



Analysis of seizure metaphors differentiates between epileptic and non-epileptic seizures

Markus Reuber¹ and Leendert Plug²



Affiliation:

- 1) Academic Neurology Unit, University of Sheffield, Royal Hallamshire Hospital, Sheffield, UK. markus.reuber@sth.nhs.uk
- 2) Dept. of Linguistics & Phonetics, University of Leeds, UK. l.plugin@leeds.ac.uk

Purpose:

- 1) To increase understanding of the subjective symptomatology of seizure experiences by analysing the metaphoric conceptualisations of epileptic and (psychogenic) non-epileptic seizures (NES).
- 2) To explore the potential of using differences in metaphoric conceptualisation for future tools for the differential diagnosis of epileptic and non-epileptic seizures.

Rationale:

Cognitive metaphor theory suggests that we do not just use metaphors to translate thoughts into words, but that we think and feel in metaphors. The analysis of metaphoric conceptualisations may therefore improve our understanding of cerebral processes such as epileptic and non-epileptic seizures (Surmann 2005).

Definition of Metaphor:

A metaphor is any linguistic marker of a correspondence between distinct conceptual domains. As an example, 'your claims are *indefensible*', 'he *attacked* every weak point in my argument' and 'I *demolished* his argument' are all metaphorical expressions based on the metaphorical conceptualisation of argument as warfare – in short: 'argument is war'. (Lakoff & Johnson 1980)

Method:

- Prospective study, 21 consecutive patients referred because of uncertainty about the diagnosis of epileptic or non-epileptic seizures.
- Included: Only patients in whom diagnosis was confirmed by video-EEG recordings of typical events (8 patients with epilepsy, 13 with NES).
- Excluded: Patients with combined epileptic and non-epileptic seizures.
- 30 minute interviews conducted by one neurologist (MR), ('What were your expectations when you came here?', 'Tell me about your first / last / worst seizure.' 'You say X about your seizures, what do you mean by that?').
- Analysis of verbatim transcripts by one linguist (LP) blinded to medical diagnosis, identification of all metaphorical expressions and conceptualisations as defined by Lakoff & Johnson ('Seizures are X').

Analysis:

- 1) "Type count": all metaphoric expressions used by each patient.
 - 2) "Token count": number of different metaphors used by each patient.
 - 3) Grouping of metaphors into most common conceptualisations.
 - 4) Comparison of preferences of major metaphoric conceptualisations.
- 382 uses of metaphoric expressions ('tokens') identified.
 - 80.8% of metaphors mapped to 3 conceptualisations (examples see below).
 - Most patients used all conceptualisations.
 - Usage preferences differed between patients with epilepsy and NES.
 - 85.7% of cases were correctly classified by logistic regression analysis into NES or epilepsy based on type counts, 81.0% based on token counts.

Results:

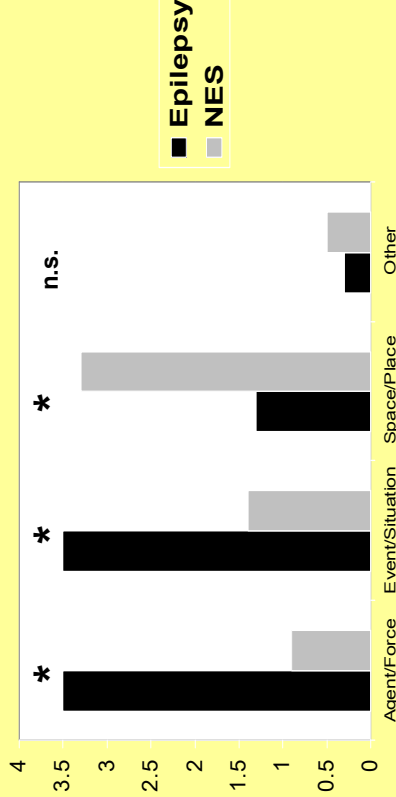
Seizures are...	An agent/force	An event/situation	A space/place	Other
Grammatical subject	Seizure	Seizure	Patient	Variable
Semantic agency	With the seizure	Variable	With the patient	Variable
Examples	seizures come, go, come in, come on, come up, creep up on you, get you, try to do things, are straight	seizures happen, occur, take place, are due, start, finish, go on, carry on, develop, are experienced,	drifting off, being off somewhere else, going, going off, being gone, coming back, coming round, coming	seizures are started up, are fixed, like an electrical charge, like the lights are on but nobody's at home, like

Mean metaphor token counts



* : $p < 0.05$

Mean metaphor type counts



** : $p < 0.01$ n.s.: not significant

Conclusions:

- Most seizure metaphors map to one of three common conceptualizations
- Epileptic seizures are typically conceptualised as an external, self-directed entity. The patient is the victim or observer of the epileptic seizure.
- Non-epileptic seizures are preferentially conceptualised as a place with no semantic agency which the patient travels into.
- The discriminant value suggests that metaphorical conceptualisations could be used for diagnostic questionnaires.

References:

- Lakoff G & Johnson M (1980), Metaphors we live by. Chicago: University of Chicago Press.
- Surmann, V (2005) Anfallsbilder – Metaphorische Konzepte im Sprechen anfallskranker Menschen. Würzburg: Königshausen & Neumann.