

Scope Insensitivity and The “Mere Token” Effect

Oleg Urminsky and Ran Kivetz

Columbia University, Graduate School of Business

Oleg Urminsky (opu1@columbia.edu) is a doctoral candidate and Ran Kivetz (rk566@columbia.edu) is the Sidney Taurel Associate Professor of Business, both at Columbia University. The authors are grateful for helpful comments and suggestions received from Daniel Goldstein, Sunil Gupta, Oded Netzer, Tom Meyvis, Olivier Toubia, Andrea Vag, and participants in seminars at the Association for Consumer Research Conference and the Behavioral Decision Research in Management Conference.

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Decisions often involve tradeoffs between a more normative option and a less normative but more tempting option. We propose that the intrapersonal conflict evoked by choices involving incompatible goals is resolved through scope insensitive justifications. We describe one such mechanism, the “mere token” effect, a new phenomenon in decision-making. We demonstrate that adding a certain and immediate “mere token” amount to both options increases choices of the later-larger option in intertemporal choice and of the riskier-larger option in risky choice. This effect is found to be scope insensitive, such that the size of the “mere” token amount does not moderate the effect. We show that reducing the degree of intrapersonal choice conflict, either by increasing the psychological distance to the choice outcomes or by framing the more rational option as the status quo, debiases the effect. Further, we show that the mere token effect is enhanced when the options represent a starker contrast that heightens the emotional nature of the choice conflict. We empirically rule out a series of alternative explanations, including normative and descriptive utility-based models, perceptual effects, liquidity constraints, and naïve diversification. We discuss the direct implications of the mere token effect for the marketing of financial services and, more generally, for consumer purchases involving either bundles of goods and services or multi-attribute choice.

“Two souls are in my breast; I see the better, and in the very act of seeing it I do the worse.”

- William James

Difficult choices are pervasive throughout decision-making. Choosing between two investments can involve trading off low risk for the potential of high returns. Competing offers of employment can vary, with some offering higher immediate compensation and others offering better long-term earning potential. Similarly, consumers often face choices between products that involve different levels of product risk or with differences in consumption timing. Consumer product choices may also appeal to a wide range of other competing internal goals, such as taste versus health in choosing among foods or safety versus speed in choosing among cars. In this paper, we specifically explore decisions evoking intrapersonal choice conflict, where the implicit tradeoffs require the decision-maker to sacrifice either one internal goal or the other. Such choice conflicts involving incompatible goals are not readily resolved by a cognitive process of calibrating compensatory tradeoffs as suggested by utility theory, but instead make use of justifications external to the tradeoff to ameliorate the emotional conflict experienced (Prelec & Herrnstein 1991; Shafir, Simonson, & Tversky 1993). We propose that decisions under intrapersonal conflict are affected by the mere presence or absence of justifications, and are fundamentally scope insensitive to the magnitude of the justification. The effect of justification on decision-making is highly sensitive, however, to the intensity of intrapersonal conflict. Justifications impact decisions when intrapersonal conflict is high and become largely irrelevant in low conflict choices.

Our conceptualization implies that a “mere token” justification can often resolve choice conflict and significantly alter the choices made. In a series of studies, we demonstrate this new mechanism for resolving conflict between two options, in which adding a small “token” element to both choice options systematically shifts preferences by making it easier to choose a less tempting

but higher valued option. For example, in intertemporal choice conflict between a sooner-smaller and a later-larger amount, adding a small immediate amount to both options enhances choice of the later-larger option. Similarly, adding a small certain amount to both options in a risky choice situation enhances choice of the riskier-larger option. This “mere token” effect is shown to be a direct consequence of intrapersonal choice conflict and scope insensitive justification, and incompatible with the normative and descriptive additive utility models of decision-making. Notably, the justification in this context does not provide an excuse for relaxing self-control (Kivetz & Simonson 2002b; Kivetz and Zheng 2006, Okada 2005), but instead, by providing symbolic gratification, the mere token serves as a justification for choosing the more far-sighted, higher expected value option.

The mere token effect in fact describes a common decision situation in the financial domain. Token cash incentives are often given when a new investment or saving account is opened, regardless of the implicit risk or timing of the amounts deposited in the account. Online brokers such as E*Trade, Discover and DLJ Direct have offered customers opening new accounts cash bonuses ranging from \$25 to \$75 (Lee 1999). Currently, Ameritrade offers bonuses of up to \$100 for opening a new trading account. Similarly, banks have often given out incentives for opening savings accounts, ranging from toasters to cash bonuses (e.g. HSBC Direct Online offers a \$25 cash bonus for opening a certificate-of-deposit account). Such incentives are designed to attract customers to enroll, but the effect on the choices then made has not been studied. More generally, purchase and consumption decisions for products generally involve consideration of either bundles of multiple products or of single products that comprise bundles of features or attributes. While the cognitive processes underlying such decisions have been widely studied, less attention has been paid to the impact of motivational factors on such

choices. This research employs the domains of intertemporal choice and risky choice as empirical contexts in which to explore the effects of intrapersonal conflict and scope insensitive justifications on decision-making in general.

The paper is organized as follows: in Section 1, we develop our conceptualization of intrapersonal choice conflict, exploring the way that competing motivations create emotional conflict and the circumstances under which scope insensitive justification resolves such conflicts, shifting the choices made. We present a series of propositions describing a new phenomenon in decision-making, the mere token effect, which is derived from the proposed conceptualization. In Section 2, we demonstrate the mere token effect in the domain of intertemporal choice, which has often been used as a theoretical model of self-control conflict. In Section 3, we extend our findings to the more general domain of risky choice. In both contexts, we provide direct evidence that the mere token effect operates by providing a scope insensitive justification that reduces intrapersonal choice conflict. In Section 4, we show that the mere token effect is systematically diminished when intrapersonal choice conflict is reduced by increasing psychological distance. In Section 5, we extend these findings, using an endowment manipulation to lessen the intensity of goal conflict and reduce the mere token effect. In Section 6, we show that the mere token effect is enhanced when the options represent a starker contrast that heightens the emotional nature of the choice conflict, consistent with our conceptualization but in violation of both normative and descriptive utility-based models of decision-making. In the final section, we discuss and empirically rule out a series of alternative explanations, including perceptual effects, liquidity constraints and naïve diversification. We also discuss the theoretical and managerial implications of both the mere token effect and our conceptualization of scope insensitive justification.

1. Theoretical Development

In the normative models of choice, such as subjective expected utility theory (Savage 1954), choices are made by evaluating the expected utilities of the alternatives, taking into account subjective outcome probabilities and discounting any temporally delayed outcomes (Samuelson 1937). Descriptive theories such as prospect theory (Kahneman & Tversky 1979) and hyperbolic discounting (Ainslie 1975) were developed to account for ways in which people's actual choices were found to systematically deviate from the predictions of normative models. Both the normative and descriptive compensatory models imply that choice conflict does not affect the actual option chosen (Tversky and Shafir 1992). The implicit assumption in such models is that the higher valued option is most likely to be chosen, and when both options are similar in value, decision-makers are indifferent between the options.

Choice sets in which the decision-maker faces a tradeoff between dimensions (e.g. between amount and risk, or amount and time) can in fact give rise to substantial choice conflict. One stream of research, arising from signal detection theory and the psychophysics of perception, has focused on the conflict elicited by choosing between similarly valued stimuli (e.g. see Tyebjee 1979). This research has demonstrated that the time required to make a choice increases as the difference in subjective preference between the options decreases. The underlying explanation is fundamentally cognitive – facing preference uncertainty (Dhar 1997), a motivated decision-maker will find it more difficult to correctly identify the subjectively higher valued of two similar options (as long as neither dominates). For a choice to occur, preferences may be constructed (Bettman, Luce, & Payne 1998; Simonson & Tversky 1992; Slovic 1975), with decisions made based on contextual cues rather than stable valuations.

A fundamentally different perspective on what makes choices difficult is the idea that conflict occurs between competing goals rather than choice options (Beattie & Barlas 1993; Festinger 1957; Janis & Mann 1977; Luce, Payne & Bettman 1999). In this view, decision conflict arises when the choices involve substantial tradeoffs on dimensions that implicate personally important competing goals. This has been discussed in the literature using the analogy of multiple “selves,” each representing a single goal or ideal, that can come into conflict in making a decision (e.g. James 1890; Schelling 1980). Much of this research focuses on changes in preferences over time and the conflict between impulsive tendencies shortly before the outcome versus more far-sighted reasoning that occurs farther in advance of the consequences (e.g. Strotz 1956; Ainsle 1975). The notion of conflict arising from competing goals also relates to the contrast between visceral and reasoned reactions (Loewenstein 1996) and between “hot” and “cool” modes of reasoning (Metcalfé & Mischel 1999).

The distinction between an impulsive emotional “want” self and a more far-sighted rational “should” self has been proposed as a general categorization to encompass this kind of intrapersonal conflict (Bazerman, Terbrunsel, & Wade-Benzoni 1988). We argue, however, for a broader notion of intrapersonal conflict, characterized by conflicting impulses that arise from a variety of competing motivational goals, all of which may be similarly emotional in nature. For the decision-maker facing choice options, both of which implicate strongly held goals, choosing either option presents an emotional threat to the self-identity associated with the opposing goal. The literature on cognitive dissonance has demonstrated that when central values are threatened, one response is to resort to behaviors (e.g. Sherman & Gorkin 1980) or even mere symbols (Golwitzer & Kirchoff 1998) that bolster the threatened value. Relatedly, the literature on self-signaling (Bodner & Prelec 2001; Quattrone & Tversky 1984) argues that people will make choices in part based on the

diagnostic utility of their choice, a notion that also underlies the use of private side bets as an instrument of self-control (Ainsle 1975). Thus, for choices involving competing goals, the process of decision-making will involve not only cognitive assessment of utility, but motivational judgments concerning the impact of choices on self-identity.

