



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



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Background

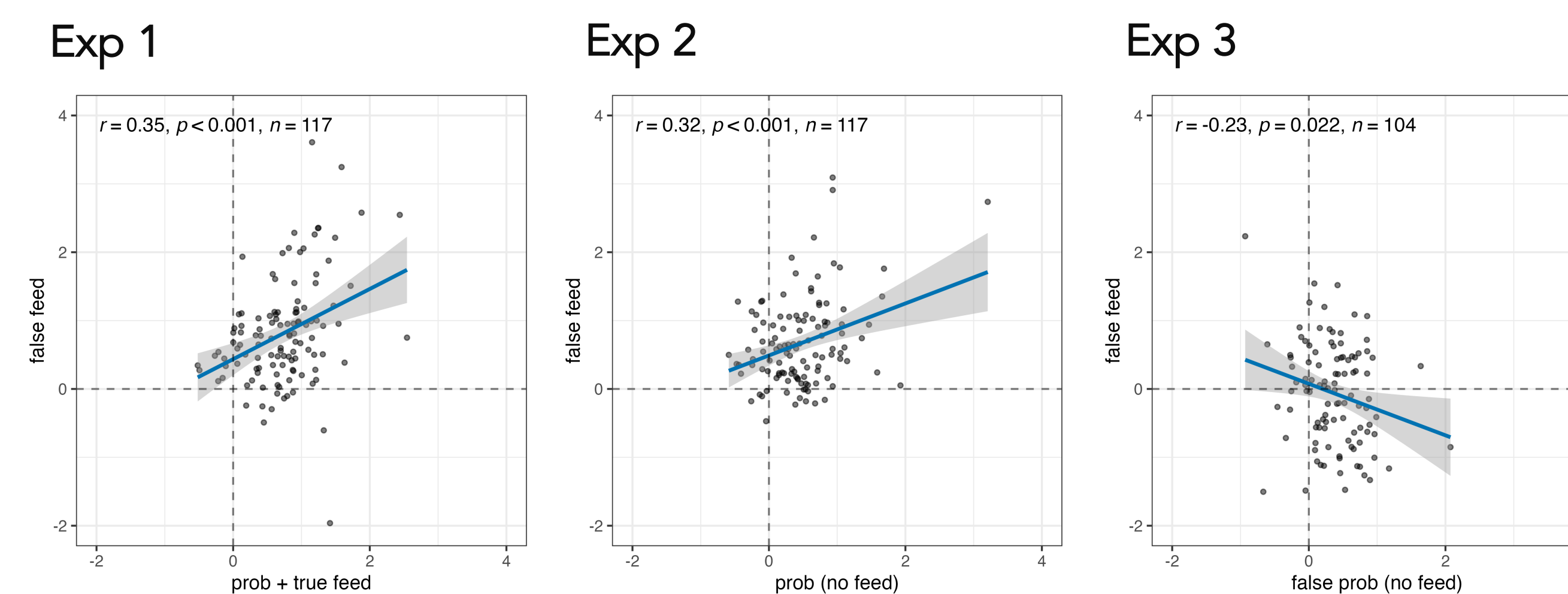
- ❑ There are considerable individual differences in how much people change their memory decision criterion when explicitly motivated to do so.
- ❑ The false positive feedback (FPF) paradigm induces adaptive criterion shifts via selective reinforcement of false feedback to memory judgments.
- ❑ We found 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

