1 *Operationalising 'metaphor' for applied linguistic research*

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The history of figurative language ... [is] more of a conglomeration of discontinuities than a coherent progression toward resolution of common problems. (Honeck, 1980: 37)

A starting point: metaphor as a phenomenon of language in use

Metaphor is a device for seeing something in terms of something else. (Burke, 1945: 503)

A general type of description of metaphor often seems to be the only level at which theorists and researchers of different persuasions can agree, with similar 'definitions' found in many key publications (Kittay, 1987; Black, 1979; Gibbs, 1994; Lakoff & Johnson, 1980). Once past this level of generality, disagreement develops in a mire of conglomerated detail, and intending researchers may find themselves reeling as they approach the published literature in order to select an appropriate theoretical and analytic framework for a study.

In this chapter, I attempt to impose some order on this confusion by addressing various aspects of the question of how to operationalise the concept of metaphor for research of an applied linguistic nature. As applied linguists, we are concerned with language use in real-life situations, particularly problematic ones. In general terms, the applied linguistic researcher is aiming to reveal and understand underlying processes of language learning or use, and perhaps to evaluate intervention in them.

The various papers in this volume illustrate research procedures that often start from the identification of metaphor as linguistic product in text or discourse, and then move to making inferences about the role of metaphor in language in use:

- inferring about mental representations of states or events from language evidence (e.g. Block in Chapter 7 and Gwyn in Chapter 10);

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- inferring about changes in mental representations and/or behaviour from language evidence (e.g. Cortazzi and Jin in Chapter 8);
- inferring about metaphor in the learning of English as a foreign language (e.g. Low in Chapter 11).

In each of these studies, the research works with and from *language in use*, and this gives rise, I would argue, to two key meta-theoretical implications. The first is that applied linguistic metaphor theory and research will be concerned with the linguistic as meshed with the social and with the cognitive. As Clark (1996) points out, if we take a *purely cognitive* approach or a *purely socio-cultural* approach to language use and, by extension, to an aspect of language use such as metaphor, we do not get pictures that are differently but equally valid; rather, we get partial and inaccurate pictures, since it is precisely the interaction between the cognitive and social in language use that produces the language and behaviour that we observe and research. What we need is a view of language in use which prevents a one-sided or compartmentalised approach, by allowing the social and cognitive to be integral parts of theory and analysis of data. Language in use in human interaction, as I have suggested elsewhere (Cameron, 1997a), can usefully be considered as a complex, dynamic system in which language resources – both forms of language and skills in using language – are employed in particular contexts to achieve interactional goals under particular processing demands. Language as text, in the sense of the language as words actually used as well as the linguistic system that can be abstracted from it, then becomes an 'emergent' feature of interaction between language as resource and discourse contexts. Operationalising metaphor (or other concepts) for applied linguistic purposes requires that account is taken of resources (language and cognitive), interactional goals and processing demands at each point of theory development and research.

The second important meta-theoretical consequence of treating metaphor as a phenomenon of language in use is the need to place constraints on the theoretical frameworks used for empirical research, by requiring them to be congruent with what is known of the processing of metaphor. Such a constraint may sound quite innocuous and uncontroversial, but its application would, I suspect, clear the ground of much metaphor theory that, while of technical interest, will not transfer directly to empirical work.

In the next section, I explore the outcomes for metaphor research of constraining analytic frameworks as suggested above. In the third section, I argue that the application of such constraints to current and historical theories of metaphor in fact highlights the need for

new, applied linguistic frameworks for studying metaphor in use. A historical overview points to two key areas for development in the theory of metaphor: the need to go beyond the Information Processing paradigm and the need to re-establish a language focus in metaphor research. In the fourth section, aspects of operationalising metaphor are considered in more detail. The concluding section brings together key aspects of such frameworks that have been identified in the chapter.

Levels of analytic frameworks for metaphor

One immediate result of adopting a language-in-use approach to metaphor is that language users become an integral part of the research picture, and answers to many questions about metaphor identification and description *must* take them into account. Sometimes theoretical descriptions of how metaphor works appear to be isolated from user-related evidence. A good example would be theories of metaphor comprehension, sited within traditions of non-applied linguistics or philosophy based on formal logic, which explain metaphor comprehension as a 2- or 3-step process including, as one of the steps, the accessing of a literal meaning (e.g. Kittay, 1987; Winner, 1988). Such theories, which do not take into account temporal, contextual, neurological or other processing factors, are at odds with the results of many empirical studies that show clearly that processing metaphorical meaning often takes no longer than processing literal meaning (see Vosniadou, 1989, or Chandler, 1991, for fuller discussion and references). At the very least, disjunctions between theory and processing results should suggest that studies at one or other level are not subtle enough. A recent paper by Giora and Fein, for example, points to the need to distinguish degrees of familiarity in metaphors processed by subjects. They claim that subjects are more likely to process familiar metaphors directly, while less familiar metaphors are more likely to invoke the literal meaning of the metaphor (Giora & Fein, 1996). Such empirical results serve as a reminder that theory can be over-general and that theoretical frameworks must be selected to fit the level of detail and the type(s) of metaphor and discourse under investigation. I suggest, however, that we should go further and require that theoretical frameworks be congruent with processing evidence.

In setting up a requirement of theory-processing congruence, I follow the neuroscientist David Marr, who first raised the issue in connection with the study of vision (Marr, 1982). Marr's research demonstrated how a delineation of levels of explanation could lead

to the development of more adequate and valid theory and processing models. Since then, the importance of separating levels of analysis has been discussed in relation to other mental phenomena, including language (Jackendoff, 1992), consciousness (Dennett, 1991) and analogical reasoning (Palmer, 1989; Gentner, 1989). For applied metaphor research, we can make a distinction between a *theory level of analysis* and a *processing level of analysis*, placing a requirement of congruence between the two.[1] A third level, the neurological, can also be distinguished. In metaphor studies, neurological research is likely to have much to contribute to the development of congruent frameworks, but work is still in its very early stages.

Level 1, the theory level, is the level at which theoretical analysis and categorisation of metaphor takes place, and where a central concern is the identification of metaphor: "what may or may not be analysed as a metaphor" (Steen, 1994: 24). Work at this level is driven by the concern to produce adequate and elegant theoretical accounts that are coherent within the particular logic chosen, as, for example, when Kittay (1987) sets out a semantic field theory account of metaphor, based on a relational theory of meaning. At this level too, the implications of metaphor as a discourse task can be considered, by analysing demands placed on users and receivers.

