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"Undoing" a Rhetorical Metaphor: Testing the Metaphor Extension Strategy

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ABSTRACT
Political metaphors do more than punch up messages; they can systematically bias observers' attitudes toward the issue at hand. What, then, is an effective strategy for counteracting a metaphor's influence? One could ignore or criticize the metaphor, emphasizing strong counterarguments directly pertaining to the target issue. Yet if observers rely on it to understand a complicated issue, they may be reluctant to abandon it. In this case, a "metaphor extension" strategy may be effective: Encourage observers to retain the metaphor but reinterpret its meaning by considering other, less obvious implications. The current studies support this claim. Under conditions where participants gained a strong (versus weak) epistemic benefit from a rhetorical metaphor, they were more persuaded by a rebuttal that extended (versus ignored or criticized) that metaphor. The studies use converging operational definitions of epistemic benefit and offer insight into how political attitudes are made and unmade.

Even a cursory glance at public discourse, from campaign speeches to political cartoons, reveals a slew of metaphors. For example, politicians liken the economy to a vehicle that can "sustain a reasonable cruising speed" (Hargreaves, 2013), displays of the Confederate flag to "scraping old wounds" (Oppel, 2011), and refugees to "a rabid dog running around your neighborhood" (McCaskill, 2015). More systematic analyses show that metaphors pervade rhetoric surrounding terrorism (Kruglanski, Crenshaw, Post, & Victoroff, 2007), immigration (O'Brien, 2003), gender in business (Koller, 2004), abortion (Coulson, 2006), and war (Lakoff, 1991; for excellent overviews, see Charteris-Black, 2011; Musolff & Zinken, 2009).

These are not mere figures of speech. Several studies show that metaphors prompt observers to transfer knowledge of a concrete concept (e.g., *rabid dog, wound*) to make judgments and decisions about a target issue (*refugees, racism*), even though the two concepts are unrelated at a surface level.

These findings raise a practically important but understudied question: What is an effective way to "undo" a metaphor's influence once it has entered discourse? To make the question clearer, consider the 2012 controversy surrounding the Boy Scouts of America's policy of barring gay scouts. One Boy Scout leader defended the policy in a major news outlet: "I really don't like someone coming in and trying to change the core values that have been in place. You wouldn't want someone *to come into your house and rearrange your house*" (Hodge, 2013; italics added). His metaphor reduces a tangle of complex ideas to a different type of scenario with simple, self-evident norms for behavior: You wouldn't tell strangers how to arrange their homes, so don't tell them how to run their group.

Suppose you believe this metaphor encourages observers to compare things that should not be compared, and lures policy makers toward the wrong course of action by oversimplifying the issue.

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After all, the negative consequences of legitimizing discrimination in a national organization are far removed from the triviality of arranging home décor. How would you design a rebuttal to counteract this metaphor?

One intuitive strategy is to dismiss the metaphor as a figure of speech and give observers strong, logical arguments in favor of the opposing position (in our example, admitting gay scouts). One could also criticize the metaphor as inappropriate. Mio (1996) proposed a subtler strategy—*extend* the metaphor. Here, you endorse the metaphor in broad outlines but argue that it has been applied incorrectly. More precisely, you draw observers' attention to *other familiar features* of the metaphor's concrete concept, and encourage them to apply *that* knowledge to interpret the target issue. In our example, you might tell observers "Yes, keep that metaphor in mind: the Boy Scouts *is* a house. But don't we *welcome* visitors to our house?"

Our primary empirical question is: Under what conditions is this extension strategy effective? Conceptual metaphor theory (described shortly) suggests an answer. A metaphor can provide an *epistemic benefit*—increasing observers' confidence that they understand an abstraction. In this case, observers desire to retain the metaphor, so they will be more receptive to a rebuttal that extends it than one that ignores or criticizes it. If, in contrast, the initial metaphor's epistemic benefit is weak, an extension rebuttal will lose its persuasive advantage.

We tested this hypothesis using two converging operationalizations of epistemic benefit (described in the Study Overview). We also assessed the alternative possibility that a metaphor extension rebuttal is persuasive because it "matches" the initial message in ways that boost its favorability, such as using similar language, even if they are not the result of metaphor extension per se (we discuss this possibility in the General Discussion). The next two sections elaborate on the theoretical and empirical background.

Rhetorical metaphors influence attitudes

Conceptual metaphor theory distinguishes between communicative metaphor (e.g., metaphoric expressions or imagery) and conceptual metaphor: a cognitive tool that people can use to understand a concept (the *target*) in terms of a superficially unrelated concept (the *source*) (Lakoff & Johnson, 1980; see Kövecses, 2010 for an overview). Targets are typically abstract or complex concepts that refer to entities, outcomes, and causal relations that cannot be directly perceived. Sources are relatively more concrete, referring to routine bodily experiences (e.g., losing one's balance, avoiding physical filth) or familiar event scripts (e.g., the rules of competitive sports; how buildings are constructed and destroyed).

Metaphor supports understanding by creating a conceptual *mapping*: a set of systematic associations between the target's elements and analogous aspects of the source. Target properties and relations that share a source analog are highlighted in attention; those that do not are downplayed.

This account suggests that exposure to a rhetorical metaphor can activate a conceptual metaphor, prompting observers to transfer their source knowledge to interpret the target issue. Several studies show this effect. For example, when a news report framed a large system failure (e.g., corporate bankruptcy; the 2008 economic crisis) as a *vehicle accident*, observers blamed the system's single, highest-ranking individual, but saw other relevant parties as relatively innocent (Landau, Keefer, & Rothschild, 2014). Although the report said nothing about responsibility, people know that a vehicle accident is, in general, the fault of the individual behind the wheel, not the passengers. The *vehicle* metaphor led them to bring their attitudes toward the target issue in line with that source knowledge. In related studies, rhetorical metaphors influence attitudes toward the stock market (Morris, Sheldon, Ames, & Young, 2007), crime (Thibodeau & Boroditsky, 2011), and military aggression (Gilovich, 1981; for reviews, see Hanne, Crano, & Mio, 2014; Ottati, Renstrom, & Price, 2014).

While evidence of metaphors' influence continues to grow, the question of how to counteract this influence has received far less empirical attention. It is beyond our scope to compare all relevant

strategies; instead, we focus on the metaphor extension strategy and the situational factors that moderate its efficacy.

