

Over and under commitment to a course of action in decisions from experience

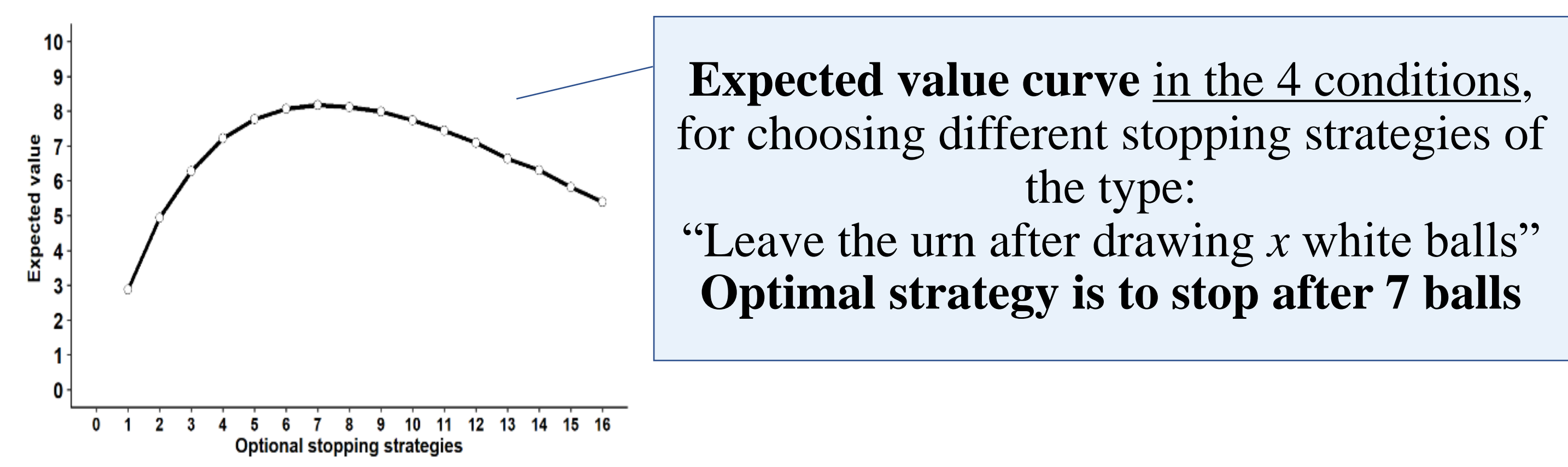
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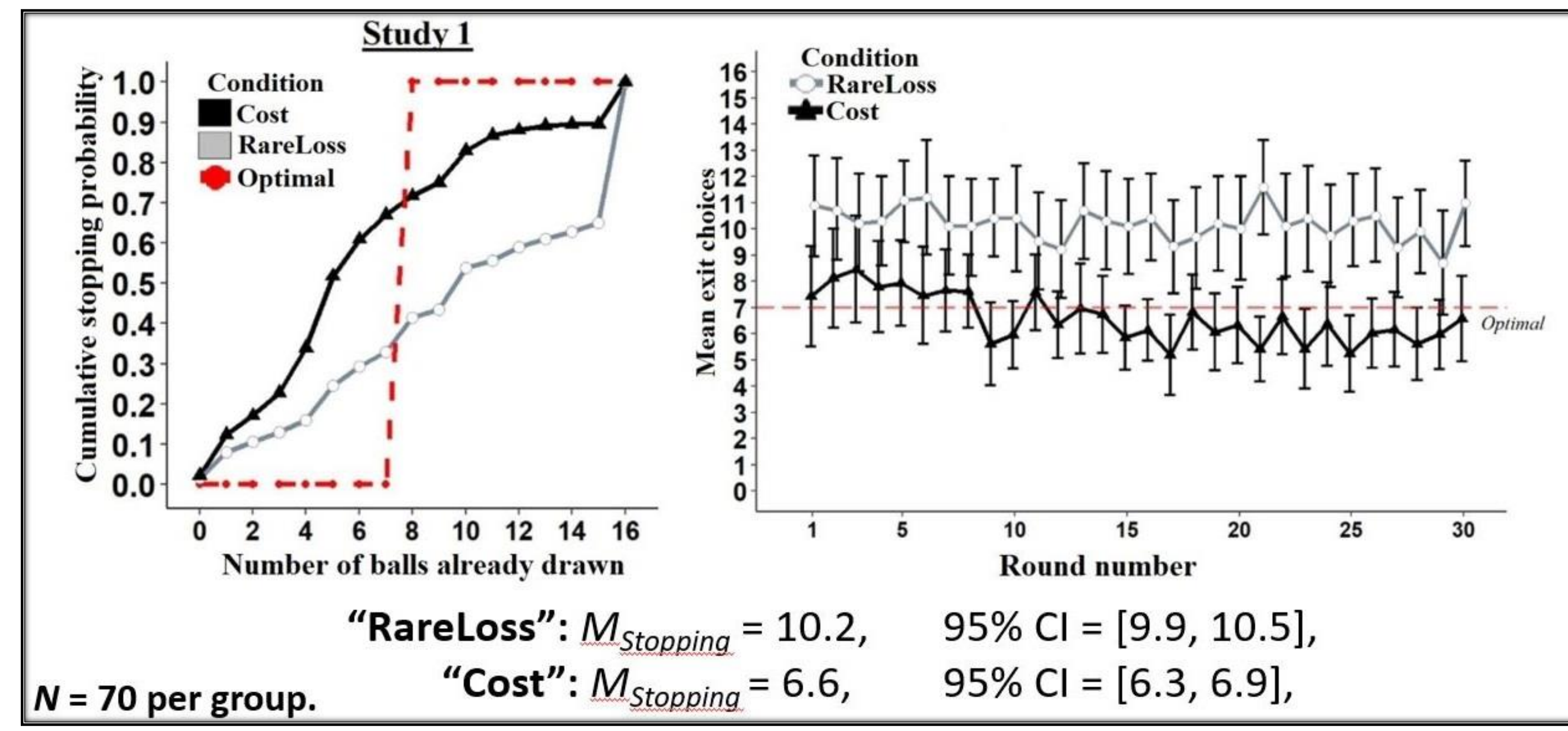
SUMMARY

