Marketing Letters (2023) 34:251–268
https://doi.org/10.1007/s11002-022-09643-6

The role of presentation order in consumer choice: the abrupt disparity effect

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Accepted: 2 August 2022 / Published online: 20 August 2022

Abstract
Extant research in presentation of products in a product line shows that price structure of items affects consumers' decision-making. Extremeness aversion may hinder individuals to choose premium options in a product line. Thus, our paper aims at finding a viable way to promote the most expensive (and highest quality) items in relatively large choice sets. We introduce the abrupt disparity effect which suggests that the choice probability of the premium product increases when consumers are exposed to a series of items that are presented in an ascending price (and quality) order that is capped with an extremely inferior option positioned right next to the premium. In five experiments, we explore the abrupt disparity effect that has not been hitherto examined in the marketing literature. We hope to illustrate this new ordering effect, its boundary conditions, and provide novel insights to marketers.

Keywords Habituation · Contrast effect · Abrupt disparity effect · Presentation order · Product line

1 Introduction

A couple of years back, when Mercedes X-Class pickup trucks were launched in Europe, a print catalog (see Fig. 1) featured the standard and optional tires for different trim levels in a rather unconventional presentation order. In the catalog,

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Fig. 1 Mercedes Benz print catalog example

consumers viewed 7 tires named R1A through R1G. R1A through R1F were ranked in accordance with the quality and price of the tire. R1G, although coded as next in line and hence was expected to be the top of the list tire, was in fact the lowest priced and the lowest quality option. R1G was the standard tire of the entry level pickup truck offered in the X-Class lineup. While consumers are accustomed to seeing products listed in an ascending (low to high price and quality) or descending (high to low price and quality) manner, this catalog presented tires in an ascending manner in terms of price and quality but with one important distinction: as the last item on the list, an extremely low priced and quality tire was offered next to the highest priced and quality one. We believe that this presentation order was not a random act but rather a strategic move by Mercedes. We suspect that this prudent design aimed at highlighting the best option in the product line. By carefully picking the lowest priced and quality item and positioning it next to the best alternative, Mercedes might have been benefiting from a synergistic effect of two forces previously discussed in the marketing literature.

First, the *habituation* is created as a result of being exposed to a number of products that are incrementally increasing in quality and price (Helson, 1964; Petroshius & Monroe, 1987). Habituation results from adaptive behavior that desensitizes the consumer to such repetitive changes (Thompson & Spencer, 1966). Second, the *contrast* is triggered by the positioning of two extremes next to each other, highlighting a discrimination between the target and context stimulus (Sauer, 2014). We propose that these two forces are simultaneously at work to create the observed effect in the Mercedes X-Class catalog tires, which we refer to as "the abrupt disparity." We define abrupt disparity as the combined effect of habituation and contrast to generate an advantageous position for the premium product in a long sequence of items. We argue that each force alone will not suffice to generate a higher demand for the highest price/quality option, but jointly they will. In other words, when consumers are exposed to a choice list that depicts items in an ascending manner both in price and inferred quality, consumers will expect each item in line to be incrementally better than the one before. After a certain distance traveled, consumers will then get used to the norm (habituation). When, however, they abruptly come across an extremely

inferior value right next to the best option, this will create a stark divergence from the norm (contrast).

In five experiments, we validate our claims. In study 1, we explore the proposed abrupt disparity effect in a strictly controlled setting, using a generic product and clearly providing details about quality and price of each item in the list. In study 2, we test and replicate the abrupt disparity effect in a more realistic setting letting participants infer quality from price (Petroshius & Monroe, 1987). We explore the boundary conditions of the hypothesized effect, ruling out the contrast effect explanation (study 3) and showing that the abrupt disparity effect prevails only in an ascending (vs. descending) presentation order (study 4). And finally, in study 5, this time using a different product category and real brands, we replicate our findings and establish that both contrast and habituation are needed to create the abrupt disparity effect. Taken together, all the studies demonstrate that though each effect is limited in generation of demand for the best item in the choice set, in conjunction, habituation and contrast manage to highlight the highest price and quality product. Through a simple but effective approach, the premium item can be highlighted to guide consumers' decision-making.

