

The Long and Short of It: Decisions made from Description and from Experience

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Description versus Experience

Choice relevant information can be learned in two ways:

- By *description*: outcomes and their probabilities are clearly described from the outset:
 - E.g., “An 80% chance of 4, else 0”.
- By *experience*: outcomes and their probabilities are initially unknown and are learned through sequential exploration and feedback:
 - E.g., 4, 4, 4, 0, 4, 4, 0, 4, 0, 4, 4, 4.

These two formats of information acquisition lead to different patterns of choice to objectively equivalent problems: the Description-Experience ‘gap’.

Question: Are *unrepresentative* samples the root cause of the choice gap?

When participants were free to sample 100 times, and thus were exposed to a highly representative sample, the size of the gap was greatly reduced (orange versus green columns; Table 1). Thus, the choice gap previously observed when using the sampling paradigm is predominately due to sampling bias.

Table 1
Percent Selecting the Risky Option of Each Binary Problem

Choice		Percentage Selecting the Risky Option				
Risky Option	Safe Option	Description		Sampling		Feedback
		1 Play	100 Plays	1 Play	100 Plays	
10(.9)	9(1.0)	15 ^f	15 ^f	35 ^f	40 ^f	68
-4(.8)	-3(1.0)	65 ^f	50 ^f	45	35	25
14(.15)	2(1.0)	50 ^f	55 ^f	40	35	23
-32(.1)	-3(1.0)	45	45	45	50	58

^f Significantly different from Feedback group ($p < .05$).

Sampling versus Feedback

There are two decisions from experience paradigms:

- The *sampling paradigm*: participants are free to explore the alternatives as often as they like, without consequence, before choosing their preferred option.
- The *feedback paradigm*: participants have a set number of samples and, crucially, the outcome of each sample is added to a running total.

Despite important differences between two paradigms (e.g., the number of samples taken and the tension between exploration and exploitation) the patterns of choice derived from each paradigm are similar, leading to the assumption of a common choice mechanism.

Question: How important is repeated, consequential choice in experience-based choice?

The choice gap was larger when the outcome of each sample was consequential (orange versus purple columns; Table 1). The exploration/exploitation tension and limited samples may have led to the “hot-stove” effect. The different patterns of sampling between the two experience groups seems to support this (Figure 1).

