

Top-down versus bottom-up approaches to the identification of metaphor in discourse

Tina Krennmayr, Vrije Universiteit Amsterdam (t.krennmayr@vu.nl)

Abstract

To study metaphors in discourse they must first be identified. Metaphor identification and analysis are generally approached in a top-down fashion or in a bottom-up manner. In a top-down approach, texts are searched for linguistic metaphors based on predetermined conceptual metaphors, while in a bottom-up approach linguistic metaphors are identified before conceptual mappings are formulated. These two approaches involve very different analytical steps. This paper explicitly demonstrates how the two approaches can produce disparate outcomes, including differences in (1) how mappings are formulated and (2) what kinds of source and target concepts are determined to be part of the mapping. The processes involved in the two analytical routes are demonstrated via concrete examples in the context of the five-step method developed in Steen (1999, 2009).

Um Metaphern in Texten analysieren zu können, müssen sie zuerst identifiziert werden. Die Identifikation und Analyse von Metaphern geschieht im Allgemeinen entweder deduktiv oder induktiv. Bei einem deduktiven Ansatz werden Texte, basierend auf bereits bekannten konzeptuellen Metaphern, nach linguistischen Metaphern durchsucht. Ein induktiver Ansatz hingegen identifiziert linguistische Metaphern noch bevor konzeptuelle ‚mappings‘ formuliert werden. Die beiden Herangehensweisen bringen sehr unterschiedliche analytische Schritte mit sich. Diese Arbeit demonstriert wie die zwei Ansätze zu unterschiedlichen Ergebnissen führen können. Die Unterschiede umfassen (1) wie ‚mappings‘ formuliert und (2) welche Quellen- und Zielkonzepte als Teil des ‚mappings‘ identifiziert werden. Die Prozesse, die bei den zwei analytischen Herangehensweisen eine Rolle spielen, werden mit Hilfe konkreter Beispiele im Kontext der „five-step method“ Steen (1999, 2009) erläutert.

1 Introduction

The study of metaphor in natural discourse – e.g. describing its forms and functions, its underlying mappings, or its effects on information processing – has led to growing interest in their identification in text and talk. In order to create a solid basis for analysis, metaphor identification must be systematic and reliable. There are two major approaches to identifying metaphor in discourse. The first approach is “top down” metaphor identification, in which the researcher presumes the presence of a conceptual metaphor or metaphors and then searches for linguistic expressions that are compatible with it or them. The second

approach is “bottom up” – no specific conceptual metaphor is presumed, and only at a later stage are mappings derived from the linguistic expressions that have been identified as metaphorically used.

The goal of this paper is not to favor top-down or bottom-up approaches but to stress that they can and do produce different outcomes, and hence that analysts must be aware of the differences between them. To that end, I modify Steen’s (1999, 2009) five-step method for the identification of conceptual mappings. This method provides a step-by-step protocol for formulating mappings and determining source and target concepts involved in a mapping. Because of its explicit steps, the method is particularly suited to illustrating the differences between top-down and bottom-up approaches. These differences are generic to identification protocols, however, and are thus much broader in scope than the five-step method alone. I modify the five-step method to *explicitly* incorporate top-down and bottom-up analyses, so that the analyst may determine their different outcomes, both in terms of how conceptual mappings are described and in terms of their source and target concepts.

2 Background

Work within a cognitive linguistic framework tends to favor deductive approaches to metaphor identification and analysis (e.g. Chilton, 1996; Koller, 2004; Musolff, 2004). This means that the researcher starts out either from complete conceptual metaphors or from particular source or target domains. Deductive approaches are especially useful when patterns of a large number of linguistic expressions can flesh out additional details of the proposed underlying mapping. However, some researchers (e.g. Steen, 2007, p. 27) consider the (at least temporary) assumption of conceptual metaphors as a weakness of deductive approaches. (Low, 1999, p. 49) points out the risk: without reliable procedures for identifying conceptual and linguistic metaphor, researchers may over-identify expressions matching those metaphors they have recently been working on, while simultaneously under-identifying others. Similarly, if a conceptual metaphor is presumed, an analyst may tend to find exactly the kind of evidence he or she is looking for (Cameron, 2003, p. 252). For instance, if the analyst

assumes the conceptual metaphor FOOTBALL IS WAR, he or she may be (mis)led into identifying linguistic expressions as evidence of such a mapping without considering that those very same linguistic data could be manifestations of an alternative mapping. Ritchie (2003, p. 125) writes extensively about this problem. "When a word or phrase like 'defend,' 'position,' 'maneuver,' or 'strategy' is used, there is no a priori way to determine whether the intended underlying conceptual metaphor is an athletic contest or game of chess."

This view goes against Lakoff and Johnson (1980), who have postulated single conceptual metaphors but neglected the fact that they can be interpreted in several different ways. The same is true of linguistic expressions: referring to research by Gentner and Bowdle (2001), Kövecses (1995) and Radman (1997), Ritchie (2003, p. 128) points out that "the evidence thus far is consistent with the idea that many everyday phrases represent overlapping interlocking systems of metaphor, affording many possible interpretations." Vervaeke and Kennedy (1996) also stress that a metaphor on a linguistic level may be interpreted according to multiple underlying conceptual metaphors and is not necessarily a surface expression of a single cross-domain mapping.

It is crucial, though difficult, to hold metaphors on a linguistic level and on a conceptual level apart, because they are not equivalent. "(...) linguistic forms do not express everything there is to conceptual structure" (Steen, 2007, p. 175). The relationship between these two levels of *conceptual* metaphor and *linguistic* metaphor is complex and easily conflated. Cameron (2003) notes that "the terminological distinction is not always maintained (...)" (p. 19). These concerns suggest that there may be value in an alternative approach that does not start from the presumption of existing conceptual metaphors but instead works from the bottom up, deciding on underlying conceptual structures for each individual case (e.g. Cameron, 2003; Steen, 1999). Such an inductive approach does not deny the existence of conceptual metaphors. First identifying mappings locally, however, may prevent the analyst from assuming the most (subjectively) obvious mapping right away. Although it is tempting to think of global mappings consistent with the themes of a text, the actual mapping might not fit the scenario in every instance. Shen and Balaban (1999), for instance, have shown that a sample of opinion articles that did not deliberately employ metaphorical

language contained many different conceptual metaphors, as opposed to being built around just a few. Research has also shown that metaphorical expressions may not always fit best with well-established conceptual metaphors (see Semino, 2008, p. 208ff).

