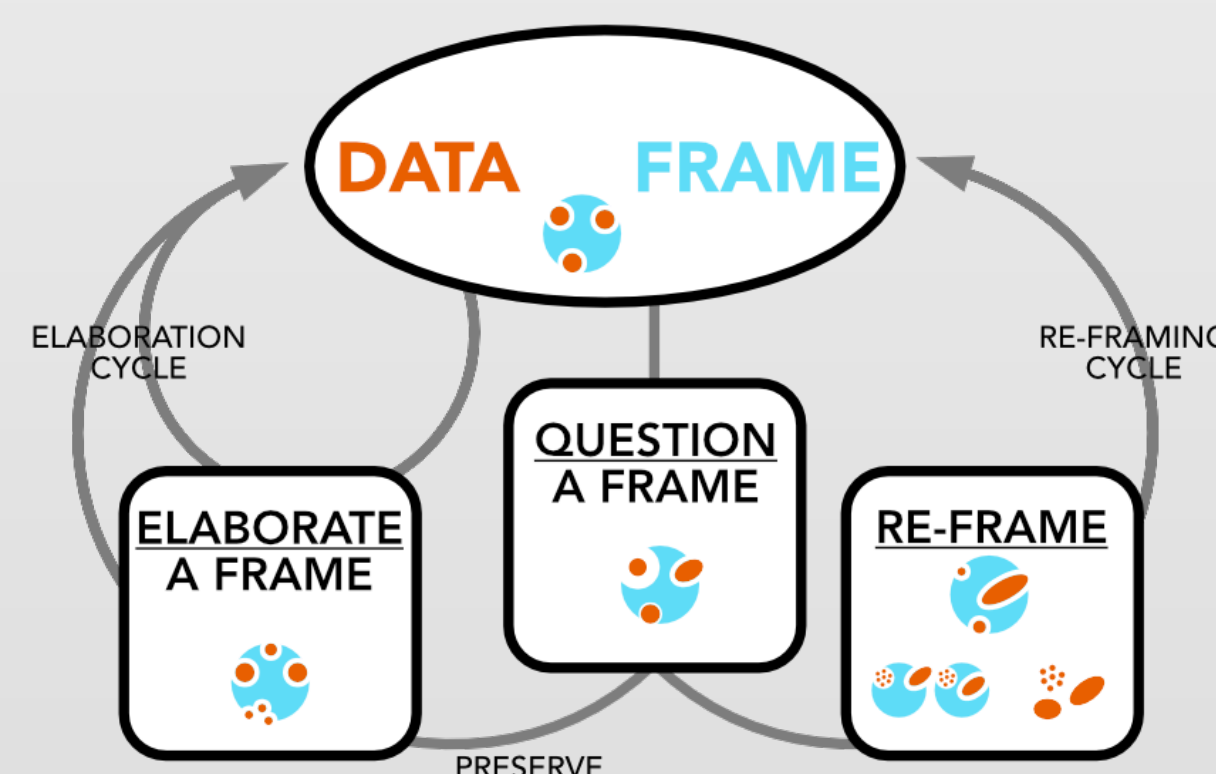


INTRODUCTION

- People make sense of ambiguous information by quickly forming an initial plausible theory, or *frame*, and stick to it without considering alternatives (Pennington & Hastie, 1986; Koehler, 1991; Thomas et al., 2008).
- Need ability to question our frames (Fig. 1) in many contexts, from making hiring decisions to scrutinizing politically motivated information. But how?

Figure 1. Data-frame model of sensemaking, adapted from Klein et al. (2007).



- **Potential strategy:** Counterfactual thinking, CFT (e.g., Roese & Olson, 2014). Considering mutability in a scenario may lead to consideration of other potential frames.
- Similar strategy effective in entrepreneurship, debate, and forecasting (Camuffo et al., 2020; Grant, 2021; Haran et al., 2013; Mellers et al., 2015).
- However, participants generating this mutability themselves is ineffective (Lehman & Veinott, 2022).
- **RQ:** Does reading a given counterfactual statement increase one's likelihood to question one's frame regarding an ambiguous situation?

