Why would the selected and rejected be the same alternative option?

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Abstract

The arrangement and description of options can significantly influence people' s decision-making. As special variants within description methods, choice and rejection response modes have been underestimated by researchers regarding their research value and application potential. Differences in decision-making through "choice and rejection" response modes manifest across five dimensions, including cognitive effort, selective attention, and decision criteria. Over the past three decades, research paradigms such as the enriched options paradigm, phased narrowing technique, and direct inquiry method have gradually been developed, and relatively mature theoretical hypotheses such as the compatibility hypothesis, commitment hypothesis, and emphasis hypothesis have been explored to elucidate the underlying mechanisms of the differences between choice and rejection response modes. Meanwhile, choice and rejection response modes have demonstrated tangible driving effects in fields such as consumer behavior and healthcare. Future research may consider focusing on the application value and nudging practices of choice and rejection response modes as nudging instruments.

Full Text

Preamble

Why can the same alternative be both selected and rejected? An ancient Chinese proverb states: "You cannot have both fish and bear' s paws." A Western saying echoes this: "You Can' t Have Your Cake and Eat It Too." Both traditions of wisdom suggest that one cannot simultaneously select and reject the same alternative. Yet Shafir (1993; 2018) discovered a fascinating phenomenon that violates this principle.

Shafir (1993; 2018) designed the following scenario: Imagine you are a judge determining sole custody of a child in a divorce case. Parent A is average

across economic, social, and emotional dimensions. Parent B dominates on both positive dimensions (e.g., close relationship with the child, high income) and negative dimensions (e.g., minor health issues, frequent business travel). See Table 1 for Scenario 1.

Interestingly, when asked "Which parent would you grant custody to?" (selection mode), most hypothetical "judges" (64%) chose Parent B. When asked "Which parent would you deny custody to?" (rejection mode), a majority of hypothetical "judges" (55%) still chose Parent B. The results showed that Parent B was more likely to both receive and be denied custody, with the sum exceeding 100% (64% + 55% = 119%, z = 2.48, p < 0.02). Evidently, people both selected and rejected the same parent, exhibiting behavior that simultaneously chooses and rejects the same option. This "reversal of black and white" mirrors judgments about the following figure:

Figure 1 [Figure 1: see original paper] Schematic diagram of stimulus reconstruction based on Goldstone (1993)

When asked "Which figure has more white squares?" participants selected the "clustered distribution" right figure 55.9% of the time. However, when asked "Which figure has more black squares?" participants still selected the same "clustered distribution" right figure 56.2% of the time. People' s choices defy logic because the number of squares in a figure is fixed—either there are more white squares or more black squares; it cannot have more of both simultaneously (Goldstone, 1993).

Both cases point to the same paradox: the selected and rejected alternative are identical. This phenomenon—where different question formats induce decision biases—subsequently attracted researchers' attention as the "selection and rejection response mode."

1. Decision Research Conducted Under the Banner of "Selection and Rejection"

The selection and rejection response mode represents a variant of response modes, which themselves constitute a specific form of choice architecture. This approach fundamentally intersects with framing effects. To clarify the relationships among these concepts, this section first traces the origins and development of key concepts, including the derivation and expression of response modes and their similarities to framing effects, thereby enhancing readers' understanding of selection and rejection response modes.

At the macro-conceptual level, response modes belong to choice architecture. Choice architecture, initially proposed by Thaler and Sunstein (2008), refers to the practice of structuring environments to influence people' s decision-making, thereby nudging them toward better decisions. For example, placing healthy foods at the beginning of a cafeteria line or at eye level increases their selection. Choice architecture encompasses various behavioral tools affecting human

decisions, such as default options, framing effects, decoy effects, and response modes (Thaler et al., 2013).

