

Reinforcement versus balance response in sequential choice

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Abstract Psychologists often explore the impact of one act on a subsequent related act. With an eye to the marketing literature, this paper explores two properties of sequential choices that involve the resolution of competing goals. Reinforcement occurs when the goals driving the first choice are made stronger by that choice and result in a congruent subsequent choice. Balance occurs when the first choice satisfies or extinguishes the goals that led to the original decision, producing an incongruent subsequent choice. This review examines a number of psychological frameworks that account for reinforcement or balance responses in sequential choice and identifies theoretically relevant moderating variables that lead to either response.

Keywords Sequential choice · Reinforcement · Balance

This paper focuses on two divergent ways a choice can alter a subsequent choice. This divergence is illustrated in the following questions:

- Does a shopper's first purchase in a store increase or decrease the likelihood of making subsequent purchases in the store?
- Is a dieter who orders the low-fat entrée more or less likely to order the low-fat dessert?

This paper was drawn from the discussion in the “Preference Construction in Sequential Choice” session at the Invitational Choice Symposium in June 2007. Participants were James R. Bettman, Ravi Dhar, Ap Dijksterhuis, Ayelet Fishbach, Ran Kivetz, Nathan Novemsky, Daphna Oyserman, John Payne, Drazen Prelec, Norbert Schwarz, Itamar Simonson, Yaacov Trope, and the authors.

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- Will turning down a large request from a charity alter the reaction to a more modest request made later?
- Are self-help systems that allow balanced deviations from a norm more effective than systems that proscribe all undesired behavior?

These four questions reflect sequential choice scenarios. Each begins with an initial decision that resolves conflicting goals and is followed by a related decision that shares the same conflict. For example, one might first choose a healthy but not particularly tasty appetizer and then later choose an artery-clogging but delicious dessert. We focus on whether having made an initial choice supports or extinguishes the cognitions and emotions that led to that decision. When the first choice bolsters a goal, leading to a similar later choice, we term that “reinforcement.” When the first choice satisfies the goal, allowing an alternative goal to drive the later choice, we term that “balance.”¹ Since reinforcement and balance are descriptive rather than theoretical terms, we propose that their occurrence depends on the theoretical mechanism operating at the time. We will review a number of theoretical mechanisms that result in goals being reinforced or balanced across successive choices. These mechanisms differ in terms of the time span over which they work, ranging from those that are fragile and short-lived to those that endure.

Within the realm of human behavior, reinforcement and balance with respect to successive actions comprises an enormous topic. This paper provides a selective review using examples with particular relevance to the marketing literature. Table 1 gives an overview of the mechanisms we will discuss. As it indicates, the way in which reinforcement and balance manifest depends on the time separating the sequential choices. Some mechanisms are transitory and relate to short-term memory, others evoke fundamental constructs of meaning and self identity that can endure over days or weeks, and finally, still others define lifestyles reflected in multiple decisions over months or years. Within each time span, we will review the theoretical mechanisms that lead to either reinforcement or balance and will summarize moderators of the effect.

1 Reinforcement versus balance immediately following choice

In the short run, reinforcement is an appropriate default. That is, unless there is an intervening event or negative reaction to the first choice (e.g., to eat a potato chip), then it is likely that the second choice will be similar to the first (e.g., to eat another potato chip). However, as we will demonstrate, even in the short-term, individuals sometimes balance their actions across sequential choices. Below, we provide one particularly compelling example of short run reinforcement and one example of short run balance, and then examine moderators that lead to either reinforcement or balance.

The reinforcement example comes from Dhar et al. (2007) in what they call “shopping momentum.” The idea is that making an initial purchase causes people to be more likely to purchase other products in that store. In a series of experiments,

¹ The terms “highlighting” and “balancing” have been used analogously (Dhar and Simonson 1999).

