ORDER PREFERENCE

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Abstract

In 5 experiments we show that choices between bundles of consumption goods exhibit a preference for 'order' that cannot be explained on the basis of utility for consumption itself. The first 3 experiments show that this order-preference is strong and produces robust violations of normative properties of decision making; most strikingly dominance. The two final experiments provide evidence that the effect derives specifically from a preference for choice sets that can be encoded in simple terms.

As highlighted by Herb Simon's seminal work on 'bounded rationality', the human brain is subject to serious constraints, both in information processing and memory. One of the ways humans and other animals cope with these limitations is by encoding the world in ways that minimize storage but maximize information. Research on the perception and processing of groups of visual stimuli has shown repeatedly that humans automatically process and store information in the simplest, or most ordered, form possible (e. g., Wertheimer, 1923, Chater, 1996; Strannegård, Nizamani, Sjöberg, & Engström, 2013).

In this paper we argue, and provide experimental results which demonstrate, that the brain's automatic propensity to simplify manifests itself not only in low-level processing, such as visual perception and language, but also in preferences. Specifically, we show that choice sets which can be characterized in simple terms are preferred over sets that are not simply described, even when the simpler sets dominate the more complicated ones in their constituent items. By descriptive simplicity we mean that all items in a bundle can be summarized by simple rules (see; Glanzer, & Clark, 1963; Chater & Vitanyi, 2003; Kintch, 2012). "Order," "harmony," "integrity," and "structure" are alternative words that convey a similar meaning. The wifi password "0123456789," for example, would, by our definition, have greater descriptive simplicity than the password "0a7," despite its greater length.

In a series of experiments, all involving real choices between sets of goods, we provide evidence that people have a strong preference for bundles of goods that can be described in simple terms. In the first three experiments we show that people have a strong preference for bundles consisting of sets of items that are either all the same or all different, and show that this preference leads to various choice anomalies, specifically violations of dominance, independence (in a situation in which it would be difficult to argue that there is complementarity between

components of the set), and "partition-dependence" effects (Fox & Rottenstreich, 2003) whereby dividing a set up into different subsets of items can have dramatic effects on preference. In the fourth experiment, we show that preferences between two unchanging choice sets can be altered by drawing attention to (and away from) specific attributes that highlight one or the other set's order. Finally, the fifth experiment shows that this preference for all same or all different results from a more general preference for choice sets that can be described in simple terms.

Earlier research in cognitive psychology found that the brain naturally and automatically tends to make sense of disparate stimuli, perceiving and processing such stimuli at a superordinate level (e.g., Wertheimer, 1923). Subsequent research on perception has shown that groups of stimuli are automatically processed in their simplest possible form, using the least amount of informational statements needed (Chater & Vitanyi, 2003). For example, Falk & Konold (1997) found that when subjects were asked to memorize strings of symbols, they organized these strings in the least chunks needed (for example, xxxoxo was memorized as xx, 2*xo rather than xxx, o, x, o) In a similar vein, Ariely (2001) showed that when memorizing sets of objects, people accurately remember the average characteristics of stimuli within that set, but do not remember the characteristics of the individual stimuli in those sets correctly. Because cognitive recourses are scarce, and since for any group of objects the underlying structure is by definition equally simple or simpler than the individual characteristics, it is clearly functional to process a group of stimuli by its overarching structure rather than by its individual contents. Here we show that order-effects go beyond mere processing, and influence how much people like a set of stimuli.

The idea that ordered sets may be liked better is consistent with early research on pattern-perception which has consistently revealed that people like patterns of dots more when these

patterns have some sort of underlying structure (e.g., Garner 1970; Glanzer & Clark, 1964). More specifically, these researchers found that patterns which are ordered in an easy to describe fashion, and exhibit a more parsimonious structure, are liked better. If people generally like patterns better when they have order, this suggests that the liking of bundles of goods may also be influenced by such structural relationships between goods.

