ABSTRACT

Title of Thesis: THE AUGMENTATION EFFECT: WHEN COST ENHANCES THE PERCEIVED BENEFIT OF EXTREME MEANS.

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In the present research, I introduce a new type of means under goal systems theory (Kruglanski et al., 2002): a *costly* means, which is instrumental to a focal goal but detrimental to alternative goal(s). An attributional inference similar to the *augmentation effect* (Kelley, 1971) may occur for costly means, suggesting that because they are detrimental to alternative goal(s), they must be especially instrumental to a focal goal. Moreover, individuals under high (vs. low) commitment to this focal goal may perceive a costly means as less extreme. Findings from Study 1 provide evidence for both hypotheses, and Study 2 showed that alternative goal primes lead to perceptions of costly means as more extreme. These findings recommend the integration of rational choice and goal systems theories, provide evidence for the augmentation effect as a heuristic tool, and highlight potential interventions to combat extremist cognition and behavior.

THE AUGMENTATION EFFECT:

WHEN COST ENHANCES THE PERCEIVED BENEFIT OF EXTREME MEANS

by

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A starving party of travelers resorts to cannibalism in order to feed themselves; a father kills his entire family after being laid off from his job; a suicide bomber kills innocent civilians to protest a perceived wrong against other innocent civilians. Many forms of extreme behaviors, including some mentioned here, have been on the rise in recent years for a variety of reasons (e.g., social contagion, globalization, societal upheaval). For instance, almost 90 percent of suicide attacks in the modern era of suicide terrorism (1981 – 2008) occurred from 2003 to 2008 (Merari, 2010). The U.S. Department of Homeland Security issued a 2009 report warning that right-wing extremist groups were stepping up their recruitment and operational capabilities in the wake of the 2008 presidential election, immigration reform, and the economic downturn. Twenty-four hour news media keep extremist acts at the forefront of attention, and the technological innovations of the last century have made it easier for extremists to carry out attacks with devastating consequences. Given the frequency, salience, and impact of extremist behavior in the modern world, it is essential to investigate the causal mechanisms that may be responsible for people's choices to carry out extreme acts.

While it may seem that extreme behaviors are unpredictable or pathological in origin, research suggests that the people who carry out these acts are surprisingly "normal" (Bongar, Brown, Beutler, Breckenridge, & Zimbardo, 2007; Merari, 2010; Post, Ali, Henderson, Shanfield, Victoroff, & Weine, 2009). Moreover, theorists increasingly posit that extremist actors are rational and specifically, *subjectively* rational, given their current situation and perceptions (Kruglanski & Fishman, 2006; Kruglanski &

Orehek, 2008; Wintrobe, 2006). The key question for researchers is *how* individual actors or groups come to perceive extreme action as subjectively rational. In other words, what psychological processes lead people to perceive an extreme behavior as non-extreme, or at least sufficiently non-extreme to consider acting on? The present research seeks to introduce and explore a behavioral economic explanation of extreme behavior within a goal systemic (Kruglanski et al., 2002) framework, as a function of a distorted cost-benefit analysis that individuals experience when they are highly committed to a focal goal.

What is Extremism, and When Does it Arise?

In order to embark on the study of extremist behavior, it is first necessary to identify the key components of extremism as a construct. Some traditional definitions posit that extremism is a function of norms (e.g., Wintrobe, 2006); extreme attitudes, cognition, and behavior would thus be those that are non-normative. Other definitions state that extremism involves zeal or conviction for a given attitude or position (e.g., Abelson, 1995; McGregor, Zanna, Holmes, & Spencer, 2001). Kruglanski and Klein (2009) attempted to link these two definitions, by arguing that under high commitment to a focal goal (i.e., zealous conviction), individuals may engage in behaviors that are costly to alternative pursuits. The foregoing of these pursuits, particularly those that are valued by the majority of society, might render these behaviors non-normative, or extreme. Thus, goal commitment could be described as an antecedent of extremism, and the non-normative nature of extremism as a consequence of its costliness to alternative pursuits. The single factor in this analysis that is inherent in extremism, rather than its antecedent or consequence, is its costliness to alternative goal pursuits. Indeed, it is difficult to imagine an attitude or behavior that would be considered extreme that is not costly to some alternative goal or concern. Therefore, I propose that cost to alternative goal considerations is a necessary but not sufficient component of attitudes or behavior that would be considered extreme. The actual perception of a costly means as extreme would then depend on the degree to which the goal(s) it undermines are valued by the individual or group judging its extremity. If the means is costly to alternative goals of value to the judging individual or group, it would be considered extreme; if, however, it is costly to alternative goals that are *not* valued by that individual or group, it would not be considered extreme. So whereas not all costly means would necessarily be considered extreme (i.e., those that are *not* costly to normative considerations), all means that might be considered extreme are costly.

To clarify this definition and hypothesized model of extremism, I approach the present research from a goal systemic (Kruglanski et al., 2002) perspective. Specifically, an extreme attitude or behavior is necessarily a *costly means* to some end, i.e., one that is *instrumental* to a focal goal, but *detrimental* to alternative goal pursuit(s). As an example, an individual who joins a cult may do so out of a desire to fulfill unmet belongingness needs, while foregoing the alternative goals of participation in the larger social world and freedom to think and act as one pleases. Thus, joining a cult would constitute a costly means, as it is instrumental to a focal goal (i.e., belonging) but detrimental to alternatives (i.e., normative social participation, freedom). This particular costly means (joining a cult) would likely be considered extreme by the larger society in which the individual is embedded, as it is costly to goals that society values (e.g., participation in society). However, this costly means would not be considered extreme by the cult, as the cult members probably do *not* place high value on the very same alternative goals (e.g., participation in society at large). Thus, the definition of a means as extreme is subjective or relative, dependent on the goals of the individual or group making the judgment.

This relativity in the definition or perception of extremism makes objective study of the process leading to extremism a challenge. However, it is possible to begin exploring this process by first understanding the one unchanging aspect of extremism, namely, that it necessarily involves a costly means. Studying the psychological mechanisms that are involved when an individual perceives a costly means as more or less extreme provides a window into the process of becoming an extremist. One cannot engage in extreme action without first "rationalizing" (i.e., perceiving as rational or non-extreme) a costly means. Therefore, the present research explores the psychological mechanisms that lead one to perceive a costly means as less extreme, or more rational.

Rational Choice and Extremism

The detrimentality aspect of a costly means raises an important question: Why would an individual use a means that is detrimental to alternative goal pursuits, particularly if other means that are not detrimental to these goals are available? Indeed, goal systems theory (Kruglanski et al., 2002) defines a multifinal means as one that will fulfill multiple goals at once, and it demonstrates that people take such multifinality considerations into account when choosing among means for goal pursuit. For instance, an individual might choose to study in a group instead of alone in order to both prepare for her upcoming exam and socialize with classmates (Chen, 2009); or, the individual may choose to purchase a fitness item that also signals his identification with his university (e.g., a University of Maryland water bottle) rather than a generic item without a school logo (Kruglanski, Chun, Sleeth-Keppler, & Friedman, 2005). With such multifinal means available, particularly in more consequential situations involving, say, a choice between peaceful protest and blowing up an abortion clinic, why would a costly means have any appeal to an actor? The answer is twofold, and is derived from goal systems and rationality theories (e.g, Simon, 1978).

