Metaphors, Roles, and Controls in Framing Studies

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Abstract

Metaphors have been shown to be effective explanatory and communicative tools, shaping how people think and reason about complex domains. To date, however, most studies have addressed only coarse-grained effects of metaphor framing, leaving many questions unanswered about the relative power of metaphor compared to more literal linguistic framing devices. We addressed this issue in a large, pre-registered framing study, comparing the effects of describing the role of police officers as (a) metaphorical *guardians* of a community (b) literal *protectors* of a community, and (c) a no-label control. We found no main effect of framing condition, suggesting that positively valenced metaphors may exert little influence on their own in this domain. However, we did observe an interaction between condition and political ideology, such that the *guardian* metaphor was especially effective at improving attitudes towards police officers for liberals, whose initial approval ratings were relatively low.

Keywords: metaphor, framing, attitudes, policing

Introduction

"Evolutionary sequences," wrote the popular biologist Steven Jay Gould (1977, p. 61), "are not rungs on a ladder, but our retrospective reconstruction of a circuitous path running like a labyrinth, branch to branch, from the base of the bush to a lineage now surviving at its top." Metaphorical explanations like this are common, and research has established that they can be effective as well: framing a discussion or explanation with metaphor has been shown to shape how people understand and reason about a range of complex issues (Flusberg, Matlock, & Thibodeau, 2017; Sopory & Dillard, 2002; Thibodeau, 2016; Thibodeau & Boroditsky, 2011; Thibodeau, Crow, & Flusberg, 2016).

In a recent study, for example, Thibodeau, Crow, and Flusberg (2016) sought to test the explanatory power of metaphor in the context of people's understanding of—and attitudes towards—law enforcement. Our primary research question was whether or not people would spontaneously use the structure of a metaphorical source domain (*guardian* or *warrior*) to reason about a target domain (policing).

One way that we tested this question was by having participants read that police officers are either *guardians* or *warriors* of the community before reporting on their attitudes toward policing and the criminal justice system. We found that participants who had read that police officers are *guardians* expressed more positive attitudes about policing and the criminal justice system, overall, compared to people who had read that police officers are *warriors*.

This effect may be the result of the emotional tone that is set by the metaphors: we found that *guardian*, in the context of policing, conveys a more positive emotional valence than *warrior*.

In addition, we found that the metaphorical explanations selectively affected certain attitudes toward policing and the criminal justice system more than others. Specifically, people who read that police officers are *guardians* expressed a more favorable "attitude toward police practices" than people who read that police officers are *warriors*, but the metaphorical explanation had no effect on participants' views about the "difficulty of being a police officer." This was consistent with the results of an initial norming study, where a separate group of participants made an explicit judgment about which metaphor—*guardian* or *warrior*—was more appropriate for the current state of policing (rather than being exposed to just one of the metaphors). That is, the norming study found that people who came into the study with the view that police officers are more like *guardians* expressed more a favorable view of police practices compared to people who considered police officers to be *warriors*. However, people who considered police officers to be *guardians* expressed similar beliefs about the difficulty of being a police officer as people who considered police officers to be *warriors*. Taken together, these findings suggest that the metaphors instantiate different schematic knowledge structures for policing and the criminal justice system—and that they capture and convey more than an emotional tone.

A second way that we tested our research question was by having participants list a synonym either to "guardian" or "warrior" before reporting on their attitudes toward the police and criminal justice system. We found no effect of these lexical primes: people who listed a synonym for "guardian" expressed similar attitudes toward policing and the criminal justice system as people who listed a synonym for "warrior." Participants expressed more moderate attitudes in these conditions compared to the conditions in which a metaphor was used to explain the role of police officers (i.e. less positive than participants who read that police officers are *guardians* but more positive than participants who read that police officers are *warriors*).

We interpreted these results as showing (a) that metaphorically framing police officers as *guardians* activates a different mental model of policing (with a different affective profile) than metaphorically framing police officers as *warriors*, and (b) that simply seeing the

word "guardian" or "warrior" is insufficient to activate this mental model. In other words, people have prior knowledge about what it means to be a *guardian* (and *warrior*). This knowledge influences how people think about policing when police officers are explicitly described as *guardians* (or *warriors*)—but not when people are asked questions about policing after simply seeing the word "guardian" (or "warrior").

