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Buy-one-get-one-free deals attract more attention than percentage deals☆

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ABSTRACT

Promotion deals and price reductions are common strategies retailers use to attract consumers. We investigate which of two common types of deals better captures consumers' attention. By tracing eye movements, we examine participants' attention allocation when deciding between "buy-one-get-one free" (BOGO) deals versus deals that offer an equivalent price reduction. Results show that people prefer BOGO deals, and they tend to choose them over price reductions even when the deals are equal in terms of net value. The preference is amplified when the discount is relatively high: In these cases, BOGO deals attract more attention than percentage deals. Overall, our findings can help retailers develop promotional strategies to capture potential consumers' attention in online commerce. At the same time, our results warn consumers to better evaluate their options and not be lured by the first BOGO deal that captures their attention, as it might not be the best deal available.

1. Introduction

Online commerce is an ever-increasing industry with an annual growth rate of > 16%. In the second quarter of 2017—in the United States alone—the total revenue of online commerce totaled $105.1 billion, which accounted for 8.2% of the total sales in that period (U.S. Department of Commerce, 2017). As online commerce grows, so does the competition: Well-known companies (e.g., Amazon, eBay, Groupon) as well as small businesses are continuously striving to devise novel promotional tools to increase their market share and boost financial returns. Among the different strategies that companies have at their disposal to lure customers into higher and more frequent purchases, promotion deals are perhaps the most widely used (Bogomolova, Dunn, Trinh, Taylor, & Volpe, 2015). These strategies tend to be well received by customers (Blattberg & Neslin, 1989), and because of their potential, it is important for retailers to better understand how to tailor them to maximize their impact of sales. We examine how two different promotion deals, namely, buy-one-get-one-free and discount deals, attract consumers' attention when presented side by side on a computer screen – a setting that closely resembles the online purchasing experience. Furthermore, we look at whether the preferences for, and attention allocation to, such promotion deals differ across discount levels.

2. Theoretical background

2.1. Promotion deals

One of the most prominent ways retailers can attract consumers to purchase their products is to offer discount deals. Indeed, promotional deals increase buying intentions by enhancing the value of a certain product (Grewal, Krishnan, Baker, & Borin, 1998; Lattin & Bucklin, 1989). Deals can generally be classified into two types: Some add a free product upon the purchase of some quantity of either related or unrelated products. Such deals are called "buy-one-get-one-free" (BOGO) deals, "free gifts", or "bundle offers", and refer to promotions such as "buy a necklace and get earrings for free" (Raghubir, 2004; for further reading on the psychology of "free gifts" see Shampanier, Mazar, & Ariely, 2007; Mazar, Shampanier, & Ariely, 2016).

Other deals use a percentage discount of the original price, such as "50% off" (Sinha & Smith, 2000). From a rational standpoint, the market value of a product should not be affected by the type of deal. Put differently, a rational consumer should be indifferent between a BOGO deal and another deal offering a 50% discount upon the purchase of two items. However, research on framing effects and prospect theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1974; but see Gal & Rucker, 2018) proposes that people consider the two offers differently:

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from the consumer's reference point, BOGO deals are perceived in terms of additional gains, whereas discount deals are perceived in the form of reduced losses (Diamond & Sanyal, 1990).

Several studies have examined the effect of these two types of deals on consumers' preferences (see Krishna, Briesch, Lehmann, & Yuan, 2002, for a meta-analysis) and evaluations of the products offered. For instance, Raghubir (2004) suggested the value-discounting hypothesis, according to which price bundles decrease the perceived value of the product offered as a gift and result in lower willingness to pay for the free gift as a stand-alone product. In line with these findings, and according to prospect theory's (Kahneman & Tversky, 1979) predictions, overall, people tend to prefer percentage deals to BOGO deals (Diamond & Sanyal, 1990). However, this preference reverses when a percentage deal is a multi-buy deal as well, i.e., when it requires the purchase of some quantity of the product (e.g. "buy 2 and get 50% off"). In this situation, BOGO deals are preferred over percentage deals, arguably because the percentage deals include an aversive purchasing compulsion (Sinha & Smith, 2000). Furthermore, children tend to prefer BOGO deals even when they are objectively inferior to percentage deals (Boland, Connell, & Erickson, 2012). Lastly, when price reduction is large, people prefer BOGO deals to package enlargement that results in equal savings (Hardesty & Bearden, 2003).