Level 2 relates to on-line processing by individuals engaged in production or interpretation tasks: how concepts are activated when lexical items in a metaphor are made sense of, how an interpretation of metaphor is reached, how metaphor can organise conceptual structures in long-term memory, how processing of metaphor can change conceptual structures and/or provide new meanings for lexical items. In the original work on levels by Marr, such processing was seen only as individual and internal; from a language-in-use perspective we would want to set such processing within its discourse context (Cameron, 1996), and include the effect of social interaction on processing.

The level at which metaphoricity is determined will influence the evidence required for metaphoricity, and the type of data that will count as evidence. Clarification of the distinction between 'theory' and 'processing' levels will help in the critical evaluation of existing theories of metaphor; the validity of theory-level accounts can be evaluated by how far they take adequate account of what is known

[1] The original labels for Levels 1 and 2 are "computational" and "algorithmic" (Marr, 1982). Kittay uses "conceptual" and "psychological" (Kittay, 1987). I have chosen, until more satisfactory labels can be found, to use "theory" and "processing"; I am aware, however, that this labelling is not unproblematic, since, for example, theorising is carried out for both levels.

LEVEL 1 THE THEORY LEVEL

Concerns

Metaphor identification.

Categorisation of metaphor types.

The goals and the logic of the production, interpretation and noticing of metaphor in discourse as processing tasks.

LEVEL 2 THE PROCESSING LEVEL

Concerns

The activation of concepts, as constructed through interaction between individuals and their socio-cultural environment, in the processing of metaphorical language in discourse.

How an interpretation of metaphor is reached; how a particular metaphor comes to be used.

The structuring of conceptual domains through metaphor; conceptual change through encounters with metaphor.

LEVEL 3 THE NEURAL LEVEL

Concerns

Neural activity that brings about metaphor processing at Levels 2 and 1.

Figure 1 Levels of analysis and representation of metaphorical language

about processing. Levels of metaphor analysis are summarised in Figure 1.

Operationalising metaphor for a research study requires the researcher to establish appropriate theoretical frameworks that define and categorise the phenomena of concern, and that, having constrained what is counted as evidence, further constrain how that data can be analysed. The framework in Figure 1 is expanded further in Chapter 6, where it is used to explore the question of identification procedures for one particular discourse context. In the next sections of this chapter, I show how a requirement of congruence between levels of analysis and representation can constrain details of frameworks for operationalisation of metaphor. At this stage, the following general points relevant to researching metaphor are highlighted:

- The researcher needs to be clear, and explicit, as to whether operationalising 'metaphor' is being done at theory level or at processing level.

- At whichever level the operationalisation is being carried out, the researcher needs to check that the analytic framework will satisfy constraints from lower and higher levels.
- Different types of metaphor may require different theoretical frameworks.
- Analytic frameworks may need to be multi-dimensional to account for different aspects of metaphor, such as language form, familiarity or discourse role.

Keeping in mind the need to aim for congruence in frameworks, I now move to examine some of the key literature in metaphor studies from a language-in-use perspective.

Metaphor, language and thought

Researchers need to decide early in the research process whether metaphor is being considered as a phenomenon of language, or of thought, or both, and to consider the implications of that decision. In this section, I first take a broad historical perspective on metaphor studies, noting that scholars have long focused on the cognitive aspects of metaphor, not just on the linguistic features. Furthermore, metaphorical language has often been studied in particular contexts of use, thus connecting the cognitive with the socio-cultural. However, this multiple perspective seems to have been lost for part of this century, first as a result of many metaphor theorists in linguistics and philosophy relying on formal logic as a basis for argumentation, and later as cognitive psychologists have worked within an information-processing paradigm with its central analogy of the mind/brain as computer. I show how researching metaphor pushes this epistemological base to its limits in the need to take account of language, thought and interaction, and suggest that a closer focus on language in metaphor research is needed.

Metaphor, language and thought: a historical overview

That metaphor is a mental phenomenon, sometimes manifested in language, sometimes in gesture or in graphic form, seems currently uncontroversial. Claims for the cognitive nature of metaphor that were, less than twenty years ago, seen as new and dramatic, are now taken as obvious. This is testimony to the work that has been done in those twenty years by key figures in the field. It may be, though, that the recent cognitive shift in metaphor studies, rather than leading us in totally new directions, is taking us back to an on-going concern

with the interaction between the mental and the linguistic. Throughout history, the cognitive nature of metaphor weaves a constant thread through shorter-term concerns with other aspects. What is new about the current cognitive trend is the strength of certain claims about metaphor and thought, and the breadth that can be brought to metaphor studies by recent developments in psychology and language processing.

Examination of the writings of Aristotle on metaphor produced in the 4th century B.C. (see also Mahon, in Chapter 4) reveals an essentially cognitive view of metaphor as the substitution in discourse of one idea for another to produce new understanding. Moreover, when Aristotle discusses metaphor in the particular discourse genre of political rhetoric, employed to achieve particular interactional goals, he offers a socially contextualised view of metaphor in use. The history of metaphor theory shows that this early concern to address metaphor in use continued, for example in the writings of Vico and Tesauro in the 17th/18th centuries (discussed by Cooper, 1986; Eco, 1984). It seems to be in this century that the cognitive dimensions of metaphor have been downplayed, as metaphor theory increasingly became the concern of linguists and philosophers working through formal logic and operating on the assumption that language was a static, decontextualised system. Metaphor was relegated by some, such as Searle (1979), from linguistics altogether, seen as irrelevant to the formal study of language, and/or pushed into the area of pragmatics, where the meaning of metaphor is to be inferred from the literal sense of the words. Thus, in 1980, Lakoff and Johnson could write,

> ... metaphor is typically viewed as characteristic of language alone, a matter of words rather than thought or action. (Lakoff & Johnson, 1980: 3)

The fact that some of the metaphor theory produced without explicit consideration of the cognitive or socio-cultural dimensions is actually quite useful in research derives, I would suggest, from theorists' covert consideration of the creativity and constraints arising from use, context and processing.

