The Impact of Conventional and Novel Metaphors in News on Issue Viewpoint

AMBER BOEYNAEMS
CHRISTIAN BURGERS[1]
ELLY A. KONIJN
Vrije Universiteit Amsterdam, The Netherlands

GERARD J. STEEN
University of Amsterdam, The Netherlands

Metaphors are often used to frame news. Different types of metaphor (conventional, novel) can affect issue viewpoint via different underlying mechanisms (cognitive and affective text perception). We conducted a single-factor (type of expression: conventional metaphor, novel metaphor, nonmetaphorical expression) between-subjects experiment with text perception (cognitive, affective) and issue viewpoint as dependent variables and perceived novelty and perceived aptness of the metaphors as control variables. Type of expression did not affect issue viewpoint. Rather, we found indirect effects of metaphors on both cognitive and affective text perception via perceived novelty and aptness. Perceived novelty positively affected cognitive and affective text perception. However, for cognitive text perception, the positive effect of perceived novelty was countered by a negative effect of perceived aptness. This shows that metaphors work through different mechanisms, evoked by two different types of metaphor perception (perceived novelty, perceived aptness).

Keywords: metaphorical framing, news, text perception, issue viewpoint, novelty, aptness

Metaphors are often used to frame issues as diverse as economics (Morris, Sheldon, Ames, & Young, 2007), technology (Hartman, 2012), and health and safety legislation (Read, Cesa, Jones, & Collins, 1990). When a metaphor is used to frame an issue, a metaphorical frame is created. Framing can

Amber Boeynaems: a.boeynaems@vu.nl
Christian Burgers: c.f.burgers@vu.nl
Elly Konijn: elly.konijn@vu.nl
Gerard Steen: g.j.steen@uva.nl
Date submitted: 2017-02-13

be defined as "selecting some aspects of a perceived reality and making them more salient in a communication text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described" (Entman, 1993, p. 52). A metaphor not only adds rhetorical flourish to a speech or text but also can transfer conceptual content (Lakoff & Johnson, 1980). It can thus fulfill one or more of the functions of framing described by Entman (1993). For example, when the economy *collapses*, people will understand that this is problematic, that the economy was probably under high pressure and that it needs to be rebuilt. Metaphorical frames can thus affect people's viewpoints (i.e., beliefs and attitudes) about the issue presented (e.g., Morris et al., 2007; Robins & Mayer, 2000). However, not all metaphors are processed equally, in that at least two underlying mechanisms have been described through which effects of metaphors on people's issue viewpoints are established. These two routes are based on the novelty of the metaphor (Bowdle & Gentner, 2005).

When a metaphor is novel (e.g., *the stock market keeled over*), people have to compare two different concepts (stock markets and the act of keeling over) to discover what they have in common. The metaphor serves as a small puzzle that provides pleasure when solved (Giora et al., 2004; Hoeken, Swanepoel, Saal, & Jansen, 2009). Recipients enjoy it when a message allows them a new insight into something familiar (Giora et al., 2004). Novel metaphors can thus positively influence affective responses to a communicated message. For example, they can increase for example, message attractiveness (Jansen, van Nistelrooij, Olislagers, van Sambeek, & de Stadler, 2010) and imaginativeness (Read et al., 1990). We group such affective message perceptions under the heading of affective text perception. Hence, we assume that, via the underlying mechanism of affective text perception, novel metaphors can affect people's issue viewpoints.

When a specific concept is repeatedly used figuratively, people become familiar with the intended meaning of the metaphor, and the metaphor becomes conventional (e.g., *the stock market dropped*). The Career of Metaphor Theory (Bowdle & Gentner, 2005) posits that when metaphors become conventionalized, a shift in the mode of processing, from comparison (novel metaphors) to categorization (conventional metaphors), takes place. When metaphors are processed by categorization, their intended meaning is already stored in the mind of the recipient (Bowdle & Gentner, 2005). These metaphors then provide a conventional framework for thinking about the issue and can make difficult issues more concrete and easier to understand (e.g., Morris et al., 2007). Hence, conventional metaphors can positively affect how people cognitively perceive a communicated message, for example, by increasing perceived argument quality (Hartman, 2012) and by decreasing perceived message complexity (Burgers, Konijn, Steen, & Iepsma, 2015). We group these perceptions of a message, which involve cognitive thoughts, under the heading of cognitive text perception. We assume that by positively affecting cognitive text perception, conventional metaphors can affect issue viewpoint.

Thus far, most claims about the impact of metaphors are based on theoretical arguments (Lakoff, 2002, 2008; Mio, 1997) and corpus analysis (e.g., Charteris-Black, 2005). Both have provided useful insights into metaphorical framing. However, causal studies on the effects of metaphors on people's viewpoints about social issues reported mixed results (Boeynaems, Burgers, Konijn, & Steen, 2017). Several studies (e.g., Hartman, 2012; Steen, Reijnierse, & Burgers, 2014) showed that the effects of

metaphorical frames on issue viewpoint are not as clear-cut as is sometimes assumed (Thibodeau & Boroditsky, 2011, 2013), and more empirical research is necessary to unravel the characteristics of metaphors and the boundary conditions under which metaphors work (Reijnierse, Burgers, Krennmayr, & Steen, 2015; Steen et al., 2014). Moreover, scholars who study the impact of nonmetaphorical frames (e.g., Nelson, Lecheler, Schuck, & de Vreese, 2015; Tsfati & Nir, 2017) state that an important goal of current framing research is to study the underlying mechanisms through which framing effects are established.

One of the characteristics of metaphorical frames that appears to influence which underlying mechanism these frames are processed through is the novelty of the metaphor that is used to frame (e.g., Bowdle & Gentner, 2005; Lai, Curran, & Menn, 2009). Research thus far, however, has paid little attention to possibly contrasting effects of novel and conventional metaphors on issue viewpoint. To the best of our knowledge, a direct comparison between the effects of conventional and novel metaphors on issue viewpoint has not yet been made. In the present article, we compare and contrast the effects of conventional and novel metaphors in a news item on cognitive text perception, affective text perception, and issue viewpoint.