Clearly, different deals affect people's preferences and behavior differently. However, little is known about the cognitive processes associated with these preferences. Those include for instance the number of gazes people devote to each type of deal, which may be considered a proxy of their preference. Understanding these processes can be useful for retailers when designing promotion deals and trying to stand out among the vast range of products from which consumers need to choose. Here, we use eye-tracking methodologies to examine whether BOGO deals capture more attention than percentage deals, whether this depends on discount level, and whether this relates to the choices that people make.

2.2. Consumer behavior and attention allocation

In recent years, eye-tracking measures have been extensively used as a measurement of implicit attention and motivational processes (Fiedler, Glöckner, Nicklisch, & Dickert, 2013; Orquin & Mueller-Loose, 2013). The general finding is that people tend to fixate longer on the option they end up choosing (Shimojo, Simion, Shimojo, & Scheier, 2003), and that their attention shifts toward the more favorable or preferred option (Balcetis & Dunning, 2006; Gable & Harmon-Jones, 2010). For example, studies have found that dieters look longer at foods (Papies, Stroebe, & Aarts, 2008), smokers at cigarettes (Mogg, Bradley, Field, & De Houwer, 2003), and heavy drinkers at alcohol (Townshend & Duka, 2001). This attention shift influences subsequent behavior. For instance, when given an option to profit from misreporting the outcome of a die roll, people who fixated longer on irrelevant yet tempting information (i.e., an outcome different than the one they were instructed to report) were more likely to use this information to increase their payoff (Pittarello, Leib, Gordon-Hecker, & Shalvi, 2015).

In the marketing domain, eye-tracking techniques have been used to provide valuable insights into consumer behavior. For example, the location of products on supermarket shelves influences consumers' behavior through visual attention (Chandon, Hutchinson, Bradlow, & Young, 2009). Similarly, click-through rates on internet banners have decreased because they fail to attract people's attention (Drèze & Hussherr, 2003). Conversely, people look longer and more often at salient and self-relevant information (Bee, Prendinger, Nakasone, André, & Ishizuka, 2006; Glöckner, Fiedler, Hochman, Ayal, & Hilbig, 2012).

We conducted two experiments to examine how people weigh different types of promotion deals appearing on a computer screen – a setting resembling online shopping. We asked participants to choose between two deals—one presented as a BOGO deal and one as a percentage deal. To make the deals as equal as possible, both types of deals were presented as multi-buy deals. In the experimental trials, the net value - as well as the total number of products being purchased - of the two deals was identical, whereas in the filler trials, one deal was objectively better than the other. For example, in an experimental trial, participants had to choose between a "buy 2 get 1 free" deal, and a "buy 3 get 33% off" deal. Conversely, in a filler trial participants had to choose between a "buy 3 get 2 free" deal, and a "buy 5 get 20% off" deal. We tracked participants' eye movements during the decision phase to examine how their attention was allocated between the two alternatives.

The first goal of the current experiments was to replicate previous findings showing that when choosing between a BOGO deal and a multi-buy percentage deal (i.e., a percentage deal that requires purchasing some quantity of items), people prefer BOGO over percentage deals (Sinha & Smith, 2000). Our second goal was to examine how these deals shape participants' attention, here measured via eye movements. Because attractive information draws attention (Meißner, Musalem, & Huber, 2016), we predicted that people would look more at BOGO deals than at percentage deals. Additionally, we explored how different levels of discounts moderate the predicted effect.

All data are available on the Open Science Framework (https://osf.io/5qk8y/?view_only=ec31136919474e7ebbfccb5703b37d73). No participants were excluded from any of the analyses, and all independent variables and manipulations are reported in the Method section and the SOM.

3. Experiment 1

3.1. Method

3.1.1. Participants

Thirty undergraduate students from an Israeli university (20 females, M_{age} = 25.13, SD_{age} = 1.74) participated in the experiment in exchange for a show-up fee of 25 ILS (~$7).