3 Building from the bottom up

An example of a bottom-up procedure of metaphor identification is the five-step method proposed by Steen (1999, 2009). As an inductive approach, the five-step method formulates conceptual mappings only after linguistic metaphors have been identified. The five-step method starts out with identifying linguistic metaphors using the metaphor identification procedure 'MIP' (Pragglejaz Group, 2007) and then guides the analyst through a series of analytical steps to reveal the conceptual mappings behind the linguistic metaphor. The steps are detailed further below. The MIP procedure involves establishing a more basic sense of each lexical unit in a text and deciding whether this more basic sense can be compared to and contrasted with the contextual sense. Subsequently, the researcher determines whether the two senses can be understood in comparison with each other, and if so, the lexical unit is identified as metaphorically used. For example, *low* in 'low interest rates' has a more basic meaning, namely, physical height or distance. This more basic meaning and the contextual meaning, "small in amount or level," can be understood in comparison with each other. Therefore, *low*, in this context, is metaphorically used. The MIP procedure merely identifies linguistic metaphors as surface expressions of possible underlying cross-domain mappings, i.e. a mapping from a source to a target domain. It does *not* automatically deliver conceptual mappings. For example, using MIP, it is easy to decide that *defended* in "I defended my thesis" is metaphorically used. Whether the conceptual structure underlying *defended* is based on the source domain of WAR, SPORTS or a more general domain of PHYSICAL VIOLENCE is more difficult to nail down. The process of deriving underlying conceptual structures is not straightforward and demands its own methodological treatment. Keeping linguistic and conceptual metaphor identification separate adds rigor to the MIP method in that it restricts itself to dealing with comparing and contrasting meanings as defined in the dictionary (Steen, 2007).

A principal advantage of bottom-up analyses is that refraining from presuming conceptual metaphors, in spite of what is suggested by Lakoff and Johnson (1980), reduces the bias towards finding precisely those linguistic expressions that match the preconceived mapping. Employing MIP, a reliable procedure for identifying linguistic metaphor, prevents the researcher from seeing “(...) concrete manifestations of conceptual metaphors everywhere” (Steen, 2007, p. 27). In using MIP to find linguistic metaphor in discourse, metaphorically used words are seen as a *basis* from which to construct cross-domain mappings (e.g. Crisp, 2002, p. 7).

By applying tools such as MIP, linguistic metaphor identification has been systematized and controlled. The formulation of conceptual mappings is harder to constrain (Semino, Heywood, & Short, 2004), and has yet to be placed on an equally firm footing (Krennmayr, 2013). This is surprising insofar as the focus of conceptual metaphor theory clearly lies on the conceptual level. Conceptual metaphor theory claims that humans understand abstract domains through mappings from concrete domains derived from bodily experience: “Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature (...)” (Lakoff & Johnson, 1980, p. 3). Despite this focus on the conceptual nature of metaphors, it is unclear how Lakoff and Johnson (1980) formulate conceptual mappings. Their intuition-based work has been subject to criticism (e.g. Gibbs, 2006; Haser, 2005; Jackendoff & Aaron, 1991; Leezenberg, 2001; Murphy, 1996, 1997; Verwaeke & Green, 1997; Verwaeke & Kennedy, 1996). The Pragglejaz Group (2007) has emphasized the importance of systematic, transparent data collection that is not based on intuition but on an explicit protocol that allows testing for reliability of linguistic metaphor identification in natural discourse. It is equally important to approach the identification of conceptual mappings underlying linguistic expressions in a text in a transparent and systematic way.

Whether a bottom-up or a top-down approach to the identification of metaphors in discourse is most appropriate depends on the agenda of the researcher. For example, if researchers want to capture all metaphorical language in their data, rather than a specific selection of conceptual metaphors and their corresponding expressions, an inductive approach seems more appropriate. A

deductive approach is prone to missing metaphors because the possibilities of describing and defining conceptual metaphors are infinite and lack clear boundaries.

While differences between top-down and bottom-up approaches have previously been noted in more general terms, I am aware of no prior attempt to clearly spell out and illustrate the consequences of using one approach versus the other using concrete examples from discourse. The following sections detail the differences between analytical processes involved in a deductive versus an inductive approach. In order to clarify these differences, I use an existing protocol, the five-step method (Steen 1999, 2009), that offers a systematic step-by-step approach to describing conceptual mappings and source and target concepts involved in a mapping. While my analysis is illustrated via this particular procedure, the findings have broader relevance and are not specific to the five-step protocol.

By introducing a novel adaptation to the five-step method, I demonstrate that researchers need to be sensitive to alternative options when formulating conceptual mappings – options that may be missed when taking a top-down approach. Moreover, analysts need to be mindful that inductive and deductive approaches may identify different source and target concepts in a mapping. To demonstrate this need for caution, I analyze the conceptual structure behind three metaphorically used expressions in a business news article – *win*, *battle* and *defense*, which may intuitively be attributed to the conceptual metaphor BUSINESS IS WAR. I will discuss both methodological issues and theoretical implications.

4 Top-down versus bottom-up analyses

The inductive five-step method (Steen 1999, 2009) was developed to bridge the gap between linguistic and conceptual metaphor. It aims to arrive at conceptual mappings by guiding the analyst from the identification of linguistic metaphors, as identified through the MIP procedure, to the formulation of conceptual mappings. Before highlighting differences between top-down and bottom-up analytical processes, I present a brief demonstration of the 2009 version of the

framework using the title from Tennyson's poem "Now sleeps the crimson petal," by which the method has been demonstrated (see also Krennmayr, 2013):

Text: "Now sleeps the crimson petal"

Step 1 (identification of metaphor-related words):
sleeps

Step 2 (identification of propositions):
P1 (SLEEP_s PETAL_t)
P2 (MOD P1 NOW_t)
P3 (MOD PETAL_t CRIMSON_t)

Step 3 (identification of open comparison):
SIM { $\exists F, \exists a$
[F (CRIMSON PETAL)]_t
[SLEEP (a)]_s}

Step 4 (identification of analogical structure):
SIM
{[BE-INACTIVE (CRIMSON PETAL)]_t
[SLEEP (HUMAN)]_s}

Step 5 (identification of cross-domain mapping):
SLEEP > BE-INACTIVE
HUMAN > CRIMSON PETAL

Inferences:

GOAL OF SLEEP > GOAL OF BE-INACTIVE
TIME OF SLEEP > TIME OF BE-INACTIVE: NIGHT

In step one, metaphorically used words are identified using the MIP procedure. *Sleeps* has been identified as metaphorically used, because the contextual meaning of *sleep* can be understood in comparison with its more basic – human – sense. Steps two to five are designed to uncover the conceptual structure of *sleeps*. First, the poem's heading is deconstructed into propositions (P1, P2, and P3), using roughly the same method that van Dijk and Kintsch (1983) applied for the creation of a text-base, and a variant proposed by Bovair and Kieras (1985).

The subscript _s marks source domain concepts, while _t marks target domain concepts. Propositionalization is a way of capturing the conceptual structure of a text. The elements of the propositions stand for the concepts that may be activated through linguistic forms in the surface text (e.g. Bovair & Kieras, 1985; van Dijk & Kintsch, 1983). Kövecses (2002) points out that propositions make the metaphorical relations in a discourse explicit and help to prevent overlooking patterns of metaphor. "(...) the propositional level is needed when we want to describe metaphor in naturally occurring discourse" (p. 76). The third step creates a comparative structure between target domain elements and elements of the source domain according to a formula suggested in Miller (1993). Unknown target and source domain elements (step 3) are made explicit in step 4. Specifically, this means that the unknown concepts *F* and *a* of step three are filled with the target concept BE-INACTIVE and the source domain concept HUMAN. Step 5 arrives at a metaphorical mapping and a set of correspondences between target and source domain elements. (SLEEP is mapped onto BE-INACTIVE and HUMAN is mapped onto CRIMSON PETAL).