We believe that our work is novel in two major ways: One, past research has indicated that consumers generally pick the middle option (Huber & Puto, 1983) when there is not a clear dominating alternative or when the consumers are uncertain about their preferences (Simonson & Tversky, 1992). Due to extremeness aversion, selecting extreme options in a given list is not common (Neumann et al., 2016). In our paper, however, we show that an extreme value (highest priced and quality item) can also be picked when strategically placed in the product list. Two, previous works have looked into the separate effects of habituation (e.g., Cai & Xu, 2008; Suk et al., 2012) and contrast (e.g., Petroshious & Monroe 1987; Kivetz et al., 2004). Surprisingly, no researcher to our knowledge has explored the joint effect of these two forces, which we refer to as the abrupt disparity effect.

Our work also has managerial implications. Retailers know that consumers often value the freedom associated with a large assortment (Botti & Hsee, 2010). Previous literature suggests, however, that assortment does not necessarily benefit consumers. Increasing the size of the choice set can even lead to consumer confusion, delaying choice, or even resulting in total abandonment of the purchase (Chernev, 2003). We take these insights as a point of departure to investigate a new form of presentation order that might guide consumers' decision-making by highlighting a better value for the consumer hence reducing uncertainty associated with large choice sets. When abrupt disparity is introduced in a long sequence of items, we anticipate that the consumers will be steered towards the higher quality product.

2 Conceptual background

Extant research in marketing shows that choice set configuration affects consumers' decision-making (Petroshius & Monroe, 1987; Simonson et al., 1993) and consumers often choose among options in a particular product line that is generally ordered according to price (Lynch et al., 1991; Suk et al., 2012). Due to extremeness

aversion, individuals tend to choose middle options rather than extreme values among all options presented to them (Kivetz et al., 2004; Simonson, 1989; Simonson & Tversky, 1992) as extreme options are found to be riskier (Müller et al., 2012; Sinn et al., 2007). Therefore, selecting extreme options in a choice set is rarely seen (Neumann et al., 2016). Especially when uncertainty is high, individuals opt for the middle options, avoiding extremes (Simonson & Tversky, 1992).

Consumers have been shown to form a lower internal reference price (and a lower inferred quality reference level) when prices in the product line are presented in an ascending order than in a descending order (Crompton & Jeong, 2016; Dhar & Simonson, 1992; Diehl & Zauberman, 2005; Suk et al., 2012). In the ascending price (quality) order, low-priced and low-quality products are seen as a reference, and in this case, each following option is expected to denote a price loss and a quality gain (Crompton & Jeong, 2016; Suk et al., 2012). Bitta and Monroe (1974) investigated the impact of extreme prices on customer choice. In a sequence of pricing stimuli, extreme prices are shown initially, causing price perceptions to be anchored, and the adaptation level to be pulled toward the extreme end, resulting in either depressed or amplified price judgments. They showed that when people are first exposed to relatively high or low prices for a certain product, their frame of reference or adaptation level is shifted in favor of the high or low price stimuli, depending on the product. This level is then used to provide a reference point for further pricing determinations.

In addition, based on adaptation-level theory (Helson, 1964), individuals perceive prices by comparing the actual price through their level of adaptation or the prices that they take as reference points (Petroshius & Monroe, 1987). Thus, exposure to a series of products builds an expectation concerning subsequent items' price and quality. Though price changes initially catch consumers' attention, after being exposed to a series of products, consumers "tune out" these incremental changes and desensitize to price increases which results in habituation (Thompson & Spencer, 1966). Therefore, we expect that an extremely inferior item is required to notice a divergence from the norm. This view seems to echo the theory of differential learning that suggests that the relevance of additional information depends upon its degree of novelty (Schnurr et al., 2017). Assimilation-contrast theory (Sherif & Hovland, 1961; Sherif et al., 1965) also shows that if the actual price is close to the adaptation level, individuals tend to assimilate that stimulus value but the values that are far from the reference price are seen as extreme values that create contrast effects. In other words, the attention and relevance that a new piece of information receives based on the contrast it creates. The more the divergence is from the norm, the more the impact the contrast generates.