3.1.2. Measures and procedure

Participants were seated in a private cubicle, 60 cm from a 24-in computer monitor (1280 × 1024 maximal resolution). Eye movements were recorded using a Tobii T120 Eye Tracker (sampling rate = 120 Hz; accuracy = 0.45°), with a standard 9-point eye-tracking calibration.

Participants were presented with 96 trials in which they had to choose between two brands of the same product (e.g., cookies, mayonnaise) each associated with a different deal. Participants were instructed not to choose based on their favorite brand but only according to the deal they thought was financially better. Specifically, the verbatim instructions were "Choose the product that represents the deal you think is better". To increase engagement in the task, participants were told that at the end of the experiment one trial would by randomly chosen, and if they correctly picked the better deal, they would receive additional 5 ILS (~$1.5).

In each trial, one deal was a percentage discount ("buy 2, get 50% off") and the other was a BOGO discount ("buy 1 get 1 for free", see Fig. 1; for the complete list of trials, see the Appendix A). Because a recent review of eye-tracking studies (Orquin & Mueller-Loose, 2013) identified stimulus characteristics that influence gaze behavior (i.e., saliency, size, visual clutter, and location), in the current experiment, we sought to control for those characteristics to rule out possible artifacts. Hence, the presented deals were similar in terms of word count and reading time in order to limit any effect of presentation format on eye movements. Specifically, both deals consisted of three words and two numeric values, were located the same distance from the center of the screen, and their order of presentation was counterbalanced. Finally, BOGO deals consisted of 16 characters, and percentage deals consisted of 18 characters. Although sentence length (in textual terms) influences fixation duration (see Pieters & Wedel, 2004; Reichle,

Fig. 1. Example of an experimental trial in Experiment 1.

Rayner, & Pollatsek, 2003), the minor difference in character quantity between the two types of deals provides a conservative test for the idea that people fixate more on the BOGO deals (which consisted of fewer characters) than on the percentage deals (which consisted of more characters). If sentence length would drive our results, rather than type of deal, we should find more fixations on percentage deals than on BOGO deals.

In each trial, a fixation cross appeared on the screen for 500 milliseconds. Next, the fixation cross disappeared, and the two products and their deals were presented respectively on the right and on the left side of the fixation cross for 6 s. Then the products disappeared, and participants were asked to press the key (using the keyboard) corresponding to their chosen deal. Once participants responded, the next trial began.

Of the total 96 trials, 32 were experimental trials in which the two deals were equal in terms of value (e.g., "buy 5 and get 40% off" vs. "buy 3 and get 2 for free"). To make sure participants would keep trying to identify the financially "best deal," the other 64 trials were filler trials in which one deal was better than the other. Within subjects, we manipulated the magnitude of the deals, so that participants were presented with deals that yielded a discount of 20%, 25%, 33%, or 40%. We counterbalanced the order of presentation of the deals (left to right) and the matching of each deal to each product.

After completing the task, participants completed the approach-avoidance temperament questionnaire (Elliot & Thrash, 2010), designed to assess their approach ($\alpha = 0.795$) and avoidance ($\alpha = 0.819$) motivation (see all items in the supplementary materials). The participants indicated on a 7-point Likert scale the extent to which they agreed with 12 statements. For example, "By nature, I am a very nervous person" (avoidance) and "Thinking about the things I want really energizes me" (approach). Additionally, participants completed the 10-item Rational-Experiential inventory (REI-10; Epstein, Pacini, Denes-Raj, & Heier, 1996), which assesses people's thinking styles (*intuitive* or *rational thinking*) by means of two sub-scales (*Faith in Intuition*, $\alpha = 0.784$ and *Need for Cognition*, $\alpha = 0.743$). Participants rated on a 5-point scale the extent to which 10 items (five for each subscale) were characteristic of them (1 = *Very unlike me* and 5 = *Very like me*). Because these scales were exploratory and outside the main goal of our current research, we report their results in the supplementary materials.