The following sections demonstrate the fundamental difference between deductive and inductive approaches to metaphor identification. In order to show how analytical processes differ in a bottom-up versus a top-down approach, here I develop an adapted version of the five-step method. I also show that approaching metaphor from one or the other perspective may lead to different source-target mappings.

To illustrate the different outcomes of top-down and bottom-up approaches, I apply the five-step method to three semantically related metaphorically used words in a business news report from the BNC-Baby corpus excerpted below: *winning*, *battle*, and *defense* (italics and underlined).

Container group Tiphook yesterday said that it was still confident of winning its joint £643 million bid for Sea Containers even though the battle has swung towards James Sherwood's ferries-to-trailers combine. The offer from the Anglo-Swedish consortium formed by Tiphook and Stena AB is the subject of an appeal in the Bermudan courts which is aimed at overturning an earlier ruling allowing SeaCo to proceed with its 'poison pill' defence. (A8U-fragment14)

An analyst reading the excerpt may quickly conclude that the text is built around the conceptual metaphor BUSINESS IS WAR. Selecting a source domain at the onset of research (i.e. taking a top-down approach) is a practice followed by Koller (2004), for example. Her research was driven by the assumption that business media discourse is characterized by clusters of the “WAR metaphor.” Starting from the domains of WAR, SPORTS and GAMES, she drew up semantic fields for each of them using her corpus data as well as thesauruses and glossaries. While these tools may help to constrain the assignment process (Krennmayr, 2013; Semino et al., 2004), starting from specific conceptual domains may lead to unquestioned assignment of expressions to one category without considering its potential match with another. For example, Koller identified *shoot* as a linguistic metaphor corresponding to the domain of WAR. But it is ambiguous; it could also fit with SPORTS. Koller’s research illustrates that top-down research on metaphor in discourse may not be ‘purely’ top-down, in the sense that the researcher looking at metaphor in discourse does not blindly select a conceptual metaphor or conceptual metaphors without looking at the text first. While “looking through the text” has the flavor of a bottom-up approach, I reserve the term bottom-up for cases where this process is undertaken as a systematic, vehicle-by-vehicle approach that does not presume any (pre-existing or new) conceptual mappings. In practice, a top-down approach is pointless if the analyst posits mappings that are clearly implausible; this is avoided by first reading the text before positing any mapping. Note that different analysts may still use different criteria to posit mappings, e.g. one may be inspired by a perceived theme of the text, while another may note the presence of clusters of linguistic metaphors that they suspect to align with one or several conceptual mappings. I still refer to such a scenario as top-down.

The question for the present newspaper excerpt is: Does the presence of the lexemes *battle*, *winning* and *defence* really mean that, for each of these items, the analyst can assign the mapping BUSINESS IS WAR? Analyzing the three metaphorically used lexemes in a bottom-up fashion will demonstrate that this is not the only plausible option. Moreover, my modified version of the five-step method, incorporating both deductive and inductive analysis, reveals further differences in source and target concepts formulated in each of the two

approaches. This modification of the method makes it a useful tool in sharpening researcher's awareness for alternative options.

Since my focus is on those words that are likely to be seen as evidence of the conceptual metaphor BUSINESS IS WAR, I will analyze only the words *winning*, *battle* and *defence* within the framework of the five-step method. All three words were identified as metaphorically used by the metaphor identification method MIP – step 1 of the five-step method (see Krennmayr, 2011). Each of the three lexical units will first be analyzed with a bottom-up approach and is followed by an analysis from a top-down perspective. Different outcomes between the two approaches will be highlighted.

4.1 Bottom-up versus top-down analysis of *winning*

In the first sentence of the newspaper excerpt above, one company is trying to win a bid for the acquisition of another company. In step 1, *winning* was identified as metaphorically used. Step 2 of the five-step method (Table 1) breaks down the sentence into propositions in order to turn the surface text into a textbase consisting of concepts. *S* stands for 'sentence,' *DU* means 'discourse unit' and the propositions are labeled *P*. All concepts that belong to some source domain are underlined to signal that they are used indirectly and are labeled with the subscript *s* for 'source domain.'

Table 1

Step 2: Identification of propositions

Text	Container group Tiphook yesterday said that it was still confident of <u>winning</u> its joint £643 million bid for Sea Containers even though the <u>battle</u> has <u>swung</u> towards James Sherwood's ferries-to-trailers combine.	
Step 2	S1	P1 (EVEN-THOUGH DU1 DU2)
Identifica- tion of propositions	DU1	P1 (<u>SAYS</u> _s TIPHOOK P2) P2 (BE TIPHOOK <u>CONFIDENT</u> _s) P3 (TIME P1 YESTERDAY) P4 (MOD TIPHOOK <u>GROUP</u> _s) P5 (MOD <u>GROUP</u> _s CONTAINER) P6 (MOD <u>CONFIDENT</u> _s STILL) P7 (OF <u>CONFIDENT</u> _s P8) P8 (<u>WIN</u> _s TIPHOOK <u>BID</u> _s) P9 (POSSESS THIHOOK <u>BID</u> _s) P10 (MOD <u>BID</u> _s <u>JOINT</u> _s) P11 (MOD <u>BID</u> _s MILLION) P12 (MOD MILLION £634) P13 (FOR P8 CONTAINERS) P14 (MOD CONTAINERS SEA)
	DU2	P1 (<u>SWING</u> _s <u>BATTLE</u> _s) P2 (<u>TOWARDS</u> _s P1 COMBINE) P3 (POSSESS SHERWOOD COMBINE) P4 (MOD SHERWOOD JAMES) P5 (MOD COMBINE FERRIES-TO-TRAILERS)

4.1.1 Bottom-up analysis in the five-step method

In order to demonstrate how a modification to the method allows for explicit comparison of top-down and bottom-up approaches to metaphor in discourse, we first analyze the concept WIN in proposition P8 according to the five-step procedure as originally formulated by Steen (1999, 2000).¹ This proposition contains a second metaphor-related concept (BID). Besides a metonymic

¹ The bottom-up analyses in this paper have also been described in Krennmayr (2013).

interpretation, a metaphorical one is possible as well. A *bid* is only something humans can make. In the present context an abstract entity, the company Tiphook, is making the bid, hence *bid* has been marked as metaphor-related. Since the present analysis focuses on the items *winning*, *battle* and *defence* only, other metaphorically used items such as, e.g. *bid*, are left aside. They would demand their own five-step analysis.

Step 3 (Table 2) turns the proposition P8 into an incomplete comparison between two propositions. It sets up a similarity relation (SIM) between some activity *F* and the entities TIPHOOK and BID in the target domain and the activity of WINNING and some yet-to-be-determined entities (*x* and *y*) in the source domain. This means that there is a similarity between some activity *F* in the target domain and WIN in the source domain, as well as between the entities TIPHOOK and BID in the target domain and some entities *x* and *y* in the source domain.

