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The cognitive cost of lying: using mouse dynamics and unexpected questions to detect false future intentions

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Detecting false future intentions is crucial for prevention and security. The aim of this study was to investigate whether mouse tracking could efficiently identify deception about the future. Grounded on the cognitive load approach to lie detection, we used the unexpected question technique to increase liars' mental effort. Thirty-four participants, randomly divided into two groups (liars vs truth tellers), answered honestly or deceptively a series of control, expected, and unexpected dichotomous questions about a future event. During the task, reaction times, errors and mouse trajectories were recorded. Results showed that unexpected questions significantly impaired liars' performance, leading to higher error rates and greater mouse trajectory irregularity compared to truth-tellers. These findings suggest that unexpected questions amplify the response conflict faced by liars during decision-making. Overall, mouse dynamics appear to be a real-time implicit measure of the cognitive effort associated with deception, offering a promising tool for identifying false intentions.