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Conceptual Metaphors: a review with implications for human understandings and systems practice

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Conceptual Metaphors:
A Review With Implications for Human Understandings and Systems Practice

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We provide an overview of metaphor theory and explore implications for systems practice by building on claims that metaphors are central to our ways of understanding. As stakeholders will have different understandings, each metaphor will reveal and conceal different aspects of their understandings. These differences need to be accommodated within systems practice. Our contribution in this paper is to show how metaphors can *explain*, *appreciate* and *create* different understandings. Further, new understandings can emerge from considering different metaphors.

As metaphors are distinguished in language, we consider claims that all language is metaphorical. Different theories as to how metaphors *work* are discussed. Relationships between models, paradigms and metaphors are considered, as models are closely aligned with ways of understanding. We argue that metaphors are distinguished, rather than existing independently of distinction. For our purpose a metaphor can be seen as a description and recognised by the use of the words *is* and *as*.

The analysis of metaphors has been used in a research programme to enrich systems practice. A focus on metaphors can allow local stakeholders to participate with a valuing of different understandings and where credence is given to allowing new understandings to emerge.

1. Research context

Defining the research context is important for how a research paper can be interpreted. The primary research on which this article is based addresses the question "How can metaphors inspire researching with people?" The research context for this question is our concern with *future countrysides* in the UK. Agriculture in the UK and in other industrialised countries is in a state of flux with pressures to respond to environmental issues and to engage with providing ecosystem services (Hubert, Ison & Röling, 2000). Farming does not occur in a vacuum, and a focus on countrysides, in the cultural context of the UK, allows *people issues* as well as *environmental issues* to be considered.

This paper is part of a series that highlight overall ways of working with metaphors and the building of a systems praxiology (which we will define as reflecting on links between systems theories and practice, in a certain context). The broader research agenda is to develop a praxiology for environmental decision making in the context of sustainable development through systems practice (McClintock, 1996; Blackmore & Morris, 2001; McClintock, Ison & Armson, 2003).

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Our motivation in this task comes from own experiences of agricultural and environmental R&D (research and development) in which the prevailing paradigm could be summed up in the metaphor *knowledge transfer* (McClintock & Ison, 1994ab; Russell & Ison, 2000). One of the entailments of this metaphor is that research can be conducted outside the context of its application. Our concerns, given the recorded failings of the prevailing paradigm (Russell et al., 1989), was to devise practical ways to "research with people" (see McClintock, 1996; McClintock, Ison & Armson, 2003).

Our starting assumption was that different *countrysides* can emerge from different ways of working with people because an explicit focus on *metaphors* and *researching with people* provokes different ways of working with people. We have also been aware that prevailing ways of framing "the environment" perpetuate an unhelpful dualism between people and their environments. The effect of this dualism in practice is to diminish the capacity of humans to be both responsible and response-able in managing their ongoing relationship with the biophysical world (McClintock & Ison, 1994b; Ison & Russell, 2000).

Our research began with the proposition that considering different metaphors is a way of appreciating diverse understandings and creating opportunities to learn for participants—to become both responsible and response-able. It is also a way of exploring the context of a situation before formulating problems or opportunities for purposeful action, a basic starting point for systems practice for environmental decision making (Blackmore & Morris, 2001).

2. Metaphors and understanding

We start with a claim that metaphors are central to our ways of understanding. Lakoff and Johnson (1999) argue that the mind is inherently embodied, thought is mostly unconscious and abstract concepts are largely metaphorical. Lakoff and Johnson (1980, p. 3) claim that "metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature." Their book *Metaphors We Live By* has had a large impact on many research areas except for agriculture and environmental decision making, which are the contexts for this research. *"The essence of metaphor,"* they write, "*is understanding and experiencing one kind of thing in terms of another"* (1980, p. 5, emphasis in original). Metaphors may thus be said to structure our understandings because "metaphors have entailments through which they highlight and make coherent certain aspects of our experience" (1980, p. 156).

Lakoff and Johnson (1980) and Krippendorff (1993) claim that metaphors *create* our realities when acted upon as well as making a range of experiences available. Rorty (1980, p. 12) claims that "it is pictures rather than propositions, metaphors rather than statements, which determine most of our philosophical convictions." Shotter (1993, p. 9) writes of new ways of talking that "construct new ways of being"; with different metaphors allowing these new ways of talking (cf. Rorty, 1989). *If* these

claims are valid, then ways of working with metaphors become important. This research is concerned with ways of working with metaphors and the building of a systems praxiology.

Schön (1979, pp. 257-259) illustrates this creative, or generative, function of metaphors. He describes the development of a new paintbrush with synthetic bristles that failed to apply an even coat of paint. Somebody observed that "a paintbrush is a kind of pump." This was taken as an invitation to start to consider a paintbrush *as* a pump. Certain aspects of the paintbrush and its performance "came to the foreground." Attention then focused on the spaces between the bristles, and these were then thought of as channels through which paint could flow. Other ideas followed from thinking of a paintbrush in terms of a pump. A conclusion was that instead of *wiping* paint onto a surface, a paintbrush could *pump* the paint. It was not so much the image of a pump that was important, but the invitation to consider a process of *pumping*.

This example illustrated quite clearly how understandings of one concept (a paintbrush) can be organised, or structured, in terms of a different concept (pump, or pumping). Schön pointed to metaphors as "seeing as," that is "seeing X as Y.[4]" In the process of restructuring, perceptions of both X and Y are transformed (1979, p. 259). For the time being, "seeing X as Y" gives a reasonable operational definition of a metaphor. "Seeing as" is used in the sense of *treating X as Y... (that is) talking about X as if it were Y* (Cooper, 1986, p. 229, quoting from Wittgenstein, 1953). Further distinctions concerning the process of seeing-as and the metaphor-making process are highlighted in Steier (1992).

Structuring understandings of one concept in terms of another concept does not imply that understandings are improved, merely that they are different (Schön, 1979, p. 266). But what does it mean to structure our understandings? *Structure* invokes a metaphor of seeing understandings-as-buildings[5] (Lakoff & Johnson, 1980). Terms like *develop*, *build*, and *foundation* can then be used to describe aspects of understanding. Indeed the term "under-stand" is metaphorical, implying that we *stand upon* some foundations.[6] Possible foundations, and *ways* of understanding, are explored in the next section.