When to extend? The role of epistemic benefit

Traditional models of persuasion observe that attitudes can be influenced by peripheral cues—aspects of the communication context that are irrelevant to the true merits of the position advocated in the message, such as the physical attractiveness of a spokesperson (Chaiken, 1980; Petty & Cacioppo, 1986). From this perspective, rhetorical metaphor can be seen as a type of peripheral cue because it compares things that are, strictly speaking, unrelated. It influences attitudes by associating the target issue (e.g., discriminatory membership policies) with an affectively charged but irrelevant idea (e.g., home privacy).

This implies that, to counteract a rhetorical metaphor, one should ignore it and encourage observers to carefully consider the issue on its own terms with strong, logical arguments. And some evidence shows that direct literal messages are more persuasive than comparable metaphoric messages (Bosman & Hagendoorn, 1991).

Conceptual metaphor theory offers a different perspective: A rhetorical metaphor can do more than cue a simple affective association; it can activate a systematic mapping between the target and the source. Through this mapping, observers use source knowledge as a framework for making sense of the target issue, identifying its parts and visualizing how they interrelate. The key insight here is that metaphor provides an *epistemic benefit*—it helps observers to confidently grasp a complicated issue by structuring it around a well-delineated source (Gibbs, 1994; Johnson, 1987; Lakoff & Johnson, 1980; Ortony, 1975).

This implies that efforts to brush the offending metaphor aside and deliver a "central route" rebuttal will fail. Observers have already mapped the target issue onto their source knowledge. Counterarguments that address the target on its own terms underestimate the metaphor's utility.

What about criticizing the metaphor as an unsuitable simplification? This strategy may work in theory, but if observers have already begun to rely on the initial metaphor to scaffold their understanding, they may cling to it or even take offense at the implication that they really do not understand the issue.

We hypothesized that when a metaphor's epistemic benefit is strong, a rebuttal extending that metaphor will be particularly persuasive. As Mio (1996) explains, an extension rebuttal allows observers to continue thinking about the target issue in terms of the source, but encourages them to consider other familiar features of that source they can use to reinterpret that issue.[1] In Mio's experiments, participants heard a speech, modeled after Mikhail Gorbachev's statements in 1990, protesting Lithuania's independence from the Soviet Union. The two countries, he said, are a married couple, and although a temporary separation might be healthy, an immediate divorce would be too disruptive. One group then heard the Lithuanian representative's (actual) rebuttal: The two countries were "not going through a divorce because we were never married, Lithuania was simply raped." This extension of the *sexual relations* metaphor increased support for the Lithuanian position compared with an equivalent literal rebuttal.

These results provide suggestive evidence for metaphor extension's persuasiveness. Still, as Mio acknowledges, they may be caused by the affective potency of *rape* rather than the rebuttal's extension of the initial metaphor. Also, as it pertains to our theoretical analysis, Mio did not directly test whether the extension rebuttal was persuasive because the initial metaphor was epistemically beneficial. By filling this gap, the current research aims to explain *why* metaphor extension is an effective "undoing" strategy.

[1]That's why we put "undo" in quotes: Technically, the extension strategy retains the original metaphor at a general level but changes the implications of its mapping.

Study overview

As a case study, we examined the conventional metaphor comparing the *federal budget* to a typical *household budget*—hereafter nicknamed the *household* metaphor. This metaphor is likely familiar to most American readers, since it has featured prominently in Grand Old Party (GOP) rhetoric in recent years. For example, both the current and former Speaker of the House have used this comparison: "Every family ought to balance its budget. Washington should balance its budget as well" (Boehner, 2013); "Our plan lets Washington spend only what it takes in. This is how every family tries to live, in good times and in bad" (Ryan, 2013). The key implication is that, just as families have to live within their means, the government must do the same by cutting back on spending for federal programs. However intuitive, this implication contrasts sharply with the recommendations of influential economists who urged stimulus spending to revive a flagging economy (Krugman, 2009; Stiglitz, 2010). Given that the *household* metaphor is both widespread and misleading, we felt it was practically important to examine how to "undo" it.

We used two converging methods to manipulate the *household* metaphor's epistemic benefit.

Induce mapping

One method was to manipulate the salience of the metaphor's mapping. In the key condition, participants read an article that used the *household* metaphor to argue in favor of cutting funding for federal programs. Next, they were asked to consider four pairs of analogous elements between federal and household budgets (e.g., taxes ≈ paychecks). Importantly, none of these analog pairs referred to budget cuts in a way that might simply reiterate the argument. In one comparison condition, participants read the same article but did not perform the mapping task. We reasoned that although participants in both conditions were exposed to the same rhetorical metaphor, those induced to consider that metaphor's mapping would visualize, in a concrete way, how a household budget offers an intuitive framework for interpreting how the federal budget works.

Because this method is new, we conducted a Preliminary Study to test our assumption that inducing a metaphor's mapping strengthens its epistemic benefit. If so, this process would also be expected to increase that metaphor's effects on attitudes, and this effect should be mediated by epistemic benefit, which reflects observers' reliance on that metaphor to interpret the target.

From there, Study 1 compared rebuttals. We reasoned that if inducing a metaphor's mapping strengthens its epistemic benefit, then observers will be reluctant to abandon it; hence, they will be more persuaded by an extension rebuttal. If, in contrast, observers initially process a metaphor superficially, without considering its mapping, then they will be more persuaded by a rebuttal that ignores it and emphasizes direct arguments against spending cuts.

Induce target uncertainty

Study 2 used a more ecologically valid method to encourage observers to rely on a metaphor: increase uncertainty about the target issue.

This method is modeled after prior research on the situational moderators of metaphor use. Studies show that: undergraduates applied *up*/*down* perceptual cues to evaluate their university when feeling uncertain about college's value (Keefer, Landau, Rothschild, & Sullivan, 2011); exposure to a vehicle-metaphoric framing of a corporate bankruptcy informed observers' blame attributions when they felt uncertain about bankruptcy (Landau et al., 2014); when the stock market appeared highly abstract, or when an inanimate object behaved unpredictably, participants applied a provided metaphor comparing those targets to anthropomorphized agents (Jia & Smith, 2013; Waytz et al., 2010). In all these studies, participants who had a satisfactory subjective grasp of the target *did not* apply a provided metaphor to interpret the target.

In Study 2, our first step was to verify that participants induced to feel uncertain about the federal budget (versus not) would gain stronger epistemic benefit from the *household* metaphor. We then reasoned that if uncertain participants find the *household* metaphor beneficial, then they will want to retain it. Hence, they will be more persuaded by a rebuttal extending that metaphor than rebuttals that ignore or criticize it.