These theories suggest that people consider two critical factors when deciding among means for goal pursuit: *expectancy* and *value*. According to goal systems theory (Kruglanski et al., 2002), which redefines the terminology of previous rationality theories to specify means-end relations[1], the expectancy of attaining a given goal using a particular means is defined as the means' *instrumentality* to the goal. Thus, expectancy in general may be determined by the combined instrumentalities of all available means to the goal. The value of a goal's attainment for an individual might be conceptualized as goal importance, reflected as goal commitment (e.g., zealous conviction). Consistent with Kruglanski and Klein's (2009) theory, I argue that, due to a unique attributional inference known as the augmentation effect, costly means are perceived as particularly instrumental to the goal that they serve, which affords a high expectancy of goal attainment. Therefore, under high commitment to that goal, individuals will be more

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[1] Under Vroom's (1964) expectancy theory, for instance, *instrumentality* is defined as a subordinate goal – superordinate goal relation, whereas in goal systems theory it is defined as a means-goal relationship. *Valence* or value under goal systems theory would be attached to the goal in this means-goal relation, whereas in expectancy theory it would pertain to the superordinate or secondary goal. Finally, *expectancy* under Vroom refers to a general effort – subordinate goal relation, similar to the notion of efficacy, whereas under goal systems theory expectancy is a general sense that the goal is attainable. This attainability perception may be a function of the sum total instrumentalities of all means that could help to attain the goal.

likely to disregard costs to alternative goals and proceed with use of the costly means.

Expectancy: The augmentation effect

Previous theory and research suggest that an attributional phenomenon known as the augmentation effect may impact one's perception of the *expectancy* of goal attainment using a costly means. The augmentation effect, originally proposed by Kelley (1971), stated that when an *inhibitory cause* for an actor's behavior is present (vs. absent), observers tend to attribute that behavior more strongly to whatever *facilitative cause* is present. As Kelley put it, observers infer that "the facilitative cause must have been effective, *and potently so*, if the effect occurred *despite* the opposing effect of the inhibitory cause" (p. 12, emphasis mine). Later researchers refined this idea by suggesting that the augmentation effect implies that "given that an obstacle had to be overcome, whatever may have caused the effect must have been of considerable magnitude" (Kruglanski, Schwartz, Maides, & Hamel, 1978, p. 183).

Therefore, the augmentation effect in goal systemic terms deals with inferences about a means that an individual used to achieve a goal. More specifically, observers infer that a means must have been especially instrumental (i.e., facilitative) to a focal goal if it allowed the actor to achieve the focal goal in spite of obstacles (i.e., inhibitory causes). The augmentation effect thus describes a *post hoc* inference about a means' instrumentality to a focal goal, given information about the obstacles that the means overcame. I propose an extension of Kelley's (1971) original augmentation effect to suggest that it not only occurs as a *post hoc* inference, but also as an *a priori* inference about a means' instrumentality to a focal goal. Namely, people may infer that if a means is detrimental (i.e., *inhibitory*) to an alternative goal, then it must be especially instrumental (i.e., *facilitative*) to the focal goal. In other words, people may believe *a priori* that costly means are especially effective for focal goal pursuit.

To understand the origins of this perception of costly means' special instrumentality, it is first necessary to note that goal systems theory (Kruglanski et al., 2002) posits a connectionist model of means, goals, and their interrelations. For instance, a goal and a means to that goal may be linked via a cognitive connection or association under a spreading activation model (e.g., Anderson, 1983). Moreover, these connections between means and goals may be either facilitative or inhibitory, such that the activation of one leads to the activation or deactivation (respectively) of the other. Indeed, previous research has shown that goal systems (i.e., interconnected arrays of goals and means) can contain both facilitative and inhibitory connections (e.g., Fishbach, Friedman, & Kruglanski, 2003; Shah, Friedman, & Kruglanski, 2002). The augmentation effect posited in the present research operates under the assumption that an inhibitory link can lead to the strengthening of a facilitative link (Read & Miller, 1998).

Specifically, the link between a costly means and the alternative goal it undermines would be inhibitory; their association is negative due to the costly means' detrimentality to that goal. Likewise, the link between a costly means and the focal goal it serves would be facilitative; the association between them is positive due to the costly means' instrumentality to that goal. Under a connectionist framework, the negative or inhibitory association between a means and goal would leave the "energy" that might otherwise have been directed toward that path seeking an outlet. In other words, the inhibitory means-goal link might cause a sort of "backlash" in spreading activation toward whatever facilitative paths are available, which for the costly means includes most notably the link to the focal goal it serves. Thus, the inhibitory link between the costly means and the goal it undermines might serve to strengthen the link between the costly means and the focal goal it serves. This strengthening would be reflected in perceptions of the costly means as particularly instrumental to the focal goal.

Importantly, once this facilitative link to the focal goal has been strengthened, holding all else equal, it should maintain its strength regardless of whether the alternative goal is active in a given moment. In other words, perceiving the special instrumentality of a costly means to a focal goal should not require simultaneous perception of its detrimentality to the alternative goal it undermines. If one has perceived the costly means' detrimentality to the alternative goal on a previous occasion, and this inhibitory link has thus strengthened the facilitative link of the costly means to the focal goal, then the special (perceived) instrumentality should linger whether the alternative goal is active or inactive. Simply stated, goal systems under a connectionist model can "learn", and the links that have been strengthened by previous perceptions or associations should remain strengthened for future associations or perceptions in subsequent means choice situations. This principle should apply to the *a priori* augmentation effect, such that once one has perceived a costly means' detrimentality to an alternative goal, the costly means should in future instances be perceived as especially instrumental to a focal goal it serves, independent of whether the alternative goal and its link to the means are active.

Value: Focal goal commitment and alternative goal suppression

The augmentation effect demonstrates the appeal of a costly means in terms of its instrumentality to a focal goal, and thus its impact on the perceived expectancy of goal attainment. By use of a costly means, rather than a non-costly or less costly means, one would expect a greater likelihood of attaining a focal goal. However, a costly means is perceived as especially instrumental to a focal goal because of its *detrimentality* to alternatives, and those alternative goal considerations do not magically disappear whenever the augmentation effect occurs. In other words, the augmentation effect does not explain when or why people might disregard alternative goal considerations and choose to use a costly means for goal pursuit. The missing piece of this puzzle is the remaining component of rational choice models: goal value.

Previous research has shown that people who are highly committed to a focal goal tend to suppress or inhibit alternative goals (Kopetz, Faber, Fishbach, & Kruglanski, in press; Shah, Friedman, & Kruglanski, 2002). In other words, the cognitive representations of alternative goals are less readily accessible or active for the individual under high focal goal commitment. For such a highly committed individual, the alternative goal or multifinality constraints that might make a costly means seem less appealing than a multifinal means are no longer present. Those alternative goals are suppressed, and the multifinality constraints are relaxed, so that the individual is free to choose any means that will enable him to attain the focal goal. With such freedom from alternative goal considerations, and with the augmentation effect suggesting that a costly means is the most effective for focal goal pursuit[2], the question becomes why *wouldn't* an individual choose the costly means for goal pursuit?

