

Consumer Decision-Making Under Decoys: How Price, Quantity, and Quality Shape the Attraction Effect

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ABSTRACT

This paper examines how different decoy attributes influence consumer behaviour among three different car options. Participants were randomly assigned to one of four experimental conditions: A control condition with no decoy and three experimental conditions with a decoy. This decoy is an inferior option that was added in order to manipulate how consumers view the price, quantity, or quality of a target and a competitor good with the goal of shifting consumer preference towards this target good (in the case of this study, Car B). Across all conditions, the presence of a decoy significantly increased consumer preference towards the target option, which demonstrated the robustness of the attraction effect. My study also found that the Quantity Decoy created the strongest shift in preference, followed by the Price Decoy and then the Quality Decoy. These findings suggest that consumers rely much more heavily on numerical and more objective attributes when comparing goods such as price or quantity, as opposed to more subjective and qualitative attributes such as quality. My study also demonstrates how education level does not meaningfully impact the power of the attraction effect. This asserts that the attraction effect reflects general cognitive processes in the brain rather than demographic differences. Overall, my findings support already established theories like the idea of asymmetric dominance, heuristic processing, and context-dependent decision making. Additionally, this paper discusses consumer behavior and how firms can design their choice environment.

INTRODUCTION

In our modern society, consumers are surrounded by an environment saturated with options. Whether they are deciding what candy to buy or which cell phone plan to select, consumers are tasked every day with making decisions on a specific product or service to purchase. As straightforward as these decision sets seem, minor changes in how such options are presented to the consumer can have a real impact on consumer preference. Producers and firms alike must make crucial decisions to shape such choices to maximize benefits on their side. Big companies pour and invest millions, if not billions, of dollars into trying to find the optimal pricing strategy, product configurations, and marketing tactics to guide consumer choices while consumers make decisions believing they are making rational and

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preference-based choices. This is similar to Gladwell's argument about the "power of context". Gladwell emphasizes that "the environment or the situation" plays a pivotal role in influencing consumer behavior¹. This phenomenon is known as the Attraction Effect, also known as the decoy effect. This is where the presence of an asymmetrically dominated good, also known as a decoy, can increase the preference for a similar "target" good as opposed to its "competitor" good. This is meaningful because it implies that consumer choices are unstable and irrational and can be molded by several factors. However, the attraction effect, although well documented, continues to remain perplexing and ambiguous. While some studies demonstrate robust and substantial effects, others show it to be fragile, context-dependent, or non-existent, raising a fundamental question of when the attraction effect occurs and what accounts for its magnitude.

Economists from all across the globe find the very idea of the attraction effect very unique and have heavily studied it. This is because the effect goes against two long-standing and widely accepted principles: The Weak Axiom of Revealed Preference (WARP) and the Independence of Irrelevant Alternatives (IIA). WARP states that if an individual prefers good A over good B, they should not later prefer good B over good A when they are kept the same². IIA states that if an individual prefers good C over good D, they should not suddenly prefer good D over good C if another good (good E) is introduced. They may prefer good E or good C but not good D because nothing between good C and D has changed, and thus the introduction of an "irrelevant good" (good E) should not alter this ranking³. However, we know that through the attraction effect, the introduction of a decoy good has the ability to shift consumer preference towards a target good and away from a competitor good, even if the two goods themselves do not change. Understanding the attraction effect can help us both understand consumer behavior and establish principles.

This paper examines whether different attributes (price, quantity, and quality) can cause different degrees of attraction through a survey-based study. Although many papers and studies establish how the attraction effect can vary across different contexts and with different factors, relatively few experiments, if any, directly compare how attribute type can influence the strength of the attraction effect. This paper will not only establish but question how widely the attraction effect differs across varying attributes. Vehicles provide an ideal domain to study the attraction effect across multiple attribute types, as the features on which cars are compared are somewhat simple to understand. I test the extent to which price, quantity (MPG), and quality (seat quality) decoys influence target product choice in a controlled environment.

This paper aims to make three contributions to further understanding the attraction effect:

- 1) This paper provides direct comparisons between price, quantity, and quality-based decoys within an experimental design designed in the same way. This allows for a clean test of whether differing attributes truly do impact the strength of the attraction effect.
- 2) This paper addresses and dismisses concerns raised by prior work about the "artificiality" of the attraction effect by using realistic and economically meaningful attributes in a car.
- 3) This paper incorporates the use of demographic data to explore whether individual differences can have some correlation with an individual's suitability for the attraction effect.

Collectively, all these contributions help reconcile conflicting findings about the true power of the attraction effect and identify the attribute type that most influences the carrying strengths of the attraction effect. This paper will be organized in the following structure: the next section reviews prior literature on the attraction effect and how I utilized such findings in my paper and research. This is followed by a detailed description of the experimental design of my paper. I will then present the results and data, and finally conclude the paper by discussing the implications of these findings for both consumers' decision-making and producers' strategy.