Choice under intrapersonal conflict is therefore a process of internal negotiation that is effortful in nature, and may remain stuck in indecision (Luce 1998), particularly when the choice options represent a dramatic tradeoff between distinct goals. Furthermore, in this kind of conflict, choices are interpreted as representing the decision-maker's inner values and true identity (e.g. Bodner & Prelec 2001; see also Bem 1967). Therefore, the motivational aspect of intrapersonal conflict is generally not receptive to compensatory adjustments in the choice options, but is instead affected by reasons, justifications, and rationalizations (e.g. Kivetz & Zheng 2006; Shafir, Simonson & Tversky 1993; Slovic 1975) that can counter the challenge to self-identity. It is important to note that the notion of conflict between self-identity goals implies that motivational concerns underlie evaluation of both impulsive and far-sighted choice options. Consistent with this view, research on hyperopia (Kivetz & Simonson 2002a) has shown that what has generally been considered the more objective "should" self can also be characterized as irrational and emotional, subject to feelings of guilt and making non-optimal choices that lead to negative feelings of "missing out" in the long-run (Kivetz & Keinan 2006). Furthermore, while generally studied in the context of excusing indulgence (Kivetz & Simonson 2002b; Kivetz and Zheng 2006), justification and reasons can also be employed, in our conceptualization, to lessen the temptation of impulsive options. In particular, as we describe in the next section, a justification which provides some symbolic measure of gratification can "pacify the demon," reducing the urgent desire for the near-sighted option.

The “Mere Token” Effect

The preceding discussion outlines how emotional intrapersonal conflict arises from competing self-identity goals and how it can be resolved in the presence of justifications and reasons. In particular, we propose that scope insensitive justifications can resolve choice conflict by way of a “mere token effect.”

Proposition 1: *When a decision-maker faces intrapersonal conflict between outcomes representing competing goals, adding a “mere token” to both options that signifies one of the goals will increase choice of the option affiliated with the competing goal.*

The proposition implies, for example, that in a conflict between the goals of immediacy and magnitude, adding a token of immediate gratification to both options will satisfy the impulsive tendency and free the decision-maker to choose a higher valued but less tempting option. For example, in an intertemporal choice conflict between a sooner-smaller amount and a later-larger amount, we propose that adding a small immediate amount to both choice options will increase preference for the later-larger option, contrary to the predictions of normative and descriptive models of intertemporal choice. Importantly, the “mere token” operates as a symbolic justification, and we rule out normative alternative explanations, such as the token amount satisfying a liquidity constraint. Furthermore, since the token is added to *both* options, it cannot be interpreted as a trivial tie-breaker (e.g. Brown & Carpenter 2000). A critical aspect of this proposition then, alluded to in the use of the term “mere” token, is insensitivity to the scope or magnitude of the token:

Proposition 2: *The magnitude of the mere token will have a negligible impact on the size of the mere token effect observed; in particular, even very small “mere tokens” will shift choices.*

Thus, it is specifically the presence or absence of the token that impacts decisions by either providing or not providing a justification. Scope insensitivity has been documented in valuations when the context is emotional in nature (Hsee & Rottenstreich 2004) and when evaluations are conducted separately, rather than relative to other options (Hsee, Rottenstreich, & Xiao 2005). Unlike the work of Hsee and colleagues, however, the scope insensitivity we predict in the context of intrapersonal conflict is distinct from low evaluability and diminishing marginal utility. Rather, the impact of the mere token is scope insensitive because the intrapersonal conflict is fundamentally motivational in nature and the resolution of this conflict occurs through non-compensatory reasoning, external to the tradeoff between options. Thus, scope insensitivity applies specifically to the elements of decision interpreted as justification (relatedly, see Drolet, Simonson and Tversky 2000), and we do not expect general scope insensitivity to the underlying dimensions such as time or money (we investigate this argument in Study 6).

Importantly, we do expect the strength of the mere token effect to be sensitive to the contextual factors of the decision that aggravate or mitigate the intensity of the intrapersonal conflict:

Proposition 3: *When the intensity of the intrapersonal choice conflict is lessened, the mere token effect will be diminished.*

In particular, we propose that intrapersonal choice conflict is moderated by psychological distance (Lewin 1951; Trope & Liberman 2003). Metcalfe and Mischel (1999) propose that distancing oneself from a decision can increase willpower by shifting decision making from a “hot” emotional system to a “cool” cognitive system of reasoning. We conjecture that increasing psychological distance will reduce the degree of intrapersonal choice conflict by “cooling” the negative emotions induced by the required tradeoffs. Therefore, our conceptualization implies that

the mere token effect would diminish (or even disappear) with greater psychological distance to the decision outcomes.

Similarly, the intensity of the intrapersonal conflict can be influenced by the decision-maker's perspective. When the conflict is between a psychologically more proximal option and a more distal option, the difference in proximity is heightened by adaptation to the more proximal option (e.g. Hoch & Loewenstein 1991). When the perspective is shifted by adapting to the more distal option, however, the temptation of the more proximal option is diminished, reducing the choice conflict. Thus, we hypothesize that inducing adaptation to one of the options or the other (Kahneman, Knetsch, & Thaler 1990) will systematically impact the experienced choice conflict and the mere token effect.

In the next section, we test the first proposition, demonstrating the mere token effect in the domain of intertemporal choice, which has often been used as a theoretical model of self-control conflict. We then extend the effect to the more general domain of risky choice in Section 3. In both domains, we provide supporting evidence for the role of emotional choice conflict and test the second proposition regarding scope insensitivity to the magnitude of the mere token. We then test the moderators of the mere token effect in Sections 4 through 6 and shed light on the underlying psychological processes. In discussing the findings, we formally contrast the predictions of our conceptualization with those of the extant normative and descriptive models of choice. Highlighting the generality of the mere token effect, we demonstrate all findings throughout the paper in the domains of both intertemporal and risky choices.

2. The Mere Token Effect in Intertemporal Choice

Intertemporal choices, generally between a lower magnitude but sooner outcome and a larger but delayed outcome, have been broadly studied as a fundamental decision-making problem

in psychology, economics, marketing, and other disciplines (see Frederick, Loewenstein, and O'Donoghue 2002 for a broad review). The discounted utility model (Samuelson 1937; Koopmans 1960) assumes that time preferences can be captured by a constant discount rate, while hyperbolic models of discounting capture the notion that time preferences in fact demonstrate decreasing impatience as a function of delay, with steeper discount rates for more immediate outcomes (e.g. Ainsle 1975; Thaler 1981). More generally, intertemporal tradeoffs have been widely applied as a model of self-control conflict between near-sighted and far-sighted goals, describing how conflict increases and the will to stick with long-term goals is undermined as tempting alternatives become increasingly immediate. Thus, while timing is itself an important aspect of consumer decision-making (e.g. Simonson 1992), the domain of intertemporal choices is also a particularly appropriate context in which to study the more general effect of a “mere token” on intrapersonal conflict.

Study 1a: The Mere Token Effect in Intertemporal Choice

In this and subsequent studies (with the exception of Studies 1d and 2d), the subjects were all adult consumers participating in unrelated consumer surveys conducted over the Internet. None of the other questions in the surveys related to intertemporal conflict or risky choice. In this study, a total of 311 participants were asked to choose between two delayed rewards. Half of the participants were randomly assigned to the base condition and asked to choose between two options, a later-larger reward and a sooner-smaller reward. The options are shown below, with the percent choosing each option given in brackets.

Base Condition:

Option A: \$900 that you receive in one year [38%]

Option B: \$300 that you receive in one week [62%]¹

The other half of the respondents were assigned to the “mere token” condition, in which the same choice options were bundled with a common amount to be received virtually immediately.

“Mere Token” Condition:

Option A: \$50 that you receive in 3 days and \$900 that you receive in one year [52%]

Option B: \$50 that you receive in 3 days and \$300 that you receive in one week [48%]

Thus, inclusion of the \$50 in both options shifted preferences, increasing the share of the later-larger reward by 14% ($z = 2.5, p < .01$). We argue that for the decision-maker facing intrapersonal choice conflict between their desire for an immediate reward and the higher payoff available by waiting, being offered the small “token” amount of \$50 reduces the conflict, making it easier to ignore the temptation of immediacy and hold out for the later-larger reward. Looking at all the tests of the effect we conducted, the effect was found to be robust across different versions of the stimuli which varied the magnitudes (of the token amount, sooner-smaller reward, and/or later-larger reward) and the timing of rewards. Across 18 such different tests, we found mere token effects ranging from 1% to 17%, with a mean effect of 10%. Thirteen of the eighteen tests were significant at the .05 level and another three were significant at the .10 level.

Contrasting the Mere Token Effect with Hyperbolic and Exponential Discounting Models

This demonstration of the mere token effect is consistent with Proposition 1 and directly inconsistent with the established models of inter-temporal choice. Both the time-consistent

¹ This result implies that a majority of respondents had an annual discount rate over 300%, which is very high compared to reasonable expectations of investment rates of return. This rate is consistent with the large literature on implicit discount rates, however, including both hypothetical and real choices (see Frederick, Loewenstein and O’Donoghue 2002, Table 1).

exponential model and the hyperbolic model (which accounts for time inconsistency) share a common additive form, such that common elements will cancel out (Loewenstein & Prelec 1992):

$$U = \sum_{i=1}^T v(X_i) \phi(t_i) \quad (1)$$

In this form, the total utility of a choice option is the sum of outcomes over all occasions i , with each outcome evaluated as the product of two elements: the value of the outcome amount X_i expressed by $v(X_i)$, and a time-discounting function ϕ of the delay t_i . In our demonstration of the mere token effect, participants faced a choice between two options. Expressing the outcomes in dollars and the delays in days, the additive discounted utility models imply that participants in the mere-token condition would prefer the later-larger amount if and only if:

$$v(50) \phi(3) + v(900) \phi(365) > v(50) \phi(3) + v(300) \phi(7) \quad (2)$$

This is mathematically equivalent to the condition that participants in the base condition (without the common token element) would prefer the later-larger amount if and only if:

$$v(900) \phi(365) > v(300) \phi(7) \quad (3)$$

Thus, additive discounted utility models predict no difference across the two conditions, and our finding of a shift in choice due to adding a mere-token to both options is incompatible with these models. It is important to emphasize that the mere token effect is incompatible with not only the “normative” exponential model, but also with the “descriptive” hyperbolic discounting model.

