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Methodological problems in the analysis of metaphors in a corpus of conversations about cancer

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1. Introduction

This paper explores a range of methodological problems we have encountered in a study of metaphorical patterns in an electronic corpus of conversations about cancer. The corpus contains the transcribed recordings of conversations in which seven cancer patients (and, in some cases their relatives) have individual interviews with oncologists, health visitors, or a researcher working on a project to do with effectiveness of communication in cancer care.ⁱ The corpus amounts to a total of approximately 200,000 words, and is a sub-section of a larger corpus collected in the North of England by a team of Lancaster researchers in the early 1990s.ⁱⁱ

Our long-term goal is to investigate the way in which metaphors are used to think and talk about cancer by different categories of people involved with this illness in the UK. Our overarching research questions thus include the following:

- How is cancer talked about and conceptualised via metaphor in our data?
- What are the dominant conventional metaphors?
- Are different metaphors used by different categories of people in different contexts?
- What are the implications of dominant metaphors for patients and those close to them?

Investigating these questions will also enable us to evaluate and contribute to existing work on the role of metaphor in the understanding of illness in general and of cancer in particular, and to compare our findings with those of others working on different types of data in different contexts (e.g. Canter 1988; Morris, 1996; Sontag, 1979; Stacey, 1998).

Our first step, however, has been to try to develop an explicit and reliable methodology for the analysis of metaphors in our data, broadly based on the cognitive linguistic approach to metaphor originating from Lakoff and Johnson (1980), Johnson (1987), Lakoff (1987), and Lakoff and Turner (1989). This has confronted us with a range of problems, which, as we will show, relate particularly to the following areas:

- the boundary between the literal and the metaphorical in the identification of linguistic metaphors;
- the precise identification of tenor and vehicle in relation to each linguistic metaphor;
- the extrapolation of conceptual metaphors from linguistic metaphors;
- the extrapolation of conventional metaphors from patterns of linguistic metaphors in the data.

On the one hand, the problems we will describe have implications for our ability to answer reliably the main questions of our longer-term project. On the other

hand, these problems concern us as linguists and metaphor scholars: in spite of the attention that metaphor has received over the centuries, and more recently within the cognitive paradigm, it seems to us that we still lack explicit and rigorous procedures for its identification and analysis, especially when one looks at authentic conversational data rather than decontextualised sentences or made-up examples (see also Cameron 1999a and 1999b, and Heywood *et al.* 2002).

We shall begin by considering the way in which claims about metaphoricality and conventionality tend to be made within the cognitive paradigm. We will then describe in detail a procedure proposed by Steen (1999) for analysing metaphors, starting from their linguistic realisations and gradually moving towards the conceptual level and decisions about what exactly counts as conventional. We will then introduce some examples from our data which pose problems at different points in Steen's procedure, and show how different decisions in the process of analysis lead to quite dramatic differences in answering our main questions in relation to metaphor and cancer. Finally, on the basis of our findings, we propose some adjustments to Steen's procedure, and highlight areas where further research is needed.

2. Metaphor identification and analysis within the cognitive paradigm

We have no space here for considering the different ways in which metaphor has been defined and analysed over time within different theories and models. Instead we will focus on how the identification and analysis of metaphor are carried out within the cognitive approach. In his substantial and influential contribution to the second edition of Ortony's *Metaphor and Thought*, Lakoff defines the term "metaphor" as referring to "a cross-domain mapping in the conceptual system", and the term "metaphorical expression" as referring to "a linguistic expression (a word, a phrase, or sentence) that is the surface realization of such a cross-domain mapping" (Lakoff, 1993: 203). So, for example, utterances such as 'our relationship is off the track' and 'look how far we've come' (Lakoff, 1993: 206), are metaphorical expressions which realise a mapping conventionally referred to as the LOVE IS A JOURNEY metaphor, or the LOVE-AS-A-JOURNEY metaphor. These small-capital expressions, Lakoff emphasizes, function as mnemonics for sets of cross-domain ontological correspondences that characterise each mapping, such as those between lovers and travellers, and between the love relationship and a vehicle (see Lakoff, 1993: 207).

Within the cognitive approach to metaphor, as is well known, the focus has been on the conceptual rather than the linguistic level of metaphor analysis. More specifically, the most ground-breaking contribution has been to show how patterns in everyday conventional linguistic expressions suggest the existence of a system of conventional conceptual metaphors, such as LOVE IS A JOURNEY, MORE IS UP, ARGUMENT IS WAR, and so on. Lakoff (1993: 210) emphasizes the importance of the existence of *systematic* linguistic correspondences as a basis for claims about the existence of conceptual metaphors, and cites five types of evidence for "the existence of a system of conventional conceptual metaphors" in English. These are four sets of generalisations governing polysemy, inference patterns, novel metaphorical language and patterns of semantic change, and, fifthly, psycholinguistic experiments (Lakoff, 1993: 205).

In practice, however, most claims about the existence of particular conceptual metaphors from Reddy (1979) and Lakoff and Johnson (1980) onwards have been based on lists of decontextualised sentences, all supposedly realising the same

underlying mapping in the minds of the speakers of a language. More recently, doubts have been expressed about the legitimacy of extrapolating too readily from language to cognitive structure, and distinctions have been drawn between claims about whole linguistic communities or idealised native speakers, and claims about the minds of single individuals (see, for example, Steen, 1994; Steen and Gibbs, 1999; Gibbs, 1999). We do not in this paper want to question the plausibility of the existence of (variants of) metaphors such as LOVE IS A JOURNEY in the minds of many speakers of English. We do, however, wish to point out how providing lists of decontextualised expressions under the heading of a particular conceptual metaphor can, in some cases, lead one down a single interpretative route when others are also possible.

Take, for example, Lakoff's (1993) exemplification of the metaphor A PURPOSEFUL LIFE IS A BUSINESS, which he presents as conventional alongside LIFE IS A JOURNEY in the English metaphor system:

A PURPOSEFUL LIFE IS A BUSINESS

He has a rich life. It's an enriching experience. I want to get a lot out of life.

He's going about the business of everyday life. It's time to take stock of my life. (Lakoff, 1993: 227)

Some of the examples fairly uncontroversially relate to the source domain of BUSINESS (e.g. 'It's time to take stock of my life'). Others are more problematic. In the case of 'I want to get a lot out of life', for example, the relationship with the BUSINESS source domain is not at all obvious, and Lakoff does not spell out his rationale for suggesting that such a connection exists.

We could raise similar doubts about other examples, but our aim is not scoring easy points against an exemplificatory procedure which we generally find acceptable. Instead we wish to point out the need to recognise and make more explicit the interpretative decisions involved in moving from particular linguistic metaphors to conceptual (and possibly conventional) metaphors. The issue of interpretative variability will play a major role in the discussion of our examples below.