3.1.3. Validity threats

In the current experiment, we took measures to reduce potential validity threats that are common in eye-tracking studies (Orquin & Holmqvist, 2018): To avoid making inappropriate comparisons, we used a large set of stimuli (i.e., 32 different stimuli) that are very similar to each other in terms of length, size, and character count, and differ only on the relevant features (i.e., the type of deal). Using a large set of stimuli also reduces to a minimum the threat of under sampling and the effects of random stimulus features. To avoid drawing unwarranted conclusions from multiple analyses, we only make a few, specific, and theory-driven ex-ante comparisons. To increase data quality and capture rate, we used rather large areas of interest (358 × 406 pixels), with a relatively low width-to-length ratio (1.13), which was shown to improve capture rate (Orquin & Holmqvist, 2018). Finally, to avoid threats of peripheral processing, which may result in processing the stimulus without fixating on it, the stimuli appeared relatively distant from each other, with a distance of 218 pixels (5.77 cm) between the closest edges.

3.2. Results

3.2.1. Filler trials

In the filler trials, where one deal was objectively better than the other, participants selected the financially better deal in 78.4% of the trials (1505 of 1920), which was greater than chance, $\chi^2 = 336.51$, $p < .001$. Participants more often selected the financially worse deal when the BOGO deal was worse than the percentage deal (32.40% chose BOGO, 311 of 960) compared with situations in which the BOGO deal was better than the percentage deal (10.83% chose percentage deal, 104 of 960). A generalized linear mixed model logistic regression controlling for the random effect of participants, with type of the better deal predicting participants' accuracy revealed that this difference was highly significant, $F(1, 1918) = 128.37$, $p < .001$, $b = 1.46$, 95% CI = [1.206, 1.711].

3.2.2. Percentage vs. BOGO deals

In the experimental trials, where the two types of deals were of equal net value, we replicated previous findings (Sinha & Smith, 2000), as participants selected BOGO deals (74.89%, 719 of 960) over percentage deals (25.10%, 241 of 960), which was significantly different from a non-preferential 50%–50% distribution, $\chi^2 = 126.86$, $p < .001$.

3.2.3. Discount level

To enable us to take into account the effects of discount magnitude, we split the discount levels into low discounts (20% and 25%) and high discounts (33% and 40%). We ran a generalized linear mixed model logistic regression controlling for the random effect of participants, with the discount level predicting participants' selected deal. The analysis revealed that discount level influenced selections, with participants being more likely to select BOGO deals when the discount was high (77.71%, 373 of 480) than when it was low (72.08%, 346 of 480), $F(1, 958) = 4.72$, $p = .030$.

3.2.4. Gaze behavior

We ran a generalized linear mixed model controlling for the random effect of participants, with discount level (high vs. low), deal type (BOGO vs. percentage), and their interaction predicting fixation count on each of the two products in the experimental trials. The analysis revealed a deal type × discount level interaction, $F(1, 1792) = 24.33$, $p < .001$ (see Fig. 2). When the discount level was high, participants exhibited more fixations on BOGO deals ($M = 9.73$, $SD = 3.35$) than on percentage deals ($M = 8.85$, $SD = 3.47$), $F(1, 1792) = 15.85$, $p < .001$, $b = 0.87$, 95% CI = [0.441, 1.299]. However, when the discount level was low, participants exhibited fewer fixations on BOGO deals ($M = 9.04$, $SD = 3.20$) than on percentage deals ($M = 9.69$, $SD = 3.58$), $F(1, 1792) = 8.94$, $p = .003$, $b = -0.65$, 95% CI = [−0.223, −1.073]. The main effects for deal type and discount level were not significant (F's < 1).