We expect that the joint effect of habituation (to incremental increases in price and quality) and contrast (created by an extremely low value) will engender the abrupt disparity effect, shifting preferences towards the most expensive and high-quality product. The relative importance of quality over price in choice sets has already been documented in the literature (Luce et al., 1999; Simonson, 2014; Simonson et al., 1993). The strong conflict that abrupt disparity generates could favor the option that is best on the most emotion-laden attribute, such as quality (over price) (Nowlis et al., 2002). When the progression in an ascending order is

abruptly crowned by a loss in quality by the introduction of the most inferior item, the loss aversion system kicks in and resists the loss by clinging to the highest price (quality) item. Although this potential pain of loss in quality is simultaneously accompanied by a gain in costs, it is not felt as strongly due to the effect of loss aversion (Tversky & Kahneman, 1991). Thus, we argue that the high quality of the premium item rather than the low price of the inferior item will attract the customer.

Thus, we formally hypothesize the following:

H1a: In an ascending price-quality order, the placement of the lowest quality and priced item adjacent to the premium product will create an abrupt disparity effect, increasing the absolute choice share of the premium option.
H1b: In an ascending price-quality order, only an extremely low priced and quality item will create the abrupt disparity effect.
H2: Creating contrast alone will not suffice to increase the choice share of the premium option.
H3: In a descending price-quality order, the placement of the lowest quality and priced item adjacent to the premium product will not create an abrupt disparity effect (will not increase the absolute choice share of the premium option).

3 Study 1

3.1 Study 1a

3.1.1 Participants and procedures

We recruited 201 participants (177 after data cleaning[1]) from a European university in exchange for partial course credit ($M_{age} = 21.80$ years, SD = 1.64, 60.5% female). We randomly assigned them to one of the three conditions: Control, A last, and B last (see Fig. 2, study 1a). All participants were asked to pick one of the seven products presented ("Please pick which product you would consider purchasing."). As price is also an indicator of quality (Petroshius & Monroe, 1987), to make sure we give an idea to the participant about the quality of the product, we used graphs that denote both the price and the quality of each item. Note that the stimuli listed do not have a constant price quality ratio. That is, though price is linearly increasing, the quality of the products is increasing at a random rate.

In the "Control" condition, we showed the options from A to G in an ascending order. We moved the cheapest item A to the end of the list to create the "A last" condition and the second cheapest item B to the end of the list to create the "B last" condition.

[1] Duration of study completion had a large standard deviation with many values in the multiples of hundreds of seconds. The median time to completion was 41 s. We used a cutoff point of 80 s and excluded cases where it took more than 80 s to complete this task. Note that the results that will be reported hereafter are not sensitive to this cutoff.