A natural follow up question to this study might be: which metaphor has a bigger effect on how people think about policing? Intuitively, it may seem like there is an easy way to address this question: by running a condition that does not include a metaphorical explanation. One might expect that describing police officers as *guardians* would lead to a more positive view of policing compared to a "neutral control" condition, and that describing police officers as *warriors* would lead to a more negative view of policing compared to a "neutral control" condition. In addition, one might be tempted to infer that the metaphor condition that is more different from the "neutral control" condition is having a bigger effect on people (cf. Reijnierse, Burgers, & Steen, 2015; Steen, Reijnierse, & Burgers, 2014).

However, as we have argued before (see Thibodeau, In press; Thibodeau & Boroditsky, 2015), there are many differences between metaphor frames and "neutral control" conditions that make such comparisons difficult to interpret. For example, it is not clear that there is a suitable non-metaphorical counterpart to the "guardian" and "warrior" metaphors for policing (e.g., a term like "protector" could be used, since it is less metaphorical than the two metaphorical frames; but its meaning seems more similar to "guardian" than "warrior," making it a poor candidate to serve a "neutral control" condition along side the two metaphorical conditions). Comparing the two metaphorical frames to a condition that omitted a nominal descriptor altogether would confound a variety of factors between the two metaphor conditions and the "neutral control" condition, including the valence, tone, and word frequency of the language used to describe policing—not just the metaphoricity of the conditions.

We do, however, think that there are research questions that warrant a comparison between metaphorical frames and non-metaphorical counterparts. Here, we consider such a case. Namely, does a *guardian* metaphor lead people to adopt a more favorable view of policing than a comparable literal description of the role police officers play in the community? Addressing this question is important when considering the potential practical applications of research on the persuasive power of metaphor. Therefore, we compared three conditions in the present study, building on the work described in Thibodeau, Crow, & Flusberg (2016). Before reporting their attitudes towards law enforcement and the criminal justice system, participants read one of the following framing prompts:

a. Police officers are the *guardians* of modern communities. They are strong men and women who serve a vital role in society.

b. Police officers are the *protectors* of modern communities. They are strong men and women who serve a vital role in society.
c. [No label control: participants simply answered the targeted questions about police officers in this condition]

We chose "protector" as a non-metaphorical counterpart to *guardian* because it was the word most frequently used to explain what it means for police officers to be *guardians* in the original study (Thibodeau, Crow, & Flusberg, in press). In the context of this more applied question, we did not include a condition that described police officers as *warriors*, since such a description would be expected to elicit comparatively negative views of police officers. Instead, we compared the effects of a metaphor frame (and a matched literal frame) to a "neutral control" condition because we were interested in whether and to what extent describing police officers as *guardians* leads people to express a more favorable view of policing.

We were also interested in a mechanistic question about the role of metaphor in explanatory discourse, which we addressed by comparing the *guardian* and *protector* conditions. Are metaphors more persuasive than literal counterparts? In a meta-analysis, Sopory and Dillard (2002) found that metaphors are about 6% more persuasive than literal language, which they attributed to the power of metaphors to organize the way people think about a target domain.

The design of the current study provides a novel context for testing this claim. One possibility is that the *guardian* metaphor may call to mind a more coherent and favorable mental model of policing than the non-metaphorical counterpart, *protector*, and lead people to the most positive view of police officers and the criminal justice system—more positive than the *protector* and "neutral control" conditions.

An alternative possibility, though, is that the literal counterpart to *guardian* (*protector*) serves a similar organizational function in describing the role of police officers in the community. That is, depending on the complexity of the target domain and intended meaning of the metaphor, there may be issues for which a literal frame is as effective as a metaphorical one in shaping thought. Support for this possibility would be found if people express similarly positive views of the police in these two conditions—both of which should lead people to a more positive view of policing than the "neutral control" condition. Such a finding would contribute to the literature by identifying an important boundary condition on metaphor framing effects (cf. Steen, Reijnierse, & Burgers, 2014).