2.1 Steen's 'five steps' from linguistic to conceptual metaphor

The difficulties involved in inferring conceptual metaphors from metaphorical expressions encountered in discourse analysis are the motivation for Steen's (1999) useful proposal of a detailed five-step procedure from linguistic to conceptual metaphor. Steen explains that:

"The procedure is meant to constrain the relation between linguistic and conceptual metaphor. It has sometimes remained an act of faith that particular metaphors in language reflect particular metaphors in thought." (Steen, 1999: 57)

Steen warns from the start that he deals with "metaphor analysis, not metaphor understanding" (Steen, 1999: 59). Although he recognises that "it would be odd if there were no connection between understanding and analysis" (Steen, 1999: 59), his aim is to provide a detailed and explicit analytical procedure which can be used by other linguists, not to map the cognitive processes involved in metaphor understanding (see also Cameron 1999a).

Step 1: Metaphor focus identification

Steen introduces the first step of his procedure as the identification of linguistic expressions used metaphorically in the discourse, which he refers to as the “metaphorical foci”. These, he explains, are expressions that activate concepts “which cannot be literally applied to the referents in the world evoked by the text” (Steen, 1999: 61). One of Steen’s examples (borrowed from Reinhart, 1976) is Eliot’s line ‘I have seen them riding seawards on the waves’, where ‘them’ refers anaphorically to ‘mermaids’. Here ‘riding on’ is the metaphorical focus, because, Steen argues, the concept it refers to does not apply literally to the relationship between the referents of ‘mermaids’ and ‘waves’. Similarly, if the expression ‘The royal court is going to hunt’ is used in relation to a group of lions, the expression ‘the royal court’ is the metaphorical focus, since the concept it refers to cannot be literally applied to the entity it highlights in the text world (i.e. the lions) (Steen, 1999: 60-1).

Step 2: Metaphorical idea identification

In step 2 Steen uses a variant of a technique for propositional analysis proposed by Bovair and Kieras (1985) in order to identify precisely the relationship between the metaphorical focus and the tenor or topic of the metaphor, which he refers to as “the literal part of the metaphorical idea” (Steen, 1999: 62). Here is his propositional analysis of the first example introduced earlier:

I have seen the mermaids riding seawards on the waves
 P1 (SEE P2)
 P2 (RIDE-ON MERMAIDS WAVES)
 P3 (DIRECTION P2 SEAWARDS)
 (Steen, 1999: 62)

The metaphorical idea is captured by P2, where what is involved is no longer words, but the concepts (in SMALL CAPITALS) activated by the words of the original expression.

The usefulness of the propositional analysis is more obvious in the case of implicit metaphors such as the second example above, where the literal referent is not mentioned in the surface of the discourse:

The royal court is going to hunt
 P1 (REF COURT LIONS)
 P2 (HUNT COURT)
 P3 (MOD COURT ROYAL)
 (Steen, 1999: 63)

Here P1 highlights the metaphorical idea, by spelling out that the concept COURT is being applied nonliterally to LIONS. As Steen makes clear, the output of step 2

“is a proposition in which we have a nonliterally used concept (expressed by the linguistic focus identified in step 1) that is related to one or more literally used concepts identified in step 2 which evoke the relevant literal referent.” (Steen, 1999: 66)

Step 3: Nonliteral comparison identification

In step 3 the metaphorical propositions that come out of step 2 are put through a procedure which transforms them into comparative structures (see Miller 1993). This is necessary, according to Steen, in order to be able to arrive at the sets of correspondences across different domains which constitute metaphorical mappings in the cognitive paradigm. Step 3 itself, however, is “highly mechanical” (Steen, 1999: 67). There are three re-write rules, depending on whether the metaphor is nominal, verbal or sentential, but the details need not concern us here. As an example, this is how step 3 works for the line from Eliot:

(RIDE-ON MERMAIDS WAVES) --> $(\exists F) (\exists y, y') \{ \text{SIM}[F(\text{MERMAIDS}, \text{WAVES}), \text{RIDE-ON}(y, y')] \}$
(Steen, 1999: 67)

Steen paraphrases all this as follows:

“there is an activity (or relation) F and two entities y and y’ such that there is a similarity between mermaids and waves ‘doing F’ on the one hand and y riding on y’ on the other.” (Steen, 1999: 67)

Step 4: Nonliteral analogy identification

Whereas step 3 is mechanical, step 4 is highly interpretative, since it involves filling in the empty slots from the output of step 3 so as to arrive at a complete nonliteral analogy. Here is how Steen presents step 4 for the Eliot line:

(RIDE-ON MERMAIDS WAVES) --> $\text{SIM}[\text{FLOAT}(\text{MERMAIDS}, \text{WAVES}), \text{RIDE-ON}(\text{JOCKEY}, \text{HORSE})]$
(Steen, 1999: 67)

Step 4 consists of two parts: the *focus interpretation*, whereby a literal expression is filled in to replace the metaphorical focus (in our case, FLOAT replaces F as a the literal counterpart of RIDE ON); and the *vehicle identification*, whereby some elements of the source domain evoked by the metaphorical focus are chosen to fill in the second incomplete proposition from step 3 (in our case, JOCKEY and HORSE replace y and y’ above).

Steen stresses the need to keep interpretation “under firm control” (Steen, 1999: 68) during this step. However, he points out that, whereas focus interpretation (i.e. finding a literal equivalent for the metaphorical expression) is constrained by the context in which the metaphor occurs, vehicle identification has to rely on “prototypical or default knowledge about the source domain” (in our case, the domain evoked by ‘ride on’) (Steen, 1999: 71). Here different source domains or different elements of the same source domain may in some cases be equally involved in the interpretation of the second proposition. The relatively uncontroversial association between riding, jockeys and horses in the example above downplays this issue of potential interpretative variability, and Steen does not discuss any problematic examples.

Step 5: Nonliteral mapping identification

Step 5 involves the identification of “the complete nonliteral mapping [. . .] by filling out the conceptual structure of the two sides of the nonliteral analogy, the source and target domain” (Steen, 1999: 71). In other words, with step 5 we move from the output of step 4 to the sets of cross-domain correspondences that are normally proposed in cognitive metaphor theory (e.g. the one for LOVE IS A JOURNEY given above). Unfortunately, Steen does not exemplify this step in relation to the Eliot line, nor to the ‘royal court’ example. Instead, he limits his attention to the expression ‘a watchdog committee’ – the linguistic realisation of a conventional metaphor for which step 5 results in the following set of correspondences:

THE COMMITTEE-AS-WATCHDOG MAPPING

The committee corresponds to the watchdog.

The organizational domain corresponds to the yard.

The interest or activity at risk corresponds to the property.

Malpractice corresponds to trespassing.

Monitoring corresponds to watching.

Warning the public corresponds to barking. (Steen, 1999: 74)

Steen admits that “the last two steps of the procedure form the weakest part of the chain, with step 5 being the weakest of all” (Steen, 1999: 73), and indeed the disappearance of the Eliot example after step 4 seems rather telling in this respect.