As an illustrative example, consider the would-be suicide bomber. One potential

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[2] Recall that the augmentation effect should occur regardless of whether the alternative goal is active, due to the "learning" capabilities of connectionist goal systems. Therefore, the suppression or inhibition of the alternative goal and its inhibitory link to the costly means should not prevent one from perceiving the costly means as especially instrumental to the focal goal, so long as that connection was previously strengthened.

recruit may believe that suicide terrorism is an especially effective way to obtain honor (e.g., as a martyr), but he might still view suicide terrorism as extreme or irrational if he cares as much about human rights or self-preservation as he cares about obtaining honor. However, for another potential recruit who is zealously committed to obtaining honor (for instance, because he shamed his family in the community), human rights and self-preservation concerns would be suppressed, and he may carry out a costly act of suicide terror in an attempt to obtain his all-important honor goal. Therefore, for those who are highly committed to a focal goal, what was extreme may now be perceived as non-extreme, what was irrational may become rational, and what would have been out of the question may now be seen as the optimal strategy. The present research will tackle three components of this hypothesis: a) the augmentation effect in perceptions of means' instrumentality to a focal goal, b) distorted perceptions of a costly means' rationality under high (vs. low) focal goal commitment via an *a priori* augmentation effect, and c) preference for costly (vs. unifinal or multifinal) means under high (vs. low) focal goal commitment.

Method

Study 1

Thus far, goal systems researchers have only examined unifinal and multifinal means, which are defined in terms of the instrumentality of means to focal and alternative goals (Kopetz et al., 2008; Zhang et al., 2007). This study examined the new dimension of detrimentality by adding a costly means, defined as a means which is instrumental to the focal goal but detrimental to alternative goals. Specifically, I examined whether an augmentation effect occurs when a means is detrimental to alternative goals, such that regardless of their commitment to the focal goal, people perceive costly means as more instrumental to the focal goal than either unifinal or multifinal means. Hypothesis 1a predicted the augmentation effect for participants' own perceptions of the means, while Hypothesis 1b predicted that participants would indicate another individual might also display the augmentation effect.

This study also explored the idea that under heightened focal goal commitment, people prefer a costly means, due to the perception of the costly means as highly instrumental to the focal goal (i.e., the augmentation effect). Hypothesis 2 predicted an interaction between focal goal commitment and means type, such that participants under high focal goal commitment would perceive the costly means as more rational or less extreme than either the unifinal or multifinal means, whereas participants under low focal goal commitment would perceive the costly means as less rational or more extreme than either the unifinal or multifinal means. Hypothesis 3 predicted that perceptions of the costly means as highly instrumental to the focal goal would mediate the causal relationship between high (vs. low) focal goal commitment and perception of costly means as more rational or less extreme than unifinal or multifinal means.

Furthermore, this study examined how focal goal commitment impacts the behavioral intentions of participants, such that they express intent to utilize a particular means among the means set and willingness to incur more cost for this means than for the other two. Hypothesis 4 predicted that participants in the high (vs. low) focal goal commitment condition would express more intent to utilize the costly (vs. unifinal or multifinal) means. Hypothesis 5 predicted that participants in the high (vs. low) focal goal commitment condition would express willingness to pay more money for the costly (vs. unifinal or multifinal) means.

Participants. I recruited 262 participants from an undergraduate social psychology course at the University of Maryland. They received extra course credit for participating.

Procedure and design. This study was conducted in a lecture hall using paper and pencil surveys. Participants were told that the study was investigating how people with different personality types make judgments. The study used a 2 (Focal Goal Commitment: High vs. Low) x 3 (Means Type: Unifinal, Multifinal, Costly) x 3 (Means Order) x 3 (Measure Order) mixed design, where Focal Goal Commitment represented a between-participants factor, Means Type a within-participants factor, and Means Order and Measure Order represented between-participants counterbalancing factors.

After obtaining informed consent, I first presented participants with a fabricated excerpt from an article describing a study conducted by the Centers for Disease Control and Prevention [CDC]. The article presented the study's results for three medications (i.e., means) that were each "sufficiently effective" in treating an illness (i.e., the focal goal): a) a unifinal medication, b) a multifinal medication, and c) a costly medication. The article presented the unifinal means with only the preceding information about the focal goal. The multifinal means was presented with the focal goal information and also indicated that the medication was cheap and easy to obtain (i.e., instrumental to two alternative goals). The costly means was presented with the focal goal information and also indicated that the medication was expensive and difficult to obtain (i.e., detrimental to two alternative goals).

Therefore, the three goals indicated in the study were a) treating a focal illness (i.e., the focal goal), b) monetary cost-effectiveness, and c) ease of obtainment. The unifinal medication was instrumental to the focal goal and unrelated to the alternative goals; the multifinal medication was instrumental to all three goals; and the costly medication was instrumental to the focal goal but detrimental to the alternative goals. The order of presentation of the means was counterbalanced to control for order effects. Also, the labels for the means were novel and similar in connotation, so that prior experience with the means or their labels would not influence perceptions of their rationality or instrumentality.

The study was conducted during the month immediately following the outbreak of swine flu in late April of 2009. Participants in the high focal goal commitment condition received an article that described medications to treat the swine flu, whereas participants in the low focal goal commitment condition received an article that described medications to treat the common cold. Presumably, the threat of contracting the swine flu outweighed the threat of contracting the common cold due to the recent media coverage of the outbreak; therefore, the swine flu article was designed to induce high commitment to fighting the focal illness, whereas the common cold article ostensibly induced relatively lower commitment to the same focal goal.

Participants then completed three measures, which were counterbalanced to control for order effects. The first measured the perceived rationality or extremity of each means; participants rated each medication on a 7-point Likert scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). Perceived rationality/extremity items included “Taking [medication] would be extreme”, “Taking [medication] would be reasonable”, “It would be irrational to take [medication]”, and “It would make sense to take [medication]”. The reliability coefficients of these measures ranged from .81 to .87 for the four items concerning each medication.

The second measure tapped the perceived instrumentality of each means to the focal goal, from the perspective of a highly committed protagonist. Participants read the following: "Pat just came down with [Swine Flu/the common cold], and is participating in a follow-up study on each of the medications listed above. In this study, Pat has a choice about which medication to take to combat the [flu virus/common cold]." Participants then indicated how effective (i.e., instrumental) Pat probably thought each medication was to treating either the flu or the common cold, on a 7-point scale from 1 (*Not at all effective*) to 7 (*Highly effective*).

The third measure concerned the participants' perceptions of the instrumentality of each means to the focal goal and their behavioral intentions to utilize a particular medication over and above the others. Participants were asked to imagine that they have just come down with either swine flu or the common cold, and must now choose to take one of the medications in the study to combat the illness. They were then asked to indicate how effective (i.e., instrumental) they thought each medication would be to treating either the flu or the common cold, on a 7-point scale from 1 (*Not at all effective*) to 7 (*Highly effective*). Next, participants were asked how much money they would be willing to pay for each of the medications. They were then asked to indicate which one of the medications they would choose to fight their illness and to write their reasons for choosing that medication.

Finally, participants completed a series of questionnaires: a) the Positive Affect Negative Affect Scale [PANAS] (Watson, Clark, & Tellegen, 1988), b) the Locomotion and Assessment Questionnaires (Kruglanski et al., 2000), c) the Need for Closure Scale (Webster & Kruglanski, 1994), and c) a demographic survey including gender, year in school, age, religious affiliation, political orientation, and race. At the end, participants were fully debriefed as to the nature and purpose of the study.

