

Preference Reversal in Informationally-Conflicted Decisions

When they learn it's **conflict** and **not ambiguity**, the become really averse!

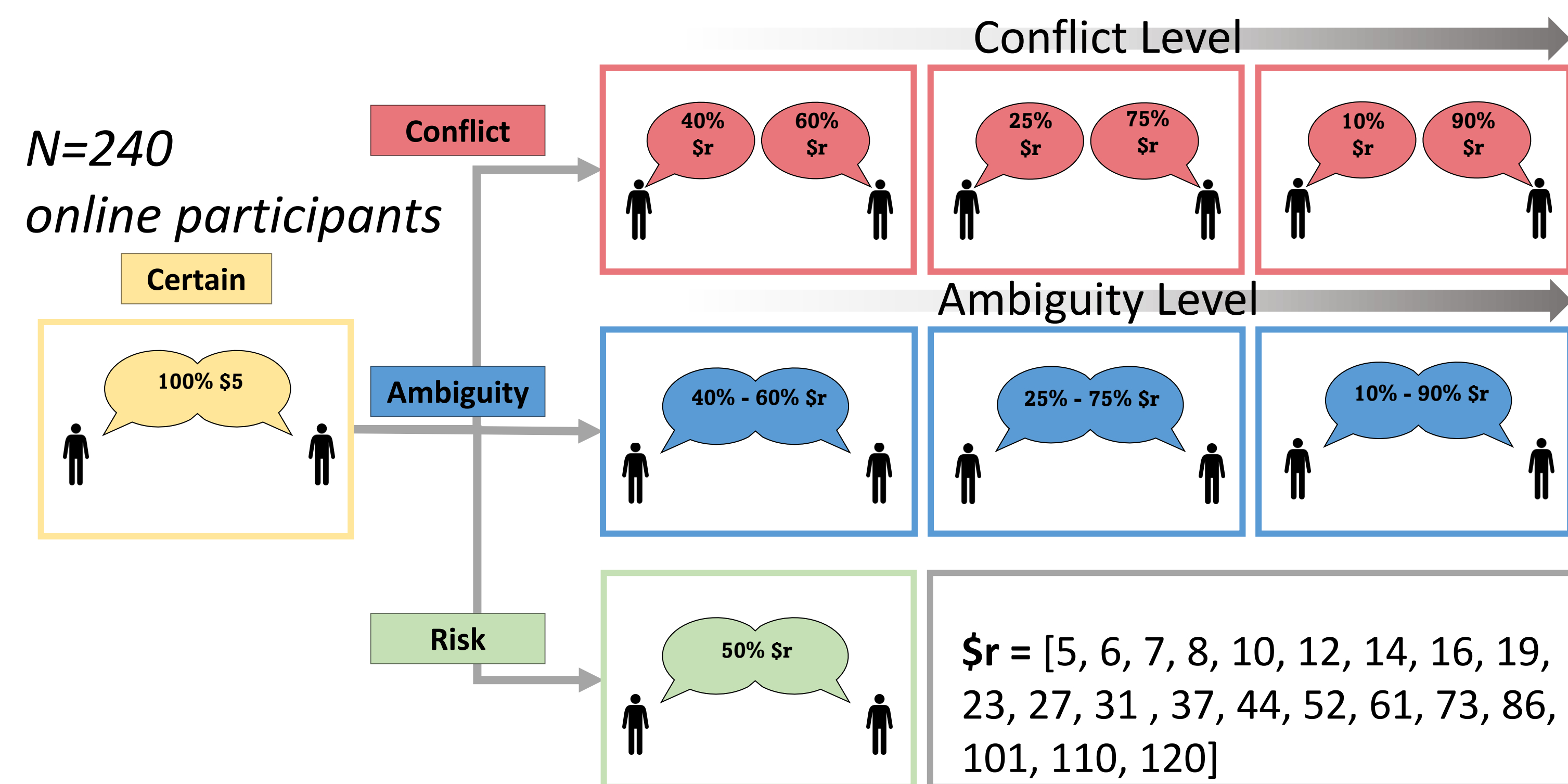
People are fairly indifferent to conflicting sources of information!