Across all studies, we sought to obtain at least 20 observations per experimental condition based on recent recommendations (Simmons, Nelson, & Simonsohn, 2011). In the Preliminary Study, Study 1 Pilot, and Study 1, we continued collecting data online until compensation funds were exhausted. For Study 2, conducted in a laboratory setting, we collected data until the end of the semester. All studies were run in a single wave and data were analyzed only after the required sample size was met.

Preliminary study: Mapping, epistemic benefit, and attitudes

This study tested whether our new mapping induction method is an effective means of manipulating a metaphor's epistemic benefit. We predicted that participants induced to consider the *household* metaphor's mapping (versus not) will view it as more helpful for understanding the federal budget. We further expected this boost in epistemic benefit to mediate the metaphor's effect on source-consistent attitudes—in this case, increasing support for federal funding cuts.

Method

We recruited 149 adults (72 women, 75.8% White, M_{age} = 34.64) through Amazon's Mechanical Turk (compensation = $1.00). The study was described as a survey on political attitudes (the same cover story used in all studies).

Mapping salience condition

In the *mapping salience* and *no mapping salience* conditions, participants read an article arguing in favor of spending cuts at the federal level. The article contained *household*-metaphoric expressions to suggest that spending cuts would prevent harmful political and economic consequences (e.g., "Families often have to make sacrifices and cut spending to keep a budget and live within their means. When they cannot pay for things they want, like a new bike or a family vacation, they just have to wait or make sacrifices to get by"). See Appendix A.1 for the full article.

Participants in the *mapping salience* condition then completed an additional mapping task. They responded to four items designed to highlight analogous features of federal and household budgets (without mentioning budget cuts). A sample item was:

> In the metaphor used in this article (*the federal budget is a household budget*), the Federal deficit is most like: (a) the Household; (b) the Household's debt*; (c) the Paycheck of a family; (d) Household spending on goods and services; (e) None of the above.[2]

Participants in the *no mapping salience* condition were given no additional task.

In a third *no metaphor* condition, participants read an alternative article (matched in length and tone) in which all metaphoric expressions comparing federal and household budgets were replaced by equivalent literal expressions (e.g., "The government often has to make sacrifices and cut spending to keep a budget and work within its means. When the government cannot pay for all

[2]We examined the percentage of participants in the *mapping salience* condition who made at least one error in the mapping task (i.e., incorrectly answered one of the four items). The error rate in the Preliminary Study was n = 14 (9%); in Study 1, n = 13 (8%). All the predicted between-condition differences remained significant regardless of whether these participants' data were included in the analysis (all ps < .05). That is, the primary predicted results were unaffected by the inclusion of participants who made at least one error on the mapping task.

of the things citizens want, like better education or healthcare, it has to wait to spend or cut back on programs that are already in place"). See Appendix A.2.

Epistemic benefit measure

Participants rated how much the article helped them to understand the federal budget, responding to three face-valid items: "How much does this article help you understand how the federal budget works? How much does the article give you a stronger grasp on the federal budget than you had before? How much does the article give you a clearer understanding of the federal budget than you had before?" (1 = *Not at all*; 7 = *Very much*). For this and the other measures, we averaged item responses to form composite scores. These three items formed a reliable index of felt epistemic benefit (α = .95, M_{grand} = 3.65, SD = 1.83).

Support for program funding cuts measure

Participants were then presented 10 federal departments (e.g., Department of Agriculture, Department of Energy) and, for each department, they indicated their agreement that the government should cut spending (1 = *Government should definitely* not *cut funding*; 7 = *Government should definitely cut funding*; α = .86, M_{grand} = 3.55, SD = 1.13).

Results

Epistemic benefit

Scores on the epistemic benefit measure were submitted to a one-way ANOVA (by condition), returning a significant omnibus effect, $F(2, 146) = 7.93$, $p = .001$, $\eta_p^2 = .10$. Pair-wise comparisons (in this and all studies, Fisher's Least Significant Difference) revealed that participants in the *mapping salience* condition (n = 52) felt the article provided greater epistemic benefit (M = 4.32, SD = 1.83) compared with participants in the *no mapping salience* condition (n = 52, M = 3.62, SD = 1.84, p = .04) and those in the *no metaphor* condition (n = 45, M = 2.90, SD = 1.53, p = .00004). Also as expected, participants in the *no mapping salience* condition—who, recall, received the concrete *household* metaphor—reported a boost in understanding compared to participants in the *no metaphor* condition (p = .046).

Support for program funding cuts

Submitting funding cut support scores to the same analysis returned a significant effect, $F(2, 146) = 3.71$, $p = .03$, $\eta_p^2 = .05$. Participants in the *mapping salience* condition were more supportive of cutting program funding (M = 3.88, SD = 1.19) compared with participants in both the *no mapping salience* condition (M = 3.43, SD = 1.09, p = .04) and the *no metaphor* condition (M = 3.31, SD = 1.02, p = .01). The latter two conditions did not differ (p = .60).

We conducted a mediation analysis to test whether epistemic benefit mediated the effect of condition (dummy-coded: 1 = mapping salience condition/0 = all other conditions) on support for funding cuts. We used bootstrapping with 5,000 resamples (Preacher & Hayes, 2008). Figure 1 depicts the mediation model. The resulting confidence interval for the indirect effect did not include zero (.04, .33), supporting our hypothesis that mapping salience influenced support for program funding cuts through an increase in epistemic benefit.

Discussion

When a rhetorical metaphor's mapping is salient, it provides a stronger epistemic benefit and thereby influences attitudes toward the target issue. Participants induced to map analogous features of federal and household budgets were especially likely to transfer their knowledge that, in a well-operating household, families must reduce spending to live within their means, and therefore to favor funding cuts to federal programs. Mediation analyses confirmed that the more participants felt

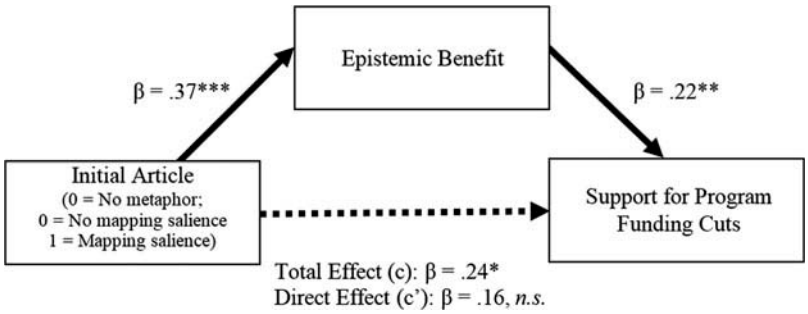

Figure 1. Mediation of the effect of mapping salience on support for program funding cuts by epistemic benefit (*Preliminary Study*).