LITERATURE REVIEW

The approach this paper will take stems mainly from 3 prior studies:

First, Lichters and Sarstedt (2015) argue that many of the prior failures or attraction effects are caused by unrealistic, low-stakes stimuli and meaningless attributes⁴. I aim to overcome this obstacle through the use of realistic and relevant automotive choices with attributes shown that are easy to interpret and meaningful. I also presented the information in a way a car customer would see information about a specific car they wish to buy online through websites like Carmax or Carvana (Carvana was used as the baseline format) to combat any limitations of conducting research through online forums rather than observing real consumer behavior.

Secondly, Mishra et al. (1993) identified several psychological factors (including product knowledge, involvement, and similarity) that influence susceptibility to the attraction effect⁵. The antecedent implies that attribute type could produce differences in attraction effect strength through influence over attribute-processing strategies. It also suggests that different experiences can lead to differing results. Thus, my paper also aims to see if there is, and find, a correlation between education and the “pull” of the attraction effect and the different variables and factors I am manipulating.

Third, and finally, Rath et al. (2025) claim that the attraction effect only truly exists when decoys exhibit clearly asymmetric dominance over a given target product. As the document states, "The attraction effect is a robust phenomenon that emerges whenever decoys create strong item-level dominance asymmetry."⁶. This premise forms the basis of the construction of all price, quantity, and quality decoys used in this paper. I ensured that this asymmetrically dominated relationship is clearly shown to further ensure the effectiveness of the attraction effect.

The foundational three findings and other related findings bolster the overall notion that realism, meaningful attributes and characteristics, and cognitive processes are indeed important aspects in the effectiveness of the attraction effects.

A concern when researching the attraction effect is whether experimental attributes are able to truly reflect real-world consumer behaviors. This is especially important in this paper, as all research data was collected through an online forum. Lichters and Sarstedt (2015) argue that many laboratory experiments

fail due to the fact that they rely on hypotheticals⁴. These hypotheticals are low-stakes as they have little true meaning and economic or financial significance. Additionally, Weinmann et al. (2022) found that decoys shifted monetary decisions by almost 20%, and Devine et al. (2025) documented the attraction effect in real-world consumer behavior in the British wine market^{7,8}. Claricini (2008) also highlights how both real and phantom decoys (a decoy where the products themselves do not exist) work through an online MP-3 player market⁹. All these findings underscore how the attraction effect is strongest when attributes are economically meaningful. This suggests that price, quantity, and quality may differ in their “pull-ability” towards the target product. It also suggests the need to create an environment where consumers feel as if they are truly buying a product in order to “counteract” the limitations of utilizing an online forum to collect data. This is why consumers were shown pictures of car facts that they may be able to find in an online car market like Carvana.

Mishra et al. (1993) highlight the seven psychological factors that influence how powerful the attraction effect can be⁵. These seven factors are (1) the usefulness of the product, (2) the knowledge someone has of the product, (3) the importance of purchasing that product, (4) similarity in the decoy and target, (5) how strongly they prefer a certain option, (6) decoy share, and (7) how popular the decoy seems. The study shows how the attraction effect is driven by multiple factors and is not just a simple “anomaly”. The author shows how these factors are key and must be taken into consideration when designing a product using the decoy effect. These antecedents explain why different attributes and characteristics may produce different strengths in the attraction effect, which my paper aims to further investigate. Evans et al. (2021) show that the order in which the options are presented can completely change how people make decisions¹⁰. Under normal conditions, adding a “decoy” option makes people prefer the option that dominates it. However, when participants were presented with options in different orders, the attraction effect appeared, flipped, and did not work at times. “The order in which alternatives are presented has a large impact on subsequent choices.” Their results suggest that people compare options sequentially, forget earlier information, and rely on shifting attention. Additionally, Kim and Hasher (2006) underline how individuals with less stable preferences, such as younger adults, are more vulnerable to the attraction effect as opposed to those with stronger internal reference points, often caused through experience¹¹. Furthermore, the paper suggests that the effectiveness of the attraction effect can depend on specific interests certain demographics have, as well as experience, such as in school. Mishra et al. (1993) also highlight how cognitive and contextual factors matter.

Lichters and Sarstedt (2015) studied whether caffeine has an impact on the attraction effect⁴. The authors used 3 double blind experiments and used real products in their experiment. He found that high caffeine intake (200 mg) reliably increased the attraction effect in both free (none of the above) and forced-choice tasks. The experiment showed how caffeinated subjects were more likely to see and notice the dominated relationships and thus choose the target good. However, the author found that lower doses of caffeine (125 mg) and when choices were hypothetical rather than real, caffeine did not strengthen the effect. “Caffeine intake... is associated with a larger attraction effect,” but only under certain conditions. Personalized recommendation systems can have the ability to reverse the effect¹², and subtle visual features like animations can amplify or eliminate the effect¹³, as shown in Mousavi et al. (2024) and

Fasolo et al. (2006), respectively. Collectively, these findings suggest that attribute sensitivity varies across individuals and contexts, meaning that price, quantity, and quality decoys may not influence all consumers in the same way.