The Impact of Conventional Metaphors in News on Issue Viewpoint

Conventional metaphors can positively influence cognitive text perception: They can make a text more concrete, clear, and easy to understand (Burgers et al., 2015; Hartman, 2012). By doing so, conventional metaphors can steer issue viewpoints in line with the presented metaphorical frame (e.g., Lakoff, 2008; Robins & Mayer, 2000). When used to frame news items, conventional metaphors helped recipients to understand and interpret complex issues, such as fluctuations of the stock market (Morris et al., 2007), bankruptcy threats (Williams, Davidson, & Yochim, 2011), and technical policy measures (Hartman, 2012). News items that used conventional death metaphors to describe bankruptcy threats (e.g., *the ailing manufacturer*) anthropomorphized the company, thereby turning the bankruptcy into an externally induced situation, which takes the blame away from management (Williams et al., 2011). The conventional tollbooth metaphor, often used in the United States to talk about net neutrality (i.e., the principle that governments and service providers should not interfere with users' Internet access), steered participants' attitudes toward a proposed policy measure in line with the metaphorical text (Hartman, 2012).

The effects of conventional metaphors on issue viewpoint have also been acknowledged within other fields of communication, including organizational communication (Cornelissen, Holt, & Zundel, 2011) and marketing communication (Burgers et al., 2015). Conventional metaphors fostered understanding of complex company policies and consequently helped to garner support for organizational change (Cornelissen et al., 2011). In advertisements, conventional metaphors reduced ad complexity (i.e., positively affected cognitive text perception), which in turn led to a more positive brand attitude (Burgers et al., 2015).

Several of the described studies (e.g., Hartman, 2012; Morris et al., 2007) compared the impacts of metaphorical frames with the effects of nonmetaphorical control frames. Nevertheless, not all scholars

did so (Robins & Mayer, 2000; Thibodeau & Boroditsky, 2011, 2013). We argue, in line with several others (e.g., Hartman, 2012; Reijnierse et al., 2015), that to show how metaphorical frames affect issue viewpoint, a nonmetaphorical control condition is essential. Such a control condition serves as a baseline that makes it possible to distinguish metaphorical framing effects from other framing effects. Without a control condition, differences between two metaphorical frames other than the presence of a metaphor could account for the reported effects. For this study, we therefore compared the impact of conventional metaphors with novel metaphors and with a nonmetaphorical control condition.

Based on the literature on the impact of conventional metaphors, we expected conventional metaphors to positively affect cognitive text perception, compared with nonmetaphorical language (e.g., Hartman, 2012; Morris et al., 2007). Moreover, previous research showed that conventional metaphors were comprehended faster and considered easier to understand than novel metaphors (e.g., Lai et al., 2009; Thibodeau & Durgin, 2008). Therefore, we hypothesized that:

H1a: *Conventional metaphors positively impact cognitive text perception compared with novel metaphors and nonmetaphorical expressions.*

Furthermore, we argue that, by positively affecting cognitive text perception (e.g., reducing complexity, enhancing concreteness), conventional metaphors can affect issue viewpoint. Therefore, we proposed the following hypothesis:

H1b: *Cognitive text perception mediates the impact of conventional metaphors on issue viewpoint.*

The Impact of Novel Metaphors in News on Issue Viewpoint

Similar to conventional metaphors, novel metaphors can affect issue viewpoint. Novel metaphors can establish these effects by making a text more enjoyable and lively (Gibbs & Colston, 2012; Mio, 1997; Ortony, 1975). They can positively influence affective text perception, which is based on the affective responses that metaphorical expressions evoke (Gibbs & Colston, 2012; Jansen et al., 2010).

Several theoretical claims have been made about the effects of novel metaphors in news. Novel metaphors can increase vividness and stir emotions (Gibbs, Leggitt, & Turner, 2002; Mio, Thompson, & Givens, 1993). Experimental research showed that economic news items framed with novel metaphors were, in contrast to nonmetaphorical items, perceived as more imaginative and easier to form a vivid visual image about (Read et al., 1990). Vividness, in general, is argued to play a role in establishing news-framing effects: More vivid news items can steer people's issue viewpoints to be more in line with the text (e.g., Aday, 2006; Brantner, Lobinger, & Wetzstein, 2011; Igartua & Cheng, 2009).

Empirical evidence on the effects of novel metaphors in news on issue viewpoint is scarce, yet research into other fields of communication reported causal effects of novel metaphors on people's perceptions. In marketing communication, for example, novel metaphors were perceived as artful deviations from literal language that positively affected participants' viewpoints about the advertised product (Ang & Lim, 2006; Phillips & McQuarrie, 2009). In literary studies, participants appreciated novel

metaphors for their incongruous character: They searched for a rich interpretation, and when they obtained the intended meaning, this had a positive impact on affective text perception (Utsumi, 2005). In health communication, using novel metaphorical expressions to promote participation in clinical cancer trials led to a more positive attitude toward participation; the effect was mediated by a positive affective response to the message (Krieger, Parrott, & Nussbaum, 2010). Because the impact of novel metaphors on affective text perception and issue viewpoint was shown in variety of discourse domains, we hypothesized that:

H2a: *Novel metaphors positively impact affective text perception compared with conventional metaphors and nonmetaphorical expressions.*

Moreover, novel metaphors can affect issue viewpoint because of their positive effect on affective text perception. Therefore, we proposed the following hypothesis:

H2b: *Affective text perception mediates the impact of novel metaphors on issue viewpoint.*

Both conventional and novel metaphors can affect issue viewpoint (e.g., Morris et al., 2007; Read et al., 1990), but via different routes. We tested this, for the first time, in a direct comparison of the effects of conventional and novel metaphorical framing on issue viewpoint. A meta-analysis that took into account the results of 29 studies on the impact of metaphors on attitude (none of which directly compared conventional and novel metaphors) concluded that novel metaphors had a stronger persuasive effect than conventional metaphors (Sopory & Dillard, 2002). Therefore, we proposed the following hypothesis:

H3: *Compared with conventional metaphors, novel metaphors more strongly affect issue viewpoint.*

In this study, we aimed to isolate the effects of different types of expressions (conventional metaphor, novel metaphor, nonmetaphorical expression). Importantly, several studies connected a metaphor's perceived novelty to its perceived aptness (e.g., Chiappe, Kennedy, & Smykowski, 2003; Jones & Estes, 2006; Pierce & Chiappe, 2008). Where perceived novelty is related to familiarity, perceived aptness reflects the degree to which a recipient believes a metaphor captures important topic features (Thibodeau & Durgin, 2011). A metaphorical expression can therefore be perceived as apt or not, depending on the quality of the cross-domain mapping. Both perceived novelty and perceived aptness can play a role in enhancing the processing fluency of a metaphorical sentence (Chiappe et al., 2003; Pierce & Chiappe, 2008), and thus both can possibly affect text perception. Although novelty and aptness are two distinct features of metaphor (e.g., Pierce & Chiappe, 2008), several studies showed ratings of the two constructs to be (negatively) correlated (e.g., Jones & Estes, 2006; Thibodeau & Durgin, 2011). Therefore, we examined the role of perceived aptness in the current study design and proposed the following research question:

RQ1: *Is perceived aptness related to perceived novelty and to the different dimensions of text perception?*

Method

Design and Materials

We conducted a between-subjects experiment with a single independent variable with three levels (type of expression: conventional metaphor, novel metaphor, nonmetaphorical expression). Participants read a 120-word fictional news item about the reorganization of a fictitious multinational company. The topic was based on an actual news item (McCrank, 2014). The metaphor variation (novel, conventional) was presented in the headline and in the last sentence of the text; the rest of the stimulus texts were identical. We applied MIPVU (Metaphor Identification Procedure Vrije Universiteit; Steen et al., 2010) to the entire text and verified that the text did not contain any linguistic metaphors except the target metaphor.

To make our comparison between conventional and novel linguistic metaphors as clean as possible, each variation had to be derived from the same conceptual metaphor (Lakoff & Johnson, 1980). We searched the Merriam-Webster online dictionary (http://www.merriam-webster.com) and selected 10 possible linguistic metaphors derived from the conceptual metaphor *CHANGE IS MOTION* (Lakoff, 1993). Subsequently, we determined whether these expressions were metaphorical according to the MIPVU procedure (Steen et al., 2010). Moreover, we checked whether the contextual meaning of the metaphor was found in the dictionary. If so, a metaphor can be seen as conventional, if not, as novel (Steen et al., 2010). However, even though this distinction is useful and reliable, it is also somewhat coarse and provides little insight into the relative use of these metaphors. Therefore, to approximate the novelty of the metaphors, we used Google's search engine and informally checked the relative frequency of the expressions (following Thibodeau & Durgin, 2011). This resulted in a list of 10 metaphorical words with Google searches returning from one to approximately 1.5 million results.

To select two metaphorical expressions that differed in perceived novelty, but were perceived as equally apt, we conducted a pilot study with 40 participants (M_{age} = 34.30, SD_{age} = 13.12, 47.37% female) who were asked to rate 10 metaphorical expressions on novelty and aptness. The metaphorical expressions referred to the change in a management team (e.g., *shake up* the management team, *juggle* the management team). Our analysis revealed one pair of metaphorical expressions that met our criteria—*shake up* the management team (conventional metaphor) and *swap* the management team (novel metaphor)—that differed on perceived novelty ($M_{shake\ up}$ = 2.66, $SD_{shake\ up}$ = 1.55; M_{swap} = 3.79, SD_{swap} = 1.68, $p < .05$), but not on perceived aptness ($M_{shake\ up}$ = 5.39, $SD_{shake\ up}$ = 1.42; M_{swap} = 4.66, SD_{swap} = 1.55, $p = .95$). See the online Appendix, which can be retrieved from the Open Science Framework (osf.io/x7mem) for a full analysis of the pilot study results, and see Table 1 for an overview of the stimulus materials.

Table 1. Overview of Stimulus Materials.

Article section	Experimental Condition		
	Nonmetaphorical Expression (*n = 105*)	Conventional Metaphor (*n = 102*)	Novel Metaphor (*n = 102*)
Header	Significant *change* of Vinco's management team negatively received by shareholders	Significant *shake up* of Vinco's management team negatively received by shareholders	Significant *swap* of Vinco's management team negatively received by shareholders
Middle (equal for all conditions, not manipulated)	Dutch multinational Vinco plans to reorganize its management team by replacing several senior managers with younger, more junior employees. The reorganization comes as Vinco readies its next generation to assume greater responsibility and prepares for the time when they will name a successor for Pieter de Vries, current chief executive officer and co-founder. In total, 60 percent of the members of the management team will be replaced. The company's shareholders think this will lead to a decrease in corporate knowledge that will make Vinco less successful.		
Last sentence	Representative shareholders argue that especially in financially difficult times a significant *change* of the management team is a bad idea.	Representative shareholders argue that especially in financially difficult times a significant *shake up* of the management team is a bad idea.	Representative shareholders argue that especially in financially difficult times a significant *swap* of the management team is a bad idea.

Note. Italic and underlined words indicate the manipulations.

Participants

A total of 360 participants were recruited from Amazon's Mechanical Turk (http://www.mturk.com) with a HIT approval rate (index of overall work quality) greater than or equal to 95%. They were rewarded with $0.50 in exchange for participation. After applying our inclusion criteria (be located in the United States, could participate only once, be a native English speaker, be eligible to vote, and could correctly name three correct keywords after reading to verify that they had read the text), 309 unique participants were left for analysis (131 female and 178 male; M_{age} = 35.61 years, SD_{age} = 13.67, range = 19–73 years). Participants were evenly distributed across experimental conditions in age, $F(2, 306)$ = 0.51, p = .60;, gender, $\chi^2(2)$ = 2.28, p = .32;, education level, $\chi^2(4)$ = 5.37, p = .25; and reading time of the news item, $F(2, 306)$ = 1.217, p = .30.

Procedure

Data were collected online through Qualtrics (www.qualtrics.com). Participants were randomly assigned to one of the three conditions and were asked to read the news item. Next, to verify that they had read the text, participants had to list three keywords from the text. We discarded those who did not meet this criterion. Then, participants were asked for their viewpoints about the news issue (measured as beliefs about the issue and attitude toward the issue). Next, they rated the dimensions of text perception and, consequently, novelty and aptness of the metaphor. After filling out demographic questions, participants were thanked for participation and received a confirmation code to collect their reward.

Measures

To measure beliefs about the issue, participants were asked to rate on four Likert-type items, each followed by a 7-point rating scale (1 = *very unlikely*, 7 = *very likely*), how likely they thought several consequences would follow from the decision presented in the news item. The items read as follows: "If [Company] pursues their decision, how likely do you consider (1) this will have a positive impact on the way the company is run, (2) this will have a positive impact on the employees of the company, (3) this will lead to an increase in corporate knowledge, (4) this will positively affect the company's success" (Cronbach's α = .87). Because the message implies that negative consequences are likely to follow the decision to reorganize, all items were reverse coded. Thus, a higher score indicates that participant beliefs are more in line with beliefs implied by the news item.