Evers, Inbar, & Zeelenberg (2014) applied insights from this early research to understanding esthetic preferences. In a series of studies they demonstrated that people like groups of objects more when they are either completely similar or completely dissimilar on salient attributes. For example, in one study, participants were asked to indicate how much they liked a set of drawn dinosaurs. Participants rated those sets higher when all the dinosaurs were either completely the same color or all differently colored as compared to sets in which some shared a color but others did not. Similarly, participants liked the sets more when all dinosaurs were either of the same type or completely different types as compared to sets in which they were not completely similar or completely different. Since the preference for order is believed to be the result of a fairly intuitive and automatic process (Evers, Inbar, & Zeelenberg, 2014), one could expect that order only affects preferences for goods consumed for their aesthetic qualities. However, as we will show, the preference for order affects choices in situations in which one would not expect consumption utility to be affected by aesthetics, such as pens or beers.

In what follows, we show that preferences for groups of consumption goods exhibit a preference for descriptive order. The first three experiments show that a preference for sets of items for which all items are the same or all items are different (which is easy to encode and describe), and that this preference leads to deviations from normative properties of choice. Experiment 4 and Experiment 5 provide evidence that the preference for sets in which all items

are the same or all are different is driven by a more basic preference for sets that can be characterized in simple terms.

Experiment 1

In Experiment 1, we document the order preference effect and show that it leads to violations of dominance. Specifically, we show that if adding a desirable item to a bundle detracts from the descriptive simplicity of the bundle, it can decrease preference for the bundle. Since a direct choice between a dominant and dominating bundle would be instantly obvious to subjects, we adopt a paradigm previously used to demonstrate dominance violations (Gneezy, List, & Wu, 2006) in which decision makers make choices between the dominating or dominated item and a third item.

Method

Three hundred-and-two students at Tilburg and Fontys University (201 females, M_{age} = 20.23, SD = 3.25) were randomly assigned to one of three conditions. Subjects in all three conditions were given choices between a set of pens and a black notebook. They were told that 10% of them would receive the item(s) of their choice. In one condition (three-same) the set of pens did not exhibit obvious order, it consisted of 9 differently colored pens with 3 more brown pens. The sets in the other two conditions did exhibit an obvious strong order (see figure 1). In the all-different condition, the set consisted of 10 pens, each pen a different color. Finally in the "bonus" condition, the set consisted of the same twelve pens as in the three-same condition, but in this case the bundle of ten different pens was visually separated from the two brown pens, with the intention of creating order in the unordered group of twelve pens. Since people are naturally inclined to group items that are proximal to one another into a separate category from

those that are further away (e.g., Wertheimer, 1932), it was expected that subjects would perceive the 12 pens as two separate bundles with greater descriptive simplicity; one consisting of 10 all-different pens, and one consisting of 2 pens with the same color.

Similar effects of categorization have been found in work on partition dependence (e.g., Fox & Ratner, & Lieb, 2003) in which subjects were found to have a heuristic of allocating resources approximately evenly over categories (e.g., different categories of charities or different income-groups receiving financial aid), which meant that changing the partitions between categories had a substantial, and normatively unjustifiable, effect on allocations. The second and third conditions in the current study, which differ only in terms of how items are partitioned, also examine a kind of partition-dependence, albeit caused by a different underlying preference pattern from that studied by Fox and colleagues.

After making a choice between the pens and the notebook, participants indicated how much they were willing to pay for each, though these valuations were not incentivized. We expected the differences in WTP to mirror those observed in choice, with items more easily described in simple terms being associated with higher WTPs. We did not predict any changes in WTP for the notebook across conditions, although we would not have been surprised if such differences were observed – e.g., if subjects contrasted their valuation of the notebook with that of the pens.

Results

Figure 2 presents the results, with choices indicated by the left of the paired bars and valuations represented in the right hand bars. As predicted, subjects in the all-different condition were more likely to choose the pens over the notebook (46%; 47/103) than were subjects in the

three-same condition (31%; 31/101, $\chi^2(n = 204) = 4.81$, $p = .03$), despite the fact that the latter dominated the former. However, when the 12 pens were partitioned in a way that made it transparent that they could be grouped into one all-different and another smaller both-the-same subset, there was a slight but not significant preference for the sets of pens as compared to the all-different condition (55%; 54/98, $\chi^2(n = 201) = 1.8$, $p = .18$) and a significant preference as compared to the three-same condition ($\chi^2(n = 199) = 12.10$, $p = .001$) even though in both cases they would get exactly the same 12 pens.