Note. The direct effect coefficient represents the effect of the independent variable after controlling for the effect of the proposed mediator. Total adjusted R^2 for the model = .19, $F(2, 146) = 7.49$, $p = .0008$; * Significant at $p < .05$, $^{**}p < .01$, $^{***}p < .0001$

the article helped them understand the federal budget, the more they brought their attitudes toward the federal budget in line with the article's emphasis on household frugality. Next we examined strategies for "undoing" this metaphor.

Study 1: Extension versus strong literal rebuttal

Study 1 tested our hypothesis that epistemic benefit will moderate which metaphor rebuttals are persuasive. We compared rebuttals that extend the *household* metaphor or ignore it. The extension rebuttal endorsed the metaphor in broad outlines but argued that a household budget works differently than initially portrayed. It highlighted other familiar features of a household budget that legitimize spending. Specifically, it pointed out that families frequently take on large debts (e.g., college loans; mortgages) to improve their lives in the present; analogously, the government sometimes needs to take on deficits to pay for programs for which there is a current need.

We predicted that participants led to consider the *household* metaphor's mapping would be more persuaded by this extension rebuttal because it allows them to continue interpreting the federal budget by analogy to a familiar household budget.

When the mapping is not salient, however, the opposite effect should hold. In this case, the metaphor is not particularly beneficial for understanding the target. Hence, a more persuasive rebuttal will ignore it and address the target issue directly.

Study 1 pilot study

We wanted a stringent test that, under conditions of strong epistemic benefit, an extension rebuttal has a persuasive advantage. To that end, we compared it with a rebuttal designed to give strong arguments along the central route. We conducted a pilot study to test our assumption that when a metaphor's epistemic benefit is at baseline levels, observers would be more persuaded by our strong literal rebuttal than the metaphor extension rebuttal.

Participants were 64 adults (37 Women, 84.4% White, M_{age} = 38.05) recruited through Mechanical Turk (compensation = $1.25). They read the previously described *household*-metaphoric article arguing in favor of cuts to federal programs. Next, they read a rebuttal article in what appeared to be an ongoing debate. Depending on condition, half read a rebuttal that extended the first article's *household* metaphor, recasting it to argue against spending cuts to federal programs. For instance, it pointed out that households commonly take on short-term debt in order to achieve long-term goals (e.g., "Families make long-term investments all the time, and for good reasons: taking out

big loans can help kids go to college, provide a family with a new car, or even help a family move into a better house"). The full article appears in Appendix A.3.

The other half read a rebuttal (matched in length and tone) that ignored the *household* metaphor, instead highlighting strong, direct arguments against cuts to program funding (e.g., "Programs like Medicare and social security are the only way some people have gotten by with rising unemployment, and we can't deprive our fellow citizens of these crucially important services"; Appendix A.4).

Afterward participants rated their support for federal program funding cuts using the same measure as in Study 1 ($\alpha = .85$, $M_{grand} = 3.24$, $SD = 1.17$). As expected, the strong literal rebuttal was more persuasive. Specifically, participants were less in favor of cutting programs after reading strong arguments against spending cuts ($M = 2.92$, $SD = 1.03$) than after reading arguments that extended the initial *household* metaphor ($M = 3.52$, $SD = 1.24$), $F(1, 62) = 4.35$, $p = .04$, $\eta_p^2 = .07$.

Study 1 method

We recruited 171 adults (81 Women, 78% White, $M_{age} = 34.78$) through Mechanical Turk (compensation = $1.00).

Mapping salience condition

Participants were randomly assigned to the *mapping salience, no mapping salience*, or *no metaphor* conditions. The procedure and materials were identical to those used in the Preliminary Study.

Rebuttal condition

Next they read either the *metaphor extension* rebuttal or the *strong literal* rebuttal described in the Pilot Study.

Support for program funding cuts

Participants rated their support for federal program funding cuts using the same measure as in the previous studies ($\alpha = .87$, $M_{grand} = 3.53$, $SD = 1.16$).

Results

Submitting funding cut support scores to a 3 (mapping salience) × 2 (rebuttal) Analysis of Variance (ANOVA) returned a significant interaction, $F(2, 165) = 6.96$, $p = .001$, $\eta_p^2 = .08$. The pattern of means is depicted in Figure 2. There were no main effects of either mapping salience, $F(2, 165) = .01$, $p = .99$, or rebuttal condition, $F(1, 165) = 1.73$, $p = .19$.

Decomposing the interaction within levels of mapping salience, we find that participants in the *mapping salience* condition were more persuaded by a rebuttal (i.e., less supportive of cutting program funding) that extended the initial *household* metaphor ($n = 29$, $M = 3.20$, $SD = .82$) compared to a rebuttal that gave strong literal counterarguments ($n = 28$, $M = 3.88$, $SD = 1.21$), $F(1, 165) = 5.16$, $p = .02$, $\eta_p^2 = .03$.

For participants in the *no mapping salience* condition, we see the opposite effect: those who read the strong literal rebuttal were less supportive of funding cuts ($n = 32$, $M = 3.25$, $SD = 1.03$) than those who read the metaphor extension rebuttal ($n = 27$, $M = 3.81$, $SD = 1.20$), $F(1, 165) = 3.76$, $p = .05$, $\eta_p^2 = .02$. This replicates the Pilot Study.

The same pattern emerged in the *no metaphor* condition, with the strong literal rebuttal decreasing support for funding cuts ($n = 24$, $M = 3.12$, $SD = .98$) compared to the metaphor extension rebuttal ($n = 31$, $M = 3.90$, $SD = 1.37$), $F(1, 165) = 6.65$, $p = .01$, $\eta_p^2 = .04$.