The shift in metaphor studies back to a more overtly cognitive position, prompted by Lakoff and Johnson's (1980) book *Metaphors We Live By*, arose from the perception of inadequacies of formal logic-based approaches, and the need to take account of new findings about the psychology of categorisation, including prototype theory. However, there is still considerable variation in what is meant by 'cognitive', as it is used in Cognitive Psychology (Gibbs, 1994), Cognitive Linguistics (Lakoff, 1987a) and Relevance Theory

(Sperber & Wilson, 1986). In a recent article on idioms, Kövecses and Szabó (1996) contrast a "traditional" approach to idioms, that separates the language system from the conceptual system, with a "cognitive" approach, that sees language and conceptual systems as operating interactively. Their cognitive semantics approach considers the effect of conceptual resources on the generation and comprehension of idioms, offering explanations for the systematicity of idioms in the language, and implications for the accessing of the meaning of idioms. However, their work demonstrates the limitation of a cognitive view that does not take into account the dynamics of human mental processing and the goal-oriented nature of interaction in context.

Within cognitive psychology, the information-processing paradigm dominates thinking and research into the workings of the human brain. In the broader arena of cognitive science, such Artificial Intelligence approaches may predominate, but other approaches are also available (Eysenck & Keane, 1995). Eysenck and Keane (1995: 3) use the term 'cognitive' in a broader sense as related to "the understanding of the mind".

Beyond an Information-Processing paradigm

It is important to realise the extent of the influence of the IP paradigm in cognitive psychology, and thus in related metaphor research, in order to evaluate the advantages and limitations of a narrow cognitive approach to researching metaphor. The work of Gibbs, for example (Chapter 2; 1994), has developed our understanding of different types of processing of figurative language, but even this work is contextually limited by the psychological tradition of laboratory experiments, and can be usefully supplemented with consideration of everyday metaphor as being sited within goal-directed interaction in context.

The major limitations of the IP paradigm, however, derive from the inadequacy of its underlying mind/brain ~ computer analogy (Rose, 1993; Lowe, 1996). One development has been to replace the analogue computer in this underlying analogy with parallel distributed processors (PDP), which operate in ways more similar to the function of the human brain. In this scenario, the mind/brain ~ computer analogy remains, but produces a connectionist model of human processing, in which information is represented by the activation of networks of pathways between nodes. Work in, or close to, metaphor studies has made use of connectionist models of mental processing (Chandler, 1991; Holyoak & Thagard, 1989; Gentner,

1989), and this will be discussed in more detail later in the chapter. However, even with this updating, the IP paradigm is still for some seen as basically inadequate because human beings do not process *information* but *meaning*, making use of imagination, prior experience and beliefs and judgements (Lowe, 1996; Rose, 1993). PDP may be a better metaphor for the mind/brain, but it is still *only a metaphor*; neurons are essentially different from nodes in a connectionist network and memories are different from activated networks. Work such as that of Rose (1993) and Schank (1982) on the dynamic and on-the-spot construction of memory and meaning in processing, and the work of Barsalou (1987) on the contextual dependence of activated concepts, indicate that a constructivist view of understanding and other mental processes may provide a more adequate model. A particularly exciting development in this area of cognitive science, which also serves to emphasise how the complexity of the human brain passes beyond that of a connectionist metaphor, concerns the idea of theory-based concepts. This work is revealing how individuals conceptualise, classify and store information from their experience in ways that structure such information, both internally and in relation to other world knowledge, through explanatory "theories" (Ross & Spalding, 1994; Carey, 1985; Keil, 1979, 1983). When theory-based concepts are activated in discourse processing, comprehension is facilitated by the use of the explanatory relations linking the features of the concepts.

The links between metaphor and thought have been tightened even further by George Lakoff and others, in the proposal that the conceptual system is not only involved in the processing of metaphor, but that thought is itself structured metaphorically, and that the systematicity of metaphor on the surface of language merely reflects underlying conceptual structure in which something is understood, stored and processed in terms of something else (Lakoff, 1987a). This 'strong' cognitive view has been disputed by Quinn (1991) and others (e.g. Steen, 1994) who prefer a weaker view on the metaphorical nature of thought; for a discussion the reader is referred to Gibbs (1994). While my personal preference is for a broad, weaker view, we include in this volume several papers that build on the stronger view, such as those by Block (Chapter 7) and Gwyn (Chapter 10).

Re-emphasising language in metaphor research

The recent emphasis on cognitive aspects has, I would suggest, led to an unwarranted lack of interest in the *language* of metaphor, and applied linguistics researchers have a key role to play in developing

understanding of how language resources are put to work in the use of metaphor in discourse.

It would be difficult today to discuss metaphor as *merely* a matter of language, but there are remnants of such a view scattered around in the literature. Simple, surface definitions of simile, for example, still may include as a necessary and sufficient condition the presence of the word **like** between two noun phrases. Such a surface-level definition can confuse discussions of the relation between metaphor and simile, that can be clarified once it is made clear that, cognitively speaking, a metaphor may underlie a simile (Kittay, 1987). To quote Aristotle, again in cognitive mode:

> Metaphors will of course also be similes, and similes are metaphors that invite explanation. (*Rhetoric*, transl. Lawson-Tancred, 1991: 2)

The fact that metaphor is more than language does not mean that language form is irrelevant to the study of metaphor. The recent trend of reducing all metaphors to the form of A IS B, in order to focus concern on conceptual content has, as I discuss in more detail below, under-emphasised the potential effect of form on processing and understanding, and an applied linguistic dimension to metaphor study will hopefully restore and renew interest in language form at word, clause, sentence and discourse levels.

In addition, language form needs to be seen as inter-dependent with language in use, and this often means language in use in interaction. Research into metaphor use in various types of interaction, such as conversation, classroom discourse, interviews (Gwyn, in Chapter 10), needs analytic frameworks that are sensitive to interactional effects (see for example, Drew & Holt, 1988; Cameron, submitted for publication). Vygotskyan notions of the interactive nature of the relation of language and thought, and "the social formation of mind" (Kozulin, 1990; Wertsch, 1985; Rogoff, 1990), can be used to construct theory-level frameworks for metaphor that integrate the socio-cultural and the cognitive (Edwards, 1997; Cameron, 1996). While the application of these ideas to metaphor is not taken further here, the possibility of a broader 'cognitive' approach to language use, and thus to metaphor, which makes use of constructs such as explanation-based concepts and social interactionist accounts of their development, holds much promise for the future of metaphor research.