Steen finishes by pointing out that analysts who regard only conventional metaphors as conceptual would need a further step (step 6) to make decisions about conventionality. This involves the analysis of large amounts of data and the collection of numerous examples in order to determine whether an individual metaphorical expression is simply a one-shot metaphor or is part of a systematic, frequently-occurring pattern, and therefore conventional. It seems to us that, even if one regards all metaphors as conceptual (and we agree with Steen on this), decisions about conventionality would still need to be part of a fully-fledged procedure for metaphor analysis.

In the rest of this paper Steen’s procedure will be put through the rather demanding test of accounting for some problematic examples from our cancer corpus. We will show that the procedure is particularly useful in making analyses explicit and in identifying the points at which difficult or controversial decisions are made, but we will also identify a number of problems.

3. References to movement in relation to cancer: difficulties with the boundary between the literal and the metaphorical (Steen’s step 1)

Many studies of metaphor (and of figurative language in general) emphasize that metaphoricity is a matter of degree, and that consequently the boundary between the literal and the metaphorical is fuzzy rather than clear-cut (see, for example, Goatly, 1997: 14 *et passim*; Grady *et al.* 1999; Sperber and Wilson, 1986, 1995: 235). In our cancer corpus the fuzziness of the boundary between literal and metaphorical language is particularly obvious in some of the exchanges where the spread of cancer is talked about in terms of movement.

In the following extract an oncologist explains to a patient how the breast cancer for which she had previously received treatment has now spread to her bones (N.B. In our transcriptions ‘D’ stands for ‘Doctor’ and ‘P’ for patient):

- (1) D the thing is the
P um
D the way it gets there is through the blood stream and it tends to get dotted around in various parts of the of the skeleton and er and so there are multiple
P um um
D sites of involvement er I don't think we would ever expect to see it only affecting one place er or
P um
D indeed three for that matter er what it implies to us is that the the disease got into the circulation and lodged itself in the bones (LA29C04G; our underlining)

The oncologist's explanation attempts to convey the fact that cancer cells move *literally* from one part of the body to another via the blood stream, so that it is normal for malignant tumours to spread from organ to organ (note particularly the underlined segments). However, the oncologist also relies on metaphor to explain the invisible processes by means of which the disease develops inside the body. His apparently literal references to cancer entering the blood stream are accompanied by metaphorical references to parts of the body as ‘sites’ (‘areas’ is also used in our data), and to cancer getting ‘dotted around’ⁱⁱⁱ in the skeleton, and ‘lodging itself’ in the patient's bones.

Although the development of cancer frequently involves the literal movement of cancerous cells inside the body^{iv}, the use of lexis to do with motion in our corpus often appears to be metaphorical, as in the following examples:

- (2) D chemotherapy can reduce the chances of things coming back (LKO8C01A)
(3) D it is that bit there but it's no different now from what it was it doesn't
P it hasn't travelled any more then (LK14R01C)

In example (2), the resumption of the process whereby normal cells turn into cancerous cells is referred to as ‘things coming back’, while in example (3) the doctor's observation that successive tests show no difference in the size of a tumour is rephrased by the patient as ‘it hasn't travelled any more then’. Following Steen's (1999) description of step 1, it can be argued that the concepts referred to by the expressions ‘coming back’ and ‘travelled’ do not apply literally (in the relevant discourse world) to the concepts referred to, respectively, by ‘things’ and ‘it’ (namely a tumour or cancer), so that both verbs are metaphorical foci.^v In other words, the literal fact that cancer cells can enter the blood stream and be carried from one part of the body to another leads to a situation where metaphors drawing from the source domains of movement and journeys are particularly appropriate to talk about and understand what happens inside the body. Indeed, whereas the literature on metaphor and cancer tends to emphasize the use of metaphors drawing from the source domains

of fighting and war (e.g. Sontag, 1979), a preliminary analysis of our corpus suggests that military metaphors are much less frequent than a metaphor which we will provisionally name DEVELOPMENT OF CANCER IS JOURNEY. Within this metaphor, the cancer is mapped on to the moving entity/traveller, the body onto a set of locations, speed of growth onto speed of movement, periods of remission onto pauses in the journey, and so on.^{vi}

Even with such examples, however, the boundary between the literal and the metaphorical is not always easy to draw. The use of ‘travelled’ in (3), for example, could be regarded as involving a literal extension of the prototypical meaning of the verb to the behaviour of cancer cells in the body. While in contemporary English ‘travel’ prototypically refers to the intentional movement of an animate agent toward a specific destination, it can also be used for the movement of inanimate entities (e.g. light). Thus, if one sees the use of ‘travel’ in ‘Light travels very fast’ as literal, example (3) could also be literal, especially if we take the subject ‘it’ as a metonymy for cancer cells. Similarly, it is possible to argue that ‘site’ in example (1) is a borderline case of metaphoricity, especially if compared with more obviously metaphorical uses of the noun, such as in ‘Shakespeare’s *Hamlet* is a notorious site of disagreement among literary critics’. The fuzziness of the boundary between the literal and the metaphorical is even more evident in examples such as the following:

- | | | |
|-----|---|--|
| (4) | D | if it’s spread into the glands which it has there’s always |
| | P | mm |
| | D | a question mark about has it gone anywhere else |
| | P | yes (LKO8C01A) |

If we place example (4) in the context of examples such as (2) and (3), we could see ‘gone’ as a metaphorical focus, and argue that the process the verb refers to does *not* apply literally to cancer as a disease. We could point out, for example, that the referent of ‘go’ normally implies that the relevant agent has left one location and moved to another, whereas the disease is normally still found in the old location even after it has spread to a new one (unless, of course, the original tumour has been surgically removed or eliminated via treatment, but that is another matter). In fact, example (4) would probably not strike one as out of place alongside examples such as (2) and (3) in a list of expressions realising the conceptual metaphor DEVELOPMENT OF CANCER IS JOURNEY:

DEVELOPMENT OF CANCER IS JOURNEY

The cancer has not travelled any more. There is always a question mark as to whether the cancer has gone anywhere else. Chemotherapy can reduce the chances of things coming back.

On the other hand, if we see the expression ‘has it gone anywhere else’ in the context of what we know about how cancer cells move in the body, the referent of the verb ‘go’ could be said to apply literally to the referent of ‘it’ (i.e. the cancer). More specifically, the pronominal reference to cancer by means of ‘it’ can be seen as a metonymy for cancerous cells. Thus, if one accepts that an expression such as ‘Have the cancer cells gone anywhere else?’ is literal, then, example (4) can also be seen as literal.