This implies that the widely documented preference for immediacy (in the absence of token justification) cannot be explained solely in terms of high or declining discount rates (per the exponential and hyperbolic discounting models, respectively). Rather, our results suggest that the preference for immediacy arises in part due to an emotional temptation. The mere token then shifts preferences by reducing the emotional choice conflict, an effect that occurs outside of any

additive process of reasoning.

Study 1b: Scope Insensitivity and the Mere Token Effect

Consistent with the notion that the mere token provides justification distinct from the tradeoff calculus, Proposition 2 implies that choices will be affected by the presence or absence of the mere token, and the mere token effect will be fundamentally scope insensitive to the magnitude of the token. To test this prediction, a total of 1,459 participants were given one of five hypothetical choices, fully between subjects. In the base condition, participants chose between \$900 that they would receive in one year or \$300 that they would receive in one week. In the four “mere token” experimental conditions, participants chose between the same two amounts bundled with \$10, \$50, \$100 or \$200 to be received in one day. As shown in the left panel of Figure 1, in the experimental conditions when the choice included an immediate token amount bundled with both options, more participants were willing to wait for the later-larger amount of \$900 in one year regardless of the token size (all p 's $< .01$), compared to the base condition. There were no statistically significant differences between the cells with varying token amounts. Furthermore, when a logistic regression model was fit to the choices in the four experimental conditions, there was no effect of token magnitude ($Wald \chi^2 = 2.1, n.s.$).

These results demonstrate a striking degree of scope insensitivity with regard to the magnitude of the token amount. The mere presence of even a seemingly trivial amount of immediate gratification systematically increases preferences for the less impulsive option; increasing the scope of the immediate gratification has no discernible effect on preferences. Note that we are not arguing that participants are scope insensitive to amounts in general, but rather that it is specifically the mere token to which they are scope insensitive. These findings of scope insensitivity support the view that the mere token effect operates by providing a

justification for waiting that counteracts the emotional impulse for the more immediate option. More broadly, scope insensitivity to the token amount suggests that justifications in general may be evaluated on a discrete basis, as either present or absent.

Study 1c: Separating the Mere Token from the Choice Options

In this study, we provide a further test of the notion that it is the availability of the mere token to serve as justification that determines whether preferences are affected by the mere token. In particular, we argue that the effect of the mere token will be diminished when the token is presented separately from the choice options. When the token is bundled with each choice option, as in the studies presented thus far, it is perceived as part of the choice context and enters into the negotiation between the competing goals. However, if the token is presented separately and not included in the choice options, the shared component will tend to be disregarded (i.e., the isolation effect, Kahneman & Tversky 1979) and we expect that the impact of the token will be diminished.

A total of 2,151 online survey participants were presented with one of three scenarios. In the base condition, they chose between two amounts, \$300 in one week or \$1000 in one year. In the token condition, \$100 in 3 days was added to both choice options. Comparing these first two conditions, we replicated the mere token effect. Without the token, 63% chose the larger-later reward but when the token was included, 73% chose the larger-later reward ($z = 4.4, p < .01$).

In a third condition, the reward was presented to the participants as having two parts. For the first part, participants were told they would receive \$100 in 3 days (identical to the token condition). To confirm comprehension, participants were required to type in the amount of the first part of the reward. They were then told to choose what they preferred for the second part of their reward, and were presented with the same choices as in the base condition. In this

condition, when the token was removed from the separate description of each choice option, only 67% of participants chose the larger-later reward, fewer than in the token condition ($z = 3.3, p < .01$) and not significantly more than in the base condition ($z = 0.7, n.s.$). Thus, we find that when the presentation of the token amount is manipulated to segregate it from the choice conflict, the role of the token as justification for waiting for the larger-later reward is diminished.

Study 1d: Choice Conflict and the Mere Token Effect

In the previous three studies, we have demonstrated the mere token effect and shown that the effect occurs when even a small “mere” token is available as a justification. In this study, we provide evidence that the mere token operates specifically by reducing emotional choice conflict. The subjects in this study were 103 students at a large East Coast university, participating in an otherwise unrelated lab study. The participants were shown a hypothetical scenario, in which two people, Bob and Mike, faced intertemporal choices. In the scenario, Bob has to choose between \$600 in six months or \$300 in one week, and Mike has the same choice options except that both options are bundled with an additional \$50 in one day (the “mere token”). Half of the participants were asked to identify which person was facing the more “cognitively difficult or uncertain choice”, while the other participants were asked to identify which person was facing the more “emotionally difficult or stressful choice.”

Among those judging cognitive difficulty, the choice situation with the \$50 “token” was judged to be relatively less cognitively difficult by a majority (64%) of participants ($z = 2.1, p < .05$). Among those evaluating emotional difficulty, 76% of participants identified the choice involving the \$50 token as less emotionally difficult ($z = 4.3, p < .01$), an even stronger effect than for cognitive difficulty ($z = 0.9, p < .10$). The results of this study support the view that the process underlying the mere token effect involves a justification that reduces intrapersonal choice conflict.

3. The Mere Token Effect in Risky Choice

In this section, we extend the mere token effect to the widely studied domain of risky choices. The normative subjective expected utility model of risky choice (Savage 1954) defines the utility of a gamble as the sum of the expected utilities of the outcomes. Subsequently, empirical work on risky choice demonstrated decision making inconsistent with the expected utility model, leading to a variety of modified models, of which prospect theory (Kahneman and Tversky 1979, Tversky and Kahneman 1992) is the predominant.

Some research has suggested links between risky and intertemporal choice (e.g. Prelec and Loewenstein 1991; Mischel and Grusec 1967; Rotter 1954). The parallel between a myopic preference for immediacy and an analogous preference for certainty suggests that a similar form of intrapersonal conflict may apply to risky choice. Specifically, risky choices between a safer-smaller option and a riskier-larger one represent a conflict between the goals of certainty (or risk avoidance) and magnitude. From a long-term perspective, a riskier option with a higher expected value is often preferred; however, an option with a lower expected value but less risk can be very tempting. As in the case of intertemporal choice, the intrapersonal conflict that arises for risky choices is characterized not only by cognitive uncertainty but also by an emotional conflict between competing goals. In this research, we use gambles to explore the effect of intrapersonal conflict and scope insensitive justifications as a representation of the much broader domain of all decisions under uncertainty, including choices of investments or those involving product risk (e.g. Dowling & Staelin 1994).

Study 2a: The Mere Token Effect in Risky Choice

A total of 773 participants were offered a choice between two lottery tickets. Half of the participants were randomly assigned to the base condition and were asked to choose between a

riskier-larger ticket and a safer-smaller ticket:

Base Version:

A: 30% chance to win \$1000 [30%]

B: 50% chance to win \$300 [70%]

The other half of the respondents were assigned to the “mere token” condition, in which the same choice options were bundled with a common riskless amount.

“Mere Token” Version:

A: \$100 for certain and a 30% chance to win \$1000 [45%]

B: \$100 for certain and a 50% chance to win \$300 [55%]

Inclusion of the certain \$100 in both options shifted preferences, increasing the share of the riskier-larger reward by 15% ($z = 4.1, p < .01$). We argue that facing the options of the safer-smaller and riskier-larger rewards elicits intrapersonal choice conflict between the goals of certainty and magnitude of the reward. Even when the larger reward is seen as compensating for the associated risk, the relative safety of the safer-smaller reward is emotionally tempting. Thus, being offered the guaranteed “token” amount of \$100 in either case reduces this conflict, alleviates the temptation, and makes it easier to forego the safer-smaller reward and choose the higher expected value (but riskier) reward. Looking at all the tests we conducted, the effect was found to be robust across different versions of the stimuli which varied the magnitudes (of the token amount, safer-smaller reward, and/or riskier-larger reward) and the probabilities of winning. Across 10 different such tests, we found mere token effects ranging from 2% to 23%, with a mean effect of 13%. Eight of the ten studies were significant at the .05 level.

Contrasting the Mere Token Effect with Expected Utility Theory and Prospect Theory

In the domain of risky choice, contrasting the mere token effect with the established models

is more complicated than for intertemporal choice. Specifically, in models of risky choice, the mere token effect is confounded with the form of the utility or value function. Consider the cumulative prospect theory model of Tversky and Kahneman (1992) for the prospect where either outcome x holds with probability p or outcome y holds with probability $1-p$.

$$V = g(p) v(x) + [1 - g(p)] v(y) \quad (4)$$

Here, $g(p)$ is a weighting function on the probabilities and v is a concave value function in the domain of gains. Under this model, a participant in the base version described above would prefer the riskier-larger version if and only if:

$$V_{LR} = g(.30) v(\$1000) > V_{SS} = g(.50) v(\$300) \quad (5)$$

When the token amount is added, however, participants would prefer the riskier-larger version when:

$$V'_{LR} = g(.30) v(\$1100) + [1 - g(.30)] v(\$100) > V'_{SS} = g(.50) v(\$400) + [1 - g(.50)] v(\$100) \quad (6)$$

In this case, adding the token amount has two effects under prospect theory: it increases the amount of the reward when winning and provides a certain reward even if the gamble is lost. These effects in fact go in opposite directions. Adding the certain reward when the main gamble is lost adds more value to the riskier gamble (where a loss is more likely). On the other hand, increasing the size of the winnings is of more benefit in the less risky case, due to the higher probability of winning. The two effects do not necessarily cancel out, because the mere token is worth less when the lottery is won, due to diminishing marginal utility. Whether the net effect is to increase the choice of the riskier-larger option depends on the values of the probabilities and the degree of diminishing marginal utility.