Introduction

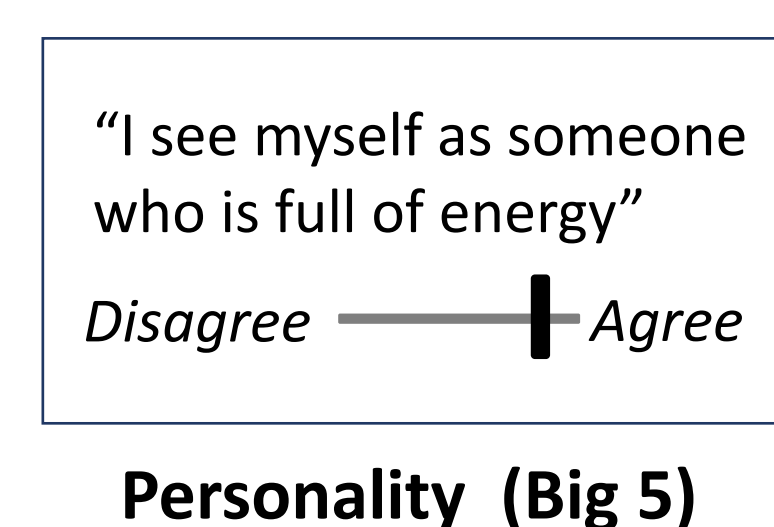
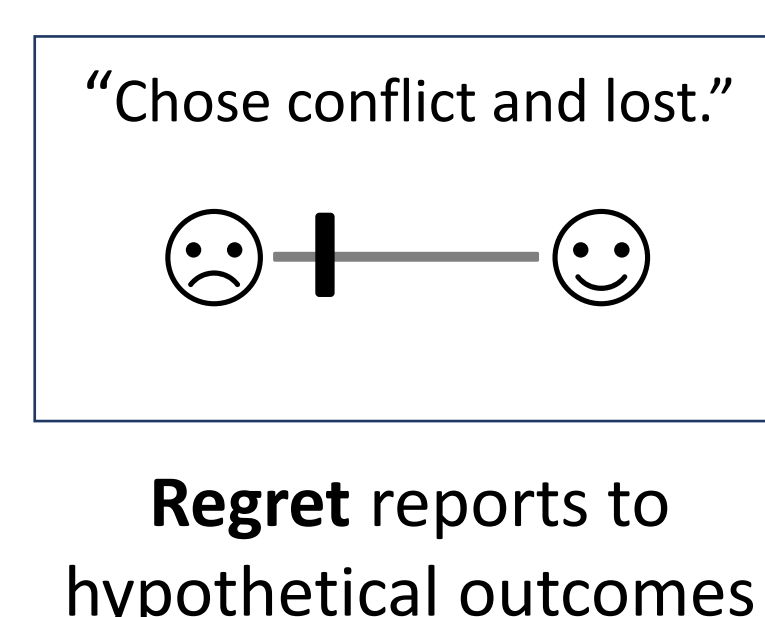
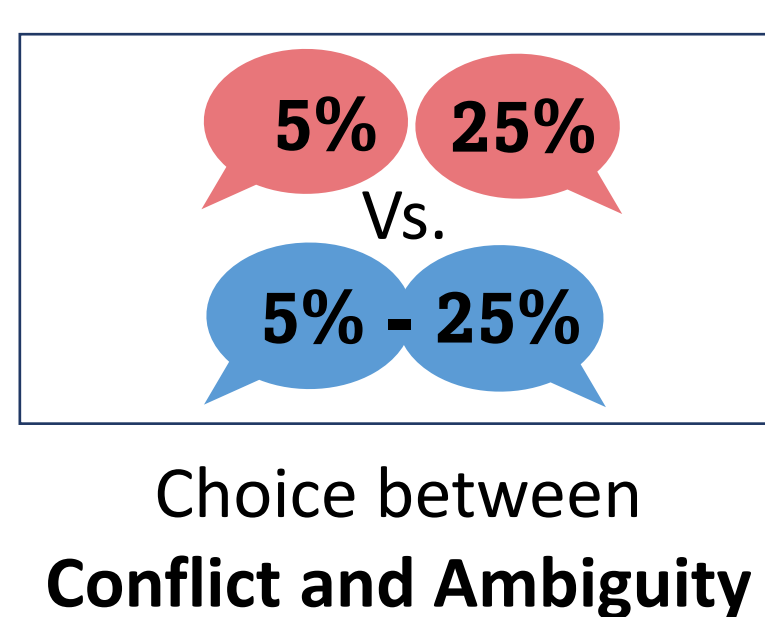
- A *Unique type of uncertainty* emerges when decision-makers are presented with several **conflicting sources of information**.
- Research Question: **What is the subjective worth decision-makers ascribe to a proposition presented by two incongruent descriptions?**
- Example:* Inquiring about a specific treatment, a patient is told [by physician A, that there is a 75% chance of success] AND [by physician B, that there is a 25% chance of success]. What would be the patient's estimate of success chances?