We have followed a tradition that distinguishes between *cognitive* metaphors (that is, metaphors claimed to have a cognitive function), from *aesthetic*, *ornamental*, or *decorative* metaphors (Schön, 1963; Cooper, 1986; Soyland, 1994). The latter group downgrades the importance of metaphors, and treats them as optional extras or embellishments. As embellishments, or stylistic devices, they can be explained as *deviations* from *proper* use of words and language (see Cooper, 1986). Commentators

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4. The notations used by different authors to describe a metaphor vary, and to maintain consistency all notation is transformed into "concept X" the "metaphorised" term or "tenor") and "concept Y" (the metaphorising term or "vehicle").
5. This style of X-as-Y will be used to indicate an explicit reference to a metaphor.
6. Rorty (1980) developed a coherent argument showing how most of our epistemological and ontological commitments "are built on certain foundations."

attribute this view of "deviance" to Aristotle, who wrote in *Rhetoric* that metaphor was a *"way of applying a strange word to an *object*"* and consisted of giving a name that "belongs properly to something else" (Tancred, 1991, p.6. Also quoted in Mooij, 1976, p. 18; and Way, 1994, p. 14). As deviations, Hobbes called metaphors absurd and misleading, and Locke saw them as powerful instruments of error and deceit (see the commentary by Lakoff & Johnson, 1980).

Lakoff and Johnson (1980) go to some lengths to ensure that their interpretation of metaphors is not associated with poetry and literature, rich as these may be. *Conventional* metaphors, *everyday* use, and similar phrases are invoked to support metaphor as a central component of our cognitive system. For example, one such claim is "*conventional* metaphor...*pervades* our conceptual system" (Lakoff & Johnson 1980, p. 196, emphasis added). Kittay (1987, p. 13) drawing from Richards (1936), likewise indicates that "we cannot get through three sentences of ordinary fluid discourse without [the use of metaphor]" Way (1994, p. 2) adds that metaphor "pervades everyday speech to such an extent that we are rarely aware of its presence." These writers were alluding to the general conclusion that metaphor use is everyday and pervasive, and thus important. The next section explores a consequence of Lakoff and Johnson's claim that metaphors are "a primary mechanism for understanding" (1980, p. 196).

2.1 Metaphors and a hermeneutic circle of understanding

The hermeneutic circle, as espoused by Gadamer (1975) and Heidegger (1962), is an account of how understandings can emerge. Snodgrass and Coyne (1990, p. 7) describe the hermeneutic circle as "the circular relation of the whole and its parts in any event of interpretation." They continue: "we cannot grasp the meaning of a part of a language until we grasp the meaning of a whole; and we cannot understand the meanings of the whole until we grasp the meaning of the parts." Understandings emerge from an iterative process of understanding both the parts and the whole (Figure 1a). If the hermeneutic circle is considered in terms of its component entities, the formulation is very suspect. A whole is assumed to exist, and be identifiable as such (even given the never-ending and iterative nature of the cycle). A further assumption is that the whole can be broken into parts. The formulation involves a logical contradiction:

> if we must understand the whole before we can understand the parts and yet the parts derive their meaning from the whole, then understanding can never begin... (this) paradox does not imply that the circle is vicious, but merely that logic is inadequate to the task of understanding (Snodgrass & Coyne, 1990, p. 8).

Figure 1: **An hermeneutic relationship between metaphors and understandings: (a) the hermeneutic circle: entities; (b) processes; (c) metaphors and understandings.**

parts

whole
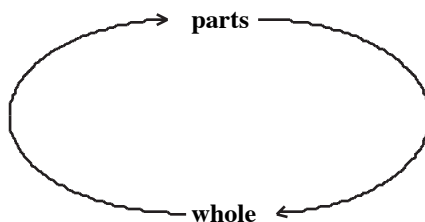
Fig. 1a The hermeneutic circle: entities

projecting

reflecting

Fig. 1b The hermeneutic circle: processes

metaphors

reveal   structure

understandings

Fig. 1c The hermeneutic circle: metaphors
and understandings

If the hermeneutic circle is considered in terms of processes, however, it becomes a more powerful and coherent formulation (Figure 1b). Understanding then emerges from an iteration between projecting our pre-understandings and reflecting on and then revising these understandings. These pre-understandings can be seen as

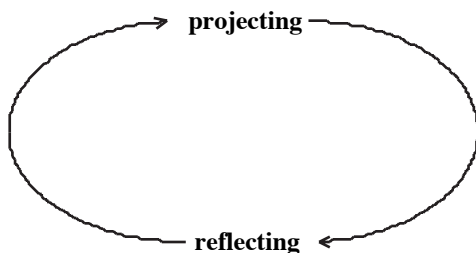*anticipations* of possible meanings. Gadamer (1975) has shown that these pre-understandings are unavoidable, and calls them *prejudices* or pre-judgements.

If these pre-understandings are thought of as *fore-structures* (Heidegger, 1962), then connections can be made with metaphors as the claim was made earlier that metaphors structure understandings. Are these pre-understandings *metaphors*? Can metaphors and understandings be thought of in the sort of relationship depicted by the hermeneutic circle? As it stands, the relationship implied between metaphors and understandings appears linear: metaphors structure understanding. This is fine until our understandings, or ways of understanding, are questioned. Acknowledging that we are trapped by the limitations of our understandings (Vickers, 1972; Morgan, 1986) justifies questioning this linear relationship. A further justification is that some metaphors are considered *disabling* (Lakoff & Johnson, 1980; Sontag, 1989; McClintock, 1996). Disabling metaphors are discussed in Section 7 of this paper.

The existence of a hermeneutic circle, on the other hand, implies that metaphors are revealed or highlighted by reflecting on our understandings (Figure 1c). This process is iterative: "metaphors pre-structure our experiences and are in turn changed by those experiences, a process best described in terms of the metaphors of play and dialogue" (Coyne & Snodgrass, 1991, p. 12). The process is "not something we can choose to use or not, in the manner of a tool. It is, rather, embedded in all thought and action" (Coyne & Snodgrass, 1991, p. 13). Heidegger (1962, 1977) describes this lack of choice as being *thrown* into using such a process. This means that we use metaphors, even when we are not conscious of them. This distinction can also be considered in terms of explicit and implicit metaphors (cf. Shotter, 1993).

A hermeneutic relationship between metaphors and understandings also suggests that the process is iterative and never-ending: "metaphors and models do not have static, one-off meanings, but are potentially capable of revealing multiple meanings, which can be progressively disclosed by the to-and-fro movement of the hermeneutic circle" (Snodgrass & Coyne, 1991, p. 15). It is not just multiple meanings for any one metaphor that are of interest. Rather we are concerned with multiple meanings in general, what we call a "diversity of understandings."