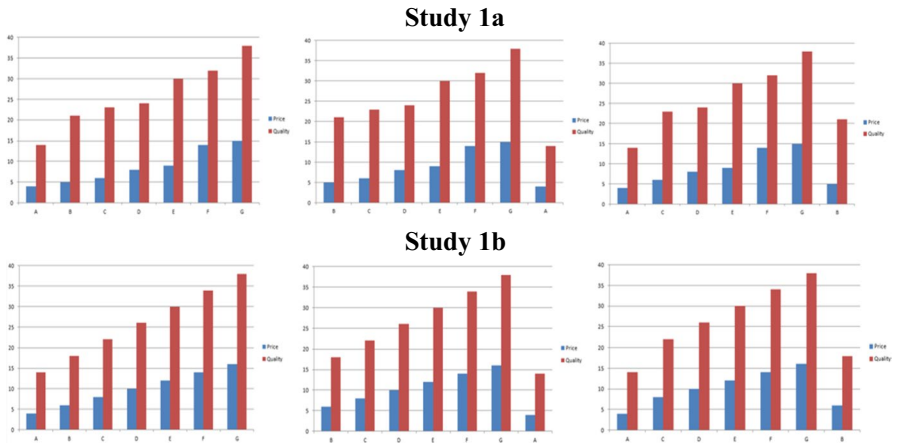


Fig. 2 Stimuli (Control, A last, B last) used in study 1a and 1b

3.1.2 Results and discussion

First, we compared A last and Control conditions. We ran a chi-square test to compare the dominating G option to the sum of the rest of the options. Under the Control condition, alternative G was chosen 40% of the time. When we moved the cheapest item A to the last position (A last condition), the choice of the premium alternative G increased significantly (χ^2 (1,120) = 4.04, $p = 0.03$) to 59%, providing support for H1a.

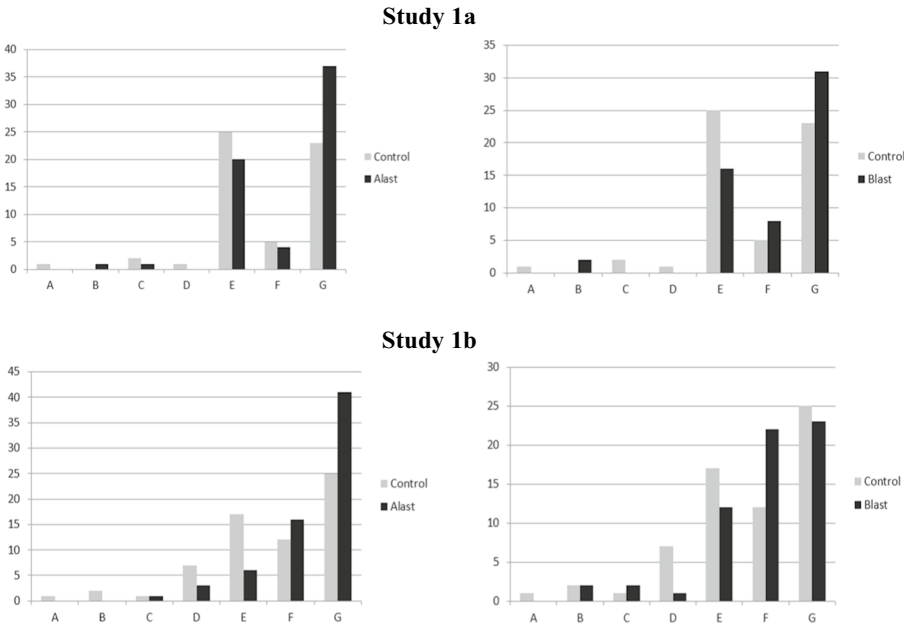


Fig. 3 The choice set histograms of study 1a and 1b

Second, we compared B last and Control conditions. When we moved the second cheapest item B to the last position (B last condition), G's share also increased (54%), yet marginally (χ^2 (1,114) = 2.25, p = 0.09) (see Fig. 3, study 1a).

3.2 Study 1b

3.2.1 Participants and procedures

We recruited 223 participants (194 after data cleaning using the same procedure as in study 1a) from a European university (M_{age} = 21.80 years, SD = 1.38, 66.1% female) and randomly assigned them to one of the three conditions (Control, A last, B last) (see Fig. 2, study 1b). This time, however, we kept the price quality ratio constant.

3.2.2 Results and discussion

We ran a chi-square test to compare the dominating G option to the sum of the rest of the options. Under the Control condition, alternative G was chosen 38% of the time. When we moved the cheapest item A to the last position in comparing A last with Control, the choice of the premium alternative G increased significantly (χ^2 (1,132) = 7.49, p = 0.007) to 61%, providing support for H1a. When we compare B last with Control by moving the second cheapest item B to the last position, however, that does not affect the choice of the best item G (χ^2 (1,127) = 0, p = 0.51) (see Fig. 3, study 1b), which remains at 37%.