In this section, I have tried to show why it is important for the researcher to be clear about whether research is focusing on metaphor in language or in thought when setting up analytic frameworks. Theoretical clarity is also needed in the relation assumed between

language and thought, as this will underlie inferences that are made between linguistic evidence and thinking. In the next section, I look more closely at levels of analysis and description in the frameworks set up for metaphor research, and the requirements that researchers should place on them.

The nature of metaphor in language in use

In this section, I set out some of the key concepts and considerations in the operationalisation of metaphor, using as a starting point the general description of metaphor with which the chapter began:

> Metaphor is a device for seeing something in terms of something else.
> (Burke 1945: 503)

In labelling the components of a metaphor, the first *something* is often labelled the 'Topic' (occasionally the 'Tenor'), and the 'Vehicle' is the label given to the *something else*, a use that derives from Richards (1936) and Perrine (1971), and that has become more or less conventional, although Black (1979) suggested the alternative terms "primary subject" and "secondary subject". I first deal with the nature of the Topic and Vehicle. Burke's statement implies an anomaly of some sort between Topic and Vehicle, and the possible nature of that anomaly is the second area for discussion. The third part of this section reviews the act of *seeing in terms of*, or the resolution of the anomaly between Topic and Vehicle in a metaphor in the process of understanding. Again, this resolution can be described both at a theoretical level and in terms of real-time psycholinguistic processing, and it is important to remain alert to the implications of working at a particular level of description.

As Steen (in Chapter 5) points out, there are limitations to a Topic-Vehicle approach to describing metaphor. It is, however, fruitful for many types of study and has been shown to have some reality in real-time psycholinguistic processing (Steen, 1992; Cameron, 1997b).

I shall approach the operationalisation issue by asking the following three questions:

Q1 What kinds of things are the Topic and Vehicle in metaphor?

Q2 What degree/kind of difference is needed between the Topic and Vehicle for metaphor identification?

Q3 How is the Topic 'seen in terms of' the Vehicle?

Q1 What kinds of things are the Topic and Vehicle in metaphor?

The bases of current cognitive views of metaphor stem from considering the Topic and Vehicle not just as surface forms but rather as underlying systems of semantic and contextual information. It is worth noting that, although the same label is often applied to both lexical item and underlying concept, this can present potential problems.

Take the following example, from Low (in Chapter 11): **this paper thinks**. Low's conceptual analysis of the metaphor goes beyond the surface forms, to identify the underlying metaphoric structure as:

THIS PAPER IS A PERSON

(CONCEPTUAL) TOPIC	paper
(CONCEPTUAL) VEHICLE	a person

An analysis that works with surface forms would have:

This paper thinks

(SURFACE) TOPIC	**this paper**
(SURFACE) VEHICLE	**thinks**

The conceptual analysis has already made inferences from language to thought that involve generalisations, and that might need some form of justification.

I will consider alternative proposals for the underlying conceptual systems of Topic and Vehicle, but first I want to deal with the surface language forms of the Topic and Vehicle terms. From an applied linguistic viewpoint, one wants to consider language items not in isolation, but within their discourse context, as part of a longer text and as integral to the use of language for particular interactional goals. The discourse context may be spoken or written. Researching metaphor in its discourse context has several implications for the study of metaphor that are often not taken into account in research or theory stemming from linguistics, psychology and philosophy, and these will be expanded on throughout this volume.

TOPIC AND VEHICLE AS SURFACE DESCRIPTORS

As lexical items, Topic and Vehicle may be drawn from any word class and may range in scale from morpheme, e.g. parts of compound nouns as in **bookworm** (author's data), through word, phrase and sentence to unit of discourse, as in poem or allegory (Cooper, 1986: 195). A somewhat dated but extensive grammatical categorisation of

the lexical items in metaphors was carried out by Brooke-Rose (1958), using as database a corpus of poetry. Steen (in Chapter 5) begins the production of an up-dated linguistic checklist for metaphor.

In the metaphor literature, exemplar metaphors around which theory is built typically have Topics and Vehicles which are both nominal (i.e. nouns or noun phrases), as in **Juliet is the sun.** Furthermore, metaphors used in constructing tests of comprehension or explication in empirical studies are also frequently nominal; an example would be **weeds are the measles of the garden**, cited in Evans and Gamble (1988). Empirical evidence, however, suggests that verb metaphors may be more common than nominal metaphors in many types of discourse (Steen, in Chapter 5; Cameron, 1997b). The widespread use of Lakoff and Johnson's general underlying form of metaphor, A IS B, to substitute for a range of surface forms (Lakoff & Johnson, 1980) helps perpetuate the myth of the nominal metaphor as the most common or typical.

Aside from word class, many of the examples upon which metaphor theory is constructed have other typical features that may be misleading. Topic and Vehicle terms in exemplar metaphors are usually both explicit and are connected within a unit that is a clause or a phrase:

Encyclopaedias are goldmines (Ortony, 1979b: 353)

Gibbs (in Chapter 2) discusses one alternative syntactic form – the xyz metaphor – but Topics and Vehicles can be linked in metaphors of many syntactic forms, within and beyond the phrase and clause:

Modifier–head (adjective + noun; adverb + verb etc)	***lollipop* trees**
Subject–verb	**the trees *took* the fire and *hid* it**
Verb–object	**we can *build* our understanding**
Verb phrase–prepositional phrase etc.	**you have to stick *to your guns***

(Examples from author's data: Vehicle terms in italics)

A further way in which metaphors in discourse often deviate from the typical examples is in the absence of explicitly stated Topic terms. The non-explicit Topic must be recovered in processing from clues in the surrounding text and context. An example would be:

you've had *an awfully good innings* (= you've had plenty of time using the computer) (Author's data)

Making sense of the unstated Topic reference does not seem to necessarily place an extra processing burden on the receiver

(Cameron, 1997b), and, again, a goal-directed, context-based view of processing would explain this more easily than an information-processing view.

Using isolated, nominal, clause-length metaphors as typical exemplars in theory-building may also be misleading, in downplaying the frequently observed systematicity of Vehicle choice, which is widespread in all types of discourse. Just as **Juliet is the sun** in its original discourse context is one of a series of related metaphors, so metaphor Vehicles often occur in networks within a text or across texts. This surface systematicity can be seen at various levels:

Local systematicity Within a particular text, related Vehicles may occur that develop an extended metaphor across several aspects of the Topic.

