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A time-series eye-fixation analysis of the similarity-compromise effect in multi-alternative choice

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Abstract: In decision-making tasks with two attributes and three alternatives, the similarity effect implies that, if the total expected utility is equal between two opposite alternatives (i.e., the target and competitor), the probability of the target being chosen decreases with the addition of the decoy similar to the target. This study demonstrated the similarity-compromise effect, wherein the probability of the target being chosen increased with the addition of the decoy, under the same conditions as the similarity effect, by setting all attribute values of three alternatives to broken numbers rather than rounded numbers. To determine the mechanism underlying this effect, we examined information acquisition patterns using eye-movement data collected from 37 undergraduates who made 10 hypothetical purchase tasks with two attributes and three alternatives. Time-series analysis of fixation time for the three alternatives revealed dynamic temporal features distinct from those of attraction and compromise effects observed in our previous research.