Results. A 2 (commitment) x 3 (means type) x 3 (means order) x 3 (measure order) mixed analysis of variance was conducted on perceptions of means efficacy. Only a significant main effect for means type emerged; the costly means was perceived as more effective at treating the illness than the other two means, $\Lambda = .64$, $F(2,243) = 67.34$, $p < .01$, partial $\eta^2 = .36$. Hypothesis 1a was supported (see Figure 1).

A 2 (commitment) x 3 (means type) x 3 (means order) x 3 (measure order) mixed analysis of variance was conducted on participants' ratings of a third party's perceptions of means efficacy. A significant means type x means order interaction emerged, $\Lambda = .93$, $F(4,486) = 4.37$, $p < .01$, partial $\eta^2 = .04$.[3] Pairwise comparisons revealed that the costly means was rated in all three means order conditions as more effective than the unifinal ($p < .01$) and multifinal ($p < .01$) means. Hypothesis 1b was supported.

A 2 (commitment) x 3 (means type) x 3 (means order) x 3 (measure order) mixed analysis of variance was conducted on perceptions of means rationality[4]. A significant commitment x means type interaction emerged, $\Lambda = .96$, $F(2, 243) = 5.00$, $p < .01$. I ran pairwise comparisons to examine two separate hypotheses about costly means: a) their

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[3] In two means order conditions, the unifinal and multifinal means were rated as equally effective ($p = .61$, 1.00). However, when the multifinal means was presented first, participants rated the multifinal means as more effective than the unifinal means ($p < .01$).

[4] Two significant higher-order interactions emerged with counterbalancing factors for perceptions of rationality, but the pattern of results described above was consistent in the majority of counterbalancing conditions and held when collapsed across levels of the counterbalancing factors.

perceived rationality relative to the other means types (unifinal and multifinal), and b) their perceived rationality under high vs. low focal goal commitment. As to the former, pairwise comparisons showed that the costly means was perceived as the least rational (or most extreme) of the three means types, followed by the unifinal, followed by the multifinal, (*p*s $< .01$). This order of means rationality/extremity materialized in both the high and low commitment conditions. As to the latter hypothesis, pairwise comparisons revealed that the costly means was perceived as more rational in the high (vs. low) commitment condition ($p < .01$). The commitment manipulation did not impact perceptions of the unifinal or multifinal medications. Hypothesis 2 was not supported as stated, but a different and meaningful pattern emerged in the data (see Figure 2). Specifically, the costly means was always perceived as the least rational or most extreme of the three means types, supporting Klein and Kruglanski's (2009) definition of extreme means as necessarily costly. However, the costly means was perceived as *more* rational when participants were under high (vs. low) commitment to the focal goal, supporting the notion that focal goal commitment impacts the perceived extremity of costly means.

Concerning Hypothesis 3, the commitment manipulation did not have a significant impact on the mediator (i.e., perceived effectiveness of the costly means). Because establishing the effect of the independent variable on the mediator is necessary in order to show mediation, and I failed to find this effect, I did not continue with the remaining mediation tests. Thus, hypothesis 3 was not supported.

A chi-square analysis demonstrated that the commitment manipulation had a significant impact on medication choice, $X^2(1, N = 257) = 4.19$, $p < .05$. Whereas participants were overall more likely to choose the multifinal medication, those under high (vs. low) commitment were more likely to choose the costly medication. (Note: Unifinal medications were excluded from this analysis, as only 4 participants chose this medication.) Hypothesis 4 was partially supported (see Figure 3); while participants did not prefer the costly means over the other means types under high commitment (in fact, the opposite was true for multifinal means), they were more likely to choose the costly means under high (vs. low) commitment to the focal goal.

A 2 (commitment) x 3 (means type) x 3 (means order) x 3 (measure order) mixed analysis of variance was conducted on the amount of money participants indicated that they were willing to pay for each medication. A significant means type x commitment interaction emerged, $\Lambda = .97$, $F(2, 242) = 4.27$, $p = .02$, partial $\eta^2 = .03$. Pairwise comparisons using Bonferroni corrections revealed that participants would be willing to pay more money for all three medications under high (vs. low) commitment ($p < .01$ for all medications). Further pairwise comparisons showed that in the high commitment condition, participants were willing to pay more for the costly medication than for either the unifinal or multifinal medication ($p < .01$ for both comparisons). However, in the low commitment condition, the amounts that participants were willing to pay for each medication did not differ significantly across medications ($p > .13$ for all comparisons). Thus, Hypothesis 5 was supported.

Finally, in an exploratory analysis, I used AMOS to test a structural model of the impact of commitment on medication choice, with perceptions of the rationality of the costly means entered as a mediator, and with perceptions of the multifinal means' rationality entered only as a predictor of choice (see Figure 4). The model shown in Figure 4 fit the data well, $\chi^2(3, N = 257) = 1.504$, $p = .68$. Other indices showed excellent fit, CFI = 1.000, IFI = 1.018, NFI = .982, RSMEA < .001. Specifically, those under high (vs. low) commitment to the focal goal perceived the costly means as more rational, and this costly means rationality perception mediated the impact of commitment on choice of costly means.

Discussion. The results support a goal commitment model of rational choice, such that individuals generally perceive costly means as most instrumental to a focal goal, but those under high (vs. low) commitment to that focal goal are more likely to actually choose the costly means. This effect occurs via perceptions of costly means as more rational (or less extreme) under high (vs. low) focal goal commitment. These findings are also consistent with traditional expectancy models of rational choice (Vroom, 1964) and thus provide some concrete evidence that people's judgments do adhere to expectancy model principles. While these findings are encouraging, several methodological limitations required improvement in subsequent studies.

For one, I did not include a manipulation check on focal goal commitment in Study 1, or a measure of commitment to alternative goals, and so these measures were included in Study 2. In addition, the unifinal means' lack of appeal to participants was in some cases a design problem. Whereas 100 participants indicated that the unifinal means must lie between the multifinal and costly means in its financial cost and/or difficulty of obtainment, 26 participants stated that there was not enough information about the unifinal means. In future studies utilizing unifinal means, it will be important to add filler information about the unifinal means so that mere lack of information about this means does not confound perceptions of the unifinal means as "between" the multifinal and costly means.

In addition, the description of the costly medication as difficult to obtain and expensive may have implied that the materials used for the medication were of superior quality to those in the other medications. Of the 90 people who chose the costly medication, 14 explicitly stated that they inferred that the quality or materials must be superior to those of the other medications. The idea that cost implies quality is not new (e.g., Olson, 1977; Rao & Monroe, 1989; Zeithaml, 1988), and could simply be one well-known instantiation of the augmentation effect. Future studies can determine whether the augmentation effect is unique to financial cost-effectiveness goals or applies to alternative goals more broadly.

Finally, future studies should take a multi-method approach (e.g., only one means evaluated, pre-post rationality ratings) in order to generalize the findings and identify boundary conditions. For instance, the effects may be unique to the specific choice paradigm I employed in Study 1. Similarly, other manipulations of goal commitment (e.g., evaluative conditioning, physiological inducement of a drive state such as thirst, etc.) would allow for increased content validity on the key independent variable of goal commitment. Some of these concerns will be addressed in Study 2, and others are being addressed in current and planned studies.

