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Methodological approaches to metaphors in language
From linguistic to conceptual metaphors
Alice Deignan

INTRODUCTION

From the earliest writing on Conceptual Metaphor Theory (CMT, see Chapter 2, this volume) to the present, linguistic metaphors have been the main type of evidence provided in support of the existence of conceptual metaphors. For instance, the classic work by Lakoff and Johnson (1980) begins with a discussion of the well-known ARGUMENT IS WAR mapping. Lakoff and Johnson write that ‘this metaphor is reflected in our everyday language by a wide variety of expressions’ (p. 4) among which they list ‘your claims are indefensible... He attacked every weak point in my argument... His criticisms were right on target’ (ibid). In 1993, by which time CMT had become the established paradigm in metaphor studies, Lakoff published a book chapter setting out his position on metaphor in thought and language. He cited five types of evidence for the existence of conceptual metaphors. Of the three that he describes as ‘the most robust’ (1993: 205), two are linguistic: ‘Generalizations governing polysemy’ and ‘Generalizations governing novel metaphorical language’ (ibid). He goes on to cite many lists of linguistic metaphors as evidence for the conceptual metaphors believed to underlie and motivate them. To date, numerous other publications in this tradition have cited lists of linguistic metaphors as evidence for conceptual metaphors. In 2014, for instance, Rojas-Sosa proposed twelve conceptual metaphors for love based on Spanish language data. These included THE OBJECT OF DESIRE IS A FIELD, for which the evidence cited is the linguistic metaphors in the expression ‘Un terreno fértil donde dejar huellas’ translated by the author as ‘[I am looking for] a fertile terrain where I can leave footprints’ (2014: 205).

In many studies within the discourse tradition, proposing conceptual metaphors is part of a larger set of claims. One tenet of CMT is that metaphors are ideological, and there is a rich strand of literature in which the analysis of linguistic metaphors to identify conceptual metaphors is taken a step further, to identify and analyse ideological positions. The conceptual metaphors constructed through the analysis of linguistic metaphor are examined for evaluative stance and entailments, and the ideology apparently standing behind the text is then described. An important early example of this is Lakoff’s discussion of the metaphors and metonymies used to talk about the 1990 war in the Gulf (1991). Lakoff analysed linguistic metaphors to construct conceptual metaphors through which domains such as SPORT, FAIRY TALES and BUSINESS were mapped onto war, and, he claimed, used to justify the 1990 war and to play down the resulting casualties and suffering.

Despite the number of studies using this methodology, relatively few writers have raised questions about the apparently straightforward—but very subjective—analytical process of moving from the linguistic to the conceptual. The purpose of this chapter is to discuss this methodological issue. I begin by considering how linguistic data are selected for analysis. I then describe Steen’s (1999) five-step method, which is the most well-known procedure for working from linguistic to conceptual metaphors, and discuss some difficulties with it. I

then explore ways in which detailed analysis of linguistic data using corpora can help with these difficulties.

METHODOLOGY

The data used to identify linguistic metaphors

The first step in considering methodology is a critical look at data. The linguistic examples cited in the classic CMT literature were for the most part generated intuitively, either by the researchers themselves or by their students. They are initially convincing, but as far back as 1999, Steen pointed out that they 'serve the purpose of demonstration; they have not been systematically and exhaustively collected from large stretches of discourse but they have been selected for their persuasive power' (1999: 57).

Partly in reaction to this perceived problem, a number of applied linguists have examined metaphors in naturally-occurring language data. These data are of two broad types: corpus data and discourse data (Deignan, 2015a). Examinations of corpus data usually seek to uncover general patterns in the meaning, semantic domains and form of linguistic metaphors, that is, they take a language perspective to finding and testing conceptual metaphors. Corpus data are usually examined via concordances, that is, multiple very short extracts from different texts. For instance, Deignan (2005) has conducted a number of corpus studies exploring how words from everyday source domains such as PLANTS, THE BODY and TEMPERATURE are used with figurative meaning. Stefanowitsch (2006) used corpus data to investigate metaphors of emotion. He started from concordances of the target domain words 'anger', 'fear', 'joy', 'sadness' and 'disgust' and searched for metaphorical uses of any other words nearby, as opposed to Deignan's procedure of starting with source domain words and searching for any metaphorical uses.