Global systematicity Across texts from a range of discourse types and content, semantically linked Vehicles may occur, producing systems and layers of metaphors. Some such systems seem to reflect fundamental underlying ways of thinking, and these are variously labelled "basic metaphors" (MacCormac, 1985) and "root metaphors" (Pepper, 1935).

Between these two we may place:

Discourse systematicity Within language use in specific discourse communities, related Vehicles may be drawn on. An example of this phenomenon would be the use of terms from spoken language to talk about literacy activities in school classrooms:

> **What is the writer *telling* us?**
> **The story *talks about* racoons.**
> **The next question *says* ...** (Author's data)

It is likely that processing is assisted by systematic use of lexis, and it should thus be taken into account in Level 2 frameworks and upwards into theory at Level 1. Such systems of surface Vehicle terms, which in use are likely to be overlapping and partial (see Deignan, in Chapter 9), are held to provide the linguistic evidence for the "conceptual metaphors" of Lakoff and Johnson (1980), and thus for inferences about the interaction of metaphor and thought.

TOPIC AND VEHICLE AS UNDERLYING CONCEPTUAL SYSTEMS

Examination of the surface forms of Topic and Vehicle cannot be taken very far before cognitive issues arise, and when metaphor has been seen as simply a matter of form or renaming, we are likely to

find over-simplified theory supporting the view; Mahon, in Chapter 4, makes a similar point when discussing how Aristotle's comments about metaphor have been misrepresented. As suggested earlier, writers on metaphor through the centuries have consistently seen the Topic and Vehicle terms of metaphor as the surface forms of underlying systems of conceptual information, but with variation in the content and organisation of these systems. Aristotle held that the Vehicle term in the discourse carried with it *endoxa*, the shared opinions of the speech community. In this century, Black's extension of the notion has had a major impact on the development of metaphor theory. He first wrote of the Vehicle as a "system of associated commonplaces" (Black, 1962) and later as an "implication complex" (Black, 1979). The Topic term, too, was seen as belonging to a system of relations (*ibid.*, 1979: 28), so that, for Black, a metaphor acts to juxtapose two conceptual systems.

Important distinctions still exist across different theories of metaphor, even when Topic and Vehicle are taken as conceptual domains underlying lexical items. One simple but useful contrast that can be made is between metaphor theory that takes these domains to be abstract systems, held to exist for *all users* of the language in the culture of a particular speech community, and metaphor theory that works with domain systems, held to exist, or be activated, in the minds of *individual users* of metaphorical language (Gibbs, Chapter 2, on products and processes). When operationalising metaphor, it is important to be explicit about which you are working within, and to justify inferences made from one to the other.

Within the first 'universal' group can be sited work that tries to account for metaphor through semantic field theory or componential semantics (e.g. Cohen, 1977; Sternberg, Tourangeau & Nigro, 1979). Recent work in linguistics (e.g. Sperber & Wilson, 1986) has blurred the clear line that was earlier drawn between semantics and pragmatics, and this in turn has influenced theoretical views of Topic and Vehicle systems. Approaching metaphor from within the discipline of philosophy, Kittay (1987) has made an important contribution, constructing a relational theory of meaning which augments semantic field theory with pragmatics in order to develop a theory of metaphor identification and interpretation. The lexical fields of Topic and Vehicle serve to identify underlying content domains, and the relations of contrast and affinity that organise the lexical fields serve to articulate the content domain (1987: 225). In Kittay's theory, interpretation of a metaphor then involves the transfer of relations between the semantic field of the Vehicle and that of the Topic (further developed in Section 4.4). Moreover, Kittay addresses the

earlier concerns of this chapter with theory/processing congruence by explicitly placing her work at Level 1 and acknowledging that it cannot serve for Level 2 purposes. In Chapter 6, I attempt to draw on Kittay's theoretical work to set up Level 2 frameworks.

In Lakoff and Johnson's (1980) "conceptual metaphor" (further developed in Johnson, 1987, and Lakoff, 1987a), the Vehicle domain is held to be a conceptual system mapped, at least partially, on to the conceptual system of the Topic domain – with the crucial additional hypothesis that the underlying conceptual domains are themselves metaphorically structured and stored as such in long-term memory. In other words, metaphor does not just link conceptual systems when encountered, but, in some fundamental way, metaphor constructs, or "motivates and constrains" (Gibbs, 1994: 7), concepts, and when a linguistic metaphor is encountered, pre-existing systems are activated (Glucksberg, 1995). This hypothesis has received some empirical support, in particular from the work of Gibbs and his colleagues (full references can be found in Gibbs, 1994). Lakoff and Johnson identify conceptual metaphor through analysis of Topic–Vehicle relations in collected examples of conventionalised metaphors found in the language of native speakers. They then generalise from the surface language items to inferred systems of thought. The weak point of such analyses lies in the directness of the inferencing from language use to claims about thought structures. By starting instead from the nature of concepts and mental representations, metaphor analysis can make use of several promising ways of viewing Topic and Vehicle domains as complex knowledge representations, rather than as sets of features (Keil, 1979; Neisser Ed., 1987; Sternberg Ed., 1994; Vosniadou & Ortony Eds., 1989). This is a Level 2 orientation, and the advantage to employing it is that Topic and Vehicle terms in discourse (like any other terms) are allowed to activate mental structures that are variously described as schemata, scripts, frames and mental models (see e.g. Ross & Spalding, 1994; McNamara, 1994). Common to all of these four concepts is the idea that domains may not be taxonomically organised, as some formal theories require, but rather, in real human minds working in real contexts of language use, they may be thematically structured, containing organised information about related entities, actions, events and language. Work on exemplar-based thought and memory (summarised in Medin & Ross, 1989) suggests that what is activated may not be abstract, but linked to specific earlier encounters. Gibbs (in Chapter 2) mentions the activation of images in processing Topic and Vehicle, and I can see no reason why such sensory memories should stop with sight; metaphor Topics and Vehicles may activate memories of smell

and taste too. Furthermore, research on speech processing emphasises the flexibility and range of activation in the human mind; for example, on hearing **trombone**, connections with **bone** are activated, as well as more musical schemata (Shillcock, 1990). Since the Vehicle term is by definition anomalous in the on-going discourse in some way, it may well prompt wider activation across several potentially relevant domains of knowledge. The work of Barsalou (1987, 1989) on concept stability and *ad hoc* categories suggests that conceptual domains are not stable and stored in memory, but rather are created in processing, and influenced by recent experience and other contextual factors.