Willingness to pay revealed a similar pattern. Participants were willing to pay slightly (but not significantly) more for the set with two bonus pens added separately ($M = €3.77$, $SD = 2.24$) as compared to the condition in which they merely received the good set of ten pens ($M = €3.70$, $SD = 2.12$, $t(202) = .23$, $p = .82$). This is not remarkable because the bonus-set included two more markers than the set in the control condition. However, participants in the three-same condition, who indicated their willingness to pay for exactly the same items as participants in the bonus condition, were willing to pay less for the bundle of 12 pens ($M = €3.04$, $SD = 2.19$, $t(197) = 2.32$, $p = .02$), even compared to participants in the all-different condition in which the bundle only included ten pens, $t(199) = 2.17$, $p = .03$.

Experiment 2

In Experiment 1 we demonstrated, via the bonus condition, that regrouping the items could lead to a restoration of standard properties of choice. However, it is possible that this effect arose from the fact that subjects were making a choice between one item (the notebook) and two sets (the two subsets of pens) as opposed to the fact that each bundle of pens was presented in a fashion that highlighted their orderly properties. To avoid this problem, in

Experiment 2 we keep the items in the choice-sets completely identical but, as in Experiment 1, manipulate partitioning of the constituent items. In one condition the two subsets created by the partition were very easy to describe parsimoniously: one subset is all different, the other subset is all-similar. In the other condition neither subset is easy to describe; neither is all-different or all-similar.

Method

One hundred and forty three students from Tilburg University (35 females, M_{age} = 20.4, *SD* = 2.1) were assigned to one of three conditions. In all conditions, subjects made a choice between a bundle of ten markers and a notebook, and were informed, as in the first study, that at the end of the experimental session 10% would receive their choice. The three conditions differed only in the way the bundle of ten markers was presented (see figure 3). In the two ordered subsets condition, the bundle of markers was split up in two subsets, both of which exhibited an obvious order: One subset of markers was all similar, the other was all different. In the two unordered subsets condition, the same ten markers were divided into two subsets, neither of which exhibited any coherent order. Finally, in the single unordered condition, the markers were presented as a single unordered bundle. After choosing between the markers and the notebook, participants indicated their WTP for the ten pens as well as the notebook; however, as in Experiment 1, these valuations were not incentivized.

We expected that participants would be more likely to choose the bundle of markers when the markers were split into two easily described subsets as compared to them being split into two not easily described subsets or into one not easily described set. WTP for the pens was expected to follow the same pattern.

Results

Figure 4 presents the results. As expected, participants were more likely (67%; 32/48) to pick the markers over the notebook when the bundle was split up into one all-same and one all-different subset as compared to the condition in which the bundle was split up into two arbitrary subsets (44%; 21/48) or in which the markers were portrayed as one bundle (40%; 19/47); two ordered vs. one bundle, $\chi^2(n = 95) = 6.58$, $p = .01$; two ordered versus two unordered, $\chi^2(n = 96) = 5.10$, $p = .02$. The difference between the large bundle and the low-order subsets condition was not significant; $\chi^2(n = 95) = 0.11$, $p = .75$. A similar pattern was found for willingness to pay, although, due to the high variance in WTP, these differences were only marginally significant. On average participants were willing to pay €3.66 ($SD = 2.01$) for the high-order subsets of markers, but only €3.00 ($SD = 1.73$) for the low-order subsets of markers, $p = .09$. Willingness to pay for the one-bundle condition was slightly higher than the low-order condition but lower than the high-order condition €3.19 ($SD = 2.19$).

While the first and second experiments demonstrated violations of dominance as a result, we claim, of an preference for descriptive simplicity, the third experiment examines its consequences for a weaker property of choice: independence. Ordinarily we would not expect independence to apply to the constituent items composing bundles of goods, since it is perfectly natural that there could be consumption complementarities between items. However, we examine a situation in which order preference produces a strong violation of independence in a context in which one would expect consumption complementarities to be small or non-existent because items are consumed one-at-a-time and the consumption of one item is unlikely to affect the marginal utility of consuming other items.

Experiment 3

Experiment 3 tests the prediction that people prefer bundles that are descriptively simple because they are all completely similar or completely different over bundles that are descriptively more complex. In this study, all decisions were implemented – subjects took home the bundle they chose -- unlike in the previous two in which 10% of choices were chosen by chance to count. We also used choice items – bundles of beers -- that were familiar to most subjects and that they cared about.

