Bridging familiarity and novelty detection: a matter of timing?

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The computational mechanism underlying novelty detection and how it relates to memory is not yet understood. Some models consider familiarity and novelty to rely on a unique discrimination system while others propose familiarity and novelty to stem from distinct processing pathways. To advocate between these, we probed early behavioral performance of novelty compared to familiarity in twenty participants across two conditions of a speeded go/no-go recognition memory task. The results showed correlated accuracies and biases, symmetrical biases and similar speed between conditions, but poorer performance for novelty. This suggests a unique familiarity/novelty discrimination system, although more efficient for familiarity under high time constraints, possibly due the more fluent perceptual processing of repeated stimuli leading to more automatic familiarity decisions.