In the appendix, we derive the conditions under which cumulative prospect theory accounts for the mere token effect (we also prove three related corollaries). Specifically, we find that when

the ratio of the weighted lower versus higher probabilities, $g(p_L)/g(p_H)$, is less than .5, the mere token effect is predicted. When the ratio is higher than .5, the effect is indeterminate, and depends on the degree of diminishing marginal utility of the value function as well as the ratio of the probabilities. Analogous proofs are developed in the appendix for subjective expected utility theory, which also predicts a stronger mere token effect when the initial level of wealth is lower. Using self-reported income as a proxy for wealth, we find no moderating effect of wealth on the mere token effect (logistic regression interaction $Wald \chi^2 = .22, n.s.$), inconsistent with expected utility theory. Thus, neither cumulative prospect theory nor expected utility theory presents a general explanation for the mere token effect. Furthermore, in Section 6, we will rule out these alternative explanations more conclusively by contrasting our predictions for when the mere token effect is strongest with the diametrically opposed predictions of prospect theory and expected utility theory.

We argue that the mere token effect in risky choice arises due to the same factors as in intertemporal choice. Specifically, the mere token, operating outside of the tradeoff calculus, provides a token level of guaranteed gain, placating a strong emotional desire for risk avoidance and reducing choice conflict. In the following studies, we provide support for this conceptualization, parallel to the effects we found underlying the mere token effect in intertemporal choice.

Study 2b: Scope Insensitivity and the Mere Token Effect

Applied to risky choice, Proposition 2 suggests that the presence of even a token certain amount would provide justification and shift preferences, but that increasing the magnitude of the token amount would have little impact. A total of 725 online survey participants made one of five choices, fully between subjects. In the base condition, participants chose between a 30% chance of

winning \$1000 or a 50% chance of winning \$300. In the four “mere token” experimental conditions, participants chose between the above two options, each bundled with a certain amount of \$10, \$50, \$100 or \$200. As shown on the right panel of Figure 1, when the choice included a token certain amount bundled with each option, more participants were willing to select the riskier option (30% chance of winning \$1000) regardless of the token size. Further, the mere token effect was significant as long as the token size was above \$10 (p 's < .01 for token amounts of \$50 and \$200, p < .05 for token amount of \$100), and there were no significant differences between the cells with the three larger token amounts (all p 's > .1).

These results suggest that for many of the participants, the \$10 token was trivially small and not seen as providing meaningful justification. However, for the wide range of \$50 to \$200 tokens, we do find scope insensitivity to the size of the token. Fitting a logistic regression model to the choices in the three larger-token experimental conditions, we find no effect of token amount ($Wald \chi^2 = .76, n.s.$). Thus, we have replicated in the domain of risky choice our finding that for a meaningfully-sized token, further increasing the token size has no impact on the mere token effect. It is worth noting that both prospect theory and expected utility theory predict that the mere token effect will generally be sensitive to token size (see Corollary 1 in the appendix). In particular, both models predict that increasing the token amount will increase the mere token effect when the ratio of the probabilities is sufficiently low.

Study 2c: Separating the Mere Token from the Choice Options

In this study, we again test the notion that it is specifically the availability of the mere token to serve as justification that determines whether preferences are affected. We argue that when the token is presented separately from the risky choice options, it will be disregarded, not enter into the deliberation, and the effect of the mere token on choice will be diminished. This

was tested among 846 participants in a study with three conditions, fully between subjects. In the base and token conditions, participants were presented the same choice scenarios as in Study 2a, either a simple choice or the same risky choice with a certain \$100 added to each option. In the third condition, the reward was presented as having two parts. For the first part, participants were told they would receive \$100 for certain (identical to the token condition), and participants had to type in the amount of the first part of the reward. They were then told to choose what they preferred for the second part of their reward, and were presented with the same choices as in the base condition. Thus, in this third condition, the full information presented was the same as in the token condition, but by presenting the token amount in the text of the question, the token was separated from the choice options and was removed from the choice conflict.

The mere token effect was significant (28% chose the riskier-larger option in the base condition vs. 38% in the token condition, $z = 2.6, p < .01$). More importantly, in the third condition, when the token was removed from the choice options and instead presented as an element common to both options, only 30% of participants chose the larger-later reward, not different from the base condition ($z = .5, n.s.$), but less than the token condition ($z = 1.9, p < .05$). This result is consistent with our findings for intertemporal choice, showing that when the presentation of the token amount is segregated from the choice conflict, the token does not serve as justification for selecting the riskier-larger reward, and the effect is debiased.

Study 2d: Choice Conflict and the Mere Token Effect

We have argued that intrapersonal choice conflict, particularly emotional conflict, underlies the mere token effect in both intertemporal and risky choices. Next, we provide evidence that the effect of the mere token in risky choice is to reduce choice conflict. The participants in this study were 106 students and the methodology was identical to that in Study

1d. In this scenario, Bob had to choose between a 30% chance of winning \$1000 or a 50% chance of winning \$300, and Mike had the same choice options but each option was bundled with an additional certain \$100 (the “mere token”). Half of the participants were asked to identify which person was facing the more “cognitively difficult or uncertain choice”, while the other participants were asked to identify which person was facing the more “emotionally difficult or stressful choice.”

Among those evaluating cognitive difficulty, the choice involving the \$100 token was judged to be less cognitively difficult by a majority (78%) of participants ($z = 4.9, p < .01$). Among those evaluating emotional difficulty, 90% of participants identified the choice involving the token as less emotionally difficult ($z = 9.9, p < .01$). Thus, the inclusion of the \$100 token had an even stronger mitigating effect on emotional difficulty than on cognitive difficulty ($z = 1.8, p < .05$). The results of this study support the view that the mere token in risky choice operates by reducing the intrapersonal conflict due to the inclusion of the token amount in both options.

4. Reducing Choice Conflict and the Mere Token Effect Through Psychological Distance

In the previous sections, we have studied the mere token effect as a form of scope insensitive justification to resolve intrapersonal choice conflict. In the subsequent sections, we turn to the question of how differences in the intensity of conflict moderate the mere token effect. Proposition 3 suggests that the degree of interpersonal choice conflict underlies the mere token effect. The degree of conflict, in turn, can depend on the psychological distance of the individual to the choice itself (see Liberman, Trope & Stephan 2006 for a comprehensive review and Kivetz & Kivetz 2006 for a model of psychological distance). This effect of psychological distance can be seen in the work of Mischel and colleagues, for example, who found that children were less able to wait for larger rewards when the rewards were directly proximate,

compared to when the rewards were either hidden, symbolically represented or when the children were coached to visualize salient rewards abstractly either as pictures or as other objects (e.g. “thinking about pretzel sticks ... as long thin brown logs”). Metcalfe and Mischel (1999) argue that these forms of distancing from the decision stimuli enhance willpower by shifting decision-making from a “hot” impulsive system to a “cool” cognitive system of reasoning. Relatedly, the work of Kivetz and colleagues (Kivetz & Simonson 2002a; Kivetz & Keinan 2006) demonstrates that psychological distance weakens emotions of guilt associated with indulgence and enables people to overcome the reverse self-control problem of hyperopia (excessive far-sightedness).

We propose that, as psychological distance increases and the degree of experienced intrapersonal conflict is reduced, the need for the justification provided by the mere token will be reduced. Therefore, we expect the mere token effect to be diminished by increasing psychological distance. The research on psychological distance has focused primarily on temporal distance (e.g. Trope & Liberman 2003), but psychological distance has also been operationalized by manipulating the probability of the outcome (Kivetz & Kivetz 2006; Kivetz & Simonson 2002a; Sagristano, Trope & Liberman 2002). In the following two studies we investigate Proposition 3 in the domains of intertemporal and risky choice, manipulating the psychological distance of intertemporal choice by reducing outcome probability, and manipulating the psychological distance of risky choice by delaying the outcomes.

Study 3a: The Effect of Outcome Uncertainty on the Mere Token Effect in Intertemporal Choice

In this study, 659 participants made choices between \$1000 in one year vs. \$300 in one week, in a 2 (non-token vs. mere token) x 2 (high vs. low psychological distance) between-subjects design. The presence or absence of justification was manipulated by including a token amount (\$100 in 3 days) with each option in the mere token conditions. In contrast with Study 1, the

rewards were presented as lotteries, with the probability of winning the chosen option manipulated between subjects (either a 75% chance or a 10% chance). The probability of receiving the option was repeated with each choice option to emphasize that the probabilities were equivalent for both choice options. We expect that having only a 10% chance of receiving the chosen reward will reduce the choice conflict, and therefore reduce the mere token effect, compared to when there is a more substantial 75% chance of receiving the chosen reward.

We observe a 16% mere token effect for uncertain intertemporal choices when the probability is high (choice of the later-larger reward is 47% in the base condition but 63% in the mere token condition; $z = 3.0, p < .01$). When the choices are more remote with only a 10% probability, however, we find no significant effect of the token (choice of the later-larger reward is 51% in the base condition vs. 56% in the mere token condition; $z = 1.0, n.s.$). Thus, we find that reducing outcome certainty, and thereby increasing the psychological distance of the outcomes, reduces the mere token effect ($z = 1.4, p < .10$).

Study 3b: The Effect of Outcome Delay on the Mere Token Effect in Risky Choice

This study uses a parallel design to the above study, extending the findings to the domain of risky choices. In this study, 603 participants made choices between a 30% chance to win \$1000 and a 50% chance to win \$300, in a 2 x 2 between-subjects design. The presence or absence of justification was manipulated by including \$100 for certain with each choice option in the mere token conditions. Psychological distance was manipulated by having the outcomes occur either in the present or after a one year delay. We expect that having the consequences of choice delayed by a year will reduce the choice conflict, and therefore reduce the mere token effect, compared to when the choice outcome occurs in the present.

In the non-delayed condition, we find a significant 15% mere token effect for risky

choice, with 25% choosing the riskier-larger option in the base condition compared with 40% in the mere token condition ($z = 2.8, p < .01$). When the choices are more remote and both outcomes are delayed by a year, we find no significant effect of a guaranteed token on choices of the riskier-larger option (42% base condition vs. 47% mere token condition; $z = 0.9, n.s.$). Thus, delaying the outcome and thereby increasing the psychological distance of the outcomes, reduces the mere token effect ($z = 1.3, p = .10$).

