

*promoting access to White Rose research papers*



**Universities of Leeds, Sheffield and York**  
**<http://eprints.whiterose.ac.uk/>**

---

This is the published version of an article in **Language and Cognition, 3 (2)**

White Rose Research Online URL for this paper:

<http://eprints.whiterose.ac.uk/id/eprint/77059>

---

**Published article:**

Plug, L, Sharrack, B and Reuber, M (2011) *Metaphors in the description of seizure experiences: Common expressions and differential diagnosis*. *Language and Cognition*, 3 (2). 209 - 234. ISSN 1866-9808

<http://dx.doi.org/10.1515/langcog.2011.008>

---

# Metaphors in the description of seizure experiences: Common expressions and differential diagnosis

LEENDERT PLUG<sup>+</sup>, BASIL SHARRACK<sup>~</sup> AND MARKUS REUBER<sup>~\*</sup>

<sup>+</sup>University of Leeds

<sup>~</sup>University of Sheffield

## Abstract

*This paper explores the use of metaphorical expressions in the description of seizure experiences by patients with epilepsy and patients with psychogenic non-epileptic seizures. The paper addresses two main questions. First, what is the range of metaphorical expressions which patients use to describe their seizure experiences, and can these be related to conventional metaphors used by healthy individuals? Second, is the difference in the underlying cause of our patients' seizure experiences in any way reflected in their use of metaphorical expressions? The paper suggests that the answer to both of these questions is affirmative, which strengthens the embodiment hypothesis. Implications for our understanding of patients' experiences of seizures and of the difference between epileptic and non-epileptic seizures are also discussed.*

## Keywords

*metaphor; embodiment, health communication, doctor-patient interaction, illness representation, differential diagnosis, seizure disorders*

## 1. Introduction

In this paper we examine the occurrence of metaphorical expressions in descriptions of seizure experiences by patients with epilepsy and patients with psychogenic non-epileptic seizures (or “pseudo-seizures”). It is well-known that faced with the task of conveying the nature of a particular experience, people commonly revert to the use of metaphor—that is, to describing the experience in question in terms of another experience. Cognitive linguistic

---

\* Correspondence address: Leendert Plug, Department of Linguistics and Phonetics, School of Modern Languages and Cultures, University of Leeds, Leeds LS2 9JT, United Kingdom. Email: l.plug@leeds.ac.uk.

research on metaphor has shown that this is not only the case with highly complex and unusual experiences: in fact, “It is hard to think of a common subjective experience that is not conventionally conceptualised in terms of metaphor” (Lakoff and Johnson 1999: 45).

### 1.1. *Metaphor in linguistics and health communication*

The aim of much cognitive linguistic research on metaphor has been to formulate a system of “conventional metaphor”—a system of metaphor which may be assumed to be shared by all or most speakers of a particular language, based on common subjective experiences. According to Lakoff and Johnson (1980), this system rests on mappings between two conceptual domains. For example, the statements *I see what you're saying* and *It looks different from my point of view* contain several metaphorical expressions based on a mapping between seeing and understanding, such that the experience of understanding can be described in terms of the experience of seeing (Lakoff and Johnson 1980: 48). The statements *Our relationship is off the track* and *Look how far we've come* again contain several metaphorical expressions, this time based on a mapping between the experience of a relationship and that of a physical journey (Lakoff 1993: 206). More recent corpus-based and discourse-oriented analyses (Deignan 2005; Cameron and Deignan 2006; Allen 2009) have shown that the instantiation of conventional metaphors in language use is far from straightforward, and argue for a closer consideration of recorded discourse in a variety of interactional settings.

While cognitive linguistic research on metaphor has traditionally focused attention on frequently occurring metaphorical expressions, research on metaphor in health communication has traditionally concentrated on idiosyncratic metaphors used by individual patients or practitioners. For example, Bowker (1996) presents an analysis of metaphorical expressions in the diaries she herself kept when coping with cancer. Gibbs and Franks (2002) provide an overview of related literature and conclude that research in health communication has “downplayed the importance of conventional metaphorical expressions” (ibid.: 142). According to Gibbs and Franks, this leaves an important question unaddressed, namely “whether the metaphors employed by people who are ill or recovering from illness are different from those used by people in talking about their ordinary, healthy experiences” (ibid.: 141). On the basis of a study of the use of metaphor by a group of women describing their experiences with cancer, Gibbs and Franks suggest that this is not the case. Firstly, they show that each of the women uses multiple metaphors and that there is considerable overlap in the use of certain metaphors across women. Secondly, they show that most of these common metaphors relate straightforwardly to conventional metaphors described in cognitive linguistic work. For example, cancer is re-

currently described as allowing for new understanding in terms of clearing vision (*It allowed me to see life in a different way, It was like putting on a new pair of glasses*), which can be understood as an instantiation of the conventional metaphor “understanding is seeing”. Subsequent work has highlighted other conventional metaphors in patients’ descriptions of cancer experiences, such as the “martial” and “journey” metaphors described by Reisfeld and Wilson (2004).

Returning to the mappings between distinct conceptual domains which are taken to underlie the use of metaphorical expressions, a recurrent feature is that a relatively abstract experience—such as that of understanding, or that of being in a relationship—is conceptualised in terms of a common physical experience—such as seeing, or embarking on a journey. This has been interpreted in terms of an “embodiment premise” (Johnson 1987; Lakoff and Johnson 1999; Gibbs 2003): “People’s subjective, felt experiences of their bodies in action provides part of the fundamental grounding for language and thought” (Gibbs 2003: 2). According to this view, metaphor is grounded in embodied, physical experience, which provides a vocabulary that can be extended to cover more abstract experiences. The observation of similarities in the use of metaphors across languages and within languages, between groups of language users—such as the healthy population and individuals suffering from a particular illness—is generally taken as evidence in favour of the “embodiment premise” (Lakoff and Johnson 1999; Gibbs and Franks 2002; Gibbs et al. 2004). It is in this light that we present our analysis of metaphorical expressions in descriptions of seizure experiences by patients with epileptic and psychogenic non-epileptic seizures.

### 1.2. *Listening to people with seizures*

The study presented in this paper is part of the project *Listening to people with seizures*, based in Sheffield, which sets out to improve the understanding and differential diagnosis of seizure disorders by analysing the communication behaviour of patients with epileptic and psychogenic non-epileptic seizures (henceforth “NES”). While the visible manifestations of epileptic and non-epileptic seizures overlap to a considerable extent, their underlying causes are very different: epileptic seizures are caused by abnormal electrical activity in the brain, while NES are a response to psychological distress and represent a failure of alternative coping mechanisms (Reuber et al. 2005). The differentiation of epilepsy and NES disorders is a major challenge: despite technological advances, rates of misdiagnosis remain high—up to 50% in some studies (Howell et al. 1989; Scheepers et al. 1998; Benbadis et al. 2004). This situation is alarming since the most appropriate treatments for epilepsy and NES are very different: most epileptic seizures can be controlled with anti-epileptic

drugs, whereas the treatment of choice for NES is psychotherapy (Reuber et al. 2005). The inappropriate use of antiepileptic drugs is one of the main sources of risk to health and life for patients with NES (Reuber et al. 2004).