Study 1a and study 1b provide initial evidence for H1a and the abrupt disparity effect under strictly controlled circumstances where price and quality information are clearly supplied to the consumer. We observe that placing an inferior value after building up expectations about the price and quality of a product (study 1b) shifts preferences towards the most premium item. Even if the quality increases in a random manner, we observe a similar trend (study 1a). Mixed results regarding the role of the next inferior option to create the abrupt disparity effect seem to imply that to create a significant abrupt disparity effect and accentuate the best item in the set, an extremely inferior value should be located adjacent to the premium item, providing preliminary evidence for H1b.

4 Study 2

Study 2 aims to replicate the preliminary findings in study 1 in a more realistic setting. This time, though we supply price information, we leave it to the customer to judge the quality of the items.

4.1 Participants and procedures

We recruited 211 participants (189 after data cleaning) from a European university (M_{age} = 21.80 years, SD = 1.38, 64.6% female). We asked them to choose one of the products of which price information (28, 37, 46, 54, 63, 72, 81 Yen) was given with their letter names (A–G) ("Imagine that you are in a hotel room in Japan. You will pick one of the noodle soups available in the bar. Which one would you pick?"). In the "Control" condition, the options were ordered from A to G in an ascending order. In A last, we moved the cheapest item A to the last position and in "B last," we moved the second cheapest item B to the last position in the soup choice set (see Fig. 4).

4.2 Results and discussion

First, we compared A last and Control conditions. We ran a chi-square test to compare the dominating G option to the sum of the rest of the options. Under the Control condition, alternative G was chosen 6% of the time. When we moved the cheapest item A to the last position (A last condition), the choice of the premium alternative G marginally increased to 16% (χ^2 (1,126) = 2.68, p = 0.08), providing partial support for H1a.

Second, we compared B last and Control conditions. When we move the second cheapest item B to the last position (B last condition) and compare B last and Control conditions, G's share increase was not statistically significant at 14% (χ^2 (1,125) = 2.05, p = 0.13), supporting H1b (see Fig. 5).

Study 2 corroborated the results of our previous study. Like in study 1, we found the effect of moving the cheapest item A to the last position steers preferences towards the most premium option (H1a). As in study 1, the next inferior option B did not suffice to create the abrupt disparity effect and highlight the premium item in the set (H1b).

Fig. 4 Stimuli (Control, A last, B last) used in study 2

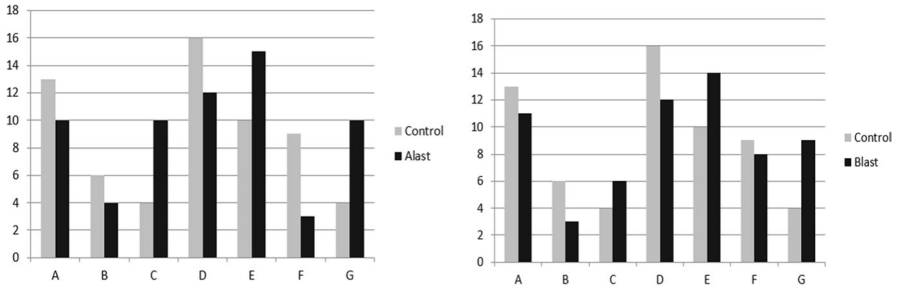


Fig. 5 The choice set histograms of study 2

5 Study 3

In both studies 1 and 2, we had ascending lists of 7 items where each product got more expensive and better in terms of (objective and perceived, respectively) quality. Right next to the last and premium option, we located the most inferior product. One might question whether the increasing demand we generate for the most premium option is in fact due to the contrast these two items create. Therefore, to rule the contrast effect explanation in creating a larger demand for the most premium option and test H2, we ran study 3.

5.1 Participants and procedure

We recruited 57 participants from Prolific (M_{age} = 29.57 years, SD = 10.76, 49.12% female) and randomly assigned them to one of the two conditions (AG vs. GA). We asked them to choose one product (A or G) ("Imagine that you are in a hotel room in Japan. You will pick one of the noodle soups available in the bar. Which one would you pick?"). In AG, A (the cheapest option) was given first and in GA, G (the most expensive option) was presented first. In both conditions, price information (28, 81 Yen) was given under the letters (A, G) and pictures of the product (soup) was shown (see Fig. 6).