Although Steen does not discuss potential problems with step 1, it seems evident that decisions about exactly what concepts are referred to by particular

linguistic expressions and whether or not certain concepts apply literally to other concepts is often not a straightforward matter. The ambiguous status of example (4) in particular appears to result from the fact that:

- (i) the notion of movement is an important part of both the domain of CANCER and of the potential source domain of JOURNEYS, and
- (ii) the verb ‘go’ is one of the most neutral and general ways of referring to movement, so that it is debatable whether its use in relation to cancer can be legitimately seen in terms of a cross-domain mapping (see Cameron 1999b: 120-3 for a discussion of delexicalised verbs).^{vii}

It is only recently that metaphor scholars have started to address the methodological problems posed by the identification of metaphorical expressions in discourse. Cameron (1999b), in particular, has discussed the different kinds of criteria that can be adopted in metaphor identification, and pointed out the importance of being explicit about the specific criteria that have been selected for individual studies, depending on one’s data and research goals.

4. What ‘gallops’, ‘erupts’, and goes ‘dormant’?: the leap from propositions to conceptual structure (Steen’s steps 4, 5 and 6)

Unlike step 1, steps 2 and 3 in Steen’s procedure are unlikely to cause more than minor technical problems, since they involve, respectively, converting linguistic expressions into propositions, and converting propositions into comparative structures. Most of the difficulties we encountered in analysing our data were in relation to steps 4 and 5, where the relatively uncontroversial output of logical operations is first fleshed out into an explicit comparison and then translated into a conceptual mapping with multiple correspondences across two separate domains. We will begin our discussion of these difficulties by introducing the examples we are going to refer to in the rest of this paper.

Examples (5a) and (5b) both contain the expression ‘galloping away’ in reference to the development of cancer. In (5a) the expression is used by a patient reporting what she previously said to a doctor; in (5b) it is used in the negative by a doctor who is trying to reassure a patient that her cancer is not developing quickly:

- | | | |
|------|---|---|
| 5(a) | P | so I mentioned this to him last time I went; I said come on that’s nearly double, galloping away; he said oh no its the way they measured it (YA14R02G) |
| 5(b) | D | it’s how long since your first operation and chemotherapy |
| | P | eight years |
| | D | that’s a long time course isn’t it not something |
| | P | seven years |
| | D | that’s galloping away and why I’m not worried (YA14C02B) |

In examples (6a) and (6b) the expression ‘erupt’ is used to refer to the possibility that the patient’s condition might worsen very suddenly, due to a sharp increase in the activity of the cancer. Again, in (6a) the expression is used by a patient reporting a question she had previously asked a doctor (who is then reported as having answered ‘yes’); in (6b) it is used by a doctor trying to change the way in which a patient imagines what the final stages of her cancer might be like:

- (6a) P (I said) does that mean that it can erupt and you know
(inaudible) off elsewhere? he says yes; (YA14R02G)
- (6b) D there's no need to imagine that
P no no
D something is gonna suddenly erupt and it's all going to be all
over (LK15CO5I)

Example (7) is one of three cases in our data where a doctor refers to inactive cancer as 'dormant':

- (7) D as far as the cancer that was in the bones is concerned that is
dormant (LA29C04G)

The problems posed by these examples, we will argue, relate to what exactly counts as the tenor and vehicle in each case (Steen's step 4), what conceptual metaphors are involved (step 5), what metaphors might be conventional (step 6), and how exactly cancer itself is conceptualised. We will demonstrate these problems by proposing two alternative 'analytical routes'. The first route provocatively applies Steen's procedure rather mechanically, and mostly relates the examples to the specific context of the cancer corpus itself. The second route applies Steen's procedure more critically and cautiously, and attempts to place the examples against the more general background of the English language and its metaphor system.

4.1 Analytical route No. 1

Let us begin by putting example (5a) through Steen's procedure. Figure 1 gives a complete breakdown of steps 1 to 5.

Figure 1: Steen's procedure and the 'galloping away' examples

Step 1:	'galloping away' → metaphorical focus
Step 2:	P1 (GALLOP-AWAY CANCER)
Step 3:	(GALLOP-AWAY CANCER) → $(\exists F) (\exists y \{ \text{SIM}[F(\text{CANCER}), \text{GALLOP-AWAY}(y)] \})$
Step 4:	(GALLOP-AWAY CANCER) → $(\exists F) (\exists y \{ \text{SIM}[\text{DEVELOP FAST}(\text{CANCER}), \text{GALLOP-AWAY}(\text{HORSE})] \})$
Step 5:	<i>Either</i> FAST DEVELOPMENT OF CANCER IS GALLOPING AWAY The cancer corresponds to a horse. The speed of development of cancer corresponds to the rapid speed of movement of the horse when galloping. The body corresponds to the ground on which the horse moves. <i>Or</i> CANCER IS A HORSE The speed of development of cancer corresponds to the speed of movement of a horse. The fast development of cancer corresponds to the horse galloping away. The body corresponds to the ground on which the horse moves.

Steps 1, 2 and 3 are relatively straightforward. First, we have identified the non-finite clause ‘galloping away’ as a metaphorical focus^{viii}; second, we have translated the linguistic expression into a proposition and filled in the concept CANCER as the agent of GALLOP-AWAY; third, we have applied Steen’s re-write rule for verbal metaphors in order to turn the proposition into a comparative structure.

In the focus interpretation part of step 4, however, we have opted for ‘develop fast’ as the literal counterpart of ‘gallop away’, but many different alternatives are possible (e.g. ‘develop out of control’, ‘grow unchecked’, ‘spread very fast’, etc.). As for vehicle identification, we have inserted HORSE as the default agent of ‘galloping away’, which, on the face of it at least, seems fairly unproblematic. Finally, with step 5 we have proposed two alternative ways of converting the output of step 4 into a set of correspondences between two domains. The issue here is whether one takes CANCER or FAST DEVELOPMENT OF CANCER as the relevant target domain, which obviously affects what counts as the source domain. Either way, the analysis seems to lead to a correspondence between CANCER and HORSE, so 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. We will revisit this conclusion in 4.2 below.^{ix}

Let us now move to example (6a), which can be put through Steen’s procedure as shown in figure 2.

Figure 2: Steen’s procedure and the ‘erupt’ examples

Step 1:	‘erupt’ → metaphorical focus
Step 2:	P1 (ERUPT CANCER)
Step 3:	(ERUPT CANCER) → (∃F) (∃y){SIM[F(CANCER), erupt (y)]}
Step 4:	(ERUPT CANCER) → SIM[BECOME ACTIVE(CANCER), ERUPT(VOLCANO)]
Step 5:	<i>Either</i> CANCER BECOMING ACTIVE IS VOLCANIC ERUPTION The cancer corresponds to the volcano. The activity of the cancer corresponds to the eruption. The new cancerous cells correspond to the lava. The body corresponds to the land surrounding the volcano. The spreading of the illness corresponds to the devastation caused by the lava. <i>Or</i> CANCER IS VOLCANO The activity of the cancer corresponds to the eruption. The new cancerous cells correspond to the lava. The body corresponds to the land surrounding the volcano. The spreading of the illness corresponds to the devastation caused by the lava.

