UNIVERSITEIT GENT

FACULTEIT PSYCHOLOGIE EN PEDAGOGISCHE WETENSCHAPPEN

WP3
Learning via Instructions

With Marcel Brass, Tom Beckers, and Axel Cleeremans

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0. Theoretical Background

1. Learning = effect of regularities in environment on behavior (De Houwer et al., 2013, PB&R)

=> three types of learning effects

- regularity in presence of one stimulus (e.g., habituation, ME)
- regularity in presence of two stimuli (classical conditioning)
- regularity in presence of behavior and stimulus (operant cond.)

2. As an effect, a specific type of learning can be due to several types of mental processes: E.g., classical conditioning

a) Association formation models

=> relatively passive, stimulus-driven formation of associations

b) Propositional models (De Houwer, 2009; Mitchell et al., 2009)

=> specifies TYPE of relation + have truth value

=> active problem solving: How are events related in the world?

3. Theoretical freedom allows for new predictions

=> We focus on one prediction of propositional models about learning via instructions: The way in which the proposition is formed should not matter (if the content of the proposition is exactly the same)

=> Forming a proposition about the regularity in the environment (e.g., pairing of stimuli) via experience, instruction, or inference should be equivalent (if this leads to equivalent propositions)

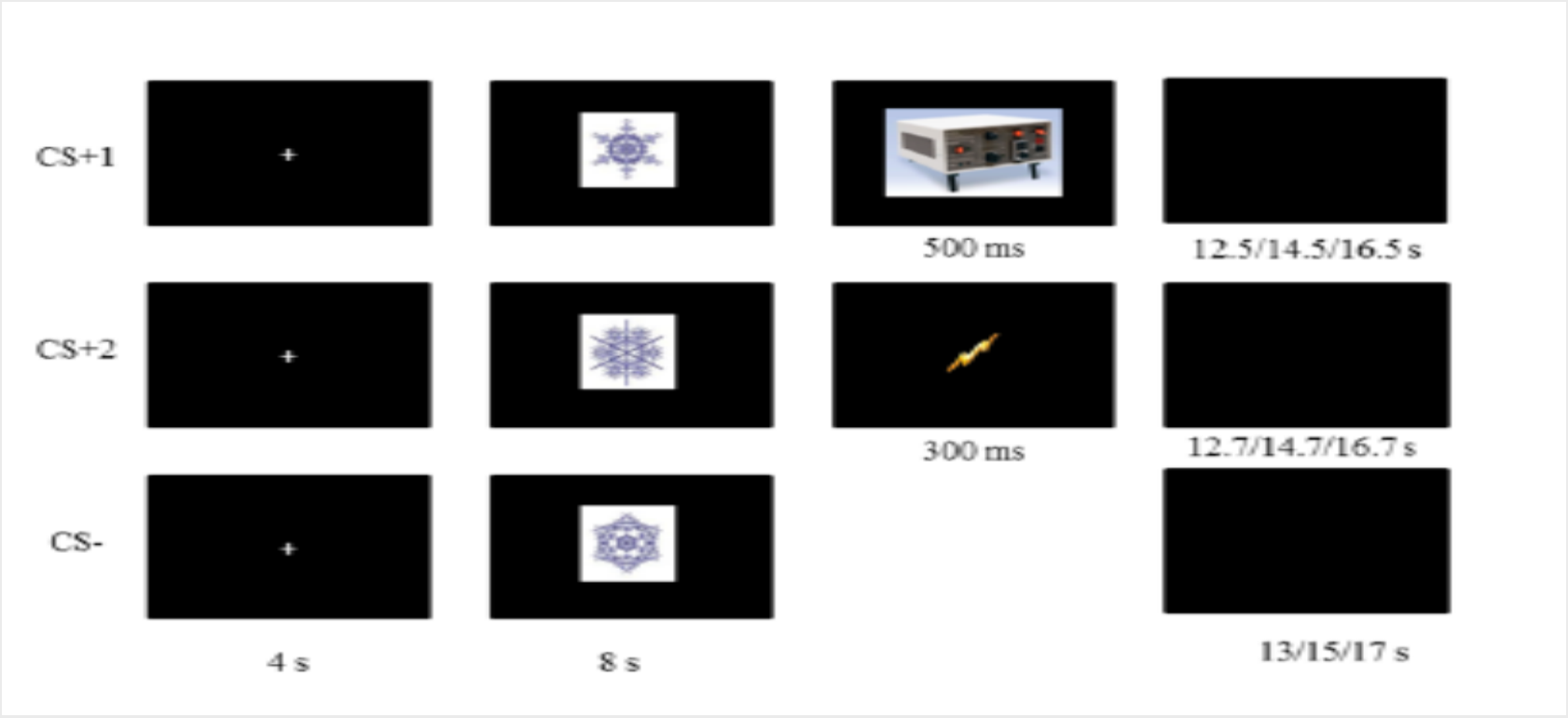
=> Aim: to compare learning via experience and via instruction