Method

Students from Tilburg University (94 females, 66 Males, M_{age} = 20.1, *SD* = 2.5) were directed to a cubicle where two bundles of beer were presented (see figure 5). Subjects were told they could choose one bundle of beers which would be theirs to keep and take home. Subsequently, participants filled in a Need for Closure scale (NFC; Kruglanksi et al., 1993) and a Need for Uniqueness scale (NFU; Snyder & Fromkin, 1977) on the computer in the cubicle.[1]

Subjects were randomly assigned to one of four conditions in each of which they chose between two bundles consisting of four different beers. In all conditions, both bundles were identical to each other for three of the beers; the only difference between the two bundles was that one bundle included a *"La Trappe"* beer (LT from now) as a fourth beer, whereas the other bundle included a *"Scheldebrouwerij"* beer (SB from now) as the fourth beer. In the two "similar" conditions, the three beers that were identical across both bundles were either all beers from the LT brewery (similar LT) or all three from the SB brewery (similar SB). In the two "different" conditions, the three identical beers were one beer by the St. Bernardus brewery

[1]Results from these scales did not predict patterns of choice (p >.25 for all p's from 4 relevant tests) and are not further discussed.

(BE), one by the Lefebvre brewery (AB) and one by the LT brewery (different LT condition) or by the SB brewery (different SB condition). All choices are logically equivalent since in all conditions the first, second and fourth beer in the bundles are identical, the third item in the bundle is always LT in one bundle and SB in the other. Therefore, if preferences for bundles are determined only by the combined preference for the individual items in the bundle, then choice proportions should be identical across conditions. However, if subjects have a preference for order – for all-similar and all-different bundles, choices for the bundle including the LT beer should increase in the similar-LT and different-SB conditions as compared to the similar-SB and different-LT conditions.

Beyond the idea that it would be a remarkable coincidence if consumption complementarities corresponded to order-preferences, the design was intended to produce results that strongly weigh against a consumption complementarity account. One could possibly argue that people enjoy consuming a wide range of beers, which could potentially justify the greater preference for the all-different options in the two Different conditions (the right-hand option from the Different LT condition and the left-hand option from the Different SB condition, in Figure 5). However, if people have a preference for variety, then they should prefer the somewhat different over all-same options from the two similar conditions, but this is not what we predicted or observed.

Results

As predicted, subjects in the similar LT condition were more likely to choose the bundle including LT (83%; 33/40) as compared to participants in the similar SB condition (35%; 14/40, χ^2 (1, N = 80) = 18.6, p < .001. In the different LT condition, participants were less likely to

choose the bundle including LT (23%, 9/40) as compared to participants in the different SB condition (92.5%, 37/40; χ^2 (1, N = 80) = 40.1, p < .001.

Experiment 3 shows that, when making real and consequential choices between bundles, subjects' choices are influenced by the ordering of the bundle. If subjects evaluated the bundles on the basis of the characteristics of the individual items in the bundles, we should have found equal proportions choosing the bundle including LT over the bundle including SB. We found instead that participants were more likely to choose a bundle that had high order, one that was completely-similar or completely-different over a bundle with lower order (partially-similar, partially different).

Experiment 4

If the difference in choices observed in Experiments 1-3 is the result of people preferring bundles with high order over those with lower order, we should be able to affect choices between two identical bundles by varying the salience of characteristics of the bundle. To illustrate, the two "bundles" in figure 7 could either be described by their color or their shape. For color, the bundle on the left has higher order (its contents are all blue), as compared to the bundle on the right (three blue, one green). For shape, the bundle on the right consists of all-circles and thus has higher order than the bundle on the left with three circles, one square. In this case, drawing attention to color should therefore increase preference for the bundle on the left, since the contents of that bundle are all-similar. Drawing attention to shape on the other hard should increase preference for the bundle on the right, since that bundle is all-similar on shape. Note that this design is similar to that employed by Fox, Ratner & Lieb (2005) who presented subjects with a three choices from a menu of six bottles of wine which were in one condition partitioned

by grape-type (two bottles of Chardonnay, two Pinot Grigio, and two Sauvignon Blanc) or in the other by country of origin (two from Australia, two from Italy and two from California). In both conditions subjects split their choices over the three categories resulting in different choices depending on how the bottles were organized. However, whereas Fox et al. created different categories on the basis of these attributes, we keep the bundles the same and merely draw attention to one attribute or the other.