Again, in the focus interpretation part of step 4 we have chosen ‘becoming active’ as the literal counterpart of ‘erupting’, but this is not the only possibility. With vehicle identification, we have chosen VOLCANO as the default agent of ERUPT. As far as step 5 is concerned, we have again given two alternatives depending on whether we take CANCER or CANCER BECOMING ACTIVE as the target domain. Either way, this version of our analysis suggests the existence of a metaphor where cancer is conceptualised as

a volcano. In 4.2 below we will show how this conclusion is questioned by taking our second analytical route.

Finally, figure 3 shows how Steen's procedure applies to example (8) above.

Figure 3: Steen's procedure and the 'dormant' examples

Step 1:	'dormant' → metaphorical focus
Step 2:	P1 (BE CANCER DORMANT)
Step 3:	(BE CANCER DORMANT) → $(\exists F) (\exists y) \{SIM[F(CANCER), BE DORMANT(y)]\}$
Step 4:	(BE CANCER DORMANT) → $SIM[BE IN REMISSION(CANCER), BE DORMANT(HIBERNATING ANIMAL/VOLCANO)]$
Step 5:	<i>Either</i> REMISSION PHASE OF CANCER IS BEING DORMANT The cancer corresponds to the hibernating animal/volcano. The period of remission of the cancer corresponds to the period in which the animal/volcano is dormant. The end of inactivity/remission corresponds to the volcano erupting or the animal waking up. <i>Or</i> CANCER IS HIBERNATING ANIMAL /VOLCANO The period of remission of the cancer corresponds to the period in which the animal/volcano is dormant. The end of inactivity/remission corresponds to the volcano erupting or the animal waking up.

Here steps 4 and 5 are more complicated than with the previous examples. In focus interpretation, we have opted for 'in remission' as the literal counterpart of 'dormant' ('inactive' or 'slow-growing' are obvious alternatives). With vehicle identification, we felt that both volcanoes and certain types of animals can be associated literally with the (temporary) state of being dormant, so we have given both alternatives in steps 4 and 5. In step 5 we have also outlined, once again, the possibility of selecting CANCER or REMISSION as target domains, which affects what counts as the source domain. Whatever the choice of target domain, however, here cancer would appear to be conceptualised *either* as a type of animal *or* as a volcano, or possibly *both*. This conclusion will be seriously questioned by our second analytical route.

On the basis of this set of examples, one could begin to make hypotheses about underlying conventional conceptual metaphors, and therefore begin to answer some of the overarching research questions introduced in Section 1 above. (Note that, as we said earlier, our corpus contains two cases each of the 'galloping away' and 'erupt' metaphors, and three cases of the 'dormant' metaphor). If the conceptualisation of cancer as a horse derived from the GALLOP AWAY examples is linked with the ANIMAL reading of the DORMANT metaphor, we could identify a superordinate conventional metaphor CANCER IS ANIMAL, and we could see HORSE and (HIBERNATING) ANIMAL as basic-level categories which result in the sub-mappings CANCER IS HORSE and CANCER IS HIBERNATING ANIMAL (see Lakoff, 1993: 211-2). On the other hand, if we link the conceptualisation of cancer as a volcano from the 'erupt' examples with the VOLCANO reading of the DORMANT metaphor, we would have some evidence for the existence of a conventional CANCER IS VOLCANO metaphor (it could even be argued that the 'dormant' examples can trigger both mappings at the same

time). In any case, the ‘erupt’ cases can also be related to other examples from our corpus, such as the use of the metaphorical expression ‘damp down’ on the part of a doctor to refer to the effect that treatment has on cancer. If we put this use of ‘damp down’ through Steen’s procedure, we would end up with a conceptualization of cancer as fire. If this is related to the ‘erupt’ examples, one could hypothesize on the existence of a conventional CANCER IS HOT/BURNING ENTITY superordinate metaphor, with CANCER IS VOLCANO and CANCER IS FIRE as more specific metaphors.

Having gone this far, we can begin to take stock. In this section we have been deliberately simplistic and rather bold in our analytical procedure. However, we have attempted to be rigorous in our application of Steen’s procedure, and we have not significantly strayed, in our view, from what appears to be common practice in cognitive metaphor theory. Yet, we are doubtful about the validity of the (rather neat) results of our first analytical route. Although we do not aim to speculate about the cognitive processes that occur in the minds of the producers or receivers of the stretches of text we analyse, it is crucial that our analysis leads to cognitively plausible results in order for us to be able to address our overarching research questions concerning the way in which cancer is conceptualised in a particular cultural context.

We have no difficulty with the conceptual mappings that correspond directly with the linguistic metaphors (e.g. the correspondence between CANCER DEVELOPING FAST and GALLOPING). We are, however, uneasy about (i) those mappings that derive from the apparently automatic *literal* associations of step 4 (whereby HORSES, HIBERNATING ANIMALS and VOLCANOES are mapped onto cancer itself), and (ii) those that derive from filling in sets of correspondences between source and target domains in step 5. As far as language is concerned, our uneasiness derives from the fact that, although the particular linguistic expressions are used repeatedly in our data and strike us as conventional, the corpus contains no direct references to horses, animals or volcanoes in relation to cancer. This raises issues about what counts as adequate linguistic evidence for the extrapolation of particular conceptual metaphors and about the legitimacy of drawing multiple cross-domain correspondences in Steen’s step 5 when only one strong link between two domains has been identified. In conceptual terms, we therefore doubt that we can plausibly hypothesise the existence of a CANCER = VOLCANO mapping on the basis of the use of linguistic expressions such as ‘erupt’ in relation to cancer. Although the results of our first analytical route could well reflect how specific individuals in specific circumstances interpret and extend particular metaphorical expressions, we would hesitate to treat them as the basis for wider generalisations on how cancer is conceptualised in the cultural context our data relates to.

In our second analytical route we will propose an alternative way of looking at our examples, which ultimately leads to rather different conclusions about the way in which cancer is metaphorically constructed in our data. We will also suggest some adjustments to Steen’s procedure in the light of our observations.

4.2 Analytical route No. 2

For reasons of space, we are going to focus on alternative ways of applying to our examples the second part of Steen’s step 4 (*Vehicle identification*), and steps 5 (*Nonliteral mapping identification*) and 6 (*Conventional metaphor identification*). Our analyses in 4.1, however, show that the first part of step 4 (*Focus interpretation*) can also be problematic. This is because the linguistic specification of topics often

involves a choice between *several* expressions that could count as the literal counterpart of the metaphorical focus, and whatever decision is made at this point will affect what is eventually selected as the target domain in step 5.