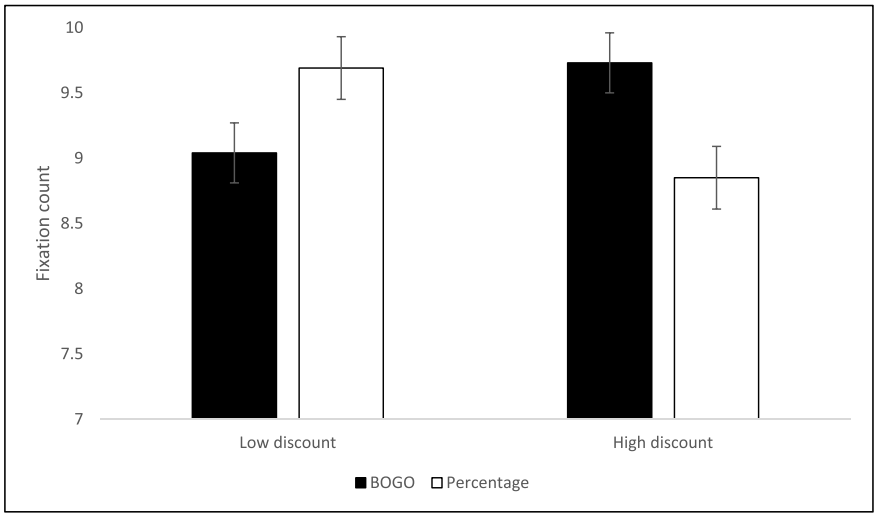

Fig. 2. Total number of fixations on each of the deal types (BOGO vs. percentage) in the two discount-level conditions in Experiment 1. Error bars represent 95% CI.

3.3. Discussion

Experiment 1 revealed that people fixate more often on percentage deals than on BOGO deals when the discount is low. When discount level is high, people fixate more often on BOGO deals than on percentage deals. Additionally, BOGO deals tend to be chosen over percentage deals, especially when the discount level is high. Taken together, it seems that when the net value of the discount increases, BOGO deals become more attractive than percentage deals.

However, Experiment 1 has some limitations challenging the interpretation of the results. First, the instructions might have been somewhat confusing for participants, since we asked participants to choose the financially best deal, when in fact, in the experimental trials an objectively better deal was not available. Further, participants' choices had no consequences, potentially limiting their motivation to exert effort and carefully compare the two deals in the experimental trials, which may pose a threat to the external validity of our findings. Finally, participants were always exposed to the two deals for a fixed time of 6 s. Fixing exposure time has advantages, because it ensures that participants can take enough time to process both stimuli. However, it can also complicate the interpretation of the data, because participants may adjust their gazes to fit the time window which may attenuate gaze differences between options (Orquin & Holmqvist, 2018). Finally, when people shop online they can usually look at deals as long as they want; fixed exposure times therefore pose a threat to external validity.

We devised Experiment 2 to address these limitations, and with the goal of replicating the results obtained in Experiment 1 using a larger sample. We made the following modifications: (1) asking participants to choose the deal they prefer, instead of choosing the 'best deal', (2) incentivizing participants' choices, (3) having an unlimited exposure time while the deals were presented, (4) providing choices between pairs of identical products with different deals, to avoid influence of preference for specific products, and to increase similarity to real purchasing situations where people look for the best deal for a specific product, and (5) controlling for participants' numeracy skills (Weller et al., 2013) which might affect their ability to properly compare the different deals (Tan & Bogomolova, 2016). Additionally, those modifications allowed us to examine purchasing behavior that more closely resembles online shopping. When consumers shop online, they often look for a specific product and compare prices offered by multiple retailers, rather than looking for different products from the same retailer. Thus the task used in Experiment 2 mimics this online shopping experience.

4. Experiment 2

4.1. Method

4.1.1. Participants

Fifty undergraduate students from an Israeli university (25 females, M_{age} = 24.72, SD_{age} = 2.35) participated in the experiment in exchange for a show-up fee of 25 ILS (~$7).

4.1.2. Measures and procedure

Participants were seated in a private cubicle, 60 cm from a 24-in computer monitor (1280 × 1024 maximal resolution). Eye movements were recorded using a Tobii T120 Eye Tracker (sampling rate = 120 Hz; accuracy = 0.45°), with a standard 9-point eye-tracking calibration.

The task was similar to that of Experiment 1, with several modifications. Participants were presented with 96 trials in which they had to choose between two proposed deals to purchase one of four types of chocolate bars. Each trial presented two identical chocolate bars, each representing a different deal. Specifically, the participants were asked to choose the deal that they preferred, using the keyboard. In each trial, one deal was a multi-buy percentage discount ("buy 2, get 50% off") and the other was a BOGO discount ("buy 1 get 1 for free", see Fig. 3; see the Appendix A for the complete list of trials). To incentivize participants, after the completion of the experiment, one trial was randomly selected and participants could purchase the product displayed on the corresponding trial according to the deal they preferred. As in Experiment 1, the presented deals were similar in terms of word count,

Fig. 3. Example of an experimental trial in Experiment 2.

character count and reading time in order to limit any effects of presentation format on eye movements.

