

Research Report

Order in Choice

Effects of Serial Position on Preferences

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ABSTRACT—When several choice options are sampled one at a time in a sequence and a single choice of the best option is made at the end of the sequence, which location in the sequence is chosen most often? We report a large-scale experiment that assessed tasting preferences in choice sets of two, three, four, or five wines. We found a large primacy effect—the first wine had a large advantage in the end-of-sequence choice. We also found that participants who were knowledgeable about wines showed a recency effect in the longer sequences. We conclude with a process model that explains our findings.

Lives are lived serially: Experiences seem to follow one another, and when people make choices, they give their attention to one option at a time—even when all the choices are available for inspection simultaneously. Consider a person faced with selecting the best option from several options that are presented one at a time. Each one is sampled, assessed, and evaluated as it is experienced; finally, after all the options in the choice set have been evaluated, the person makes a final decision, aiming to select the best option from the set. In the study reported in this article, our primary purpose was to determine if such choices are biased toward options at particular locations in the temporal sequence—that is, whether there are *order effects on choice*. We assumed that such choices are not wholly memory based, but that on-line evaluation takes place as the options are initially sampled (Hastie & Park, 1986).

The choice task we used should be considered in light of some well-established sequence effects. First, there are serial-position effects on memory. When a person tries to recall events from the past that occurred in a conceptually related sequence—words in a to-be-remembered list, the names of the

U.S. presidents, or events that occurred during the last semester at school—early items and late items have an advantage in recall (i.e., *primacy* and *recency* effects; Glanzer & Cunitz, 1966). Although these effects are different from order effects on choice, a finding of primacy or recency effects in our task might indicate that memorability plays a role in order effects on choice. For example, sensory scientists report a primacy bias in hedonic assessment of food: The first food item sampled is experienced most strongly, so it is likely to be the most memorable and preferred (MacFie, Bratchell, Greehoff, & Vallis, 1989).

Second, there are well-known primacy effects that occur when people are forming a summary impression of a single entity (e.g., a person, product, or event). When information about a single individual is presented sequentially, there is usually a primacy, or “first impression,” effect, whereby the earliest information has a larger impact on the unitary impression than later information does (e.g., Anderson, 1973; Asch, 1946; see Hogarth & Einhorn, 1992, for a comprehensive review). Although the formation of a summary impression of a single option is not the same as separate evaluations of several options, what is known about primacy effects in impression-formation tasks may be relevant to interpreting the results from our sequential-choice task. Factors like biased processing of later information (driven by a confirmatory mind-set induced by the earliest information—e.g., Holyoak & Simon, 1999; Russo, Carlson, & Meloy, 2006) or a simple attention decrement may also be part of a valid theoretical account for sequence effects on choices (for a discussion of boredom effects for items sampled later in a sequence, see Sulmont-Rosse, Chabanet, Issanchou, & Köster, 2008).

Although several prior studies have investigated the effects of location in a sequence on end-of-sequence choices, there is still no clear answer to the question of which location in a sequence is most advantageous. Several researchers have concluded that there are primacy effects in choice (e.g., Carney & Banaji, 2008; Miller & Krosnick, 1998), and many descriptive studies of consumer choice have found such effects (Becker, 1954; Berg, Filipello, Hinreiner, & Sawyer, 1955; Coney, 1977; Dean, 1980). However, some researchers have predicted and observed

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recency effects in choice (e.g., de Bruine, 2005, 2006; de Bruine & Keren, 2003; Houston, Sherman, & Baker, 1989; Li & Epley, 2009; Wilson & Nisbett, 1978). We conjectured that there are both primacy and recency effects—under certain conditions.

We hypothesized that when participants sampled options knowing that they would be asked to make a choice, they would compare each new option with their current favorite. Such a pairwise competitive-evaluation strategy would produce an advantage for later items, especially in the case of longer sequences, in which an early option has to “beat” more options to become the overall favorite. Also, given the past findings for consumer choice options like the ones we studied (wines), we expected an advantage for early options driven by high levels of attention, low levels of proactive interference, and the common habit of “satisficing” (preferring early items in a series if there is no definite reason to shift to a later option; Simon, 1955; cf. Rapoport & Tversky, 1970). Thus, our basic hypothesis was that we would observe primacy effects (especially pronounced for short sequences), but that in longer sequences we would find recency effects as well.