- What is unique about experience?
- Can instructions be changed to mimic this unique impact?

=> To increase chances of finding unique aspects of experience, we examine types of learning that are assumed to be “low level” (i.e., fear cond, evaluative cond, mere exposure, habituation).

I. Fear conditioning via instructions

1. Raes et al. (submitted).



2. Other studies already completed:

- fear potentiated startle (see talk Gaëtan)
- selective learning (i.e., “preparedness”): 1 study completed

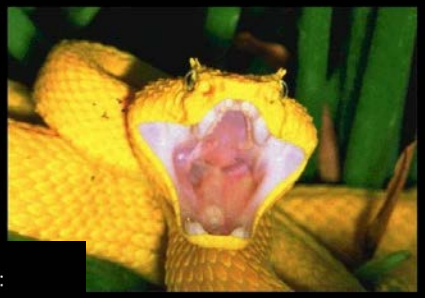
  => no impact of whether CS was “prepared” (e.g., spider)

  => first evidence for reinstatement of instructed fear conditioning

Zal NOOIT gevolgd worden door het geluid:

[spatiebalk] wanneer je wil verder gaan.

Zal SOMS gevolgd worden door het geluid:



le [spatiebalk] wanneer je wil verder gaan.

Zal NOOIT gevolgd worden door het geluid:

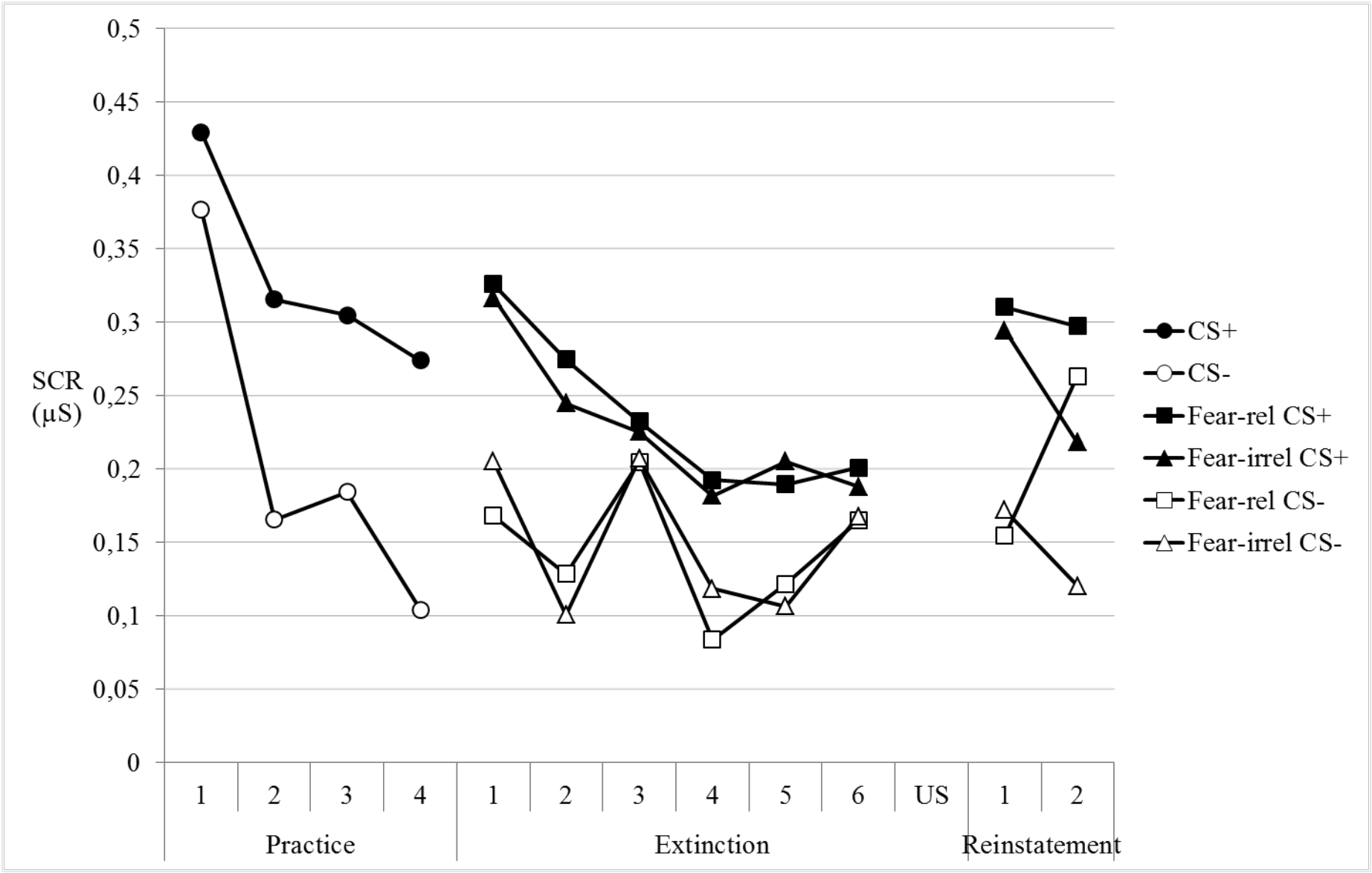
e [spatiebalk] wanneer je wil verder gaan.