Table 2
Step 3: Identification of open comparison

Text	Container group Tiphook yesterday said that it was still confident of <i>winning</i> its joint £643 million bid for Sea Containers (...)
Step 3	Derived from S1-DU1-P8: (WIN _s TIPHOOK BID _s)
Identification of open comparison	SIM { $\exists F, \exists x, y$ (<i>F</i> TIPHOOK BID) _T (WIN <i>x</i> <i>y</i>) _S }

In step 4 (Table 3) the empty slots from step 3 are filled in. Unlike in Steen (1999, 2009), where this is done purely based on intuition, here the empty slots are filled using the Macmillan and Longman dictionaries as a tool. These dictionaries are also used to identify the metaphorically used words in step 1.²

² Corpus-based dictionaries have been shown to be a valuable tool for the identification of linguistic metaphor (step one of the five-step procedure) (see Steen et al., 2010). A dictionary does not automatically provide the analyst with information about whether or not a word is metaphorically used in a given context. It is still the analyst who compares and contrasts basic and contextual meanings and makes decisions about a word's metaphoricality. However, by relying on independent reference tools, the analyst's identification process is supported with carefully compiled data and allows other researchers to check and replicate the analyst's decisions. Two established procedures MIP (Pragglejaz Group, 2007) and MIPVU (Steen et al., 2010) rely heavily on the use of dictionaries in linguistic metaphor identification. Both methods

Slots *F*, *x* and *y* are filled based on the descriptions of *win* in the Macmillan and the Longman dictionaries, ‘to defeat everyone else by being the best or by finishing first in a competition’ and ‘to be the best or most successful in a competition, game, election etc.’ respectively. The concept for slot *F* (SUCCEED-IN) in the target domain is derived from the description in Longman, ‘to be the best or most successful.’ The sense descriptions in both dictionaries refer primarily to humans, which is why slot *x* in the source domain frame is filled by SOMEONE. *Win* is general and not restricted to war. The sense description that mentions the war-related meaning – ‘to achieve victory in a war, battle, or argument’ (sense 1a) – is subsumed under the general sense, ‘to defeat everyone else by being the best or by finishing first in a competition.’ Thus the general sense description is taken as a basis for selecting the concept of COMPETITION for the open *y* slot.³ The final two lines of step 4 represent an analogy between the source and the target domain. Their pairing demonstrates visually that the options for slot *y* in the source domain frame are not restricted to WAR. In order to allow for immediate recognition of which source concepts correspond to which target concepts, the formatting of steps 3 and 4 has been altered slightly from that in Steen (2009).

have been subjected to reliability tests and have proven to be reliable protocols for identifying linguistic metaphor in discourse.

When identifying linguistic metaphors, the analyst compares a word’s contextual and basic meanings as listed in a dictionary. Besides linguistic information, dictionaries also capture conceptual knowledge, since they make explicit both the concepts involved in a word’s meaning and the manner in which they are related. The analyst identifying metaphor at the conceptual level can harvest this information in order to construct mappings between source and target domain structures. Different dictionaries may have somewhat different sense descriptions and may thus at times offer differing concepts for filling in open slots of the analogy. Provided that the researcher is aware of the restrictions the use of a dictionary imposes, this should not be regarded as a weakness. Instead, the dictionary can be regarded as an independent norm of reference. Just as with the identification of metaphor on a linguistic level, the identification of conceptual mappings can be placed on a firmer footing by relying on reference tools. While they cannot completely eradicate intuition, they restrict the options for determining concepts and make the process more explicit and transparent.

³ Whether the empty slots are filled based on Longman, Macmillan or a combination thereof, is decided on a case-by-case basis. The choice depends largely on which of the dictionaries has been used for the identification of metaphor at the linguistic level and the level of generality at which the analyst decided to describe the concepts.

Table 3

Step 4: Identification of analogical structure

Text	Container group Tiphook yesterday said that it was still confident of <i>winning</i> its joint £643 million bid for Sea Containers (...)
Step 4	<u>Derived from S1-DU1-P8: (WIN_s TIPHOOK BID_s)</u>
Identification of analogical structure	SIM (SUCCEED-IN TIPHOOK BID) _{T=SUCCEEDING} (WIN SOMEONE COMPETITION) _{S=WINNING} }

Step 4 additionally involves labeling the source and target domains⁴. The domain labels should be chosen in such a way that they best describe the frames of the target and the source domain. This is challenging. The issue at hand is whether to focus on the predicates (WIN and SUCCEED-IN) or the arguments (TIPHOOK and SOMEONE and/or BID and COMPETITION), or to include both the predicates and the arguments (e.g. SUCCEEDING-IN A BID and WINNING A COMPETITION). These issues are not peculiar to this specific example but are instead a general problem and are also addressed in Semino et al. (2004, p. 1281ff). This is one of the places where analyst intuition cannot completely be eliminated. What the analyst can do, however, is to be explicit about what decisions have been made and to be consistent in applying them. Since the primary interest in this example lies in the conceptual structure of *winning*, the domains are labeled with regard to the predicate.

The structure of the mapping in step 5 (Table 4) is derived from the domain labels in step four, leading to the general mapping SUCCEEDING IS WINNING. Although we might have guessed this from the basic and contextual meanings, the framework of the five-step method has made it explicit.

⁴ This is a novel addition to the original five-step procedure. It has been developed in a collaborative effort with Dorst, A.G., Herrmann, J.B, Kaal, A.A., Pasma, T., Steen, G.J.

Table 4
Step 5: Identification of cross-domain mapping

Text	Container group Tiphook yesterday said that it was still confident of <u>winning</u> its joint £643 million bid for Sea Containers (...)															
Step 5	<u>Derived from S1-DU1-P8: (WIN_s TIPHOOK BID_s)</u>															
Identification of cross-domain mapping	<table> <tr> <td>T</td> <td></td> <td>S</td> </tr> <tr> <td>SUCCEED</td> <td>←</td> <td>WIN</td> </tr> <tr> <td>TIPHOOK</td> <td>←</td> <td>SOMEONE</td> </tr> <tr> <td>BID</td> <td>←</td> <td>COMPETITION</td> </tr> <tr> <td colspan="3">SUCCEEDING IS WINNING</td> </tr> </table>	T		S	SUCCEED	←	WIN	TIPHOOK	←	SOMEONE	BID	←	COMPETITION	SUCCEEDING IS WINNING		
T		S														
SUCCEED	←	WIN														
TIPHOOK	←	SOMEONE														
BID	←	COMPETITION														
SUCCEEDING IS WINNING																

4.1.2 Modification of the five-step method

How can we transparently compare and assess the consequences of top-down and bottom-up approaches? Answering this question lies at the center of this article. Within the context of the five-step method, doing so requires breaking up step 4 into two substeps. The differences between top-down and bottom-up thinking begin to surface in step 4, where empty slots are filled and the source and the target domain are labeled. In a bottom-up approach, the analyst first fills the empty slots of the open comparison and only then derives the labels for the source and the target domain. A top-down approach takes the opposite route. A presumed mapping is formulated as an initial step. Therefore, the analyst first names the source and target domain and only then works out concepts involved in the mapping. In order to make these different thought processes explicit, I break up step 4 into step 4a and step 4b. Table 5 delineates the substeps in both a bottom-up approach (left) and a top-down approach (right).