According to Thaler et al. (2013), both response modes and framing effects serve as nudging tools within choice architecture. Specifically, response modes represent how people characterize decision tasks, with variants including selection versus matching modes (Tversky et al., 1988), comparison versus evaluation modes (Dhar & Nowlis, 2004), and selection versus rejection modes (Chen & Proctor, 2017). Framing effects, another component of choice architecture, refer to how emphasizing positive or negative aspects of the same decision problem changes people' s choices (Kahneman & Tversky, 1979), encompassing risky choice framing, attribute framing, and goal framing. The selection and rejection response mode, derived from these variants, essentially refers to how different question formats (selecting vs. rejecting) alter decisions regarding the same problem. Conceptually, selection and rejection response modes also belong to the family of framing effects, and many researchers treat response modes as a type of framing effect (Perfecto et al., 2017; Park et al., 2000). In summary, when considering selection and rejection response modes as nudging tools, we tend to categorize them under choice architecture; yet when explaining their impact on decisions, they can also be framed as a type of framing effect because they change decisions through different question formats rather than through different positive/negative descriptions of the problem itself. Based on our review of selection and rejection response modes and their potential nudging value, this paper 倾向于将其纳入选择架构的范畴。

Research has found that different frames, contexts, and elicitation methods emphasize different aspects of options, triggering different thought processes that affect information processing and ultimately change decision outcomes (Puto, 1987). The arrangement and description of options significantly influence decisions (Kahneman & Tversky, 1984; Thaler & Sunstein, 2008). Academia now widely recognizes the role of "choice architecture." As a member of this family, selection and rejection response modes share common ground with Tversky' s "framing effect," which violates the principle of "invariance" (Tversky & Kahneman, 1981). Both can serve as effective nudging tools in the nudge toolkit. Mastering these tools may enable people to steer decision outcomes toward desired directions. However, understanding of selection and rejection response modes lags far behind that of framing effects. As a promising psychological phenomenon, it deserves greater research attention and investment.

Among various decision tasks involving different response modes, selection and rejection response modes are particularly noteworthy. When making decisions, individuals may adopt two directional approaches: selecting certain options (implicitly excluding others) or rejecting certain options (implicitly retaining others) (Meloy & Russo, 2004). For instance, when shopping online, consumers might either place only their favorite items in the cart or add multiple alternatives and gradually eliminate less attractive options before checkout. Similarly, when answering multiple-choice questions, one can either directly select the correct an-

swer or eliminate incorrect options. These two strategies are termed "selection" and "rejection" strategies.

This paper aims to synthesize and summarize research progress on selection and rejection response modes. First, we outline differences between these modes across five perspectives. Next, we introduce widely used research paradigms and theoretical hypotheses. Finally, we focus on the application value and practical implementation of selection and rejection response modes as nudging tools, offering perspectives on their future research roles.

2. How Do Decisions Differ When Made Through Selection Versus Rejection?

Decision-makers exhibit distinct patterns in cognitive effort, selective attention, decision criteria, and emotional responses when using selection versus rejection response modes. Extensive research has found that these modes induce different decision outcomes (Dhar & Wertenbroch, 2000; Heller et al., 2002; Laran & Wilcox, 2011; Shafir, 1993) and even opposite preferences (Chen & Proctor, 2017).

In consumer decision-making, for example, response modes affect product category selection (Dhar & Wertenbroch, 2000), quantity of selected products (Levin et al., 2002), decision accuracy (Yaniv & Schul, 1997), and perceived task difficulty (Nagpal & Krishnamurthy, 2007).

Reviewing these differences helps readers understand the role of selection and rejection response modes in human decision-making. Literature reviews reveal that differences primarily manifest in cognitive effort, selective attention, decision criteria, consideration set size, and emotional responses.

2.1 Cognitive Effort

Meloy and Russo (2004) investigated cognitive process differences between selection and rejection modes, noting that while intuitively complementary, these modes can produce opposite preferences when presented with identical options, suggesting asymmetrical treatment. Differences in cognitive effort appear at two levels: first, the cognitive resources required by the tasks themselves; second, how individuals with different cognitive capacities perform on these tasks.

At the task level, different decision stages in selection versus rejection consume varying amounts of cognitive effort, leading to strategic biases. Compared to selection tasks, rejection tasks initially prompt more deliberate information processing because they violate everyday decision logic and prove more difficult, requiring greater cognitive effort to understand the task (Sokolova & Krishna, 2016). Consequently, less cognitive effort and resources remain for processing the options themselves (Wickens, 2014). Chen and Proctor (2017) argue that people demonstrate greater discrimination in selection tasks because understanding them requires less effort, leaving sufficient resources for deep processing of

option information. This suggests that different response modes consume different amounts of cognitive effort, with higher-effort stages prompting more deliberate processing strategies.