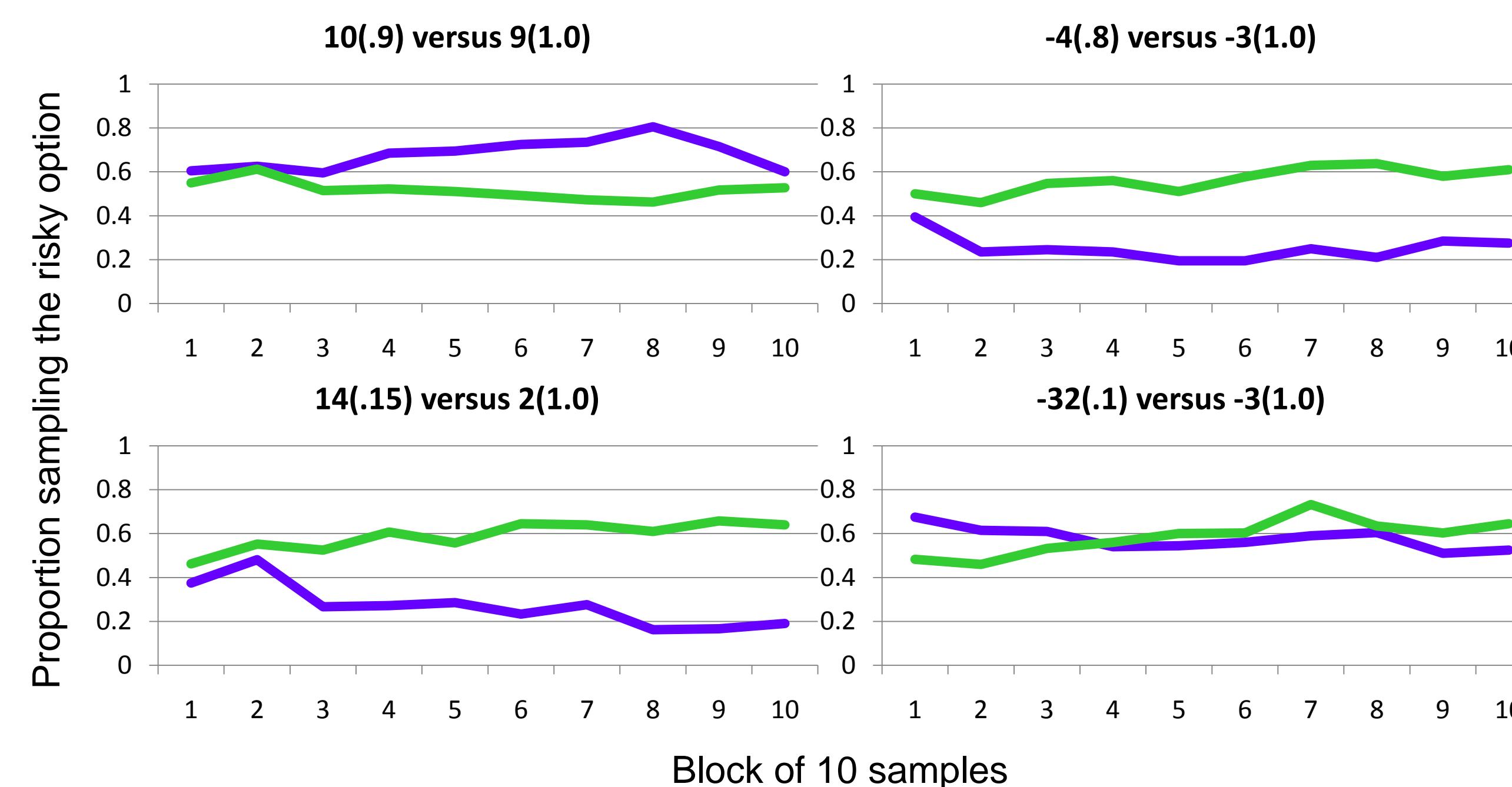


Figure 1. Proportion sampling the risky option by those in the Feedback group (purple line) and those in the Sampling group (green line).

Method

- Participants (N=100) were presented with choice problems in the description, sampling or feedback paradigm.
- Participants in the Sampling and Feedback groups took 100 samples. The outcomes of these samples added to the running total *only* for participants in the Feedback group.
- Participants in the Description and Sampling groups made just one consequential choice, which was played by the computer either 1 time or repeated 100 times (see Table 1 for problems used).

Short-run versus Long-run

The description and sampling paradigms are both single choice tasks. Some evidence suggests that choices considered in the long-run can tend towards a preference for the option with higher expected value.

Question: Does the choice gap disappear when choices are considered in the long run?

Choice maximisation was greater for described, but not experienced, problems in the long run. The choice gap did not disappear when choices were made for the long run (Table 1). A continuum of choice paradigms appears to exist when plotted against the relative predictive success of Prospect Theory (Figure 2).

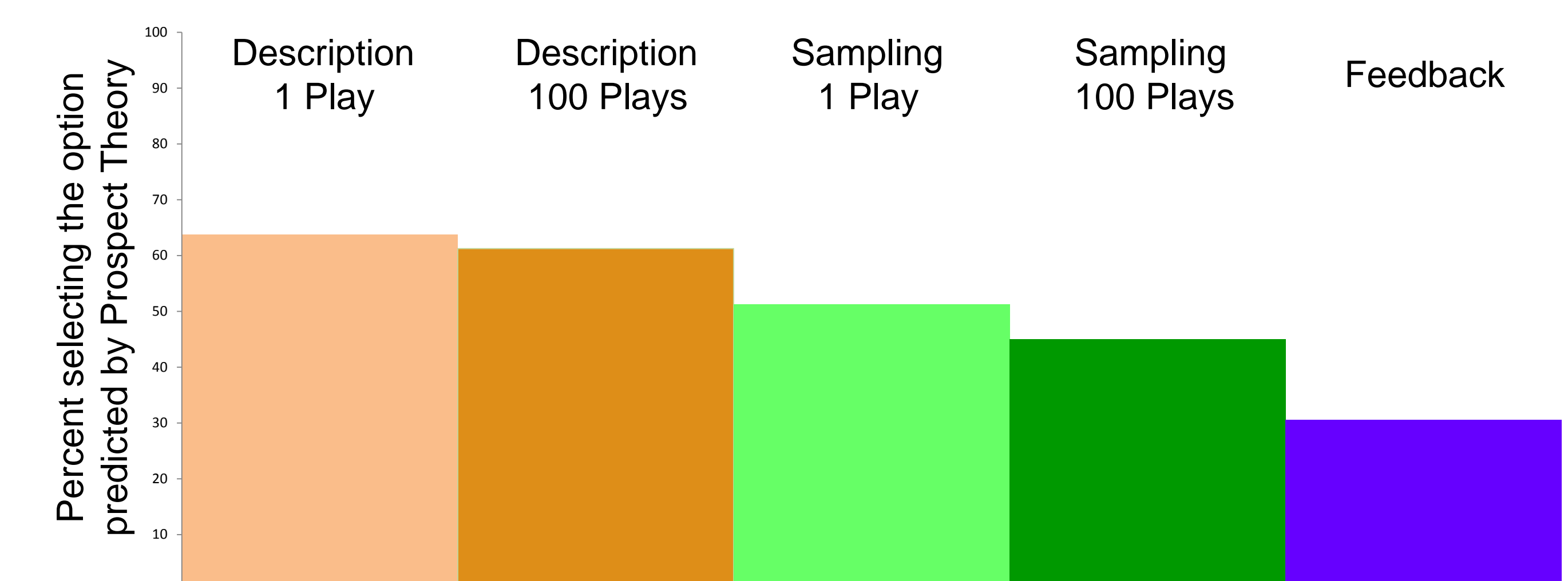


Figure 2. Percent of participants selecting the option predicted by Prospect Theory for each group.

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