Table 5
Different processes in bottom-up and top-down approaches

step	bottom-up approach	top-down approach
Step 4a	identification of concepts involved in the mapping	identification of source and target domain
Step 4b	identification of source and target domain	identification of concepts involved in the mapping

In order to demonstrate this further development of the five-step procedure, an adapted version of step four for a bottom-up analysis of *winning* is shown in Table 6. This is followed by a top-down analysis of *winning*, illustrated in Table 7.

Table 6
Adaptation of step four in the five-step method - bottom-up analysis of 'winning'

Text	Container group Tiphook yesterday said that it was still confident of <i>winning</i> its joint £643 million bid (...)
Step 4a	<u>Derived from S1-DU1-P8: (WIN_s TIPHOOK BID_s)</u>
Identification of concepts involved in the mapping	SIM (SUCCEED-IN TIPHOOK BID) _T (WIN SOMEONE COMPETITION) _s }
Step 4b	<u>Derived from S1-DU1-P8: (WIN_s TIPHOOK BID_s)</u>
Identification of source and target domain	SIM (SUCCEED-IN TIPHOOK BID) <small>T=SUCCEEDING</small> (WIN SOMEONE COMPETITION) _{S=WINNING} }

By splitting step 4 into step 4a (identification of concepts involved in the mapping) and step 4b (identification of source and target domain), the thought processes in bottom-up approaches are made explicit. In step 4a the analyst finds appropriate source and target concepts to fill the open slots created in step 3, as has been detailed above. In the present example these are the concepts SOMEONE and COMPETITION in the source domain frame and SUCCEED-IN in the target

domain frame. Only after the slots have been filled is the researcher concerned with formulating source and target domains that are representative of the analogy. This is step 4b, where the domains are labeled as WINNING (source domain) and SUCCEEDING (target domain).

In a top-down process (Table 7), step 4a and 4b are applied in the exact opposite order. The researcher starts out from the assumed conceptual metaphor BUSINESS IS WAR, which intuitively matches the metaphorically used lexemes *win*, *defense*, and *battle*. Therefore, the first step in filling in the open comparison is to name the domains, as detailed in step 4a. Derived from the conceptual metaphor, the target domain frame is labeled BUSINESS and the source bracket is labeled WAR. Based on these domain labels, the analyst then fills in the open slots of step 3. In order to simulate a traditional top-down approach, slots could be filled purely based on intuition, guided by the presumed conceptual metaphor BUSINESS IS WAR. However, in order to ensure comparability with a bottom-up approach for which dictionaries were used as a tool to find mapped concepts, we also employ dictionaries for filling the slots in a top-down approach. Contrary to the inductive approach, now only entries that best reflect the presumed source domain and target domain, here WAR and BUSINESS, are considered.

Table 7

Adaptation of five-step method – top-down analysis of ‘winning’

Text	Container group Tiphook yesterday said that it was still confident of <i>winning</i> its joint £643 million bid (...)
Step 3 Identification of open comparison	Derived from S1-DU1-P8: (<u>WIN</u> _s TIPHOOK <u>BID</u> _s) SIM { $\exists F, \exists x, y$ (F TIPHOOK BID) _T (WIN x y) _s }
Step 4a Identification of source and target domain	Derived from S1-DU1-P8: (<u>WIN</u> _s TIPHOOK <u>BID</u> _s) SIM (F TIPHOOK BID) _{T=BUSINESS} (WIN x y) _{S=WAR} }
Step 4b Identification of concepts involved in the mapping	Derived from S1-DU1-P8: (<u>WIN</u> _s TIPHOOK <u>BID</u> _s) SIM (SUCCEED-IN TIPHOOK BID) _{T=BUSINESS} (WIN COUNTRY WAR) _{S=WAR} }

Step 5	Derived from S1-DU1-P8: (<u>WIN</u> _s TIPHOOK <u>BID</u> _s)	
Identification of cross-domain mapping	T	S
	SUCCEED ←	WIN
	TIPHOOK ←	COUNTRY
	BID ←	WAR
	BUSINESS IS WAR	

SUCCEED-IN is chosen to fill the open target domain slot, just as in the bottom-up analysis presented above. The dictionary entries for *win* in Macmillan contain a reference to *war* ('to achieve victory in a war, battle, or argument'), which is why WAR is filled into the open source domain slot *y*. Since there is no reference to an agent, a check of the dictionary entry for *war* is helpful: 'fighting between two or more countries that involves the use of armed forces and usually continues for a long time.' Based on this sense description, the concept COUNTRY is chosen for slot *x* as a match to the source domain WAR.

As can be seen from step 5, the source and target correspondences extracted in top-down and bottom-up approaches differ. While they are more general in an inductive approach (SOMEONE was mapped onto TIPHOOK and COMPETITION onto BID), in a deductive approach they are specific to the concept of WAR (COUNTRY is mapped onto TIPHOOK and WAR onto BID).

4.2 Bottom-up versus top-down analysis of *battle*

The previous section analyzed the conceptual structure behind *winning* from both a top-down and a bottom-up perspective by introducing a modification to Steen's five-step method. To further illustrate the new, modified method, we now apply the same analysis technique to *battle* in "the battle has swung towards James Sherwood's ferries-to-trailers combine." The metaphorical concept BATTLE in propositions P1 and P2 (Table 1) of the second discourse unit is put through the five steps in the same way as *winning* in section 4.1.2. I first subject it to a bottom-up analysis, followed by a top-down analysis. As with the previous example, BATTLE is not the only metaphorical concept in the proposition. The additional metaphorical concepts SWING and TOWARDS would need their own five-step

analysis. Since the present analysis focuses on the conceptual structure of BATTLE, these other metaphorical concepts are left aside in order to keep the analysis as transparent as possible. I therefore posit the target domain equivalent CHANGE-IN-FAVOR-OF for the source domain concepts SWING and TOWARDS and focus on the analysis of BATTLE as shown in Table 8. Step two has already been spelled out in Table 1, so Table 8 lists steps 3 to 5 only.

4.2.1 Bottom-up analysis of *battle*

Step 3 sets up an open comparison that is completed in step 4a. The open slot *y* in step 4a is filled based on the sense descriptions for *battle* in Longman, ‘a fight between opposing armies, groups of ships, groups of people etc., especially one that is part of a larger war.’ The dictionary lists a range of specific entities. In such cases, I prescribe choosing a more general concept that encompasses the dictionary entries – in this case, OPPONENT. The open target domain slot *a* is filled with the concept COMPETITION derived from the sense description in Macmillan, ‘a situation in which different people or groups compete with each other in order to achieve something or get an advantage.’

The domains need to be labeled before we can move on to step 5. Domain labeling is a challenging task. Cameron (2003, p. 252), Jackendoff and Aaron (1991, p. 324) and Vervaeke and Kennedy (1996, p. 276), for instance, note the difficulty of establishing the right level of generality. For Vervaeke and Kennedy (1996, p. 276), “any claim about a particular implicit metaphor is open to this charge – a slightly higher or lower level of generality can always be devised.” Littlemore and Low (2006, p. 13) note that “we can never be sure about our formulations [of mappings]. Essentially, we have to guess.” Though difficult, it is important to be transparent about how source and target domains are generated (see Low, 2003).