Our project builds on research done in Bielefeld, Germany, which suggests that, when given the space to talk freely about their experiences, patients with epilepsy and patients with NES behave rather differently (Schwabe et al. 2007; Schwabe et al. 2008; Plug et al. 2009). Broadly speaking, patients with epilepsy focus on the seizure experience easily and volunteer a lot of information about how they feel during their seizures. Patients with NES are more likely to talk about the impact of the seizures on their lives and about the failure of previous treatment; they need to be prompted to focus on how they feel *during* seizures, and generally volunteer less detailed information than patients with epilepsy. For the purpose of this paper, it is important to note that the researchers in Bielefeld also found that the differences in communication behaviour observed between the two patient groups extended to their use of metaphorical expressions in accounts of seizures (Surmann 2005). Patients with epilepsy were typically found to describe their seizures as an external (and often hostile) entity, as in *der Anfall kommt* ‘the seizure comes’—while most patients with NES failed to convey a coherent conceptualisation. Here we examine the use of metaphorical expressions by English speaking patients.

### 1.3. *The present study*

The primary goal of the present study was to describe the range of metaphorical expressions which patients use when they talk about their seizure experiences. Is their usage highly idiosyncratic, or can the expressions be seen as instantiations of conventional metaphors described in the literature? In the latter case, our study would strengthen Gibbs and Franks’ (2002: 161) conclusion that patients conceptualise their illness experiences “in rather conventional metaphorical terms”. It should be noted that we focused our attention on the patients’ use of metaphors in descriptions of general or concrete seizure experiences. Many of the studies on metaphor in health communication discussed by Gibbs and Franks (2002), as well as Gibbs and Franks’ own study, use data in which patients explain how they feel *about* being ill, rather than how they feel *during* an acute illness episode. Finding conventional metaphorical mappings in the latter context is noteworthy, since the actual experience of the symptoms may be far removed from ordinary everyday thinking and reasoning.

Secondly, we wanted to determine whether the difference in the underlying cause of our patients’ seizures is in any way reflected in their use of metaphorical expressions in seizure descriptions, as suggested by Surmann’s (2005) study of a German patient group. If so, we have further evidence for the “embodiment premise”, in the sense that the patients’ conceptual reasoning about

seizure episodes is directly influenced by the functioning of their bodies *during* seizure episodes. Moreover, the patterns of metaphor use may give us important insights into the illness representations formed by patients with epileptic and non-epileptic seizures.

## 2. Data and methodology

### 2.1. Data

This study is based on the analysis of 21 first clinical encounters between a single doctor (a consultant neurologist) and patients with seizures. The clinical interviews were conducted between August 2005 and July 2007. All patients had been admitted to the neurology ward at the Royal Hallamshire Hospital in Sheffield, for video-EEG monitoring because their admitting neurologist was uncertain whether they had epileptic or non-epileptic seizures. All patients had seizures involving impairment of consciousness during their admission. “Gold standard” diagnoses were made by the video-EEG recording of a seizure, which was considered typical of the habitual attacks by the patient and a seizure witness. Seven patients were diagnosed as having epilepsy, and thirteen as having NES. One patient’s diagnosis remained problematic; while we included his consultation at the stage of qualitative analysis, we excluded it when considering differences between the two patient groups. Pseudonyms were used to protect the identity of the participants. The study was approved by the South Sheffield Ethics Review Committee and all patients gave written informed consent for their consultations to be recorded and analysed.

Each consultation lasted approximately 30 minutes and followed a set of guidelines designed to maximise the opportunity for the patient to elaborate on the description of seizure experiences. For a full description of these guidelines, see Schwabe et al. (2007). For the purposes of this paper, it is important to note that the neurologist was strongly discouraged from introducing new information—including new metaphors. Some characteristic fragments are given in (1) and (2).

- (1) Doctor: can I ask you what your expectation was when you hhh came in here this week
- Samantha: .hhh ((smacks lips)) erm well I was rather hoping (.) to get to the bottom of it ideally in the long term I’d like I’d like to ((laughing)) be cured of it erm ((smacks lips)) .hhh er and I I understand that they’ve found scarring on my on my brain (.) erm and they wanted to check that any seizures I had whilst I was in here (.) were actually coming from there and not something else

- Doctor: right  
(0.3)
- Samantha: so just to really confirm that that (.) that was  
where the trouble was
- Doctor: mmm  
(1.0)
- Samantha: yeah
- (2) Doctor: so you came in here to learn about the small  
Ken: yeah  
Doctor: attacks  
Ken ((swallows)) I've had one while I've been here  
(1.7)  
Doctor: [mmm  
Ken: [but they're er (0.7) they're just .hhh (0.9)  
they only last for a couple of seconds; there's a  
slight sort of (.) partial seizure (0.4) it's er  
(1.3) .hhh it sort of doesn't develop into a full  
seizure (.) a tonic clonic er it just sort of (.)  
.hhh comes over you  
Doctor: ((nods))

Fragment (1) shows a typical opening of the consultation. The doctor starts with an inquiry into the patient's expectations of the current hospital admission. As seen in (1), the patient is left room to elaborate and determine the agenda of the consultation—the doctor does not interrupt the patient and waits until it is very clear that the patient has finished talking before offering a response. Fragment (2) is from later on during a consultation. Here the doctor picks up on something the patient has said earlier. Again he leaves the patient much room to formulate his account. Notice, for example, the pauses in the patient's description—the doctor could offer talk at various points, but refrains from doing so. This means that the resulting account of the patient's seizure experience—including any metaphorical expressions—is almost completely constructed by the patient him/herself, with minimal input from the neurologist.

## 2.2. *Metaphor identification and categorisation*

The identification and interpretation of metaphorical expressions is notoriously difficult to operationalise, particularly when the aim is to analyse a specific corpus exhaustively (see Semino et al. 2004 for a recent discussion). In this research we followed the method set out by Cameron (1999, 2003) in the context of applied linguistic research (see Cameron and Stelma 2004; Cameron and Deignan 2006; Cameron 2007 for further applications). We assume that

our main observations do not depend crucially on the use of this particular method, as opposed to, for example, that set out by Steen (1999, 2007) and applied by Gibbs and Franks (2002).

Cameron distinguishes between linguistic metaphors and systematic metaphors. Linguistic metaphors are identified by “the occurrence of a lexical item from a domain or semantic field different from that of the topic of the ongoing talk, together with a potential transfer or change of meaning from the new semantic field to the ongoing topic” (Cameron 2007: 202). The lexical item is called the “vehicle” of the metaphor. When multiple linguistic metaphors are identified, they can be grouped together according to their vehicle and topic domains. For example, in the case of *I see what you're saying* and *It looks different from my point of view*, the underlined vehicles all refer to seeing, but are applied to the topic of understanding. This gives rise to what Cameron calls “systematic metaphors”: recurrent mappings between a topic and a vehicle domain, such as UNDERSTANDING IS SEEING.<sup>1</sup>

As Cameron and Stelma (2004: 121) point out, “The process of grouping Vehicle terms and then Topic domains to produce larger “systematic” metaphors is unavoidably interpretive”. We attempted to work inductively in the first instance, establishing vehicle domains on the basis of the data, rather than looking for vehicles that fit domains described in existing work on metaphor. Of course, we then considered how our systematic metaphors relate to previously described metaphors, focusing on cognitive linguistic studies of metaphor. Like Cameron (2003), we attempted to be inclusive rather than exclusive, including prepositions, adjectives, nouns, verbs or multi-word phrases as linguistic metaphors. For example, *come out of*, with the patient as syntactic subject, when used to refer to a return to normality at the end of a seizure episode, or *doing*, with the seizure as syntactic subject, when used to refer to the experience of certain seizure symptoms.