In addition to the framing experiment, we also conducted a norming study to assess the perceived metaphoricity and emotional valence of three possible descriptions of police officers: (a) *guardians* of modern communities, (b) *protectors* of modern communities, and (c) *warriors* of modern communities. One critical assumption that was

made in our prior work was that the terms *guardian* and *warrior* were actually interpreted as metaphors, and not, for example, as literal descriptions of the role of police officers[1]. The norming study allows us to test this assumption. We expected that the *guardian* and *warrior* descriptions would be rated as more metaphorical than *protector*. The norming study also allowed us to quantify the emotional tone of the three descriptions. We expected that the *guardian* and *protector* descriptions would be rated as conveying a more positive emotional valence than *warrior*. Both studies were pre-registered on the Open Science Framework: osf.io/eb853.

Norming Study

Methods

Participants We recruited 100 participants for the norming study from Amazon's Mechanical Turk. After excluding participants who failed to finish the study or provide a valid completion code, we were left with data from 88 participants for analysis (51% male; M_{age} = 33).

Materials and Design Participants were asked to rate the metaphoricity (1, Not at all metaphorical, to 5, Very metaphorical) and valence (1, Very negative, to 5, Very positive) of three statements on 5-point scales (Thibodeau & Boroditsky, 2015).

  a. Police officers are *guardians*.
  b. Police officers are *warriors*.
  c. Police officers are *protectors*.

These statements were presented on the same screen; the order of the statements was randomized across participants.

Afterward, participants were asked background and demographic questions, including their gender, age, education level, political ideology (0, Very liberal, to 100, Very conservative), and political affiliation (Democrat, Independent, Republican, Other). They also completed the attitudes towards policing measure described in the experiment below, although we did not analyze responses to these questions for participants in the norming study.

Results and Discussion

A repeated measures ANOVA revealed differences in the rated metaphoricity of the three statements, $F(2, 174)$ = 27.59, $p < .001$, η^2 = .24. *Warrior* (M = 3.56, SD = 1.33) was rated as more metaphorical than *guardian* (M = 3.02, SD = 1.21), $t(87)$ = 3.48, $p < .001$, or *protector* (M = 2.38, SD = 1.28), $t(87)$ = 6.35, $p < .001$; *guardian* was rated as more metaphorical than *protector*, $t(87)$ = 4.82, $p < .001$ (see Figure 1).

On the one hand, this pattern of results confirms our intuition that the terms *warrior* and *guardian* are perceived as more metaphorical than the term *protector* in the context of describing the role of police officers. On the other hand, we did not predict that the term *warrior* would be viewed as more metaphorical than *guardian*.

One possibility is that people consider the *guardian* metaphor to be more *apt* (cf. Glucksberg, 2001), which affects judgments of metaphoricity (Thibodeau, Sikos, & Durgin, 2015). In our original study, 82% of participants thought police officers *should* strive to be *guardians* (rather than *warriors*) of their communities (Thibodeau, Crow, & Flusberg, 2016). Talking about police officers in a way that is inconsistent with a preferred mental model of policing (i.e. in a way that is less *apt*) may lead people to think the description is more metaphorical. In any case, the critical difference in metaphoricity for the present study pertains to the contrast between *guardian* and *protector*: as expected, people interpreted *guardian* to be more metaphorical than *protector*.

A second repeated measures ANOVA revealed differences in the rated valence of the three statements, $F(2, 174)$ = 51.01, $p < .001$, η^2 = .37. *Warrior* (M = 3.38, SD = 1.21) was rated as more negative than both *guardian* (M = 4.32, SD = 0.80), $t(87)$ = 7.22, $p < .001$, and *protector* (M = 4.49, SD = 0.82), $t(87)$ = 8.04, $p < .001$; *protector* was rated as more positively valenced than *guardian*, $t(87)$ = 2.19, p = .031 (see Figure 1).