Overall, Studies 3a and 3b demonstrate that greater psychological distance reduces the mere token effect in the domain of both intertemporal and risky choice (combined data, $z = 1.8, p < .05$). We argue that psychological distance mitigates the very experience of intrapersonal conflict, making the conflict feel less severe. These findings are consistent with our conceptualization of choice conflict as underlying the mere token effect, and serve to rule out alternative explanations for the effect such as income or magnitude effects (for further details see Section 6). Furthermore, both studies provide support for Proposition 3 that the intensity of the conflict moderates the mere token effect.

5. The Impact of the Status Quo on Choice Conflict and the Mere Token Effect

We have shown that increasing the psychological distance to the choice options reduces the mere token effect, and we have argued that this moderation occurs due to the lessening of intrapersonal choice conflict. In this section we demonstrate another manipulation of conflict intensity, in this case shifting the perception of the status quo (or default option) while holding the actual option values constant. When an option is more psychologically proximal, that option tends to become the default or status quo and the decision-maker adapts to the option (Samuelson & Zeckhauser 1988). Thus, we argue that perceiving the more proximal option as an explicit default will preserve (or enhance) the choice conflict, while viewing the more distant

option as the default will lessen the temptation of the proximal option, and reduce the intensity of the conflict. Consistent with Proposition 3, we predict that mere tokens will have a stronger effect when the conflict is more intense (i.e., when the more proximal option is framed as the default) compared to less intense conflict (i.e., when the less proximal option is the default).

Study 4a: The Impact of the Status Quo on the Mere Token Effect in Intertemporal Choice

To test this prediction, we manipulated the default by endowing participants with a specific reward (Kahneman, Knetsch & Thaler 1990). Participants were asked to choose between keeping the reward they had been given or forfeiting it to receive an alternative reward. We employed a 2 (mere token: present vs. absent) by 3 (no adaptation, endowment of the sooner-smaller reward or endowment of the later-larger reward) between-subjects design with 966 participants. In all conditions, the choice was between \$1000 in one year and \$300 in one week; in the mere token conditions, both options were bundled with \$100 to be received in 3 days. Thus, as an example, in the non-token condition with sooner-smaller endowment, participants were told they had received a free reward of \$300 in one week and were asked to rate how happy they would feel to get the reward. Then, in a follow-up question, they were told that they could either keep the reward or give it up for a different reward, and made a choice between keeping the \$300 in one week or giving it up to receive \$1000 in one year.

The results are shown in the left panel of Figure 2. First, comparing the two endowment-inducing manipulations, we find that endowing participants with one of the options had a significant effect on choices. In the absence of the mere token, participants were more likely to choose the later-larger option when that option was endowed than when the sooner-smaller option was endowed (81% vs. 51%, $z = 5.9, p < .01$), while choices in the no-adaptation condition were intermediate (61%), consistent with the well-known endowment effect (Kahneman, Knetsch

& Thaler 1990).

More importantly, when the sooner-smaller option is endowed we replicate the mere token effect, finding more choice of the later-larger option in the mere token condition than in the non-token condition, (62% vs. 51%, $z = 2.0$, $p < .05$). We observe no effect, however, when the later-larger option is endowed (78% vs. 81%, $z = 0.6$, *n.s.*) and an intermediate effect when neither option is endowed (69% vs. 61%, $z = 1.5$, $p < .10$). Thus, consistent with our intrapersonal conflict framework, an immediate mere token has more of an impact on choice when the sooner-smaller option is the default option than when the later-larger option is the default ($z = 1.9$, $p < .05$).

Study 4b: The Impact of the Status Quo on the Mere Token Effect in Risky Choice

We make a similar prediction in the domain of risky choice. Specifically, we expect a stronger mere-token effect when the tempting and psychologically proximal option (i.e., the safer-smaller reward) is considered the status quo, highlighting the choice conflict, compared to when the more risky option is the status quo, reducing choice conflict. We again used a 2 (mere token: present vs. absent) by 3 (no adaptation, endowment of the safer-smaller reward or endowment of the riskier-larger reward) between-subjects design ($n = 940$). In all conditions, the choice was between a 30% chance to win \$1000 and a 50% chance to win \$300; in the mere token conditions, both options were bundled with \$100 for certain. As an example, in the non-token condition with safer-smaller endowment, participants were told they had received a free lottery ticket for a 50% chance to win \$300 and were asked to rate how happy they would feel to get the reward. Then, in a follow-up question, participants were told they could either keep the lottery ticket or give it up for a different ticket, and made a choice between keeping the 50% chance to win \$300 or giving it up for a 30% chance to win \$1000.

The results, shown in the right panel of Figure 2, provide further support for Proposition 3 in the domain of risky choices. In the absence of the mere token, participants were more likely to choose the riskier-larger option when that option was endowed than when the safer-smaller option was endowed (49% vs. 21%, $z = 5.6$, $p < .01$), while choices of the riskier-larger option in the no-adaptation condition were intermediate (25%), consistent with the endowment effect. Comparing the non-token and mere token conditions when the safer-smaller option was the default, we once again find a strong mere-token effect of 26% (21% choose the riskier option in the non-token condition vs. 47% in the mere-token condition, $z = 4.8$, $p < .01$). In contrast, we find a weak (7%) mere-token effect when the riskier-larger option was endowed (49% vs. 56%, $z = 1.3$, $p < .10$), and a mere-token effect of 15% in the no-endowment condition (25% vs. 40%, $z = 2.8$, $p < .01$) that lies in magnitude between the safer-smaller and the riskier-larger endowment conditions. That is, as predicted, the guaranteed mere token had a stronger impact on increasing choices of the riskier option when the safer-smaller option was the default than when the riskier-larger option was the default ($z = 2.4$, $p < .01$). The presence of the mere token helps alleviate the temptation for certainty that is highlighted when the safer option is the default and is reduced when the riskier option is the default.

In summary, Studies 4a and 4b demonstrate that, for both intertemporal and risky choices, the mere token is most impactful when the more tempting and proximal option is the default, and the conflict is therefore intensified. Conversely, framing the riskier or more delayed option as the status quo undercuts the temptation of the more immediate option and reduces the intrapersonal choice conflict and the mere token effect. These findings are consistent with our characterization of the mere token effect as resolving emotional choice conflict. In the next section we will investigate how the relative values of the choice options themselves impact the

degree of choice conflict, and thereby the mere token effect.

6. The Impact of Relative Option Values on Choice Conflict and the Mere Token Effect

The results reported thus far support our conceptualization of intrapersonal choice conflict underlying the mere token effect, such that people are largely scope insensitive to the magnitude of the mere token, but sensitive to the intensity of the choice conflict. In this section, we investigate the impact on the mere token effect of varying the values of the actual choice options. In particular, we argue that the mere token effect is fundamentally sensitive to the degree to which the intrapersonal conflict is characterized by motivational and emotional conflict (as opposed to preference uncertainty arising from similarly valued options), and we describe how the degree of emotional conflict changes with the relative option values. Further, the following studies will enable us to directly contrast the mere token effect with the predictions of the commonly used additive utility models.

We suggest that the larger the implicit tradeoff represented by two options, the more the resulting choice conflict will be emotional in nature, yielding a stronger mere token effect. Consider, for example, the choice conflict experienced in making intertemporal choices as the size of the sooner-smaller reward is varied. When the sooner-smaller reward is similar in magnitude to the later-larger reward, there is little or no penalty for choosing immediacy and the decision involves minimal choice conflict. As the sooner-smaller reward size is reduced, the tradeoff approaches the indifference point where the sooner-smaller and later-larger options are similarly valued. For these kinds of choices, the conflict is both cognitive, in that preferences are less certain, as well as emotional, in that the choices represent a tradeoff between the goals of immediacy and magnitude. As the sooner-smaller reward is further reduced, it becomes increasingly apparent that the later-larger option is higher-valued, and the preference uncertainty

and cognitive conflict are reduced. The options represent an ever-starker contrast between immediacy and magnitude, however, and even as cognitive conflict diminishes the emotional conflict is steadily increasing.

William James (1890, p. 433) characterized this kind of decision as particularly effortful, describing a situation in which “both alternatives are steadily held in view, and in the very act of murdering the vanquished possibility, the chooser realizes how much in that instant he is making himself lose. It is deliberately driving a thorn into one’s flesh...” It is precisely when the right course of action is apparent but emotionally difficult, that an immediate mere token has the most impact, liberating decision-makers from the emotional conflict and enabling them to make that choice. In the next study, we provide support for this assertion in the domain of intertemporal choice. We then extend the argument to the domain of risky choice in the subsequent two studies, in which we demonstrate that our findings are contrary to what would be predicted by expected utility and prospect theory models of decision-making.

Study 5a: The Effect of Sooner-smaller Reward Size on the Mere Token Effect in Intertemporal Choice

Participants were presented with one of 18 intertemporal choices, in a 2 (base vs. token) by 9 (varying sizes of sooner-smaller rewards) between-subjects design ($N = 3,139$). Participants in the base conditions made a choice between \$1,000 in one year or a sooner-smaller amount in one week. The sooner-smaller amounts varied (between-subjects) from \$100 to \$900, in increments of \$100. The mere token conditions were identical to the base conditions, except that in the former both choice options were bundled with \$100 in 3 days. The results are shown in Table 1. Looking at each of the nine sooner-smaller amounts as a separate test of the mere token effect, one was marginally significant ($SS = \$100, p < .10$) and five were statistically significant ($SS = \$200, \$300, \$400, \$600, \$700, \text{all } p's < .05$). The two strongest mere token effects were when the sooner-

smaller amounts were \$400 and \$300 (both p 's < .01), and the later-larger reward was relatively appealing (chosen by 64% and 79% of the participants, respectively). It is noteworthy that this is exactly counter to a ceiling-effect. The inclusion of the mere token tended to increase choice of the later-larger option in precisely those conditions where the highest percentages were already choosing the later-larger reward.