Beyond cognitive and demographic influences, the structure and visual format of how information is presented can also shape the strength of the attraction effect. Dimara et al. (2016) argue that the attraction effect can occur in visual information such as graphs¹⁴. The authors test this by replicating a classic example of the attraction effect and using the same choices as this classic example mentioned, but displaying the data and choices as scatterplots rather than numbers or words. Through their research, the authors discover how the attraction effect can often lead to irrational decisions and can be influenced when “visualizations can be used to support decision making”. In addition, Hasan et al. (2025) show why the attraction effect can appear strong at times but can disappear or even reverse at other times¹⁵. The authors tested 3 different factors that may influence varying attraction. Mode of presentation (numbers vs graphs), presentation layout (attribute vs alternative), and presentation order (rows vs attribute tables to compare values). Although the attraction effect is still prevalent, its strength varies depending on how the information was presented. The study showed that the effect was strongest in numeric form and when the target and decoy appear in certain orders when displayed. It was found, however, that the presentation layout had no significant impact. “The strength of this effect is modulated by the display order and mode... but not display layout.” Altogether, these studies highlight how the way information is presented can influence choices.

Despite the vast amounts of studies dedicated to the attraction effect, some research still questions the robustness of the effect itself. Yang and Lynn (2014) claim that the attraction effect may not be as powerful as once thought¹⁶. The researchers ran 91 tests and found that the desired effect only occurred 11 times. Furthermore, the effect mostly appeared and was mostly successful when the choices given to the subjects were in numbers only. When pictures or verbal descriptions were used instead of numbers, the effect was almost non-existent. “We found attraction effects only at chance levels using these types of stimuli, but the effects were produced at expected levels when we used only numeric representations of choice attributes.” However, Rath et al. (2025) help explain why different attribute types produce differing strengths in attraction⁵. The authors argue that the effect can reliably emerge when the decoy is clearly dominated by the target but not clearly dominated by the competitor. This way, the target seems clearly better while the competitor seems only slightly better or even worse. Throughout the 4 experiments that they conducted, they showed that when decoys dominated in this way, the attraction effect showed up much more regularly and powerfully (Star-shaped stimuli). However, when the decoy was not dominated in this way, not truly dominated, the attraction effect was much weaker. “The attraction effect is a robust phenomenon that emerges whenever decoys create strong item-level dominance asymmetry.” This can explain why past studies have failed to display the attraction effect. This study is foundational to this paper and its design. The price decoy is dominated by cost, the quantity decoy by MPG, and the quality decoy by seat type. The relationship between the target, competitor, and decoy must be clear, as ambiguous or confusing data and relationship interpretations can undermine the effect's strength.

Finally, several of these studies highlight the broader economic importance of the implications of the attribute-specific attraction effect. Research shows how firms can use decoys to segment markets and increase profits, particularly when attributes like price or quality play a central role in consumer decision-making, as shown by Ok et al. (2011). The paper shows how monopolies can “exploit” consumers using the attraction effect¹⁷. Through the use of a decoy when framing products, a monopoly can bypass the limitations of how they may separate different types of customers (high-end products to high-type and low-end products to low-type). This can be especially beneficial to the monopolist if the decoys are cheap and the consumers are high-type (value higher quality). This will more efficiently and effectively divide her customers and will boost profits and total welfare. “The presence of such biases might allow the monopolist to overcome some of the incentive compatibility constraints of the standard problem, leading the economy back towards the efficient equilibrium in which the monopolist extracts all the surplus.” Real-world examples and evidence, such as the mentioned wine-purchasing data, show how even small shifts in preference can lead to meaningful economic and market outcomes. All these findings highlight the importance of studying and understanding the attraction effect, especially in high-stakes consumer contexts such as car purchases, where attribute trade-offs are meaningful and economically consequential.

Across all fifteen papers, it is clear that the attraction effect is not uniform across attributes. Differing insights directly motivate the present study. By using meaningful attributes, constructing clear dominance relationships, and collecting demographic data to explore individual differences, this study contributes to ongoing debates about the attribute-specific boundary conditions of the attraction effect.