At the individual difference level, Levin et al. (2000) found that need for cognition moderates differences between selection and rejection modes. In selection tasks, high-need-for-cognition individuals process information more deeply and broadly than low-need-for-cognition individuals (approximately twice as much), and their decision quality is relatively higher, facilitating adaptive decision-making.

2.2 Selective Attention

Selective attention differs between selection and rejection modes. Individuals allocate different weights and attention to different types of information under these modes (Laran & Wilcox, 2011; Meloy & Russo, 2004), leading to preference reversals. Rejection mode focuses attention on negative dimensions, while selection mode emphasizes positive dimensions. For example, rejection mode activates thoughts about loss dimensions (Park et al., 2000), and careful consideration of losses in risky choices associates with greater visual attention and rational decision-making. Similarly, when choosing an apartment, someone who enjoys nightlife focuses on positive dimensions like proximity to entertainment venues to facilitate selection; when rejecting an apartment, they focus on negative dimensions like high prices to justify rejection. In other words, the two modes first influence attention to different dimensions, which then affects information processing of those attributes. When response mode aligns with attribute dimensions, decisions more readily conform to that mode. Interestingly, however, consumer behavior research found that when choosing between hedonic and utilitarian products, rejection mode actually focuses attention on hedonic products with more prominent positive dimensions rather than utilitarian products (Dhar & Wertenbroch, 2000), showing a positive-dimension attention bias.

2.3 Decision Criteria

Selection and rejection modes not only affect the importance or evaluation of specific option dimensions but also change information processing (Laran & Wilcox, 2011; Meloy & Russo, 2004; Shafir, 1993), thereby influencing final strategy adoption. Huber et al. (1987) noted that people adopt different decision criteria in selection versus rejection contexts. For instance, Sokolova and Krishna (2016) found that in classic framing effect studies, differences between loss and gain frames diminished under rejection tasks, suggesting more deliberate processing in rejection than selection tasks. This aligns with Nagpal and Krishnamurthy (2007) and Sokolova and Krishna (2016), who associate selecting an option with intuitive thinking and rejecting an option with analytical thinking. However, this conclusion lacks consensus. Huber et al. (1987) found stricter decision criteria in selection tasks, evidenced by longer response times

(Krishnamurthy & Nagpal, 2008). They interpreted this from a motivational perspective, suggesting higher motivation in selection tasks, where people willingly invest necessary cognitive resources and time, thus applying higher decision standards. In summary, selection and rejection modes induce different decision criteria; higher criteria prompt more deliberate strategies. Strategy adoption also depends on moderators. Heller et al. (2002) found that when selecting or eliminating options in multi-alternative tasks, strategies depend on decision difficulty. When expecting a single correct answer or perceiving high task difficulty, people prefer rejection strategies to reduce option sets. However, when selection tasks involve only personal judgment, people prefer selection strategies.

2.4 Consideration Set Size

Facing massive online information and resulting information overload (Huang et al., 2017), people screen subsets of options they are willing to consider, called consideration sets. Numerous studies (Heller et al., 2002; Irwin & Naylor, 2009; Levin et al., 2000; Sokolova & Krishna, 2016) find that rejection modes produce larger consideration sets than selection modes. Compared to rejection strategies, people using selection strategies tend to screen more options, retaining fewer in the consideration set (Levin et al., 1998; Yaniv & Schul, 2000).

Park et al. (2000) found that people selected more product options in rejection mode (deleting options from a fully-loaded product) than in selection mode (adding options to a basic product), forming larger option sets in rejection tasks. Similarly, in personnel selection research, Huber et al. (1987) presented real resumes and job applications to participants, asking them to list applicants they would accept for interviews or those they would reject. They found participants selected more candidates for interviews under rejection framing. McDonald et al. (2014) discovered in environmental behavior research that when participants checked off behaviors they were unwilling to perform (rejection mindset), their consideration sets were 30% larger than when they circled behaviors they were willing to perform (selection mindset). Similar findings appear in political candidate judgment (Yaniv et al., 2002), job candidate selection (Yaniv & Schul, 2000), and school funding programs (Kogut, 2011).