### 2.3. *Literal vs. metaphorical expressions*

Previous work on metaphor in health communication has highlighted the fact that “the boundary between the literal and the metaphorical is fuzzy rather than clear-cut” (Semino et al. 2004: 1277). In the case of the present research, we were faced with the decision as to what aspects of a patient’s seizure description could be considered literal. We did this according to the following rationale. Seizures are complex physiological events that are experienced by patients in terms of a range of sensations and changes of state. It is therefore perhaps not surprising that patients commonly describe seizure experiences

---

1. In this paper we follow the convention of representing systematic metaphors in SMALL CAPITALS. First mentions of crucial systematic metaphors are in BOLD SMALL CAPITALS.



using verbs such as *happen*, *occur*, *take place* and *experience*. Relevant extracts from our consultations are given in (3).

- (3) a. “because er i- i- i- it’s happened, you know, erm, just making a meal, making tea” (Carl)  
 b. “I- and I didn’t get a warning on that one, it just happened” (Vera)  
 c. “and, that occurred for, no reason whatsoever” (Ken)  
 d. “I’ve always considered that the absences were taking place in certain situations of everyday life” (Carl)  
 e. “I’ve never experienced anything like them” (Zack)

In addition, we find the verbs *start* and *finish* in regular use to delimit the duration of the patient’s experience, as seen in (4).

- (4) a. “it started about ten o’clock in the morning actually” (Jack)  
 b. “and then one of these things started” (Trudie)  
 c. “they just have to wait until it’s finished” (Tammy)

We suggest that the linguistic expressions exemplified in (3) and (4) can be considered literal, and they are not further considered in this paper.

We were uncertain about a small number of expressions, which routinely occur in the context of describing feelings, conditions and situations. The main ones among these are *come on*, *bring on*, *develop* and *control*. Examples of these are given in (5).

- (5) a. “and my attacks kept coming on” (Vera)  
 b. “when I get more anxious, that brings on more seizures” (Sue)  
 c. “you feel as if you going to have a tonic clonic seizure, but it never develops” (Ken)  
 d. “or sometimes I’ll have just gone into a smaller one and not been able to control it” (David)

The two researchers involved in identifying and categorising the metaphors (LP and MR) disagreed about the precise nature of the vehicle domain of these expressions. *Come on* and *bring on* suggest motion, but did not straightforwardly fit in the motion-related vehicle domains we established. We are aware that at least *develop* and *control* have been mentioned in the cognitive linguistic literature on metaphor: *develop* as an instantiation of the LIVING ORGANISMS metaphor (Kövecses 2000a: 104), and *control* as an instantiation of the OPPOSITION (IN A STRUGGLE) metaphor (Lakoff and Kövecses 1987: 205). In the case of *develop*, the “living organism” vehicle domain again did not straightforwardly relate to the other vehicle domains we established. In the case of *control*, we are reluctant to adopt Lakoff and Kövecses’ vehicle domain, given the repeated occurrence of the term in their non-metaphorical characterisation of the domain. For example, they state that “The opponent metaphor focuses on the is-

sue of control and the danger of loss of control to the angry person himself” (Lakoff and Kövecses 1987: 206). Likewise, Bowker (1996) describes several “metaphors of control” in the context of communication about dealing with cancer—treating control as the *topic* of the metaphors, not the vehicle.

These doubtful expressions constituted 38 out of 282 potential linguistic metaphors, or 13%. Their omission leaves a core data set of 244 linguistic metaphors, to which we now turn.

### 3. Overview of metaphors

#### 3.1. *Spatial metaphors*

Across consultations we find many linguistic expressions in which the seizure experience is described in spatial terms—locations and movement. For example, one systematic metaphor can be labelled **HAVING A SEIZURE IS MOVEMENT TO/FROM AN UNSPECIFIED LOCATION**. Related linguistic metaphors include *drifting off*, *going down*, *coming back*, *being somewhere else*, *not being there* and *being sent off*. In all of these, the patient describes temporarily being in a different location—that is, a bounded region in space—from that in which he finds himself normally, without elaborating on the nature of this location. Examples are given in (6).

- (6) a. “I’m off somewhere else having a jolly adventure or something” (Alastair)  
 b. “I could be halfway from a sentence, chatting away and stop, and then that’s it, I’m gone” (Barbara)  
 c. “I feel I’m going to go down or something, I don’t know” (Betty)  
 d. “and then I start thinking about that sort of thing, and then it starts sending me off” (Sue)  
 e. “it’s when I’m coming round people are, like, talking to me but I can’t get no words out” (Chris)  
 f. “so I, like, went out, came back, and that were it” (David)

A further set of linguistic metaphors suggests that the seizure itself may be viewed in spatial terms. In other words, **THE SEIZURE IS AN UNSPECIFIED LOCATION**. These mostly involve prepositions and phrasal verbs: patients describe *going into* seizures, *being in* them, *going through* them and *coming out of* them. Examples are given in (7).

- (7) a. “so he tries to talk to me, to stop me going back into another one” (Sue)  
 b. “the only way you go into a fit is if you’re stressed or upset or, in front of flashing light” (Tallulah)  
 c. “I’m scared about them and I’m scared in them, they do really scare me” (Laura)

- d. “and when I finally come out of it properly, I just start crying” (Tallulah)
- e. “you can’t fetch yourself out of it, it’s weird” (Tammy)

These systematic metaphors are consistent with the conceptual EVENT STRUCTURE metaphor posited by Lakoff (1990, 1993). Lakoff identifies numerous metaphorical expressions in English, which appear to rely on a mapping between the source domain of space to the target domain of events, such that events, including changes of state, activities and actions, are understood in terms of physical movement and space. Lakoff posits a number of “subordinate” conceptual metaphors, which are more specific instantiations of the same mapping between space and event. Among these, STATES ARE LOCATIONS and CHANGES IN STATE ARE MOVEMENTS would seem particularly relevant to the linguistic metaphors illustrated in (6) and (7). Following Lakoff’s approach, HAVING A SEIZURE IS MOVEMENT TO/FROM AN UNSPECIFIED LOCATION can be seen as subordinate to CHANGES IN STATE ARE MOVEMENTS, and THE SEIZURE IS AN UNSPECIFIED LOCATION as subordinate to STATES ARE LOCATIONS—they rely on a mapping between the domain of space and a specific sub-domain of events, namely that of *seizure* events. This finding is consistent with those of Gibbs and Franks (2002), who identify systematic metaphors such as CANCER IS AN OBSTACLE ON LIFE’S JOURNEY, a specific instantiation of LIFE IS A JOURNEY (Lakoff and Johnson 1980), as well as with the observation that STATES ARE LOCATIONS is readily applied in the more specific domains of mental, psychological and emotional states (Sweetser 1990; Cienki 1998).

Our patients use a number of additional linguistic metaphors, which are consistent with Lakoff’s EVENT STRUCTURE metaphor. In particular, Lakoff identifies the subordinate conceptual metaphors DIFFICULTIES ARE IMPEDIMENTS TO MOTION and EXTERNAL EVENTS ARE LARGE MOVING OBJECTS. The former accounts for expressions such as those in (8), most of which apply to a state of partial consciousness and suggest a systematic metaphor along the lines of RETAINING/REGAINING CONSCIOUSNESS IS IMPEDED MOTION. In (8a) and (8b), Sue’s expressions of her inability to move imply an impediment, which she does not describe further; in (8c), Steve specifies the impediment as *something* which exerts force on him; and in (8d), the impediment is *a brick wall* which blocks Trudie’s metaphorical movement.