Table 1 Mechanisms driving reinforcement versus balance in sequential choice (examples are in parentheses)

Time span	Reinforcement	Balance
Transitory (minutes, hours)	Mindsets (shopping momentum) Peak experiences (highlighting) Abstract construal (goal focus)	Boredom (inherent rule variability) Resource depletion (limited will power) Concrete construal (goal conflict)
Enduring (days, weeks)	Self-perception (foot-in-the-door) Cognitive consistency (goal commitment)	Guilt (door-in-the-face) Licensing (goal progress)
Lifestyle (months, years)	Asceticism (Alcoholics Anonymous and Calvinism)	The golden mean (Weight Watchers and Catholicism)

they manipulate the attractiveness of a first choice and show that the choice to begin spending on one product increases the likelihood of continuing that action by purchasing a second unrelated product. In two linked experiments, the authors give evidence that these results are consistent with Gollwitzer and Bayer's (1999) theory of mindsets, where the first choice moves the consumer from a deliberation mindset (whether to pursue) to an implementation mindset (how to pursue). The first experiment demonstrates that an initial purchase increases implementation thoughts, while the second experiment shows that experimentally cueing implementation thoughts increases purchases. The results of these two experiments support mindsets as a mechanism that can drive reinforcement between temporally proximal actions.

Dhar and his colleagues define two boundary conditions that reveal the automatic yet fragile nature of the reinforcing effect of shopping momentum. First, the effect is not observed with hypothetical purchase scenarios, as consumers are unable to intuit the impact of their initial purchase. Second, the authors find that shopping momentum is substantially reduced if consumers use a different source of money to pay for the second item, thus highlighting the susceptibility of mindsets to be overridden by new information.

In contrast to the reinforcing of sequential choice behavior observed in the shopping momentum research, there are also examples of consumers engaging in short-term balancing. In a relevant series of experiments, Drolet (2002) finds strong support for what she terms "inherent rule variability." Inherent rule variability stipulates that consumers gain utility from variation and balance in their decision strategies. To show it, Drolet first asked respondents to make choices either from product categories where they were more likely to choose brand name over private label products (cereal and soda) or from product categories where they were more likely to choose private label over brand-name products (cotton swabs and sugar). She then gave all participants the same target choice from a product category pre-tested for relatively equivalent preferences across the brand-name and the private-label products (aspirin). She found that those who had initially chosen from the sets that favored choice of the brand name were subsequently more likely to choose the private-label product in the target choice. The reverse is true for those who had initially chosen from the sets favoring the private-label products. This pattern is then replicated across a variety of decision strategies such as seeking low prices or choosing the compromise option.

Two differences between the shopping momentum and inherent rule variability studies may account for their contrasting results. First, there are structural differences

in the choice tasks. The tests of inherent rule variability have two initial choices; thus, the variability may occur because of satiation from the repetition of the first decision strategy. Second, the tests of inherent rule variability involve hypothetical choice scenarios, whereas shopping momentum involves actual decisions. When making a series of hypothetical choices, one is often put in a role of considering what the appropriate decision might be. This self-reflection contrasts with the relatively mindless response to an initial purchase in shopping momentum. The contrast between shopping momentum and inherent rule variability is in keeping with the idea that reinforcement exhibited in goal continuity is the default (mindless) behavior, but one which can be very easily disrupted by internal or external stimulation.

Indeed, as further evidence for the fragility of these short-run carryover effects, researchers have documented other factors that can be manipulated to generate short-term reinforcement versus balance behaviors. Below, we elaborate on three examples: resource depletion that leads to balance, desire for peak experience that leads to reinforcement, and construal level that leads to one or the other, depending on whether one's mindset is abstract or concrete.

Consider first-resource depletion, in which initial choices requiring self-control deplete the mental resources that restrain behavior (Muraven and Baumeister 2000; for a review, see Baumeister et al. 2008). Novemsky et al. (2007) demonstrated that a consumer's level of depletion can affect self-control on choices between vices and virtues. Compared with a control condition, participants who initially underwent a depletion manipulation were significantly more likely to choose the more indulgent option in a subsequent, unrelated choice task. The results of this laboratory study were echoed by a clever field experiment. Students exiting the library after long hours of study (depleted group) were more likely to choose to watch a low-brow comedy, whereas students just entering the library (control group) were able to exert a comparatively greater degree of self-control and were more likely to choose a high-brow film.