Attitude toward the issue was tapped by asking participants to indicate on 7-point semantic-differential scales how much they would support or oppose the idea mentioned in the news item and how much they were inclined to vote in favor of or against the idea, assuming they were shareholders of [Company] ($r = .94$, $p < .01$, Cronbach's α = .97). Again, items were reverse coded, so a higher score indicates that participant attitude was more in line with the attitude implied by the materials.

Cognitive text perception and affective text perception were measured using a list of 21 evaluation criteria (Sundar, 1999), of which 19 can be clustered into four dimensions: credibility (Cronbach's α = .82), liking (Cronbach's α = .85), quality (Cronbach's α = .83), and representativeness (Cronbach's α = .72). Participants were asked to rate each item on a 7-point rating scale (1 = *strongly disagree*, 7 = *strongly agree*) for, for example, how clear, coherent, comprehensive, concise, and well written (criterion of quality) the news item was. In Sundar's (1999) analysis, two criteria had moderate loadings on more than one dimension; therefore, we excluded these criteria (informative, sensationalistic) from analysis. To measure cognitive text perception, we used the evaluation criteria from the dimension "quality," and for affective text perception, we used the items that measure "liking" (Sundar, 1999). We did not use "credibility" or "representativeness" to test our hypotheses because these dimensions measure perception of the news source rather than perception of the text itself (Sundar, 1999).

Finally, we measured perceived novelty and perceived aptness by asking participants to rate how novel (1 = *very conventional*, 7 = *very novel*) and how apt (1 = *very inappropriate*, 7 = *very appropriate*) they perceived the metaphor to be (Pierce & Chiappe, 2008).[2]

Results

Manipulation Check

A single-factor (type of expression: conventional metaphor, novel metaphor, nonmetaphorical expression) between-subjects MANOVA with novelty and aptness as dependent variables tested whether the metaphorical expressions "*shake up* of [Company's] management team" and "*swap* of [Company's] management team" differed in perceived novelty, but were perceived as equally apt. In line with our expectations, results showed a significant effect of metaphor type on perceived novelty, $F(2, 306) = 38.68$, $p < .001$, $\eta_p^2 = .20$. Pairwise comparisons with Bonferroni correction showed that the novel metaphor was perceived as more novel ($M = 4.56$, $SD = 1.33$) than the conventional metaphor ($M = 3.71$, $SD = 1.60$, $p < .01$) and the nonmetaphorical expression ($M = 2.81$, $SD = 1.35$, $p < .01$). The conventional metaphor was rated as more novel than the nonmetaphorical expression ($p < .01$). In contrast to expectations, a significant effect of type of expression on aptness was also detected: $F(2, 306) = 23.$, $p < .001$, $\eta^2_p = .13$. Pairwise comparisons with Bonferroni correction showed that the nonmetaphorical expression ($M = 5.31$, $SD = 1.35$) was perceived as more apt than both the conventional metaphor ($M = 4.65$, $SD = 1.61$, $p < .01$) and the novel metaphor ($M = 3.86$, $SD = 1.62$, $p < .01$). The conventional metaphor was perceived as more apt than the novel metaphor ($p < .01$). See Table 2 for descriptive statistics.

Table 2. Average Scores and Standard Deviations of Perceived Novelty, Perceived Aptness, Cognitive and Affective Text Perception, Beliefs About the Issue, and Attitude Toward the Issue by Type of Expression.

	Type of Expression		
Variable	Nonmetaphorical Expression	Conventional Metaphor	Novel Metaphor
Perceived novelty	2.81 (1.35)[a]	3.71 (1.60)[b]	4.56 (1.33)[c]
Perceived aptness	5.31 (1.35)[a]	4.65 (1.61)[b]	3.86 (1.62)[c]
Cognitive text perception	5.18 (0.76)	5.29 (0.77)	5.19 (0.87)
Affective text perception	3.67 (0.95)	3.74 (1.16)	3.70 (1.16)
Beliefs about the issue	4.80 (1.20)	4.72 (1.19)	4.66 (1.44)
Attitude toward the issue	5.17 (1.64)	4.99 (1.72)	4.87 (1.81)

---

[2] We also measured need for cognition (NFC; the tendency of an individual to engage in and enjoy effortful thinking) with the short NFC scale (Cacioppo, Petty, & Feng Kao, 1984; Cronbach's α = .95). Previous studies showed that NFC moderated the impact of metaphors on beliefs and attitudes (Chang & Yen, 2013). However, we found no moderation of NFC and metaphor type on any of the dependent variables. A randomization check also showed that participants in three conditions did not differ on NFC, $F(2, 306) = 0.52$, $p = .68$.

Note. Standard deviations in parentheses.
[a, b, c] Significant difference with $p < .01$

Thus, we successfully manipulated novelty of the metaphor. However, in contrast to our pilot study, the novel and conventional metaphors differed in perceived aptness in the main study. Therefore, when testing our hypotheses, we controlled our analyses for perceived aptness. Moreover, we conducted additional analyses to answer our research question about the relations between perceived aptness, perceived novelty, and text perception (cognitive, affective).

Hypothesis Testing

First, we tested our hypotheses concerning the effects of metaphors on cognitive and affective text perception (see Table 2 for descriptive statistics). H1a predicted conventional metaphors to positively affect cognitive text perception, compared with novel metaphors and nonmetaphorical expressions, whereas H2a predicted novel metaphors to positively influence affective text perception, compared with conventional metaphors and nonmetaphorical expressions. These hypotheses were tested with a single-factor (type of expression: conventional metaphor, novel metaphor, nonmetaphorical expression) between-subjects MANCOVA with cognitive text perception and affective text perception as dependent variables and perceived aptness as a covariate to control for variation in text perception across participants caused by differences in perceived aptness rather than in type of expression. The MANCOVA revealed that type of expression did not affect the different dimensions of text perception, $\lambda = .99$, $F(4, 608) = 0.54$, $p = .70$.[3] Therefore, H1a and H2a were not supported by the data. We did find an effect of the covariate, perceived aptness, $\lambda = .97$, $F(2, 304) = 4.24$ $p < .05$, $\eta_p^2 = .027$. People who perceived the news item as more apt gave higher ratings of cognitive text perception, $F(1, 305) = 5.20$ $p < .05$, $\eta_p^2 = .02$. Perceived aptness did not impact affective text perception, $F(1, 305) = .83$, $p = .36$).