To more formally test our claim that an immediate mere token is stronger when the later-larger reward is relatively more appealing, we fit a logistic regression model to the full set of data. First, a main effects model was fit, showing that choice of the later-larger reward decreases as the size of the sooner-smaller reward increases ($\beta_{SIZE} = -.004$, Wald $\chi^2 = 492.6$, $p < .001$) and increases when a mere token is offered ($\beta_{TOKEN} = .407$, Wald $\chi^2 = 26.2$, $p < .001$). We then fit a full model, including the interaction between sooner-smaller reward size and mere token. The model confirms that the mere token effect is stronger when the sooner-smaller reward is smaller ($\beta_{INT} = .001$, Wald $\chi^2 = 5.5$, $p < .05$), that is, when the later-larger reward has relatively higher utility. It is noteworthy that including a quadratic term in the model did not improve fit, as would be expected under the alternative view that the mere token shifts choices by resolving preference uncertainty (which would be highest for intermediate values where the two options are evenly matched). Thus, the findings of this study are consistent with our conceptualization, which predicts that as the sooner-smaller reward size is reduced, the “right” choice will become clearer and the remaining conflict will be increasingly emotional in nature and, as we have shown, the mere token effect will increase.

Study 5b: The Effect of Safer-smaller Reward Size on the Mere Token Effect in Risky Choice

We generalized the aforementioned finding to the domain of risky choice in a study ($N = 759$) in which we manipulated the size of the safer-smaller reward. We compare three levels of the safer-smaller amount, with participants in the base condition choosing between a 50% chance

of winning \$1,000 and a 90% chance of winning the smaller amount (\$100, \$300 or \$600, between-subjects). In the mere token conditions both options were bundled with \$50 for certain. For the lowest safer-smaller amount (\$100), the mere token increased preference for the riskier-larger option by 20% (61% vs. 41%, $z = 3.3$, $p < .01$). When the safer-smaller amounts were larger, we predicted reduced emotional conflict, and we indeed found a weaker effect of the mere token for the \$300 amount (28% vs. 26%, $z = 0.3$, *n.s.*) and the opposite effect for the \$600 amount (10% vs. 15%, $z = 1.1$, *n.s.*). Consistent with our findings in the domain of intertemporal choice, we observe the expected interaction between safer-smaller reward size and the mere token in a logistic regression model fit to this data (Wald $\chi^2 = 7.8$, $p < .01$).

Contrasting the Intrapersonal Conflict Framework with Expected Utility and Prospect Theory.

In the case of risky choice, comparing the mere token effect across differing levels of the safer-smaller reward is of particular interest, in that our conceptualization of intrapersonal conflict yields the opposite prediction of what is implied by prospect theory and expected utility theory. We have demonstrated that increasing the size of the safer-smaller reward will reduce the mere token effect. In contrast, both cumulative prospect theory and subjective expected utility predict that increasing the size of the safer-smaller reward will *increase* the mere token effect. These models imply (see Section 3), that adding a mere token makes the riskier-larger option more appealing when the gamble is lost, but adding the mere token favors the safer-smaller option when the gamble is won. This is because the mere token is valued less when added to the riskier-larger reward than the safer-smaller reward, per diminishing marginal utility. However, as the size of the smaller reward increases, this difference in mere token valuation between the two options (when winning) lessens, and the advantage that the mere token brings to the safer-smaller option when winning is reduced. Thus, the benefit to the safer-smaller option

of the mere token is reduced when the safer-smaller is larger, and adding a mere token should yield even stronger preferences for the riskier-larger option, strengthening the effect (see Corollary 2 in the appendix). This prediction is quite general, assuming only concavity of the value (or utility) function and is independent of the outcome probabilities and the form of the probability weighing function. Thus, the results of Study 5b, while consistent with our conceptualization, are contrary to cumulative prospect theory and expected utility models.

In the next study, we provide a further demonstration of this effect, by manipulating the outcome probability. According to prospect theory and expected utility theory, making the lower-probability riskier-larger reward even less likely will enhance the mere token effect (see Corollary 3 in the appendix). This is because the mere token effect, as predicted by additive models, is a function of the ratio of probabilities, such that decreasing the lower probability (or increasing the higher probability) decreases the ratio, thereby increasing the mere token effect (Claim 1 in the appendix). However, according to our conceptualization, the higher the probability of the riskier-larger reward, the more clearly it will be seen as the better option and the choice conflict will be more emotional in nature. Thus, we would expect the mere token effect to be strongest when the probability of the riskier reward is relatively high (and the emotional choice conflict is higher), contrary to the predictions of prospect theory and expected utility theory.

Study 5c: The Effect of Riskier-larger Probability on the Mere Token Effect in Risky Choice

In a study with 516 participants, we tested two levels of the probability of the riskier-larger reward, with participants assigned to the base condition choosing between a smaller chance of winning \$1,000 (either 50% or 30%, between subjects) and an 80% chance of winning \$300. In the mere token conditions, both options included a guaranteed \$100 amount. When the probability of the riskier-larger reward was high (50%), bundling the mere token with both options increased

preference for the riskier-larger reward by 22% (39% vs. 17%, $z = 4.2$, $p < .01$). In contrast, when the probability of the riskier-larger reward was relatively low (30%), bundling the mere token with both options did not enhance preference for the riskier-larger reward (19% vs. 17%, $z = 0.6$, *n.s.*). Thus, lowering the probability of the riskier-larger reward and making it less attractive debiased the mere token effect ($z = 2.8$, $p < .01$), contrary to the predictions of both cumulative prospect theory and expected utility theory but consistent with our conceptualization of intrapersonal emotional choice conflict. Taken together, Studies 5a - 5c are consistent with our conceptualization of the mere token effect as a justification that resolves emotional conflict, with the strongest effects observed when the options present a starker contrast, eliciting more emotional conflict.

7. General Discussion

In this paper, we demonstrate a new phenomenon in decision making, the mere token effect, in the domains of risky and intertemporal choice. The studies in this paper provide evidence that the effect is scope insensitive and is moderated by the emotional intensity of intrapersonal conflict, consistent with our conceptualization and contrary to normative and descriptive models based on additive utility. In the following section, we briefly address several potential alternative explanations. We then explore the implications of the mere token effect in particular, and scope insensitive justifications in general, for both consumers and firms as well as for the broader literature on decision-making.

Alternative Explanations of the Mere Token Effect

Liquidity Constraints. Related to the diminishing marginal utility explanation discussed in Section 4, it could be argued that the mere token effect is caused by a discontinuously high need for a small amount of money in the present. This account, however, is inconsistent with the debiasing effect of segregating the mere token from the choice options (Studies 1c and 2c) and

cannot explain the psychological distance and endowment effect results (Studies 3a - 3b and Studies 4a - 4b, respectively). Further, we would expect liquidity constraints to diminish with higher income, and we consistently find no effect of income on the mere token effect in the domain of either intertemporal choice or risky choice. In fact, in an analysis of the large samples in Study 2a and Study 5a, we find that the mere token effect is robust across a variety of demographic subgroups defined by gender, age, income, and education.

Perceptual Effects. It could be argued that the mere token shifts the frame of reference, affecting how the amounts, time intervals or risks are perceived. For amounts, this is contrary to the findings of scope insensitivity to the token amount (Studies 1b and 2b), and this explanation would not predict the endowment or psychological distance findings. Alternatively, the token amount could be seen as highlighting the magnitude dimension, making it more salient and therefore weighted more strongly in decisions. This explanation would not explain the effects of endowment or psychological distance, or why the mere token effect is debiased when the probability of the later-larger reward is reduced (Study 5c). More generally, we can contrast the debiasing manipulations in Study 4 with those in Study 5. In Study 4, the mere token effect was reduced when we made the later-larger option relatively more attractive, by framing it as the default option. In Study 5, however, the mere token effect was reduced when the later-larger option was made relatively less attractive. The conjunction of these two sets of results cannot be explained by any kind of perceptual bias or context effect. However, in both cases, the mere token effect was attenuated in the conditions where the intensity of the conflict was hypothesized to be reduced, consistent with our conceptualization.

Magnitude Effect. Choices in the mere token condition involve higher total magnitude of the payoffs than in the base condition, which has been shown to systematically increase preference

for later-larger options in intertemporal choices, although not in risky choice (e.g. Thaler 1981; Green, Myerson, & O’staszwesky 1999). While the “magnitude effect” would not predict other findings (e.g. scope insensitivity in Studies 1b and 2b; the effect of changing option probabilities in Study 5c), it does raise the question of whether the mere token effect necessarily requires an increase in payout amounts to occur. In an unpublished set of studies, we replicated the mere token effect holding the total payoffs constant across the base and mere-token condition. For example, in a risky choice between a 30% chance of \$900 and a 50% chance of \$300 (the base condition), we added a mere token of \$50 and deducted an equivalent amount from each of the options, yielding a choice between (a) \$50 for certain and a 30% chance of \$735 or (b) \$50 for certain and a 50% chance of \$200. Thus, the payoffs in the base and mere token conditions have the same expected value (\$270 for the riskier-larger and \$150 for the safer-smaller), and we find a strong “illusionary” mere token effect (difference = 26%, $p < .01$). Similarly, in the domain of intertemporal choice, we tested scenarios in which we deducted different amounts from the payoffs in the mere token condition (calculated from different implicit interest rates), so that the net present value of the options were equivalent across the base and “illusionary” mere token conditions. We find an illusionary mere token effect for implied interest rates as high as 140% (difference = 13%, $p < .01$) and 310% (difference = 10%, $p < .05$). Thus, even assuming extremely high discount rates, we cannot attribute the mere token effect to a magnitude effect. Rather, the mere token effect can shift choices even when payouts are held constant.

Naïve Diversification. Investors often use simple heuristics to split their investments among the options, even simply putting an equal amount into each of the options (i.e., the “1/n” strategy; see Benartzi & Thaler 2001). Based on this heuristic, when the mere token is added to a risky choice, for example, the choice is no longer between a safer-smaller option and a riskier-larger

option, but now between a safer-smaller *non*-diversified option and a riskier-larger diversified option. When respondents factor in diversification to help choose, the mere token will, in general, increase preference for the riskier-larger option, but naïve diversification does not account for our process findings in Studies 3 through 5. Additionally, under naïve diversification, we would expect higher mere token effects when relatively few choose the more distant option in the base condition (contrary to Study 5), simply because there are more participants for whom choosing the most diversified option in the mere token condition would entail a change in preferences, relative to the base condition.