In contrast to resource depletion leading to balance, Dhar and Simonson (1999) find evidence of reinforcement in consumers' pursuit of memorable events. For instance, if an individual has spent a lot of money for a great seat at a ball game, he is expected to subsequently be more likely to splurge for a premium beer than to save money by drinking a regular domestic beer. The researchers reason that "peak goal fulfillment has a special status that consumers try to achieve from time to time, and they are willing to pay the price for such memorable experiences" (p. 40).

A general factor that alters reinforcement versus balance is the level of abstraction at which choices are processed. Construal level theory posits that with greater psychological distance, consumers construe a choice more abstractly, forming a higher-level representation focused on central features (Trope and Liberman 2003; for a review, see Trope et al. 2007). Conversely, reducing psychological distance leads to more concrete construals, characterized by lower-level representations enriched with details (Trope and Liberman 2003). In the short-term, concrete construal may generate balance as the enriched detail emphasizes conflicts between goals. By contrast, a more abstract mindset can serve to reinforce one's higher order goals across choices (Fishbach and Dhar 2006). Supporting their work, Goldsmith et al. (2007) demonstrate that, under an abstract mindset, an initial virtuous action increases one's likelihood of making a subsequent virtuous choice, thereby

illustrating reinforcement of “good works” across choices. Conversely, under a concrete mindset, the same initial virtuous action sates one’s goal to be virtuous and decreases one’s likelihood of making a subsequent virtuous choice. Although there can be chronic individual differences in construal level (Vallacher and Wegner 1987), experimentally induced mindsets have only a fleeting effect on behavior. As such, like resource depletion, construal level generally exerts short-term effects on sequential choices that are unlikely to endure.

To summarize, we have illustrated that patterns of behavior (reinforcement or balance) across such short-term sequential choices are fragile and thus lend themselves to a host of both external and internal moderators that emphasize different aspects of the choice. Building on these results, we will next explore more enduring mechanisms underlying reinforcement versus balance that exert longer-lasting effects.

2 Enduring reinforcement versus balance

When an individual perceives a choice to be an expression of long-term beliefs, attitudes, or goals, then the effects of that choice tend to persist over time. In most instances of self-perception (Bem 1972), the individual strives to be consistent, thus reinforcing an original choice. In other instances, however, individuals are susceptible to a range of influences that lead them to balance the goals driving their first and later choices.

The enduring impact of self-perception on future decisions has been demonstrated in over four decades of studies examining the positive impact of the decision to comply with an initial small request on the likelihood to comply with a subsequent larger request (Burger 1999). This foot-in-the-door effect was first demonstrated in a study conducted by Freedman and Fraser (1966) where researchers knocked on the doors of people’s homes and asked them to sign a petition either on the issue of safe driving or keeping California beautiful. Two weeks later, researchers returned with the larger request of installing a very large sign in their front lawn that read, “Drive Carefully.” Perceiving their previous decision to comply as evidence that they are “the kind of person who does this sort of thing, who agrees to requests made by strangers, who takes actions on things he believes in, who cooperates with good causes” (p. 201), those participants who had been presented with the initial small request of signing the petition (regardless of the issue) were significantly more likely to comply with the large request of installing the sign on their lawn than were those who had not been presented with the initial request. Consistent with a self-perception account, the reinforcement effect dissipates among individuals who have a low need for consistency (Cialdini et al. 1995).

In contrast, when the response to an initial request is not perceived as a reflection of one’s self, this long-term effect of reinforcement can be reversed, resulting in balance. Instead of an initial very small foot-in-the-door request that results in preliminary compliance, Cialdini et al. (1995) demonstrated a door-in-the-face effect in which a rejection of an initial very large request produces an increased willingness to later comply with a moderate request. What is important here is that the theoretical mechanism is no longer self-image but instead guilt arising from acquiescence to the social norms of concession and reciprocity (Cialdini et al. 1975).