2.2 Metaphors and a diversity of understandings

A conclusion from the previous analysis is that *if* multiple understandings coexist then either multiple metaphors are being used or multiple iterations and disclosures by the hermeneutic circle are operating. Either way, different understandings are possible. Invoking the hermeneutic circle implies that diverse understandings can be *explained*, *appreciated*, and ultimately *created*.

Firstly, differences in understanding can be *explained* through the possible use of different metaphors. Some research approaches explicitly acknowledge differences in understandings, but usually as an *a priori* assumption. Two examples are *constructivist* approaches that recognise *multiple realities* (see Kersten, 1995; Kersten & Ison, 1994, 1998) and *systems* approaches that consider different *world-views* or multiple perspectives or mental models (see Checkland & Scholes, 1990). We propose that explicitly considering metaphors can enhance systems approaches that espouse

the need to appreciate multiple understandings. Hausman (1989, p. 9) comes close to this proposal when he suggests that an interest in metaphors is also appropriate to epistemology and ontology.[7] The following discussion on language includes some of these epistemological issues.

Secondly, understandings can be *appreciated* by considering the underlying metaphors.[8] Exploring these different metaphors is a way of addressing differences in understanding. This is an important methodological contribution to both constructivist and systems-based approaches. With metaphors it is not just a case of recognising differences in understanding, but being able to work with these differences. This is particularly important to our endeavour to work in diverse stakeholder contexts in which participants exhibit differences in understanding, such as when managing *commons issues* like water catchments and air quality. Diversity among stakeholders suggests many different metaphors are being used. Further, metaphors can contradict and complement other metaphors, just as understandings do (see Shotter, 1993).

Historically agricultural and rural development practices have been characterised by what is known as the transfer-of-technology (ToT) paradigm (see Ison & Russell, 2000). An interesting feature of ToT-based research is that it is predicated on different understandings: researchers have different understandings to farmers. However, one major "trap" of ToT-based research is that it does not afford an *appreciation* of differences in understanding because *transfer* implies one particular understanding will be adopted by others. We are interested in including the understandings of a range of people involved in bringing about future countrysides (McClintock, 1996) as well as other multiple-stakeholder settings. Hence considering different metaphors provides a way to appreciate diverse understandings.

Thirdly, considering different metaphors can *create* or lead to new understandings. Paying attention to metaphors in use may allow changes in the metaphors that are being used, and hence trigger the possibility of changing our understandings. The possibility that new understandings can be triggered, or created, by considering metaphors forms an important component of researching *with* people (McClintock, 1996). We are interested in how we can focus on metaphors, and how space can be created in which different metaphors can be considered.

The concept that metaphors can explain, appreciate and create metaphors is not totally new. Gareth Morgan, for example, has recognised the third point explicitly in using metaphors to manage and design organisations and to reframe organisational problems (Morgan, 1986, 1993). He touches on the second implication when he uses different metaphors (or ways) to diagnose, or to *read* an organisation.

This section has explored relationships between metaphors and understandings, and has laid the basis for research *using* metaphors. Further explication of metaphors

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7. A brief definition of epistemology is *the way we know*, or *the nature of knowledge*. Epistemology is often used as shorthand for *epistemological and ontological commitments*, with ontology being defined as *the nature of existence*.

8. We have not explicitly explored the process of appreciation as developed by Vickers and elaborated by Checkland and Casar (1986). We suggest this as a potentially fruitful line of inquiry.

is necessary, and we now consider what metaphors can reveal about language. Way (1994, p. 27) claims that "any theory of metaphor will necessarily involve assumptions and implications about the nature of language."

3 Metaphors and language

Rorty (1989) warns that language is contingent, in the sense that we cannot step outside of language to view it and also that language is the product of a large number of contingencies. As such, it is futile to try to explain what language *is*. Pragmatists like Rorty prefer to concentrate on *uses* of language (Rorty, 1980, 1989). In this section we consider what metaphors can reveal about the uses of language, some epistemological consequences, and some implications for research focusing on the use of metaphors.

Aristotle's label of metaphors-as-deviations from proper use, in *Rhetoric*, provides a starting point to consider metaphors and language. "Proper" use demands that there is a use that is deemed universal and correct. One useful reference point is that provided by "ideal language" theorists, for example the writings of Russell and early Wittgenstein (see Way, 1994). Language is broken down into its *atomistic* propositions, and the meaning of each of these propositions is clearly defined by a correspondence between words and what the words denote. Ideal language supports logical positivism, an epistemological position that views "reality" as being described by clearly defined propositions[9]. Language is seen as a means for representing that reality. An *unproductive* notion of metaphor resulted: metaphors need to be avoided or explained away (Krippendorff, 1993). Perhaps the best argument against this view of language, and metaphors, is provided by noting how proponents of this view turned away from it. One of the most notorious was Wittgenstein, who instead adopted a view of language as being part of an activity: that is, a "language-game" (again, see Way, 1994).

Proper use of language also draws attention to a distinction between metaphoric and literal language. *Literal* though, if equated with *correct* or *true*, runs into the same difficulties as those just outlined. Metaphors have been said to "carry truth" (see Cooper 1986, p. 5), but also to be blatantly false (pp. 201-202). Without wishing to discuss what *truth* is, it is worth observing Nietzsche's definitions of truth as: *a mobile army of metaphors*; and as *metaphors that have become worn out* (quoted in Cooper, 1986, pp. 258, 239). Cooper, citing Nietzsche, also claimed that: "metaphor is the basic principle of language and that so-called literal talk is a kind of frozen sediment of metaphor" (Cooper, 1986, p. 2). Literal language can thus be seen as *frozen*, *dead* or *established* metaphors. Metaphors "die" from both repeated use and acceptance. Hence the distinction between literal and metaphoric becomes a distinction based on whether a metaphor is *familiar* or not. Rorty (1989, p. 16) portrays this process of

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9. From this example, it can be seen how views on metaphors and language necessarily invoke epistemological and ontological assumptions (and vice versa).

language change vividly in terms of a coral reef: "old metaphors dying off into literalness, and then serving as a platform and foil for new metaphors." This is coming close to a common claim that all language is metaphorical.