- Studies of “stopping dilemmas” highlight two contradicting biases. While one class of studies suggests a **tendency to stop too late** (e.g., Escalation of commitment, Sunk-cost effect), another class of studies suggests a **tendency to give up too early** (e.g., Learned helplessness). Our paper clarifies the conditions that trigger these contradicting biases, and sheds light on their underlying processes.
- The current paper focuses on the role of two factors: The decision mode (ongoing decisions vs. planning in advance) and the probability each search effort will be costly.
- In Study 1 (**Ongoing decisions**), participants decided in each trial whether to draw one more ball or leave the current urn. In study 2 (**In-Advance decisions**), participants submitted the number of balls they wished to draw from each urn in advance.
- In **Condition “Cost”**, a white ball implied loss of 1 point with certainty ($EV_{White} = -1$). In **Condition “RareLoss”**, drawing a white ball implied a gain of 1 point with $p = .99$, or a loss of 199 point otherwise ($EV_{White} = -1$).
- All studies and hypotheses were pre-registered.
- In Study 1 (ongoing decisions), **we find a reversed sunk-cost effect**: Most participants stop too early when search is frequently costly but stop too late when search is usually rewarding. In Study 2 (planning decisions), we find an initial tendency to over-invest in both Cost and RareLoss Conditions, but experience reversed this effect when most search efforts were costly. Comparison of ongoing and planning decisions reveals an interaction: Planning in advance increased search when searching was frequently costly but decreased search when most search efforts were rewarding.

EXPECTED VALUES FOR DIFFERENT STOPPING STRATEGIES



RESULTS (STUDY 1) – ONGOING CONDITION



THE 2 STOPPING MODES (2SM) MODEL

- Results of Studies 1 and 2 favor a model that distinguishes between two types of experiences.
- The first involves local experiences.** These include the previous outcomes from the current effort to reach the present goal. These imply a reversed sunk cost effect.
- Our model assumes these imply **contingent re-evaluation** of the initial stopping strategy: **A plan to continue is re-evaluated after a loss, and a plan to stop is re-evaluated after a gain.**
- The second type is more global.** These involve learning from similar projects in the past.
- Our model assumes these imply **reliance on small samples** that lead to insufficient sensitivity to rare events.
- Study 3** examined variants of the conditions of Studies 1 and 2 in a 2x2 design. The results highlight the generality of our previous observations and validates the (pre-registered) predictions of our model. Our model was able to predict aggregate behavior both across and within rounds.