Examinations of discourse data tend to focus on how people use metaphors to achieve their communicative goals and negotiate meaning; that is, they take a speaker perspective. Discourse data are usually analysed as single extended stretches, in contrast with the analysis of corpus data. Discourse approaches can thus allow for researchers to see how metaphorical meaning is built up over an interaction, and researchers often bring to the analysis their knowledge about context and the history of the speakers and writers. The resulting analysis of linguistic metaphors is thus more richly grounded, but researchers are less likely to attempt language-wide generalisations. Researchers working in this tradition include Cameron and her colleagues (e.g., Cameron et al., 2009; Cameron et al., 2014). One of Cameron's early studies was a detailed analysis of the metaphors used by children and teachers in a British primary school (2003). She analysed around 27,000 words of spoken data, from eight discourse events. She identified linguistic metaphors and traced their development through the discourse events. On the basis of her analysis, Cameron constructs some underlying generalizations, which she cautiously suggests could be conceptual metaphors. This process enabled her to hypothesize not only about the ideational meaning (Halliday and Matthiessen, 2004) of the metaphors used (that is, what they refer to or name) but also to demonstrate the important role of metaphor in building shared understanding and negotiating interpersonal tensions in the classroom.

She shows how metaphorical expressions are frequently used in suggesting how pupils' work and behavior could be improved. For example, a teacher gives feedback on a task saying 'I saw the people who used their heads' (2003: 136) and to an individual 'think before you speak, give yourself a little time. You should watch the others to find out all the strategies they have for buying time' (2003: 135).

There is some crossover between the corpus and discourse approaches, where scholars compile relatively small datasets examined using a combination of corpus and discourse methods. This hybrid approach is often used in the analysis of the metaphors of specific genres and registers, for instance in the studies described by Deignan, Littlemore and Semino (2013).

Having collected a linguistic dataset, the analyst normally begins by identifying linguistic metaphors. This process has been the topic of much debate in the metaphor literature in the last ten years (for example, Steen, 2008; Steen et al, 2010). This is discussed elsewhere in this volume by Steen (chapter 6), so it will not be dealt with in this chapter. The following section looks at the next step: the move from the linguistic metaphors that have been identified to constructing conceptual metaphors.

Steen's Five-Step method

Steen was the first writer in the cognitive and applied linguistics tradition to tackle the difficult question of demonstrating rigorously the analytical move from linguistic to conceptual metaphor. He described the challenge as 'to explicate the assumptions that lead linguists to arrive at [...] conceptual mappings in departing from metaphorical expressions in discourse' (1999: 58). In 1999, he published the first version of his five-step method, with the aim, as he described it later, of forging 'a connection between the linguistic forms of metaphor in text and talk, on the one hand, and the conceptual structures of metaphor as assumed in cognitive linguistics in the form of conceptual metaphors such as ARGUMENT IS WAR on the other' (2011: 93). His five steps are:

1. Metaphor focus identification;
2. Metaphorical idea identification;
3. Non-literal comparison identification;
4. Non-literal analogy identification;
5. Non-literal mapping identification. (1999: 73)

The first step, identifying linguistic metaphor, involves a choice of several methods (Steen, this volume, chapter 6). In general terms, these methods require the identification of the contextual meaning of each word, and then establishing whether or not there is another meaning of that word that could be considered to be its literal counterpart.

For Step 2, Steen uses propositional analysis, a technique used in discourse psychology, to capture the structure of concepts. Semino, Heywood and Short write of this that: 'what is involved is no longer words but the concepts [...] activated by the words of the original expression' (2004: 1275). For the purposes

of metaphor study, Steen supplements standard propositional analysis by indicating whether words evoke the source domain (s) or target domain (t). For instance, Steen gives the propositional analysis for the sentence 'Lakoff attacked Glucksberg' as:

P1 (ATTACK_s LAKOFF_t GLUCKSBERG_t) (2011: 94).

P1 signals that this is Proposition 1, while *s* and *t* stand for source and target domain: 'Lakoff' and 'Glucksberg' evoke the target domain, while 'attack' evokes a source domain. The propositional analysis makes no claims about processing or mental mappings; it is purely an attempt to state as logically and simply as possible how concepts relate to each other in a sentence. Steen writes that this step 'lays bare how metaphors can differ from each other with respect to conceptual structure' (1999: 64).

Step 2 produces input for Step 3. For metaphorical sentences, Step 2 will have produced a propositional analysis with elements from incongruous domains, a problem which Step 3 tackles. In Step 3, the proposition is rewritten as two incomplete propositions, one for the source domain, one for the target domain. For 'Lakoff attacked Glucksberg', Step 3 produces:

SIM {*F*, *x*, *y*
 [*F* (LAKOFF, GLUCKSBERG)]_t
 [ATTACK (*x*, *y*)]_s}

The notation indicates a relationship of similarity shown by SIM in line 1, between the two propositions in lines 2 and 3. *F* indicates an activity that is not explicitly denoted, and *x* and *y* indicate entities that are not explicitly denoted. These gaps are implicit in the metaphor. Line 2 expresses the entities and activities in the target domain; the unspecified target domain activity being signaled by *F*. Line 3 expresses the entities and activities in the source domain, the unspecified source domain entities being signaled by *x* and *y*.