If all language can be considered as metaphorical, then the implications for epistemology and ontology are profound. Schön (1963, p. 45) elaborates: "the claim that language is metaphorical is no small claim. It has the most serious implications for our notions of thinking and of the world, and the relation of our thinking to the world."[10]

A statement that *all language is metaphorical* also supports a thesis of the primacy of metaphors (see Soyland, 1994). Schön (1963) explores what that may mean in terms of extending discourse (that is, how we change the terms in language) and extending concepts (how we change our concepts). Schön proposes that emergence of new concepts occurs by a process of "displacement of concepts," where "new concepts came through the shift of old concepts to new situations" (Schön, 1963, p. 53). Metaphors are, he writes, "the traces left by the displacement" (p. 41). Way (1994, p. 8) views metaphors as being a *method for assimilating new knowledge*. Displacement of concepts is seen as a plausible way of dealing with the question of emergence of new concepts; what can be called the "creativity" enabled by metaphors. Often, commentators refer to metaphors as treating the unfamiliar in terms of the familiar[11] (for example, Schön, 1979; Watson & Wood-Harper, 1995). Thus the formulation "seeing X-as-Y" is refined to say that *X* is an unfamiliar concept, and *Y* is a familiar concept (or an *already-named-process*). However this is misleading and there appears little to justify the assertion that one concept has to be familiar. For example, the metaphor of "a quantum jump" used to indicate a large gap. In physics a quantum jump is a very small, though discontinuous, change.

Krippendorff (1993) outlines six metaphors of *everyday* perceptions of language and communication *in use*. These are: container, conduit, control, transmission, war, and dance-ritual metaphors. Each embodies different aspects of language use, but Krippendorff states his preference for the dance-ritual metaphor. Krippendorff's work provides a reflective look at what metaphors can reveal about *uses* of language, and consolidates his position that language is metaphorical. He suggests that engaging with metaphors can provide "windows" into the alternative understandings that may be held about a context or a concept (e.g. seeing communication as a dance).

Language-as-metaphorical suggests that literal language can be considered a subset, or special case, of metaphorical language. This may have inspired Schön to state that: "vagueness and ambiguity become the rule, the 'natural' state from which the artificial clarity of formal systems is a deviation" (Schön, 1963, pp. 49-50). A literal statement can be considered to have a closed or defined meaning, and to be just one possibility out of many (Hesse, 1988). However, Rorty (1989, p. 19) has warned that in addition to a reductionist view that disregards metaphors, there is also a

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10. Note the careful reference to "notions of the world" rather than "the world."
11. In the process of restructuring the unfamiliar concept, both concepts are changed (Schön, 1963, 1979).

"romantic" view that sees metaphors as wonderful and disregards literal language. Rorty claims that metaphors are only possible against a backdrop of literal language, otherwise language would be a "bubble" with no use (p. 41). Cooper (1986) similarly concludes that metaphor assumes the existence of the literal.

The discussion to date has supported Eco's (1983) claim that every discourse on metaphors originates in a fundamental choice between language-as-metaphorical, or language as rule-based. Under the second view, metaphors are *deviations*. Coyne (1995) talks of rule-based language in terms of classifications, with metaphors as *mis-classifications*. Viewing language-as-metaphorical is a further shift towards viewing metaphors as *everyday*, rather than being confined to poetry, and supports our claim that it is important in research to consider the metaphors people use.

One final aspect of language-as-metaphorical is that many distinctions assume that metaphors are used deliberately, especially for rhetoric and effect. The hermeneutic circle presented in Figure 1 highlights the ideas that metaphors can be considered part of our understanding and that awareness of metaphors is selective and revealed by whatever understandings we have at the time when the metaphor is used. Hausman (1989, p. 198) calls metaphors: "either verbal or non-verbal artefacts." As artifacts, emphasis can go to how metaphors are distinguished as such. However, keeping the operational definition of *seeing* "X-as-Y," we now consider what is happening *inside* a metaphor and how metaphors are said to structure, or restructure, a concept.

4 How metaphors restructure different concepts

Lakoff and Johnson (1980) highlight a metaphor's *entailments*, that is, understandings, ideas and associations entailed in thinking in a particular way. Restructuring a concept appears to be linked with these entailments. Snodgrass and Coyne (1991) pointed to the Greek origins of the word metaphor (*metaphora*), meaning *transfer*. Hence metaphor was seen as "the transfer of one concept to another" (Coyne, 1991, p. 7). The use of the word *transfer* provides a convenient starting point for considering how metaphors work in generating understanding.

Transfer implies two separate concepts, i.e. X and Y. Otherwise "one concept would actually be the other, not merely understood in terms of *it*" (Lakoff & Johnson, 1980, p. 13).[12] Transfer implies a movement between the two concepts; but what is said to move? One possibility is that it is a transfer of meaning (a "meaning-shift" described by Way, 1994), or *significance* (Shotter, 1993). This possibility treats meaning as an entity "contained" in language. Krippendorff (1993) discusses the implications of seeing language as a container. Kittay (1987) offers a different possibility: that transfer involves a "displacement of signs." A sign represents an arbitrary relation between a speech sound (signifier) and a concept (signified) (Potter

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12. This quote is slightly out of context, as Lakoff and Johnson are talking about restructuring being partial and not total. However, it too demonstrates a separation of concepts.

& Wetherall, 1987). Metaphor then becomes a transfer of "relations" between semantic fields. Kittay (1987, p. 6) uses this definition, but prefers to see metaphors as fusing two different concepts rather than as a transfer. A third possibility is that a metaphor transfers, or *"projects* upon the primary subject, "a set of associated implications*"* (Black, 1979, p. 28). Associated implications can be interpreted as entailments.

We discuss a number of theories as to how metaphors work under five labels: evocative; comparison; substitution; verbal-opposition; and interaction. Way concludes that:

> each of these approaches... has something significant to say about how metaphor operates; however each also has difficulty in accounting for the full range and expressive power of our metaphorical language. (Way, 1994, p. 30)

4.1 Metaphors as evocative

The theory that metaphors are evocative rejects the notion that metaphors can have a cognitive content, and concentrates on the effect a metaphor can produce. This theory appears appropriate under assumptions of language-as-rhetorical. Metaphors are thus "meaningless, and it is only the emotive effect that a metaphor can produce... [and they are] insightful only to the extent they stimulate the emotions of the hearer" (Way, 1994, p. 31; see also Rorty, 1989). Metaphors *work* by creating a shock: "the outstanding characteristic of metaphor is the sort of shock which it produces" (Henle, 1958, quoted in Mooij, 1976, p. 18).

Way (1994, p. 31) suggested that this theory contributes to the view that metaphors are "deviant" and also to positivist views of metaphor. However, Rorty (1989, citing Davidson, 1981) puts a different light on this theory by claiming that a metaphor is meaningless because language does not contain meanings neither is it a medium for representing reality (see also Krippendorff, 1993).