H1b and H2b predicted both conventional and novel metaphors would have an impact on issue viewpoint via distinct underlying mechanisms: cognitive and affective text perception, respectively. However, for mediation to be possible, the independent variable (type of expression) should directly affect the proposed mediator (cognitive text perception, affective text perception; Hayes, 2009; Preacher & Hayes, 2008). Because type of expression did not affect text perception (cognitive, affective), we could not test for mediation of text-perception variables, and H1b and H2b were not supported by the data.

H3 argued in favor of novel metaphors over conventional metaphors to affect issue viewpoint and was tested with a single factor (type of expression: conventional metaphor, novel metaphor, nonmetaphorical expression) between-subjects MANCOVA with beliefs and attitudes as dependent variables and aptness as a covariate. The MANCOVA revealed that type of expression, $\lambda = .99$, $F(4, 608)$

---

[3] Without controlling for aptness, the MANCOVA did not reveal any effects of type of expression on cognitive and affective text perception either, $\lambda = .99$, $F(4, 610) = 0.29$, $p = .89$.

= 0.66, p = .62),[4] and the covariate of perceived aptness did not affect beliefs and attitudes, λ = .99, F(2, 304) = 1.10, p = .33. Therefore, H3 was not supported by the data.

Answering RQ1

To answer our research question, which asks how perceived aptness is related to perceived novelty and text perception, we first conducted correlation analyses (see Table 3 for correlations). Perceived aptness and perceived novelty were negatively correlated. Perceived aptness was positively related to cognitive text perception, and perceived novelty was positively related to affective text perception. To further explore possible causal relations between type of expression (conventional metaphor, novel metaphor, nonmetaphorical expression), perceived novelty and perceived aptness, and text perception (cognitive, affective), we conducted mediation analyses.

Table 3. Correlation Matrix.

| Measure	1	2	3	4	5	6
1. Perceived novelty						
2. Perceived aptness	−.31**					
3. Affective text perception	.16**	−.05				
4. Cognitive text perception	.11	.12*	.34**			
5. Beliefs about the issue	−.03	−.06	−.13*	−.06		
6. Attitude toward the issue	−.06	−.04	−.05	.00	.80**	

*Correlation is significant at .05.
**Correlation is significant at .01.

We tested whether type of expression indirectly affected text perception (cognitive, affective) via perceived novelty or perceived aptness or both. All mediation analyses were carried out using the Process macro v2.15 for SPSS statistics (Hayes, 2008; 5,000 bootstrap samples), which allows for mediation analysis with a multicategorical independent variable. For all mediation analyses, the nonmetaphorical expression served as a control condition.

First, we explored the indirect effects of type of expression on cognitive text perception by conducting a mediation analysis with perceived novelty and perceived aptness as potential mediators. This analysis showed that both perceived novelty and perceived aptness mediated the relation between type of expression and cognitive text perception, but in opposite directions. Via perceived novelty, both the conventional metaphor, b = 0.71, SE = 0.04, 95% CI [0.01, 0.17] and the novel metaphor, b = 0.14, SE = 0.07, 95% CI [0.02, 0.28], had an indirect positive effect on cognitive text perception. At the same time, via perceived aptness, both the conventional metaphor, b = −0.05, SE = 0.03, 95% CI [−0.13, −0.01], and the novel metaphor, b = −0.12, SE = 0.05, 95% CI [−0.24, −0.02], had a negative indirect effect on cognitive text perception.

---

[4] Without controlling for aptness, the MANCOVA did not reveal any effects of type of expression on beliefs and attitudes either, λ = .99, F(4, 610) = 0.45, p = .78.

Hence, as Figure 1 illustrates, our mediation analyses revealed two indirect effects of type of expression on cognitive text perception that work in opposite directions. The first effect was mediated by perceived novelty. When a metaphor was perceived as more novel, cognitive text perception was positively affected: Participants thought the text was of higher quality. The second, opposing, effect works through perceived aptness. When a metaphor was perceived as less apt, this negatively affected cognitive text perception: Participants rated the text as of lower quality. Thus, for cognitive text perception, the positive effect of perceived novelty was suppressed by a negative effect of perceived aptness.
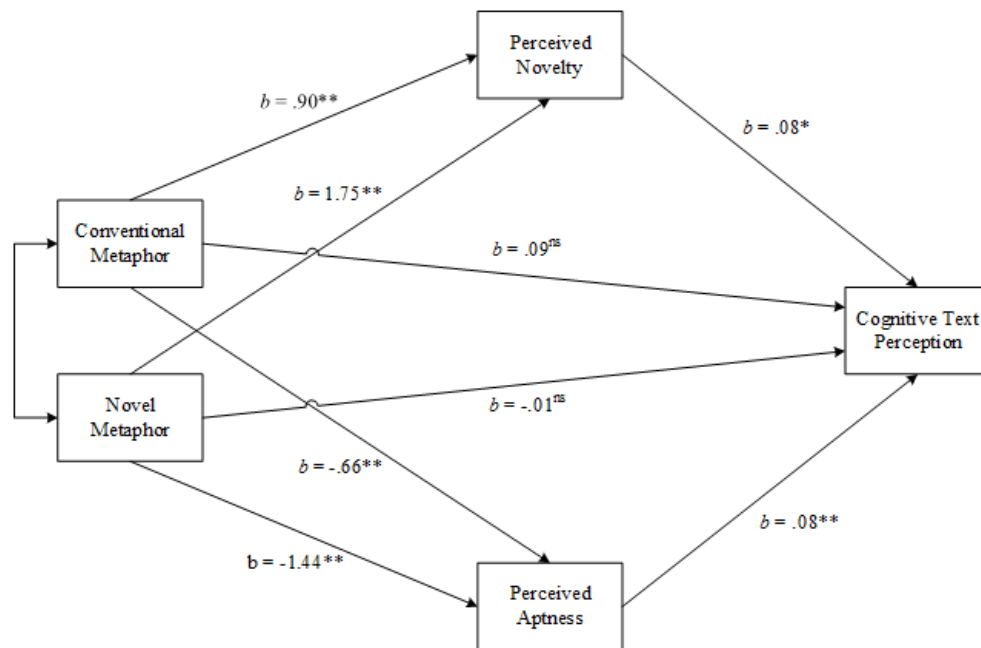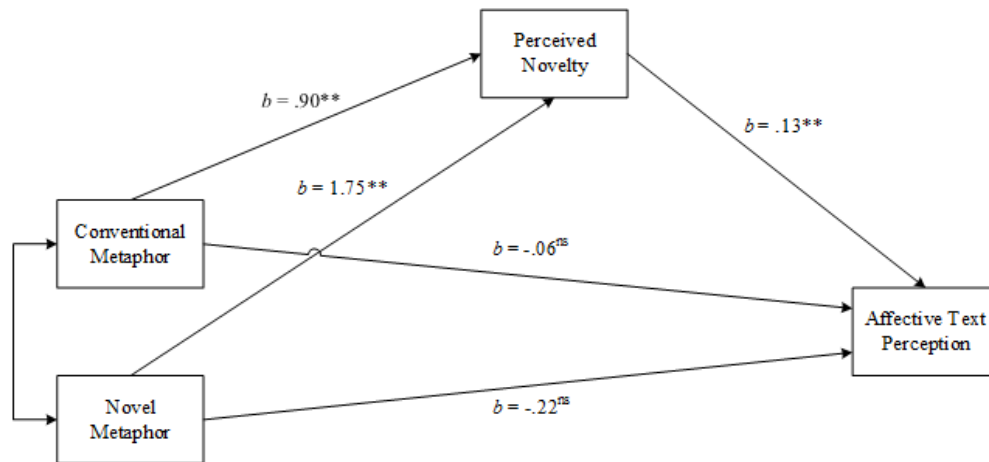