Self-perception also underlies decision reinforcement in goal-directed behaviors. Fishbach and Dhar (2007), for instance, found that when an initial choice is perceived as evidence of one's commitment to a particular goal, the individual will be more likely to inhibit competing goals and reinforce that goal in a subsequent choice. They found that students were significantly more likely to pass up the competing goal of being social by not going out with friends that evening after they were asked to indicate whether they *felt committed* to academic tasks from the initial decision to study hard all day. In contrast, when commitment to one's goals is certain (and self-perception thus unnecessary), the initial choice may be interpreted as satisfactory progress toward the goal, licensing the individual to balance the effort with a gratifying subsequent choice. For example, students in that same study were more likely go out with their friends that evening after they were asked to indicate whether they *felt they had made progress* in their academic tasks based on their initial decision to study hard all day (Fishbach and Dhar 2007).

Other researchers have similarly documented balance through self-licensing. For instance, after making a virtuous choice (e.g., to donate time to charity), people feel licensed to choose a vice (e.g., a pair of designer jeans instead of a vacuum cleaner; Khan and Dhar 2007), and after exerting a large amount of effort in a rewards program for a virtuous product, consumers feel guilt-free in their choice of a more luxurious reward (Kivetz and Simonson 2002).

Even though these licensing-type effects have typically been demonstrated among participants within the relatively short duration of one experimental session, the underlying roles of self-perception and identity suggest that these effects can persist over hours, days, or even weeks. Consider, for instance, the foot-in-the-door effect in which the second request was made two full weeks after the first request. Note, however, that participants were reminded of their decision to be helpful in the first request, allowing self-perceptions to lead to compliance once again. Importantly though, whether reinforcement or balance will occur in that delayed second choice also depends on the certainty of the goal and its impact on attention. When individuals are certain about their goal (to be charitable, for example), they are more likely to attend to evidence of progress and will feel licensed to balance in their subsequent choice. In contrast, when individuals are uncertain about their goal, they are more likely to attend to evidence of goal commitment and will feel motivated to continue in that goal pursuit through reinforcement (Koo and Fishbach 2008).

3 Lifestyle strategies of reinforcement versus balance

The previous examples of reinforcement and balance largely focus on a single choice that has downstream implications for a later choice. However there are numerous cases in which ongoing choices reveal patterns of either reinforcement or balance. Here, we will present two examples of each and then summarize the contexts in which they are likely to occur. Our first example relates to strategies for long-term self-control, while the second identifies contrasting strategies for religious compliance. Although the causal links are less clear for ongoing behavior compared with short-term binary choices, the reinforcement and balance implicit in these lifelong strategies are highly relevant both to the individual and society.

Furthermore, some of the determinants that drive reinforcement or balance in local choice recur in patterns of ongoing actions.

We first consider the way reinforcement versus balance differentially supports the self-help strategies that deal with persistent life problems such as alcoholism and obesity. Consider first the philosophy of reinforcement that underlies Alcoholics Anonymous (AA). To be a member of AA, an individual is required to set the goal of *complete* sobriety: “to stop drinking and learn how to live a normal, happy life without alcohol” (Alcoholics Anonymous 2007). There is no room for wavering or bargaining. An individual’s success record is limited only to the time since the last deviating decision (i.e., sip of alcohol) so that the sobriety count starts from scratch with any relapse. Similar to reinforcement from self-image, AA holds that alcoholism is an integral part of one’s identity, with each related choice reflecting one’s character. AA members acknowledge that they are alcoholics today—despite being drink-free for many years. They do not say that they are “cured.” Once people have lost their ability to control their drinking, they can never again be sure of drinking safely—or, in other words, they can never become “former alcoholics” or “ex-alcoholics.” In AA, they can only be sober alcoholics (Alcoholics Anonymous 2007).