Fig. 6 Stimuli (AG, GA) used in study 3

5.2 Results and discussion

We ran a *Z* test for one population proportion where the hypothesized population proportion is 0.5. When the order of choice is from A to G, out of 28 participants, 17 chose A (61%) and 11 chose G (39%). Therefore, the hypothesis that the choice probability of A equals B is not rejected ($z=1.13$, $p=0.2568$). Thus, A and G were chosen with the same probability.

When the order is from G to A, out of 29 participants, 23 chose A (79%) and 6 chose G (21%). Thus, the hypothesis that the choice probability of A equals B is rejected ($z=3.16$, $p=0.0016$). Therefore, A (which is the cheapest option) was chosen significantly more.

When both conditions were combined, out of 57 participants, 40 chose A (70%) and 17 chose G (30%), and hence the hypothesis that the choice probability of A equals B is rejected ($z=3.05$, $p=0.0023$). A, the cheapest item, was picked significantly more than the highest priced item.

With this study, we show that there is no way to highlight the premium item when only two extreme values (highest and lowest priced and quality options) are presented to the customer. In other words, creating a contrast alone only serves the cheapest item. Study 3, therefore, supports H2 and rules out the contrast effect explanation.

6 Study 4

In studies 1 and 2, we concentrated on sets using ascending price orders. In study 4, therefore, we wanted to test whether the proposed abrupt disparity effect holds when descending order presentation was employed. In other words, we would like to test H3 and see whether natural progression in prices (and quality) contributes to the abrupt disparity effect.

6.1 Participants and procedures

122 participants from Prolific (109 after data cleaning) were randomly assigned to one of the two conditions (Control vs. A first) ($M_{age}=27$ years, SD = 10.42, 54.7% female). They were asked to pick one option among seven options as in previous studies. In both conditions, a descending price order was used. In the Control condition, the options were ordered from G to A. In the other condition, we moved the cheapest item A to the first position in the soup choice set (A first) (see Fig. 7).

Fig. 7 Stimuli (Control, A first) used in study 4

6.2 Results and discussion

To compare A first (AGFECDCB) with Control (GFEDCBA), we ran a chi-square test. Under the Control condition, alternative G was chosen 14% of the time. As hypothesized, results show that moving the cheapest item A to the first position in a descending order presentation does not significantly increase the choice share of the premium alternative G (χ^2 (1,109) = 0.33, p = 0.34), which is at 10%, supporting H3 (see Fig. 8). This finding attests to our expectation that an ascending order that steadily builds up expectations about higher quality is necessary to trigger the abrupt disparity effect.

7 Study 5

With study 5, we wanted to establish that it is the expectation built up (habituation) rather than solely the contrast that leads to the abrupt disparity effect. One could argue that even if we present the first 5 products in a random manner, as long as we have GA as the last two items, G would be preferred. We argue, however, that to generate abruptness, consumers should be exposed to a monotonously increasing set of prices followed by a lower value that breaks that monotonous trend. A lower value should come last as a surprise to create that sudden and unexpected feeling. Therefore, in this study, we randomly presented the first 5 products with no dominant ascending or descending trend, followed by GA.

Further, to increase the generalizability of our studies, we employed another product category, handbags. Moreover, we used real brand names to see if the proposed effect holds when real brands instead of fictitious ones are employed. Please note that we used the same handbag image with different well-known brand names with prices at different levels to minimize any potential biases that may arise from the design of the product. Since we have three conditions (G last, A last, and Random)

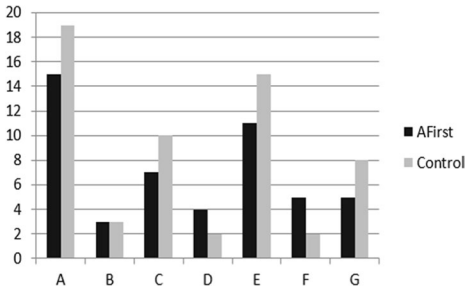


Fig. 8 The choice set histogram of study 4

with letter and brand name assignments changing across conditions (i.e., a different letter is assigned to a branded product in each condition), we hope to demonstrate it is not the brand name that drives the demand for option G but rather the position of G in the given list.

