Uncertainty influences choices to invest in a single goal or divide resources between two goals

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Background

Previous focus-divide dilemma findings\textsuperscript{1}

- A failure to adjust strategy with difficulty

New version: The firetrucks task

- Adjusting strategy with difficulty

Why a difference?

Agency

Task execution may distract participants from strategy\textsuperscript{1}, and the firetrucks task has no execution demand.

Uncertainty

Choice outcomes in previous versions\textsuperscript{2} were uncertain, following a probability curve rather than a step function.

Testing agency and uncertainty

figures shown for experiment 3, n=94

Experiments 1 and 2 summary

Experiment 1:
 \begin{itemize}
   \item Tested whether framing mattered, abstract vs concrete – it made no difference
   \item Motivated experiments 2/3 – why are people better at this task?
 \end{itemize}

Experiment 2:
 \begin{itemize}
   \item Tested uncertainty and agency manipulations
   \item Uncertainty made decisions worse
   \item Agency made no difference
 \end{itemize}

Experiment 3:

\begin{itemize}
   \item **Manipulation**
     \begin{itemize}
       \item **Distance:** Close vs Far
       \item **Agency:** Automatic vs Manual
       \item **Uncertainty:** Constant vs Variable
     \end{itemize}
   \item **Result**
     \begin{itemize}
       \item Participants placed the truck closer to one of the target house when far (Same as 1/2). That is, they approached the optimal strategy.
       \item Agency did not influence adjustment with distance (same as 2). Making the driving more complex did not move participants away from optimal.
       \item Participants adjusted position less with distance when truck motion was variable. That is, they were further from optimal when choice outcomes were uncertain.
     \end{itemize}
 \end{itemize}

Conclusions

- Agency does not influence strategy, it does not account for the difference between the firetrucks task and previous versions
- Uncertainty makes decisions worse, even though the optimal strategy does not differ, consistent with the pattern of results in previous research\textsuperscript{1} indicating that uncertainty underlies the difference between tasks in which participants are optimal vs suboptimal

References