Why do these modes differ in consideration set size? Research shows that when attributes are framed positively or negatively, asking people to “accept”or “reject” an item produces different preference orders (Ganzach, 1995; Meloy & Russo, 2004; Shafir, 1993; Wedell, 1997). This occurs because rejection tasks employ more lenient standards for retained options than selection tasks. Consequently, during initial decision stages in rejection contexts, cognitive effort, information processing breadth, and depth are lower than in selection contexts, resulting in larger consideration sets under rejection. However, during final decision stages, rejection contexts demand greater effort.

2.5 Emotional Responses

Rejection mode associates more strongly with negative emotions. Rejection typically generates anxiety and causes preference reversals by amplifying the impact of negative information and decision inconsistency. Rejection conditions correlate with stronger negative emotions, particularly anger, hurt, sadness, and unhappiness, compared to selection tasks (Buckley et al., 2004). Rejection strategies prompt detailed elaboration of potential negative outcomes (e.g., anticipated guilt). Buckley et al. (2004) demonstrated that rejection evokes stronger negative emotions like anger and sadness than selection. However, in healthy eating research, Apadula and Martins (2019) found that rejecting a preferred option reduces guilt associated with unhealthy behaviors.

3. Paradigms for Studying Selection and Rejection Response Modes

Given decision differences between these modes, effective paradigms are essential for detecting response mode differences in scientific research. To help readers understand the evolution of these paradigms, this section chronologically reviews three widely used paradigms over the past 30 years: the earliest enrichment paradigm (Shafir, 1993; Ganzach, 1995; Wedell, 1997), the phased narrowing technique (Levin & Jasper, 1995; Levin et al., 1998), and the currently favored simplified direct inquiry method (Chen & Proctor, 2017; Apadula & Martins, 2019). Researchers can select appropriate paradigms based on their research purposes.

3.1 Enrichment Paradigm

The "enrichment paradigm" is the earliest and most classic experimental paradigm for studying selection and rejection tasks, first appearing in Shafir (1993). It includes two option types: enriched options and impoverished options. Options in this paradigm are multi-attribute and multi-dimensional, with both different instructions and different option attributes. Table 1 illustrates two scenarios from Shafir (1993) featuring enriched and impoverished options.

For Scenario 1 and 2, the selection mode instructions are: "Which vacation spot would you choose?" / "Which parent would you grant custody to?"

For Scenario 1 and 2, the rejection mode instructions are: "Which vacation spot would you cancel (reject)?" / "Which parent would you deny custody to?"

Child custody scenario Table 1 Scenarios of enriched and impoverished options Average health level Normal working hours Average relationship with child Relatively stable social life Above-average income Very close relationship with child Extremely active social life Frequent business travel Minor health problems Vacation spot scenario Vacation spot A Average weather Vacation spot B Sunny weather Moderate water temperature Average nightlife Beautiful beaches and coral reefs Ultra-modern hotel Very cold water No nightlife

Subsequent researchers (Ganzach, 1995; Wedell, 1997) augmented and refined this paradigm. For example, Ganzach (1995) added a filler option to the enrichment paradigm. The core feature remains providing multiple alternatives containing both positive and negative dimensions, with different content presented under selection versus rejection modes. In short, the enrichment paradigm differs in two ways: first, question format (selection vs. rejection); second, option content (enriched vs. impoverished options).

3.2 Phased Narrowing Technique

The phased narrowing technique is widely used to study decision processes. First proposed by Levin and Jasper (1995) to address limitations of process-tracing methods like verbal protocols, this technique also examines similarities and differences between selection and rejection (Levin et al., 1998).

The phased narrowing technique conceptualizes a two-stage process: (1) initial screening; and (2) choice stage (Nedungadi, 1990; Ordóñez et al., 1999). Specifically, individuals narrow options to a subset forming a "consideration set" during screening. Some participants use selection strategies to include options in the consideration set, while others use rejection strategies to exclude options. The remaining options constitute the choice set. Subsequently, participants select one option from the consideration set. This method' s advantage lies in tracking changes in option set size and information within sets across response modes, particularly detecting relative impacts of different attributes at various decision stages. It also determines whether decision-makers attend to different attributes when selecting or rejecting options and whether these attentional differences affect final decisions. Each stage provides individual thinking data, facilitating examination of individual differences in information processing (Levin et al., 2000).