- (8) a. “it’s like I want to come back, and I can’t” (Sue)
- b. “I felt like I was in something and I couldn’t get out” (Sue)
- c. “it’s like something’s holding me” (Steve)
- d. “I was trying to will my eyes open but couldn’t, and then it was like trying to fight your way through a brick wall, it was really strange” (Trudie)

EXTERNAL EVENTS ARE LARGE MOVING OBJECTS accounts for a substantial number of linguistic metaphors which, like those discussed so far, involve movement through space—but movement of the *seizure*, rather than of the patient—in other words, **THE SEIZURE IS A MOVING OBJECT**. Our patients describe seizures as *coming* and *going*, as being *brought in* or *on*, as being *sent in*, *let pass*, *stopped* or *contained*. Examples are given in (9). Notice that the expressions in (9b) and (9f) suggest that the space within which the seizure moves is the patient's body or self, which is consistent with the conceptual metaphors **THE SELF IS A CONTAINER** (Lakoff and Johnson 1980; Gibbs 1994) and **THE BODY IS A CONTAINER** (Kövecses 2000a).

- (9) a. “just suddenly like *ooh* it felt a bit funny, press the buzzer, and . . . it did come just like that” (Ken)  
 b. “and it goes all the way down my body, and I can't do anything then” (Sandra)  
 c. “if I look at a lot of little squares, or little circles, they bring on seizures” (Sue)  
 d. “I usually stand still and, let it pass” (Sandra)  
 e. “every time I've had carrots I've had, like, it's gone and I've stopped it” (David)  
 f. “I had to contain it, so that it was within myself” (Ken)

The spatial metaphors discussed so far suggest a preliminary answer to our first research question concerning the degree to which patients' metaphorical expressions are idiosyncratic, in favour of the idea that in describing illness experiences, patients draw on conventional metaphors used in everyday language (Gibbs and Franks 2002). We have seen that the systematic spatial metaphors found in our data—**HAVING A SEIZURE IS MOVEMENT TO/FROM AN UNSPECIFIED LOCATION**, **THE SEIZURE IS AN UNSPECIFIED LOCATION**, **RETAINING/REGAINING CONSCIOUSNESS IS IMPEDED MOTION**, and **THE SEIZURE IS A MOVING OBJECT**—can all be seen as specific instantiations of the higher-order **EVENT STRUCTURE** metaphor, which establishes a conceptual mapping between events and (movement through) space.

### 3.2. *Metaphors involving an external agent*

A number of our patients use expressions which suggest that the seizure is personified—that is, conceptualised in terms of an actor external to the patient, who is engaged in some form of purposeful activity. The relevant systematic metaphors can be labelled **A SEIZURE INVOLVES ACTIONS PERFORMED BY AN EXTERNAL AGENT**: the seizure or some aspect of the seizure experience is described in terms of an external entity whose actions impact on the patient. In most of these, the seizure or some aspect of the seizure experience is a

“prototypical agent” in the sense of Van Oosten (1985), in that it has primary responsibility for the action that is described in the sentence or local discourse, and the action appears to be intentional. An elaborate example is given in (10). Here Carl describes the seizure experience in terms of someone controlling an electrical current that he needs in order to function normally.

- (10) “I’ve always likened them to erm, you know somebody having the finger on an electric socket, and turning it off and on. [Like] you’ve got the power on the radio, and then it ((imitates sound of radio going on and off)), and it just keeps coming off and—because somebody’s doing it here and you can’t see them” (Carl)

Further examples are given in (11).

- (11) a. “it feels as if somebody’s pouring cold or really hot water on the top of my head” (Pat)  
 b. “I can feel what it’s doing, and that’s about it” (David)  
 c. “then I have no control over what it’s—it’s just going to do what it’s going to do, and there’s not anything I can do” (Zack)

These examples illustrate two important characteristics of expressions of this type. First, the action performed against the patient is invariably experienced as unpleasant; and second, patients often explicitly refer to their lack of control in the situation. In fact, in a number of cases the action performed against the patient is characterised as violent, and patients sometimes refer to attempts at counteracting the external entity. Relevant examples are given in (12).

- (12) a. “and that was the only time it’s ever knocked me out” (Carl)  
 b. “I thought it were trying to like, force itself out of me, that’s what I thought it were trying to do” (David)  
 c. “they just creep up on you and they get you, that’s it” (Ken)  
 d. “I tried to not let it go any further than what it were trying to get at” (David)  
 e. “cause I do sometimes try and fight them, I know I fight them” (Sue)

These examples arguably motivate a systematic metaphor along the lines of A SEIZURE INVOLVES A STRUGGLE WITH AN OPPONENT: a specific subtype of A SEIZURE INVOLVES ACTIONS PERFORMED BY AN EXTERNAL AGENT which involves violent actions and attempts by the patient to counteract these.

These linguistic metaphors show obvious similarities with the emotion metaphors described by Kövecses (1986, 2000a). For example, Kövecses distinguishes the systematic metaphors ANGER IS AN OPPONENT IN A STRUGGLE and FEAR IS A HIDDEN ENEMY. Both “anger” and “fear” can be substituted by “the seizure”

...	...
<b>Anger</b>	<b>The seizure</b>
Anger exists	The seizure exists
Self experiences physiological effects	Self experiences physiological effects
Anger exerts force on the self	The seizure exerts force on the self
<b>Attempt to control anger</b>	<b>Attempt to control the seizure</b>
Self exerts a counterforce in an attempt to control anger	Self exerts a counterforce in an attempt to control the seizure
<b>Loss of control</b>	<b>Loss of control</b>
The intensity of anger goes above the limit	The intensity of the seizure goes above the limit
Anger takes control of self	The seizure takes control of self
...	...
There is damage to self	There is damage to self
...	...

Figure 1. Selection from Lakoff and Kövecses' (1987) cognitive model of anger (left) and parallel version for the seizure (right)

to account for linguistic metaphors such as those in (11). Anger provides a particularly close match. As Lakoff and Kövecses (1987: 205) point out, anger “produces undesirable physiological reactions, leads to an inability to function normally, and is dangerous to others”. The same can be said to some extent about seizures. Lakoff and Kövecses establish a cognitive model of anger, which is constituted by, and underlies, the various systematic metaphors for anger they identify in normal American English speech (see Kövecses 2000b for cross-linguistic evidence). This cognitive model represents a “prototype scenario” of an anger episode. Notably, in the model, anger exists as an entity external to the self which takes control of the self despite the self’s efforts to control anger. As shown in Figure 1, substituting “anger” with “seizure” provides a conceptual basis for the linguistic metaphors in (10) to (12), as well as a “prototype scenario” of a seizure episode that matches the narratives of some of our patients closely.

Again, then, we find evidence supporting the idea that patients draw on conventional metaphors used in everyday language when describing their seizure experiences—in this case, metaphors relating to emotions in which the emotions are conceptualised as external agents.

### 3.3. Technological metaphors

A small number of patients use linguistic metaphors that draw on the language of technology. These suggest that the seizure or a certain stage in seizure episodes is experienced as a mechanical process. Metaphors of this type are particularly prevalent in the narrative of one patient, Zack.<sup>2</sup> For example, he describes the onset of seizure symptoms as an *automated process* during which *the only command I can actually get through is to hold on*. His subsequent loss of consciousness is like *shutting a computer off*, and when he regains consciousness he needs time to *load things back up*. Other patients use similar expressions. For example, describing seizures in terms of a *malfunction* (Carl), or a process that can be *set off* or *started up* (Laura). Together, these can be related to the systematic metaphor A SEIZURE IS A MECHANICAL PROCESS.