Under this theory, a metaphor is noticed when it creates an effect and conveys something unexpected—a new distinction—in a particular context. This effect may have something to do with aspects that are revealed by a metaphor, such as noticing new features of a paintbrush by seeing it as a pump (cf. Schön, 1979). Davidson (1981, quoted in Coyne, 1995, pp. 261-2) agrees that metaphors make us notice *certain things*, and indirectly offers two explanations of why metaphors are shocking: because they are "untrue statements that are not lies," and because they are used in a *context* that determines a certain effect. However, mechanisms by which metaphors produce a shock appear rather undeveloped. In spite of this, the evocative theory covers some important aspects of how metaphors are said to work.

4.2 Metaphors as comparisons

A comparison theory of metaphor implies that a metaphor compares the features of two concepts. The comparison can be either explicit or implicit: "a metaphor

compares things without spelling out the comparison" (Bateson, 1972, p. 56). Thus a metaphor becomes a kind of simile (X *is like* Y).

Fogelin, in a critique of Lakoff and Johnson's account of metaphors, states that metaphors *are* comparisons:

> To put it soberly...Lakoff and Johnson have not shown, as they claim, that most of our normal conceptual system is metaphorically structured...but instead, that most of our normal conceptual system is structured through comparison. With this rephrasing, a seeming paradox is replaced by a claim that probably no-one will deny, even if it hasn't been taken seriously enough. (Fogelin, 1988, p. 86)

Fogelin (1988) thus views metaphors as a kind of simile (X is like Y), where often words such as *like* or *as* have been omitted. This kind of simile is commonly referred to as an "elliptical simile." Words are omitted "for convenience or heightened interest" (Mooij, 1976, p. 29). Lakoff and Johnson (1980, p. 153) do consider a comparison view of metaphor: "X is like Y, in respects A, B, C," and they conclude that "metaphors *can be* based on isolated similarities" (emphasis added). However, any similarities are created and are not inherent. This and other criticisms of the comparison theory are now discussed.

There are three main criticisms of a comparison theory. The first is that comparison implies that similarities exist between two concepts *before* the metaphor is used. Schön (1979, p. 260) denounces this view as "seriously misleading." Instead, a metaphor *creates* similarities (see Lakoff & Johnson, 1980), and these features are attributed after the metaphor has been invoked (Schön, 1963). Creating similarities is consistent with the "generative" or creative properties of metaphors (see Hausman, 1989). Way (1994, p. 37) adds that the comparison theory also assumes that the concepts are objects, with known properties, and that it is difficult to compare concepts that are totally unknown or are abstract concepts.

A second criticism is that any comparison is selective, and that only some of the many attributes of either concept can be called similar (see Way, 1994, p. 38; Searle, 1979). How is the choice made of which features to compare? Fogelin (1988, p. 91) indicated that this choice: "depends upon canons of similarity determined by the context." This explanation can perhaps satisfy the criticism about selection, but not other questions. Watson (1995) points to a logical paradox between meaning and context: that meaning is context-determined but contexts are boundless. Therefore, meaning is not bounded. These questions regarding context are appropriate for all of the theories of metaphor, so it is unfair to dismiss the comparison theory on the basis of this criticism.

A third criticism is that often a metaphor appears effective because of dissimilarities rather than similarities (Hausman, 1989). Examples of this are not given, but it could be linked to the emotive theory, where it is a "shock" value, or incongruence, that makes a metaphor work. Related to this criticism of dissimilarities is that for many cases a comparison seems inappropriate. For example, for a *blue mood* there does not seem any point to pursue a comparison between features of an

emotional state and features of a colour. The reliance of comparison theory on comparing features is also indirectly criticised by Stanford (1936, quoted in Mooij, 1976, p. 73) that "rhetoric avoids busying itself with such details."

A fourth criticism of invoking a comparison to describe a metaphor is that the comparison usually does not work the other way. This is called the "irreversibility" argument, or the "asymmetry" of metaphors (see Way, 1994). For example the example of a "paintbrush-as-pump" does not make sense when in the form "pump-as-paintbrush." A comparison view implies that the forms would be equally valid.

These criticisms tend to obscure the probability that metaphors sometimes do function as comparisons. Mooij (1976) indicates that criticisms of the theory are probably due to applying it carelessly rather than to deficiencies with the theory itself, however, the extent of the criticisms suggests otherwise. Ricoeur (1978) adopted a sensible compromise, that similes and comparisons can be considered as a *sub-set* of metaphors.

4.3 Metaphors as substitutions

The substitution theory suggests that metaphors can be completely paraphrased in a literal expression. A metaphor is a deviance from its literal expression, and "is easily recognizable as such because, if it were taken literally, it would not tell the truth (since it is not true that Achilles was a lion)" (Eco, 1990, p. 138). In Eco's example, a literal paraphrase could be: *Achilles was brave*. Substitution is related to the proper use of language.

A more sophisticated form of this theory implies that metaphors rely on homonyms: words with the same spelling but different meanings (Lakoff & Johnson 1980). Essentially, a word will have different meanings if it is used in a metaphoric or a literal sense. Again, using Eco's example, the word *lion* takes on a different meaning if you were looking at a picture of an animal, or if you were describing a person.

Under this theory, metaphors are used to: i) "[substitute] one expression for another in order to produce an expansion (or a 'condensation') of knowledge at the semantic level" (Eco, 1990, p. 139); and ii) enhance rhetoric: "the status of metaphor... is that of mere ornamentation: an author chooses to use it instead of a literal equivalent for reasons of style and decoration" (Way, 1994, p. 34).

The substitution theory has largely been criticised on similar grounds to the arguments against "deviation from proper use," presented earlier. One criticism from Hausman (1989, p. 28) directly contradicts Eco's claim for expanded knowledge: "if familiar literal expressions can be substituted for metaphors, then metaphors will reduce to what was antecedently known" (Hausman, 1989, p. 28). Again, a sensible compromise appears to be that some metaphors can be paraphrased. Other metaphors will defy such attempts.

4.4 Metaphors as verbal-oppositions

The verbal-opposition theory assumes that metaphors work because when a literal "interpretation" does not fit attention will go to metaphorical interpretations. That is,

when a statement is obviously false, then the hearer will look at the connotations of the terms (Way, 1994). Again, under this theory, a metaphor is then an anomaly or incongruence and there is an assumption that a sentence first has a well-defined literal meaning. This theory does explain why a metaphor can be generative: because connotations are actively searched for. However, it implies that a statement is "processed" twice, once for literal meaning, and then for metaphorical meaning.