In each trial, a fixation cross appeared on the screen for 500 milliseconds. Next, the fixation cross disappeared, and the two deals were presented on the right and on the left side of the fixation cross until participants gave a response by pressing the key corresponding to their preferred deal. Once participants made their choice, the next trial began.

Of the total 96 trials, 32 were experimental trials in which the two deals were equal in terms of value (e.g., "buy 5 and get 40% off" vs. "buy 3 and get 2 for free"). To keep participants engaged throughout the task, the other 64 trials were filler trials in which one deal was better than the other. Within subjects, we manipulated the magnitude of the deals, so that participants were presented with deals that yielded a discount of 20%, 25%, 33%, or 40%. We counterbalanced the order of presentation of the deals (left to right) and the matching of each deal to each product.

After completing the task, participants completed the Abbreviated Numeracy Scale (Weller et al., 2013) to assess their numeral abilities. The scale includes eight items such as: "If the chance of getting a disease is 10%, how many people would be expected to get the disease out of 1000?". Additionally, to control for liking effects, participants indicated what was the maximum price they were willing to pay for each of the products presented in the experiment.

4.1.3. Validity threats

We employed the same measures as in Experiment 1 to reduce potential validity threats, with two differences. First, in Experiment 2 the size of the areas of interest was 298 × 566 pixels, yielding a width-to-length ratio of 1.90, which is slightly higher than in Experiment 1, but still allows for a good capture rate (Orquin & Holmqvist, 2018). Second, the distance between the closest edges of the stimuli was 286 pixels (7.57 cm), which is larger than the distance in Experiment 1, reducing the threat of peripheral processing even further. All other measures we used in Experiment 1 were also implemented in Experiment 2.

4.2. Results

4.2.1. Filler trials

As in Experiment 1, in the filler trials, where one deal was objectively better than the other, participants preferred the better deal in 73.94% of the trials (2366 of 3200), which was significantly greater than chance, $\chi^2 = 389.01$, $p < .001$. Participants more often chose the financially worse deal when the percentage deal was better than the BOGO deal (34.88% chose BOGO, 558 of 1600) compared with trials in which the BOGO deal was better than the percentage deal (17.25% chose percentage deal, 276 of 1600). A generalized linear mixed model logistic regression controlling for the random effect of participants, with type of the better deal predicting participants' accuracy revealed that this difference was highly significant, $F(1, 3198) = 134.25$, $p < .001$, $b = 1.02$, 95% CI = [0.849, 1.195]. As a robustness check, we entered into the model participants' numeracy score and willingness to pay for the different products in the experiment. This did not affect the pattern of the results. The analysis further revealed that numeracy was positively associated with choosing the financially best deals, $F(1, 3193) = 6.02$, $p = .014$, $b = 0.16$, 95% CI = [0.032, 0.283]. Finally, the willingness to pay for the different products had no effect on the number of times people chose the financially worse deal (Fs < 1.13, ps > .343).

4.2.2. Percentage vs. BOGO deals

In the experimental trials, where the two types of deals were of equal value, we replicated the results from Experiment 1, as participants preferred BOGO deals (67.19%, 1075 of 1600) over percentage deals (32.81%, 525 of 1600), which was significantly different from a non-preferential 50–50 distribution, $\chi^2 = 97.41$, $p < .001$.

4.2.3. Discount level

As in Experiment 1, to test for the magnitude of the discount, we split the discount levels into low discounts (20% and 25%) and high discounts (33% and 40%). We ran a generalized linear mixed model controlling for the random effect of participants, with the discount level predicting participants' preferred deal. Replicating the results from Experiment 1, the analysis revealed that discount level influenced preferences, with participants being more likely to prefer BOGO deals when the discount was high (72.63%, 581 of 800) than when it was low (61.75%, 494 of 800), $F(1, 1598) = 25.23$, $p < .001$, $b = 0.59$, 95% CI = [0.361, 0.824]. To check for robustness, we included in the model participants' numeracy and their willingness to pay for the different products in the experiment. Including these measures did not change the effect of the discount level ($F(1,1593) = 25.38$, $p < .001$, $b = 0.60$, 95% CI = [0.364, 0.828]. Additionally, none of the control variables significantly affected participants' preferred deal (Fs < 2.49, ps > .114).