Although 'connectionist' models are subject to the criticisms detailed earlier, they do contribute a useful analogy for concept activation as the spreading of impulses along pathways between nodes. As pathways are activated, so patterns of activation are created, which can be seen to represent conceptual domains. Chandler (1991) has attempted to produce a connectionist metaphor of metaphor processing, and much work has been carried out in the field of artificial intelligence using such PDP networks to solve analogical problems (e.g. Holyoak & Thagard, 1989). The connectionist analogy is useful in an applied context to the extent that it suggests other important properties of the activation of concepts:

- Activation of mental representations will *spread* through various types of motivated links (e.g. sound resemblance, exemplar memory, sensory memory, contextual information).
- Spreading activation is controlled (i.e. concept domains are bounded) when no pathways are found from certain nodes.
- Because of spreading activation, the mind can successfully process partial information.
- Gradability is inherent in the activation, because pathways can be differentially strengthened through multiple links.

Recent interest in explanation-based concepts can be extended to the activation of Topic and Vehicle domains. Encountering a metaphor would result in the activation of domains *and* of explanatory theories within those domains. So, encountering the **sun** in **Juliet is the sun** would activate not just features of **the sun**, but other relational information that links those features, such as the sun as centre of the solar system acting as centre of gravity for other planets that thus revolve around the sun.

'Domains' of Topic and Vehicle appear then not to be single unified domains underlying single lexical items, but rather more amorphous groupings of all types and levels of information and

meanings that may be activated on encountering the Topic and Vehicle. Furthermore, in real-time processing these 'domains' will be constrained and influenced by the discourse context and what participants bring to the discourse. The richness and variation in this view of domains does not make for simple theory construction or empirical procedures. However, if metaphor processing by real people, in real situations is to be a central focus of research, both need to be tackled. Much empirical work is still needed to determine how mental representations are accessed in metaphor processing, and the accessing demands and outcomes of different kinds of metaphorical language.

Q2 *What degree/kind of difference is needed between the Topic and Vehicle for metaphor identification?*

The unexpected introduction of a contrasting *something else* into ongoing talk or text may signal the occurrence of metaphor to participants and/or to the analyst. The nature of that contrast between Topic and Vehicle has been used in the literature as an identifying feature of metaphor. It has been variously labelled as a "tension" (e.g. Wheelwright, 1968), a "conceptual incongruity" (e.g. Kittay, 1987), an "anomaly" (e.g. Tourangeau & Sternberg, 1982; Ortony, 1979b) or as "contrary to accepted practice" (Matic & Wales, 1982: 246). Terms such as anomaly and incongruity, that label a presumed violation of receiver expectations, are clearly going to be very difficult to operationalise for much applied research. In real-time discourse processing, anomaly or incongruity is a graded feature of activated concepts underlying lexical items that will depend on the immediately previous discourse, participants' background knowledge, and their shared knowledge. For example, in my school data, a teacher says, **Alex is a packed lunch now**. Considered out of context, this has the form and cross-domain anomaly required of a metaphor, but once the discourse conventions of the classroom are taken into account, the anomaly disappears and it may be better identified not as metaphor, but rather as a case of ellipsis or metonymy. Anomalies that can be shown to have arisen from such ellipsis, or from errors, need to be eradicated by the analyst from possible identifications of metaphor (Kittay, 1987; Gibbs, in Chapter 2, takes a similar view). However, in many cases, categorising something as ellipsis remains a matter of judgement; the researcher or analyst must be explicit about the grounds on which such judgements are made, so that others may contest the claims or try to replicate the study.

Establishing Topic–Vehicle incongruity relative to a particular discourse context can make use of the Frame–Focus distinction introduced by Black (1962), where the Focus is a stretch of language that is identified as anomalous with respect to the surrounding 'Frame' of the metaphorical sentence (see also Steen, in Chapter 5). For Black, the Frame was a sentence (though with the Focus removed): Kittay (1987) generalised this to a "minimal frame" which can be a phrase, a sentence or a longer unit. For non-explicit Topics, a notion of Frame is needed which is broader than 'surrounding verbal context' against which the Vehicle (or Focus) appears anomalous; Kittay accordingly proposed the idea of a "default frame" which is constructed by participants from the discourse up to this point and represents their discourse expectations. The Focus-Frame is a 'soft' analytic tool, in that Frame boundaries may be fuzzy in the analysis of real discourse. It may however, for this reason, be more effective in the analysis of language in use than a requirement for a clear distinction between Topic and Vehicle domains.

The degree of difference between Topic and Vehicle domains required for the existence of metaphor is ultimately a matter for decision by the researcher. Within a particular discourse context, several different Vehicles may be used to refer to the same Topic, each generating a different degree of incongruity. In the following comparisons taken from a discussion about the nature of volcanic lava (the Topic), there are three possible Vehicle items:

1. **volcanic lava is like *runny butter***
2. **. . . or *sticky treacle***
3. **Is molten lava like *wax*?** (Author's data)

Whereas 1 and 2 may be held to be juxtaposing 'different domains', and thus to create metaphorical similes, the third case is less clear, and the domains may be judged too close for metaphor. Naturally occurring data will frequently produce situations like this, forcing the researcher to make a series of decisions about metaphoricity as judged by perceived domain difference.

Metaphor theory at Level 1 very often deals with the problem of the degree of difference by working with Topics and Vehicles that are uncontroversially anomalous or incongruous, as in the choice of exemplar metaphors. If research aims require the compilation of a set of metaphors to use with informants, then it is reasonably straightforward to do so, using examples of this type of "active strong metaphor" (Black, 1979: 26). Pilot studies can be carried out on the perceived metaphoricity of initial sets; for an example of a study that

does this with idioms, see Harris, Lahey and Marsalek (1980). If, however, a study requires the identification of metaphors in text, and hence to employ Level 2 frameworks, the researcher will need to work through the issue of completeness and ask whether what is to be identified is *every metaphor in the text exhaustively*, or *just certain key metaphors that link into particular concerns*. In Chapter 6, I deal with issues connected with the first scenario; the papers by Gwyn, Block, and Cortazzi and Jin work with the second. Both types of research are important; the first type can produce overall pictures of metaphor use, which the second type of study can then exploit as part of the process of ensuring representativeness and validity. What must be remembered in either case, is the need once again to be explicit in stating the identificational criteria applied to the data, so that the research is replicable and, for Popperians, falsifiable.