7.1 Participants and procedures

159 participants from a European university (138 after data cleaning) were randomly assigned to one of the three conditions (G last, A last, or Random condition) (M_{age} = 21.8 years, SD = 2.59, 71% female). They were asked to pick one of the seven options as in previous studies. We used three conditions: G last in an ascending order, A last in an ascending order, and Random A last. In the G last condition, the options were ordered from A to G in an ascending order. In the A last condition, we moved the cheapest item A to the last position (A last). In the Random condition, the options were ordered from B to A in a random order: BFDECGA (see Fig. 9).

Fig. 9 Stimuli (G last, A last, Random) used in study 5

7.2 Results and discussion

To compare A last (BCDEFGA) with G last (ABCDEFG), we ran a chi-square test. Under the G last condition, G was not chosen (0%). Results show that A last condition did much better in highlighting option G. The share of G increased to 14%, creating a significant difference between presentation orders (χ^2 (6,739) = 4.72, $p = 0.01$). To compare Random (BFDECGA) with G last (ABCDEFG) conditions, we ran an additional chi-square test. We discovered that Random condition is not better than G last, only yielding a 4% demand for G. In other words, there is no significant difference between Random and G last conditions in creating a demand for the premium option G (χ^2 (1,839) = 0.41, $p = 0.50$) (see Fig. 10). This finding demonstrated that both contrast and habituation are needed to create the abrupt disparity effect, supporting H1a and H2.

8 General discussion and implications

Through five experiments, we find that the abrupt disparity effect creates higher demand for the best item in large choice sets (for a summary of studies and results, see Table 1). We thereby add to prior studies examining the presentation order effects that show that the sequence in which consumers are exposed to products may change the preferred option. Previous literature suggests that having many options is not necessarily rewarding for the consumer as it may lead to consumer confusion (Chernev, 2003). Yet, consumers enjoy assortments (Botti & Hsee, 2010). Current work shows that through a simple manipulation of the presentation order, consumers' decision-making can be facilitated.

Our results also provide several managerial implications. First, online retailers might adopt the abrupt disparity effect in order to refine their re-targeting strategies (Schreiner et al., 2019) or to reorganize their electronic catalogs (Gao & Liu, 2014; Liao & Chen, 2004). Moreover, e-commerce platforms such as Amazon may revise lists of suggested items by employing abrupt disparity to highlight the premium option. Second, by placing the extreme option as the last item on a shelf, retailers might increase the possibility of the choice of the premium option in the line. Third,