Step 4 produces an analogy from this comparison, filling in terms that are implicit in the previous steps: *F*, *x*, and *y*. For 'Lakoff attacked Glucksberg', the analogy is filled out as follows:

SIM
 [CRITICIZE (LAKOFF, GLUCKSBERG)]_t
 [ATTACK (ATTACKER, ATTACKED)]_s (ibid)

In Step 5, the source-target domain mapping is constructed, which, in terms of CMT, generates a conceptual metaphor. Steen summarizes the aim of Step 5 in the early version of the five-step method as follows: 'to capture the full cross-domain mapping that might be related to the local analogy derived in step 4, so that "Lakoff attacked Glucksberg" could be connected in some controllable fashion to ARGUMENT IS WAR' (2011: 103). Step 5 is thus the fleshing out and extending of the metaphor; it 'takes each of the correspondences projected by the analogy of Step 4 and lines them up as a list of entailments' (Steen, 2011: 96).

Table 1 shows Steen’s full analysis of ‘Lakoff attacked Glucksberg’. The descriptions of the steps in column 1 are worded slightly differently from the 1999 descriptions cited above, but the essentials are unchanged.

Table 1 Using the five steps to analyse war metaphors, from Steen (2011: 94)

Steps	Analysis
Text	Lakoff attacked Glucksberg
1. Identification of metaphor-related words	Attacked
2. Identification of metaphor-related propositions	P1 (ATTACKs LAKOFFt GLUCKSBERGt)
3. Identification of open metaphorical comparison	SIM{ <i>F</i> , <i>x</i> , <i>y</i> [<i>F</i> (LAKOFF, GLUCKSBERG)]t [ATTACK (<i>x</i> , <i>y</i>)]s}
4. Identification of analogical structure	SIM [CRITICIZE (LAKOFF, GLUCKSBERG)]t [ATTACK (ATTACKER, ATTACKED)]s}
5. Identification of cross-domain mapping	TARGET < SOURCE DOMAIN CRITICIZE < ATTACK LAKOFF < ATTACKER GLUCKSBERG < ATTACKED <i>Possible inferences</i> ARGUMENTS < WEAPONS

By 2011, Steen had modified his view of Step 5, writing, ‘I now feel that a more interesting use of step 5 would be to see it as representing the communicative dimension of metaphor, which would be useful as input for the ongoing construction of a context model for the discourse as a whole’ (2011: 103). He reframes the output of step 5 in terms of what the speaker is doing with the analogy: ‘the context model might read something like ‘the sender is informing the addressee that Lakoff criticized Glucksberg in order to add this event to a developing account’ (2011: 201-104). In this version, the five steps start from language in use, as before, and also finish there, widening back to context, informed by the deeper analogical analysis.

PROBLEMS WITH THE FIVE-STEP METHOD

The five steps make the structural and logical aspects of the process of working from linguistic to conceptual metaphor very clear, but the method in itself does not resolve every difficulty. The major problem for the analyst is that the method as set out here still does not provide an answer to the problem of how we can formulate one particular conceptual metaphor rather than another, based on language data. This leap, which takes place between steps 4 and 5, is dependent on the intuitions of the researcher. The issue arises not just when following the five-step method, but in all attempts to generalize from linguistic to conceptual

metaphors. Cameron notes the problem in her discussion of her classroom data. She asks 'How far do the analyst's expectations about the data shape the interpretations of linguistic metaphor?' (2003: 252). In her data, a teacher said 'I think you all deserve a medal'. She analyzed 'deserve a medal' as a linguistic realization of an EFFORTFUL JOURNEYS mapping, but she notes that 'it could also be linked to fighting in a war, competing in an art show or a dog show' (ibid).

Steen acknowledges that the move from a specific linguistic metaphor to a particular concept, and thence to a particular mapping, is the least robust of the five steps. He writes that the 'last two steps of the procedure form the weakest parts of the chain with step 5 being the weakest of all' (1999: 73). Indeed, there seems to be a danger of circularity: in the example described above, Steen is careful not to start from the assumption that there is a mapping from ARGUMENT to WAR, but it is easy to imagine how an analyst could be influenced by his or her reading about conceptual metaphors in the literature, or their assumptions about conceptual metaphors. If this were to happen, the analysis would simply demonstrate the starting assumptions of the analyst.

A few studies have applied the five-step method in detail and discussed difficulties encountered, the problem described above being the focus of most discussion. Krennmayr used the five steps to analyze linguistic metaphors including 'winning' in the citation

Container group Tiphook yesterday said it was still confident of *winning* its joint 643 million bid for Sea Containers... (2011: 219).