A relatively recent Level 1 approach to the nature of Topic and Vehicle difference has come from the psychologists Glucksberg and Keysar (1990, 1993), who propose that metaphor be seen as a class-inclusion statement, with the Vehicle term a prototypical example of a category acting the role of superordinate. In their example **My job is a jail**, the Topic term **job** refers to a specific job, but the Vehicle term **jail** refers to a category. Steen raises Level 2 objections to this theoretical view, by pointing out that, in less familiar metaphors, the category that underlies the Vehicle term may not be mentally represented, but may be constructed in processing through similarity and analogy (Steen, 1994: 15). While the category-inclusion view of metaphor adds a valuable new way of thinking of Topic and Vehicle terms, it may well turn out to be somewhat limited in applicability. For example, in terms of word class, it has only so far been applied to nominal metaphors of the A IS B format, in which A and B seem to be at parallel levels of generality, somewhat above the basic level (Lakoff, 1987a). Glucksberg and Keysar suggest (1993: 423) that it may work too for predicative metaphors, but data from real talk hints at a more complex picture for which a range of possible types of Topics and Vehicles, at different levels of generality, will occur. An analysis of metaphorical language use in a secondary school drama lesson showed that the teacher used two different Vehicles to refer to the same Topic when she was trying to describe to pupils the organisational structure of a play that included flashback scenes:

the play takes the form of *a circle*
***the shape* of the play** (Author's data)

Both **a circle** and **the shape** can be seen, in line with Glucksberg and Keysar, as superordinate categories. However, it would also be

possible to classify **a circle** as a type of **shape**, and thus at a lower level in a general-to-specific hierarchy. Interviews with five pupils (aged 13/14) revealed that the Vehicles were not equivalently superordinate at a conceptual-processing level either. While the pupils could explain the first metaphor to the interviewer, they could not produce an explanation of the second. A class-inclusion analysis is insufficiently discriminating of types of metaphor. It may be that, by building theory from a small set of selected metaphors of a certain type, 'class-inclusion', like many other Level 1 attempts at theory construction, has also firmly cemented in place its own limits.

In some cases, the Topic–Vehicle domain difference is established theoretically, at an initial stage of the design. However, this is not always an appropriate solution, and a number of techniques have been developed over the years to test the significance of the domain difference empirically (see Tourangeau & Sternberg, 1981, 1982; Wales & Coffey, 1986).

Q3 How is the Topic 'seen in terms of' the Vehicle?

In this third section, I expand upon the notion that the choice of Vehicle term from a domain distinct from the Topic acts to bring something extra to an understanding of the Topic, and perhaps of the Vehicle too, in the discourse. This process of analogical reasoning or 'seeing in terms of' appears to be a basic human skill or ability (Vosniadou & Ortony, 1983; Cohen & Stewart, 1994) that is evidenced in infancy when babies can be shown to respond similarly to increases in the intensity of light and increases in the pitch of sounds played to them. In an empirical study that explored how people could make sense of anomalous word pairs, Matic and Wales (1982) found that subjects experienced no problems making sense of constructed anomalous collocations. Evidence from children's comprehension of metaphor also demonstrates that the cognitive mechanisms for making sense of metaphor operate from early childhood, and that problems are more likely to derive from lack of familiarity with, or partial knowledge of, Topic and Vehicle terms (Vosniadou, 1987). This kind of 'seeing in terms of' is the "metaphoric processing" contrasted by Gibbs (in Chapter 2) with "metaphor processing", that is to say the processing of any stretches of language identified as metaphor – a Level 2 distinction indicated by Steen (1994). In processing linguistic metaphor, discourse participants may or may not employ special processing mechanisms to make sense; they may activate previously stored meanings for familiar metaphors, or they may process the linguistic metaphor literally. Metaphoric processing,

on the other hand, always involves active processing across incongruent domains through 'analogical reasoning', which is seen (e.g. Vosniadou & Ortony Eds., 1989) as the basic mental process underlying metaphor and analogy, and which involves the transfer of relations (not just features) from Vehicle to Topic (Gentner, 1989).

Both metaphor processing and metaphoric processing are Level 2 concerns, whereas at Level 1 we are concerned to produce a theoretically adequate explanation of metaphor interpretation or production. It is quite possible to produce an adequate Level 1 theory of processing which does not accord with processing evidence, such as the lack of evidence of extra processing effort or time required for metaphor processing (Gibbs, 1994). As we saw in the previous section, Level 1 theories may limit the categories of metaphor they attempt to deal with; Black's interaction theory (1979) only covers strong active metaphors, that are assumed to be processed metaphorically. Lakoff and Johnson (1980), in working with conceptual metaphor, are looking at language that is potentially metaphorical, in that it *could* be processed metaphorically, although very often it may not be. Notions of 'dead metaphor' and degrees of metaphor death are addressing, at Level 1, the Level 2 phenomenon of metaphor/metaphoric processing. To label a particular metaphor as 'dead' is in effect to assign to it a very low probability of being given 'active analogical processing' by members of particular discourse communities.

The Aristotelian view of understanding metaphor is a process of finding the shared 'ground' between Topic and Vehicle: similarities within differences. The simplest version of this has metaphor as working through implicit comparison of the two ideas, with every metaphor a reduced simile that can be expanded back into the literal. Black attacked this view as being based on – now suspect – notions of similarity (Black, 1962; Rips, 1989). Later theories of metaphor interpretation have used the idea of matching or comparison of attributes, properties, predicates or features of Topic and Vehicle domains, and a connectionist view is little more than an extension of this, in which the network nodes represent more micro-level features (Chandler, 1991). Levin (1977) developed a theoretical view in which metaphor was seen as operating through processes of feature addition or deletion. Ortony (1979c) introduced the idea of "differential salience" of features to account for the asymmetry of transfer of features from Vehicle to Topic, although we are still left with the problem of explaining why some features are perceived as more salient than others. The reader is referred to Kittay (1987) for a thorough critique of atomistic theories of metaphor interpretation.