METHODS

A total of 300 participants completed the online survey, with 75 individuals taking each assigned condition (control, price, quantity, and quality). Ages of participants ranged from 14-55+, with the majority of participants falling under the 14-24 age group. Gender identity was also diverse, with participants identifying as male (40%), female (53%), or preferring not to say (7%). Race and ethnicity were also diverse, with representation from Asian (31.3%), Caucasian/White (29%), Hispanic (11.7%), African-American (8.3%), Native Hawaiian or Pacific Islander (5.3%), Native American (2%), and Other categories (12.4%). Education levels varied widely as well, with representation from individuals with a less than high school degree (22.3%), high school or equivalent degree (8.3%), some college but no degree (13.3%), associate degree (7.7%), bachelor’s degree (25%), Ph.D (6%), master’s degree (9.3%), and other categories (8.4%). This provides an extremely strong foundation to study how education can potentially influence the power of the attraction effect. Finally, employment status varied from students (48.7%), full-time (15.7%), part-time workers (9%), self-employed individuals (7.3%), unemployed individuals (7%), retirees (3.7%), and those unable to work (10%). Participants for this study were recruited through online forums such as Reddit and SurveyMonkey, social media platforms such as Instagram and Facebook, and personal networking, such as friends, classmates, teammates, teachers, coaches, and other acquaintances. The majority of participants (around 75% of all participants) came from

Reddit. More specifically, subreddits such as r/SurveyExchange and r/SurveyCircle were used as a platform to connect and get people to take the experiments. Snowball sampling occurred naturally as participants shared the survey link with others. No compensation was provided to any individual for the survey.

Many potential biases could have influenced the results of my experiment, which must be addressed. Due to the fact that data was collected through an online survey, participants were in uncontrolled environments. There may have been distractions or other external factors that reduced overall engagement and focus. Additionally, a large portion of the participants I had came from Reddit. This may not fully represent the broad population. The online survey nature of my experiment means that my experiment relied on self-reported choices rather than real purchasing behavior with actual financial consequences. The lack of attention checks also made it difficult to determine whether participants were even carefully looking at their options and thinking about their choice. There is also the bias that people who took the survey had access to devices like phones or computers and an internet connection. The experiment was not able to represent the results of those who do not have access to such resources. Additionally, a large portion of participants came from the 14-24 age range (56.3%). These individuals may not be as familiar with car features and shopping as preferred. Altogether, these potential biases suggest that although the findings in my experiment are meaningful, they should be interpreted with awareness of such biases.

My data was gathered through a survey-based data-collection process. The study employed a between-subjects experimental design. Each participant was exposed to only one of four conditions: a control group or one of three decoy-based experimental conditions (price decoy, quantity decoy, or quality decoy). To get as close as possible to a random assignment of experimental groups given the constraints of Google Forms, each participant was first asked to select a number between 1 and 4. Their selection would route them to one of four corresponding conditions. Throughout the process of collecting data, numbers 2 and 3 were picked overwhelmingly while numbers 1 and 4 were barely chosen. In fact, at one point in the data collection process, almost 80% of participants chose either number 2 or 3. In order to combat this, I reassigned which experiment a specific number would route a participant to. Additionally, when enough data was collected (75 participants) for a specific experimental condition, I removed the largest number and the experimental condition and reassigned the rest of the experiments to the smaller set of numbers. Participants could not retake surveys to ensure that each participant contributed only a single response, and could not see and take other experiments with skewed judgment. This procedure produced a pseudo-random distribution of participants across conditions.

Participants accessed the survey through a Google Form link. Upon opening the survey, participants were instructed to answer all questions presented, including selecting a number between 1 and 4, choosing a car option, and completing demographic questions. No additional instructions or debriefing information were provided. The survey took less than one minute for almost all participants, as it consisted of a single-choice task followed by demographic questions.

Participants viewed a brief car-purchase scenario containing two or three vehicle options (2 for the control group and 3 for the experiments with a decoy). All options were presented in a fixed A–B–C format, and the order of attributes within each option was held constant across conditions. The competitor's good was Car A, the target good was Car B, and the decoy (if applicable) was Car C. The following shows the questions and information provided to the participants when asked which car choice they would prefer and select:

Control Condition

- A: \$20,990, 30 MPG, Cloth Seats, 30,000-mile warranty
- B: \$28,990, 38 MPG, Heated and Cooled Leather Seats, 50,000-mile warranty

Price Decoy Condition

- A: \$20,990, 30 MPG, Cloth Seats, 30,000-mile warranty
- B: \$28,990, 38 MPG, Heated and Cooled Leather Seats, 50,000-mile warranty
- C: \$32,000, 38 MPG, Heated and Cooled Leather Seats, 40,000-mile warranty

Quantity (MPG) Decoy Condition

- A: \$20,990, 30 MPG, Cloth Seats, 30,000-mile warranty
- B: \$28,990, 38 MPG, Heated and Cooled Leather Seats, 50,000-mile warranty
- C: \$28,990, 35 MPG, Heated and Cooled Leather Seats, 40,000-mile warranty

Quality (Seat Type) Decoy Condition

- A: \$20,990, 30 MPG, Cloth Seats, 30,000-mile warranty
- B: \$28,990, 38 MPG, Heated and Cooled Leather Seats, 50,000-mile warranty
- C: \$28,990, 35 MPG, Leather Seats, 40,000-mile warranty

In all conditions, participants were asked: “Which car would you buy?” and were given the options “A”, “B”, or “C”.