Even accounting for the assumption that statements can have a literal meaning, this dual processing seems counter-intuitive. Way (1994) outlines some psychology experiments to test reaction times to statements, which suggest that dual processing is unlikely. Coyne (1995, p. 256) presents an argument that suggests that we do not experience something and *then* interpret it, rather we experience something *as* something. Coyne calls "seeing as" (p. 256) a *basic phenomenon of perception*. Imposing a condition along the lines of "a true nature of X is looked for and if it can not be found a metaphorical Y is attributed" appears unreasonable and, to repeat a phrase from Krippendorff (1993), "unproductive."

4.5 Metaphors as interactions

The interaction theory suggests that metaphors "work" simply because of an interaction, or tension between two concepts. Further that a metaphor is irreducible in meaning and, unlike other theories, is not expendable (Black, 1979). One version of this theory is that a metaphor projects upon the primary subject a "set of associated implications" (Black, 1979, p. 28). These associated implications can be seen to: select, emphasise, suppress and organise the primary subject. These associated implications can also *change* as a result of understanding a metaphor. Using the hermeneutic circle suggests a constant iteration and disclosure of metaphors. Other theories, such as the comparison theory, do not account for a possibility of change (see Way, 1994). A second version of an interaction theory comes from Ricoeur (1978). A metaphor works because it is a tension between sameness and difference *through* the copula "is" (see Coyne, 1995, p. 297). That is, *X-as-Y* invokes a tension between what we do and do not associate with X. Similarities with the first theory, metaphors-as-evocative, are apparent.

This theory appears the most "popular" amongst commentators, especially as interaction indicates that new meanings can *emerge* with a metaphor. Schön (1963, p. 88) outlines how a metaphor *projects* not just *what do you see in X; but find the Y in X*. Black's account has been criticised as it is rather vague (Way, 1994), although some aspects such as the "associated implications" appear similar to Lakoff and Johnson's "entailments" (Black was not cited by Lakoff & Johnson). Associated implications were thought to be operating "even when [concepts] are used in their literal sense" (Way, 1994, p. 48), which adds support to the position that all descriptions are metaphorical. In light of this theory, emphasis can also go to a way of thinking using metaphors, rather than considering how individual metaphors work.

4.6. *Choosing between different theories*

Metaphors can work by any of these theories; theories will be chosen that are the most useful for particular contexts. In our research, which puts a high degree of emphasis on working with people, and creating a space for changed understandings to emerge, we have found the interaction theory the most engaging. Workshops with farming families and professional advisers have drawn on the ability to explore the different interactions through dialogue (see McClintock, 1996; Ison, 2002; McClintock, Ison & Armson, 2003, 2004).

5 Metaphors, models and paradigms

A third set of important relationships to consider, after *metaphors and understandings* and *metaphors and language*, are those between *metaphors, models and paradigms*. Exploring this third set of relationships leads to considering how metaphors are to be distinguished from models and paradigms. Historically systems practice has been concerned with exploring peoples' mental models in situations experienced as complex. In this section we propose that models can be seen as extended metaphors, and that paradigms or theories can be seen as sources of metaphors.

Shotter (1993, p. 48) indicates that in ordinary conversation, people switch between metaphors, whereas in academic discourse: "certain metaphors are 'literalised' into pictures or models." These models are then sustained via institutional practices. Black (1979, p. 31) adds that "every metaphor is the tip of a submerged model." A metaphor that emerges from these two views is that of a *model-as-an-extended-metaphor*. Sternberg (1990) also uses that image when looking at scientific theories of intelligence: "the root source of many of the questions asked about intelligence appears to be the model, or metaphor, that drives the theory and research" (p. 3). Morgan (1980) outlines a hierarchy between paradigms (as alternative realities), metaphors (as the basis for schools of thought) and puzzle-solving activities (tools and techniques that operationalise metaphors). This hierarchy appears useful only in that it depicts a similar relationship between paradigms and metaphors; one consistent with models-as-extended-metaphors. Sternberg concludes that looking at metaphors is: "useful in helping us comprehend just what questions our theories are—and are not—addressing" (Sternberg, 1990, p. 285).

Checkland and Scholes (1990) contrast models-as-simplifications of reality, with models-as-tools for debate about change. The latter view of models is consistent with seeing models-as-extended metaphors, and avoids the pitfalls of claiming to simplify or represent reality. Considering different metaphors, then, has important ramifications as to the content of any debate about change. From this perspective modelling can be seen as the bringing forth of metaphors that in multi-stakeholder settings can lead to the emergence of new understandings in that community.

If metaphors underlie models, which in turn underlie theories, then an interesting question is whether these models and theories can be considered a source of metaphors (as the metaphors may not be explicit). Patton (1990) depicts how Chaos

theory, for example, "offers a new set of metaphors*"* (p. 82). Morgan (1997) depicts how "autopoiesis" (Maturana & Varela, 1987), can also act as a metaphor. McClintock and Ison (1994a) explore the idea that metaphors can be revealed, or triggered, through considering different theoretical[13] frameworks. *Rationalistic* and *constructivist* frameworks are contrasted to reveal diverse metaphors such as agriculture-as-production and agriculture-as-design. Systems Thinking is an implicit theoretical framework in this research. We now explore Systems Thinking in terms of the metaphors it can trigger.

5.1 Metaphors and systems

Whilst it is difficult to call *Systems* a theory, or even a set of theories,[14] it triggers an interesting set of metaphors. For example, the following definition of *a system* has been used in Open University teaching: ".a set of parts interconnected for a purpose." A system is a whole[15] distinguished from its environment, and *Systems Thinking* is then a commitment to *thinking in wholes*. The definition enables a focus on *interconnection* and *purpose*, and core concepts include those of environment, boundary, perspective, levels, emergence and iteration. To avoid being labelled "primitive" (cf. Checkland, 1992), the concepts can be introduced as follows: a *system* is distinguished from its *perceived environment*, by placing a *boundary*. This boundary will usually separate what is perceived to be of direct interest from what is not (or something that can be influenced from what cannot be). The system thus distinguished is referred to as a *system of interest*. The placement of the boundary depends on the *perspective* of the person who distinguishes the whole, and also the perceived *purpose* of the system. This purpose will often be different from the purpose attributed to individual entities falling within the boundary, which leads to the concept of *emergence* (where different properties are attributable to *a whole* rather than attributed to *the parts*).[16] A whole can be considered a part of a larger system (and so on) that leads to a concept of *level*. *Iteration* refers to re-defining the boundary of a system by considering different perspectives, purposes and/or levels.