More specifically, Zack suggests that his seizures involve a degree of disconnection between himself, or his mind, and his body. Losing consciousness *feels like a loss of connection between my mind and my body*. The resulting state of reduced consciousness is *sort of like the lights are on but nobody's at home*; a state in which *my eyes [are] sending the information to my brain but it [isn't] there to receive it*. One other patient similarly describes his experience in terms of feeling *disconnected*, suggesting that *it's almost as if my head carries on without me* (Alastair). Moreover, two other patients refer to electricity in describing seizure symptoms. Sandra indicates that in some milder seizure, *it'll just be the electricity that starts, and then wears off*, while Steve refers to receiving an *electrical charge* and an *electrical shock*, and compares the process in his brain to that governing *plasma balls*. These metaphors arguably motivate the more specific systematic metaphors A SEIZURE INVOLVES DISCONNECTION BETWEEN MIND AND BODY and A SEIZURE INVOLVES AN ELECTRICAL CHARGE.

The occurrence of metaphors drawing on the language of technology is not surprising if we consider that patients mostly use them when focusing on what is happening in their brains or minds during seizure episodes. It has been pointed out that technological metaphors are pervasive in academic as well as in lay discourse on brain functioning (Goschler 2005), and the mind has been named among the target domains of the COMPLEX SYSTEMS metaphor, which maps abstract complex systems—the mind, the body, society—to the source domain of complex physical objects such as buildings and machines (Kövecses 2000a). Kövecses suggests that the COMPLEX SYSTEMS metaphor is of the same order of abstraction as the EVENT STRUCTURE metaphor discussed above. As such, it is

---

2. Zack is the patient whose diagnosis we described as problematic in Section 2. His seizures are most likely caused by stretch syncope in the context of obsessive compulsive disorder, and not by epilepsy or a non-epileptic seizure disorder. His metaphors are discussed here, but were not included in the analysis presented in Section 4 below.

instantiated by several layers of more specific metaphors. Kövecses lists THE FUNCTIONING OF THE COMPLEX SYSTEM IS THE FUNCTIONING OF THE OBJECT among its directly subordinate metaphors, and the seizure-related metaphors discussed in this section can be seen as specific instantiations of this conceptual mapping. It may be noted that in most of the linguistic metaphors discussed as instances of A SEIZURE IS A MECHANICAL PROCESS and A SEIZURE INVOLVES AN ELECTRICAL CHARGE, the seizure is described as involving a mechanical or electrical process *per se*, while in the case of A SEIZURE INVOLVES DISCONNECTION BETWEEN MIND AND BODY, the seizure is not conceptualised as a complex system itself; rather, it is described as causing a disruption in the normal functioning of the complex system constituted by the mind and the body. Notwithstanding this variation in target domain, it seems clear that in using these metaphors, patients are drawing on conventional metaphors of the mind and brain when attempting to describe their seizure experiences.

#### 4. Relevance for differential diagnosis

Having established that patients draw on conventional metaphors used in everyday language when describing their seizure experiences, we now turn to our second research question: are there differences in the use of metaphorical language between patients belonging to the two different clinical subgroups—epilepsy vs. NES? We have previously reported statistically significant differences in the use of a range of expressions between the two patient groups if these expressions are allocated to a small number of broad metaphoric conceptualisations (Plug et al. 2009). Our adoption of the more specific method of identifying and grouping metaphorical expressions set out above, with reference to the applied and cognitive linguistic literature on metaphor, has resulted in a more detailed picture of the use of metaphorical language by our patients, with more fine-grained distinctions between subgroups of tokens. The larger number of metaphoric conceptualisations (and the limited size of the dataset) means that we cannot apply the same statistical methods used in our previous publication (Plug et al. 2009). Nevertheless, we will show that different tendencies in the use of the systematic metaphors distinguished above can be discerned, and will argue that they are largely consistent with both our previous findings and those of Surmann (2005) for a German patient population. We focus on spatial metaphors and metaphors involving an external agent. Technological metaphors constitute too small a set to show differential tendencies.

##### 4.1. Usage patterns

Starting with spatial metaphors, we have distinguished four systematic metaphors: HAVING A SEIZURE IS MOVEMENT TO/FROM AN UNSPECIFIED LOCATION, THE



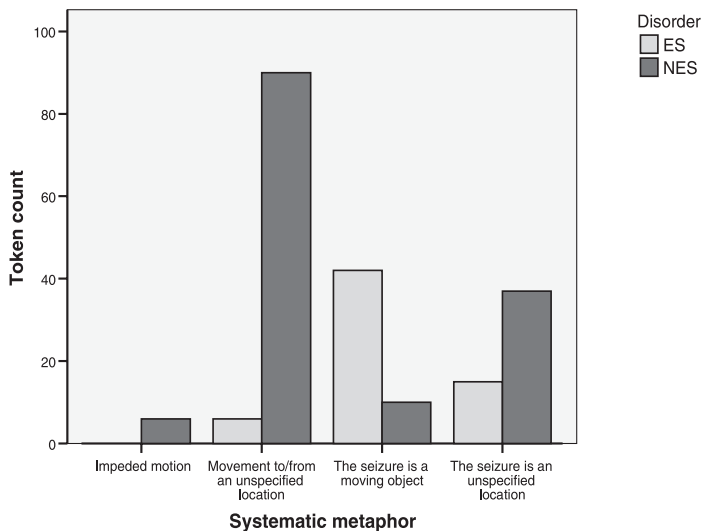


Figure 2. Frequency of tokens of systematic metaphors in the speech of patients with epileptic (ES) and non-epileptic seizures (NES) for spatial metaphors.

SEIZURE IS AN UNSPECIFIED LOCATION, RETAINING/REGAINING CONSCIOUSNESS IS IMPEDED MOTION, and THE SEIZURE IS A MOVING OBJECT. Figure 2 shows that the first two of these, which both involve an implied or overt reference to an unspecified location, are more frequently used by patients with NES. THE SEIZURE IS A MOVING OBJECT, on the other hand, is more frequently found in our consultations with patients with epilepsy. RETAINING/REGAINING CONSCIOUSNESS IS IMPEDED MOTION is used only by patients with NES, although the total number of usages is rather low ( $N = 6$ ). A Chi-square test confirms that patients with epilepsy and NES show significantly different usage tendencies across these systematic metaphors ( $\chi^2 = 91$ ,  $df = 3$ ,  $p < 0.001$ ).

The more detailed figures in Table 1 suggest that these differential tendencies are unlikely to be due to idiosyncratic usage patterns for individual patients. In the case of HAVING A SEIZURE IS MOVEMENT TO/FROM AN UNSPECIFIED LOCATION, nine out of thirteen patients with NES use linguistic metaphors in this category, and three out of seven patients with epilepsy do. The patients with NES collectively use many more “types” of metaphors—that is, distinct linguistic metaphors—in this category. In other words, the use of linguistic metaphors consistent with the systematic metaphor HAVING A SEIZURE IS MOVEMENT TO/FROM AN UNSPECIFIED LOCATION is more widespread among patients with NES than among patients with epilepsy, and the former show more variety in their usage as well as a greater total number of instances. For THE SEIZURE IS AN UNSPECIFIED LOCATION

Table 1. *Number of tokens and types of systematic metaphors in the speech of patients with epileptic (ES) and non-epileptic seizures (NES) for spatial metaphors*

Systematic metaphor	Disorder	N patients	N types	N tokens
MOVEMENT TO/FROM AN UNSPECIFIED LOCATION	ES	3	4	6
	NES	9	18	90
	<i>Subtotal</i>	<i>12</i>	<i>20</i>	<i>96</i>
THE SEIZURE IS AN UNSPECIFIED LOCATION	ES	3	5	15
	NES	7	11	37
	<i>Subtotal</i>	<i>10</i>	<i>14</i>	<i>52</i>
IMPEDED MOTION	ES	0	0	0
	NES	3	6	6
	<i>Subtotal</i>	<i>3</i>	<i>6</i>	<i>6</i>
THE SEIZURE IS A MOVING OBJECT	ES	7	18	42
	NES	4	6	10
	<i>Subtotal</i>	<i>11</i>	<i>22</i>	<i>52</i>

and RETAINING/REGAINING CONSCIOUSNESS IS IMPEDED MOTION, the differences are all in the same direction. More patients with NES use more distinct linguistic metaphors and a greater total number of instances. For THE SEIZURE IS A MOVING OBJECT, the pattern is the reverse. All seven patients with epilepsy use linguistic metaphors in this category, compared with four out of thirteen patients with NES. Patients with epilepsy collectively use a greater variety of linguistic metaphors as well as a greater total number of instances.