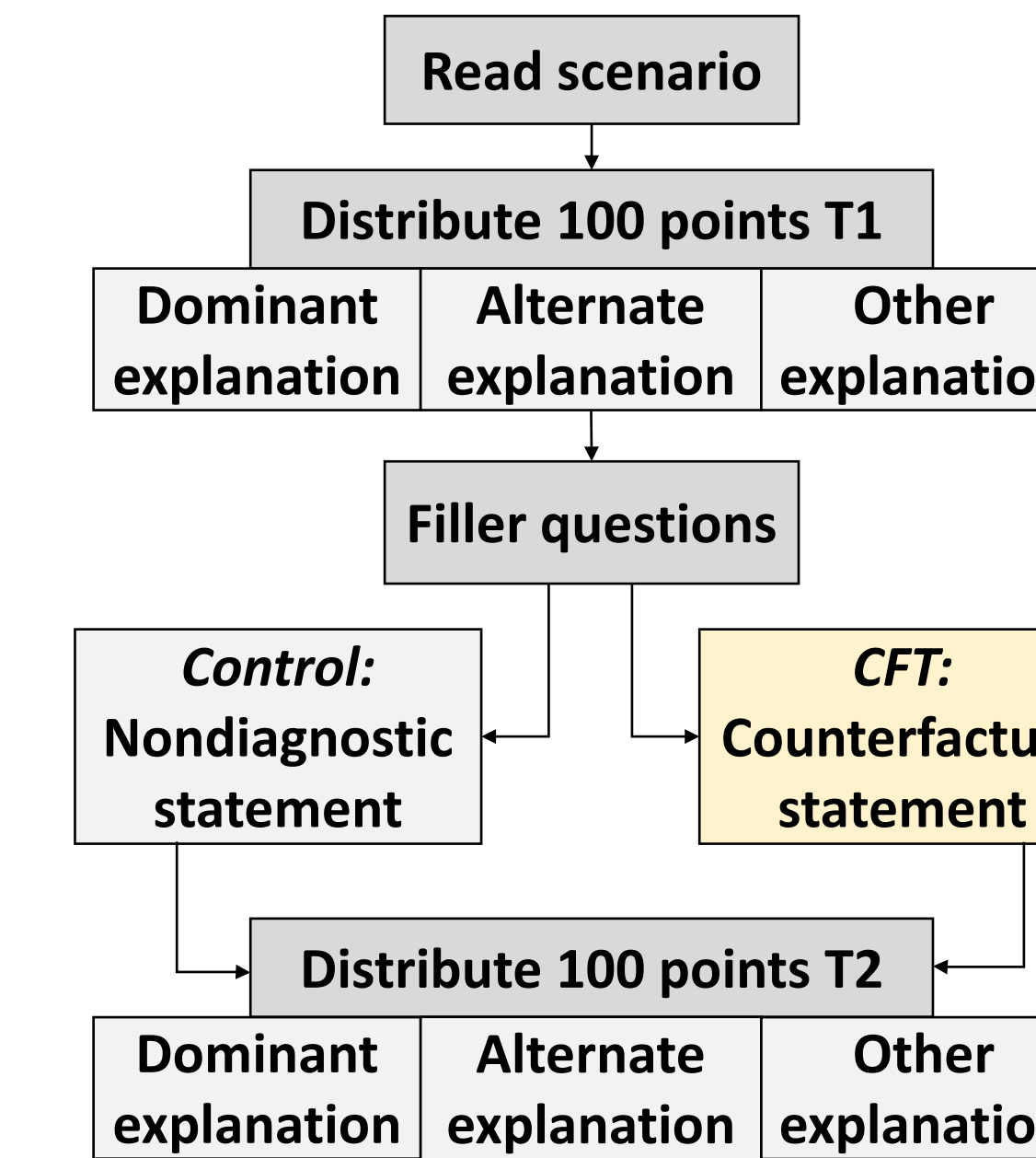
METHODS

- **Participants:** 125 undergraduates (36% women, 89% white)
- **Procedure:** Illustrated in Figure 1. Four scenarios – Restaurant, Promotion, Exam, & Toast.
- **IV:** Considering an additional statement.
 - **Control:** Nondiagnostic statement ($n=63$).
 - **CFT:** Counterfactual “What if?” statement inferring plausibility of the Alternate Explanation ($n=62$).
- **DV:** Questioning an initial frame.
 - **Operationalized:** Difference scores (T2-T1) for points in Dominant & Alternate Explanations.
- **H1:** CFT condition will distribute fewer points to Dominant Frame at T2 than Controls.
- **H2:** CFT condition will distribute more points to Alternate Frame at T2 than Controls.
- **Moving away from Dominant and toward Alternate represents questioning one's initial frame.**

PROCEDURE

- Last summer you had an internship with a printing company downtown. You ate lunch at the same burger restaurant by yourself nearly every day. One day you decided to try a new Mediterranean restaurant for lunch with some of your coworkers. Even though you ordered something simple, the next day you had to call in sick to work. (*Restaurant scenario*)
 1. Why did you get sick? (T1)
 - **Dominant Explanation:** You got food poisoning.
 - **Alternate Explanation:** You caught a coworker's illness.
 - **Other Explanation:** You're having a flare-up from a chronic illness.
 2. While at home sick you have a lot of time to think.
 - **Control condition:** What will happen to the presentation you were supposed to give today?
 - **CFT condition:** What if you and your coworkers hadn't gone to a new restaurant and you had still gotten sick?
 3. Why did you get sick? (T2)

Figure 1. Flow chart of experimental procedure.



RESULTS

- **Exp. Design:** 4 Scenario x 2 Condition (CFT, Control) repeated measures ANOVA using explanation diff. scores (T2-T1).
- Dominant Explanation difference scores were significantly lower for CFT condition ($M= -25.11, SD=27.88$) than Control condition ($M= -4.63, SD=20.16$) across all scenarios, $F(1, 121)=79.89, p<0.01$, partial $\eta^2=0.39$.
- Alternate Explanation difference scores were significantly higher for CFT condition ($M=15.24, SD=28.26$) than Control condition ($M=2.38, SD=18.50$) across all scenarios, $F(1, 121)=25.92, p<0.01$, partial $\eta^2=0.18$.
- Other Explanation difference scores were also significantly higher for CFT condition ($M=9.27, SD=19.61$) than Control condition ($M=2.26, SD=16.05$) across all scenarios, $F(1, 121)=25.55, p<0.001$, partial $\eta^2=0.17$.

Figure 2. Control points distribution between explanations at T1 and T2.