Testing the effects of mapping salience within levels of rebuttal condition, we found a simple main effect within the metaphor extension rebuttal condition, $F(2, 165) = 3.39$, $p = .04$, $\eta_p^2 = .04$. Participants in the *mapping salience* condition were less supportive of funding cuts following the metaphor extension rebuttal compared with those in the *no mapping salience* condition ($p = .04$) and

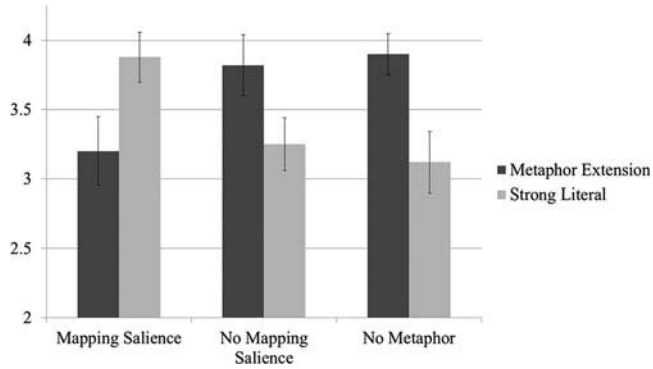

Figure 2. Support for program funding cuts by mapping salience and rebuttal condition (*Study 1*).

Note. Scale ranged from 1 to 7, higher scores indicate greater support for program funding cuts. Error bars represent standard errors.

the *no metaphor* condition (p = .02). The latter two conditions did not differ (p = .78). The pattern reversed in the strong literal rebuttal condition ($F(2, 165) = 3.58$, p = .03, η_p^2 = .04), such that participants in the *mapping salience* condition were more supportive of funding cuts than those in the *no mapping salience* condition (p = .03) and the *no metaphor* condition (p = .02). The latter two conditions did not differ (p = .66).

Discussion

When interpreting the pattern of means in Figure 2, it helps to view high scores as indicating the lingering influence of the initial argument in favor of cuts to federal programs. Low scores, then, indicate the degree to which participants were persuaded by the rebuttal article opposing funding cuts.

As predicted, when the mapping between federal and household budges was salient (which increases epistemic benefit as shown in the Preliminary Study), participants were more persuaded by a rebuttal that extended the *household* metaphor to highlight the benefits of funding federal programs compared with a rebuttal that ignored that metaphor. In contrast, when the metaphor's mapping was not salient, participants were more persuaded by strong counterarguments that ignored the initial metaphor. Presumably they were not relying on the *household* metaphor to understand the federal budget, and were therefore better able to consider direct, logical arguments against funding cuts.

Still, in real-world contexts observers are rarely led to explicitly consider a metaphor's mapping. Hence, in Study 2 we employed a more ecologically valid method of manipulating a metaphor's benefit for understanding.

Study 2: Extension versus strong literal and critique rebuttals

As noted earlier, research shows that people induced to feel uncertain about a target concept are more likely to apply a provided metaphor to interpret it. Building on those findings, we had one group of participants complete a task designed to raise doubts about their understanding of the federal budget. We predicted they would find it especially helpful to conceptualize the federal budget by analogy to their everyday household budget. We also expected them to respond positively to a rebuttal that allows them to continue relying on that helpful metaphor.

Participants who are *not* induced to feel uncertain about the federal budget should not find the *household* metaphor particularly beneficial. Hence, they will be more receptive to strong counter-arguments that ignore or criticize that metaphor.

We also added a new rebuttal condition to assess an alternative explanation of the extension strategy's efficacy based on matching. In this condition participants read a rebuttal that explicitly criticized the *household* metaphor, noting the many discontinuities between the federal budget and a household budget. We designed this criticism rebuttal to: (a) match much of the language of the initial metaphoric article; (b) favorably invoke the home and family; and (c) address that initial article on its own, metaphoric terms. If the metaphor extension strategy is effective because it preserves an epistemic benefit, as we claim, and not these other forms of matching, then the extension rebuttal would be expected to be more persuasive than metaphor criticism, but only among observers feeling uncertain how the federal budget works.

Method

We recruited 255 students at a large Midwestern university (142 women, 79% White, M_{age} = 18.98) to participate in exchange for course credit.

Target uncertainty manipulation

Adapting the procedure used in prior studies (Landau et al., 2014), we manipulated target uncertainty by having participants complete one of two quizzes about the federal budget. All participants read that the quiz assesses their knowledge about current political issues. Participants in the *low target uncertainty* condition answered seven questions designed to be relatively easy [sample item: "A federal budget deficit increases with: a) An economic boom, b) Increased federal spending, c) Higher taxes"]. Participants in the *high target uncertainty* condition answered seven difficult questions [sample item: "What percentage of the federal budget goes to aid foreign countries for international development and humanitarian assistance? a) 21%, b) 10%, c) 1%, d) 14%]. Additionally, every question in this difficult quiz had an option labeled "Not sure/Uncertain," and participants were instructed to select this choice at any time they were unsure of the correct response.[3]

As a manipulation check, we asked participants to rate their agreement (1 = *Strongly disagree*; 7 = *Strongly agree*) with five statements assessing how confident they were in their knowledge of the federal budget (sample item: "I have a clear understanding of the federal budget"; α = .80, M_{grand} = 3.54, SD = 1.16). An initial test confirmed that the manipulation was effective: Participants in the *high target uncertainty* condition felt less sure they understood the budget (M = 3.06, SD = .95) compared to those in the *low target uncertainty* condition (M = 3.97, SD = 1.16), $F(1, 253) = 46.54$, $p < .001$, $\eta^2 = .18$.

Epistemic benefit measure

Next we provided all participants with the initial, pro-funding cut article featuring the *household* metaphor used in the prior studies (Appendix A.1). Participants then rated how much that article helps them to make sense of the federal budget, responding to the same three epistemic benefit items described in the Preliminary Study (α = .93, M_{grand} = 3.41, SD = 1.56).

Rebuttal condition

Participants read one of three rebuttal articles arguing against spending cuts in the federal government. As in Study 1, the article was presented as the second installment in an ongoing debate. The

[3]As we anticipated, participants frequently chose this "Not sure/Uncertain" option when faced with challenging questions. That is, within the *high target uncertainty* condition (n = 121): only six participants (5%) never selected this option; 99 (82%) selected this option for more than half of the questions; and almost half (48%) chose it for all or all but one question.

household metaphor extension and *strong literal* rebuttals were described in the previous studies (Appendices A.3 and A.4). The third was a *metaphor criticism* rebuttal matched in length and tone (see Appendix A.5). This rebuttal challenged the *household* metaphor directly by noting select dissimilarities between the federal budget and a household budget. After listing these differences, the article concluded: "While aspects of the national budget may seem similar to household spending, they are too different for America to base policy on this comparison."

