

Strategic and Implicitly Reinforced Criterion Shifting in **Recognition Memory: An Individual Differences Perspective**

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Background

- □ There are considerable individual differences in how much people change their memory decision criterion when explicitly motivated to do so.
- □ The false positive feedback (FPF) paradigm induces adaptive criterion shifts via selective reinforcement of false feedback to memory judgments.
- □ We found that strategic and FPF-induced criterion shifting are moderately correlated within the same individuals; individual differences are stable across paradigms.
- □ If individual differences unaccounted for, conclusions about criterion shifting behavior based on group levels results (e.g. if people tend to engage in probability matching) can be misleading.
- Possible sources are effortfulness, (false) familiarity, and evidence integration during memory decision-making.

Methods

- Experiment 1: probability vs false feedback
 - Probability manipulation
 - Liberal 70% old, 30% new; conservative 30% old, 70% new
 - Veridical trial-by-trial "correct"/"wrong" feedback
 - False feedback manipulation
 - Liberal 70% of **false alarms** given "**correct**" feedback
 - Conservative 70% of **misses** given "**correct**" feedback
 - True old/new distribution 50/50 in both tests
- Experiment 2: + payment manipulation, baseline condition
 - <u>Payment incentive</u>: reward for every correct decision; no penalty
 - <u>Baseline</u>
 - Liberal 75% old, 25% new; conservative 75% new, 25% old
 - True old/new distribution cues hidden for participants
 - <u>Probability cue</u>
 - False feedback
- Experiment 3: + confidence ratings, belief updating measure
 - <u>4-pt confidence scale</u>: low vs high conf on old/new decision
 - (False) probability: "75%/25%" prob cue (true dist 50/50)
 - False feedback
 - Belief updating: draw to conclusion (DTD) in 3-trial beads task

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Results

- People maintained stable baseline decision criterion when no external information present (baseline), but shifted their decision criterion similarly through different shifting paradigms and types of cues.
- □ Biasing condition (con/lib) and paradigm (baseline, prob, FPF) had no influence on discriminability (d') or RT.
- Deple varied in self-reported propensity to use (vs ignore) prob/ feedback clues in making or changing decisions. Most participants had no explicit test-phase decisional strategy even in prob conditions.



SubID ordered by criterion shifting magnitude in prob Questions, comments, suggestions: luna.li @ psych.ucsb.edu

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- Experiment 3 pilot data collection in progress scan QR code above to see new updates!
- So far, NO relationship between false probability and false feedback induced criterion shifting
- So far, NO relationship between criterion shifting and belief updating tendencies measured in beads task
- Payment incentives (reward for correct decisions, no penalty, Exp 2) did NOT encourage shifting more than flat pay (Exp 1).
- More FPF received in first half of each cond \rightarrow more extreme criterion placement in second half of cond \rightarrow stronger FPFinduced criterion shifting between opposing biasing conditions.
 - People who were already more susceptible to making critical errors received even stronger FPF manipulation
- Strategic and FPF-induced criterion shifting both effective, but <u>not</u> behaviorally dissociable at the group level.
 - Individual differences may arise from how well people use (vs ignore) externally available information to inform decision
 - More complicated with introduction of explicit, false/ misleading information (Exp 3, false prob)
- Experiment 3 will address how individuals resolve conflicts between own intuitive judgments and explicit vs implicit external information that are potentially unreliable or misleading.
- How can strategic and implicit criterion shifting processes potentially differ, if not by their behavioral outcome?
- \rightarrow <u>Strategic</u> shifting more intentional, effortful? Potentially marked by a late posterior negativity (LPN) ERP effect after initial memory retrieval; explicit deliberation/updating of responses
- → <u>Implicit</u> shifting paradigm induces inflated/dampened sense of familiarity? Indexed by the FN400 ERP component) over time
 - Is feedback reinforced criterion shifting truly implicit?

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Project Google Drive folder (poster, OSF links, writeups)

Conclusions

Next Steps

References

Han, S., & Dobbins, I. G. (2008). Examining recognition criterion rigidity during testing using a biasedfeedback technique: Evidence for adaptive criterion learning. Memory & Cognition, 36(4), 703-715. Layher, E., Dixit, A., & Miller, M. B. (2020). Who gives a criterion shift? A uniquely individualistic cognitive trait. Journal of Experimental Psychology: Learning, Memory, and Cognition, 46(11), 2075. Miller, M. B., & Kantner, J. (2020). Not all people are cut out for strategic criterion shifting. Current