3.3 Direct Inquiry Method

Recent research on selection and rejection response modes favors the direct inquiry method (Chen & Proctor, 2017; Apadula & Martins, 2019). Response mode manipulation occurs through instructions. For example, selection and rejection instructions respectively state: "Which option do you prefer? Please select the more favorable option from the two alternatives" versus "Which option do you reject? Please reject the less favorable option from the two alternatives" (Chen & Proctor, 2017). Similarly, Apadula and Martins (2019) directly instructed groups to select ("please select the dessert you want to order") or reject ("please reject the dessert you do not want to order") their preferred options. This simple method maintains identical experimental materials and parameters while varying only instructions to explore differences between selection and rejection modes. Unlike the enrichment paradigm, decision options differ only in question format (selection vs. rejection) while content remains identical.

In summary (see Table 2), all three paradigms manipulate selection and rejection

through instructions. They differ in that phased narrowing and direct inquiry present identical option content across modes, whereas the enrichment paradigm presents different content (enriched vs. impoverished options). Unlike the other two paradigms, phased narrowing can track multi-attribute decision information processing.

Table 2 Similarities and differences among paradigms across three dimensions: selection and rejection response modes Enrichment Paradigm Phased Narrowing Technique Direct Inquiry Method Option content consistency Question format consistency Decision process traceability (Enriched vs. impoverished options) Selection vs. rejection Selection vs. rejection Traceable Selection vs. rejection

4. Theoretical Hypotheses for Selection and Rejection Response Mode Differences

Differences in cognitive effort, selective attention, and decision criteria have prompted researchers to explore underlying mechanisms. Understanding these psychological processes is crucial for advancing the field (Spencer et al., 2005). This section introduces major theoretical hypotheses explaining decision differences between the two modes. Three mature theoretical explanations exist, evolving from the earliest compatibility hypothesis to the commitment hypothesis, and finally to the accentuation hypothesis that reconciles the two.

4.1 Compatibility Hypothesis

Shafir (1993; 2018) proposed the compatibility principle to explain mechanisms underlying selection and rejection differences. The compatibility hypothesis suggests that task requirements correlate significantly with salient option attributes. In selection mode, dimensions with positive attributes are more compatible with the selection task, receiving greater decision weight. Enriched options become more popular in selection tasks as people focus on positive dimensions to build acceptance rationales. In rejection mode, dimensions with negative attributes are more compatible, receiving greater weight. People focus on negative dimensions to build rejection rationales. From a compatibility perspective, alignment between response mode and salient attributes directs more attention and processing to those attributes, fundamentally causing attentional biases. In the custody case, Parent B' s simultaneous strengths and weaknesses provided both selection and rejection rationales, creating the contradictory outcome of being both selected and rejected. Shafir (1993, p.548) wrote: "People choose and reject based on reasons. When asked to select an option, individuals focus on finding reasons to choose; when asked to reject, they focus on finding reasons to reject." When facing replicability concerns, Shafir (2018) replicated and responded to the 1993 experiments, with unpublished replications confirming robust results that again support the compatibility hypothesis.

Other research (Perfecto et al., 2017; Chen & Proctor, 2017) also found compatibility issues between response modes and option attributes. In framing effect

research, positive frames emphasize positive dimensions while negative frames emphasize negative dimensions. In stimulus-response compatibility studies, responding to left lights with left keys and right lights with right keys yields faster, more accurate responses due to compatibility. Similarly, research on response modes and attribute weights found that attractive options are compatible with selection tasks, while unattractive options create more conflict, increasing decision time and difficulty. In rejection tasks, attractive options create more conflict (Dhar & Nowlis, 1999). Perfecto et al. (2017) from UC Berkeley proposed attribute matching theory based on option valence and decision frames, suggesting that selecting positive options increases confidence, while rejecting negative options increases confidence. This evidence implies that compatibility between response modes and attributes creates attentional biases, directing more focus to matching attributes and consequently affecting decisions.