Again, this pattern largely conforms to our predictions: *guardian* and *protector* both express a positive view of policing compared to *warrior*. Although *protector* was judged to be more positive than *guardian*, this difference was fairly small.
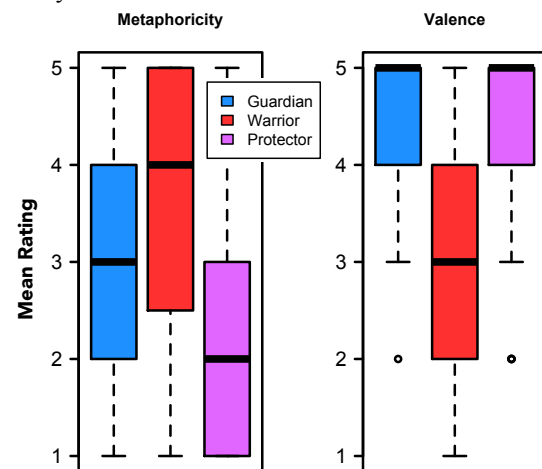

Figure 1. Ratings of the metaphoricity and valence of three descriptions of police officers. Error bars denote standard errors of the means.

Experiment

In the experiment, we tested whether describing police officers as *guardians*, compared to *protectors* (and to a condition that lacked a label for police officers), leads to

more positive attitudes toward policing. That is, previous work has suggested that metaphorical language is more persuasive than literal language, owing to the organizational role that metaphors play in discussions of complex issues (Sopory & Dillard, 2002). The norming study suggests that *guardian* and *protector* differ substantially in the extent to which they are metaphorical, but only slightly in the emotional tone that they convey (in favor of the non-metaphorical label).

If the *guardian* label leads people to express to more positive attitudes towards policing than *protector*, the experiment would provide further evidence of the persuasive value of metaphor (over and above comparable literal language). If people express similar attitudes in the *guardian* and *protector* conditions, on the other hand, it would suggest that, in some cases, non-metaphorical language can serve a similar organizational function as metaphorical language.

Methods

Participants We recruited 600 participants to participate in the experiment on Amazon's Mechanical Turk. After excluding participants who failed to finish the study or provide a valid completion code, we were left with data from 592 participants for analysis (49% male; M_{age} = 34).

Materials and Design Participants were randomly assigned to one of three conditions. In one, police officers were described as *guardians*, "Police officers are the guardians of modern communities—strong men and women who serve a vital role in society." In the second, police officers were described as *protectors*, "Police officers are the protectors of modern communities—strong men and women who serve a vital role in society." A comparable sentence about police officers was omitted from the third condition. In other words, there was no description of police officers in the third condition; this group simply answered the follow-up questions about policing. Participants in all three groups were instructed, "Although most people agree that police are necessary for maintaining law and order, there is disagreement about a variety of issues related to policing. On the following screen, you will be asked several questions about your view of police officers and the criminal justice system. Please answer candidly; your responses are anonymous."

Then participants were asked eight questions about policing and the criminal justice system. Consistent with Thibodeau, Crow, and Flusberg (2016), three of the questions were asked on a 7-point scale: "Police officers have a __ job" (from very easy to very difficult), "Police officers are __ at maintaining law and order" (from very ineffective to very effective), and "How would you describe the criminal justice system in the U.S.?" (from very far from the ideal to very near to the ideal). The other five questions included two response options, asking about whether participants thought police treated citizens equally (yes/no), whether they thought the police were more fair or unfair,

more honest or deceitful, more selfish or selfless, and whether participants felt safe or unsafe around police officers. Responses to all eight of these questions were combined into a single measure of participants' *attitudes toward policing*, using principal components analysis (see Thibodeau, Crow, & Flusberg, 2016).

Finally, participants completed the same demographics questions as participants in the Norming Study.

Results

A between-subjects ANOVA with predictors for condition (guardian, protector, none) revealed no effect of the descriptions on participants' attitudes toward policing, $F(2, 589) = 0.18$, $p = .837$. That is, neither the *guardian* ($M = 3.12$, $SD = 1.28$) nor the *protector* ($M = 3.14$, $SD = 1.45$) labels for police officers led people to a more positive attitude toward policing compared to a description that lacked a label ($M = 3.20$, $SD = 1.44$). And the two treatment conditions (*guardian* vs. *protector*) did not differ from one another.