In contrast, Weight Watchers’ strategy of self-restraint endorses a philosophy of balancing. With the overarching goal of limiting individuals’ caloric intake to promote weight loss, Weight Watchers assigns points to foods and exercise, allowing a set number of points to be consumed per week (Weight Watchers 2007). This method allows individuals to balance their good versus bad decisions. For example, a high-point piece of chocolate cake now can be balanced against a decision to snack on low-point carrots or to exercise. A balance strategy, therefore, does not require every single decision to promote the overarching goal. Indeed, as described on the packaging from another weight loss program, Nutrisystem, a relapse does not start one from scratch: “Forgive and forget: Don’t beat yourself up if something tempts you beyond control... *One slip-up doesn’t wipe out all of your good efforts.*”

Not all diet systems tolerate balance. Many avoid the complexity of balance by cutting out particular food groups completely. Adherence is much simpler under such reinforcing systems, but they may have more difficulty dealing with lapses.

There is an intriguing parallel between these contemporary self-help systems and Max Weber’s (1958) classic contrast between Calvinism and Catholicism (see Fig. 1). In a classic version of reinforcement, the teachings of John Calvin encourage a virtuous life through the doctrine of predestination whereby one’s salvation depends not on acts but on grace (i.e., being in God’s favor). The uncertainty of who is chosen generates a need on the part of a Calvinist to confirm such selection by continually doing good works. This uncertainty leads to a pattern of reinforcement in which good works imply salvation, and these in turn lead to more good works. The reverse is also true: Sin can reinforce more sin. Once a Calvinist believes that his own weaknesses (or wrong choices) are signs of his not being in a state of grace, the rational response is still more weakness, as good acts cannot, in themselves, be redemptive.

Weber contrasts this reinforcement pattern with that of Catholicism. In Catholicism, all are sinners, but this original sin can be countered through good works. Indeed the Catholic sacraments of confession and penance imply that moderate sins can be balanced by good behaviors.

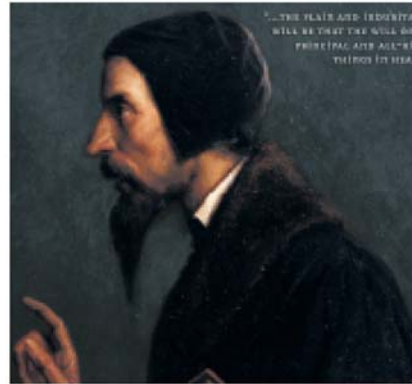
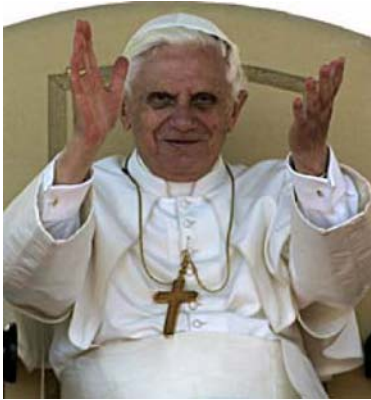


Fig. 1 Max Weber's contrast between the balance of Catholicism and the reinforcement of Calvinism. [The Catholic] conscientiously fulfilled his traditional duties. He could use [his good works] to atone for particular sins, to better his chances for salvation, or towards the end of his life, as a sort of insurance premium. [The Calvinist] could not hope to atone for hours of weakness or thoughtlessness by increasing good will at other times. The god of Calvinism demanded of his believers not single good works but a life of good works

When does a reinforcement lifestyle emerge as opposed to one of balance? It is informative to note that the popularity of Calvinism in its more rigid form has declined, while the adaptability of Catholicism has enabled it to prosper over time and across diverse cultures. One account of this divergence is that Calvinism requires a supportive and homogeneous social order to support its ascetic lifestyle, something that is increasingly difficult today with the expansion of multicultural societies. The need for a stable social order to support reinforcement may also explain why alcohol is better controlled by reinforcing rigidity, while obesity is best attacked through a system of balanced rewards and punishments, as it is possible to avoid those drinking alcohol in ways that are very difficult with respect to food consumption. In summary, for ongoing strategies of self-control, external stability likely leads to reinforcement while instability leads to balance.