4.2 Commitment Hypothesis

Ganzach (1995) proposed the commitment hypothesis to explain selection and rejection differences. Originating from 质疑 of selection/rejection differences, Ganzach (1995) extended Shafir' s (1993) enrichment paradigm by adding a clearly inferior third option. Examining selection and rejection differences, they reached conclusions opposite to Shafir' s: enriched options were more popular in rejection tasks (see also Carlson & Bond, 2006). Based on these contrary findings, Ganzach (1995) argued: "Selecting an option requires higher commitment than rejecting because people live with selected, not rejected, options." This forms the commitment hypothesis core. High commitment makes people more critical and discerning when selecting; options falling below selection thresholds are more easily eliminated. High commitment also leads individuals to weight extremely negative information more heavily, reducing enriched option selection rates compared to rejection tasks. From a commitment perspective, high commitment in selection tasks increases cognitive effort allocated to option attributes, enhancing critical thinking and making people more likely to reject attributes below threshold. However, subsequent research questioned this hypothesis. Meloy and Russo (2004) measured commitment levels in selection and rejection tasks by assessing subjective certainty about final selections, finding no significant difference in commitment between the two tasks.

4.3 Accentuation Hypothesis

To resolve debates between compatibility and commitment hypotheses, Wedell (1997) integrated Shafir' s and Ganzach' s explanations, proposing the accentuation hypothesis to encompass and reconcile the opposing theories. The core claim: differences between selection and rejection tasks depend primarily on emphasizing attribute differences between options. Wedell (1997) noted that Shafir' s and Ganzach' s opposite results stemmed from systematic differences in overall relative attractiveness between enriched and impoverished options across their experiments.

Overall relative attractiveness refers to the average preference proportion for enriched options across selection and rejection tasks. Wedell (1997) found that in Shafir' s experiments, enriched options' overall relative attractiveness exceeded that of impoverished options, whereas in Ganzach' s experiments, enriched options' relative attractiveness was lower. These differences in relative attractiveness caused inconsistent selection/rejection patterns.

Wedell therefore proposed two assumptions: (1) selection tasks generate greater needs to justify chosen options; and (2) this justification strengthening occurs by weighting differences between options more heavily. The accentuation hypothesis assumes that greater commitment or self-justification needs in selection tasks lead decision-makers to assign more weight to attribute differences. In other words, people become more insightful or discriminating in selection than rejection tasks—a point overlapping with commitment hypothesis claims about commitment levels. Wedell (1997) suggested that decision-makers perceive selection tasks as more important because they feel greater need to justify their choices. Meloy and Russo (2004) responded that this need for justification distorts information processing to some extent.

Compatibility, commitment, and accentuation hypotheses each explain data based on empirical research using multi-attribute materials and specific paradigms. Theoretical explanations for selection/rejection differences in simple binary choices warrant further exploration.

4. Application Value of Selection and Rejection Response Modes as Nudging Tools

The application value of selection and rejection response modes primarily manifests in nudging applications. Richard H. Thaler, 2017 Nobel laureate in Economics, proposed that nudging represents interventions in behavioral science that preserve freedom of choice while using simple, low-cost choice architecture to steer behavior toward expected directions (Thaler & Sunstein, 2008; Liu et al., 2019). Following this trend, the *Acta Psychologica Sinica* column "Small Nudges, Big Changes: Behavioral Decision-Making Boosts Social Development" (He et al., 2018) encourages researchers to report useful and interesting behavioral decision findings, review major practices in public management, and urges Chinese behavioral decision scholars to serve as advisors for government and organizational decision-making, playing tangible roles in social development. Based on the potential application value of selection and rejection response modes, this paper aims to leverage processing differences between these modes to adjust or modify their discrepancies (Krishnamurthy & Nagpal, 2008) and introduce them into real life to 发挥其应用机制, providing theoretical foundations for subsequent empirical research. Selection and rejection response modes have already seen exploratory applications in consumer behavior, healthcare, education, and other domains.

These modes can help steer decision outcomes toward desired directions. Revis-

iting Shafir' s (1993; 2018) custody case from the introduction, parents often dispute child custody, typically both wanting custody and engaging in zero-sum competition. The film *Kramer vs. Kramer* depicts this struggle. Yet decision research suggests such difficult judgments are easily manipulated. If you want Parent A to win, simply ask "Which parent would you deny custody to?" If you want Parent B to win, ask "Which parent would you grant custody to?" The winner depends entirely on question framing—this is the power of nudging.