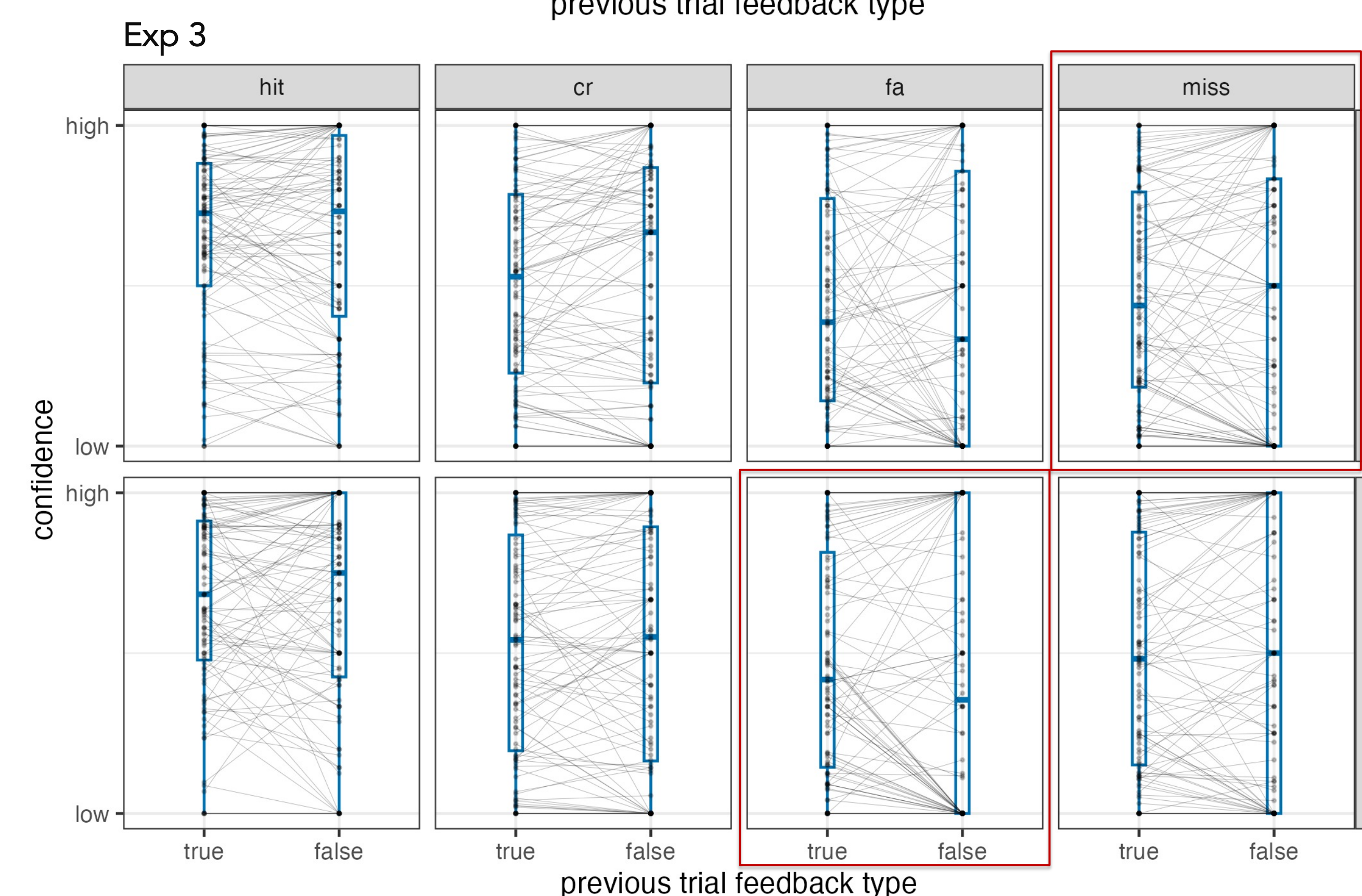
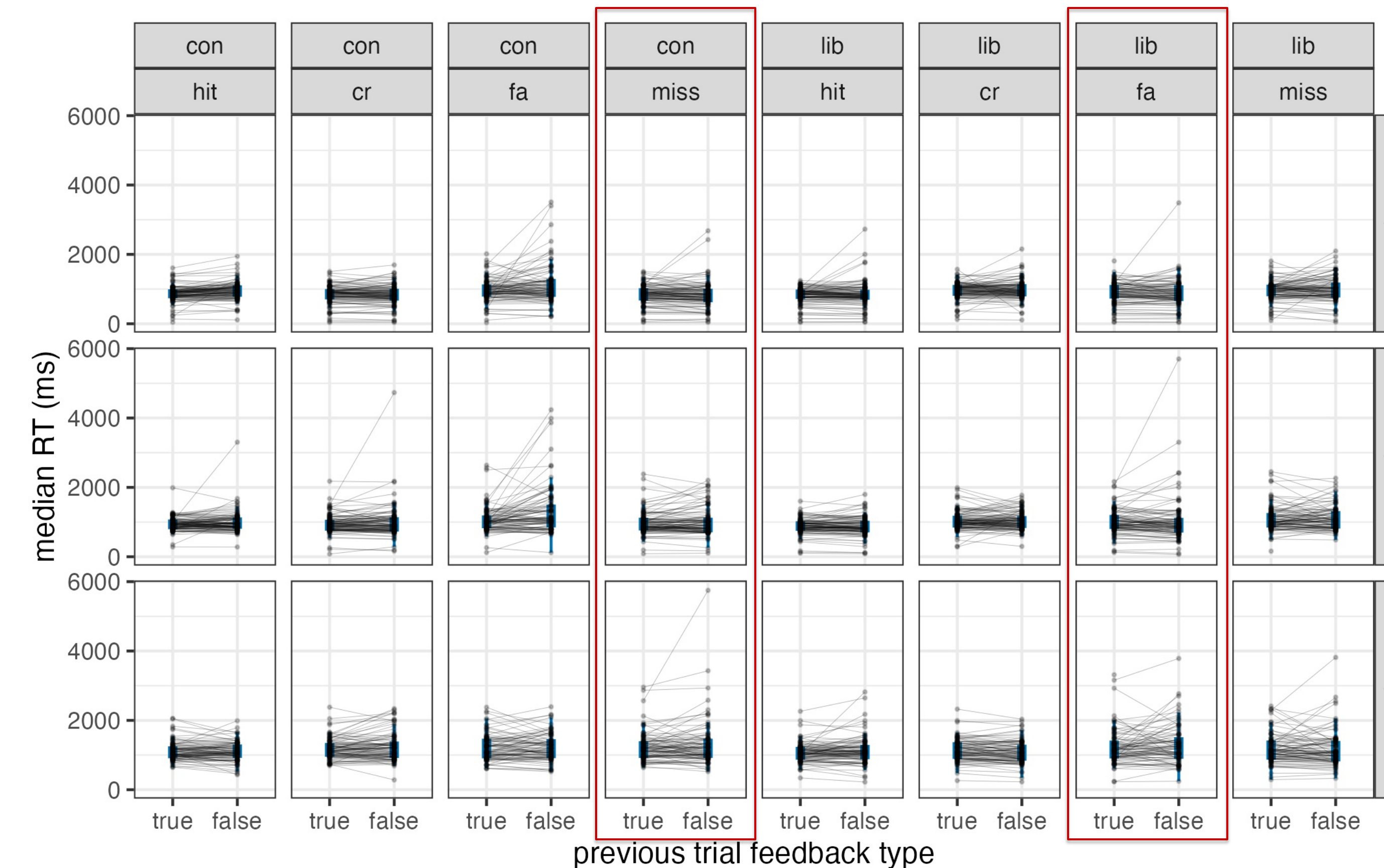
- **Experiment 1: probability vs false feedback**
 - Probability manipulation
 - Liberal – 70% old, 30% new; conservative – 30% old, 70% new
 - Veridical trial-by-trial “correct”/“wrong” feedback
 - False feedback manipulation
 - Liberal – 70% of false alarms given “correct” feedback
 - Conservative – 70% of misses given “correct” feedback
 - True old/new distribution 50/50 in both tests
- **Experiment 2: + payment manipulation, baseline condition**
 - Payment incentive: reward for every correct decision; no penalty
 - Baseline
 - Liberal - 75% old, 25% new; conservative - 75% new, 25% old
 - True old/new distribution cues hidden for participants
 - Probability cue
 - False feedback
- **Experiment 3: + confidence ratings, belief updating measure**
 - 4-pt confidence scale: 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