What can be revealed by considering possible relationships between metaphors and systems? This question has been subverted somewhat by the previous discussion that postulated Systems as a relevant "source" of metaphors. We can think of five possible links with implications for systems practice:

- where we, as researchers (or practitioners), place a boundary, and what we consider a system, depends on our understandings, which in turn depend on

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13. in this sense, epistemological frameworks.
14. Systems can be viewed as a commitment to using a concept of *system* (not *a system*). One problem with considering Systems in this way, has been a tendency to associate this commitment with a *meta-discipline* such as "General Systems Theory." A second problem is an ontological confusion about whether a system exists, or not. At its simplest, the main commitment of Systems is to think in terms of wholes. (An interesting diversion would be to look at a hermeneutic circle between parts and whole with respect to systems). An alternative *metaphor* for Systems is *a tool-kit*, where choices of concepts, methodologies and methods become available.
15. More precisely, an adaptive whole (Checkland & Scholes, 1990).
16. See McClintock and Ison (1994a) for a discussion of emergence, and also "emergence through dialogue."

certain metaphors. Considering different metaphors may be the same as drawing different boundaries and constructing different systems. Hence an "iteration" may consist of considering different metaphors;

- processes of distinguishing a metaphor from its context may be similar to processes of distinguishing a system from its environment. That is, an understanding of metaphors may allow us to understand why we place certain boundaries as we do;
- emergence can be linked to "interactions" and relationships. One theory of how metaphors work stresses "interactions" hence exploring metaphors can enhance our understandings of emergence. Both emergence and metaphors are associated with something new and unexpected, and identifying metaphors may reveal what aspects emerge from a system of interest;
- some of the tools for analysing systems are appropriate for metaphors, especially diagrams that depict relationships visually. Metaphors are not just verbal (cf. Hausman, 1989); and
- systems of interest can be *represented* by metaphors, using a similar argument that a diagram or a model can portray a system. Representation can be confused with "correspondence," so some care is needed before this link is explored.

As a source of metaphors, however, Systems is particularly rich. Any of the concepts above can be viewed *as* metaphors. "Emergence," in particular, has potential to reveal features of the system other than those attributable to cause and effect. For example, learning-as-an–emergent-property has different implications for teaching than learning-as-imparted-knowledge. When considered as metaphors, the adjectives/adverbs *systemic* and *systematic* also have considerable exploratory power. Other metaphors "obtained" from Systems include those to do with relationships, networks and iteration. If other theories can also be considered a source for similar metaphors, then that does not detract from Systems-as-a source; indeed it could be seen to strengthen Systems' claims of being "multi- and inter-disciplinary." The many formulations of Systems (e.g. General Systems Theory, Soft Systems Methodology, etc.) can be seen to utilise different sets of metaphors and engaging with these can reveal different traditions of understanding.

Discussing models and Systems *locates* concepts surrounding metaphors. The next section addresses an important issue of how a metaphor can be distinguished as such.

6. How can we agree that a metaphor is "a metaphor"?

Until this point, an operational definition of X-as-Y has been satisfactory to explore relationships between metaphors, understandings, language, and models, and also to consider theories of how metaphors have been thought to work. This operational definition needs to be consolidated, so that agreement can be reached on "what is being called a metaphor?" A metaphor is not assumed to exist prior to being distinguished as "a metaphor," a position that invokes Heidegger's (1962; 1977)

concept of "bringing forth" (see McClintock, 1996). Schön (1963, p. 35) supports a view that *a set of words may be said to be a metaphor*. We have not assumed that a metaphor has to be explicit.

Kittay (1987, p. 40) proclaims that people *do* recognise metaphors, it is just that the criteria for doing so are not explicit. He criticises the phrase or sentence as the "unit of discourse" traditionally taken to be a metaphor. Some of the problem as Kittay sees it, is that a metaphor is not a recognised unit of discourse. Way (1994, p. 14) agrees that there is no consistent syntactic form for a metaphor, a point that Eco (1983, p. 254) echoes when he claims that "*no algorithm exists for metaphor.*" A further problem is that a metaphor goes beyond words to "thought" (Way, 1994, p. 5, quoting from Richards, 1936). This leads to the question "how can we name a metaphor as such?" Two possible criteria, obvious falseness and non-familiarity, may not be helpful (as discussed in the analysis of metaphors and language). Another issue is that if all language is metaphorical, then it may be difficult to distinguish *individual* metaphors within that. What is distinguished as a metaphor also intuitively depends on the reasons for the distinction.

The operational definition provides a basis to explore how a metaphor can be distinguished. *X-as-Y* comes close to a "metonymic model" discussed by Lakoff (1987, p. 84). He outlined the following characteristics of X-as-Y:[17]

— there is a "target" concept *[X]* to be understood for some purpose in some context;
— there is a conceptual structure containing both *[X]* and another concept *[Y];*
— *[Y]* is either part of *[X] or* closely associated with it in that conceptual structure. Typically, a choice of *[Y]* will uniquely determine *[X]*, within that conceptual structure;
— compared to *[X]*, *[Y]* is either easier to understand, easier to remember, easier to recognise, or more immediately useful for the given purpose in the given context;
— a metonymic model is a model of how *[X]* and *[Y]* are related in a conceptual structure; and
— the relationship is specified by a function from *[Y]* to *[X]* (Lakoff, 1987, p.84)

The first, third and fourth points are key. The first point is that there *is* a target concept, which implies that a distinction has already been made. This provides a clue that a metaphor relates to how this distinction is made and even perhaps that the metaphor is part of the distinction, as implied by the discussion of the hermeneutic circle. The rest of Lakoff's first point is also important: "to be understood for some purpose" brings to the foreground the reasons for distinguishing a metaphor. His "in some context" reinforces the ideas that a metaphor is a distinction; and that a metaphor is not independent of its context. Lakoff's third point draws attention to the restructuring "caused by" a second concept (Y). Lakoff claims that the choice of Y is "motivated by

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17. We have substituted X and Y for A and B in the original—otherwise these come directly from Lakoff (1987)

the structure of our experience" (Lakoff, 1987, p. 276). His fourth point lists some of the motivations for restructuring the concept in the first place.