The participants were presented with the following in an inspected and edited screenshot of a car and the features it has from Carvana to best mimic a real online consumer spending environment. The following figure is an example of such:

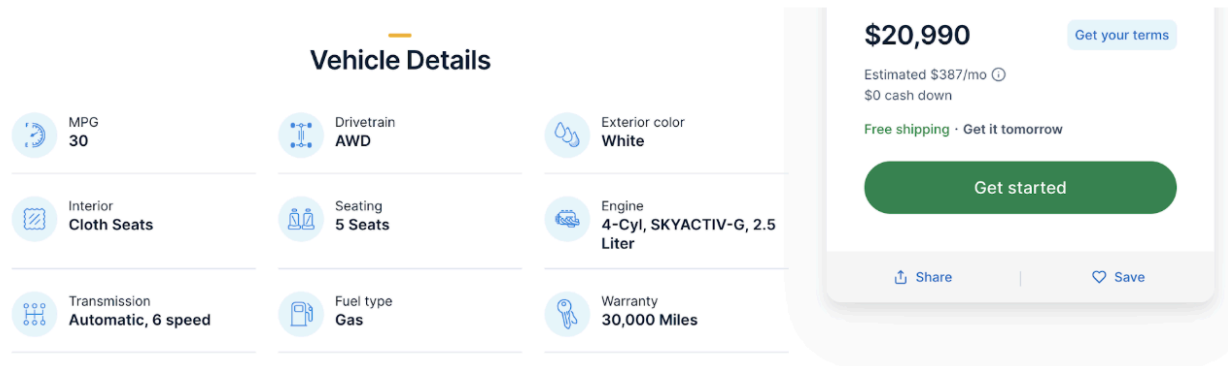


Figure 1. Inspected and edited the Carvana car feature screenshot that the participants would have been shown when given the information for Car A in all experiments¹⁸.

Besides price, MPG, warranty, and seat quality, all other features and attributes remained the same or were adjusted across all presented cars (Drivetrain, exterior color, seating, engine, transmission, fuel type, estimated \$/month, “Free shipping”, “Get it tomorrow”).

The primary dependent variable was the participant’s car selection (A, B, or C). Education level also served as another key factor that this paper monitored, as participants reported their highest level of completed education. Additional data about demographic variables such as age, gender identity, race/ethnicity, and employment status of the participants were also collected. Participants could not skip any questions. Time spent on each question was not recorded. Additionally, no attention checks were included as the survey only included one critical decision-making question and was very short. An attention check would be ineffective and lose its value.

The primary objective of the analysis is to determine whether the presence of a decoy option would shift a participant's preference towards the target option, Car B, and how differing attributes will impact the strength of such “attractive force”. To test the attraction effect, a chi-square test of independence will be used to compare the proportion of participants selecting Car B across all four conditions (control, price decoy, quantity decoy, and quality decoy). Pairwise chi-square tests will also be performed in order to compare each decoy condition individually to the control group condition. Additionally, this study aims to examine whether education influences the “power” of the attraction effect. To assess this, separate chi-square tests will be conducted within each education group. This allows for a comparison of attraction-effect patterns across different educational backgrounds as well. This approach makes it possible to evaluate whether individuals with different levels of education would respond differently to differing decoys and to what extent. Additionally, an ANOVA analysis will be conducted to help determine if there is a difference between the means of the 4 experimental groups. Other demographic variables (age, gender, race/ethnicity, and employment) were collected, but were not studied as thoroughly.

RESULTS

In total, 300 participants were evenly distributed across four experimental conditions (control, price decoy, quantity decoy, and quality decoy). Participants selected between Car A, Car B (the target), and Car C (the decoy when present). The following data table shows the results of my survey:

Table 1.

Number of participants who chose each respective car under each experimental condition.

Condition	A	B	C
Control	46	29	-
Price Decoy	27	46	2
Quantity Decoy	16	57	2
Quality Decoy	30	44	1

In order to determine whether and by how much the presence of a specific decoy can influence the consumer's decisions in selecting the target Car (Car B), a chi-square of independence was used. The following shows the result of the percentage of people who chose Car B under a condition:

Control Condition: 29 of 75 participants (38.7%) chose the target.

Price Decoy Condition: 46 of 75 participants (61.3%) chose the target.

Quantity Decoy Condition: 57 of 75 participants (76.0%) chose the target.

Quality Decoy Condition: 44 of 75 participants (58.7%) chose the target.