Implications of the Intrapersonal Conflict Framework for Consumers and Firms

The Marketing of Financial Services. The kinds of choices underlying the mere token effect can be seen directly in choices about savings and investments. Brokerage accounts often offer riskless cash bonuses for opening an investment account and banks offer immediate cash bonuses for opening certificate-of-deposit accounts. Our findings suggest that these “token” bonuses could fundamentally diminish risk-sensitivity and time-impatience in the subsequent decisions made. Furthermore, many companies offer matching contributions to 401K accounts in the form of company stock. We suggest that the risk associated with the stock may impact the investment choices, such that receiving low-risk stock may spur greater investment in high-risk high-return funds, and for those receiving a matching contribution in high-risk companies the effect would be reversed in favor of safer investments. For all these predictions, we would expect the size of the “bonus” to have little impact, while psychological factors (i.e., the availability of the bonus to be integrated into the decision, the degree of psychological distance, the intensity of the conflict) should moderate the effect.

Consumer Choices. The mere token effect also has important implications for choices between

bundled offerings and, more generally, for multi-attribute choice. When the choice options each speak to a conflicting consumption goal (e.g. speed vs. safety), bundling an element of choice (a product, feature, or attribute) with both options can resolve the conflict and have a significant impact on the choices made. This also carries implications for the competitive dynamics between firms promoting competing offers, each with a unique strength that speaks to a distinct conflicting goal. If one firm adds a token element to their offer which provides some satisfaction on the goal represented by the opposing firm's strength, they may gain share out of proportion with the value of the token element added. If the second firm then counters by matching the offer, they will not in fact reverse the gain in share, as a shift in choice will occur even when the token element is bundled with both options. Rather, the second firm might be better served by adding their own token element, addressing the competing firm's main strength, to their offer.

Implications of the Intrapersonal Conflict Framework for the Literature on Decision-making

The mere token effect is reminiscent of the self-control strategy of substitution, in which a small vice is used to satisfy the impulsive desire for gratification and increase willpower to avoid greater vices (see Ainsle 1975; Hoch & Loewenstein 1991). Thus, for example, a dieter may substitute chewing gum for a tempting dessert, in order to avoid a complete breakdown of willpower (a strategy which can also backfire due to behavioral activation, e.g. see Wadhwa, Shiv and Nowlis 2006). Similarly, the mere token effect suggests that, under certain circumstances, bundling small vices with the choice options when confronted by a conflict between virtue and vice may boost choices of the more virtuous options. It should be noted, however, that we demonstrate the mere token effect in the context of static binding decisions, and do not necessarily imply that people will stick to those choices over time. In fact, the proposed framework is consistent with the notion that the conflict will increase with the proximity of the choice options.

Studies 1c and 2c further suggest that once the mere token has been adapted to and segregated from the choice options, the effect of the mere token is eliminated. This suggests that unless the choices are binding, the mere token may only have a temporary effect, or may even backfire due to behavioral activation triggered by consumption of the token.

The implications of our conceptualization of intrapersonal conflict extend beyond issues of self-control to goal conflict in general. Intrapersonal conflict can in fact arise from any set of competing goals, and therefore we expect individual differences in how goals are personally structured and evaluated to moderate the results of the current research. In particular, we propose that in most goal conflict situations, there is a primary (or default) goal and a secondary goal. Consistent with the notion that the mere token effect is strongest when it operates to reject a weaker option, we suggest that justifications and reasons will be most effective when addressing the secondary goal, enabling choice of an option consistent with the primary goal. Thus, in a given choice context, the same mere token may address what is the primary goal for one person with little effect on choice, and what is the secondary goal for another, with a substantial effect.

In fact, the research on hyperopia points to precisely this form of reversibility of primary and secondary goals. For example, to the hyperopic person who feels acutely that they are missing out due to insufficient indulgence (Kivetz & Keinan 2006), abstention is arguably an impulsive secondary goal, and indulgence can be construed as the primary (albeit unfulfilled) goal. In this context, reasons and rationalizations may provide a justification for indulgence, helping the decision-maker to overcome feelings of guilt about indulging and making it easier to choose the indulgence, in the opposite direction of the studies reported in this article. Consistent with this view, in an unpublished study ($N = 431$), we found that for participants who had to pay a bill and were given a choice between a sooner-smaller payment (\$100 in one week) or a later-

larger payment (\$110 in one year), adding a small initial payment to each choice option (\$10 in three days) increased choices of procrastinating and paying the larger amount (39% vs. 50%, $p < .05$). This “fig-leaf” effect, a counterpart to the mere token effect, is consistent with our intrapersonal conflict framework. In this case, instead of the token enabling “virtuous” choices (waiting for a larger and higher expected value reward), the common element facilitates “vice-ridden” choices (accepting a penalty in order to pay later).

Furthermore, we note that the mere token effect represents just one specific type of justification. Justification plays a broad role across a wide variety of decision situations. The literature on reasons, justifications, and rationalizations has described a wide range of contexts in which justification is used and many different types of information that are interpreted as justification cues. The conceptualization developed in this paper is applicable in many of these domains, specifically where justifications are used to resolve emotional or intrapersonal conflict rather than cognitive conflict due to preference uncertainty. In the broad range of such choice contexts, we suggest that our proposals regarding scope insensitivity of justification, as well as the roles of psychological distance and conflict intensity as moderators of the effect of justification, merit substantial further research.

Figures and Tables.

Figure 1: Scope Insensitivity of the Mere Token

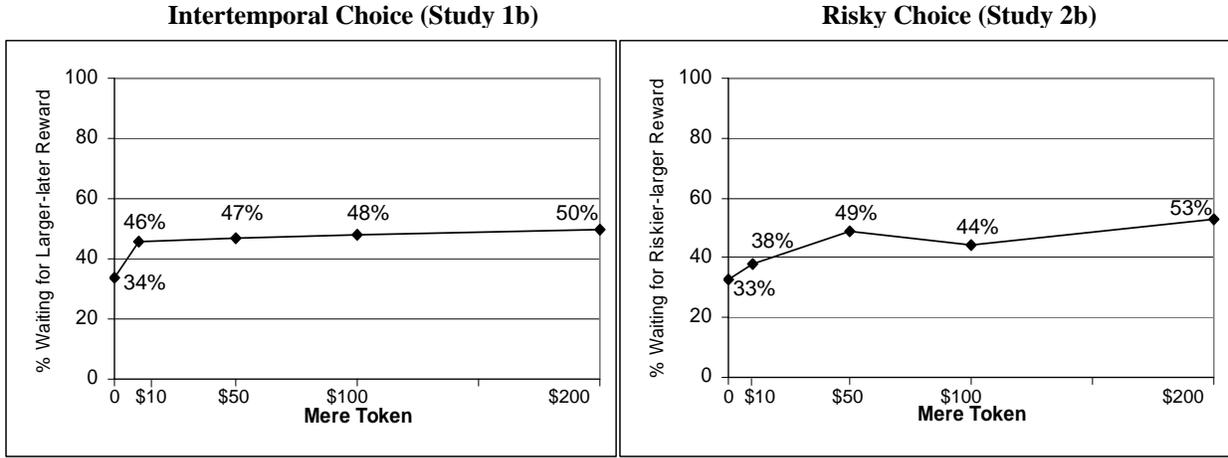


Figure 2: The Effect of Status Quo Framing

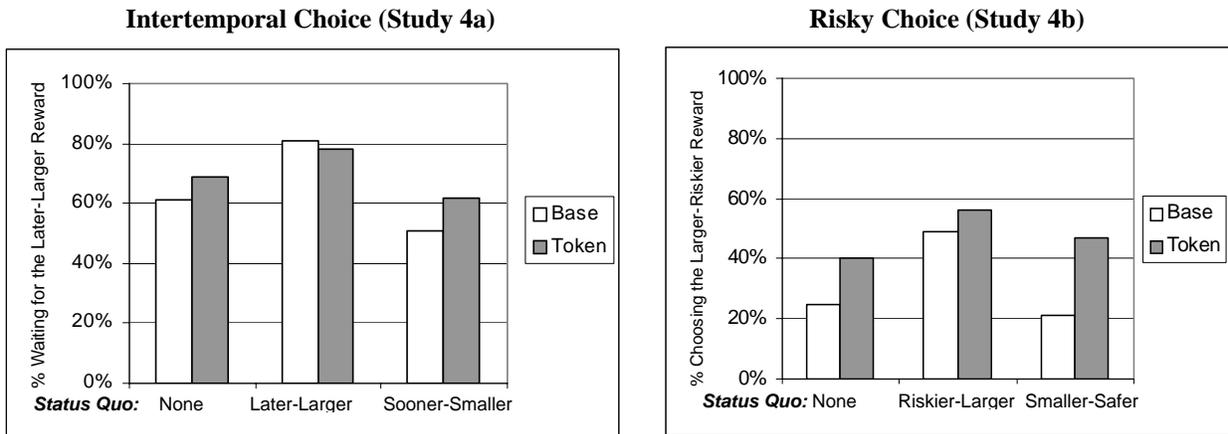


Table 1: Percent of Subjects Choosing the Later-Larger Option (\$1000 in one year) in Study 5a

	Size of Sooner-Smaller Choice Option (in one week)								
	\$100	\$200	\$300	\$400	\$500	\$600	\$700	\$800	\$900
Without Mere Token	72%	67%	58%	48%	51%	38%	27%	20%	15%
With Mere Token	78%	77%	79%	64%	50%	49%	36%	18%	15%
Shift to Later-larger:	+6%*	+10%**	+21%***	+16%***	-1%	+11%**	+9%**	-2%	0%

* = significant at 90% **=significant at 95% ***=significant at 99%

Appendix: Implications of Risky Choice Models for the Mere Token Effect.