Methods

- We designed a two-alternative, forced-choice decision-making task where participants chose between certain \$5, and monetary lotteries associated with different types of uncertainty.
- Lotteries' chances were presented by two sources that were:**
 - In agreement, with no uncertainty:= **Certain**
 - In *disagreement* on the level of uncertainty:= **Conflicted**
 - In agreement, with a range of uncertainty:= **Ambiguous**
 - In agreement, with fixed uncertainty:= **Risky**

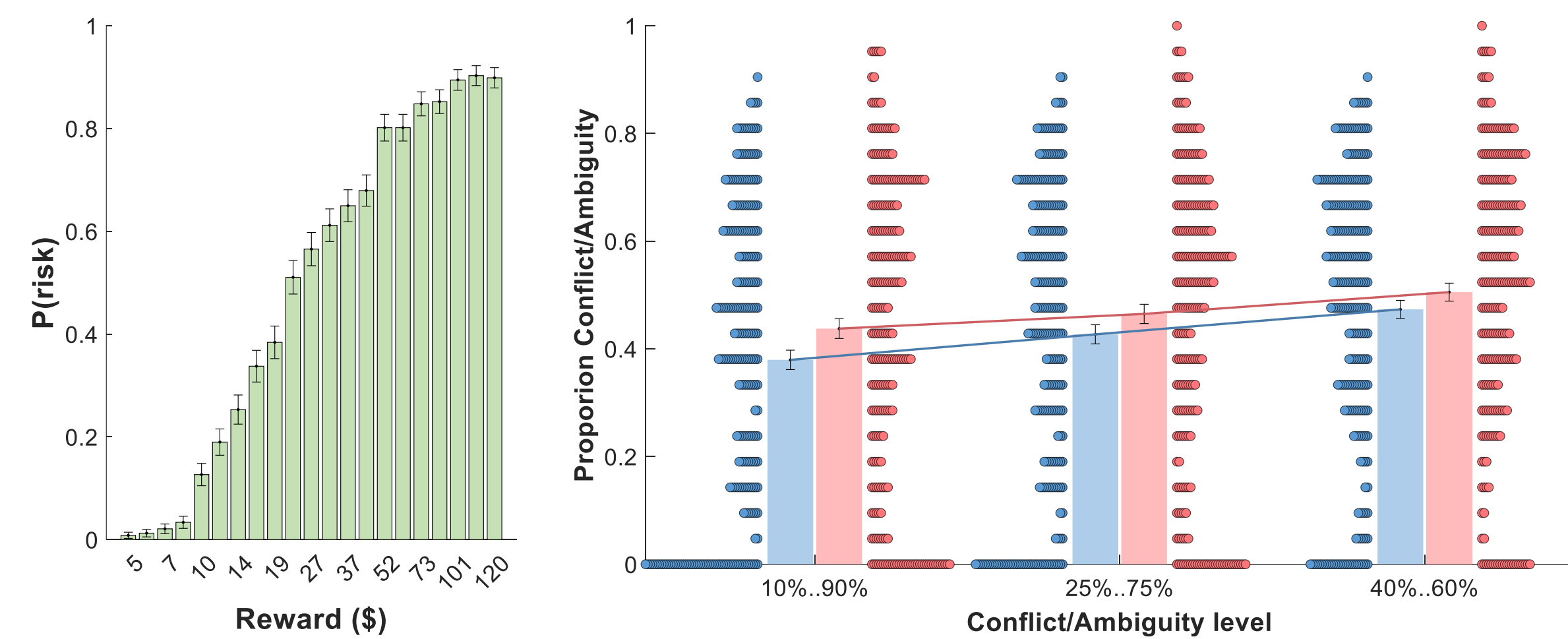


Additionally:



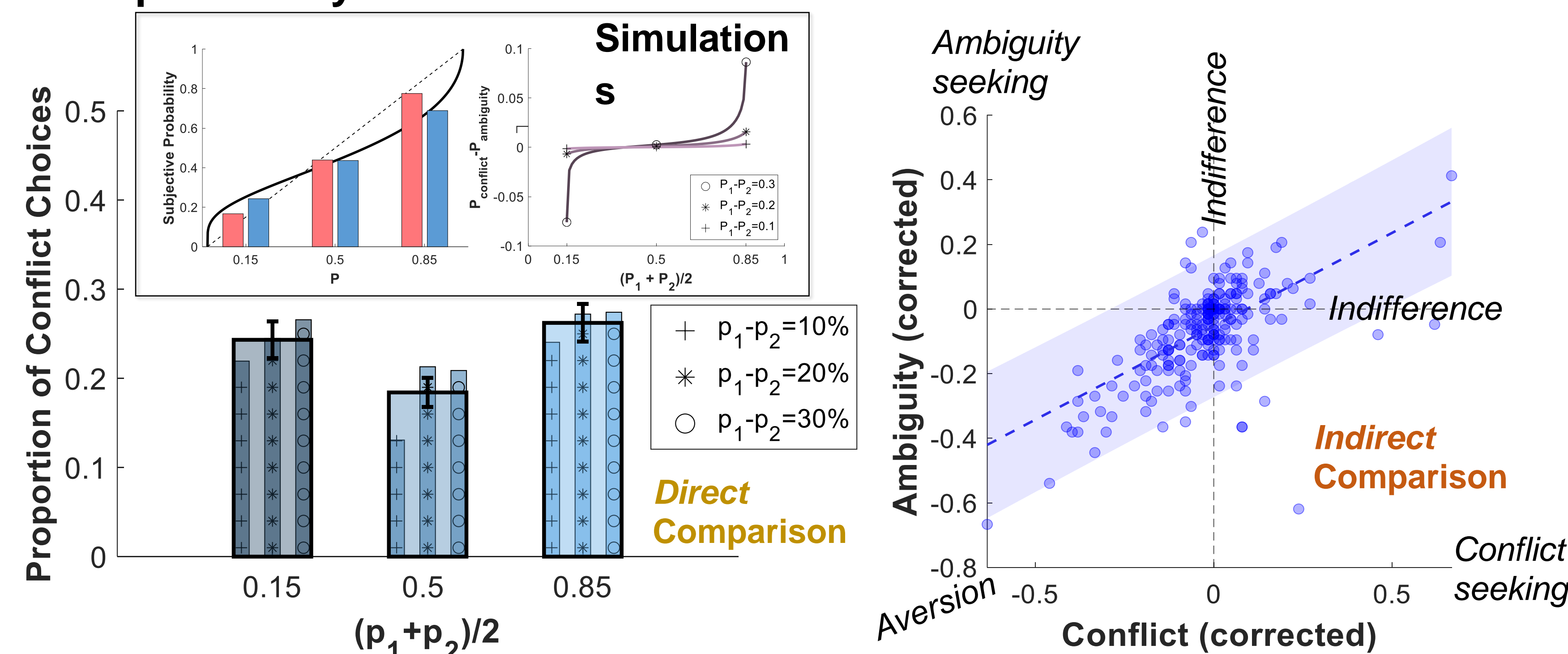
Results

- When choosing [between **certain and ambiguous** options] and [between **certain and conflicted** options] participants chose conflicted options slightly more often



Risk, ambiguity, and conflict, contrasted with certain options. (left) Participants chose risky options more often when offered a higher probabilistic reward, confirming sensitivity to task incentives. (right) A greater uncertainty range made participants less likely to choose conflicted and ambiguous options, demonstrating a general aversion to both types of uncertainty. Error bars are standard errors.