Support for program funding cuts

Participants then rated their support for cutting funding for federal programs using the same measure as in the previous studies (α = .82, M_{grand} = 2.80, SD = .87).

Results

Epistemic benefit

Submitting epistemic benefit scores to a one-way ANOVA by target uncertainty condition confirmed that participants induced to feel uncertain about the federal budget perceived the *household*-metaphoric article to be more helpful for understanding the federal budget (M = 3.72, SD = 1.60) than participants not induced to feel uncertain (M = 3.13, SD = 1.48), $F(1, 253) = 9.18$, $p = .003$, $\eta_p^2 = .04$.

Support for program funding cuts

Submitting funding cut support scores to a 2 (target uncertainty) × 3 (rebuttal) ANOVA returned the predicted interaction, $F(2, 249) = 7.927$, $p = .0005$, $\eta_p^2 = .06$. The pattern of means is depicted in Figure 3. There were no main effects of either target uncertainty condition, $F(1, 249) = .26$, $p = .61$, or rebuttal, $F(2, 249) = .08$, $p = .93$.

Decomposing the interaction within levels of uncertainty condition, we found that participants in the *high target uncertainty* condition were more persuaded to oppose spending cuts by the extension rebuttal (n = 37, M = 2.49, SD = .73) than either the strong literal rebuttal (n = 36, M = 3.01, SD = .74; p = .005) or metaphor criticism rebuttal (n = 48, M = 2.96, SD = .87; p = .007). The means for strong literal and criticism rebuttal conditions did not differ (p = .77).

In contrast, when participants were *not* initially made uncertain about the federal budget, they were more persuaded by the strong literal rebuttal (n = 45, M = 2.68, SD = .72) and metaphor criticism rebuttal (n = 41, M = 2.57, SD = .82) than the extension rebuttal (n = 48, M = 3.03, SD = 1.1

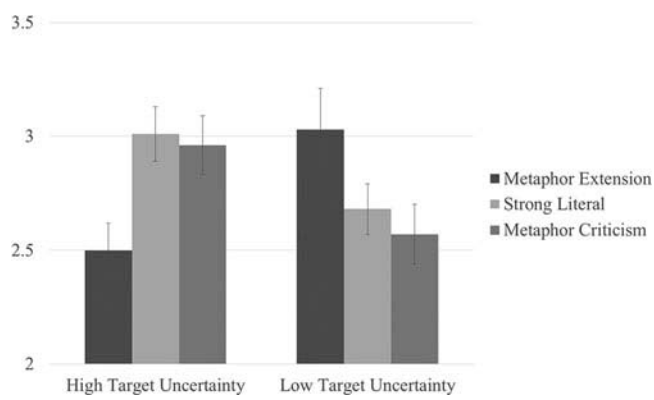

Figure 3. Support for program funding cuts by target uncertainty and rebuttal condition (*Study 2*).

Note. Scale ranged from 1 to 7, higher scores indicate greater support for program funding cuts. Error bars represent standard errors.

*p*s = .06 and .02, respectively). Again, the strong literal and metaphor criticism conditions did not differ (p = .58).

Within levels of rebuttal condition, we found that the metaphor extension rebuttal decreased support for spending cuts (i.e., was more persuasive) in the *high target uncertainty* condition compared to the *low target uncertainty* condition (M = 2.49 vs. M = 3.03; p = .01). This pattern reversed for the strong literal rebuttal, which was less persuasive among uncertain versus low uncertainty participants (M = 3.01 vs. M = 2.68; p = .05). Similarly, the metaphor criticism rebuttal was less persuasive among uncertain versus not uncertain participants (M = 2.96 vs. M = 2.57; p = .04).

Discussion

Inducing uncertainty about the target is an effective method to manipulate a metaphor's epistemic benefit. When participants were led to feel less secure in their grasp of the federal budget, they perceived the *household* metaphor as useful for restoring a subjective sense of understanding.

As to rebuttal effectiveness, Study 2 conceptually replicated the pattern found in Study 1: When the *household* metaphor provided a strong epistemic benefit, participants were more persuaded by a rebuttal that extended that metaphor, suggesting they wanted to retain its benefit. In contrast, when the initial metaphor provided a weak epistemic benefit, participants were more persuaded by a rebuttal that addressed federal spending issues directly, or one that criticized the initial metaphor as a misleading argument for cutting funding. Presumably, participants in this latter condition were not relying on the initial metaphor to make sense of the target, so they were not particularly receptive to the extension approach.

General discussion

As evidence mounts that rhetorical metaphors bias political attitudes, the question becomes: What is an effective strategy for counteracting a metaphor's influence? On the basis of conceptual metaphor theory, we reasoned that the answer to this question depends on whether the initial metaphor satisfies observers' motivation to gain a confident grasp of the target issue—that is, whether it provides an epistemic benefit—or if it is processed at a more superficial level as a mere figure of speech.

Observers gain stronger benefit from a metaphor if they consider how it uses a familiar source concept as a framework for making sense of a less familiar target (Preliminary Study). They also view a metaphor as helpful when they feel uncertain how the target works (Study 2).

Under these conditions of strong epistemic benefit, a persuasive rebuttal message retains the initial metaphor but "extends" it, drawing observers' attention to different features of the source that they can use to reinterpret the target issue (Studies 1 and 2). If, in contrast, the metaphor does not provide a strong epistemic benefit, then a persuasive rebuttal ignores the initial metaphor, or criticizes it as unsuitable, and emphasizes strong arguments that directly pertain to the target issue (Pilot Study; Studies 1 and 2).

Taken together, the current studies offer the first empirical look at strategies for counteracting metaphors in public discourse. They build on the core theoretical insight that metaphor can, in some cases, serve as a conceptual foundation for reasoning—not as a mere linguistic trope. While research inspired by conceptual metaphor theory has done much to illuminate how metaphors shape attitudes, these effects may have seemed like little more than peripheral cues, easily dispelled by the light of careful reasoning. Yet the theory suggests that these are far more pervasive and ingrained. The structuring effects of metaphor are more than a mere passing nudge—they are the foundation for how a target issue is understood. This account of how metaphors shape political attitudes informs our understanding of how to change those attitudes.