She notes that the difficulty of deciding what conceptual metaphor underlies the linguistic one is not specific to this example but is a general problem. She decided on the mapping SUCCEEDING IS WINNING, but notes that a more specific mapping SUCCEEDING IN A BID IS WINNING A COMPETITION is possible. Her reason for choosing the former is that her 'primary interest in this example lies in the conceptual structure of *winning*' (ibid), that is, it is based on her analytical goals, not on a claim to have uncovered speakers' conceptual structures. Indeed, she notes of the five-step method that 'No claims are being made as to how people process semantically related expressions.' (2011: 21). However, as Krennmayr, and Steen repeatedly make reference to the identification of conceptual metaphors, they are of necessity making claims at some level about mental mappings, albeit not always accessed during online production and processing.

The step from linguistic to conceptual becomes even more difficult if there is only one, or a very small number of linguistic metaphors from a particular source domain. Semino, Heywood and Short (2004) explored and critiqued Steen's model when they applied it to the analysis of conversations about cancer, using a combination of the corpus and discourse approaches described above. They reported relatively little difficulty with the first three steps of the five-step method, but more complications arose with Steps 4 and 5. They discuss the linguistic metaphor 'galloping away', of which there are two citations in their data, used to talk about cancer spreading quickly through the body. Intuitively, 'galloping' seems to come from the source domain of horses, and Semino,

Heywood and Short's search in three contemporary corpora found that in over 80% of citations, it is in fact associated with horses. These seem to be grounds for postulating a conceptual metaphor linking the source domain of HORSES with the target domain of CANCER, but there are several possibilities for the exact wording, including FAST DEVELOPMENT OF CANCER IS GALLOPING AWAY or CANCER IS A HORSE. With only two citations of a single linguistic metaphor from the source domain in their data, there is no real way of establishing which of these is closer to the internal reality of speakers.

Another issue that the analyst needs to consider is that there may be no other linguistic metaphors from the source domains of HORSES or GALLOPING that are used to talk about cancer. Not all metaphors are mappings of entire domains, with structural relationships between entities, actions and attributes. In 1987, Lakoff discussed the notion of 'one-shot' metaphors, which he initially applied mainly to 'image metaphors'. He exemplified these by literary images, including Breton's line 'My wife whose waist is an hourglass' (1987: 220). Image metaphors are 'to be distinguished from very general conceptual metaphors like DEATH IS DEPARTURE in important ways:

1. One-shot mappings, as their name implies, are not used over and over again; that is, they are not conventionalized.
2. They are not used in everyday reasoning.
3. There is no system of words and idiomatic expressions in the language whose meaning is based on them.
4. They map image structure instead of propositional structure.
5. They are not used to understand the abstract in terms of the concrete.
6. They do not have a basis in experience and commonplace knowledge that determines what gets mapped onto what. (1987: 221).

While 'galloping away' is clearly not an image in quite the way that 'hourglass' is, some or all of these characteristics might apply. Items 1 and 3 can be tested using linguistic data and are therefore considered the most robust here. Within Semino, Heywood and Short's dataset, there is no evidence of conventionalization (item 1) or of other words and idiomatic expressions that are semantically related (item 3). However their corpus is not a vast dataset, and it is possible that evidence relating to these items might be found in similar texts or a general corpus. In considering Item 1, I note that the 100 million word British National Corpus contains 16 citations of 'galloping away', all of which are literal, and 121 citations of 'galloping', some of which are metaphorical, but none describing illness; there are a small number of citations where 'galloping' describes illness in the Oxford English Corpus, but here it refers to illnesses spreading rapidly through a population rather than in an individual's body. This suggests, but does not prove, that the metaphor is not strongly established. Regarding the third characteristic, the data studied by Semino, Heywood and Short do not contain linguistic metaphors from the same semantic field. Although dependent on introspective data, we can consider items 4 and 5. For item 4, 'galloping' possibly conveys an image. For item 5, it could be argued that the development of cancer is concrete, not abstract albeit something that is not visible in normal circumstances. There is thus a tentative case for considering

'galloping away' to be a one-shot metaphor, if not actually an image metaphor.

This, however, does not necessarily mean that there is no conceptual metaphor; Steen argues (1999: 59) that one-shot metaphors are conceptual. Further, in contrast with Lakoff (ibid), he implies that the difference between one-shot metaphors and sets of metaphors that all appear to be mapped from the same source domain onto the same target domain is relatively unimportant. He proposes that if the researcher is concerned with this difference, it should be dealt with by a sixth step, after the five-step procedure has been followed:

If one insists on regarding as conceptual metaphors only those metaphors which are systematic (as opposed to one-shot metaphors), which I do not, then a sixth step will have to be added to the procedure, saying that the output of the first five steps is to be compared over large numbers of metaphors in order to establish more or less systematic groups of metaphorical concepts, labeling the largest systematic groups as conceptual metaphors (1999: 59).