4.2.1 Vehicle interpretation (Step 4) revisited

When dealing with vehicle interpretation in our first analytical route, we followed Steen in simply filling in what we regarded as the default literal associates of the concepts corresponding to the metaphorical foci. This meant that we selected HORSE as the default agent of GALLOP-AWAY, VOLCANO as the default agent of ERUPT and HIBERNATING ANIMAL or VOLCANO as the default agent of BEING DORMANT. These entities were then inevitably mapped onto CANCER in step 5. The uneasiness we have expressed about these results derives from the fact that the *linguistic expressions* ‘galloping away’, ‘erupt’ and ‘dormant’ are all, to varying degrees, polysemous in present-day English. More specifically, they exhibit the kind of polysemy that Lakoff (1993: 205) cites as one of the main types of evidence for “the existence of a system of conventional conceptual metaphors” in English. All three expressions *conventionally* relate not just to the default literal associates mentioned above, but to a range of other entities to which they apply metaphorically. Our own intuitions suggested conventional metaphorical expressions such as, respectively, ‘inflation galloping away’, ‘spots erupting (on the skin)’ and ‘emotions becoming dormant’. This suggests that the concepts we are dealing with are conventionally mapped on to a range of entities in other domains, quite separate from the domains which their prototypical literal associates belong to.

In cases such as these, different methods can be employed to verify the analyst’s intuitions regarding the default associates of concepts, as well as regarding the *strength* of the connection in each case. For the purposes of this study, we decided to collect some independent evidence relating to the usage of the linguistic expressions under analysis. More specifically, we consulted the COBUILD dictionary of English (based on the ‘Bank of English’ corpus stored at Birmingham University), and also extracted concordances for GALLOP*, ERUPT*^x and DORMANT in three corpora of British English: the *Lancaster-Oslo-Bergen* (LOB) corpus (1 million words), the *Freiburg-Lancaster-Oslo-Bergen* (FLOB) corpus (1 million words) and the *British National Corpus* (BNC) sampler (2 million words).

Whereas the results of our searches for the ‘gallop (away)’ example did not quite match our expectations, those for the ‘erupt’ and ‘dormant’ examples confirmed our uneasiness with simply filling in literal associates in step 4. For ‘gallop’ as a verb, the COBUILD dictionary gives the following meanings: a horse running fast, a person riding a horse fast, a person running very fast, a person doing something faster than usual (NB: in this dictionary definitions are given in decreasing order of frequency in the Bank of English corpus). For ‘gallop’ as a noun, the dictionary gives: a ride on a galloping horse, and “a very fast rate at which you do something, or at which something develops or progresses”. Finally, for ‘galloping’ as an adjective, it says “used to describe something that is increasing or developing at a very fast rate and is difficult or impossible to control” (here the examples relate to inflation and consumption). There is no separate entry or sub-entry for ‘galloping away’. Contrary to our expectations, the concordances we extracted from the three corpora show that in over 80% of cases GALLOP* relates to horses and horse-racing, while the remaining 20% are split between references to people, other types of animals and inanimate entities such as ‘clouds’ and ‘the art market’. Unfortunately, we had no instances of the phrasal verb ‘gallop away’, but it is clear that in this case the evidence

from the dictionary and the corpora appears to confirm the validity of our analysis in 4.1. The situation is rather different for the remaining examples, however.

As for the verb ‘erupt’ and the noun ‘eruption’, in the COBUILD dictionary only the first of our six meanings relates to volcanoes. The remainder link ‘erupting’ and ‘eruptions’ (metaphorically) to the following entities: fire or sound; war or fighting; places, meeting or groups of people; new situations or movements; and sores or spots on the skin. In our three corpora of British English the verb ‘erupt’ and the noun ‘eruption’ only relate to volcanoes in about 38% of the cases. The rest of the examples all display conventional metaphorical uses, with a further 30% broadly relating to people and their activities (e.g. ‘the white proletariat’ and ‘clashes’), and the remainder having to do with emotions, animals and various types of inanimate entities.

The picture for ‘dormant’ is even more problematic. The COBUILD dictionary gives the following definition: “Something that is **dormant** is not active, growing or being used at the present time but able to be active later on. Animals, plants, volcanoes and organizations can be dormant, but not humans.” In the corpora we have consulted, the adjective relates once to a volcano, once to a fish, five times to plants, five times to aspects of people’s psyches or emotional lives (e.g. a ‘grudge’ or someone’s ‘critical sense’) and seven times to companies or organisations (e.g. ‘the company has been dormant throughout the financial year’). Of these, only the first two, or possibly three, uses can be regarded as literal.

Although these patterns relate to the usage of linguistic expressions, they are relevant here insofar as they highlight the range of domains with which the corresponding concepts are normally associated by means of conventional metaphorical mappings. These patterns suggest that, in some cases at least, the strength of the association between particular concepts and their prototypical literal associates may be attenuated by the frequency of conventional metaphorical uses. As an alternative, or in addition to consulting linguistic corpora, one could also undertake informant testing, in order to collect evidence from people regarding the prototypical associates of particular concepts (although, even in this case, it is hard to escape from the mediating influence of the *words* used to express the relevant concepts). In the light of the linguistic evidence we have presented, our earlier decisions about ‘default’ associations would only have been fully justified in the case of the ‘galloping away’ example (and, even there, the linguistic evidence is not clear-cut). We do not, of course, wish to suggest that consulting dictionaries or corpora should replace the analyst’s intuitions about the prototypical associates of words and concepts, not least because any corpus, no matter how large and balanced, inevitably captures a finite subset of the contexts of use of a language. However, we would argue that decisions about associations between concepts should ideally be based on evidence from a range of sources, and that corpora can provide a good test-bed for the analyst’s own intuitions. In our case, the corpus-based findings begin to explain our dissatisfaction with how our first analytical route treated particular metaphorical uses of expressions that are conventionally applied metaphorically to a wide variety of entities (Steen devotes most of his attention to novel, one-shot metaphors, so he does not encounter this kind of problem).

We therefore suggest that in *vehicle identification* analysts should, first of all, allow for the possibility that individual concepts have more than one conventional *literal* associate: in the case of the concept indicated by ‘dormant’, one would have to include animals and volcanoes, and possibly even plants. More importantly, it is crucial to make a record, at this point in the analysis, of the existence of conventional

metaphorical associates of the relevant concepts, possibly in the form of a note appended to Steen's formula. In both cases one could also use evidence from corpora and/or informant testing to rank-order the associates, depending on the strength of their relationship with the concept in question.

So, the outcome of step 4 for the 'dormant' example could look like this:

Step 4: (BE CANCER DORMANT) → SIM [BE IN REMISSION (CANCER), BE DORMANT (ANIMAL, VOLCANO, PLANT?)]

Note: Conventional metaphorical associates of DORMANT: COMPANIES, EMOTIONS

This would not only avoid the analytical straightjacket of having just one default literal associate for each metaphorical focus, but it would also make it more natural in steps 5 and 6 to relate the metaphorical expressions under analysis to other conventional metaphors within the metaphor system of the language as a whole.