Assessing alternative explanations

We took several efforts to assess alternative explanations for our predicted findings. Prior research shows that persuasive messages are more effective when they match (versus mismatch) the source of an attitude (Fabrigar & Petty, 1999; Mayer & Tormala, 2010). To be clear, our proposed mechanism *is* one form of matching: Initial metaphor exposure prompts observers to draw on their knowledge of *how a household budget works* to interpret the federal budget. If doing so supports their understanding, then they will respond more favorably to a rebuttal rooted in the same metaphor. Supporting this functional account is the observed moderation by epistemic benefit. Even among groups exposed to a metaphor match—who encountered the *household* metaphor in the initial message *and* the extension rebuttal—only those who considered the metaphor's mapping (Study 1) or felt uncertain about the federal budget (Study 2) were more persuaded by the extension rebuttal. Still, two alternative forms of matching deserve attention:

Construal level matching. When people think about a stimulus at a high level of construal, they focus more on its general, abstract meaning than on its concrete details; at a low level of construal, they focus on concrete information (Trope & Liberman, 2003). It is possible that metaphor exposure shifts observers to a high construal level (by revealing hidden likenesses) or a low construal level (by invoking the mundane). Either way, they may resonate with an extension rebuttal simply because it features a metaphor—*any* metaphor—and thus matches their prior construal level.

However, this account cannot easily explain why an extension rebuttal's persuasiveness would be moderated by the initial metaphor's epistemic benefit. Still, it is plausible that metaphor exposure more reliably shifts observers' construal level if that metaphor has a salient mapping or refers to an uncertain concept.

Content matching. Even if extension's efficacy depends on a specific metaphor match, that match may appeal for alternative reasons: (a) cognitive fluency research shows that stimuli that are easier to process automatically elicit positive affect (Alter & Oppenheimer, 2009; Winkielman & Cacioppo, 2001). A rebuttal featuring household terms similar to those in the initial message may be more fluent and thus preferred; (b) if initial exposure to the *household* metaphor conjures up pleasant feelings about home and family, then a subsequent message couched in similar emotional (vs. logical) terms may be attractive (Mayer & Tormala, 2010); (c) observers perceive the author of the rebuttal extending (versus ignoring) the initial metaphor as generally more cooperative, since s/he builds more directly on the terms of the opposing position.

Content matching alternatives have similar difficulties explaining moderation by epistemic benefit. That is, it is not clear how considering the initial metaphor's mapping, or being uncertain about the target issue, would magnify the extension rebuttal's fluency, reiteration of pleasing "home" connotations, or perceived rebutter cooperativeness.

Several findings from Studies 1 and 2 cast doubt on these matching accounts. Compare the strong literal and extension rebuttals within the *no mapping salience* condition of Study 1. The former rebuttal ignored the household metaphor, so it could not match the initial message in construal level or specific metaphoric content. And yet it was more persuasive than a rebuttal with a matching metaphor (replicating the Pilot Study). Also, compare the means for the extension rebuttal across the *no mapping salience* condition and the *no metaphor* condition. In the former condition there was a match: the household metaphor appeared in the initial article *and* the rebuttal; in the latter the household metaphor featured only in the rebuttal. Nevertheless, the extension rebuttal was equally persuasive. This suggests that when observers are not relying on a metaphor for understanding, a match in construal level or metaphoric content is not sufficient to influence their attitudes.

The addition of a critique rebuttal in Study 2 further allowed us to assess a matching explanation of the extension strategy's efficacy. This rebuttal matched (a) much of the language of the initial metaphoric article; (b) favorable images of the home and family; and it (c) addressed that initial article on its own, metaphoric terms. We found, as predicted, that the extension rebuttal was more

persuasive than metaphor criticism among observers who initially felt uncertain how the federal budget works. This finding challenges a simple matching alternative based on the three possibilities described above.

Finally, the results of Study 2 also provided a strong test of the role of epistemic benefit by exposing all participants to the same initial metaphoric article. Among participants who initially felt sure about the federal budget, the extension rebuttal may have fluidly matched the content of this initial article in several ways, but it could not compete with more direct, central route counter-arguments. The strong literal rebuttal did not match the initial metaphor, but it was persuasive. This pattern reversed when participants were driven by uncertainty to hold on to that initial metaphor despite the fact that all forms of matching between initial article and rebuttal were identical.

Future directions

Future research calls for attention to other potential rebuttal strategies. To mention a couple, one could ignore the initial metaphor and provide an emotional appeal for the opposing position, such as by evoking visceral feelings of disgust. Or, one could encourage observers to continue elaborating on the initial metaphor until it seems absurd (e.g., "If the Boy Scouts is a house, then where are the windows?"). The comparative effectiveness of these strategies is an open issue, but we anticipate that an extension approach would remain the most effective to the extent that alternatives fail to acknowledge metaphor's epistemic benefit.

Practical implications

We found that some rhetorical strategies, including a sober presentation of facts and cogent arguments, are only situationally effective at addressing metaphor's effects. This insight helps to shed light on why some political conflicts are so intractable. While more liberal groups may see important programs like unemployment and healthcare as a *safety net*, counter messages from conservatives often frame such programs as *hand-outs* (for more examples, see Lakoff, 1996). These metaphoric understandings have very different entailments. For example, a *safety net* is necessary to prevent serious harm, whereas a *hand-out* is not. The current studies suggest that if political actors are relying on these metaphors to make sense of abstractions, then persuasive messages that ignore or attack these metaphors will be rejected. As a result, ideological gridlock between parties may in part be a function of the lack of a common discourse capable of transcending party-line metaphoric thinking.

While some theorists have argued that the best political strategies require that one "avoid using the other side's language" (see Lakoff, 2004, p. 53), our findings suggest the opposite; that is, the best approach uses a group's language *against* them—at least when it appears to be a foundation for understanding.

Our studies also suggest that educating audiences about important topics may make them more receptive to strong logical arguments and thus help loosen the grip of metaphoric frames. As we found in Study 2, initially confident audiences were less reliant on a salient metaphor and thus more receptive to fact-based, logical discussions of target issues.

Finally, the current studies examined the "undoing" of political metaphors specifically. Yet there are many other realms of life where metaphors shape thought and behavior, and the current studies may suggest practical means of improving people's productivity and well-being. For example, students may rely on clumsy metaphors to make sense of abstract topics (Low, 2008) or clients may use unhelpful metaphors that are a barrier to effective treatment (McMullen & Conway, 1996). The current studies suggest inroads for undoing problem metaphors and speak to the broad importance of extension as a rhetorical strategy across important domains.