In addition, we expected that this pattern would be moderated by choosers’ sophistication. People who were more interested and knowledgeable about the choice options were expected to be more persistent and to try harder than less sophisticated evaluators to discriminate among the options (Cardello et al., 1982; Hughson & Boakes, 2001; Lawless, 1984). This means that more sophisticated choosers would be likelier than others to make the comparison between their current favorite and the new option as each new option was encountered. Thus, there would be more chances for the new option in each competition to beat the current favorite, which would produce a larger recency effect among more sophisticated choosers.

METHOD

Participants

One hundred forty-two students and members of the local community in Ontario, Canada, were recruited via advertisements to participate in a study of “attitudes and values towards wine” (54 men and 88 women, ranging in age from 19, the local legal drinking age, to 75; average age was 25.67 years). Participants received either course credit or \$5 as compensation.

Design and Procedure

Participants were told that they would taste locally produced wines and were then randomly assigned to taste one sequence of two ($n = 32$), three ($n = 33$), four ($n = 33$), or five ($n = 44$) samples. Although participants expected to taste different samples of one grape varietal (e.g., Riesling), all of the samples consumed by a given participant actually consisted of 20 ml of the same wine.

Participants were given an initial description of the wine-tasting procedure and instructions on how to sample each wine. During the experimental trials, they were led through the tasting

procedure by a computer-driven menu of instructions, which gave them approximately 25 s to sample each wine and a 10-s interval between wines. The sampling procedure lasted approximately 1 min for participants in the two-option treatment and up to 2.5 min for those in the five-option treatment. At the end of the tasting sequence, each participant was asked, “Which ONE of ALL the wines that you have tasted today is your favorite?” This was the focal measure of preference. Finally, participants completed a questionnaire assessing background characteristics (gender and age) and wine expertise (Hughson & Boakes, 2001). After finishing the entire procedure, participants waited 30 min and then took a Breathalyzer test to verify their sobriety before leaving the experiment.

The samples were selected from four diverse local wines representing Riesling, Chardonnay, Cabernet Franc, and Pinot Noir varietals. The samples were served in unlabeled ISO (International Organization for Standardization) wine glasses. No systematic effects of wine type or gender were observed, so these variables are not discussed further.

RESULTS

Figure 1 presents the mean probability of choice for the samples in each condition. Each serial-position curve shows a primacy effect; the first wine was preferred more than the second and third for every sequence length. Longer sequences also show a recency effect, with the last wine being preferred more than the previous two or three wines. Chi-square tests were used to verify that the observed preferences for each sequence length were reliably different from uniform preferences for all serial positions—two wines: $\chi^2(1, N = 32) = 4.50, p_{rep} = .87$; three wines: $\chi^2(2, N = 33) = 6.73, p_{rep} = .87$; four wines: $\chi^2(3, N = 33) = 12.45, p_{rep} = .95$; five wines: $\chi^2(4, N = 44) = 13.95, p_{rep} = .95$.

We divided our sample into low-knowledge ($n = 73$) and high-knowledge ($n = 69$) groups on the basis of scores on the wine-expertise questionnaire. Figures 2 and 3 display the

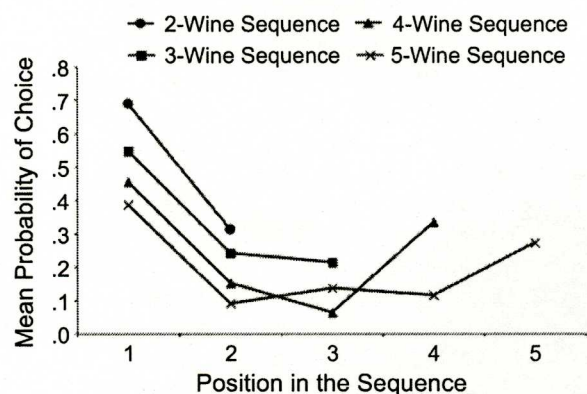


Fig. 1. Mean probability of choice for each sample as a function of serial position for set sizes of two, three, four, or five wines.