Study 2

Study 2 extended and improved upon the first in several ways. First, I used a different manipulation of goal commitment and included manipulation checks on the goal commitment variable. Second, I included a variety of goals other than financial cost-effectiveness, to determine whether the effects hold in other domains. Third, instead of using a choice paradigm, I presented each participant with a single means that was instrumental to one goal and detrimental to another goal. I then attempted to increase some participants' commitment to the instrumental goal, thus making it the focal goal, and activated an alternative goal to which the means was either detrimental or unrelated.

Participants primed with an alternative goal to which the means is detrimental (vs. unrelated) should rate the means as more instrumental to the focal goal. This would provide further support for the augmentation effect, as associating a given means with an alternative goal to which it is detrimental should enhance its perceived instrumentality to a focal goal. Hypothesis 6 predicted a main effect for alternative goal prime, such that participants would rate a means as more instrumental to a focal goal when the means was presented with a goal to which it was detrimental (vs. unrelated). However, those under high (vs. low) focal goal commitment would perceive the means paired with a detrimental goal as more rational, because this costly means would likely be perceived as most instrumental to the goal of highest value to the individual. Hypothesis 7 predicted an interaction effect of focal goal commitment and alternative goal prime on perceived rationality of means, such that those under high (vs. low) focal goal commitment would perceive the means presented with a an alternative goal to which the means was detrimental as more rational, whereas rationality perceptions of the means presented with an unrelated alternative goal would be equivalent across the two commitment conditions.

Participants. I recruited 65 participants (48 women, 17 men) using an online participant pool at the University of Maryland.

Procedure and design. In online pretesting which included several unrelated filler questionnaires, I asked participants to list a goal which is important to them, a means that is effective in reaching that goal, and two different alternative goals to which the means is a) detrimental and b) unrelated. They then rated the perceived extremity of using the means on a 7-point scale from 1 (*Not at all extreme*) to 7 (*Very extreme*), followed by the instrumentality of the means to each of the three goals on a 7-point scale from 1 (*Very harmful*) to 7 (*Very helpful*) with a neutral midpoint of 4 (*Neither helpful nor harmful*). Finally, they rated the importance of each of the three goals to them personally on a 7-point scale from 1 (*Not at all important*) to 7 (*Extremely important*). I then personalized the following in-lab procedure for the goals and means set that each participant provided during pretesting.

This study employed a 2 (Focal Goal Commitment: High vs. Low) x 2 (Alternative Goal Prime: Detrimental vs. Unrelated) between-subjects design. After providing informed consent, participants completed the study using both paper-and-pencil and a research lab computer. We told participants that the project was testing semantic processes in various types of verbal tasks. In order to supraliminally prime the alternative goal, participants first completed a lexical decision task with either detrimental or unrelated alternative goal words as targets. Each trial consisted of a briefly presented fixation point immediately followed by a letter string (either a goal-related word or a non-word). Participants pressed either 'Z' or '/' to indicate whether the letter string was a word or a non-word. Next, as a manipulation of focal goal commitment, participants listed either a) three advantages of pursuing the focal goal and three disadvantages of *not* pursuing the focal goal in the high commitment condition, or b) three advantages and three disadvantages of pursuing the focal goal in the low commitment condition. This technique is an adaptation of Oettingen's (1999) mental contrasting procedure, and has been successfully used in previous unpublished research to obtain effects predicted under increased focal goal commitment (Kopetz et al., in press).

Participants then completed a questionnaire about the means they listed in pretesting. They rated how effective the means is for pursuing the focal goal, using a 9-point scale from 1 (*not at all*) to 9 (*extremely effective*), as well as their perceptions of the rationality or extremity of using the means to pursue the focal goal, using the 4-item scale from Study 1. I randomized the order of presentation of these two measures. Next, participants rated their level of commitment to the focal and alternative goals, using a 9-point scale from 1 (*not at all committed*) to 9 (*extremely committed*). Finally, participants provided some demographic information and underwent a funneled debriefing procedure (Bargh & Chartrand, 2000) to check for suspicion about the purpose of the study. No participants indicated knowledge of the study's purpose or the hypotheses.

Results. Before testing the hypotheses, I conducted a 2 (Focal Goal Commitment) x 2 (Alternative Goal Prime) x 2 (Measure Order) ANOVA on each of the dependent measures (perceived means instrumentality and extremity) to determine whether the order in which the measures were presented should be included in the model used for hypothesis tests. Both analyses revealed non-significant main effects of measure order (p = .12, .49), as well as non-significant two- and three-way interactions with the other factors (ps ranging from .15 to .87). Therefore, I excluded measure order from the model used for testing the hypotheses.

First, I conducted a 2 (Focal Goal Commitment) x 2 (Alternative Goal Prime) ANOVA on means instrumentality ratings. The interaction effect was not significant (p = .97); nor was the main effect of focal goal commitment (p = .10) or the main effect of alternative goal prime (p = .15). Hypothesis 6 was not supported.

Next, I conducted a 2 (Focal Goal Commitment) x 2 (Alternative Goal Prime) ANOVA on perceived means rationality ratings. The interaction effect was not significant (p = .22), nor was the main effect of focal goal commitment (p = .37). However, results showed a significant main effect of alternative goal prime, such that those primed with an alternative goal to which the means was detrimental (M = 1.95, SD = 0.92) perceived the means as more extreme than did those primed with an alternative goal to which the means was unrelated (M = 1.52, SD = 0.66), $F(1, 61) = 4.64$, $p < .05$. Hypothesis 7 was not supported, but another interesting pattern emerged (see Figure 5), such that participants primed with an alternative goal to which the means was *detrimental* (vs. unrelated) perceived the means as more extreme. Thus, it seems that while the priming manipulation did not operate as intended to frame the means as costly or unifinal, it did serve to simply prime the alternative goal, resulting in the pattern described here.

Finally, I conducted a check on the focal goal commitment manipulation, using an independent t-test to examine its effect on the focal goal commitment measure. The manipulation was apparently ineffective; those in the high commitment condition (M = 8.18, SD = 1.21) indicated no more commitment to the focal goal than those in the low commitment condition (M = 7.88, SD = 1.21), $t(63) = 1.02$, p = .31.

Discussion. The results of Study 2 did not generally support the hypotheses; this calls firstly for a reexamination of the study's methodology. Primarily, the focal goal commitment manipulation was evidently ineffective. Participants did not differ in their focal goal commitment ratings as a function of the commitment condition. An examination of the score distribution for the manipulation check revealed a ceiling effect; only two participants indicated focal goal commitment below the midpoint of the scale. Due to this limited variability in scores and probable attenuation of any effects, I was reluctant to proceed with substitute hypothesis tests which entered participants' focal goal commitment scores as a proxy for the ineffective commitment manipulation. At this time, I cannot say definitively whether focal goal commitment would impact ratings of a means' instrumentality or extremity. Future research should involve a variety of goal commitment manipulation procedures to overcome these limitations and test the hypotheses in question. Indeed, by asking participants to list the disadvantages of focal goal pursuit in the low commitment conditions, it is possible that I inadvertently primed the costs, or an alternative goal to which the means was detrimental! Finding and using manipulations that are independent of confounds with other relevant factors in the model will be critical for future studies.