4 Summary and conclusion

Though the extant research has largely focused on choices made in isolation, our daily lives consist of choices made in sequence. This review has identified some of the theoretical mechanisms that drive consumers' tendencies to continue with the original plan or to shift to a new strategy in sequential choice. We have discussed a number of contexts and processes that lead to reinforcement or balance.

First, it is useful to maintain a broad distinction between short- and long-term sequential choices. For short-term sequential choices, patterns of reinforcement or balance can be determined by lower-level internal drivers, such as one's mindset or desire for variety. These short-term drivers are fragile and can be moderated by a host of internal and external factors, such as the trade-offs being made or the level of abstraction at which the choice set is processed. Alternately, patterns of

reinforcement or balance across choices separated in time are likely to be driven by higher-level factors that are central to the self, such as identity or guilt. As such, these patterns are more likely to endure and are less likely to be impacted by transitory states, such as depletion. Finally, for lifestyle choice patterns, either reinforcement or balance can emerge as viable strategies, but the success of either strategy depends on the stability of the social and personal environment.

Looking broadly at reinforcement and balance across sequential choices, two over-arching patterns emerge. The first pattern identifies that reinforcement is more likely for strategic decisions that reflect the self. Sustained reinforcement, both in the short term and in the long term, is likely to be driven by a strategic desire for higher-order goal pursuit (short term) or self-perception (long term). The second pattern relates to the degree of variance that occurs in the thoughts or stimuli presented to respondents in the short run or in the degree of social stability in the long run. The general finding is that variability is hostile to reinforcement but supportive of balance.

5 Further research

This review is novel in offering reinforcement and balance as descriptive terms to describe contrasting findings in the literature on consumers' sequential choices. Although future research ought to continue focusing on the theoretical frameworks that generate these opposing behaviors, there are certainly promising areas of inquiry that build from the distinction between reinforcement and balance.

The research cited in this paper refers to the choices rather than the goals or the critical self images behind the choices. However, it would be informative to explore why some goals or individual characteristics are more amenable to balance than others. For example, one cannot generally balance acts of honesty against those of dishonesty. Similarly, calling a person loyal does not allow random acts of disloyalty. By contrast, people who are spontaneous, inquisitive, or energetic can reasonably suffer periods when they are predictable, uncurious, or simply tired. Thus, an important research question involves the identification of goals and personal characteristics that are amenable to balance and those that require consistency.

This review segmented sequential choices according to the time lapse between the initial choice and the subsequent choice because of the differences in the theoretical processes found to underlie transitory, enduring, and lifestyle choices. Indeed, the large majority of the research on sequential choices has held the time lapse between the choices constant, which makes their findings pertain to either short-term effects or long-term effects, but not both. Promising future research could manipulate the time lapse between the first and subsequent choices. Such an inquiry would offer insight into when and how patterns of reinforcement and balance are likely to endure. Relatedly, most sequential choice studies focus on only one or two choices after the initial choice. Because it is possible that repeated choices that structure consumers' lifestyles might be driven by different mechanisms than those evidenced in one-shot experiments, there is still much that can be explored in terms of how sequential choice effects persist not only over time but also over a sequence of choices.

Additionally, most research has examined the sequence of choices consumers make, leaving consumers' affective reactions to those choice sequences understudied. It is thus important to examine whether consumers' tendencies to reinforce or balance across choices within a consumption episode or even throughout life lead to better overall experiences and sense of well-being.

Finally, research is needed to define normative guidelines for when balance is more adaptive to the individual. With respect to self-control, the two strategies appear differentially adaptive depending on the context, but we lack general theories for when one is better than the other. For example, further research is necessary to identify when strategies of pure reinforcement, represented by Alcoholics Anonymous, will be more effective in driving goal pursuit compared with strategies of balance, represented by Weight Watchers.

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