*Figure 1. Indirect effects of type of metaphorical expression on affective text perception, mediated by perceived novelty and perceived aptness. For the mediation analyses, the nonmetaphorical expression served as a baseline. *Significant at .05. **Significant at .01. ns = not significant.*

Second, we conducted a mediation analysis with type of expression as an independent variable, perceived novelty and perceived aptness as potential mediating variables, and affective text perception as a dependent variable. This analysis showed that perceived novelty, but not perceived aptness, mediated the relation between type of expression and affective text perception. Via perceived novelty, both the conventional metaphor, $b = 0.11$, $SE = 0.06$, 95% CI [0.03, 0.25], and the novel metaphor, $b = 0.22$, $SE = 0.10$, 95% CI [0.05, 0.43], had a positive indirect effect on affective text perception. Perceived aptness did not mediate this relation between type of expression and affective text perception.[5] Thus, as illustrated

---

[5] We did not find significant indirect effects of type of expression on affective text perception via perceived aptness of either the conventional metaphor, $b = 0.01$, $SE = 0.03$, 95% CI [−0.05, 0.09], or the novel

in Figure 2, when a metaphor was perceived as more novel, this led to higher ratings of affective text perception: Participants liked the text better. This positive indirect effect of type of expression on affective text perception via perceived novelty was not countered by an indirect effect of perceived aptness.

*Figure 2. Indirect effects of type of metaphorical expression on affective text perception, mediated by perceived novelty. For the mediation analyses, the nonmetaphorical expression served as a baseline. *Significant at p < .05. **Significant at p < .01. ns = not significant.*

Conclusion and Discussion

We tested which type of expression (conventional metaphor, novel metaphor, nonmetaphorical expression) in a news item had the strongest impact on issue viewpoint and through which underlying mechanism (cognitive or affective text perception) effects were established. Our initial hypotheses regarding the impact of conventional and novel metaphors on issue viewpoint and the mediating role of different dimensions of text perception (cognitive or affective) on these effects were not supported. However, additional analyses showed unexpected findings for how metaphors in news can influence people's perceptions.

Mediation analyses showed that metaphor type indirectly affected cognitive text perception via contrasting effects of perceived novelty (positive indirect effect) and via perceived aptness (negative indirect effect). Thus, we revealed a suppression effect: The two indirect effects countered each other. Metaphor type also had an indirect effect on affective text perception. However, this positive effect was mediated only by perceived novelty.

---

metaphor, b = 0.02, SE = 0.09, 95% CI [−0.10, 0.17], compared with the nonmetaphorical control expression.

We showed that metaphors work through different mechanisms evoked by two different perceptual routes of the metaphor. Via the first mechanism, evoked by the perceptual route of perceived novelty, novel metaphors positively influence text perception (both affective and cognitive). Via the second mechanism, evoked by the perceptual route of perceived aptness, novel metaphors negatively influence cognitive text perception. Therefore, the answer to our research question concerning the relation between perceived aptness, perceived novelty, and text perception provides unexpected insights into how metaphors in news items can influence people's perceptions of news.

Our findings about the relation between perceived novelty and perceived aptness are in line with results reported by other scholars (Jones & Estes, 2006; Thibodeau & Durgin, 2011). These studies note that perceptions of novelty and aptness of a certain metaphor can vary among people and across contexts (Jones & Estes, 2006; Thibodeau & Durgin, 2011), a claim that is supported by our data. In our pilot study, metaphors were perceived as equally apt presented in isolation, whereas in our main experiment, aptness differed by context as presented in a complete news item. Therefore, for future research, it is important to take context into account when measuring perceived novelty and aptness.

An explanation for the absence of direct effects of the metaphors on issue viewpoint could lie in the lack of complexity of the news item. Although we did use an abstract economic issue, cognitive text perception was relatively high for all experimental conditions ($M > 5.19$; scale max is 7), suggesting that participants did not need the metaphor to form a perception of the issue. This idea is supported by the Metaphor Processing Termination Hypothesis (Robins & Mayer, 2000), which states that metaphors are only effective in steering people's issue viewpoints when they are needed for understanding. Therefore, future research that exposes participants to a more complex news item in which a metaphor will be helpful to make sense of the issue could reveal different results.

A general explanation for the lack of direct effects of metaphor could be that our manipulation (1.7% of words in the text) was too subtle. In our stimuli, a single metaphor (*shake up* or *swap*) was presented twice: in the headline and final sentence of the text. Looking at current research (e.g., Kalmoe, 2014; Robins & Mayer, 2000), however, we note that several scholars describing the effects of single metaphors in short texts actually used extended metaphors (extending the metaphorical frame with additional metaphors derived from the same conceptual metaphors; e.g., Robins & Mayer, 2000) or extensive metaphor repetition (Kalmoe, 2014) as a manipulation. Reijnierse et al. (2015) experimentally tested whether extending a metaphor led to stronger preferences for political measures in line with the frame and showed small effects of extended metaphors on people's preferences. It would be interesting to further explore whether repeating or extending a metaphor increases its persuasive effects, and if so, whether there may be an optimum of metaphor exposure after which effects stagnate or reverse.