Figure 6

Method

Two hundred students from Tilburg University (130 females. M_{age} = 20.64, *SD* = 2.3) were assigned to one of two conditions in which they made a choice between two bundles of marbles created for this study by a local artisan.[2] Similar to the example in figure 6, the marbles were designed in such a way that on the attribute of color, bundle 1 was all-similar (all aqua) whereas bundle 2 consisted of 3 marbles that were red and 1 that was aqua. For design, bundle 2 was all-similar (all flowers), but bundle 1 consisted of 3 spirals and one flower (see figure 7).

Figure 7

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[2] Melissa Fitzgerald of the Pittsburgh Glass Center

Subjects in both conditions were instructed to choose one of these bundles, and were informed that at the end of the experiment one of them would be randomly selected to receive their chosen bundle. In the color-condition, bundle one was described as "all-aqua" and bundle two as "one aqua, three black." In the design-condition, bundle one was described as "three spirals, one flower" whereas bundle two was described as "all-flowers." If people prefer bundles with high simplicity, subjects should be more likely to pick bundle one when described as "all-aqua" as compared to the same bundles described as "three spirals, one flower."

Results

As expected, subjects were more likely to choose the bundle consisting of four marbles that were all aqua over the bundle consisting of three red and one aqua colored marble, when the description of the bundles was based on color (70%; 70/100). However, when design was emphasized, subjects were more likely to choose the bundle consisting of three red and one aqua marble ("all flowers") over the bundle consisting of four aqua marbles ("three spirals and one flower"; 61%; 61/100, $\chi(1, N = 200) = 19.38$, $p < .001$, $\varphi = .31$). These results are not only consistent with the idea that the subjective perception of order is what is causing the increased preference, but also imply that the experience of order can be manipulated by emphasizing the (ordered) attributes of goods in a bundle.

Experiment 5

Finally, to provide more direct evidence of the idea that a preference for descriptive simplicity underlies the effects demonstrated in Experiments 1-4, we conducted a study in which, similar to Experiment 4, the bundles were identical across conditions. The only difference between conditions was that subjects were presented with a simple, but arbitrary, description of

one bundle or the other. Given our explanation for the observed preferences, based on descriptive simplicity, we naturally predicted that choice sets accompanied by a simple description would be preferred.

It was key to our experimental design that the description we provided would not provide information that would cause the elements of the described choice set to seem more desirable. In the description of the methods, we explain how we designed the study to rule out such an alternative account of the results.

Method

Subjects were 147 students of Tilburg University (93 females, M_{age} = 21.50, SD = 3.0) who participated in a series of studies in the lab. When leaving the lab, these students were approached and asked whether they were willing to join a short additional study. All students agreed and were presented two CD box sets. Both of the box sets consisted of a deliberately random set of BB King albums. In both conditions, boxed-set A consisted of BB King's first, second, fourth, sixth and seventh album, and boxed-set B of BB King's second, third, fifth, sixth and seventh album. The numbers were clearly displayed on the album-cases, and it was expected that subjects would generally perceive these bundles as unordered because no clear structure seemed to exist in the choice of albums. In the first condition, boxed-set A was described as a set of all the albums BB king has ever recorded in Tuscaloosa, to create a simple description that drew connections between the disparate albums. In the second condition, a similar description was provided, but for boxed-set B – that all were recorded in Biloxi. Participants were told that at the end of the experiment one of the boxed-sets would be given to one of the participants and were asked which box they would like to receive if they were the student selected to receive a

boxed-set. If the previous effects on choice are the result of a preference for things that can be described simply, then subjects should be more likely to choose whichever box set that was accompanied by a unifying description.

People could possibly have lay theories about the music originating in some cities being better than others. Therefore we conducted a pretest in which a different group of students was asked to indicate on a 100-point slider-scale (1 = expect it to be worse, 100 = expect it to be better; slider originating at 50) the degree to which they expected a music album to be better or worse in quality if they knew it was recorded in six cities; Biloxi, Memphis, Greenville, Tupelo, Tuscaloosa, and Natchez. All cities were rated significantly different from neutral (N = 167, all *p*'s < .001) with Memphis having the highest expectations (*M* = 62) and Greenville expected to be slightly better than average (*M* = 55). The others cities, including the two towns selected on this basis for the descriptions in the experiment (Biloxi and Tuscaloosa) were expected to be slightly worse than neutral (all means between 43 and 45).