Results

- ❑ Individuals varied in self-reported propensity to use (vs ignore) prob/feedback info in making or updating decisions. Most participants had no explicit test-phase decisional strategy even with prob provided.
- ❑ FPF-reinforced criterion shifting moderately correlated with strategic shifting **only when base rate info displayed matched true base rates** of lib<>con conditions (Exp 1, Exp 2).



- ❑ Getting FPF can lead to **longer RT** and **lower confidence** on the next trial, toward trial type that was being reinforced (**con-miss, lib-fa**). FPF can also lead to higher next-trial confidence, however. Group-level comparisons can be driven by few who are extremely susceptible.



Discussion

- FPF-induced criterion shifting is largely **genuine (i.e. not strategic)**; unlikely to be mere result of error awareness-induced intentional “flipping” of decision or decisional strategy.
- Maximizing payment incentives (penalty-free, Exp 2 & 3) did **NOT** encourage shifting more than flat pay (Exp 1). Post-study survey revealed that payment incentives largely motivated participant efforts on **accuracy** (“true” old/new status) rather than decision **strategy** (amount earned from decision).
- More FPF received in first half of each cond → more extreme criterion placement in second half of cond → stronger FPF-induced criterion shifting between lib<>con.
 - **People who were already more susceptible to making critical errors received even stronger FPF manipulation**
- Strategic and FPF-induced criterion shifting both effective, but **not** behaviorally dissociable at the group level.
 - Individual differences may arise from **how well externally available information is utilized** (vs ignored) to inform decisions and to form explicit decisional strategies
 - Seemingly paradoxical consequences from receiving false feedback on next-trial behavior; may be modulated by **error monitoring**
 - People are capable of recognizing explicitly unreliable or misleading information (e.g. prob info that did **not** match true base rates, Exp. 3), and are more likely to hold on to **intuitively correct** decisions over strategically optimal ones.

Next Steps

- **How** can strategic and implicit criterion shifting processes potentially differ, if not by their behavioral outcome?
 - **Strategic** shifting more intentional, effortful? (e.g. late posterior negativity (LPN) ERP effect **after** initial memory retrieval; explicit deliberation/updating of responses)
 - **Implicit** shifting paradigm induces inflated/dampened sense of familiarity? (e.g. FN400 ERP over time)
 - Is feedback reinforced criterion shifting truly “implicit”?

References

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- Miller, M. B., & Kantner, J. (2020). Not all people are cut out for strategic criterion shifting. *Current Directions in Psychological Science*, 29(1), 9-15.