Zal SOMS gevolgd worden door het geluid:

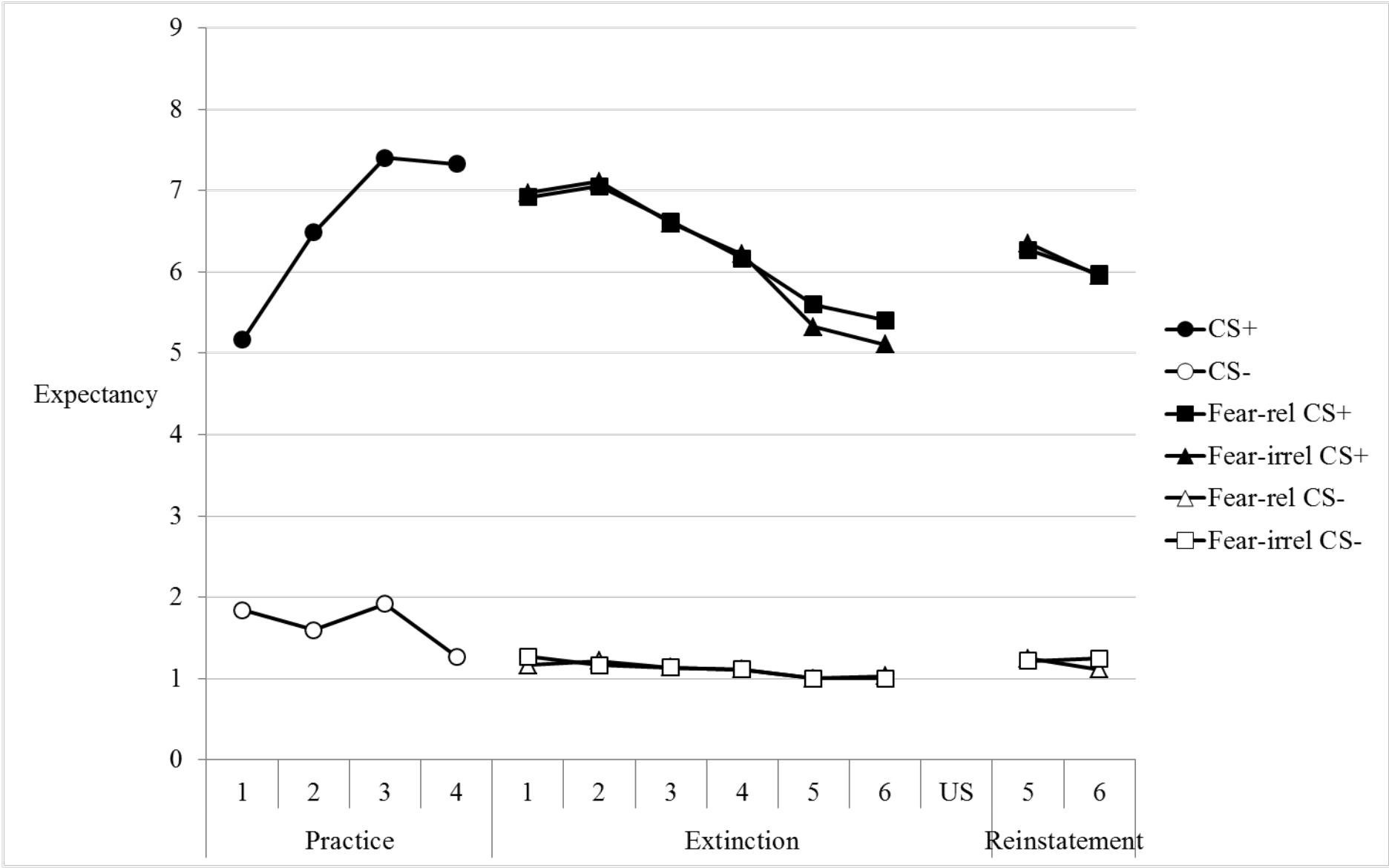
Druk op de [spatiebalk] wanneer je wil verder gaan.