As I noted earlier, similarity, as the key mechanism in classifying and creating categories, has been displaced by theory- or explanation-based views in recent work in cognitive psychology (Ross & Spalding, 1994; Rips, 1989), and this is paralleled in views of metaphor interpretation that highlight the transfer of relations between domains in processes of analogical structure mapping (Steen, 1994; Gentner, 1989); 'relations' within domains are precisely what a theory-based view of domains or concepts adds to features or attributes. Feature similarity can then be seen as a heuristic for making sense across incongruent domains, as it is for classification (Rips, 1989), or as an emergent feature of relational mapping (Vosniadou, 1989). It can be argued then that adequate Level 1 theory about the interpretation of metaphor will need to operate, not just with features or attributes in domains, but also with the relations or explanatory links between them. It will also need to account for how such links may be 'transferred' from Vehicle to Topic.

In applied linguistic research, centrally concerned with language in use, the processing of metaphorical language takes place in the context of the discourse, and, I have suggested, this must be taken account of from the very foundations of theory construction and development of analytic frameworks. Because much metaphor theory is not explicitly related to specific discourse contexts, it may *appear* to work with context-free language in explaining comprehension or production. In fact, however, context is still (and always) present; it is merely assumed as common shared knowledge and therefore not in need of explicit theoretical attention. What I am arguing for in this chapter is the centrality of the contextual nature of language in use; the human and discourse context of language use is inherent in the joint construction of discourse goals and in the use of metaphor to achieve those goals. Processing metaphorical language takes place in context and draws on the discourse expectations of participants. It follows that the theoretical frameworks used to operationalise metaphor must do so too.

At Level 1, relevance theory seems to offer a theory that takes into account contextual effects in which metaphor can be seen as one type of "loose talk" (Wilson & Sperber, 1988; Sperber & Wilson, 1986). In their 1988 article, Wilson and Sperber go so far as to suggest that loose talk is probably basic to communication; however, the label still suggests that it is a deviant form of some other "tight" talk. Gibbs (1994: 231–232) criticises a relevance theory approach for its lack of fit with Level 2 evidence, when he points out that it implies extra cognitive effort from listeners, for which there is in many cases no evidence.

In a connectionist parallel to relevance theory, Holyoak and Thagard (1989) found that the design of a computer program to 'interpret' analogy needed to incorporate a condition of "pragmatic centrality" on activated interpretations, to inhibit those that were inappropriate to context. Human processing, though, deals unproblematically with open-endedness; discourse problems do *not* generally arise as a result of loose talk and the degree of looseness appears to be chosen to match discourse expectations and needs. Ambiguity is deliberately exploited in humour, and employed subtly, and sometimes deliberately, in the pursuance of communicative goals (Schegloff, 1984). Discourse context does not provide an extra constraint to be applied at some point in processing metaphor, but works to determine the nature of language, of processing and of activated information.

Cognitive views of metaphor as inherent to conceptual structure attempt to explain processing evidence at a theoretical level in a slightly different way. If our mental representations are metaphorically structured, then activation in processing would be automatic (Lakoff & Johnson, 1980). Explaining processing in this way is limited – it can only account for some types of metaphorical language. An adequate theory would need to account in addition for the corpus evidence now starting to emerge of partial and overlapping systems of metaphor use in language (Deignan, in Chapter 9; Gibbs, 1994). Quinn further suggests that conceptual metaphor has a cultural basis, rather than a purely cognitive basis, and that people acquire metaphors that reflect the thinking of their socio-cultural group(s) (Quinn, 1991; Quinn & Holland Eds., 1987; see also Cortazzi & Jin in Chapter 8). There would seem to be room for both approaches to conceptual metaphor: some may well be experientially based (Johnson, 1987), while other systematic uses of metaphorical language may be built up through social interaction and influence. Both retain the possibility of deliberate and non-conventional use of metaphor to achieve particular discourse or behavioural goals.

As with the activation of mental representations, it would seem that we are still far from understanding the complexity of the human brain at work in making sense of analogies by finding connections between concepts, and theories of metaphor interpretation and comprehension are our rather poor and partial attempts to capture some aspects of the little we do know. What we can say is that models of metaphor processing need a level of complexity that matches the type of metaphor under consideration. Topics and Vehicles may be such that similarities are pre-existing, either because the metaphorical link is very simple, or because the Topic is mentally

structured and stored in terms of the Vehicle (Gibbs, 1994). In simple cases, such as **volcanic lava is like runny butter** (Author's data), the simple models of Substitution or Implicit Comparison may suffice to account for the interpretation of metaphor (Black, 1962). If conceptual metaphor is assumed to be involved, then the theoretical work of Lakoff and Gibbs will be appropriately invoked. If links between Topic and Vehicle have to be constructed afresh in interpretation, because of a high degree of incongruity, then a more complex model is needed.

Operationalising metaphor: conclusions

In this chapter, I have tried to suggest that applied linguistic researchers of metaphor need to bear in mind the following:

THE NEED FOR SUBTLETY IN CONSTRUCTING AND USING METAPHOR THEORY

- Differentiated theory is required to describe and explain different aspects of metaphorical language: different language forms, different degrees of familiarity, different levels of generality.
- Differentiated theory is required to describe and explain different aspects of metaphor processing: different temporal points of processing (a point taken up further by Gibbs in Chapter 2); difference in Topic–Vehicle contrasts.

THE NEED FOR CLARITY IN LEVELS AND TYPES OF ANALYSIS AND REPRESENTATION

- It is important to be clear as to whether operationalising 'metaphor' is being done at the theory level or at the processing level. That is to say, is evidence required of active metaphorical processing, or is the concern to establish an internally consistent framework, without reference to real-time processing?
- At whichever level operationalisation is carried out, analytic frameworks need to satisfy constraints from both higher and lower levels.
- Arbitrary decisions seem to be unavoidable; they should at the very least be explicit.

THE NEED FOR A VIEW OF METAPHOR AS AN ASPECT OF LANGUAGE IN USE, SITUATED WITHIN PARTICULAR DISCOURSE CONTEXTS

- Data sources may include naturally occurring discourse, corpora or native-speaker introspection.

- Operationalisations of metaphor and metaphor processing need to take account of the contexts of use and of discourse participants who have built up experience with metaphorical language as members of various socio-cultural groups.
- Inferences, or claims for representativeness, made across different discourse contexts, or between community norms and individuals, need to be justified and described explicitly.

Metaphor in use is a complex socio-cultural and psycholinguistic phenomenon that requires the application of multiple investigative methods – triangulation from large corpora, empirical studies of reactions, introspection and theory that accommodates gradedness, prototypicality, relativisation to discourse context and social groups. Honeck's "conglomeration of discontinuities" may yet be a sign of progress towards coherent multiplicity.