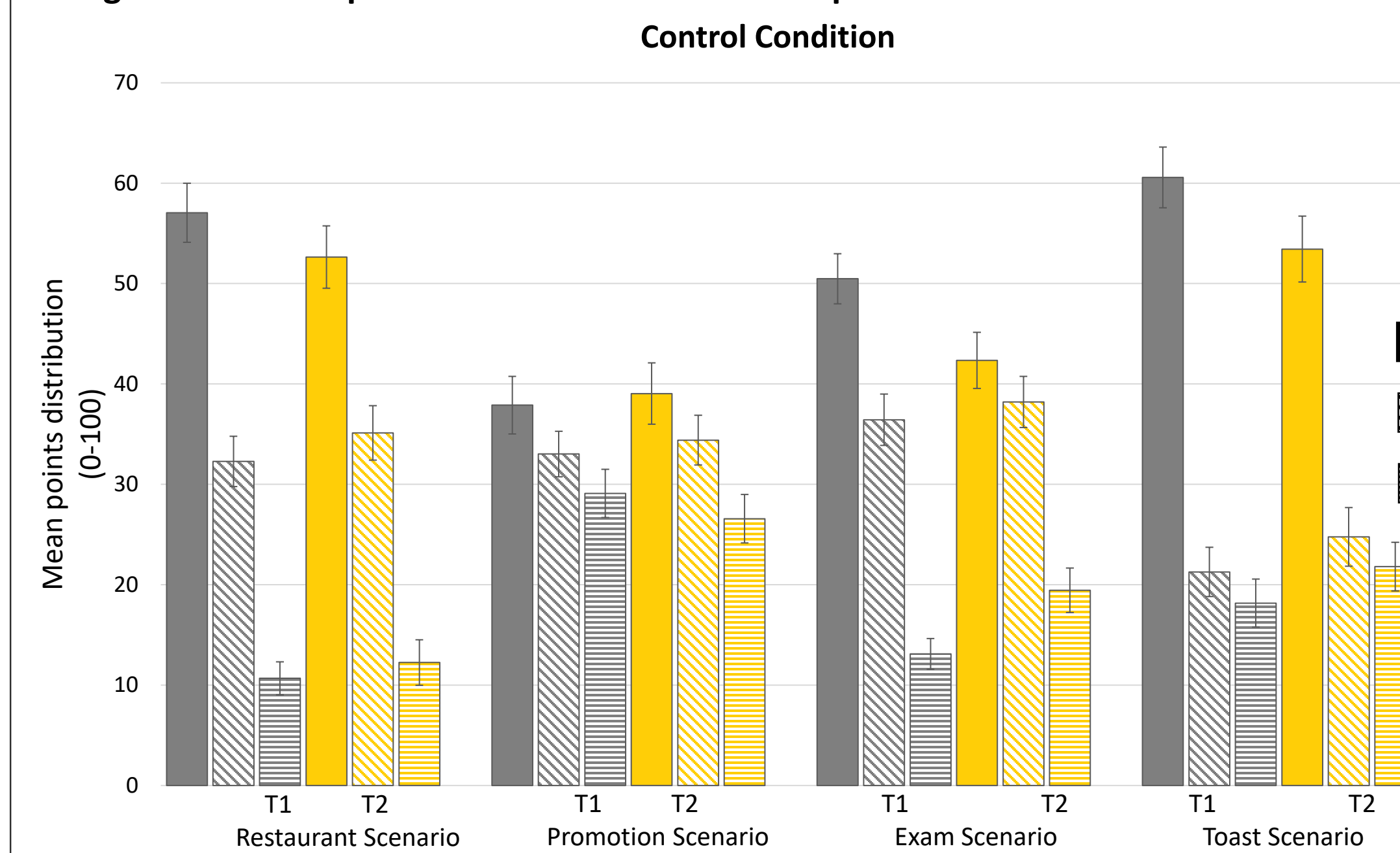