4.2.2 Steps 5 and 6 revisited

If a range of literal and/or metaphorical associates has been identified in step 4, step 5 would not simply involve setting up multiple correspondences between a single source domain and the relevant target domain. In cases of metaphorically polysemic foci such as our examples above, one would also have to relate the mappings realised by individual metaphorical expressions (e.g. between ERUPTIONS and the RESUMPTION OF ACTIVITY OF CANCER) to what is known about the way in which conceptual metaphors can interact with one another and more generally about the metaphor system of English.

Lakoff (1993), for example, talks about "inheritance hierarchies", which he introduces as follows:

"Metaphorical mappings do not occur isolated from one another. They are sometimes organized in hierarchical structures, in which "lower" mappings in the hierarchy inherit the structure of "higher" mappings. Let us consider an example of a hierarchy with three levels:

Level 1: The event structure metaphor^{xi}

Level 2: A PURPOSEFUL LIFE IS A JOURNEY

Level 3: LOVE IS A JOURNEY; A CAREER IS A JOURNEY" (Lakoff, 1993: 222)

Among other things, this explains why a range of different target domains are understood in terms of the same source domain, and accounts for cases of politely whereby a word like 'crossroads' has its central meaning "in the domain of space, but it can be used to speak of any extended activity, of one's life, of a love relationship, or of a career" (Lakoff, 1993: 224).

Grady (1999) introduces the notion of "primary metaphors" to explain how more specific metaphors come about, and why in some cases conventional cross-domain correspondences involve "very partial projections", rather than large sets. He notes, for example, that the conventional metaphor DEATH IS A THIEF does not appear to have an experiential basis and, more importantly for our argument, goes on to add:

"An additional fact which will be relevant to us about this metaphor is that the sentences and expressions which it appears to motivate are extremely similar to

expressions about target concepts other than death. In fact, anything that we greatly appreciate - such as our own experiences of hope, happiness, comfort, etc. - can be metaphorically “robbed” from us, just as life can. [. . .] In each of these cases it seems that the thief as an entire person is not relevant - instead it is merely the thief as the entity responsible for our loss that figures in the mapping. [. . .] Of course we are capable of enriching our figurative image of Death-as-Thief with any degree of detail, including his physical appearance, but the conventional metaphor does not include such elements.” (Grady, 1999: 82)

Grady explains all this by proposing that the conceptualisation of death as a thief results from the existence of a more basic metaphor “along the lines of VALUED ASPECTS OF EXPERIENCE ARE PRECIOUS POSSESSIONS” (Grady, 1999: 83). This metaphor has a stronger experiential basis, yields a richer set of cross-domain correspondences, and motivates a wide range of more specific metaphors where loss is seen in terms of being robbed. This is the kind of metaphor that Grady sees as ‘primary’.

Let us now return to our own examples. While, on the one hand, the words ‘gallop’ and ‘galloping’ mostly collocate with horses in the corpora we have consulted, it is also the case that they are conventionally used metaphorically to refer to something increasing or developing fast and possibly in an uncontrolled fashion, such as inflation, debt or unemployment. This could be related, for example, to the primary metaphor LINEAR SCALES ARE PATHS (Lakoff, 1993: 213-5), which “maps the starting point of the path onto the bottom of the scale and maps distance traveled onto quantity in general” (Lakoff, 1993: 214). This metaphor is realised by expressions such as ‘John’s intelligence *goes way beyond* Bill’s’ (Lakoff, 1993: 214), and is presented by Lakoff as one of the ways in which quantity is conventionally conceptualised in English, alongside the well-known MORE IS UP metaphor. Within this background, GALLOPING can be seen as a type of fast (and potentially uncontrolled) movement which is mapped from the HORSE source domain onto FAST AND UNCONTROLLED INCREASES/DEVELOPMENTS in a wide range of target domains, including ILLNESS and, more specifically, CANCER. In this context, the connection between CANCER and the HORSE source domain would be rather weak, given that (i) only the GALLOPING element of the HORSE source domain is relevant to the LINEAR SCALES ARE PATHS metaphor, and (ii) the GALLOPING mapping applies, via the LINEAR SCALES ARE PATHS metaphor, to a very wide range of target domains.

A similar (and perhaps not incompatible) way of making sense of our ‘galloping’ examples is to see them in the context of the DEVELOPMENT OF CANCER IS JOURNEY metaphor, which we have identified as conventional in our data, and which could be placed at Level 2 or 3 in Lakoff’s (1993) Inheritance Hierarchy. The JOURNEY source domain provides slots for TRAVELLER (which in our case is mapped on to CANCER) and VEHICLE, which may be realised by a range of basic-level categories, including, presumably, HORSE. In this case GALLOPING would be mapped onto the MODE OF TRAVEL of cancer in the body, but there would not need to be a conventional mapping involving the horse itself. As Lakoff (1993: 212) suggests, sub mappings such as the one where VEHICLE is realised by HORSE are not “fully general”, i.e. they only produce limited sets of cross-domain correspondences. Regardless of which interpretation is chosen, the ‘galloping’ examples would not realise a conventional metaphor where cancer is seen as an animal, but they would be part of broader and more complex patterns in the metaphor system of English.

Similar alternative analyses can be suggested for our ‘erupt’ and ‘dormant’ examples. As suggested by our corpora analyses, the notion of eruption is mostly applied metaphorically to the way in which many types of entities or phenomena can suddenly become violently and dangerously active (e.g. trouble, meetings, fights, emotions, skin sores, etc.). This can be seen in the context of the fact that (i) the source domain of CONTAINERS is conventionally applied to a wide range of entities, including THE BODY and THE MIND (e.g. Lakoff and Johnson, 1980: 27), and (ii) that the conventionality of metaphors such as ANGER IS HEATED FLUID IN A CONTAINER (e.g. Gibbs, 1999) suggests the existence of a more basic superordinate metaphor VIOLENT NEGATIVE ACTIVITY IS OVERFLOW FROM A CONTAINER. Within this metaphor, ERUPTION would be a type of overflow deriving from the basic level realisation of CONTAINER as VOLCANO. It can therefore be argued that BODY PARTS ARE CONTAINERS and VIOLENT NEGATIVE ACTIVITY IS OVERFLOW FROM A CONTAINER are more basic metaphors that combine to produce the more specific VIOLENT ACTIVITY OF CANCER IS ERUPTION. This would explain why the concept ERUPTION is conventionally applied to a particular stage in the development of cancer without necessarily resulting in any further mappings from the VOLCANO domain to the CANCER domain.