4.2.4. Gaze behavior

Due to a technical error, eye tracking data from one participant was not recorded. Hence, the analysis of the eye tracking data included 49 participants. We ran a generalized linear mixed model with discount level (high vs. low), deal type (BOGO vs. percentage), and their interaction predicting fixation count on each of the two deals in the experimental trials. The analysis revealed a main effect for discount level, $F(1,3132) = 27.68$, $p < .001$ and a main effect for deal type, $F(1,3132) = 11.23$, $p = .001$. Replicating the results of Experiment 1, those effects were qualified by deal type × discount level interaction, $F(1, 3132) = 4.89$, $p = .027$. When the discount level was low, participants exhibited more fixations on percentage deals ($M = 5.31$, $SD = 4.80$) than on BOGO deals ($M = 4.60$, $SD = 4.44$), $F(1, 3132) = 15.46$, $p < .001$, $b = 0.71$, 95% CI = [0.356, 1.063]. However, when the discount level was high, participants had similar number of fixations both on percentage deals ($M = 4.36$, $SD = 4.03$) and on BOGO deals ($M = 4.21$, $SD = 3.83$), $F < 1$.

As in the previous analyses, we ran an additional model including participants' numeracy and willingness to pay for the different products as a robustness check. The main effects of discount level ($F(1, 3127) = 27.68$, $p < .001$) and deal type ($F(1, 3127) = 11.23$, $p = .001$), as well as the deal type × discount level interaction ($F(1, 3127) = 4.89$, $p = .027$) remained significant, whereas none of the control variables affected the fixation count (Fs < 3.76, ps > .053).

5. General discussion

For companies to sell their products in a competitive market, especially in one as the online commerce, it is crucial to develop effective ways to promote sales. Promotion deals are a powerful and easy-to-implement tools, and nearly half of all food items are being sold under some type of promotion deal (Bogomolova et al., 2015). Yet, choosing how to present these deals is not trivial: For a deal to be effective, it must be implemented wisely. Our findings suggest that not all promotion deals are equal in the amount of attention they attract.

In two experiments, we found that when a promotion deal requires the purchase of a certain quantity of items (i.e., a multi-buy deal), people prefer deals that are presented as giving them some of the items for free (i.e., BOGO deals) over deals that are presented as a price reduction (i.e., percentage deals). Interestingly, this preference leads some people to choose a financially worse deal when it is presented as a BOGO deal than when it is presented as a percentage deal. That is, people at times seem to exhibit suboptimal preferences (Shafir & LeBoeuf, 2002) and favor a less profitable deal if it is presented in a more attractive manner. This cannot be explained by people's numeral abilities. Numeral abilities were positively associated with accuracy in detecting financially better deals, but nevertheless, did not prevent people from choosing financially worse deals – especially when the

worse deal was more attractively presented, i.e., as a BOGO deal.

Previous research has shown that for larger discounts, people prefer price reductions to package enlargement (Hardesty & Bearden, 2003). Challenging this finding, here we found that when a percentage deal requires a purchase of a certain quantity of items, the preference for BOGO deals is stronger when the discount level is high (vs. low). Consumers are less likely to process information extensively when discount levels are high versus more moderate (Grewal, Marmorstein, & Sharma, 1996). Hence, when purchasing a certain quantity of items is not required, high discounts are preferable to large bonus packs, because the consumer can more easily understand and process a discount (Diamond & Campbell, 1989; Hardesty & Bearden, 2003). However, when consumers must purchase a certain quantity of an item to enjoy the price discount, that percentage promotion is as complex as a BOGO deal. Therefore, when the discount level is high, and consumers are less invested in processing the information, they may follow their initial preferences and choose BOGO deals over percentage deals.