SCR data

-transformed-



Expectancy data



3. Next year:

- selective learning (2nd study)
- effects of instructed contingency (+ valence ratings)
- differences in brain activity during instruction-based vs experience-based fear conditioning (=> Senne Braem)

II. Evaluative conditioning via instructions

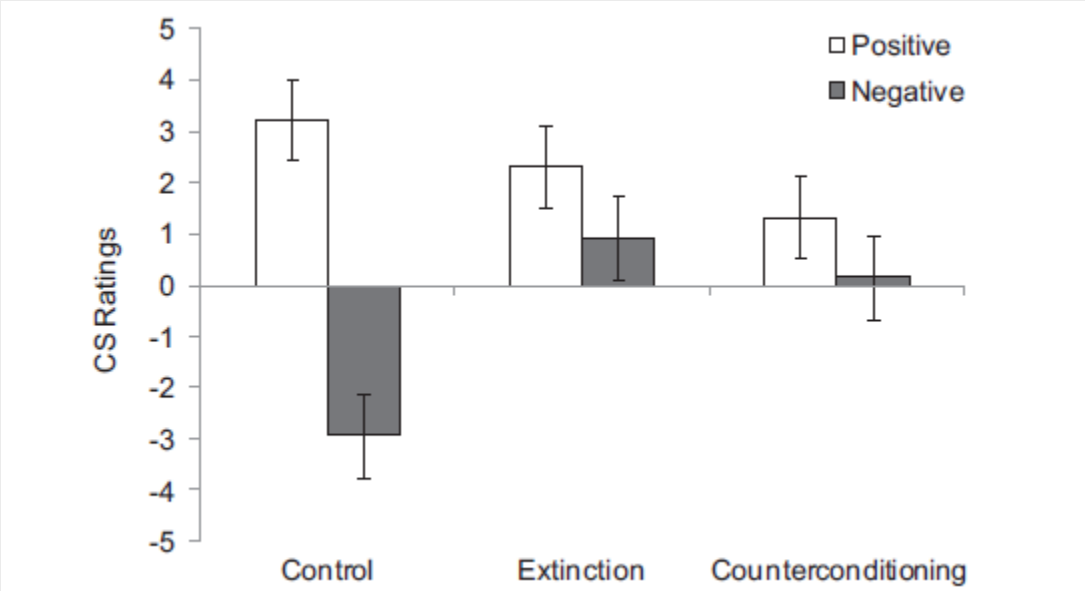
1. De Houwer (2006, Learning & Motivation)

- Instructions: If “Bayram”, then you will see a positive picture; If “Enanwal” then you will see a negative picture.
- Measure: Implicit Association Test
- Result: (Implicit) preference for Bayram over Enanwal even if no pairings were actually presented.