Finally, we noted that ‘dormant’ is in the vast majority of cases used metaphorically to refer to the (temporary) inactivity of a wide range of entities and phenomena, including organisations and emotions. If we take hibernating animals as the main literal association of the state of being dormant, the metaphorical uses could be explained in the context of the following basic metaphors: ACTIVE IS UP/INACTIVE IS DOWN, ACTIVE IS AWAKE/INACTIVE IS ASLEEP, INANIMATE ENTITIES ARE ANIMALS. These would result in a more specific conventional mapping SUSTAINED TEMPORARY INACTIVITY IS BEING DORMANT, which would then apply to many specific domains, including cancer. Again, we would then be able to explain why only the concept BEING DORMANT from the HIBERNATING ANIMAL/VOLCANO source domain is conventionally applied to an aspect of the CANCER target domain, without implying a conventional conceptualisation of CANCER as an animal or volcano.

This second analytical route is particularly relevant to examples such as ours, where (a) a particular metaphorical expression has a wide range of conventional metaphorical uses, and (b) no further mappings from the source domain prototypically associated with the vehicle are realised in the discourse, or are conventional in language more generally. In such cases, step 5 would extract from step 4 the conceptual mappings that most closely correspond to the relevant linguistic expressions (e.g. FAST DEVELOPMENT OF CANCER IS GALLOPING rather than CANCER IS HORSE), without necessarily expanding these into fully-blown sets of ontological correspondences across two domains.^{xiii} As Grady *et al.* (1999) note:

“conceptual domains are often too general as units of analysis for conceptual metaphors, and [. . .] many mappings are better described as associations between source and target *concepts*, belonging to distinct domains.” (Grady *et al.*, 1999: 122)

One would then consider the range of conventional metaphorical associates of the vehicle concept in order to explore the relationship between the particular mapping and the wider metaphor system of the language as a whole. Step 6 would then produce rather different patterns from those we arrived at in our first analytical route. As far as the overarching research questions of our project are concerned, we would begin make the following observations:

- (i) the domain of cancer is mostly constructed on the basis of a range of conceptual metaphors whose source domains have a very wide scope (Kövecses 2000), i.e. conventionally apply to many different target domains (e.g. LINEAR SCALES ARE PATHS, VIOLENT NEGATIVE ACTIVITY IS OVERFLOW FROM A CONTAINER, and metaphors drawing from the JOURNEY source domain);
- (ii) in some cases at least, conventionality in the cancer context only applies to single or partial mappings across domains (e.g. REMISSION PHASE OF CANCER IS BEING DORMANT, rather than CANCER IS A HIBERNATING ANIMAL).

These conclusions are inevitably rather speculative. In order to be more confident about our findings, we would need to know more about the ways in which metaphors relate to each other, both in language and in thought. Corpus analysis is clearly one way in which systematic investigations of linguistic patterns can be conducted, while further empirical work is needed on the part of psychologists to find out more about the cognitive validity and applicability of notions such as primary metaphor and inheritance hierarchy, and about the possibility that conventionality may only apply to very limited correspondences across domains.

5. Conclusion

In this paper we have argued that cognitive metaphor theory still lacks a fully explicit procedure for metaphor identification and analysis. We have reviewed the most significant attempts to spell out how to extrapolate conceptual metaphors from linguistic patterns, and we have focused particularly on the procedure proposed in Steen (1999). We have shown how the analysis of examples from a corpus of conversations about cancer poses problems at different points in this procedure, and we have highlighted the points where different decisions ultimately lead to quite dramatic differences in conclusions about how cancer is conventionally conceptualised in our data.

If, as we believe, the analytical problems we have demonstrated apply generally to the study of metaphorical expressions in discourse, metaphor scholars need to be concerned about how to interpret one another's findings, how to compare the results of different studies, and how to replicate the studies conducted by others. Whatever its weaknesses, Steen's procedure has the undoubted merit of making a positive contribution to the beginning of a methodological debate within metaphor studies that, we believe, is long overdue.

Notes

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ⁱⁱⁱ The expression "dotted around" may have originated from a literal description of the appearance of X Ray images, on which the presence of cancer is represented by dots of higher opacity (Dr. Brian Hurwitz, Professor of Medicine and the Arts, King's College, London University, personal communication).

^{iv} The term 'cancer' is traditionally glossed in medical education as 'the spreading phenomenon.' (Dr. Brian Hurwitz, Professor of Medicine and the Arts, King's College, London University, personal communication).

^v It is often the case in our data that the pronoun 'it' and highly generic nouns such as 'thing' are used where a fully lexicalised reference to cancer would be possible. This is one of the ways in which participants (and especially doctors) attempt to reduce the impact of what are often rather bleak revelations. Another strategy is the use of vague, euphemistic or generally cheerful expressions such as 'growth' for a cancerous tumour and 'doddle' for a course of chemotherapy.

^{vi} We also have evidence of the conventional use of a metaphor (THE EXPERIENCE OF) CANCER IS A JOURNEY, in which the patient is the traveller.

^{vii} This ambiguity in the literal or metaphorical status of 'has gone' in example (4) exists *in addition* to other aspects of variation that apply to metaphors more generally. Even in the least controversial cases, individuals will still vary as to whether they process and/or recognise particular stretches of language as metaphors. In the case of our data in particular, large differences between health professional and patients in terms of power, knowledge and emotional involvement may well lead to differences in what different participants regard as metaphors - a phenomenon that Goatly (1997: 127-30) refers to as "asymmetric metaphors" and which, in turn, could well lead to misunderstandings between doctors and patients.

^{viii} We are treating the whole phrasal verb as a single unit for the purposes of this analysis, but there is an issue about whether ‘away’ should be treated as a separate argument and about its connotations of uncontrollable movement.

^{ix} The term ‘cancer’ is itself metaphorical in origin. Both the Latin word ‘cancer’ and its Greek cognate *καρκινος* refer polysemously to the shellfish crab, the eponymous constellation, and a category comprising both cancers and ulcers (*Oxford Latin Dictionary*, 1968; *Greek-English Lexicon*, Liddell & Scott, 1869). The grounds of resemblance between the shellfish and the disease include both the crab’s unpredictable patterns of movement and the occurrence of tumours with star- or claw-shaped protuberances (Dr. Brian Hurwitz, Professor of Medicine and the Arts, King’s College, London University, personal communication). However, as an instance of etymological metaphor, both ‘dead and buried’ in Goatly’s terms (1997:31-33), it is beyond the scope of this paper.

^x The symbol * is a wildcard which extends the search to all words beginning with ‘gallop’ and ‘erupt’.

^{xi} Lakoff (1993: 119ff.) describes this as a basic and very pervasive conventional metaphor whereby “various aspects of event structure, including notions like states, changes, processes, actions, purposes, and means, are characterized cognitively via metaphor in terms of space, motion, and force.”

^{xii} This ‘parsimonious’ approach to the setting up of cross-domain correspondences in the analysis of metaphors can be seen as equivalent to the mechanisms of economy that are often claimed to apply in cognitive processing (e.g. Sperber and Wilson 1986, 1995).

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