Likewise, while the priming manipulation did not operate as intended to frame the means as costly or unifinal, they did serve to prime the alternative goal! Accordingly, the major finding of Study 2 was that supraliminally (or consciously) priming an alternative goal to which a means is detrimental (vs. unrelated) led to perceptions of the means as more extreme. This effect is likely a function of several parameters, not least of which is alternative goal value. The higher the value the individual ascribes to the alternative goal, the more extreme she should perceive a means that is detrimental to that goal. I would have tested this secondary hypothesis, but again a ceiling effect was present in participants' ratings of their commitment to the alternative goal in Study 2. Only four participants rated their commitment to the alternative goal as below the midpoint of the scale, and this range restriction may have concealed any moderation effects for alternative goal value. However, future research can address this hypothesis by adjusting the methodology to encourage greater between-participant variability in both focal and alternative goal commitment. For example, it may be more effective to ask participants to rate their commitment to a variety of preset goals, rather than asking them to list goals of their own, as they likely list the most salient or important goals first.

General Discussion

In these two studies, I attempted to demonstrate an *a priori* augmentation effect and establish the conditions under which this effect impacts people's perceptions of the rationality or extremity of means. The results of Study 1 indicated that, while a costly means was generally perceived as both most effective and most extreme, under conditions of high (vs. low) focal goal commitment, people perceived this costly means as less extreme and were more likely to choose it over a less costly means. These findings, which demonstrate the augmentation effect and support a rational choice model of preference for costly means, have significant theoretical and practical implications.

Most directly, Study 1 holds implications for product marketing strategies under conditions of high consumer commitment to a goal that the product can satisfy. For instance, individuals faced with a pandemic may be more likely to choose an expensive medication, inferring that it will be more effective than a generic brand. This preference could hold even if consumers are aware that cheaper products are also sufficiently effective, highlighting an ethical dilemma that marketing strategists must face, especially when advertising prescription drugs to vulnerable consumer populations. However, this makes the present research even more valuable for the scientific community and the public, if only to inform them about advertising tactics which take advantage of their goal commitments.

Theoretically, Study 1 demonstrated one instance of the hypothesized *a priori* augmentation effect, by which people infer the instrumentality of a means to a focal goal from its cost to alternative goals. It also provided preliminary evidence that the value of a goal and the expectancy of its attainment (via use of particular means) can interact to produce perceptions of costly means as, although perhaps not *optimal*, at least *sufficiently* rational. This subjective expected utility model in turn predicted participants' behavioral intentions, impacting their preference and the price they were willing to pay for costly means. The fact that only a minority of participants preferred the costly means does not indicate that these findings are trivial. Rather, real world instances of extreme behavior suggest that the few who are most committed, and therefore willing to use costly means, are often the few who resultantly do the most considerable damage to themselves and others.

The results of Study 2 did not support my hypotheses, and therefore they did not provide further evidence of the augmentation effect or the impact of focal goal commitment on perceived means rationality. However, the findings do suggest an interesting mechanism that researchers can explore in future studies, and they point to potential interventions which might attenuate the augmentation effect and the impact of focal goal commitment on willingness to use a costly means. In particular, it seems that activating the alternative goal to which a costly means is detrimental may attenuate the augmentation effect and produce perceptions of the means as relatively extreme. Finding ways to encourage such consideration of the potential negative consequences of costly means could be quite useful, perhaps especially for those who are highly likely to engage in risk-taking behavior or to experience intense emotions which could heighten their goal commitments.

For example, scholars who explore the aforementioned phenomenon of suicide terrorism have noted intriguing patterns in the retrospective affective and cognitive narratives of those who hesitated or prematurely aborted their mission. In one memorable instance documented by Pedahzur (2005), a suicide bomber recounts his last-minute reconsiderations of the act he was only moments from committing:

> He approached the crowd and had moved his hand to the activation button of the explosives belt when, suddenly, he froze. In a statement which he later gave, he said that he suddenly was overcome with fear. 'I was afraid. I was flooded with thoughts of my mother and brothers. I decided not to blow myself up with all these people. I felt sorry for them. They did nothing wrong.' Later, he added that he saw some Arab faces in the crowd and was afraid that he would harm them as well. Scared and confused, Murad fled the scene. (p. 157)

This and a plethora of similar anecdotal evidence (e.g., Merari, 2010) suggest that the cognitive processes demonstrated in Study 2 are not limited to the laboratory, but also occur in real-world instances of extreme acts of suicide terror. Moreover, alternative goal considerations, such as family and protection of one's in-group or civilians, are sometimes quite successful (even at the last moment) in altering perceptions of, and ultimately deterring, extreme acts.

Future Directions

The present research suggests that the level of processing of the alternative goal may impact the emergence of the augmentation effect, and resultant distorted perceptions of a costly means' extremity. The alternative goals in both studies were presented to participants at a conscious level. In Study 1, the alternative goals' relation to the means were stated outright as part of a vignette; likewise, the alternative goal in Study 2 was primed supraliminally, meaning that the participants were able to perceive and process the goal-related word at a conscious level. Under such conscious processing of the alternative goal, participants would have had the *ability* to "reason past" the augmentation effect in evaluating the costly means, thus perceiving it as no more instrumental to the focal goal than a unifinal or multifinal means. Moreover, in Study 2, they likely had the *motivation* to reason beyond the augmentation effect in evaluating the costly means, as all but four participants were highly committed to the alternative goal. In Study 1, I did not obtain measures of participants' commitment to the alternative goals, and so I cannot draw conclusions about the role of motivation in the emergence of the augmentation effect here. However, it is conceivable that Study 1 participants who cared more about saving money or time did not succumb to the augmentation effect. Future research can test this idea more explicitly.

If the level of processing does, in fact, impact the emergence of the augmentation effect in the predicted manner, then it may be appropriate to think of the augmentation effect as a sort of heuristic in judgment and choice. People use heuristics most often when operating under limited resources (e.g., cognitive capacity, information, etc.) or motivation (e.g., need for closure) to fully process information relevant to their impending judgment or choice (Kruglanski & Gigerenzer, in press). If the augmentation effect operates as a heuristic, then people may only perceive costly means as especially effective when they are unable or unmotivated to process relevant information beyond the augmentation effect. This hypothesis should be relatively simple to test in future research, for instance, by introducing a simultaneous task which draws on available cognitive resources, or inducing time pressure or activating a previously learned preference for costly means, in order to sap the individual's motivation to thoroughly process relevant information about that means' detrimentality to alternative goals.

Similarly, future research could more directly investigate the roles of alternative goal value and activation in the augmentation effect, as well as exploring these two constructs' potential moderating effects on the relationship between focal goal commitment and perceived means extremity. Specifically, it would be interesting to examine traditional lexical decision measures of alternative goal suppression, as well as affective priming measures of alternative goal value, to see whether either or both are impacted by heightened focal goal commitment. By understanding the roles of alternative goal activation and value in perceptions of means extremity, authorities can devise methods of deterring extreme action by making particular costs salient to potential extremists.

Conclusion

This research tested a rational choice model that included the critical dimensions of instrumentality (i.e., expectancy) and goal commitment (i.e., value), and it may provide a fresh perspective on some of the long-dormant theories of extremism. Pending further studies which confirm the basic processes across multiple methods and goals-means domains, these results have the potential to generalize to pressing real-world situations, such as that of the aforementioned suicide terrorist in-the-making. If individuals under high commitment to a focal goal are more likely to employ costly or extreme means in pursuit of that focal goal, then it behooves the research community to explore interventions that can either a) attenuate the augmentation effect, thus altering perceptions of a costly means as optimal for focal goal pursuit, or b) reintroduce balance among one's goal activations and commitments before the individual takes that most critical step: extreme action.