These modes also enhance satisfaction with selected products or services. Machin (2016) found that decision strategies affect satisfaction. Two movie enthusiasts chose between caramel and buttered popcorn: one selected ("Hmm, caramel popcorn") while the other rejected ("Yuck, buttered popcorn"). Both ultimately ate caramel popcorn, but who was more satisfied? The rejection-mode enthusiast reported higher satisfaction. When consumers reject disliked options, they focus more on negative features, using this negative information to imagine worst-case scenarios. When service or product failures occur, this reduces potential dissatisfaction (Machin, 2016). Thus, guiding consumers toward rejection-based strategies can increase satisfaction. For example, airlines facing high customer dissatisfaction rates (Butsunturn & Roberts, 2015) could emphasize competitors' negative features in advertising to encourage consumers to reject competitors and select their own product, thereby increasing satisfaction through rejection-based strategies.

These modes can increase organ donation rates and registered organ quantities. Huang et al. (2018) asked volunteers to decide which organs to donate using either acceptance mode (checking desired organs) or rejection mode (unchecking undesired organs). Although option content was identical, volunteers in rejection mode showed higher donation rates and registered more organs than those in acceptance mode.

These modes can help achieve balanced selection between core and extended courses. Liu et al. (2019) found that across three family generations (grandparents, parents, children), rejection mode (checking courses they did not want to take) led to enrolling children in more courses than acceptance mode (checking desired courses). Interestingly, acceptance mode favored extended courses (e.g., creative arts, physical training), while rejection mode also tended to reject extended courses, resulting in greater selection of core courses (e.g., Chinese reading, math intensive) and achieving balanced choices. Thus, simply using acceptance or rejection modes changes decision outcomes.

5. Future Directions for Selection and Rejection Response Modes

Continue developing response modes as nudging tools and expand their application domains and other variants. Selection and rejection response modes have seen successful applications in consumer satisfaction (Machin, 2016; Butsunturn & Roberts, 2015), organ donation (Huang et al., 2018), and healthy

food (Finkelstein et al., 2004). Future research could leverage these advantages in more practical domains like healthcare, telecommunications, tourism, and dining to nudge real-life decisions. Additionally, response modes include other variants like selection versus matching and comparison versus evaluation that merit further exploration for nudging value.

Focus on exploring explanatory mechanisms underlying differences. In binary choices, selecting one option necessarily rejects another. What factors influence decisions between selection and rejection, and what are the internal psychological mechanisms? Answering these questions will deepen understanding of boundary conditions and mechanisms through which the two modes affect human decision-making. For example, Li et al. (2012) found that accepting or rejecting information depends on whether one already possesses it, with the psychological mechanism for rejecting information sharing being avoidance of waste.

Future research should consider leveraging eye-tracking advantages to investigate process differences at a more granular level. Eye-tracking provides millisecond-precision behavioral data (Rayner, 2009), revealing which processing stage (early or late encoding) influences information processing. When tasks change rapidly over time, eye-tracking' s easily measurable processes help us understand decision-making mechanisms. Analyzing gaze patterns may provide an effective tool for uncovering subconscious decisions. Future studies could examine attention differences to positive and negative dimensions under selection versus rejection modes, as well as differences in initial and final fixation points. Research shows people gaze longer at options they will select (Schotter et al., 2010) and spend more time examining ultimately chosen options (Pieters & Warlop, 1999). For example, people spend more time dating potential spouses and test-driving cars they intend to buy. In many species, mate selection rituals begin by orienting toward potential mates. Whether gaze patterns differ between rejection and selection modes remains a valuable research question.

Future research should further employ eye-tracking to examine whether attentional processing differs when selecting versus rejecting options (Luo & Yu, 2017).

Develop decision theories based on rejection response modes. Traditional and classic decision theories are almost exclusively built on selection response modes. Only a few heuristic decision theories incorporate rejection modes, such as elimination-by-aspects and connectionist models (Bettman et al., 1998), but rejection decisions remain understudied compared to selection decisions (Chan & Wang, 2018). Most decision research focuses on selection, yet individuals often face rejection decisions. Given the potential impact of selection and rejection modes on decision behavior, future theory development should emphasize the role of "response mode" as a variable.

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Note: Figure translations are in progress. See original paper for figures.