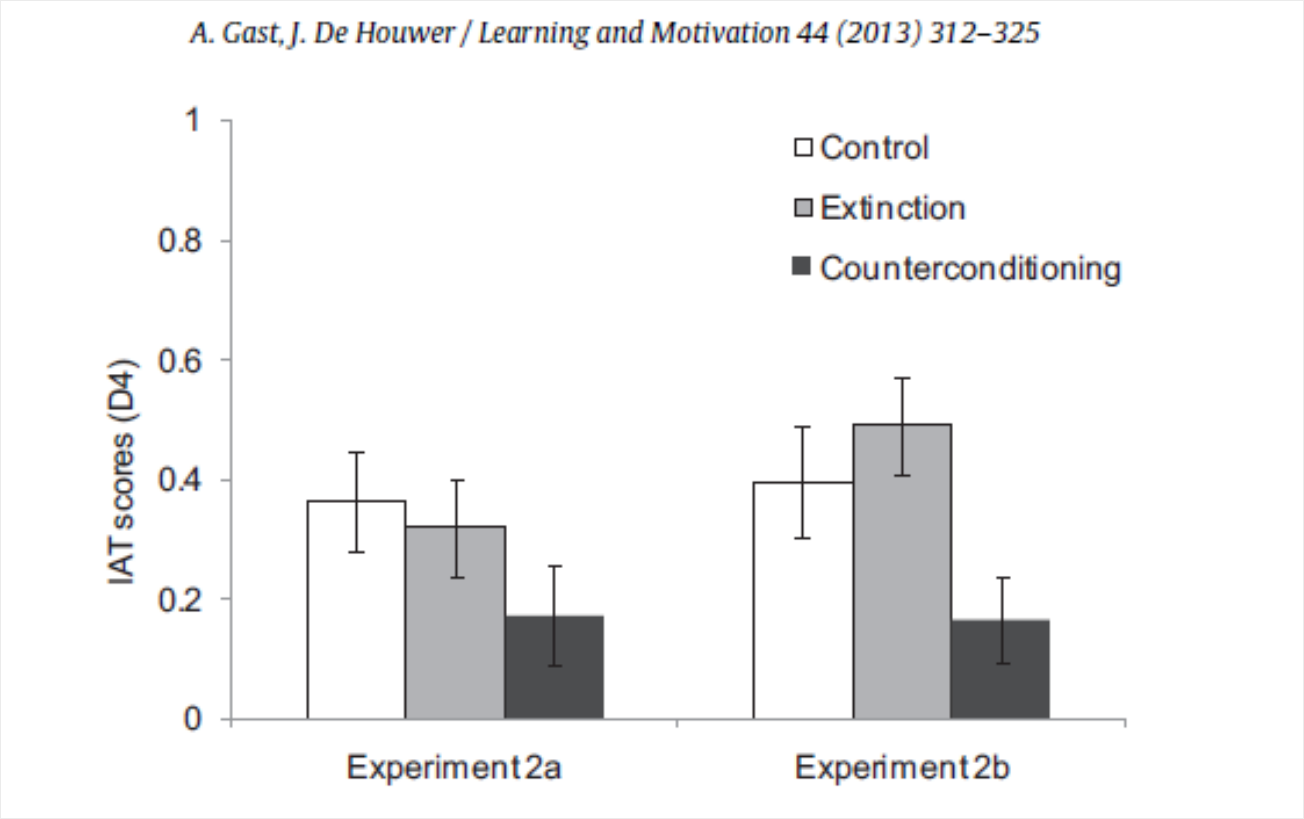
2. Gast et al. (2013, Learning & Motivation)

- Exp. 1: => Instructed EC (e.g., product 1=> pos; product 2 => neg)

=> Instructed extinction (product names without pictures) or counterconditioning (e.g., product 1=> neg; product 2 => pos) or control (no info about a second phase)



- Exp 2: same as Exp 1 but first phase (pairings) instructed or experienced + IAT measure



3. Other completed studies:

- EC via instructions using a paper-and-pencil procedure

4. Next year:

- Using paper-and-pencil procedure to study properties of instructed EC: Basic EC effect could be due to demand, but what about effects of extinction, contingency, cue competition … on instructed EC?

- Use valence ratings in instructed fear conditioning studies?

III. Non-associative learning via instruction

1. Mertens et al. (in preparation): Mere Exposure via Instruction

=> See talk of Gaëtan

2. Ongoing: Habituation / adaptation via instruction

- Different runs with instruction about frequent and infrequent object
- In “open runs” all objects are visible, in “closed runs” only the final
- Compare brain activity (fMRI) to closed run, object on last trial, instructed frequent vs instructed infrequent

IV. Conclusion

Possible benefits:

- learn more about learning via instructions
- learn more about unique impact of experience
- learn more about how to optimize instructions
- constrain (but not differentiate) models of learning

THE END