Funding

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Appendix A.1

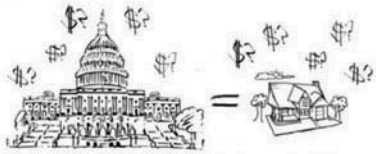
Mapping Salience and No Mapping Salience Initial Article (all Studies)

The Opinion Pages

August 23, 2013

Why Do We Need Spending Cuts?

By ROGER COHEN



Let's talk about the federal budget – the way the U.S. government spends money, and the way it should spend money. Let's start with the fact that the budget is a complex thing. We hear politicians talk about it all the time, yet most of us are unclear about what it is and how it works. And that can make it difficult to know what the best course of action should be.

So, before I state my position, I'll give you a tool for thinking about the federal budget: Think about the federal budget as a household budget. We're all familiar with paychecks, bills, and other parts of a household budget, and we can understand the federal budget using the same ideas. Why does this matter for making spending decisions?

Families often have to make sacrifices and cut spending to keep a budget and live within their means. When they cannot pay for things they want, like a new bike or a family vacation, they just have to wait or make sacrifices to get by. Families have to make tough decisions to keep their finances in order because it is better to have only some of the things they want than to go totally bankrupt.

So my point is simple: If a family doesn't have the money to pay for stuff, it cuts back on its spending. Likewise, the government cannot afford all the federal programs we have, and so it should cut spending. Spending money it doesn't have is reckless and wrong.

We balance our budget at home, why won't the government balance its budget?

Roger Cohen is a professor of Economics at Tulane.

Appendix A.2

No Metaphor Initial Article (Preliminary Study, Study 1)

The Opinion Pages

August 23, 2013

Why Do We Need Spending Cuts?

By ROGER COHEN

Let's talk about the federal budget – the way the U.S. government spends money, and the way it should spend money. Let's start with the fact that the budget is a complex thing. We hear politicians talk about it all the time, yet most of us are unclear about what it is and how it works. And that can make it difficult to know what the best course of action should be.

So, before I state my position, I'll remind you of a simple fact about the federal budget: Federal programs need funding to keep going. And let's understand that some of those programs – even the ones we've had for a long time – can be very expensive. Why does this matter for making spending decisions?

The government often has to make sacrifices and cut spending to keep a budget and work within its means. When the government cannot pay for all of the things citizens want, like better education or healthcare, it has to wait to spend or cut back on programs that are already in place. The government has to make tough decisions to balance its budget because it is better to spend less on programs than to risk financial collapse.

So my point is simple: The government goes into deficit when it spends more money on programs than it collects in tax revenue. The government cannot afford all the federal programs we have, and so it should cut spending. Spending money it doesn't have is reckless and wrong.

Given how costly federal programs are, why won't the government balance its budget?

Roger Cohen is a professor of Economics at Tulane.

Appendix A.3

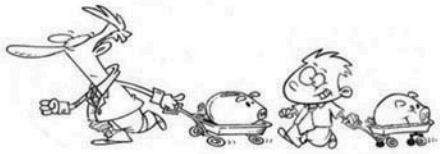
Metaphor Extension Rebuttal (Study 1 Pilot, Study 1, and Study 2)

The Opinion Pages

September 1, 2013

Why We DON'T Need Spending Cuts

By IAN HURD



Roger Cohen's article, which appeared in last week's Opinion Pages, argued in favor of drastic spending cuts for federal programs. I strongly disagree with his position. Let me explain why it's a bad direction for our country to take.

Let's start with the idea that the federal budget is like a household budget. The government takes in taxes and spends it on programs, just like the average American family takes in paychecks and spends them on household expenses. Let's not lose sight of this similarity. And now let's look closer at how families actually make smart decisions about their financial future.

Families make long-term investments all the time, and for good reasons: taking out big loans can help kids go to college, provide a family with a new car, or even help a family move into a better house. Loans like these are investments that are costly at first, but they pay off in the long run. In fact, they are necessary for families to succeed.

The government should take the same approach to spending that successful families do. It makes sense to think about the federal government as a household budget, and this comparison shows us that Cohen is wrong when he says we should cut funding to federal programs. Instead, the best financial plan for the government is to keep funding these programs, making the investments that will pay off in the long run.

Ian Hurd is a professor of law at Fordham.

Appendix A.4

Strong Literal Rebuttal (Study 1 Pilot, Study 1, and Study 2)

The Opinion Pages

September 1, 2013

Why We DON'T Need Spending Cuts

By IAN HURD

Roger Cohen's article, which appeared in last week's Opinion Pages, argued in favor of drastic spending cuts for federal programs. I strongly disagree with his position. Let me explain why it's a bad direction for our country to take.

Almost all Americans depend on programs that provide services like healthcare, dependable roads, affordable food and fuel, and education. Cutting funding to these programs would force costs back onto consumers, leaving them with less money to help get the economy out of the recession.

Programs like Medicare and social security are the only way some people have gotten by with rising unemployment, and we can't deprive our fellow citizens of these crucially important services. Also, these programs make our military and justice system strong, and that makes our nation secure and keeps dangerous criminals behind bars.

The government should take a careful approach to spending. It makes sense to learn about how the federal government benefits citizens, and it shows us that Cohen is wrong when he says we should cut funding to federal programs. Instead, the best financial plan for the government is to keep funding these programs to better the lives of this country's citizens.

Ian Hurd is a professor of law at Fordham.

Appendix A.5

Criticize Metaphor Rebuttal (Study 2)

The Opinion Pages

September 1, 2013

Why We DON'T Need Spending Cuts

By IAN HURD

Roger Cohen's article, which appeared in last week's Opinion Pages, argued in favor of drastic spending cuts for federal programs. I strongly disagree with his position. Let me explain why it's a bad direction for our country to take.

Let's start with the idea that the federal budget is like a household budget. At first these two things may appear somewhat similar: the government takes in taxes and spends it on programs, while the average American family takes in paychecks and spends them on household expenses. But the federal budget and a typical household budget are completely different types of things.

The average household tends to have a stable number of residents, whereas the population of our nation is constantly increasing. In a household, people tend to be close, both physically and emotionally, but in a nation, total strangers are spread out over a vast area. People in a household also tend to cooperate while nations have to manage the competing interests of different groups. So while aspects of the national budget may seem similar to household spending, they are too different for America to base policy on this comparison.

The government should take a careful approach to spending. It simply doesn't make sense to think about the federal government as a household budget, and this poor comparison shows us that Cohen is wrong when he says we should cut funding to federal programs. Instead, the best financial plan for the government is to keep funding these programs, and continue addressing the needs of our fellow citizens.

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