Results

As expected, participants were more likely to choose box-a when a unifying description for its contents were provided (all recorded in Tuscaloosa; 69.9%; 51/73) compared to the condition where the unifying description was provided for box-b (all recorded in Biloxi; 48.6%; 36/74,). $\chi^2(1, N = 147) = 6.85$, $p = .01$, $\varphi = .22$.

Conclusion

In 5 studies, we found that people have a strong preference for bundle of goods that can be described simply. The first three experiments were designed to provide evidence for the existence of such a preference for descriptive simplicity and to show that it can lead to patterns

of choice that violate basic standard axioms of choice. Experiment 1 showed that easily described bundles are valued higher than unordered bundles, even when the unordered bundles consist of more desirable goods. Experiment 2 showed that organizing an unordered bundle into two ordered bundles which could each be described in simple terms increased subjects' preference for the bundles. Experiment 3 showed that choices between bundles are strongly influenced by whether constituent choice objects are organized in a fashion that makes salient a simple description of the bundles.

The final two studies were conducted to provide more direct tests of descriptive simplicity as the causal factor underlying the observed patterns of choice. In Experiment 4, drawing attention to an attribute increased choice for the bundle that displayed high descriptive simplicity on that attribute. Finally, in Experiment 5, providing a simple description for an otherwise seemingly unordered set of items increased preference for the described set.

These findings show a kind of complementarity in preferences that does not correspond to complementarity in consumption. This could reflect one of two underlying causes; it could be that people mispredict utilities (Kahneman & Thaler, 2006), or that they derive real utility from parsimoniously described bundles that has nothing to do with their consumption. Because the preference for descriptive simplicity is very likely the result of an intuitive and positive response to ordered groups of stimuli (see; Wertheimer, 1923; Garner, 1906; Evers, Inbar, & Zeelenberg, 2014), choices based on these intuitions can be the correct choice or mispredictions depending on the situation. For some goods, it is perfectly reasonable to expect intuitive responses to be a good indicator for expected utility, for example works of art and other goods mainly acquired for aesthetic appeal. However, in other cases, such as choices between bundles of goods which are mainly consumed in isolation and for their functional characteristics (as in our experiments), an

initial affective response to the existence or non-existence of a simple description is likely to result in suboptimal choices.

If such an account is correct, it could be generalized to predict phenomena beyond the situations investigated here. Not only would it imply that similar effects of order should emerge for other stimuli besides goods, but also that other forms of creating or emphasizing order should result in increased liking and evaluation These could be other visual ways of creating ordered categories, for example the gestalt principles of perception are likely to cause similar effects (Wertheimer, 1923; Wagemans, Elder, Kubovy, Palmer, Peterson, Singh, and von der Heydt, 2012). But these properties could also be purely cognitive in nature, like the mere-exposure effect; an increase in preference for objects after repeated exposure (Zajonc, 1968), which is likely the result of an increased ease of processing. These ideas clearly resonate with theories of metacognitive ease (or processing fluency) which posit that things that are easier to process are liked better (e.g., Reber, Winkielman, & Schwartz, 1998). However, these theories do not predict *what* is easy to process. Our results strongly suggest that descriptive simplicity plays a causal role.

The fact that people prefer not only all-different bundles over random bundles, but also all-same bundles over random bundles strongly suggests that order preference is not derivative of the human desire for diversification (see, e.g., Simonson, 1990; Read & Loewenstein, 1995; Ariely & Levav, 2000). Instead, the reverse seems possible – i.e., that the preference for descriptive simplicity may contribute to the preference for diversification. Indeed, the fact that people make different choices with respect to diversification when they make all choice simultaneously, as opposed to sequentially (a phenomenon dubbed the "diversification bias"; Read & Loewenstein, 1995) fits very nicely with our result that order preference can produce

changes in preference that are clearly unrelated to utilities arising from consumption. Similarly, the 1/N heuristic which people are known to employ when spreading investments over multiple portfolios (Benartzi & Thaler, 2001) but also when making choices from multiple menus (Fox, Ratner, & Lieb, 2005) has been interpreted as a form of diversification that people employ to reduce risk (see; Fox, Bardolet, & Lieb, 2005). Again, it could be that, besides a deliberate strategy to reduce risk, 1/N diversification could also just be a consequence of a general tendency to prefer ordered organizations.