In order to show that the two domains involved may be labeled at different levels of abstraction, I present two options. The source and target domain labels (BATTLE and COMPETITION) are derived from the first argument slot. The domain labeling on a higher level of abstraction is derived using the hypernym function of WordNet. The hypernym for *competition* in a business context is “business

relation.” The hypernym for *battle* in its military sense is “military action.” Step 5 then formulates the full mapping – either as a COMPETITION IS A BATTLE or a BUSINESS RELATION IS MILITARY ACTION. The choice of level at which the mapping is pitched is ultimately up to the analyst, but using tools such as Wordnet adds transparency to the process. Wordnet supports the analyst in finding the next level of abstraction and in formulating the mapping. For more on the systematic use of Wordnet in domain labeling see Krennmayr (2013).

Table 8
Bottom-up analysis of ‘battle’ (steps 3-5)

Text	(...) even though the <i>battle</i> has swung towards James Sherwood’s ferries-to-trailers combine.
Step 3 Identification of open comparison	Derived from S1-DU2-P1: (SWING _s BATTLE _s) and S1-DU2-P2: (TOWARDS _s P1 COMBINE) SIM { $\exists a, \exists G, y$ (CHANGE-IN-FAVOR-OF <i>a</i> COMBINE) _T (<i>G</i> BATTLE <i>y</i>) _s }
Step 4a Identification of concepts involved in the mapping	Derived from S1-DU2-P1: (SWING _s BATTLE _s) and S1-DU2-P2: (TOWARDS _s P1 COMBINE) SIM (CHANGE-IN-FAVOR-OF COMPETITION COMBINE) _T (CHANGE-IN-FAVOR-OF BATTLE OPPONENT) _s }
Step 4b Identification of source and target domain	Derived from S1-DU2-P1: (SWING _s BATTLE _s) and S1-DU2-P2: (TOWARDS _s P1 COMBINE) SIM (CHANGE-IN-FAVOR-OF COMPETITION COMBINE) _{T=COMPETITION >} <small>BUSINESS RELATION</small> (CHANGE-IN-FAVOR-OF BATTLE OPPONENT) _{S= BATTLE > MILITARY ACTION} }
Step 5 Identification of cross-domain mapping	Derived from S1-DU2-P1: (SWING _s BATTLE _s) and S1-DU2-P2: (TOWARDS _s P1 COMBINE) T S CHANGE-IN-FAVOR-OF ← CHANGE-IN-FAVOR-OF COMPETITION ← BATTLE COMBINE ← OPPONENT A COMPETITION IS A BATTLE

To summarize, the bottom-up analysis of *battle*, in contrast to the bottom-up analysis of *win* above, does lead to a mapping that is in line with the well-

known conceptual metaphor BUSINESS IS WAR. Both the conceptual mapping and the domain labels can be formulated at different levels of abstraction (e.g. BATTLE versus MILITARY ACTION). Depending on which level the analyst chooses he or she will arrive at either the mappings A BUSINESS RELATION IS MILITARY ACTION or A COMPETITION IS A BATTLE. Regardless of what level an analyst chooses, WordNet helps him or her to navigate through different levels of abstraction and constrains the options.

4.2.2 Top-down analysis of *battle*

The bottom-up analysis of *battle* performed in the previous section has arrived at a mapping in line with the BUSINESS IS WAR metaphor. In order to check whether a top-down analysis of *battle* also yields the same source and target concepts as in the bottom-up approach, it is now subjected to a deductive analysis (Table 9). As in the top-down analysis of *winning*, the domains are labeled first (BUSINESS and WAR) based on the conceptual metaphor BUSINESS IS WAR (step 4a). Based on these labels, the open slots from step 3 are filled in step 4b. COMPETITION is chosen as a target domain equivalent of BATTLE. The open argument slot of the source domain bracket is filled with the concept OPPOSING ARMY, based on the sense description of *battle* – ‘a fight between opposing armies, groups of ships, groups of people etc, especially one that is part of a larger war’ – from Longman.

The conceptual mapping BUSINESS IS WAR is closely related to the mapping found in a bottom-up analysis of BATTLE (COMPETITION IS A BATTLE). However, the concepts involved in the mapping are not quite the same. The inductive approach suggests a mapping from OPPONENT to COMBINE (James Sherwood’s ferries-to-trailers combine), which is compatible with a WAR source domain but not necessarily prototypical. The deductive approach aligns the concepts COMBINE and OPPOSING ARMY. The latter is more directly connected to a WAR domain than the concept OPPONENT.

The systematic analysis via the modified version of the five-step method makes these differences explicit and makes the researcher aware of plausible options he or she needs to consider. Opposing the two approaches within one methodological framework is thus a useful tool to the analyst.

Table 9
Top-down analysis of 'battle'

Text	(...) even though the <i>battle</i> has swung towards James Sherwood's ferries-to-trailers combine.
Step 3 Identification of comparison	Derived from S1-DU2-P1: (SWING _s BATTLE _s) and S1-DU2-P2: (TOWARDS _s P1 COMBINE) SIM { $\exists G, \exists a, y$ (CHANGE-IN-FAVOR-OF a COMBINE) _T (G BATTLE y) _S }
Step 4a Identification of source and target domain	Derived from S1-DU2-P1: (SWING _s BATTLE _s) and S1-DU2-P2: (TOWARDS _s P1 COMBINE) SIM (CHANGE-IN-FAVOR-OF a COMBINE) _{T=BUSINESS} (G BATTLE y) _{S=WAR} }
Step 4b Identification of concepts involved in the mapping	Derived from S1-DU2-P1: (SWING _s BATTLE _s) and S1-DU2-P2: (TOWARDS _s P1 COMBINE) SIM (CHANGE-IN-FAVOR-OF COMPETITION COMBINE) _{T=BUSINESS} (CHANGE-IN-FAVOR-OF BATTLE OPPOSING ARMY) _{S=WAR} }
Step 5 Identification of cross-domain mapping	Derived from S1-DU2-P1: (SWING _s BATTLE _s) and S1-DU2-P2: (TOWARDS _s P1 COMBINE) T S CHANGE-IN-FAVOR-OF ← CHANGE-IN-FAVOR-OF COMPETITION ← BATTLE COMBINE ← OPPOSING ARMY BUSINESS IS WAR

4.3 Bottom-up versus top-down analysis of *defence*

An inductive approach to the analysis of *winning* suggests multiple plausible formulations of the underlying mapping, which are different from the presumed metaphor BUSINESS IS WAR in a top-down approach. Differences in the formulation of source and target concepts have also been revealed. While the conceptual mapping behind the linguistic metaphor *battle* was formulated similarly in both approaches, the concepts that are part of that mapping differed. The two analyses already suggest that caution is in order when describing conceptual metaphors

and mapped concepts that underlie metaphorically used expressions that are part of an extended mapping. To underscore the generality of our finding, we now look at the third semantically related metaphorical expression in the news text, namely *defence*, which is part of the second sentence (S2) of the business report.