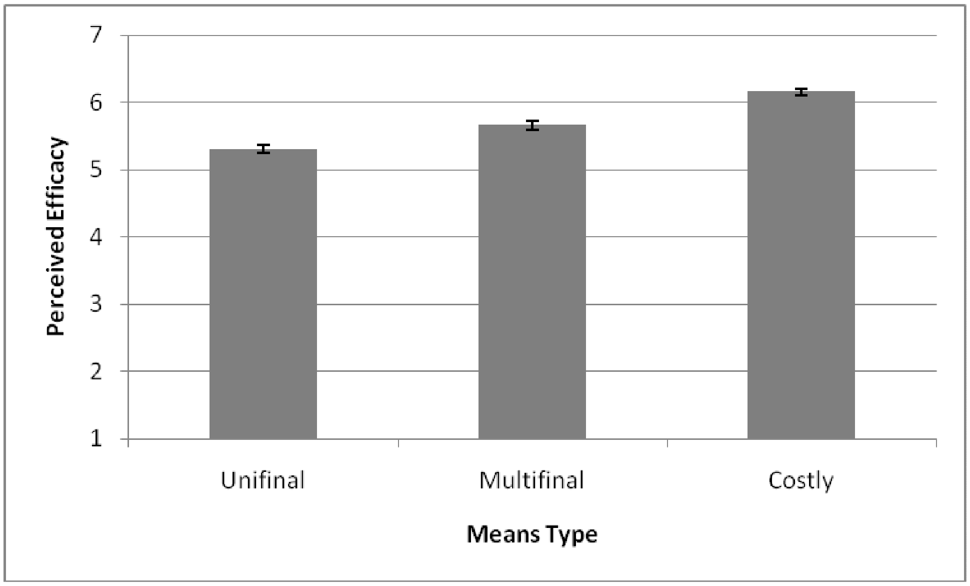


Figure 1. Perceived efficacy of means types (medications) for pursuing a focal goal (fighting a focal illness).

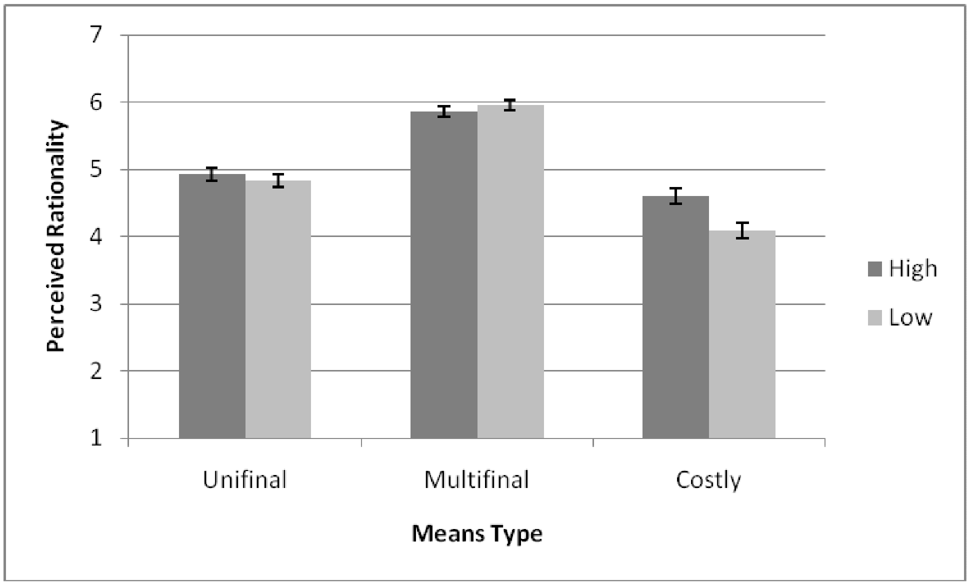


Figure 2. Effect of high vs. low focal goal commitment (to fighting a focal illness) on the perceived rationality of means types (medications).

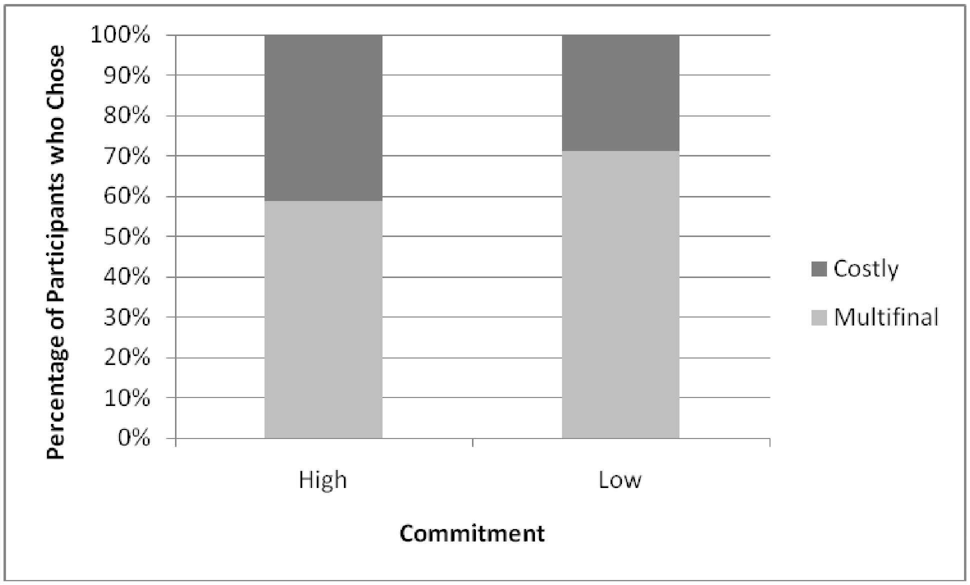
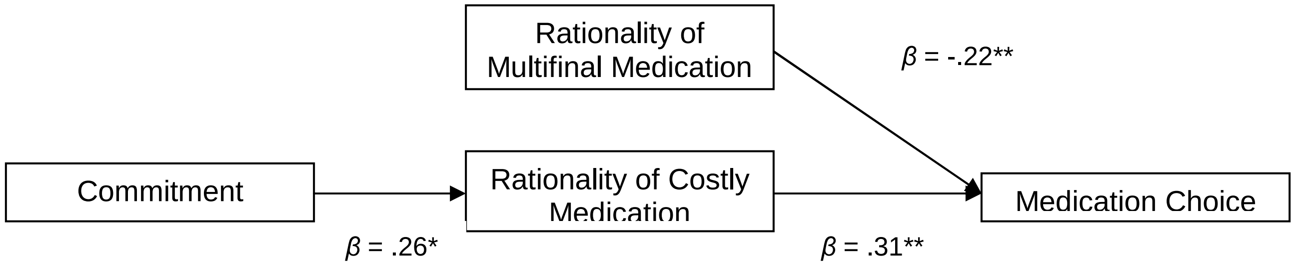


Figure 3. Percentage of participants in high (vs. low) commitment condition who chose multifinal and costly means (medications).



* $p < .01$, ** $p < .001$

Figure 4. Structural equation model showing the effect of the commitment manipulation on medication (means) choice, as mediated by the perceived rationality of the costly medication.