We have distinguished two systematic metaphors involving an external agent: A SEIZURE INVOLVES ACTIONS PERFORMED BY AN EXTERNAL AGENT and A SEIZURE INVOLVES A STRUGGLE WITH AN OPPONENT. Figure 3 shows that both of these are more frequently employed by patients with epilepsy, although the difference between ES and NES is only of one token for the latter. The size of the data subset for these metaphors does not allow reliable statistical analysis, but the difference between patient groups for A SEIZURE INVOLVES ACTIONS PERFORMED BY AN EXTERNAL AGENT is particularly suggestive.

Again, a closer look at the counts shows that the differences in token frequencies are related to differences in the number of patients using relevant metaphorical expressions, and the variety displayed in their usage. In the case of A SEIZURE INVOLVES ACTIONS PERFORMED BY AN EXTERNAL AGENT, three out of seven patients with epilepsy use linguistic metaphors in this category, compared with one out of thirteen patients with NES. Moreover, patients with epilepsy use six distinct linguistic metaphors, rather than a single one repeatedly. For A SEIZURE INVOLVES A STRUGGLE WITH AN OPPONENT, the differences are all in the same direction, although they are very small.

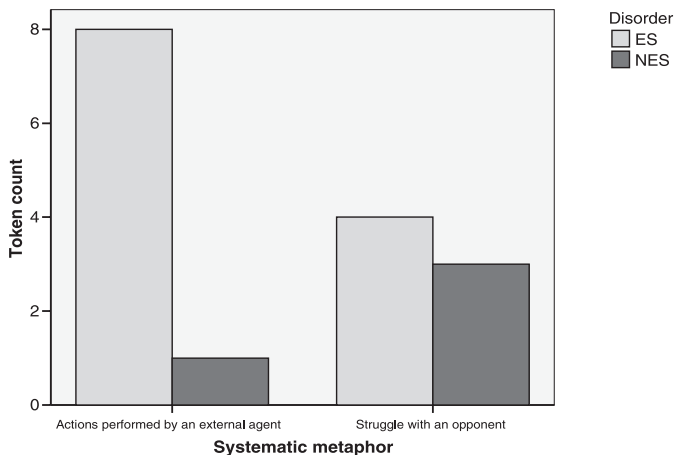


Figure 3. Number of tokens of systematic metaphors in the speech of patients with epileptic (ES) and non-epileptic seizures (NES) for metaphors involving an external agent.

Table 2. Number of tokens and types of systematic metaphors in the speech of patients with epileptic (ES) and non-epileptic seizures (NES) for metaphors involving an external agent

Systematic metaphor	Disorder	N patients	N types	N tokens
ACTIONS PERFORMED BY AN EXTERNAL AGENT	ES	3	6	8
	NES	1	1	1
	<i>Subtotal</i>	4	6	9
STRUGGLE WITH AN OPPONENT	ES	3	4	4
	NES	2	2	3
	<i>Subtotal</i>	5	6	7

#### 4.2. Experiential basis

To summarise so far, our descriptive statistics suggest that patients with NES show a greater tendency than patients with epilepsy to use instances of the systematic metaphors THE SEIZURE IS AN UNSPECIFIED LOCATION and, less robustly, RETAINING/REGAINING CONSCIOUSNESS IS IMPEDED MOTION, while patients with epilepsy show a greater tendency than patients with NES to use instances of the systematic metaphors THE SEIZURE IS A MOVING OBJECT, A SEIZURE INVOLVES ACTIONS PERFORMED BY AN EXTERNAL AGENT and, less robustly, A SEIZURE INVOLVES A STRUGGLE WITH AN OPPONENT. While the extent to which these findings can be generalised to larger patient groups remains to be established, they are consistent with the notion that—despite superficial behavioural similarities—epileptic and non-epileptic seizures give rise to distinct experiences, which are expressed differently by the two patient groups.

Recall that prior to our investigation, a German study (Surmann 2005) had suggested that patients with epilepsy recurrently conceptualise the seizure as an external entity, while patients with NES often fail to establish a coherent conceptualisation. Whilst we concur with the first finding, our findings in English speaking patients do not corroborate the latter observation. Most of the linguistic metaphors in the data are used at least once by patients with epilepsy and NES alike, and some systematic metaphors are more common in our consultations with patients with NES. Our previous quantitative study (Plug et al. 2009) found evidence for patients with epilepsy describing the seizure as an external entity more readily than for patients with NES, and the findings presented above are consistent with this. In the metaphorical expressions favoured by patients with epilepsy—THE SEIZURE IS A MOVING OBJECT, A SEIZURE INVOLVES ACTIONS PERFORMED BY AN EXTERNAL AGENT, A SEIZURE INVOLVES A STRUGGLE WITH AN OPPONENT—the seizure is either an external object that moves towards or away from the patient, or an external agent that is either invisible to the patient, or visible as an opponent, and whose actions impact on the patient.

This conceptualisation is rather different from the systematic metaphors prevalent in consultations with patients with NES. The metaphors preferred by this patient group—HAVING A SEIZURE IS MOVEMENT TO/FROM AN UNSPECIFIED LOCATION, THE SEIZURE IS AN UNSPECIFIED LOCATION, and RETAINING/REGAINING CONSCIOUSNESS IS IMPEDED MOTION—are indicative of a conceptualisation in which having a seizure involves movement on the patient's part—the patient is not stationary, with an external entity impacting on him, as in the case of the metaphors favoured by patients with epilepsy, but rather moves between several locations. In the EVENT STRUCTURE metaphorical model set out by Lakoff (1993), this would correspond to STATES ARE LOCATIONS and ACTIONS ARE SELF-PROPELLED MOTIONS. With these conceptual mappings in mind, we can suggest that patients who portray the seizure most prominently in terms of an unspecified location, referring to movement towards, through and away from it, display a conceptualisation of the seizure experience in which they themselves are the actors and the seizure is a state they reach through their actions. Patients who mostly portray the seizure as a moving object or external agent, on the other hand, display a conceptualisation in which they are *reactors* to the seizure's action, which lies outside of their direct control.

This analysis is interesting in light of what we know about the underlying causes of epileptic and non-epileptic seizures and about illness representations and preferred coping styles in these patient groups. As indicated above, epileptic seizures are caused by involuntary, excessive and hypersynchronous electrical activity in the brain. NES are a response to some form of psychological or social distress with which the patient fails to cope. The conceptualisations proposed above fit well with these aetiologies. Epileptic seizures are events beyond the patient's volition and direct control, while NES are comparable to

mental states which patients find themselves in. The conceptualisation preferred by patients with NES suggests that patients do experience a degree of control in relation to their seizures. This is not to say that every NES is self-inflicted or could be stopped by patients at will. However, the seizure disorder is presented as being rooted in an aspect of the patient's own behaviour, and the metaphors used suggest that patients may retain a degree of control over their actions during the seizures.