Given the lack of support for our primary prediction, we considered alternative hypotheses that could be explored in the data. One salient possibility highlights the role of peoples' prior beliefs (e.g., Hardisty, Johnson, & Weber, 2009; Johnson & Taylor, 1981; Thibodeau & Boroditsky, 2011; Thibodeau & Flusberg, 2017) in combination with a mechanistic claim about how metaphors are processed—by serving as peripheral or heuristic cues, rather than through a process of conscious deliberation and rationalization (cf. Chaiken, Wood, & Eagly, 1996; Petty & Cacioppo, 1986).

That is, prior work has found that framing manipulations are, not surprisingly, more impactful on people who have room to be persuaded about an issue (i.e. are not already at ceiling). For instance, Hardisty, Johnson, & Weber (2009) found that Democrats would support a program designed to decrease the level of carbon dioxide in the environment, regardless of whether it was described as an "offset" program or a "tax." Since Democrats tended to support this type of environmental action, their attitudes were relatively consistent, regardless of how it was framed (i.e. a ceiling effect). Republicans, on the other hand, showed lower support for the program overall, affording more opportunity for attitude change. In turn, Hardisty et al. (2009) found that Republicans were more likely to endorse the program when it was framed as an "offset" than a "tax."

Since political conservativeness tends to be associated with more positive attitudes toward policing (Gerber & Jackson, 2017), this suggests that the framing manipulation—describing police officers as *guardians* or *protectors*—may have a more pronounced effect among politically liberal participants.

One reason to think that the *guardian* frame will be more persuasive among liberal participants than the *protector* frame is that metaphors have been argued to exert a persuasive influence through an indirect route. People who are skeptical about the increasing tendency for violence among police officers may perceive the term *protector* as an

overt attempt to change the way they think about police practices, making them resistant to the persuasive appeal. In contrast, the term *guardian* may not register as a persuasive message and, thus, bypass this sort of counter-arguing among participants (cf. Chaiken, Wood, & Eagly, 1996; Petty & Cacioppo, 1986).

To examine these possibilities, we conducted a second analysis on the data in which political ideology (a continuous variable ranging from 0, Very liberal to 100, Very conservative) was included as a covariate. To conduct this analysis, we first tested for an expected positive relationship between political ideology and attitudes toward policing. We found a strong positive relationship, $F(1, 590) = 79.54$, $p < .001$: the more politically conservative the participant, the more positive their view of the police, $B = .34$, $SE = .04$, $p < .001$. We then tested for an interaction between political conservativeness and condition (guardian, protector, none), which was significant, $F(2, 586) = 3.06$, $p = .048$. Of note, the relationship between political conservativeness and condition did not differ for a contrast between the "neutral control" condition and the *protector* condition, $F(1, 397) = 1.53$, $p = .217$. However, the relationship between political conservativeness and condition did differ when contrasting the "neutral control" condition to the *guardian* condition, $F(1, 391) = 6.52$, $p = .011$ (see Figure 2).
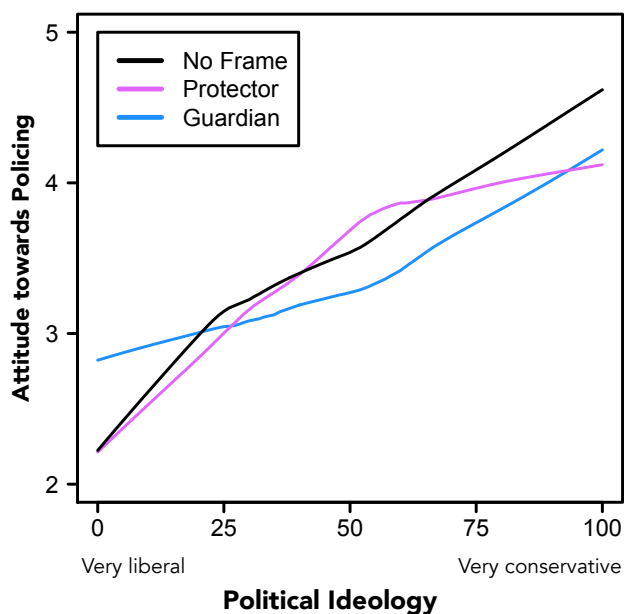

Figure 2. Attitudes toward policing by political ideology (left = very liberal; right = very conservative) and frame (none, protector, guardian). Lowess smoothing ($f = 2/3$) was applied to the lines to facilitate presentation of the trends.