Future research can explore the idea that extended metaphors and metaphor repetition can establish effects that reach beyond single-word manipulations. Moreover, we advise scholars who study metaphorical framing effects to be very clear about how they manipulate their stimulus material. For example, when effects are attributed to a single metaphor in a text, the rest of the text should not contain other linguistic metaphors that could influence the impact of the stimulus metaphor. Therefore, it would be

advisable to analyze stimulus material with a metaphor identification procedure (MIPVU; e.g., Steen et al., 2010) to avoid confounding effects of any other possibly relevant metaphorical expressions.

Because the effects of metaphor type seem to be subtle and small, it would be interesting to examine whether recipients adopt the metaphorical frame and use it to reason on the issue presented. Measuring such black-box variables that form a link between input (metaphorical frame) and output (changes in issue viewpoint) could provide useful insights into the effects of metaphorical framing (Scheufele, 1999). For example, it would be interesting to explore the effects of metaphorical frames on perceived frame salience and frame importance, two conditions that, according to the literature, should be satisfied before variables such as issue viewpoint can be affected (Nelson, Clawson, & Oxley, 1997; Scheufele, 1999).

To conclude, we showed that variations in only a small part of a news item (1.7% of words) affects both cognitive and affective text perception via two distinct perceptions of the metaphor. Novel metaphors had a positive impact on both cognitive and affective text perception via perceived novelty. This positive indirect effect of novel metaphors on cognitive text perception was countered by a negative indirect effect of perceived aptness. For affective text perception, the effects of novel metaphors were mediated only by perceived novelty, not by perceived aptness. We thus showed that metaphors work through different mechanisms evoked by two different perceived characteristics of the metaphor: perceived novelty and perceived aptness. These findings suggest that metaphorical framing works more subtly than is often claimed.

References

Aday, S. (2006). The framesetting effects of news: An experimental test of advocacy over objectivist frames. *Journalism & Mass Communication Quarterly, 83*(4), 767–784. doi:10.1177/107769900608300403

Ang, S. H., & Lim, E. A. C. (2006). The influence of metaphors and product type on brand personality perceptions and attitudes. *Journal of Advertising, 35*(2), 39–53. doi:10.1080/00913367.2006.10639226

Boeynaems, A., Burgers, C., Konijn, E. A., & Steen, G. J. (2017). The effects of metaphorical framing on political persuasion: A systematic literature review. *Metaphor and Symbol, 32*(2), 118–134. doi:10.1080/10926488.2017.1297623

Bowdle, B. F., & Gentner, D. (2005). The career of metaphor. *Psychological Review, 112*(1), 193–216. doi:10.1037/0033-295X.112.1.193

Brantner, C., Lobinger, K., & Wetzstein, I. (2011). Effects of visual framing on emotional responses and evaluations of news stories about the Gaza conflict 2009. *Journalism & Mass Communication Quarterly, 88*(3), 523–540. doi:10.1177/107769901108800304

Burgers, C., Konijn, E. A., Steen, G. J., & Iepsma, M. A. (2015). Making ads less complex, yet more creative and persuasive: The effects of conventional metaphors and irony in print advertising. *International Journal of Advertising, 34*(3), 515–532. doi:10.1080/02650487.2014.996200

Cacioppo, J. T., Petty, R. E., & Feng Kao, C. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment, 48*(3), 306–307. doi:10.1207/s15327752jpa4803_13

Chang, C. T., & Yen, C. T. (2013). Missing ingredients in metaphor advertising: The right formula of metaphor type, product type, and need for cognition. *Journal of Advertising, 42*(1), 80–94. doi:10.1080/00913367.2012.749090

Charteris-Black, J. (2005). *Politicians and rhetoric: The persuasive power of metaphor*. Basingstoke, UK: Palgrave Macmillan.

Chiappe, D., Kennedy, J. M., & Smykowski, T. (2003). Reversibility, aptness, and the conventionality of metaphors and similes. *Metaphor and Symbol, 18*(2), 85–105. doi:10.1207/S15327868MS1802_2

Cornelissen, J. P., Holt, R., & Zundel, M. (2011). The role of analogy and metaphor in the framing and legitimization of strategic change. *Organization Studies, 32*(12), 1701–1716. doi:10.1177/0170840611425729

Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication, 43*(4), 51–58. doi:10.1111/j.1460-2466.1993.tb01304.x

Gibbs, R. W., & Colston, H. L. (2012). *Interpreting figurative meaning*. New York, NY: Cambridge University Press.

Gibbs, R. W., Leggitt, J. S., & Turner, E. A. (2002). What's special about figurative language in emotional communication? In S. R. Fussel (Ed.), *The verbal communication of emotions* (pp. 125–149). Mahwah, NJ: Lawrence Erlbaum.

Giora, R., Fein, O., Kronrod, A., Elnatan, I., Shuval, N., & Zur, A. (2004). Weapons of mass distraction: Optimal innovation and pleasure ratings. *Metaphor and Symbol, 19*(2), 115–141. doi:10.1207/s15327868ms1902_2

Hartman, T. K. (2012). Toll booths on the information superhighway? Policy metaphors in the case of net neutrality. *Political Communication, 29*(3), 278–298. doi:10.1080/10584609.2012.694983

Hayes, A. F. (2008). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs, 76*(4), 408–420. doi:10.1080/03637750903310360

Hoeken, H., Swanepoel, P., Saal, E., & Jansen, C. (2009). Using message form to stimulate conversations: The case of tropes. *Communication Theory, 19*(1), 49–65. doi:10.1111/j.1468-2885.2008.01332.x

Igartua, J. J., & Cheng, L. (2009). Moderating effect of group cue while processing news on immigration: Is the framing effect a heuristic process? *Journal of Communication, 59*(4), 726–749. doi:10.1111/j.1460-2466.2009.01454.x

Jansen, C., van Nistelrooij, M., Olislagers, K., van Sambeek, M., & de Stadler, L. (2010). A fire station in your body: Metaphors in educational texts on HIV/AIDS. *Southern African Linguistics and Applied Language Studies, 28*(2), 133–139. doi:10.2989/16073614.2010.519102

Jones, L. L., & Estes, Z. (2006). Roosters, robins, and alarm clocks: Aptness and conventionality in metaphor comprehension. *Journal of Memory and Language, 55*(1), 18–32. doi:10.1016/j.jml.2006.02.004

Kalmoe, N. P. (2014). Fueling the fire: Violent metaphors, trait aggression, and support for political violence. *Political Communication, 31*(4), 545–563. doi:10.1080/10584609.2013.852642

Krieger, J. L., Parrott, R. L., & Nussbaum, J. F. (2010). Metaphor use and health literacy: A pilot study of strategies to explain randomization in cancer clinical trials. *Journal of Health Communication, 16*(1), 3–16. doi:10.1080/10810730.2010.529494

Lai, V. T., Curran, T., & Menn, L. (2009). Comprehending conventional and novel metaphors: An ERP study. *Brain Research, 1284*, 145–155. doi:10.1016/j.chb.2004.10.007

Lakoff, G. (1993). The contemporary theory of metaphor. In A. Ortony (Ed.), *Metaphor and thought* (pp. 203−251). Cambridge, UK: Cambridge University Press.