In fact, it may even be said that the metaphorical language used by the patients is more compatible with the underlying causes of their disorder than their literal language. Previous research into the illness representations of patients with epilepsy and NES has shown significant differences between the two patient groups. A crucial notion is that of the health "locus of control", which describes the extent to which an illness or disorder is related to internal or external factors. In a recent study, Stone et al. (2004) found that in comparison with patients with epilepsy, those with NES reported a more external locus of control. In keeping with this, they believe less strongly than patients with epilepsy that psychological factors could be a factor in the occurrence of their seizures. Although patients with NES have experienced significantly more negative life events than patients with epilepsy (Binzer et al. 2004), they have a greater tendency than patients with epilepsy to deny the relevance of these events or their emotional consequences for the aetiology of their seizures (Stone et al. 2004). We can find evidence in our data that is consistent with these findings, which were mostly based on self-report questionnaires. The fragments in (13) to (15) show representative exchanges between the doctor and patients with NES on the topics of stress, anxiety and degree of control over the seizures.

- (13) Doctor: but you say you're still worried to leave the house  
 Chris: oh yeah I have been yeah  
 Doctor: yeah  
 Chris: I've been depressed (.) even contemplated ending it  
 but I've got a little lad that I love to bits (3.2)  
 and I've had a lot of looks like *that* as if I'm  
 mental do you know what I mean I'm not mental (0.5)  
 I've had that I've off- I've been offered (.)  
 psychiatrists I don't need them I ain't daft  
 Doctor: mmm  
 Chris: I ain't making it up
- (14) Doctor: so what about the seizure here? (0.5) do you think  
 they were related to you feeling anxious or  
 (1.3)  
 Tallulah: no because I've been relaxed when I've been in here

- (15) Betty: other people think it's er helping a little bit cos they've said that the er (.) seizures I'm having aren't as bad while I've been on medication but I'm still having them (0.7) and I just want them (0.4)
- Doctor: mmm
- Betty: I want someone to fix them (0.6) do you know what I mean (10.7)
- Doctor: you say other people say they're better
- Betty: I don't remember
- Doctor: mmm
- Betty: I don't notice a difference at all

In (13), Chris indicates that he has been seriously depressed, even suicidal. However, he claims that his mental state is caused by his disorder, and strongly denies that the causal relationship may be the other way around. For Chris, acknowledging that his seizures have a “psychological” basis is equivalent to admitting that he is “making them up”; therefore, he maintains that there must be a physical explanation for his seizures. In (14), Tallulah denies that her recent seizures might be caused by anxiety, since she has felt “relaxed” during her hospital visit. Notably, earlier in the consultation, Tallulah has indicated that she was afraid on arrival in hospital—afraid of being alone, and of not waking up from a seizure. Like Chris, she considers her anxiety to be caused by, rather than to contribute to, her seizure disorder. In (15), Betty suggests that she has little or no control over, or knowledge of, her seizures. She wants to be cured, but considers this to be a process that she cannot contribute to.

Patients with epilepsy, on the other hand, often offer observations on the relationship between the occurrence of their seizures and psychological factors such as stress or anxiety. Some examples are given in (16), all from different consultations.

- (16) a. “you know when I get more anxious, erm, it brings on more seizures”
- b. “I have to be doing something fairly intensive or fairly busy”
- c. “I'd been shopping, and because I couldn't find what I was looking for, I got the absence”
- d. “one of the hurricanes partly destroyed the house, so that was a bit of a cause, and that made me have a bad seizure afterwards”
- e. “I can usually put it down to being tired—tired, erm, not eating, stress”

All of these patients with epilepsy suggest—without explicit prompting by the doctor—that certain circumstances, traumatic experiences or mental states precipitate or even trigger seizures.

Previous research has suggested that metaphorical language can be used to manipulate perceived degrees of agency and volition in certain experiences. Balaban (1999: 129) reports the “central dynamic of attributing discordant thoughts and feelings to an external, divine agent” in certain types of religious discourse. For example, when pilgrims report religious experiences, they tend to use metaphorical expressions consistent with an experience attributable to an outside agent rather than to their own mental state. In such cases, the metaphorical language follows—and reinforces—literal language: the pilgrims *aim* to put across the message that their experiences are beyond their own imagination. Our findings suggest that, in some contexts, speakers’ metaphorical language puts across a different message from the one that they convey “literally”. Patients with NES deny any agency in relation to the occurrence of their seizures, but show a preference for metaphorical expressions, which suggests that they do retain a certain degree of agency. Patients with epilepsy acknowledge a great degree of self-control or responsibility in relation to their seizures, but preferentially use metaphorical expressions that attribute agency to the seizure as an external entity. Interestingly, in both cases, the metaphorical language appears to be more in line with the medical and psychodynamic understanding of the aetiology of the patients’ seizures than their literal language.

## 5. Conclusion

This paper has explored the occurrence of metaphorical expressions in descriptions of seizure experiences offered by patients in consultation with a neurologist. Inspired by previous work in this area, notably Gibbs and Franks (2002) and Surmann (2005), it set out to address two questions. First, what is the range of metaphorical expressions which patients use in describing their seizure experiences: is their usage highly idiosyncratic, or can the expressions be seen as instantiations of conventional metaphors described in the literature? Second, is the difference in the underlying cause of our patients’ seizure experiences—epilepsy vs. non-epileptic disorders—in any way reflected in their use of metaphorical expressions when describing their seizures? Our study suggests that the answer to both of these questions is affirmative. We have seen that the linguistic metaphors attested in our consultations suggest systematic metaphors, which are straightforwardly related to conventional metaphors on which language users draw when talking about events, emotions and brain functioning in non-clinical contexts.

We have also observed different tendencies in metaphor usage between patients with epilepsy and patients with NES, although our data set is too small

to allow comprehensive statistical testing. Our observations are partly consistent with those of Surmann (2005), and interestingly, they suggest that patients' literal and metaphorical language may conflict in what they tell the doctor about the patient's disorder. Patients with epilepsy may claim that they have a certain degree of mental or physical control over their seizures, while their preference in the use of metaphorical expressions suggests that they are more likely to experience seizures as an external entity. Patients with NES typically deny having any degree of control over their seizures, while their metaphorical language suggests that their seizure experience is more consistent with a mental state, which they enter and return from. Notably, it is the patients' metaphorical language that is more closely in line with the medical understanding of the aetiology of the seizure disorders, while their literal language can be considered paradoxical.

As such, our findings strongly support Gibbs and Franks' (2002) proposal that the metaphorical expressions employed by people who are ill recruit the same system of conceptual mappings on which healthy people draw when talking about everyday experiences. They also provide further evidence for the "embodiment premise". In describing highly subjective experiences for which little conventional vocabulary is available—a task whose difficulty they often overtly acknowledge—our patients draw on conventional metaphorical mappings which are rooted in common physical experience. Moreover, differences in the physical nature and experiential manifestation of the two types of seizure appear to be reflected in the exact nature of the metaphorical language used by the respective patient groups. In fact, our findings suggest that paying attention to metaphorical language is clinically relevant: doing so makes an important contribution to our understanding of the illness representations formed by patients with seizures (Kemp et al. 1999; Green et al. 2004) and of how they cope with their disorder (Monzoni and Reuber 2009). Further, it may contribute to the accurate differential diagnosis of seizure disorders. The feasibility of undertaking the kind of analysis we have described in a routine clinical setting remains to be established—but this study lays the necessary empirical groundwork for further investigations along these lines.