There is thus some ambivalence about the conceptual status of one-shot metaphors, and it is not a question easily resolved using linguistic data. The linguistic evidence usually put forward for the conceptual nature of mappings is the range and systematicity of their linguistic realizations, which by definition are not found for one-shot metaphors. The issue, for the example of 'galloping', is whether we believe that 'the question "How is cancer conceptualised within this metaphor?" would be answered by saying that cancer is conceptualised as a horse running around in the body.' (Semino, Heywood and Short, 1999: 1283). If it is accepted that a one-shot mapping from the fast movement of a horse to the fast progression of cancer may be conceptual to some degree, there seems no need to generalize away from the linguistic metaphor itself. To paraphrase 'galloping away' as *CANCER IS A HORSE*, for example, seems inelegant, and also would generate predictions about language that are not borne out. *CANCER IS A HORSE* would generate a different set of entailments from those generated if the source is considered to be *GALLOPING AWAY*, as I show using corpus data in the following section.

We thus have two inter-connected problems with moving from an identified linguistic metaphor to a conceptual metaphor:

1. Is this linguistic metaphor a realization of a conceptual metaphor at all? If there is only one instance of the possible conceptual metaphor in the dataset, it is possible that it is a one-shot mapping. As noted, whether or not a one-shot mapping is conceptual cannot be determined using linguistic data.
2. What domains are metaphorically mapped? At what level of specificity should this be described?

In the next section, I offer some suggestions for how corpus linguistic data can be used to tackle these two problems.

USING CORPUS EVIDENCE TO FORMULATE CONCEPTUAL METAPHORS

In this section I discuss my own and others' work using various synchronic corpora to explore metaphor patterns in an attempt to tackle the above questions. The first: 'Is this linguistic metaphor a realization of a conceptual metaphor at all?', clearly, cannot be answered by linguistic data alone. Language cannot provide definitive proof of conceptual structures and processes. It can however corroborate or contradict hypotheses. Where a conceptual metaphor has been proposed on the basis of a small number of linguistic metaphors found in a limited number of texts, corroboration can be sought by examining a larger corpus of similar texts. The existence of more instances of the same linguistic metaphor provides some support, but may demonstrate a one-shot mapping. The existence of other linguistic metaphors apparently realizing the same source and target domains offers support for a more widespread mapping.

Early studies that tackled this issue using large datasets include work on ARGUMENT IS WAR by Deignan (2008) and Vereza (2008). Deignan (2008) examined large random samples of concordance data from the Bank of English for 'attack', 'defend', 'strategy' and other WAR lexis cited by Lakoff and Johnson (1980), and Vereza (2008) examined the metaphoricity of collocates of 'war' (2008). The general finding from both studies was that the data are not directly contradictory of the proposed conceptual metaphors ARGUMENT IS WAR. However, they reveal a more complex picture: they suggest mappings at both more general and more constrained levels than those proposed in the classic CMT works. For example, WAR lexis such as 'attack', 'defend' and 'strategy' is used to talk about a very wide range of topics besides argument, suggesting that some-- but not all-- WAR metaphors are often used about a much wider range of topics than just argument; other semantic areas they describe include planning, strategy and all kinds of competition and sport (Deignan, 2008). Ritchie (2003) made a similar observation about the difficulty of formulating the WAR conceptual metaphor.

The quite general reference of these metaphors contrasts with another lexical item from the source domain of WAR, the verb 'fire', as used with 'gun' and similar nouns. This verb is rarely used with a metaphorical meaning, and when it is, it is almost always in the string 'fire/ fires/fired/firing a warning shot'. In the metaphorical use, the 'shot' is almost always singular, and is always premodified by 'warning'. The meaning of the metaphor is something close to 'take an aggressive action with the intention of starting an argument'. For this linguistic metaphor then, the mapping is formally and semantically more specific and constrained than the conceptual metaphor ARGUMENT IS WAR would predict. Similarly, the metaphorical meaning of 'shoot down' is mostly confined to arguments, but only within the collocation 'shoot down in flames'. When not followed by 'in flames', 'shoot down' is usually literal (Deignan 2008). This restriction is similar to that noted above for 'fire a warning shot', where the plural form, 'warning shots', or 'fire' with a different object or used intransitively, is usually associated with a literal meaning (ibid). In the studies generating these observations, neither Deignan nor Vereza attempt to reformulate a conceptual metaphor from the source domain of WAR / WEAPONS / VIOLENCE using their linguistic data, and their findings suggest that there may be several related mappings at work, at different levels of generality.