Lakoff, G. (2002). *Moral politics: How liberals and conservatives think* (2nd ed.). Chicago, IL: University of Chicago Press.

Lakoff, G. (2008). *The political mind: A cognitive scientist's guide to your brain and its politics*. New York, NY: Penguin Books.

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

McCrank, J. (2014, April 7). BlackRock shakes up management amid succession planning. Reuters. Retrieved from http://www.reuters.com/article/2014/04/07/us-blackrock-management-idUSBREA350P320140407

Mio, J. S. (1997). Metaphor and politics. *Metaphor and Symbol, 12*(2), 113–133.
        doi:10.1207/s15327868ms1202_2

Mio, J. S., Thompson, S. C., & Givens, G. H. (1993). The commons dilemma as metaphor: Memory,
        influence, and implications for environmental conservation. *Metaphor and Symbol, 8*(1), 23–42.
        doi:10.1207/s15327868ms0801_2

Morris, M. W., Sheldon, O. J., Ames, D. R., & Young, M. J. (2007). Metaphors and the market:
        Consequences and preconditions of agent and object metaphors in stock market commentary.
        Organizational Behavior and Human Decision Processes, 102(2), 174–192.
        doi:10.1016/j.obhdp.2006.03.001

Nelson, T. E., Clawson, R. A., & Oxley, Z. M. (1997). Media framing of a civil liberties conflict and its effect
        on tolerance. *American Political Science Review, 91*(3), 567–583. doi:10.2307/2952075

Nelson, T. E., Lecheler, S., Schuck, A. R., & de Vreese, C. H. (2015). Value poaching: Framing the same
        values for competing political ends. *International Journal of Communication, 9*, 2881–2902.
        Retrieved from http://ijoc.org/index.php/ijoc/article/view/3233

Ortony, A. (1975). Why metaphors are necessary and not just nice. *Educational Theory, 25*(1), 45–53.
        doi:10.1111/j.1741-5446.1975.tb00666.x

Phillips, B. J., & McQuarrie, E. F. (2009). Impact of advertising metaphor on consumer belief: Delineating
        the contribution of comparison versus deviation factors. *Journal of Advertising, 38*(1), 49–62.
        doi:10.2753/JOA0091-3367380104

Pierce, R. S., & Chiappe, D. L. (2008). The roles of aptness, conventionality, and working memory in the
        production of metaphors and similes. *Metaphor and Symbol, 24*(1), 1–19.
        doi:10.1080/10926480802568422

Preacher, K., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing
        indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879–891.
        doi:10.3758/BRM.40.3.879

Read, S. J., Cesa, I. L., Jones, D. K., & Collins, N. L. (1990). When is the federal budget like a baby?
        Metaphor in political rhetoric. *Metaphor and Symbol, 5*(3), 125–149.
        doi:10.1207/s15327868ms0503_1

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*(2), 245–263. doi:10.1075/msw.5.2.04rei

Robins, S., & Mayer, R. E. (2000). The metaphor framing effect: Metaphorical reasoning about text-based dilemmas. *Discourse Processes, 30*(1), 57–86. doi:0.1207/S15326950dp3001_03

Scheufele, D. A. (1999). Framing as a theory of media effects. *Journal of Communication, 49*(1), 103–122. doi:10.1111/j.1460-2466.1999.tb02784.x

Sopory, P., & Dillard, J. P. (2002). The persuasive effects of metaphor: A meta-analysis. *Human Communication Research, 28*(3), 382–419. doi:10.1111/j.1468-2958.2002.tb00813.x

Steen, G. J., Dorst, A. G., Hermann, B., Kaal, A., Krennmayr, T., & Pasma, T. (2010). *A method for linguistic metaphor identification: From MIP to MIPVU*. Amsterdam, Netherlands: John Benjamins.

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. doi:10.1371/journal.pone.0113536

Sundar, S. S. (1999). Exploring receivers' criteria for perception of print and online news. *Journalism & Mass Communication Quarterly, 76*(2), 373–386. doi:10.1177/107769909907600213

Thibodeau, P. H., & Boroditsky, L. (2011). Metaphors we think with: The role of metaphor in reasoning. *PLoS One, 6*(2), e16782. doi:10.1371/journal.pone.0016782

Thibodeau, P. H., & Boroditsky, L. (2013). Natural language metaphors covertly influence reasoning. *PLoS One, 8*(1), e52961. doi:10.1371/journal.pone.0052961

Thibodeau, P. H., & Durgin, F. H. (2008). Productive figurative communication: Conventional metaphors facilitate the comprehension of related novel metaphors. *Journal of Memory and Language, 58*(2), 521–540. doi:10.1016/j.jml.2007.05.001

Thibodeau, P. H., & Durgin, F. H. (2011). Metaphor aptness and conventionality: A processing fluency account. *Metaphor and Symbol, 26*(3), 206–226. doi:10.1080/10926488.2011.583196

Tsfati, Y., & Nir, L. (2017). Frames and reasoning: Two pathways from selective exposure to affective polarization. *International Journal of Communication, 11*, 301–322. Retrieved from http://ijoc.org/index.php/ijoc/article/view/5793/1898

Utsumi, A. (2005). The role of feature emergence in metaphor appreciation. *Metaphor and Symbol, 20*(3), 151–172. doi:10.1207/s15327868ms2003_1

Williams, A. E., Davidson, R., & Yochim, E. C. (2011). Who's to blame when a business fails? How journalistic death metaphors influence responsibility attributions. *Journalism & Mass Communication Quarterly, 88*(3), 541–561. doi:10.1177/107769901108800305