## References

- Allen, K. 2009. *Metaphor and metonymy: A diachronic approach*. London: The Philological Society.
- Balaban, V. 1999. Self and agency in religious discourse: Perceptual metaphors for knowledge at a Marian apparition site. In R. W. Gibbs & G. J. Steen (eds.), *Metaphor in Cognitive Linguistics*, 125–144. Amsterdam: John Benjamins.
- Benbadis, S. R., E. O'Neill, W. O. Tatum & L. Heriaud. 2004. Outcome of prolonged video-EEG monitoring at a typical referral epilepsy center. *Epilepsia* 45. 1150–1153.
- Binzer, M., J. Stone & M. Sharpe. 2004. Recent onset pseudoseizures—Clues to aetiology. *Seizure* 13. 146–155.



- Bowker, J. 1996. Cancer, individual process, and control: A case study in metaphor analysis. *Health Communication* 8. 91–104.
- Cameron, L. J. 1999. Identifying and describing metaphor in spoken discourse data. In L. Cameron & G. Low (eds.), *Researching and applying metaphor*, 105–132. Cambridge: Cambridge University Press.
- Cameron, L. J. 2003. *Metaphor in educational discourse*. London: Continuum.
- Cameron, L. J. 2007. Patterns of metaphor use in reconciliation talk. *Discourse and Society* 18. 197–222.
- Cameron, L. J. & A. Deignan. 2006. The emergence of metaphor in discourse. *Applied Linguistics* 27. 671–690.
- Cameron, L. J. & J. H. Stelma. 2004. Metaphor clusters in discourse. *Journal of Applied Linguistics* 1. 107–136.
- Cienki, A. 1998. STRAIGHT: An image schema and its metaphorical extensions. *Cognitive Linguistics* 9(2). 107–150.
- Deignan, A. 2005. *Metaphor and corpus linguistics*. Amsterdam: John Benjamins.
- Gibbs, R. 1994. *The poetics of mind: Figurative thought, language, and understanding*. Cambridge: Cambridge University Press.
- Gibbs, R. W. 2003. Embodied experience and linguistic meaning. *Brain and Language* 84. 1–15.
- Gibbs, R. W., P. L. Costa Lima & E. Francozo. 2004. Metaphor is grounded in embodied experience. *Journal of Pragmatics* 36. 1189–1210.
- Gibbs, R. W. & H. Franks. 2002. Embodied metaphor in women's narratives about their experiences with cancer. *Health Communication* 14. 139–165.
- Goschler, J. 2005. Embodiment and body metaphors. *Metaphorik.de*. <http://www.metaphorik.de/09/goschler.htm> (accessed 5 October 2009).
- Green, A., S. Payne & R. Barnitt. 2004. Illness representations among people with non-epileptic seizures attending a neuropsychiatry clinic: A qualitative study based on the self-regulation model. *Seizure* 13. 331–339.
- Howell, S., L. Owen & D. Chadwick. 1989. Pseudostatus epilepticus. *Quarterly Journal of Medicine* 71. 507–519.
- Johnson, M. 1987. *The body in the mind: The bodily basis of meaning, imagination, and reason*. Chicago: Chicago University Press.
- Kemp, S., S. Morley & E. Anderson. 1999. Coping with epilepsy: Do illness representations play a role? *British Journal of Clinical Psychology* 38. 43–58.
- Kövecses, Z. 1986. *Metaphors of anger, pride, and love*. Amsterdam: John Benjamins.
- Kövecses, Z. 2000a. *Metaphor and emotion: Language, culture, and body in human feeling*. Cambridge: Cambridge University Press.
- Kövecses, Z. 2000b. The concept of anger: Universal or culture specific? *Psychopathology* 33. 159–170.
- Lakoff, G. 1990. The invariance hypothesis: Is abstract reason based on image schemas? *Cognitive Linguistics* 1. 39–74.
- Lakoff, G. 1993. Contemporary metaphor. In A. Ortony (ed.), *Metaphor and thought*, 202–251. Cambridge: Cambridge University Press.
- Lakoff, G. & M. Johnson. 1980. *Metaphors we live by*. Chicago: University of Chicago Press.
- Lakoff, G. & M. Johnson. 1999. *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. New York: Basic Books.
- Lakoff, G. & Z. Kövecses. 1987. The cognitive model of anger inherent in American English. In D. Holland & N. Quinn (eds.), *Cultural models in language and thought*, 195–221. Cambridge: Cambridge University Press.
- Monzoni, C. & M. Reuber. 2009. Conversational displays of coping resources in clinical encounters between patients with epilepsy and neurologists: A pilot study. *Epilepsy and Behavior* 16. 652–659.

- Plug, L., B. Sharrack & M. Reuber. 2009. Seizure metaphors differ in patients' accounts of epileptic and psychogenic non-epileptic seizures. *Epilepsia* 50. 994–1000.
- Reuber, M., G. Baker, R. Gill, D. F. Smith & D. Chadwick. 2004. Failure to recognize psychogenic nonepileptic seizures can cause death. *Neurology* 62. 834–835.
- Reuber, M., S. Howlett & S. Kemp. 2005. Psychologic treatment for patients with psychogenic nonepileptic seizures. *Expert Opinion in Neurotherapeutics* 5. 737–752.
- Reisfeld, G. M. & G. R. Wilson. 2004. Use of metaphor in the discourse on cancer. *Journal of Clinical Oncology* 22. 4024–4027.
- Scheepers, B., P. Clough & C. Pickles. 1998. The misdiagnosis of epilepsy: Findings of a population study. *Seizure* 7. 403–406.
- Schwabe, M., S. J. Howell & M. Reuber. 2007. Differential diagnosis of seizure disorders: A conversation analytic approach. *Social Science and Medicine* 65. 712–724.
- Schwabe, M., M. Reuber, M. Schöndienst & E. Gülich. 2008. Listening to people with seizures: How can Conversation Analysis help in the differential diagnosis of seizure disorders? *Communication and Medicine* 5. 59–72.
- Semino, E., J. Heywood & M. Short. 2004. Methodological problems in the analysis of metaphors in a corpus of conversations about cancer. *Journal of Pragmatics* 36. 1271–1294.
- Surmann, V. 2005. *Anfallsbilder: Metaphorische Konzepte im Sprechen anfallskranker Menschen* [Seizure representations. Metaphorical concepts in the talk of people with seizure disorders]. Würzburg: Königshausen & Neumann.
- Steen, G. J. 1999. From linguistic to conceptual metaphor in five steps. In R. W. Gibbs & G. J. Steen (eds.), *Metaphor in cognitive linguistics*, 57–78. Amsterdam: John Benjamins.
- Steen, G. J. 2007. *Finding metaphor in grammar and usage*. Amsterdam: John Benjamins.
- Stone, J., M. Binzer & M. Sharpe. 2004. Illness beliefs and locus of control: A comparison of patients with pseudoseizures and epilepsy. *Journal of Psychosomatic Research* 57(6). 541–547.
- Sweetser, E. E. 1990. *From etymology to pragmatics: Metaphorical and cultural aspects of semantic structure*. Cambridge: Cambridge University Press.
- Van Oosten, J. 1985. *The nature of subjects, topics and agents: A cognitive explanation*. Bloomington, IN: Indiana University Linguistic Club.