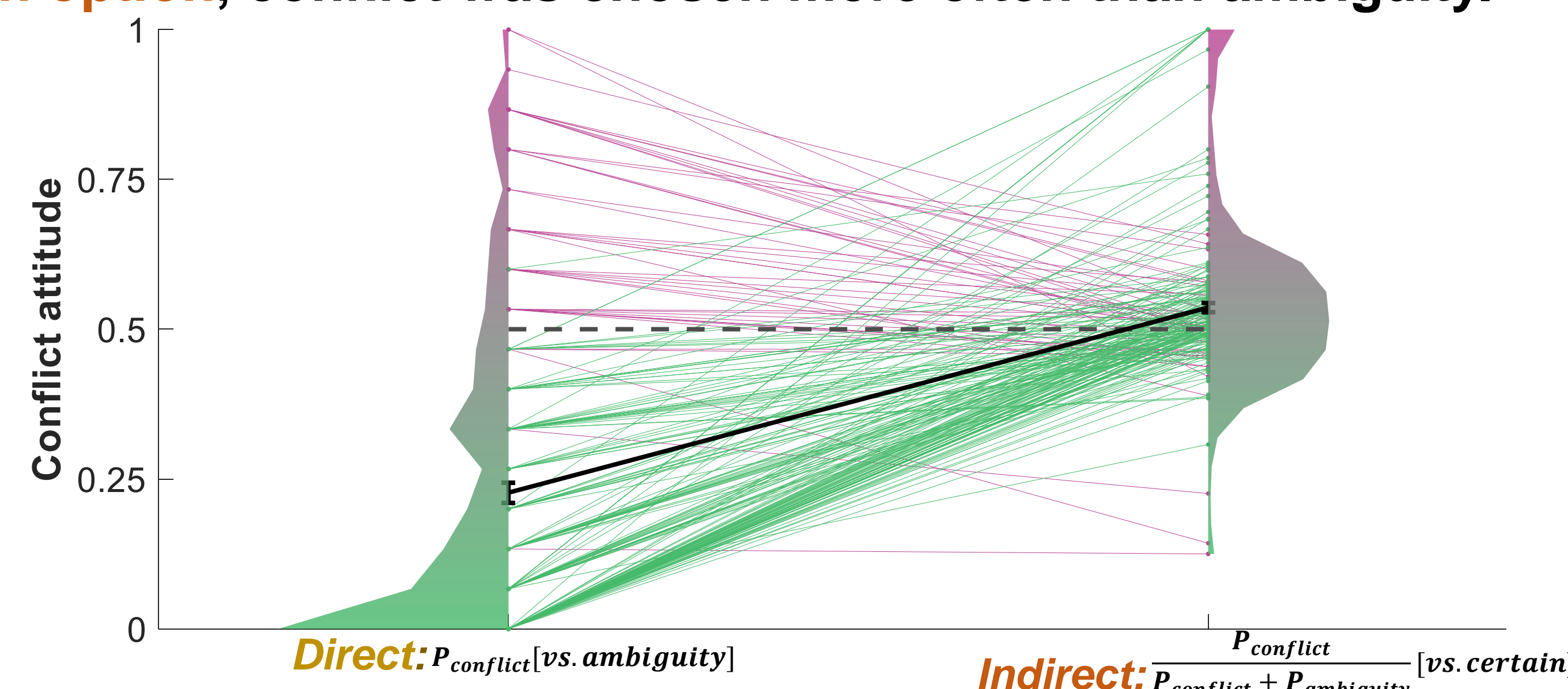
- In a direct comparison of conflict and ambiguity, participants were highly averse to conflict, regardless of the lotteries' average winning probability.



Comparing conflicted and ambiguous alternatives directly reveals a strong aversion to conflict (22% choices in conflicted options). Simulations: According to **Prospect Theory**, integration over a probability range (ambiguity) compared to the average of the range's limits (conflict) yields higher weighted probability when centered around 15% winning chance, and vice versa when centered around 85% winning chance. We do not find evidence for such effects in behavior.

Compared independently to a certain outcome, participants are indifferent to conflict and ambiguity (dashed black line). Blue circles are proportion of choices in ambiguous and conflicted alternatives, corrected by each participant's proportion of choices in risky options.

- When **choosing directly between conflict and ambiguity**, participants were highly averse to conflict. However, when **contrasted with a certain option**, conflict was chosen more often than ambiguity.



Preference reversal. 82.7% of the participants (green lines) were more conflict-seeking than ambiguity-seeking when comparing conflict and ambiguity to certain alternatives, but reversed their preference and became more conflict-averse when ambiguity and conflict were compared directly. Solid black line is the population mean. Dashed black line represents indifference between conflict and ambiguity. Error bars are standard errors.

Discussion

- When contrasted with a certain option, Participants had *similar preferences* for ambiguous and conflicted offers. **Participants became highly averse to conflict** when it was directly contrasted with ambiguity.
- We suggest that **by default, conflicted information is interpreted not as a proposition of mutually exclusive states, but as a continuum of coexisting possibilities.**
 - If not directly contrasted, **Ambiguity [25%-75% of winning \$10] and conflict [either 25% or 75% of winning \$10], were interpreted synonymously.**
 - "It is not that one source is wrong, rather the truth lies somewhere in between."
- We found no compelling evidence that personality traits, anticipated regret, or subjective probability strongly mediate conflict aversion.
 - But **perhaps these effects were masked by the very strong aversion to conflict** (most participants almost never chose the conflicted option). A better-calibrated task may reveal such relationships in the future.

Significance

- When communicating conflicted information, be very explicit that either one information source or the other is correct (otherwise it may be understood that both are somewhat true)
- But note that, regardless of content, the mere **existence of a conflict is likely to generate strong aversion.**