

# What is learned in a conditioning procedure with valent targets?

Philine Thomasius<sup>a</sup>

Prof. Dr. Christoph Stahl<sup>a</sup>

Prof. Dr. Tony Greenwald<sup>b</sup>

<sup>a</sup> University of Cologne, <sup>b</sup> University of Washington

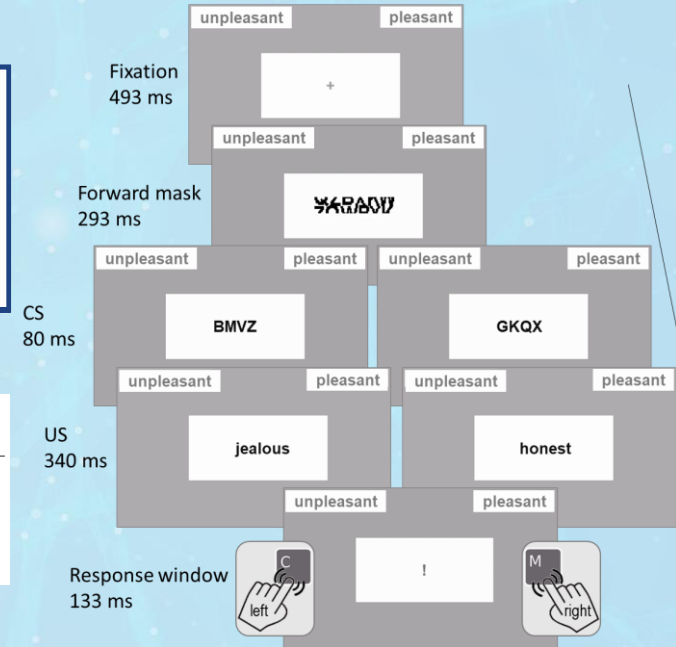
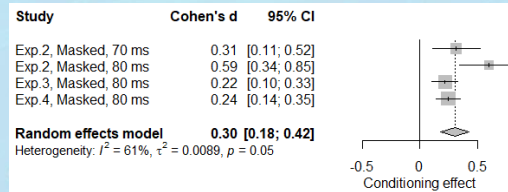


61st Annual Meeting

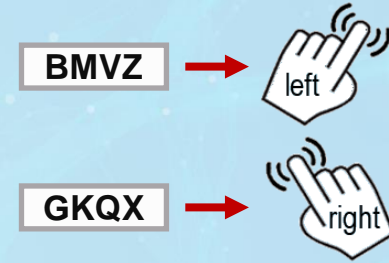
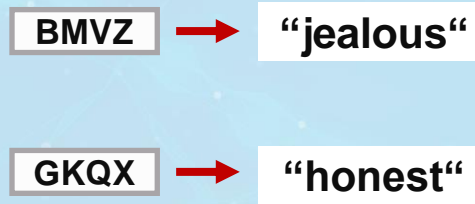
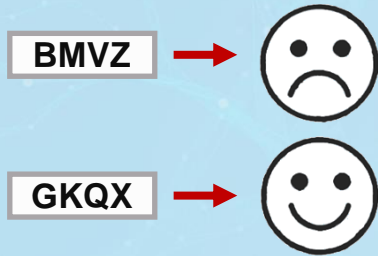
**VIRTUAL PSYCHONOMICS**

# Procedure and replication of Greenwald and De Houwer (2017)

- Acquisition phase:
  - Response window → fast responding
  - 100 % contingency between CS and US
- Conditioning test:
  - Same task
  - 50 % contingency
  - Better performance for congruent than for incongruent trials
- Visibility test:
  - Same sequence of stimuli
  - Which CS was shown? (2AFC)
  - Learning even without visibility (regressing conditioning effect on visibility: positive intercept, zero slope)
- Which learning mechanism underlies the conditioning effect?



# What is learned in the conditioning procedure?



## Evaluative Conditioning

- **Hypothesis:**  
The CSs adopt the valence of the corresponding USs.
- **Results:**  
The evaluative ratings did not differ between CSpos and CSneg and there was no difference in the Associative Misattribution Procedure (AMP).

## S-S learning

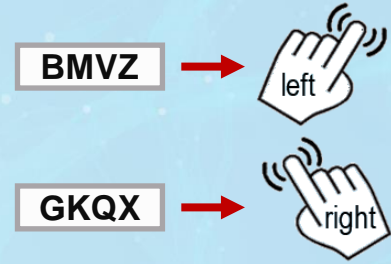
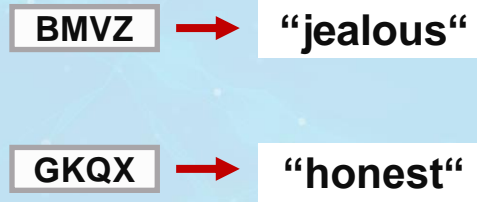
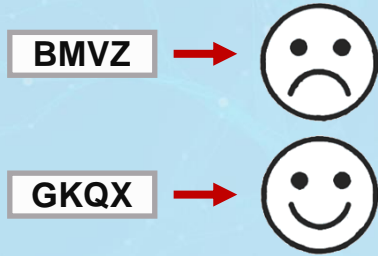
- **Hypothesis:**  
The conditioning effect occurs only for the USs with which the CSs were paired in acquisition and not for unpaired targets.
- **Results:**  
The conditioning effect generalized to unpaired targets and was not smaller than with paired targets.