With regard to Semino, Heywood and Short's (2004) data from discussions of cancer, and the possible existence of a GALLOPING OR HORSE mapping, I noted above that 'galloping' itself as a linguistic metaphor does not seem well established with this meaning in the two large general corpora that I searched (the British National Corpus and the Oxford English Corpus). A search of a larger corpus of medical and doctor-patient discourse, or a general corpus, could show whether there are other linguistic metaphors that seem to realize a possible conceptual metaphor. The more linguistic metaphors that are found from apparently the same source domain, the evidence the analyst has corroborating (but not, as noted, proving) the conceptual metaphor that he/ she proposes. For instance, if alongside 'galloping', it is found that 'rider', 'race' and 'horse' are also used with apparently related metaphorical meanings, we would have stronger evidence for the conceptual metaphor CANCER IS A HORSE. However, my searches of the British National Corpus and Oxford English Corpus suggest that these and related source domain words are not used metaphorically with this meaning.

A dictionary that was written using corpus data can be a short cut to such corpus searches, but it can only give positive evidence: that is, if a dictionary attests the existence of other metaphors apparently realizing a conceptual metaphor, this can be seen as demonstrating that the linguistic metaphor in question is not one-shot. If the dictionary does not attest other linguistic metaphors though, this cannot be taken as evidence that they do not exist. They may not be frequent enough to warrant their own sense in a dictionary entry.

The second question raised at the end of the previous section was:

'What domains are metaphorically mapped? At what level of specificity should this be described?'

This concerns the exact formulation, or wording, of a proposed conceptual metaphor. This is important, because even very closely related words can have very different associations for language users. As I noted above, when analysts propose a conceptual metaphor, they often go on to discuss its entailments. A small change in the wording of a mapping can result in major changes to its entailments. I illustrate this by examining citations of 'horse' and 'galloping', as examples of the possible mappings FAST DEVELOPMENT OF CANCER IS A GALLOPING HORSE or CANCER IS A HORSE (Semino, Heywood and Short, 2004).

I searched for 'horse', and 'galloping' in the 2.4 billion word Oxford English Corpus, using the software Sketchengine (Kilgarriff et al., 2004). I focused on specific word forms rather than all inflections because it has been shown that different inflections of a word can have different patterns of meaning and form (Deignan, 2005). There were 101,714 citations of 'horse', and 2367 citations of 'galloping' at the time of my searches. I then examined words that occurred frequently alongside the words under study, i.e. its collocates. Collocates can be significant clues to meaning and context (Sinclair, 1991), and they can be identified automatically using corpus software. There are various ways of calculating the significance of collocates; here 'logdice', as recommended by

Sketchengine (Kilgarriff et al., 2004), is used. The ten most significant collocates of 'horse' and 'galloping', ignoring proper names, are shown in Table 2:

Table 2: Most significant collocates of 'horse' and 'galloping'

	Horse	Galloping
1	Racing/ race	Hooves/ hoofs (sic)
2	Riding/ ride/ rode	Cantering
3	Cart	Horses/ horse
4	Rider	Horsemen
5	Trainer	Horseback
6	Carriage	Bareback
7	Saddle	Trotting
8	Pommel	Gait
9	Bolted	Furlongs
10	Dark	Bipedal

Table 2 suggests that 'horse' collocates significantly with words associated with humans riding them, for racing, or leisure, and with objects associated with the domestication of the horse, such as 'saddle', 'pommel' and 'carriage'. 'Cart', 'bolted' and 'dark' owe their frequency largely to the idioms 'put the cart before the horse', 'close the barn/ stable door after the horse has bolted' and 'dark horse'.

The collocates of 'galloping' are rather different. It tends to collocate with words associated with the movement of horses: 'cantering', 'trotting' and 'gait', and the technical 'bipedal' (of which there are only 4 citations). It also collocates with words about riding, but evoking a less domesticated picture than the collocates for 'horse' do: the 'horsemen' that collocate with 'galloping' are either the 'four horsemen of the Apocalypse' or are in citations such as:

...framing the silhouettes of three Mongolian *horsemen galloping* across the steppes.

Citations in which 'bareback' and 'horseback' collocate with 'galloping' also suggest exotic and dangerous scenes; they include:

... a warrior , *galloping bareback* with flying hair
 ... setting fire to a petrol tanker and *galloping* around it on *horseback*, bottles in hand.