Lakoff's formulation can be strengthened considerably by simplifying it to "we describe concept X." Thus, a metaphor can be distinguished *as* a description! Hence whenever *as* or *is* is used, there is a probability that a description, and a metaphor, is being invoked. It is also consistent with the two powerful formulations of "all language is metaphoric" and "all language is rhetorical." It can be linked to *pictures* and *images* in a non-verbal sense, and also to actions. So the very simple words *is* or *as* can alert us to a metaphor being distinguished!

Some writers have focused on the copula *is*, the verb *to be*, and the prepositional *as* attributed by a metaphor (Ricoeur, 1978; Coyne, 1995). Other writers have focused on *stories* that embody metaphors. However, distinguishing metaphors as descriptions, that use the words *is* or *as*, gives a pragmatic way of working with metaphors and hence understandings. The words *is* and *as* are common enough to explain why metaphors can be considered as everyday phenomena that structure understandings and why we are often not aware of them. Some descriptions may not be considered metaphorical, for example, the closed relationships implied by mathematics. Lakoff and Johnson (1980, p. 85) imply that even if the second concept can be considered a sub-category rather than a metaphor, in the strictest sense, then there are still advantages of treating the relationship as being metaphorical. One advantage, from the analysis of the hermeneutic circle, is that calling any description a metaphor gives a way of explaining, appreciating and creating diverse understandings.

By drawing on some theoretical aspects of metaphors, we have established "a way of thinking using metaphors." Metaphors give a way of understanding our understandings, and how we use language.

7. Reflections and conclusions

Many authors have written about metaphors. This is not surprising if metaphors are everyday, pervasive and important to the ways in which we understand. A lot of the literature seems to use overworked and artificial examples, such as "man is a wolf," which has acted against the *inspiration* that can be found in metaphors. We have tried not to replicate these examples. In addition, the examples chosen such as "paintbrush-as-pump" perhaps portrays our belief that metaphors are *serious*. Our position resonates with Fiumara's (1995, p. 7) when she claims her inquiry is inspired by "*an outlook on life and language which assumes their reciprocal interaction. Any concept of either life or language that does not account for their interconnectedness will probably fail to yield more than superfluous artefacts*…."

We have used *understanding* without tightly defining our use of this word. That is partly because it would distract from the focus on metaphors and their relationships and partly because a less rigorous concept of the meaning is sufficient for our purposes. An alternative formulation would be "what do we have to agree before we say understanding has occurred?" (c.f. Fell & Russell, 1994, 2000). We realise a

danger in using the word *understanding* is that it may be interpreted in either a "mind-body" or a "thought-action" dualism. We use the word in the same sense as Gadamer (1975), that understanding *embodies* actions and application. It is this point above all else that has implications for systems practice and has shaped some of our recent pedagogic initiatives based on the metaphor of systems practitioner *as* juggler (Armson & Ison, 2004).

In our systems practice we have found that purposefully engaging with metaphors allows the articulation of different perspectives and an interrogation of these and can bring into awareness traps in our thinking (as with Vickers, 1972). This has implications for the practitioner/researcher (McClintock, Ison & Armson, 2003): traps can exist at the level of the individual or in groups (Ison, 2002). We have worked with individuals (listening to narrative accounts of situations and extracting metaphors for "mirroring back") and participatively in group settings. For example, methods have included inviting participants to develop "rich pictures" (Checkland, 1999) about a situation experienced as problematic and then drawing out the different metaphors from these in a dialogic process.

Engaging with metaphor in a dialogic process can enable new understandings to emerge about the extent to which particular metaphors-in-use might be disabling. For example, we would claim that the *knowledge transfer* metaphor is disabling in that it has committed, for over 50 years, institutions and professionals to practices that have proven ineffective, in the main, because the metaphor conceals the understanding that knowing arises as an active process of being in the world. In this sense engaging with metaphor is a way of revealing particular theoretical commitments at the level of the individual or group as well as the extent to which these theories may be reified in particular practices, tools or techniques.

There is a second sense in which metaphors can be judged to be disabling. We encounter this when we experience in others, or in ourselves, metaphors-in-use that limit our choices and constrain openness to our experiences. Following von Foerster (von Foerster & Poerksen, 2002) we would claim that becoming aware in these circumstances is the basis of ethical praxis. Thus, engaging with metaphor also requires a commitment to a form of reflective and reflexive practice.

The points we have emphasised in this paper are:

- metaphors can be linked to understandings, and can inform research (and other forms of practice) that aims to work with diverse understandings;
- metaphors play an important role in how we use language;
- metaphors work by *restructuring* concepts;
- *System*s is a fertile ground for considering metaphors and metaphors are a fertile ground for reflecting on systems practice; and
- a metaphor can be seen as a description, and recognised by the use of the words *is* and *as*.

We have employed this analysis as part of a research programme to enrich systems practice in the belief that the many claims of the need for systems thinking lack an appropriate praxiology. With Fiumara (1995, p.12) we are keen to build practices in which we become more aware of the metaphoric roots of our theories as well as exploring how metaphor can "invite, direct and control exploration of a context….."

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Esperaza Dinostaury

From here to Toulouse was a dinosaur swamp...

On misty days I see them, irridescent,
Tinged with dragonfly wings and butterfly dots.

The Dinos lie in the cooling swamp all day.
On tupping their Dinas they leave a red mark,
A terracotta stripe of intimacy.
Thus is she ignored by other males, read as
Already fertilized; banded, branded as

Cocooned in a meaningful relationship.

I dreamt that so it went, for eons, until
One night, as the males slept off their exertions,
A female smeared anothers back with red mud
(she tripped); thereafter, the Dinas took control.
Soon they all wore wore stripes, if they didn't fancy
Another clutch or simply had a headache.

In the ensuing shortage, the males gathered
Dainty beetles from the highest tops of trees
Oplescent magenta and viridian.
If bitten on the thorax, their mandibles
Would open and then clamp shut in a death-grip.
They made chains of clacking carapace, jewel-like.

Their long necks proved, festooned the Dinos preened, peered
Into dark still pools, practiced nostril flaring,
Dance steps that showed off their sheen to best effect.
Wearing his fancy necklace a male might snog
An available Dina, and ring her neck,
Hoop-la; real beauties became heavy with them.

So Dina who wore true and immitation
Tuppmarks wanted necklaces and nudged their mates –
The insects began to die out. The males danced
As if they were transfering a bug necklace.
Complex steps evolved; their breathing, parrotted,
Became song; questions were about to be asked,

    Names named,
                Gods acknowledged,
                                When the sun went out.