The offer from the Anglo-Swedish consortium formed by Tiphook and Stena AB is the subject of an appeal in the Bermudan courts which is aimed at overturning an earlier ruling allowing SeaCo to proceed with its 'poison pill' *defence*.

As with the metaphorically used words in the previous analysis, *defence* is analyzed from both a bottom-up and a top-down perspective. The analyses proceed in a manner identical to the two lexical items above. In lieu of reporting details of the analysis, we simply state the results.

In a bottom-up analysis, the target domain side of the comparison comprises the concepts CONTINUE, SEACO and PREVENT-ACQUISITION. The source domain frame yields the concepts CONTINUE, SOMEONE/SOMETHING and DEFENCE. Depending on the desired level of abstraction, the mapping is formulated as PREVENT-ACQUISITION IS DEFENCE, HINDRANCE IS PROTECTION or HINDRANCE IS PHYSICAL CONFLICT. Thus, the bottom-up analysis of *defence* suggests a mapping more general than BUSINESS IS WAR, the mapping that an analyst taking the top-down route would likely start out with.

Whether or not the source and target concepts involved in the mapping also differ, can be checked by putting *defence* through the five-step method in a top-down fashion. Similar to the other two analyzed lexemes, the concepts that are part of the cross-domain mapping are not quite the same in the two analytical procedures. Using the top-down approach, the source concept COUNTRY is mapped onto SEACO. This contrasts with the results for the bottom-up approach, which suggests a more general concept (SOMEONE/SOMETHING). In addition, the bottom-up procedure suggests a more general source domain than WAR, namely PHYSICAL CONFLICT. This reflects a conceptual mapping that encompasses physical conflict more generally.

5 Discussion

Identifying and describing linguistic metaphor and its underlying mappings in discourse can be approached with deductive and inductive methods. One approach is not inherently better than the other; the appropriate choice depends on the research question or the kind of data under analysis. However, regardless of which approach is chosen, the analyst needs to be aware of the consequences of selecting one approach and not the other. I have made this explicit by opposing deductive and inductive thought processes through a modification to the five-step method (Steen 1999, 2009). This adaptation allows the analyst to look critically at the data and his or her analysis.

Applying the method to three semantically related lexical units has demonstrated the need for careful, conscientious analysis. My analysis has revealed that deductive and inductive thinking can lead to different outcomes. Results differ, first, in terms of the conceptual mappings they suggest and, second, in terms of the concepts involved on the source domain and the target domain side of the analogy. Table 10 provides a comparative overview of the results for cross-domain mappings.

Table 10

Cross-domain mappings for bottom-up versus top-down approaches for 'winning,' 'battle,' and 'defence'

lexeme	bottom-up		top-down	
<i>winning</i>	T	S	T	S
	SUCCEED	← WIN	SUCCEED	← WIN
	TIPHOOK	← SOMEONE	TIPHOOK	← COUNTRY
	BID	← COMPETITION	BID	← WAR
	SUCCEEDING IS WINNING		BUSINESS IS WAR	
<i>battle</i>	T	S	T	S
	CHANGE-IN-FAVOR-OF	← CHANGE-IN-FAVOR-OF	CHANGE-IN-FAVOR-OF	← CHANGE-IN-FAVOR-OF
	COMPETITION	← BATTLE	COMPETITION	← BATTLE
	COMBINE	← OPPONENT	COMBINE	← OPPOSING ARMY
	A COMPETITION IS A BATTLE		BUSINESS IS WAR	
<i>defence</i>	T	S	T	S
	CONTINUE	← CONTINUE	CONTINUE	← CONTINUE
	SEACO	← SO./STH.	SEACO	← COUNTRY
	PREVENT-ACQUISITION	← DEFENCE	PREVENT-ACQUISITION	← DEFENCE
	PREVENT-ACQUISITION IS DEFENCE		BUSINESS IS WAR	

Approaching the analyses step-by-step has demonstrated that when matching linguistic expressions and conceptual mappings, caution is in order. A set of linguistic evidence that intuitively belongs to the exact same mapping can be interpreted in several different ways. There may be more than one plausible source or target concept and different ways of formulating cross-domain mappings.

These insights fully agree with Semino's (2005) corpus study of aggression-related metaphors for communication in news reports (e.g. "*firing* questions," "The chancellor also *defended* his stand (...)," "M Delors *attacked* M Balladur's idea" etc. (p. 51)). Based on her findings she argues for a more general conceptual

metaphor ANTAGONISTIC COMMUNICATION IS PHYSICAL AGGRESSION instead of an ARGUMENT IS WAR mapping. The source domain of physical conflict and aggression for her corpus examples ranged from “fisticuffs through armed attack to full-blown war” (Semino, 2008, p. 210). The present five-step analysis suggests that the same is true for expressions that have been cited as evidence for a BUSINESS IS WAR metaphor. Words like *winning* or *defence* may be best explained in terms of physical violence generally. Their underlying conceptual structure is thus also better captured by a more general PHYSICAL CONFLICT source domain. This is an important theoretical implication of the present analysis: bottom-up approaches may yield descriptions of mappings that are not necessarily identical to those conceptual metaphors proposed in the cognitive linguistic literature (see also Cameron, 2003).

The modified five-step method helps the analyst to develop awareness of the challenges involved in determining what kind of concepts are mapped onto which target concepts and how the complete mapping may be formulated. Such a fine-grained view of linguistic data may be overlooked when particular conceptual metaphors that seem to intuitively fit a number of metaphorical expressions in the text are assumed a priori.

This has important consequences for experimental research, for instance studying the effects of metaphors on readers of a text. For example, while *win* in the present example frames the text in terms of competition, *battle* frames it as war. It may be that the passage achieves its effects by blending these different realms of experience. Such subtlety would be missed by a top-down approach. Research suggests that processing of metaphorical expressions by the language user may not completely correspond to the overall patterns of meanings described by conceptual metaphor theory (e.g., Gentner & Bowdle, 2001; Keysar, Shen, Glucksberg, & Horton, 2000). Another implication for metaphor comprehension research, therefore, is the matter of ambiguous metaphor – metaphors that can be and often are understood by different hearers or readers in terms of entirely different vehicles with distinct underlying conceptual metaphors (Ritchie, 2006; Ritchie & Dyhouse, 2008). For example, Ritchie notes that ‘toe the line’ may sometimes be written and understood as ‘tow the line’. These realize different conceptual metaphors that come with different entailments

(passive versus active compliance) and are thus interpreted in different ways. Top-down analysis is unlikely to deal adequately with such issues. It tends to pay insufficient attention to alternative explanations (Steen, 2007) and may be too crude for looking at specific instances in context. A bottom-up analysis, therefore, promises to be particularly useful for assisting the design of experimental material for testing metaphor processing, metaphor comprehension, or metaphor appreciation. Inductive approaches are also useful for research that attempts to describe all metaphors in discourse, regardless of what kind of conceptual metaphors they may manifest, and to uncover the conceptual structure behind linguistic metaphors in (stretches of) text. A top-down method is less adequate for such an endeavor because there is no exhaustive list of well-defined conceptual metaphors (Steen, Dorst, Herrmann, Kaal, & Krennmayr, 2010).