The results highlight how the quantity decoy had the strongest attraction effect, as 76% of participants selected the target Car with the quantity decoy in place. The quality decoy was much less powerful, as only 58.7% of participants selected the target Car with the quality decoy in place. The Price decoy's strength fell in the middle of the two other decoys, with 61.3% of participants selecting the target Car. The following bar graph represents the relative strength of each type of decoy:

Car B Choice Across Experimental Conditions

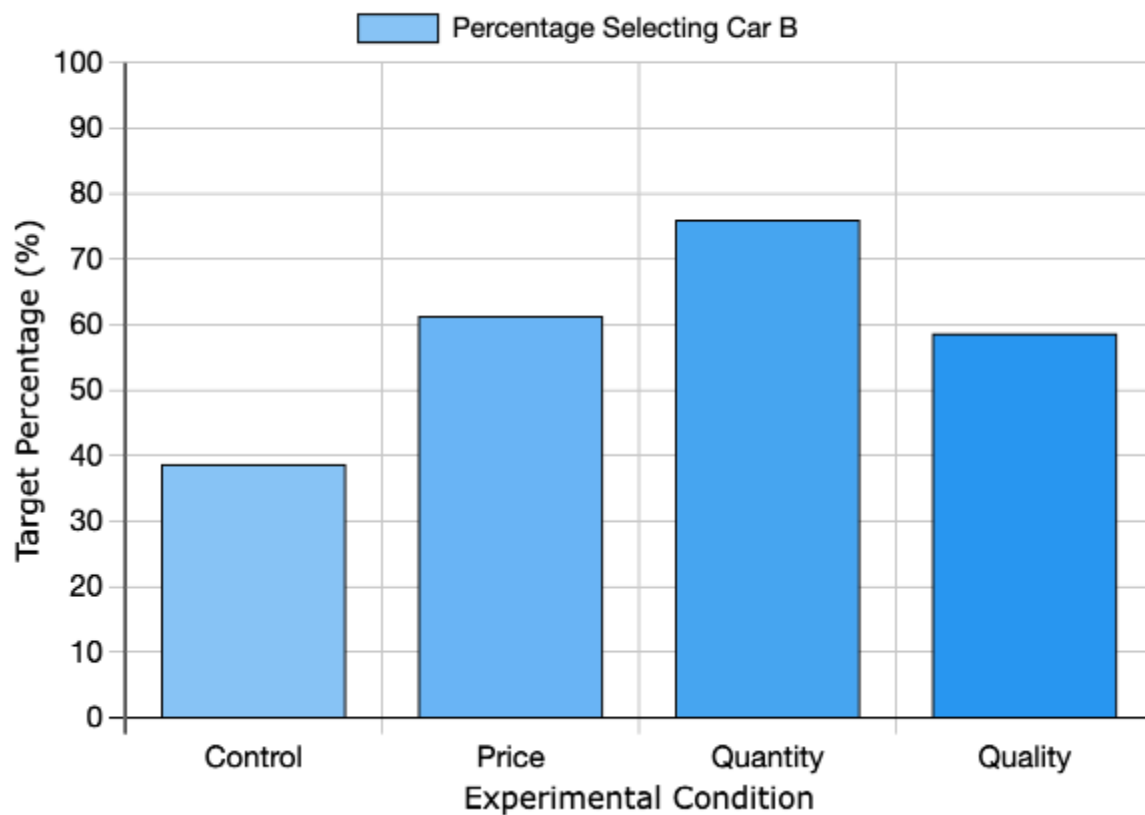


Figure 2. Bar graph showing the percentage of participants who chose the target car (Car B) under each experimental condition.

Education was another measured category and used as the primary individual-difference variable. The following shows the distribution of the highest education level of the three hundred participants:

Table 2.

Distribution of the highest level of education a participant had from the pool of three hundred participants:

Education Level	Count
Less than High School	67
High School/GED	25

Some College but no Degree	40
Associate Degree	23
Bachelor's Degree	75
Master's Degree	28
PHD or Higher	42

In order to determine whether or not education truly impacted the strength of the attraction effect, the distribution of education was separately analyzed within each experimental condition. Separate chi-square tests were used and calculated within each education group to determine whether there is a correlation between the strength of the attraction effect. The following graph represents the percentage of people choosing Car B, given in an Experimental Design, relative to their education:

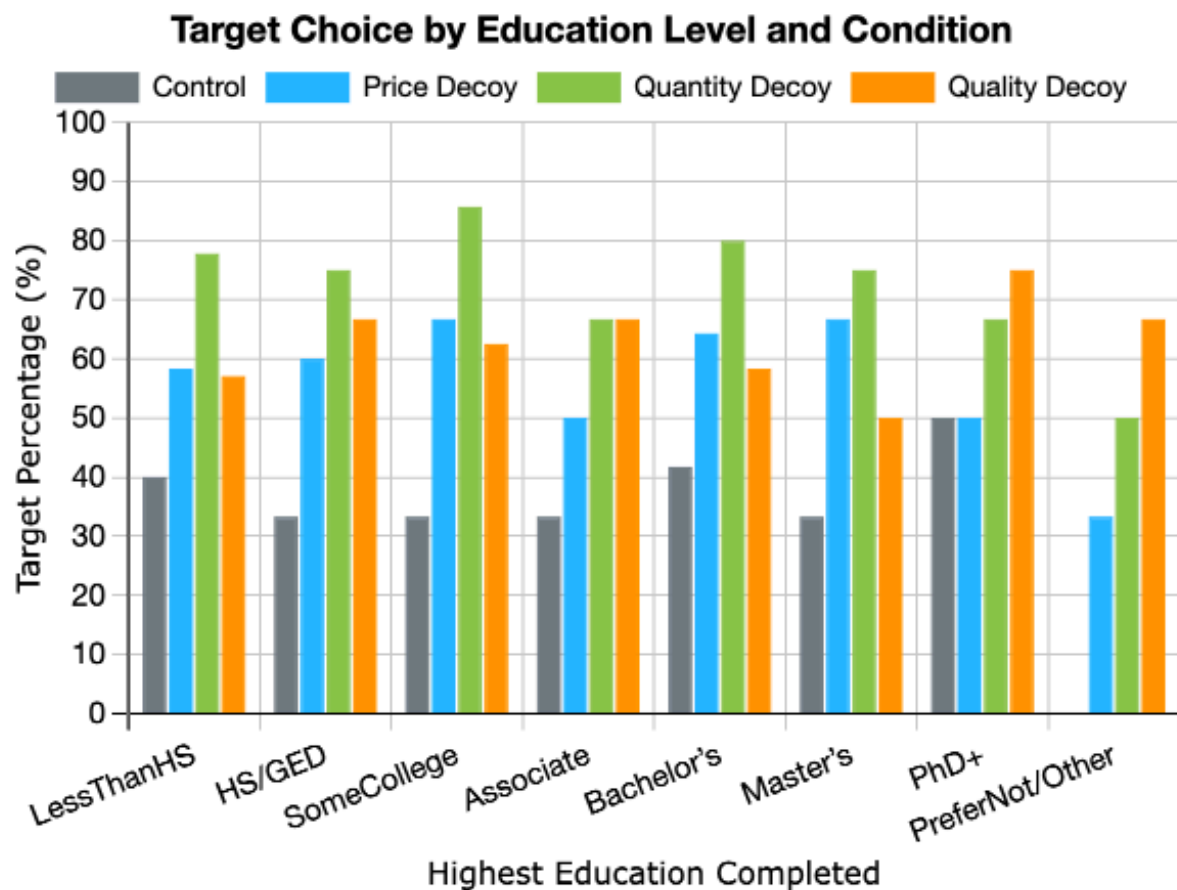


Figure 3. Multiple bar graphs showing the percentage of participants who chose the target car under each educational level in each of the experimental conditions.

Additionally, to complement the chi-square analyses, a one-way ANOVA was conducted. This ANOVA was used to determine whether the four experimental conditions produced statistically different rates of target car preference. Using a binary variable b (1 meaning the participant chose Car B), the ANOVA revealed the effect of the introduction of the experimental condition, $F(3, 296) = 7.76, p = .0001$. The findings of the ANOVA show that the likelihood of selecting Car B varied across the differing experimental conditions rather than remaining constant. The regression coefficients also showed how the three decoys increased the likelihood of choosing Car B. The price variable increased Car B's choice by 22.7 percentage points, the quantity variable increased Car B's choice by 37.3 percentage points, and the quality variable increased Car B's choice by 20.0 percentage points. Furthermore, a second ANOVA comparing the three experimental conditions (the introduction of price, quantity, and quality variables) was significant at the 10% level ($p = .056$). This suggests that although the quantity variable is by far the most effective, the price and quality variables are similar enough that they statistically cannot be differentiated at the 5% level.

DISCUSSION

This study investigated if, and how, different decoy attributes shape consumer choices. Although no hypotheses were outlined in previous sections, the results demonstrate a clear pattern and relationship between consumer choices and the varying experimental conditions. My data establishes and reinforces work on the attraction effect and asymmetric dominance, as the introduction of an asymmetrically dominated option reliably steers consumers toward a specific target good.

In the control experiment, 61.3% of participants selected Car A. However, in the price, quantity, and quality experiment, there was a shift in preference as 61.3%, 76%, and 58.7% of participants preferred Car B in each of the respective experiments. It is clear that the use and presence of a dominated decoy does indeed alter choice behavior. The Quantity Decoy created the strongest attractive pull. The Price Decoy followed, while the Quality Decoy produced the smallest overall shift in consumer preference. This shows how participants were especially responsive to differences related to numerical attributes, such as MPG, while not so much to more qualitative attributes such as seat quality. This pattern is consistent with theories of attribute-based comparison, which argue that consumers rely heavily on quantifiable metrics when evaluating similar products to make decisions. The Price Decoy shifted consumer preference towards the target to a lesser extent. This implies that although consumers pay attention and are influenced by numerical attributes, not all numerical attributes are considered equally. My data suggests that differences in price are treated less than performance-based numerical relationships, such as MPG. This data shows that although the attraction effect does exist between different attributes and works as intended, differing attributes have differing levels of strength and attractive pull.