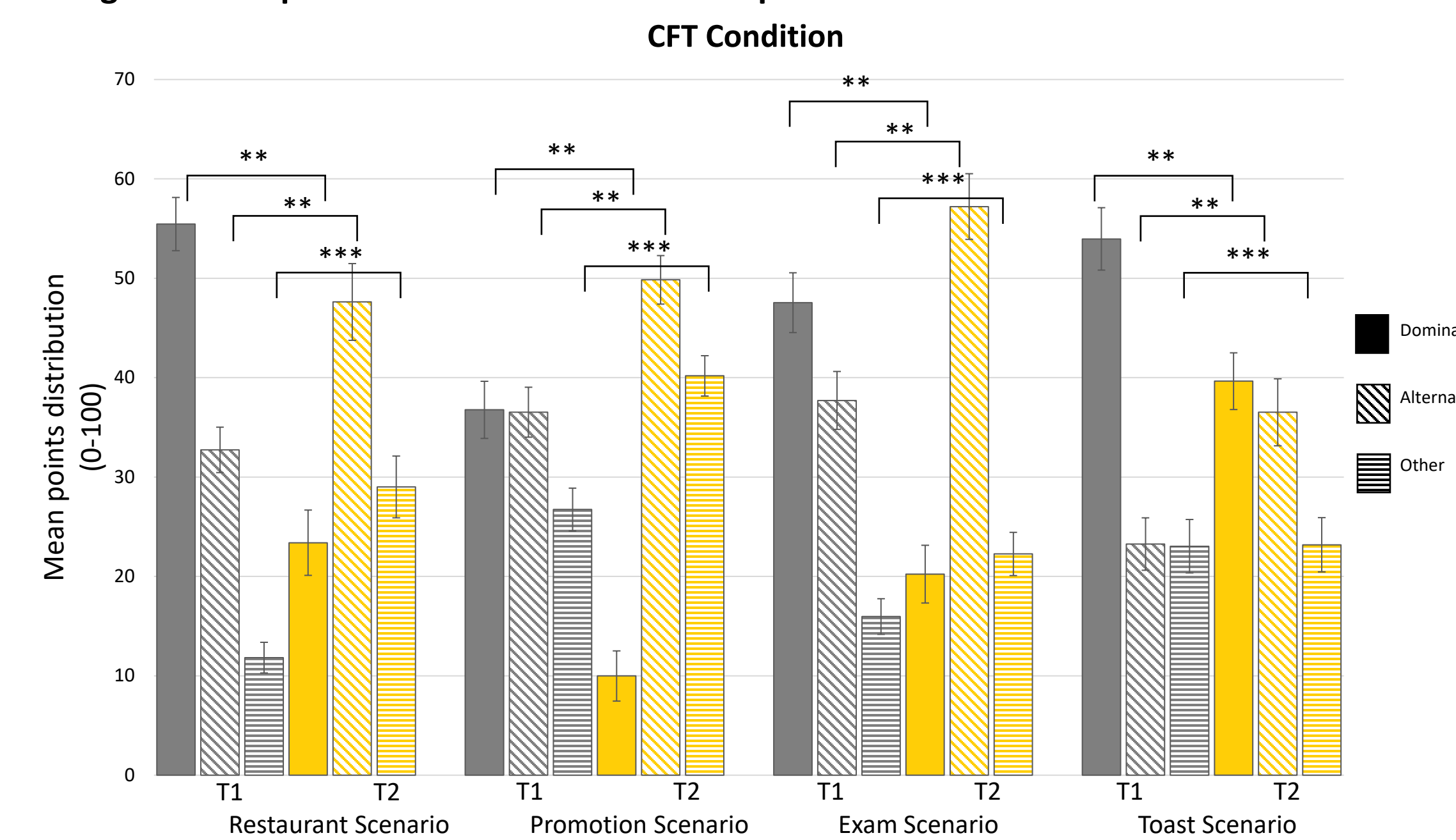