Of course, deductive approaches have their own merits. They may be particularly useful if the goal is to flesh out additional details of proposed underlying mappings by examining patterns in a large number of linguistic expressions (e.g., Charteris-Black, 2004; Deignan, 2005). A top-down approach may also be superior for working with very large amounts of data, since a bottom-up vehicle-by-vehicle approach is practically limited in scale.

In more general terms, this analysis shows that metaphor identification needs to be based less on intuition and more on an explicit procedure that helps control the process of formulating conceptual mappings and determining concepts that are involved in the mapping. The discussion presented here has broader relevance beyond the five-step method because, independent of the metaphor identification method used, any research on metaphor in discourse must make choices regarding top-down and bottom-up methodologies and must confront the consequences of these choices.

References

- Bovair, S., & Kieras, D. (1985). A guide to propositional analysis for research on technical prose. In B. Britton & J. Black (Eds.), *Understanding expository text* (pp. 315-362). Hillsdale, NJ: Lawrence Erlbaum.
- Cameron, L. (2003). *Metaphor in educational discourse*. London; New York: Continuum.
- Charteris-Black, J. (2004). *Corpus approaches to critical metaphor analysis*. Houndmills, Basingstoke; Hampshire, New York: Palgrave Macmillan.
- Chilton, P. (1996). *Security metaphors: Cold war discourse from containment to common house*. New York: Peter Lang.
- Crisp, P. (2002). Metaphorical propositions: a rationale. *Language and Literature*, 11(1), 7-16.
- Deignan, A. (2005). *Metaphor and corpus linguistics*. Amsterdam; Philadelphia: John Benjamins.
- Gentner, D., & Bowdle, B. (2001). Convention, form, and figurative language processing. *Metaphor and Symbol*, 16, 223-247.
- Gibbs, R. W. (2006). Introspection and cognitive linguistics. Should we trust our own intuitions? *Annual Review of Cognitive Linguistics*, 4, 135-151.
- Haser, V. (2005). *Metaphor, metonymy, and experientialist philosophy. Challenging cognitive semantics*. Berlin; New York: Mouton de Gruyter.
- Jackendoff, R., & Aaron, D. (1991). Review Article. More than cool reason: A field guide to poetic metaphor by George Lakoff and Mark Turner. *Language*, 67(2), 320-338.
- Keysar, B., Shen, Y., Glucksberg, S., & Horton, W. S. (2000). Conventional language: How metaphorical is it? *Journal of Memory and Language*, 43, 576-593.
- Koller, V. (2004). *Metaphor and gender in business media discourse: a critical cognitive study*. Basingstoke; New York: Palgrave Macmillan.
- Kövecses, Z. (1995). American friendship and the scope of metaphor. *Cognitive Linguistics*, 6-4, 315-346.
- Kövecses, Z. (2002). Cognitive-linguistic comments on metaphor identification. *Language and Literature*, 11(1), 74-78.
- Krennmayr, T. (2011). *Metaphor in newspapers*. Utrecht: LOT.

- Krennmayr, T. (2013). Adding transparency to the identification of cross-domain mappings in discourse. *Review of Cognitive Linguistics*, 11(1), 163-184.
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago; London: University of Chicago Press.
- Leezenberg, M. (2001). *Contexts of metaphors*. Amsterdam: Elsevier.
- Littlemore, J., & Low, G. (2006). *Figurative thinking and foreign language learning*. Houndmills, Basingstoke; New York: Palgrave Macmillan.
- Low, G. (1999). Validating metaphor research projects. In L. Cameron & G. Low (Eds.), *Researching and applying metaphor* (pp. 48-65). Cambridge: Cambridge University Press.
- Low, G. (2003). Validating metaphoric models in applied linguistics. *Metaphor and Symbol*, 18(4), 239-254.
- Miller, G. A. (1993). Images and models, similes and metaphors. In A. Ortony (Ed.), *Metaphor and thought* (pp. 357-400). Cambridge: Cambridge University Press.
- Murphy, G. L. (1996). On metaphoric representation. *Cognition*, 60, 173-204.
- Murphy, G. L. (1997). Reasons to doubt the present evidence for metaphoric representation. *Cognition*, 62, 99-108.
- Musolff, A. (2004). *Metaphor and political discourse: Analogical reasoning in debates about Europe*. Houndmills, Basingstoke: Palgrave Macmillan.
- Pragglejaz Group. (2007). MIP: A method for identifying metaphorically used words in discourse. *Metaphor and Symbol*, 22(1), 1-39.
- Radman, Z. (1997). Difficulties with diagnosing the death of a metaphor. *Metaphor and Symbol*, 16(1&2), 109-121.
- Ritchie, D. (2003). ARGUMENT IS WAR - Or is it a game of chess? Multiple meanings in the analysis of implicit metaphors. *Metaphor and Symbol*, 18, 125-146.
- Ritchie, D. (2006). *Context and connection in metaphor*. Houndmills, Basingstoke; New York: Palgrave Macmillan.
- Ritchie, D., & Dyhouse, V. (2008). Hair of the Frog and other Empty Metaphors: The Play Element in Figurative Language. *Metaphor and Symbol*, 23(2), 85-107.
- Semino, E. (2005). The metaphorical construction of complex domains: the case of speech activity in English. *Metaphor and Symbol*, 20(1), 35-69.

- Semino, E. (2008). *Metaphor in discourse*. Cambridge: Cambridge University Press.
- Semino, E., Heywood, J., & Short, M. H. (2004). Methodological problems in the analysis of a corpus of conversations about cancer. *Journal of Pragmatics*, 36(7), 1271-1294.
- Shen, Y., & Balaban, N. (1999). Metaphorical (in)coherence in discourse. *Discourse Processes*, 28(2), 139-153.
- Steen, G. J. (1999). From linguistic to conceptual metaphor in five steps. In R. W. Gibbs & G. J. Steen (Eds.), *Metaphor in cognitive linguistics* (pp. 57-77). Amsterdam: John Benjamins.
- Steen, G. J. (2007). *Finding metaphor in grammar and usage*. Amsterdam; Philadelphia: John Benjamins.
- Steen, G. J. (2009). From linguistic form to conceptual structure in five steps: analyzing metaphor in poetry. In G. Brône & J. Vandaele (Eds.), *Cognitive poetics* (pp. 197-226). Berlin; New York: Mouton de Gruyter.
- Steen, G. J., Dorst, A. G., Herrmann, J. B., Kaal, A. A., & Krennmayr, T. (2010). Metaphor in usage. *Cognitive Linguistics*, 21(4), 765-796.
- Van Dijk, T. A., & Kintsch, W. (1983). *Strategies of discourse comprehension*. New York; London; Paris; San Diego; San Francisco; Sao Paulo; Sydney; Tokyo; Toronto: Academic Press.
- Verwaeke, J., & Green, C. D. (1997). Women, fire, and dangerous things: A critique of Lakoff's theory of categorization. *Metaphor and Symbol*, 12(1), 59-80.
- Verwaeke, J., & Kennedy, J. M. (1996). Metaphors in language and thought: Falsification and multiple meanings. *Metaphor and Symbolic Activity*, 11(4), 273-284.