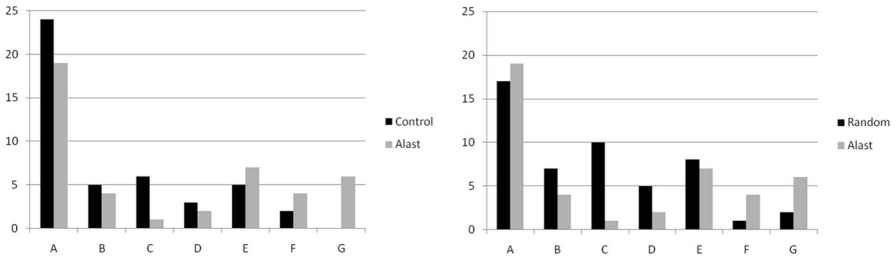


Fig. 10 The choice set histograms of study 5

Table 1 Summary of studies and results

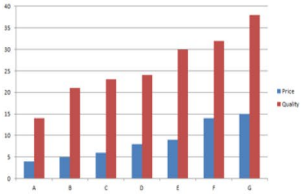
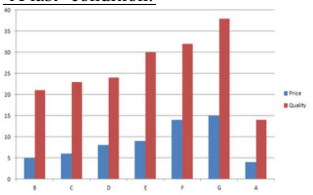
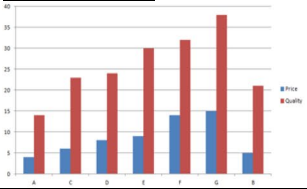
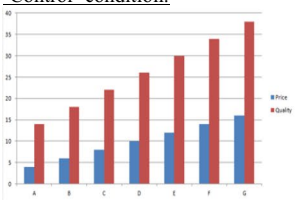
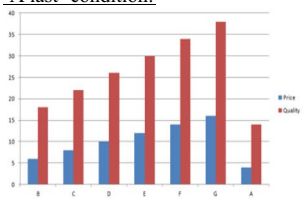
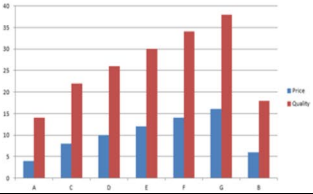
Studies	Tested hypotheses	Stimuli	Results
Study 1a	H1a	'Control' condition:  'A last' condition:  'B last' condition: 	H1a: Supported. A last condition: the choice of G increased significantly (X^2 (1,120) = 4.04, p = 0.03). B last condition: G's share increased, yet marginally (X^2 (1,114) = 2.25, p = 0.09).
Study 1b	H1a H1b	'Control' condition:  'A last' condition:  'B last' condition: 	H1a: Supported. H1b: Supported. A last condition: the choice of G increased significantly (X^2 (1,132) = 7.49, p = 0.007). B last condition: G's share did not increase (X^2 (1,127) = 0, p = 0.51).

Table 1 (continued)

Study 2	H1a H1b	'Control' condition:  'A last' condition:  'B last' condition:  	H1a: Supported. H1b: Supported. A last condition: the choice of G marginally increased (X^2 (1,126) = 2.68, p = 0.08). B last condition: G's share did not increase (X^2 (1,125) = 2.05, p = 0.13).
Study 3	H2	'AG' condition:  'GA' condition:  	H2: Supported. 'AG' condition: A and G were chosen with the same probability (z= 1.13, p = 0.2568). 'GA' condition: A was chosen significantly more (z= 3.16, p = 0.0016).

salespeople may adopt abrupt disparity in their sales pitch to effectively highlight the contrast between two extremes.

9 Limitations and suggestions for future research

Current work is an initial foray into the abrupt disparity effect demonstrating that consumers can be led to pick the most expensive and highest quality item in a given choice set. Future research should examine the isolated effect of displaying different

Table 1 (continued)

Study 4	H3	'Control' condition:  'A first' condition:  	H3: Supported. 'A first' condition: the choice share of G did not significantly increase (X^2 (1,109) = .33, p = 0.34).
Study 5	H1a and H2	'G last' condition:  'A last' condition:  'Random' condition:  	H1a and H2: Supported. A last condition: the choice of G marginally increased (X^2 (6,739) = 4.72, p = 0.01). Random condition: G's share did not increase (X^2 (1,839) = .41, p = 0.50).

attributes such as quality or consumer ratings on consumer choice. In this paper, we studied choice sets including seven items. We believe that the abrupt disparity will also hold in longer lists, as more assortment leads to more consumer confusion (Chernev, 2003). We anticipate that a presentation order that employs abrupt disparity could aid the consumers' decision-making process, highlighting the value the consumer is getting. Future research can also examine how individuals make choices about products they consume in public or privately since their evaluations regarding public or private consumption may differ (Graeff, 1996). Finally, future research should examine the role of individual difference variables such as price consciousness in determining consumer choices (e.g., Gauzente & Roy, 2012; Ketron & Spears, 2017) when abrupt disparity is used. On average, our participants opted

for the more expensive and high-quality item when faced with a trade-off. Though during uncertainty quality wins over price (Luce et al., 1999), we suspect that high price conscious consumers will still value low price over high quality. Overall, we believe that further investigation of the role of abrupt disparity in consumers' decision-making processes is a venue for further research that will likely provide valuable insights for marketers.

Data availability Data are available upon request.

Declarations

Ethics approval SOM-2018–52 approved by Sabanci University Ethics Committee.

Conflict of interest The authors declare no competing interests.

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