In 25 of the 38 citations in which 'galloping' collocates with 'hooves' or 'hoofs', it is in reference to their sound, for example: 'The next thing I knew, I was woken up by the sounds of galloping hooves and ripping canvas.' As was the case for the some of the other collocates, the source texts tend to be narrative and fictional. These Oxford English Corpus collocations suggest that 'horse' and 'galloping', although apparently from the same source domain, are part of different schemata at the level of detail: the former evokes riders and racing in a controlled way, while some citations of 'galloping' evoke danger and lack of

control, and others are from technical discussions of horses moving. (Because 'galloping' is a relatively infrequent word, the words towards the bottom of the list represent fewer than 10 citations and not too much weight should be placed on these as collocates.) The metaphorical entailments of the two scenarios are very different: a metaphorical entailment of *CANCER IS A HORSE* might therefore involve riders controlling it, while scenarios from *DEVELOPMENT OF CANCER IS GALLOPING AWAY* might involve danger and lack of control.

Dancygier and Sweetser (2014: 199- 200) take a related approach, to the analysis of literary metaphor. They consider Emily Dickinson's 19th century poem 'Over the fence', which 'appears to be about a small girl wishing she dared to be disobedient and climb over a fence to steal some strawberries' (p. 199). They suggest the poem may be a metaphor for more adult activities that were forbidden or censored in unmarried females, such as being sexually active and having a career. The writers do not use corpus data, but in common with my arguments above, they speculate about associations between concepts, in attempting to reconstruct the metaphorical mappings behind the language. Dickinson writes 'Over the fence. I could climb if I tried, I know'; Dancygier and Sweetser write that the mention of 'climbing' suggests a career. They do not offer corpus evidence for this, and I am unable to find any collocational evidence that climbing is especially associated with progress in a career, or was in nineteenth century English, but this seems intuitively plausible. The other possible interpretation, that the poem refers to forbidden sexual activity, is evoked, they say, by the reference to strawberries, which may suggest the notion of forbidden fruit.

In this section, I have argued that corpus data should be consulted when attempting to hypothesise about the existence of a conceptual metaphor from linguistic expressions. Corpus citations can provide insights into the conventionalization, frequency and range of metaphorical uses from a source domain. Although not sufficient as proof of a conceptual mapping, it can help with its formulation, and can demonstrate what the entailments of various alternative formulations may be. This leads to the issue of the level of specificity required in formulating a conceptual mapping, which I now discuss.

CONCEPTUAL MAPPINGS AT OTHER LEVELS

The early works in CMT identified intuitively satisfying mappings such as *ARGUMENT IS WAR*, *LIFE IS A JOURNEY* and *THEORIES ARE BUILDINGS*, but, as described above, closer linguistic analysis of expressions from domains such as *WAR* suggests that the boundaries around the mappings are, at very least, hazy, and variable for different linguistic expressions. Scholars from different traditions have suggested mappings that are both more general and more specific than traditional conceptual metaphors.

Grady (1997) argues that cognitive mappings work at a deeper and more general level than the kind of conceptual metaphors described by Lakoff and Johnson (1980). He works within the cognitive tradition, and used Lakoff and Johnson's original linguistic data, supplemented with other intuitively derived expressions. One of the examples he works with is the conceptual metaphor *THEORIES ARE*

BUILDINGS put forward by Lakoff and Johnson. Grady explored the linguistic examples given by Lakoff and Johnson, such as 'She's on very solid ground with her latest theoretical work'. He also discusses linguistic metaphors that might have been predicted by the conceptual metaphor but which do not occur, such as 'This theory has French windows', and other linguistic metaphors that are used to talk about theories but are apparently from different source domains, such as 'They tore the theory to shreds'. Grady argues that the data are better explained by the existence of 'something like a compound metaphor—a metaphor composed of separate and independently motivated metaphorical correspondences' (1997: 273). In this view, THEORIES ARE BUILDINGS is not the primary mapping, but a compound of the correspondences ORGANIZATION IS PHYSICAL STRUCTURE and PERSISTING IS REMAINING ERECT. He notes that the source and target of these primary, or basic metaphors (both terms are used) would not be considered to be 'domains'. Grady's hypothesis is regarded as both credible and important within cognitive linguistics, but for an applied linguist, the problems of arriving at primary metaphors from linguistic data are the same as, but greater, than for conceptual metaphors.

In contrast, Musolff (e.g. 2006) has proposed a more detailed unit of analysis. He analyzed corpora consisting of the texts of public debates in English and German on the topic of the European Union. He found that a large number of linguistic metaphors can be related to the source domain of LOVE-MARRIAGE FAMILY, explained at the most basic level by Lakoff's A NATION STATE IS A PERSON (p. 24). He examined the large number of linguistic metaphors that seem to be realizations of these source domains in a good deal of detail, considering who had produced them, and what detailed meanings and evaluative stance they seemed to convey. Within this general mapping, Musolff finds mini-narrative structures, which he terms scenarios, in which

the characterization of the participants in terms of their roles, intentions, and states of minds, as well as the assessment of their actions in terms of chances of success, are in fact highly specified. (p. 27)

Different scenarios can be developed to reflect speakers' stance towards the topic. Britain's traditional euro-scepticism is reflected in texts from British publications, which tended to develop separation and divorce narratives.