Economists usually view the source of preferences as lying outside the purview of their discipline. Lionel Robbins (1932), for example, in a treatise that was generally hostile to the introduction of psychological insight into economics argued that: "Why the human animal attaches particular values in this sense to particular things, is a question which we do not discuss. That is quite properly a question for psychologists or perhaps even physiologists." In this paper we seek to show that an investigation of the underlying cause of preferences can be useful, in terms of illuminating phenomena of interest to economists and revealing some of the limitations of conventionally assumed properties of choice.

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Figures

Figure 1

Display of the bundle of pens in the three conditions in Experiment 1.

All-different condition Three-same condition Bonus condition

Figure 2

Results of Experiment 1. For each condition, the bar on the left represents choice proportion for the bundle(s) of pens over the notebook as indicated on the left y-axis. The right bar represents willingness-to-pay as indicated on the right y-axis.

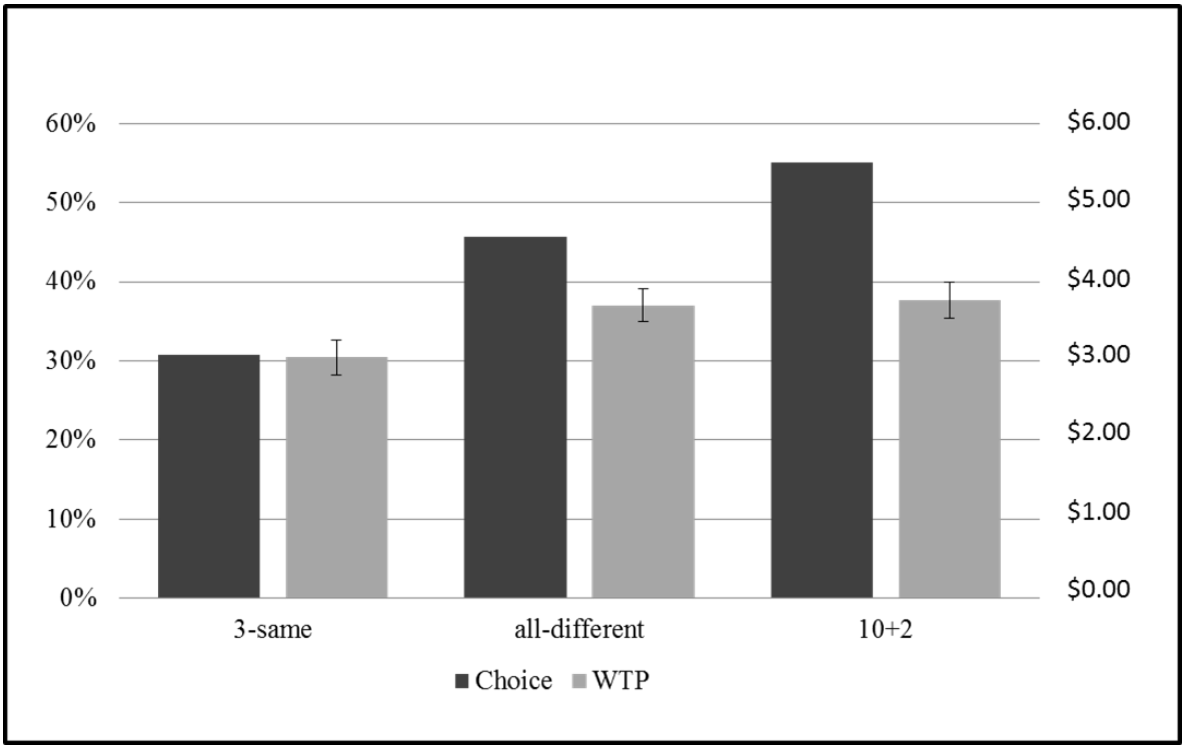
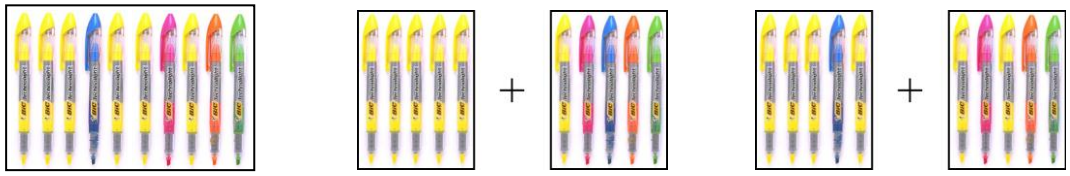


Figure 3

Display of the bundle of markers in the three conditions in Experiment 2.