Figure 3. CFT points distribution between explanations at T1 and T2.



- The Control condition distributed points among the explanations in the same pattern at T1 and T2, preferring the Dominant explanation (Fig. 2). The CFT condition distributed points among the explanations different at T2 than T1, shifting preference from the Dominant to the Alternate explanation (Fig. 3).



Reading a counterfactual statement caused a change in points distribution, indicating that participants questioned their initial frame (the Dominant explanation) and considered alternatives.

DISCUSSION

- **Considering a given counterfactual “What if?” statement appears to be a simple, effective strategy for questioning one's frame.**
 - H1 & H2 supported: Strategy led participants to question a Dominant frame of an ambiguous situation and consider an Alternate frame as becoming more likely.
 - Strategy allows people to consider multiple frames as being plausible, as the Other frame was also considered more likely when using the counterfactual strategy.
- **Applications:**
 - **Hiring:** Considering “What if?” statements about applicants to mitigate potential bias, broaden frames generated about applicants (e.g., June, 2010).
 - **Political discourse:** Asking “What if?” statements regarding beliefs to nonconfrontationally promote questioning frames (e.g., Brown, 2017; Grant, 2021).
 - **AI decision tools:** Users prompting AI systems to run additional analyses under different “What if” conditions, improving decision-making by covering more angles of the problem space.
- **Training and consistently applying this counterfactual strategy could be one small change with a big impact on decision-making in many domains.**

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