consonant elements influence the strength of predecisional reevaluation?
- Does the number of dissonant and consonant elements matter?

### ► Methods

**Design:**  
2 MEASUREMENT of cue validities (Pre- and Posttest) x 2 CUE PATTERN (1:1 vs. 1:3 vs. 3:3)

**Materials:**  
probabilistic inference task; holiday destinations A and B as options, weather forecasts of different sources as cues

### Procedure:

#### Pretest:

Please estimate the validity of the following weather forecasts for predicting the weather in a holiday destination 7 days from now.

#### - Unrelated task -

#### Treatment:

Please reflect on the following question: In which holiday destination do you expect sunny weather?

1:1

	A	B
ZDF	☀	☁
Wetteronline	☁	☀

1:3

	A	B
Wetteronline	☀	☁
Sat.1	☁	☀
Bild	☀	☁
ZDF	☁	☀

3:3

	A	B
Süddeutsche	☁	☀
ZDF	☀	☁
Bild	☀	☁
N24	☁	☀
Sat.1	☀	☁
Wetteronline	☁	☀

Posttest (see Pretest)

### ► Results

#### Spreading apart of alternatives:

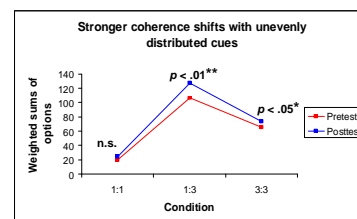
The difference between the weighted sums of the options increases from pre- to posttest:

- main effect of MEASUREMENT:  $F(1, 110) = 17.697, p < .001$

#### Strength of coherence shifts:

The lesser the amount of dissonant elements in relation to consonant elements, the higher the strength of coherence shifts:

- significant interaction MEASUREMENT \* CUE PATTERN:  $F(2, 110) = 3.779, p < .05$



- the strongest coherence shifts are found for cue pattern 1:3 ( $t(38) = 3.632, p < .001$ , one tailed)

With equal relation between consonant and dissonant elements coherence shifts are stronger when the number of cues is high:

- the coherence shifts for cue pattern 3:3 are significant ( $t(37) = 1.774, p < .05$ , one tailed), but not for cue pattern 1:1 ( $t(36) = 1.681$ , n.s.)

### Conclusion and Future Directions

Replication of Glöckner, Betsch, & Schindler (under review): In simple decisions based on probabilistic inferences subjective validities are changed before the decision is made. In contrast to dissonance theory, consistency maximizing increases with decreasing amounts of dissonant elements in relation to consonant elements.

*The higher the conflict induced by the number and distribution of cues presented, the stronger the coherence shifts.*

Future research needs to focus on further factors which influence the strength of coherence shifts. In a current study, the influence of repeated vs. singular presentation of decision tasks on the strength of coherence shifts is investigated.