Specifically, among the most liberal participants (i.e., those who reported a score less than 33 on the continuum of political ideology that ranged from 0, very liberal, to 100, very conservative; $n = 256$), attitudes toward policing were more positive in the *guardian* condition ($M = 2.93$, $SD =$

1.06) than in the *protector* condition ($M = 2.54$, $SD = 1.44$), $t(160) = 1.98$, $p = .049$; but no different from the condition that lacked a label ($M = 2.63$, $SD = 1.52$), $t(178) = 1.54$, $p = .126$. There were no differences between conditions for participants whose political ideology was in the middle of the ideological spectrum (i.e. between 33 and 66; $n = 229$), ps > .1, and no differences between conditions for participants whose political ideology was at the conservative end of the spectrum (i.e. > 66; $n = 107$), ps > .1.

Discussion

In response to mounting tensions between law enforcement and civilians, former president Barack Obama commissioned a task force on 21st century policing, which released its final report in 2015 (Ramsey & Robinson, 2015). The report suggested that to increase trust between police officers and the communities they serve, "Law enforcement culture should embrace a guardian—rather than a warrior—mindset." In a previous set of experiments, we used this real-world example as a case study to explore the power of explanatory metaphors, demonstrating that describing police offers as *guardians* did in fact lead people to express more positive attitudes towards law enforcement than describing them as *warriors* (Thibodeau, Crow, & Flusberg, 2016). Because of the real-world applications of this line of research, however, there are additional questions that warrant empirical investigation.

In the present study, we took a preliminary step in this direction by asking whether metaphorical framing provides any additional persuasive power over and above a more literal linguistic descriptor. In an initial norming study, we confirmed that describing police officers as *guardians* of a community was perceived as more metaphorical than describing them as *protectors* of a community. In our main experiment, we contrasted the effects of framing the role of law enforcement using these two terms, along with a "neutral" control condition that included no framing device.

Our initial analysis revealed that participants in these three conditions did not differ overall with respect to their attitudes towards policing. This could suggest that there is little advantage to using metaphorical framing compared to more literal language (or even to no frame whatsoever) in a practical attempt to improve attitudes towards policing in the United States. This also offers some support for the view that in our original study, it was the more negatively valenced *warrior* metaphor that was "doing the work," so to speak, in shifting attitudes towards policing (i.e., in a negative direction). This would be consistent with a large body of work in psychology that suggests people are typically more sensitive to negative information (or losses) than positive information (or gains; Baumeister et al., 2001).

However, we also considered an alternative possibility: that individual differences in prior attitudes towards policing (e.g., due to ideological commitments) might interact with our framing manipulation in a principled fashion. Previous research has shown that framing effects are most effective when they target people who are not at

ceiling (or floor) on an issue already (i.e., who have room to be persuaded; Hardisty, Johnson, & Weber, 2009; Thibodeau & Boroditsky, 2011; Thibodeau & Flusberg, 2017). In the present case, we reasoned that because ideologically conservative participants would have come into the study with very positive views of policing already (Gerber & Jackson, 2017), they might be less persuaded by a positive metaphorical frame compared to more liberal participants. To test this possibility, we included a continuous measure of political ideology as a covariate in an exploratory analysis.

The results of this analysis supported our revised hypothesis: for the most liberal participants, framing police officers as *guardians* of the community led to more positive attitudes compared to framing them as *protectors* of the community. This is consistent with previous work demonstrating a principled interaction between metaphor framing and prior beliefs (Hardisty, Johnson, & Weber, 2009; Thibodeau & Boroditsky, 2011; Thibodeau & Flusberg, 2017), and lends support to the view that metaphors may provide an additional persuasive punch compared to more literal language (at least under certain conditions; Sopory & Dillard, 2002).