One-unordered Two-ordered Two-unordered

Figure 4

Results of Experiment 2. For each condition, the bar on the left represents choice proportion for the bundle(s) of pens over the notebook as indicated on the left y-axis. The right bar represents willingness-to-pay as indicated on the right y-axis.

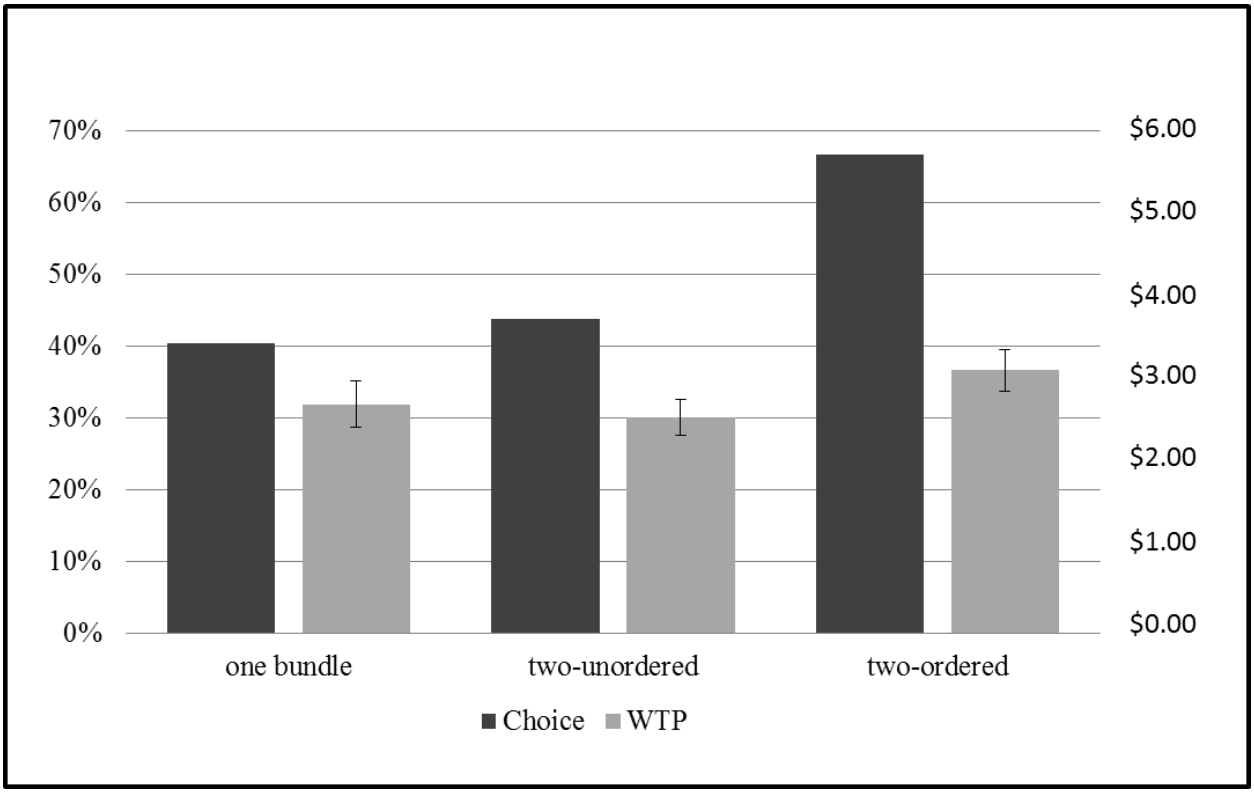


Figure 5

The two bundles of beers participants chose between in the four conditions. Note that for each condition, the two bundles only differed on the third beer which was either of the “La Trappe” or “Scheldebrouwerij” brand.

Figure 6

Illustration of perceived order being dependent on salience. When color is salient, the left bundle has higher order. However when shape is salient, the right bundle has higher order.

Figure 7

The two sets of marbles used in Experiment 4. In condition 1, the sets were described on color, in condition 2 on design.