## S-R learning

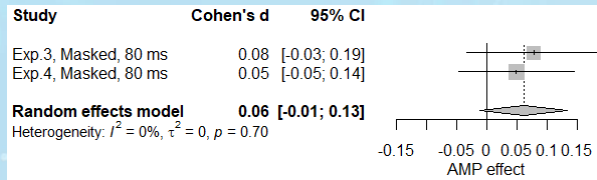
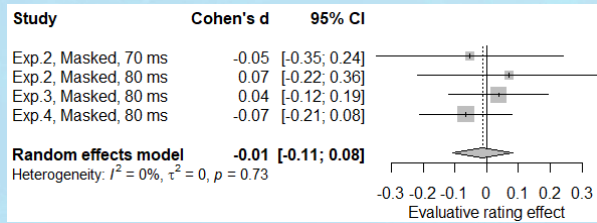
- **Hypothesis:**  
When switching the assignment of response labels (un-/pleasant) to response keys (left/right) after acquisition the conditioning effect is reversed or decreased.
- **Results:**  
The conditioning effect was found with switched keys and was not smaller than without a key switch.



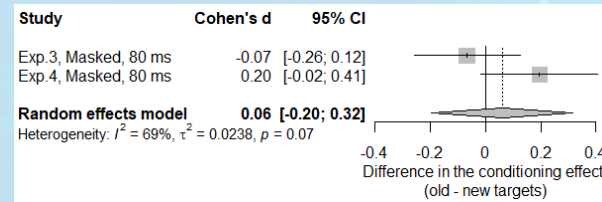
# What is learned in the conditioning procedure? - Results



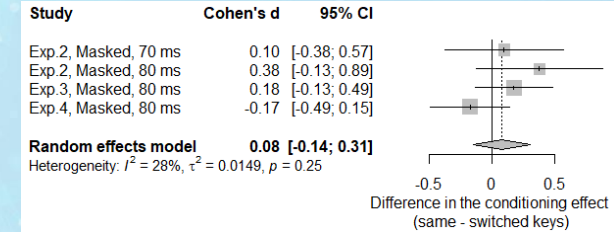
## Evaluative Conditioning



## S-S learning

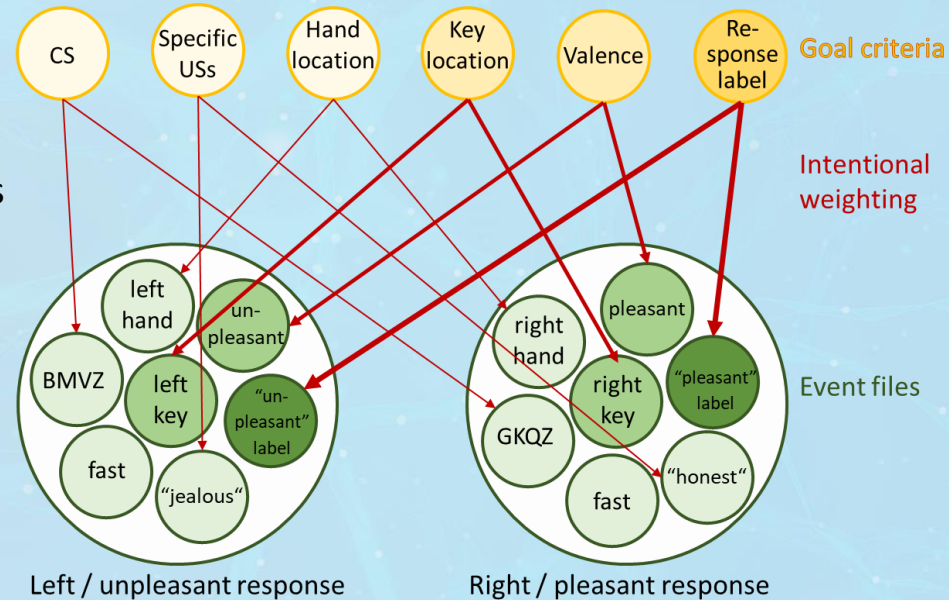


## S-R learning



# Discussion: Flexible response categories as a potential mechanism

- Theory of Event Coding (TEC, Hommel, 2001, 2019):
  - The CS is stored in an event file together with different aspects of the trial: The specific US, the location of the key, the valence of the US and the correct response label on the screen.
  - Task instructions influence how these feature codes are weighted: “Press the **left key** when seeing an **unpleasant** target! The **response labels** are presented on the screen throughout the experiment.”
  - If subjects responded according to the response labels, the congruency did not change when switching the keys (explains the conditioning effect for switched keys) without a change in the evaluations of the CSs (explains the zero-effect on the evaluative measures).
  - **How can this hypothesis be tested?**



# What is learned in a conditioning procedure with valent targets?

- Get the slides:
  - <http://methexp.uni-koeln.de/de/members/philine-thomasius/>
- Contact:
  - Philine Thomasius, University of Cologne, [philine.thomasius@uni-koeln.de](mailto:philine.thomasius@uni-koeln.de)
- References:
  - Greenwald, A. G., & De Houwer, J. (2017). Unconscious conditioning: Demonstration of existence and difference from conscious conditioning. *Journal of Experimental Psychology: General*, 146(12), 1705–1721.
  - Hommel, B. (2019). Theory of Event Coding (TEC) V2. 0: Representing and controlling perception and action. *Attention, Perception, & Psychophysics*, 81(7), 2139-2154.
  - Hommel, B., Müsseler, J., Aschersleben, G., & Prinz, W. (2001). The theory of event coding (TEC): A framework for perception and action planning. *Behavioral and brain sciences*, 24(5), 849-937.