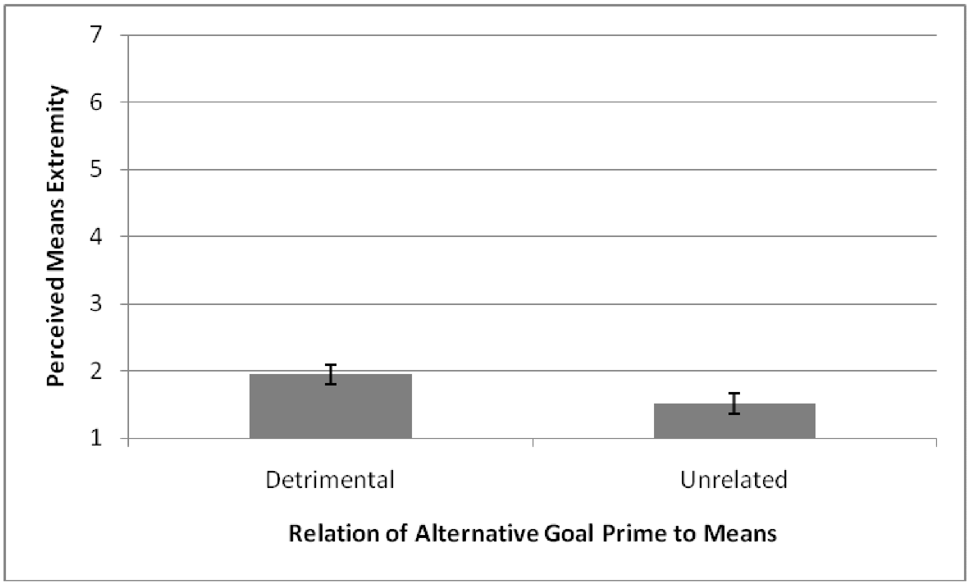


Figure 5. Perceived means extremity as a function of the relation of the alternative goal prime to the means.

References

Abelson, R. P. (1995). Attitude extremity. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 25-41). Hillsdale, NJ: Erlbaum Press.

Anderson, J. R. (1983). *The architecture of cognition*. Cambridge, MA: Harvard University Press

Bargh, J. A., & Chartrand, T. L. (2000). The mind in the middle: A practical guide to priming and automaticity research. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology*. New York: Cambridge University Press.

Bongar, B., Brown, L.M., Beutler, L.E., Breckenridge, J.N., & Zimbardo, P.G. (Eds.). (2007). *Psychology of terrorism*. New York: Oxford University Press.

Chen, X. (2009). [Relative goal magnitude and means choice]. Unpublished raw data.

Fishbach, A., Friedman, R. S., & Kruglanski, A. W. (2003). Leading us not into temptation: Momentary allurements elicit overriding goal activation. *Journal of Personality and Social Psychology*, *84*(2), 296-309.

Kelley, H. H. (1971). *Attribution in social interaction*. New York: General Learning Press.

Kopetz, C., Faber, T., Fishbach, A., & Kruglanski, A. (in press). Multifinality constraints effect: How goal multiplicity narrows the means set to a focal end. *Journal of Personality and Social Psychology*.

Kruglanski, A.W., Chun, W.Y., Sleeth-Keppler, D., & Friedman, R.S. (2005). On the psychology of quasi-rational decisions: The multifinality principle in choice without awareness. *Proceedings of Advances in Consumer Research, USA, 32*, 331-332.

Kruglanski, A.W., & Fishman, S. (2006). The psychology of terrorism: “Syndrome” versus “tool” perspectives. *Terrorism and Political Violence*, *18*, 193-215.

Kruglanski, A.W., & Gigerenzer, G. (in press). Intuitive and deliberative judgments are based on common principles. *Psychological Review*.

Kruglanski, A.W., & Klein, K.M. (2009). *When is a behavior/opinion/attitude "extreme" and how is this related to uncertainty?* Paper presented at the Claremont Conference on Uncertainty and Extremism, Los Angeles, CA.

Kruglanski, A.W., Shah, J.Y., Fishbach, A., Friedman, R., Chun, W., & Sleeth-Keppler, D. (2002). A theory of goal systems. In Zanna, M.P. (Ed.), *Advances in Experimental Social Psychology: Vol. 34* (pp. 331-378). San Diego: Academic Press.

Kruglanski, A.W., Schwartz, J.M., Maides, S., & Hamel, I.Z. (1978). Covariation, discounting, and augmentation: Towards a clarification of attributional principles. *Journal of Personality*, *46*(1), 176-189.

Kruglanski, A. W., Thompson, E. P., Higgins, E. T., Atash, M. N., Pierro, A., Shah, J. Y., & Spiegel, S. (2000). To do the right thing! or to just do it!: Locomotion and assessment as distinct self-regulatory imperatives. *Journal of Personality and Social Psychology, 79*, 793-815.

McGregor, I., Zanna, M. P., Holmes, J. G., & Spencer, S. J. (2001). Compensatory conviction in the face of personal uncertainty: Going to extremes and being oneself. *Journal of Personality and Social Psychology*, *80*(3), 472-488.

Merari, A. (2010). *Driven to death: Psychological and social aspects of suicide terrorism.* Oxford: Oxford University Press.

Oettingen, G. (1999). Free fantasies about the future and the emergence of developmental goals. In J. Brandstädter, & R. M. Lerner (Eds.), *Action and self-development: Theory and research through the life span* (pp. 315-342). Thousand Oaks: Sage.

Olson, J. (1977). Price as an information cue: Effects on product evaluations. In A.G. Woodside et al. (Eds.), *Consumer and industrial buyer behavior* (pp. 267-286). New York: North-Holland.

Pedahzur, A. (2005). *Suicide terrorism*. Malden, MA: Polity Press.

Post., J.M., Ali, F., Henderson, S.W., Shanfield, S., Victoroff, J., & Weine, S. (2009). The psychology of suicide terrorism. *Psychiatry*, *72*(1), 13-31.

Rao, A.R., & Monroe, K.B. (1989). The effect of price, brand name, and store name on buyers' perceptions of product quality: An integrative review. *Journal of Marketing Research*, 16, 351-357.

Read, S. J., & Miller, L. C. (1998). On the dynamic construction of meaning: An interactive activation and competition model of social perception. In S. J. Read & L. C. Miller (Eds.), *Connectionist models of social reasoning and social behavior* (pp. 27-70). Mahwah, NJ: Lawrence Erlbaum Associates.

Shah, J.Y., Friedman, R., & Kruglanski, A.W. (2002). Forgetting all else: On the antecedents and consequences of goal shielding. *Journal of Personality and Social Psychology*, *83*(6), 1261-1280.

Simon, H.A. (1978). Rationality as process and as product of thought. *American Economic Review*, *68*, 1-16.

U.S. Department of Homeland Security (2009). *Rightwing extremism: Current economic and political climate fueling resurgence in radicalization and recruitment*. Retrieved from http://www.fas.org/irp/eprint/rightwing.pdf

Vroom, V.H. (1964). *Work and motivation*. New York: Wiley.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scale. *Journal of Personality and Social* Psychology, 54, 1063-1070.

Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, *67*, 1049-1062.

Wintrobe, R. (2006). *Rational extremism: The political economy of radicalism*. New York: Cambridge University Press.

Zeithaml, V.A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, *52*, 2-22.

Zhang, Y., Fishbach, A., & Kruglanski, A.W. (2007). The dilution model: How additional goals undermine the perceived instrumentality of a shared path. *Journal of Personality and Social Psychology*, *92*(3), 389-401.