Taken together, these findings paint a more nuanced picture of the relationship between, and consequences of, metaphorical versus literal framing, at least in domain of attitudes towards policing. To be sure, more research in this vein is required, especially considering the practical applications of this sort of work, and the assumptions that often accompany reasoning about metaphor and thought (Lakoff & Johnson, 1980; Ramsay & Robinson, 2015). We suggest researchers and public policy communicators interested in these issues should aim for more large-scale, pre-registered, and nuanced empirical studies of framing effects.

References

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of general psychology*, *5*(4), 323-370.

Chaiken, S., Wood, W., & Eagly, A. H. (1996). Principles of persuasion. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 702–742). New York, NY: Guilford.

Flusberg, S. J., Matlock, T., & Thibodeau, P. H. (2017). Metaphors for the war (or race) against climate change. *Environmental Communication*.

Gerber, M. M., & Jackson, J. (2017). Justifying violence: legitimacy, ideology and public support for police use of force. *Psychology, Crime & Law, 23*, 79-95.

Glucksberg, S. (2001). *Understanding figurative language: From metaphor to idioms*. Oxford: Oxford University Press.

Hardisty, D. J., Johnson, E. J., & Weber, E. U. (2009). A dirty word or a dirty world? Attribute framing, political affiliation, and query theory. *Psychological Science, 21*, 86-92.

Johnson, J. T., & Taylor, S. E. (1981). The effect of metaphor on political attitudes. *Basic and Applied Social Psychology, 2*, 305-316.

Gould (1977). *Ever Since Darwin*. W. W. Norton & Company, Inc. New York, NY.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (pp. 123–205). New York, NY: Academic Press.

Ramsey, C., & Robinson, L. (2015). Final report. The President's task force on 21st century policing. Retrieved Oct 28, 2016 https://cops.usdoj.gov/pdf/taskforce/taskforce_finalreport.pdf

Reijnierse, W. G., Burgers, C., Krennmayr, T., & Steen, G. J. (2015). How viruses and beasts affect our opinions (or not): The role of extendedness in metaphorical framing. *Metaphor and the Social World*, *5*, 245–263.

Rumelhart, D. E. (1979). Some problems with the notion of literal meanings. In Ortonoy, A. (ed). *Metaphor and Thought*. Cambridge: Cambridge University Press.

Sopory, P., & Dillard, J. P. (2002). The persuasive effects of metaphor: A meta-analysis. *Human Communication Research, 28*, 382–419.

Steen, G. J., Reijnierse, W. G., Burgers, C. (2014). When Do Natural Language Metaphors Influence Reasoning? A Follow-Up Study to Thibodeau and Boroditsky (2013). *PLoS ONE, 9*(12): e113536.

Thibodeau, P. H. (In press). The Function of Metaphor Framing, Deliberate or Otherwise, in a Social World. *Metaphor and the Social World.*

Thibodeau, P. H. (2016). Extended metaphors are the home runs of persuasion: Don't fumble the phrase. *Metaphor and Symbol, 31,* 2, 53-72.

Thibodeau, P. H., & Boroditsky, L. (2011). Metaphors we think with: The role of metaphor in reasoning. *PLoS ONE, 6*(2), e16782.

Thibodeau, P. H., & Boroditsky, L. (2015) Measuring Effects of Metaphor in a Dynamic Opinion Landscape. *PLoS ONE, 10*(7): e0133939.

Thibodeau, P. H., Crow, L. & Flusberg, S. J. (2016). The metaphor police: A case study of the role of metaphor in explanation. *Psychonomic Bulletin & Review*. doi: 10.3758/s13423-016-1192-5

Thibodeau, P. H., & Flusberg, S. J. (2017). Metaphorical accounting: How framing the federal budget like a household's affects voting intentions. *Cognitive Science*. doi: 10.1111/cogs.12475

Thibodeau, P. H., Perko, V. L., & Flusberg, S. J. (2015). The relationship between narrative classification of obesity and support for public policy interventions. *Social Science & Medicine, 141, 27-35*.

Thibodeau, P. H., Sikos, L., & Durgin, F. H. (2016). What Do We Learn from Rating Metaphors? *Proceedings of the 38th Annual Conference of the Cognitive Science Society,* Philadelphia, PA.