In the following treatment, we will derive predictions for the effect of adding a mere token to both options in risky choice under the dominant models of decision-making under risk. We first derive the implications of cumulative prospect theory for the mere token effect, followed by a brief discussion of subjective expected utility.

Implications of Prospect Theory

Consider a choice between two gambles, a larger riskier gamble $\{p_L, R_H\}$ and a safer-smaller gamble $\{p_H, R_L\}$, characterized by higher and lower probabilities $p_H > p_L$ as well as higher and lower reward amounts $R_H > R_L$. Given that the outcomes here are restricted to the domain of gains, cumulative prospect theory (Tversky & Kahneman 1992) models the value of a gamble as:

$$V(p; R) = g(p) v(R)$$

Here, the value of the prospect is based on the probability weighting function g and value function v . It is assumed that the probability weighting function maps to the probability interval (i.e. $g(0)=0$ and $g(1)=1$), but that the function overweighs small probabilities and underweighs large probabilities. It is assumed that the value function v is monotonically increasing and concave (i.e. $v(0)=0$, $v'''>0$, $v''<0$). In addition, convexity of marginal utility ($v'''>0$) is often assumed, which ensures decreasing risk aversion (Pratt 1964). In particular, the power function form of v proposed by Tversky and Kahneman (1992) and used in most empirical applications of prospect theory (e.g. Camerer and Ho 1994, Wu and Gonzalez 1996), satisfies this condition.

Claim 1: *Under cumulative prospect theory, the mere token effect is predicted whenever the ratio of the lower probability to the higher probability is sufficiently small (specifically, $g(p_L)/g(p_H) < .5$).*

Based on the prospect theory valuations for the two options in the base condition, the advantage of the riskier-larger gamble can be expressed as the difference:

$$A_0 = g(p_L) v(R_H) - g(p_H) v(R_L)$$

Now, consider adding a common certain amount c (the mere token amount) to each choice option. The advantage of the riskier-larger gamble now becomes:

$$A_C = g(p_L) v(R_H+c) + [1-g(p_L)] v(c) - g(p_H) v(R_L+c) - [1-g(p_H)] v(c)$$

The claim of the mere token effect is that adding the common certain amount will enhance the advantage of the riskier-larger gamble, i.e. $A_C > A_0$. We now derive the conditions under which this inequality holds, under the assumptions of cumulative prospect theory. First, we express the mere token effect as the difference:

$$\begin{aligned} D_C &= A_C - A_0 \\ &= g(p_L)v(R_H+c) + [1-g(p_L)]v(c) - g(p_H)v(R_L+c) - [1-g(p_H)]v(c) - g(p_L)v(R_H) + g(p_H)v(R_L) \\ &= g(p_L) [v(R_H+c) - v(R_H)] - g(p_H) [v(R_L+c) - v(R_L)] + [1-g(p_L) - (1-g(p_H))] v(c) \\ &= g(p_L) [v(R_H+c) - v(R_H)] - g(p_H) [v(R_L+c) - v(R_L)] + [g(p_H) - g(p_L)] v(c) \end{aligned}$$

Define the incremental benefit of adding the certain amount to each possible outcome in the base condition as follows:

$$b_0 = v(c); b_L = v(R_L+c) - v(R_L) \text{ and } b_H = v(R_H+c) - v(R_H)$$

Applying these definitions, the advantage of the token condition can be rewritten as:

$$\begin{aligned} D_C &= g(p_L) b_H - g(p_H) b_L + [g(p_H) - g(p_L)] b_0 \\ &= -g(p_L) [b_L - b_H] - [g(p_H) - g(p_L)] b_L + [g(p_H) - g(p_L)] b_0 \\ &= -g(p_L) [b_L - b_H] + [g(p_H) - g(p_L)] [b_0 - b_L] \end{aligned}$$

Thus, we predict that the mere token effect will occur if and only if:

$$g(p_L) [b_L - b_H] < [g(p_H) - g(p_L)] [b_0 - b_L]$$

Since v is strictly concave (i.e. $v''<0$), the slope v' is decreasing and therefore $b_0 > b_L > b_H$. In addition, by the convexity of marginal utility, we know that $v'''>0$, which means that v'' , while negative, is increasing. Therefore the slope v' is not only decreasing, but decreasing at an increasing rate. Put another way, not only is the marginal utility diminishing, but it is diminishing at an increasing rate, with equal sized intervals higher on the utility curve characterized by flatter diminishing marginal utility. As a consequence we can deduce that $b_L - b_H < b_0 - b_L$, contingent on the assumption that $v'''>0$.

Therefore, a sufficient (but not necessary) condition for the mere token effect under cumulative prospect theory is:

$$g(p_L) < g(p_H) - g(p_L) \text{ or, equivalently, } g(p_L)/g(p_H) < .5$$

Thus, we conclude that when the ratio of p_L to p_H (adjusted by the weighting function g) is sufficiently small, we would in fact expect the basic mere token effect under cumulative prospect theory. When the condition is not met, however, our finding is indeterminate – prospect theory might still predict a mere token effect, depending on the

difference between $b_L - b_H$ and $b_0 - b_L$. Next, we prove three corollaries that describe the effect of changes in the stimuli on the predicted mere token effect.

Corollary 1: Under cumulative prospect theory, increasing the mere token amount will increase the mere token effect when the ratio of the probabilities is small enough (i.e. $g(p_L)/g(p_H) < .5$).

Consider the measure of the mere token effect defined above:

$$D_C = g(p_L) [v(R_H+c) - v(R_H)] - g(p_H) [v(R_L+c) - v(R_L)] + [g(p_H) - g(p_L)] v(c)$$

We then take the derivative with respect to the mere token amount c :

$$\begin{aligned} \partial D_C / \partial c &= g(p_L) v'(R_H+c) - g(p_H) v'(R_L+c) + [g(p_H) - g(p_L)] v'(c) \\ &= g(p_L) [v'(R_H+c) - v'(R_L+c)] - [g(p_H) - g(p_L)] v'(R_L+c) + [g(p_H) - g(p_L)] v'(c) \\ &= -g(p_L) [v'(R_L+c) - v'(R_H+c)] + [g(p_H) - g(p_L)] [v'(c) - v'(R_L+c)] \end{aligned}$$

Due to the convexity of marginal utility, we know that v' is a positive-valued convex function. Thus, the slope of v' is negative and becoming flatter. This implies that $v'(R_L+c) - v'(R_H+c) < v'(c) - v'(R_L+c)$.

We can therefore conclude that whenever $g(p_L) < g(p_H) - g(p_L)$ or, equivalently, when $g(p_L)/g(p_H) < .5$, increasing the mere token size will increase the token effect. On the other hand, when $g(p_L)/g(p_H) > .5$, the result is indeterminate – increasing the mere token size could increase or decrease the mere token effect. We can also conclude that increasing the ratio $g(p_L)/g(p_H)$ will decrease the sensitivity to mere token size.

Corollary 2. Under cumulative prospect theory, increasing the size of the safer-smaller reward or decreasing the size of the riskier-larger reward will increase the mere token effect.

Consider the measure of the mere token effect defined above:

$$D_C = g(p_L) [v(R_H+c) - v(R_H)] - g(p_H) [v(R_L+c) - v(R_L)] + [g(p_H) - g(p_L)] v(c)$$

Taking the derivative with respect to the safer-smaller reward, we get:

$$\partial D_C / \partial R_L = -g(p_H) [v'(R_L+c) - v'(R_L)]$$

By the concavity of v , we know that v' is a positive-valued decreasing function. Thus, $v'(R_L+c) < v'(R_L)$ and $\partial D_C / \partial R_L > 0$, so increasing R_L will increase the mere token effect. Similarly, looking at the effect of changing the larger-later reward, we know that $v'(R_H+c) < v'(R_H)$, and therefore:

$$\partial D_C / \partial R_H = g(p_L) [v'(R_H+c) - v'(R_H)] < 0$$

Therefore, decreasing R_H will increase the mere token effect.

Corollary 3: Under cumulative prospect theory, decreasing the ratio $g(p_L)/g(p_H)$ of the lower probability to the higher probability will increase the mere token effect.

Consider the measure of the mere token effect defined above:

$$D_C = g(p_L) [v(R_H+c) - v(R_H)] - g(p_H) [v(R_L+c) - v(R_L)] + [g(p_H) - g(p_L)] v(c)$$

By concavity of the value function, $v(R_H+c) - v(R_H) < v(c)$ and therefore increasing p_L will decrease D_C , and thereby decrease the mere token effect. Likewise, by concavity of the value function, $v(R_L+c) - v(R_L) < v(c)$ and increasing p_H will increase the mere token effect.

Implications of Subjective Expected Utility Theory

Claim 2: Under expected utility theory with convexity of marginal utility, the mere token effect is predicted when $p_L/p_H < .5$.

In expected utility theory, there is no probability weighting function, and prospects are evaluated relative to total wealth as opposed to a contextual reference point. The advantage in terms of value for the riskier-larger gamble can then be expressed as:

$$A_0 = p_L u(W_0+R_H) - p_H u(W_0+R_L) + (p_H - p_L) u(W_0)$$

Here, W_0 is the initial wealth and u is the utility function, assumed to be monotonically increasing, strictly concave (i.e. $u(0)=0$, $u'>0$, $u''<0$) and have convex marginal utility ($u'''>0$). Applying the same reasoning as in Proposition 1 above, a sufficient (but not necessary) condition for the mere token effect to hold is:

$$p_L < p_H - p_L \text{ or, equivalently, } p_L/p_H < .5$$

Furthermore, by setting $g(p)=p$, Corollaries 1.1 to 1.3 extend directly to the subjective expected utility model.

It is worth noting that, under expected utility theory, the diminishing marginal effect of the certain amount c is relative to overall wealth, which calls into question whether substantial shifts in preference are consistent with reasonable rates of diminishing marginal utility (see Rabin 2000). Furthermore, under expected utility theory, we would expect the mere token effect to be sensitive to initial wealth, with much stronger mere token effects for those with lower levels of wealth.

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