The results of the ANOVA analysis reinforce the conclusions from the chi-square analysis. The model shown by the ANOVA results confirms that the introduction and type of decoy do indeed meaningfully alter consumer preference. As the results imply, the quantity decoy produced the largest attractive effect as it increased Car B selection by 37.3 percentage points relative to the control group. Price and quality also increased target choice, but to a lesser degree. Their statistical similarity explains why the treatment-only ANOVA analysis did not reach significance at the 5% level. The overall patterns shown hint that while all decoys do successfully shift consumer preference, only the quality decoy created a dominant relationship between the other goods to produce a statistically distinct effect. This aligns with theories of asymmetric dominance and context-dependent choice, which were able to successfully predict that a clearer and more quantifiable (quantitative differences over qualitative) attribute will create a stronger attraction effect.

My data reinforces the attraction effect and asymmetric dominance. It also supports new, yet foundational ideas not previously mentioned in this paper. Heuristic Processing is the idea that individuals rely on more simplified comparison strategies rather than using more exhaustive evaluations¹⁹. My data backs this idea up as numerical decoys proved much more effective in their role. The Context Effect is the idea that preferences can shift depending on how choices are structured²⁰. Introducing a decoy on the choice set led to a preference shift towards Car B, backing up the Context Effect. Altogether, these theoretical ideas can help explain why the Quantity Decoy was more effective. Numerical attributes are often the clearest and simplest way to establish a dominated relationship between the target, competitor, and decoy good.

My data showed that education level does not meaningfully alter the overall pattern of results. Participants from all educational backgrounds showed similar results and susceptibility to the attraction effect. This suggests that the attraction effect runs under a broad, cognitive mechanism rather than under special training or specific knowledge/logic. Even participants with a very high educational background showed similar susceptibility to the attraction effect, as did individuals who have not even completed high school. This underscores the overall robustness of the attraction effect across all educational groups.

An unexpected outcome of my data was the relatively modest strength of the Quality Decoy. Quality is often central in consumer decision-making, and a stronger attractive pull would have been expected. The weaker response to Quality attributes could indicate how participants view quality attributes more subjectively, as opposed to the more objective, numerical attributes that Price and Quantity dominate. This more subjective view may reduce the overall clarity in the dominated relationship.

My findings carry meaningful implications in the real-world. Especially in terms of marketing strategy, product design, and consumer choice, “architecture”. With the knowledge that the attraction effect does indeed exist, as suggested in my data, firms may strategically introduce decoy options in order to sway consumer preference towards a more profitable product. Additionally, firms now know what types of attributes create the largest shift in such preference. Firms may decide to avoid more subjective decoys, such as quality, for more objective and numerical decoys instead. My data and its findings inform

marketing strategies in the automotive industry as well. Technology companies, restaurants, movie theaters, and countless other industries and firms can benefit from these findings to boost productivity.

Several limitations must be noted. Firstly, the study heavily relied on self-reported choices in an online survey. This means my data can not fully capture real-world purchasing behavior. Secondly, the car descriptions given to the participants were overly simplified to maintain experimental control. Not all facts were given, which could potentially limit the ecological validity of the results. Finally, although education level was examined and studied, other demographic factors such as income, age, prior car-buying experiences, race, gender, and familiarity with cars were not. This may have had a significant influence on an individual's susceptibility to the attraction effect.

Future work around the attraction effect should be studied under a broader range of product categories and attribute types. Future work should also aim to stimulate or even study purchasing behavior under real-world purchasing environments. Individual differences such as decision-making style should also be explored, as they may help explain why certain consumers are more susceptible to decoys than others. People can also research whether consumers in a specific market have different reactions to different decoy attributes and the reasons for such differences in susceptibility. Future work could also aim to see whether knowledge of the decoy effect or repeated exposure to such an idea can reduce its influence over time, almost like a tolerance to the strength of the effect.

CONCLUSION

My study demonstrates how different decoy attributes create meaningful influences on a consumer's decision-making. My findings support broader evidence on asymmetric dominance and context-dependent choices. Across all conditions, the introduction of a dominated option, a decoy, increased consumer preference toward a target good. The Quantity Decoy produced the strongest pull, followed by the Price Decoy and finally the Quality Decoy. These patterns suggest that when consumers are faced with making a decision, they rely heavily on comparative evaluations. More specifically, consumers tend to rely on numerical attributes, as more subjective attributes like Quality do not create as strong a "pull" towards a target good. Additionally, my study found that education level does not, in fact, affect the attraction effect. Through my data, my paper is able to highlight the robustness of the attraction effect across different demographics.

Overall, my findings underscore the power of choice architecture in shaping consumer preferences. Small changes to available options shown to consumers can alter decisions, often without the consumers' awareness. Although my data provides valuable insights for applications in marketing and product design, it also raises ethical concerns regarding how the use of decoys can distort consumer behavior. In the future, research around the attraction effect should focus on trying to understand how individual differences, real-world environments, and repeated exposure or prior knowledge of the attraction effect can influence how susceptible the attraction effect is to a consumer. Ultimately, this study contributes to

deepening the understanding of consumer decision-making and illustrates how contextual factors around consumers strongly influence and shape human judgment.

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