Complementing the interpretation of different information processes as the cause for the effect of discount levels on the preferred deal, the current research also reveals that consumers' attention allocation to the different types of deals is influenced by the magnitude of the discount. Generally, percentage deals are more difficult to process than BOGO deals (Tan & Bogomolova, 2016). Indeed, when discount level was low, which as described above should lead to more thorough information processing (Grewal et al., 1996), people exhibited more fixations on percentage deals than on BOGO deals, suggesting that percentage deals indeed required more re-fixations (an indicator of attention) to be sufficiently processed and understood (Rayner, 2009). When the discount level was high, however, and participants presumably processed information less thoroughly, their attention was drawn to the BOGO deals – people no longer fixated more often on percentage deals than on BOGO deals (Experiment 2) or even fixated more often on BOGO deals than percentage deals (Experiment 1). This increase in fixations on BOGO deals when discount levels were high was associated with an increase in choosing BOGO deals over discount deals.

One interesting question not addressed by our research is the possible moderating role of the type of product on consumers' attention. For instance, research has shown that people prefer percentage deals for vice products (i.e., products that grant immediate satisfaction, e.g., chocolate) and BOGO deals for non-vice products (i.e., products that grant long-term payoffs, e.g., vegetables; Wertenbroch, 1998), arguably in order to refrain from consuming more of a vice product (Mishra & Mishra, 2011). Interestingly, in our second experiment participants were exposed to only vice products (i.e., chocolate bars), yet, we found a preference for BOGO deals over percentage deals, especially when discount levels were high. Of course, in our experiment, both types of deals required the purchase of the quantity of products, making the motivation to stay away from BOGO deals in order to refrain from consuming more of a vice product irrelevant. The question is, whether the preference we found for BOGO deals would even be stronger for non-vice products, or if an equal quantity of products in deals undoes differences in preference for deal type for vice and non-vice products.

6. Conclusion

Customers often spend minimal effort on processing information regarding prices and discounts, especially when discount levels are high (Chen, Monroe, & Lou, 1998; Grewal et al., 1996; Hardesty & Bearden, 2003). Here, we show that when discounts are high, consumers' attention shifts more toward BOGO deals than toward percentage deals, and that this is accompanied by an increase in choice for BOGO deals over discount deals. In today's world of online commerce, when consumers are exposed to hundreds of products, deals, and promotions, the ability of retailers to attract potential consumers' attention is key. By offering the most attractive deal, companies may be able to increase their sales and revenues. Consumers, at the other end, may realize that it is worthwhile to more thoroughly evaluate offers when they understand how retailers can steer their attention by presenting tempting BOGO deals.

Appendix A. Complete list of trials in Experiments 1 & 2 (each combination was presented 4 times in each experiment, each with repetition with different products)

Deal on the left	Deal on the right
Buy 2 get 1 for free	Buy 3 get 33% off
Buy 2 get 1 for free	Buy 4 get 25% off
Buy 2 get 1 for free	Buy 5 get 40% off
Buy 3 get 1 for free	Buy 3 get 33% off
Buy 3 get 1 for free	Buy 4 get 25% off
Buy 3 get 1 for free	Buy 5 get 20% off
Buy 3 get 2 for free	Buy 3 get 33% off
Buy 3 get 2 for free	Buy 5 get 20% off
Buy 3 get 2 for free	Buy 5 get 40% off
Buy 4 get 1 for free	Buy 4 get 25% off
Buy 4 get 1 for free	Buy 5 get 20% off
Buy 4 get 1 for free	Buy 5 get 40% off
Buy 3 get 33% off	Buy 2 get 1 for free
Buy 3 get 33% off	Buy 3 get 1 for free
Buy 3 get 33% off	Buy 3 get 2 for free
Buy 4 get 25% off	Buy 2 get 1 for free
Buy 4 get 25% off	Buy 3 get 1 for free
Buy 4 get 25% off	Buy 4 get 1 for free
Buy 5 get 20% off	Buy 3 get 1 for free
Buy 5 get 20% off	Buy 3 get 2 for free
Buy 5 get 20% off	Buy 4 get 1 for free
Buy 5 get 40% off	Buy 2 get 1 for free
Buy 5 get 40% off	Buy 3 get 2 for free
Buy 5 get 40% off	Buy 4 get 1 for free

Appendix B. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jbusres.2019.02.070.

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