GENERAL TASK DESIGN

30 urns, 20 balls in each: How many balls to draw (0 - 16) In each round:

25% treasure
 50% → Draw balls one-by-one
 50% → No treasure
 Or
 Leave for next urn

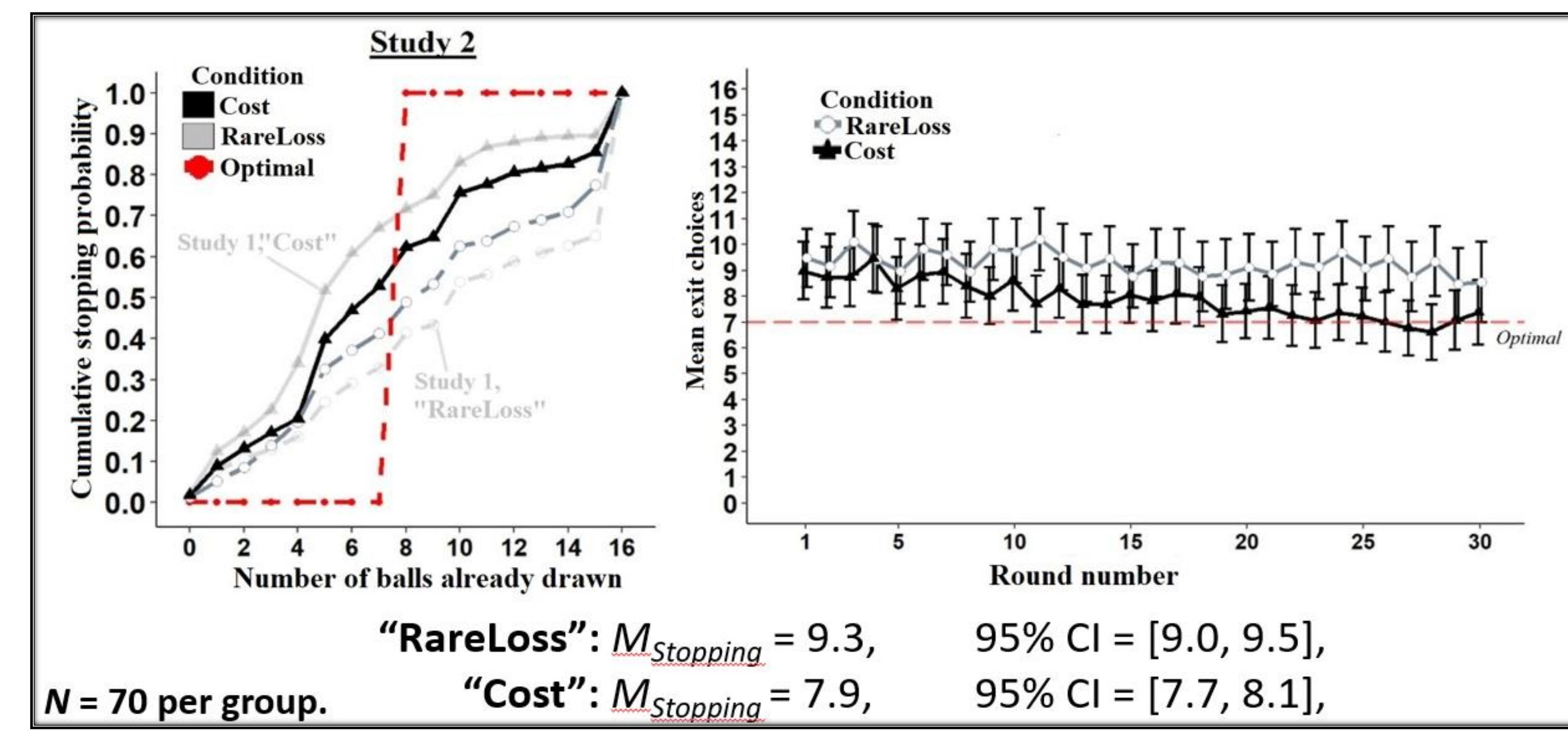
Drawing is with replacement. Finding the first red ball ends the round. 30 rounds (urns), 20 balls in each urn. Each urn is equally likely to be “winnable” or “unwinnable”. Participants drew balls one-by-one, with replacement, and receive full feedback regarding the type of ball they drew.
The main decision is when to stop the search.

Two Conditions:

“Cost”
 ○ -1 points
 ● +30 points

“RareLoss”
 ○ 99% → +1 points
 ● 1% → -199 points
 ● +30 points

RESULTS (STUDY 2) – IN ADVANCE CONDITION



RESULTS (STUDY 3) – validation of the 2SM model