Conceptual metaphors are at a mid-level of specificity between primary metaphors and scenarios. In terms of linguistic evidence, the case is no more compelling for conceptual metaphors than for the other two, but they remain apparently the most intuitively attractive, and easily the most frequently used concept in the metaphor literature.

Another possibility for the analyst is to recognize that many linguistic metaphors seem to fall into semantic groupings but without making a strong commitment to the existence of long-standing conceptual mapping. Cameron and Maslen (2010) have done this with the notion of systematic metaphors (see chapter 7). Cameron, Pelosi and Pedroso de Moraes Feltes (2014) describe a methodology for identifying systematic metaphors, and identify some smaller, scenario-like

units. They argue that very abstract generalizations should be avoided; we should abstract only as far as strictly necessary from the actual words used in the talk. 'The operating principle at this step is to stay as close to the language used by participants as possible, generalizing a label from the talk only as far as is needed to include related vehicles' (2014: 29). They specifically distance themselves from claims about a conceptual level: 'The labels given to groupings are not intended to reflect assumptions about levels of cognitive processing or the nature of mappings.' (2014: 30). However what they find about general metaphors '...supports the idea that large-scale, generalized metaphors can emerge from human embodied experience and social interaction, and overlap with 'conceptual metaphors.' (2014: 40). While Cameron, Pelosi and Pedroso de Moraes Feltes are not explicitly aligned with Conceptual Metaphor Theory, their methodology constitutes good practice for researchers who are attempting to identify conceptual metaphors.

CURRENT RESEARCH AND FUTURE DIRECTIONS

Current research focuses on a number of areas. Researchers continue to debate which tools and methods should be used in metaphor identification, and how they should be used to develop generalizations about linguistic and conceptual metaphor. For example, MacArthur's (2015) writes of inconsistencies and problems with the use of dictionaries in metaphor identification. Dorst and Reijnders (2015) and Deignan (2015b) responded, and the debate raised once more the status of data, and the danger of allowing the analysts' preconceptions about conceptual metaphors to cloud the data analysis.

Research into metaphor is increasingly recognizing that every language community is composed of different speakers, with different experiences and interests, and that we cannot assume a shared, static set of conceptual structures. Recent research has considered different genres and registers, and has suggested that linguistic metaphors vary a good deal across these even where the subject matter of texts is closely related. This would suggest that different groups of people call on different conceptual metaphors for the same topics, and that we seem to access different conceptual metaphors when speaking or writing at different levels of formality or for different audiences. For example, Deignan, Littlemore and Semino (2013) present a series of studies of the metaphors of different but related genres and registers. They show how different groups of language users have different metaphorical resources to think and talk about the same topics, and how they can misunderstand each others' uses of metaphorical language. Methodologically, such work requires carefully compiled datasets, and, increasingly, researchers are talking to members of the language community that they are studying rather than relying on their own interpretation of texts.

Extending the exploration of figurative language in other directions, Dancygier and Sweetser (2014) discuss the crossover between creative and conventional uses, and the nature of multimodal figurative expression. They also consider how longstanding metaphorical mappings, while persisting in language over decades or centuries, may mean very different things to language users in different times and places: 'the metaphor *GOD IS A FATHER* is surely not the same blend for modern

English speakers as it was for ancient Near Eastern cultures where a father could sell his children' (2014: 216). In their discussion of metaphor in literature they suggest a fascinating reversal of the interpretation process usually suggested. As noted above, they discuss Dickinson's 'Over the fence'. They note that a mention in the poem of God's disapproval (' God would certainly scold') would suggest to the reader that the target domain is LIFE. The reader's knowledge of the existing mappings LIFE IS A JOURNEY, PURPOSES ARE DESTINATIONS and DIFFICULTIES ARE OBSTACLES will then suggest metaphorical interpretations for some of the language. This is a reversal of the process usually described; here it is suggested is that the reader's interpretation will proceed from guessing about the target domain through knowledge of existing conceptual metaphors, to an interpretation of the language: from conceptual to linguistic rather than the other way round.

CONCLUSION

The notion of conceptual metaphors is problematic for many researchers, and has become more so in recent years. However, even for the most sceptical, there remains a valuable insight, that generalizations can be detected from linguistic metaphors and that these generalizations seem able to generate novel metaphors, and probably frame world-views. These points are important for all metaphor researchers regardless of their level of adherence to CMT. While the imaginative leap of CMT rightly generated much excitement, for a time methodological rigour lagged behind creativity. The work of Steen and his colleagues, among others, has shown that methods need to strive to be rigorous and replicable in this area as in other scientific work, while the contributions of corpus and text analysts have suggested some ways forward.

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