

Complexity theory and continental philosophy – part 2

A hermeneutical theory of complexity

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Abstract

In this paper I introduce features of the context of argument related to the status of complexity theory and then move towards a description of Ricoeur's theorizations on metaphor. I extend the discussion of Ricoeur's hermeneutic by comparison with the ideas of Lakoff and Johnson on metaphor (influenced by cognitive science as well as Merleau-Ponty's phenomenology) and show correlations which link diverse theorization on the significance of metaphoric theorization. I further extend the description of correlations between Ricoeur's ideas on symbolism and complexity theory exemplars centered on the conception of 'emergence'. These perspectives are contextualized relative to the debate concerning whether complexity ought to be conceived as a series of 'local' instances or cases, or a 'universalized' theory. I extend the view that the mobility of complexity metaphor has created an expansive epistemology within the social sciences and that the resistance to 'transcendent' truth — especially felt within attitudes towards ontology within poststructuralist influences on complexity theorization — render problematic the expansion of complexity as a coherent body of theory within the social sciences. It is suggested that a view of phenomenology which acknowledges the role of metaphor and does not have the same problem with 'transcendent' truth — setting the arche firmly within the epistemic realm (i.e., Ricoeur's hermeneutic of metaphor, and related theorization) — might resolve this problem, and also make positive reading of the role of metaphor in complexity studies.

Introduction

In the previous article (Sheard, 2005), I evaluated the synthetic theorization of Letiche — PCT (Phenomenological Complexity theory). This theory deploys a mixture of theorists, including both Derrida and Bergson, to argue the value of a phenomenological perspective on complexity. It was felt, on analysis, that phenomenology (so defined) undercut the validity of an epistemological perspective which emphasized the complexity sciences as a feature of activity within time (ontic), and that the emphasis on the ontologization (of complexity sciences) present in PCT, shifted the view of complexity towards an other than scientific basis. It was suggested that the complexity sciences, whatever their novelty, are still a feature of epistemology and created out of the desire for objective knowledge about the world. The problems are brought into sharp relief when the theories of complexity are pre-supposed as current and valid in a social setting (especially the firm) and the leap is then made backwards as it were to the individual present within the firm (and his presumed phenomenological composition or being).

This problem relates in part to the aspect of naturalism which underpins the deployment of complexity relative to its coextension to both individual psyche and the company. It is assumed that complexity endorses a global epistemic basis for a naturalistic case, which extends complexity towards areas of interpretative significance of the psyche (phenomenology), as expressed in philosophical terms. In this respect, the ambit of science to permit a reordering of the social and psychological is extended to the role of the philosophical reinterpretation of the role of the psyche also[1]. However, a phenomenological account might be said to not so much to reduce the higher aspects of cognitive functioning in human beings towards a biological underpinning (reductionism), but, conversely, to infer that a sophisticated human theorization (phenomenology) is extensible to a discrete section of nature (human beings and their group developments). Phenomenology is marked by a desire to seek a pre-epistemic basis of understanding to human life, rather than — I suggest — to extend a series of scientific principles towards human life (complexity theories).

This leads to a problem, in that by pairing complexity and phenomenology, the axiological inferences of authors that Letiche represents as 'phenomenological', are philosophies that have not expressed theories of a universalistic nature — they have rather confined themselves to human-kind, and not to human-kind as a continuum with nature (naturalism). It would be problematic for instance to acquire the actual instances of complexity in biological cases (such as anthill communities) as examples of phenomenology. On this kind of basis, one might at first hand, see theories like that of Bergson as more akin to vitalism (anti-naturalist perspectives)[2]. This leads to a further issue, which is the extent to which complexity theories are necessarily generalizable. It is possible to argue that the complexity sciences can be distinguished in terms of invention from mobilization; that complex phenomena are in this sense local or specific occurrences which do not thereby infer a universalistic case. Hence, the notion that "their regularities are not direct evidence of the workings of fundamental laws but emerge from unexpectedly local interaction, tuning, and balancing"[3].

A non-generalizable theory of complexity, has a problem relative to a phenomenological basis of criticism, in that the direct

scientific exemplars cannot be easily mobilized to render a literal equivalence as between the local interaction and the global (at a biological or chemical level for instance). That mobilization becomes a matter of analogical transfer. What is more, such a contingent theory of complexity weakens the inference of a global epistemic unity of a holistic nature, as between distinct levels of nature. In short, analogy in such a perspective as that described by Stengers (2000), is debarred from acting as a kind of 'Trojan horse' by which complexity science advances its claims towards acting as a foundational theory amongst the sciences.

One way of trying to overcome this difficulty — the problem of the universalistic extension of complexity and the dangers of reductionism attending that — is to argue for a feature of special contingency of complexity at a phenomenological level. This leads towards the issue of how to represent that theorization. As analogy is a feature of the suggestion of global epistemic transfer — and analogy takes of the nature of an attempt to extend a principle (complexity) across multiple levels of nature — it can be described as a form of *unificational metaphor* (Khalil, 1998). It is said that the "unificational metaphor expresses similarities when they arise by the same law"[4]. Is it possible to deploy metaphoric theories to interpret that process of transference in such a way that the feature of an extensibility of complexity can occur (in some law like fashion) as between distinct levels of activity? Such an open acknowledgement of the role of metaphor would be distinct from the covert expansiveness of an epistemology of complexity towards areas of ontology, which (I have argued, for instance in the case of PCT) embeds tensions of varying kinds — including its failure to acknowledge the issue of the role of metaphor, or its mobility in extending complexity to a global theoretical level. I extend discussion of this issue, at the close of this paper, having first looked at the possibilities for uniting various approaches to metaphor (principally Ricoeur's, and Lakoff and Johnson's 'take' on cognitive science) on the axis of an alternative view of phenomenology to that represented in the previous discussions of PCT[5].

Ricoeur and the metaphors of complexity

Ricoeur argues for a tensive theory of metaphor in which he stresses not purely the novelty of the literary metaphor, but its capacity to represent a mode of aesthetic originality which may disclose a fresh, or advancing, epistemic order. He argues that a relational tension exists within a metaphor, in which a "new semantic congruence or pertinence [arises] from the ruins of the literal sense [of the language in question] shattered by semantic incompatibility or absurdity" (Ricoeur, 1979: 151). Ricoeur is following the Kantian conception that metaphor enables a fresh lens to be formed on the world; metaphor is an aspect of our categories of perception as defined by Kantian theories but its import is defined as ontological as well as epistemological[6]. Within metaphor itself a relational tension exists between tenor and vehicle; predicative assimilation involves a tension — the previous incompatibility is identified through the fresh compatibility.

If one extends Ricoeur's theory of metaphor towards metaphors such as 'emergence', one can conceive of the 'relational tension' — which Ricoeur believes is a feature of metaphor — as being a feature which is productive of particular metaphors, such as 'emergence', 'the edge of chaos', etc. These metaphors are then novel variances in prevailing modes of conceiving. This is to suggest that the metaphoric process is emblematic of processes of change at an epistemological level (in terms of the deployment or mobilization of complexity related concepts). So, for example, the conception 'emergence' — as it applies at distinct levels of application — acquires fresh credence in that it sits tightly between the twin zones of analogical target and source. Hence each distinct level of operation (of the extensibility of the language of complexity) involves a shift from the literal level towards a metaphorical level, which engages a kind of 'semantic shock' productive of the need for interpretation. In phenomenological terms, metaphor invokes a hermeneutic reinterpretation of the value of the words engaged[7], whose dynamism can be described in terms of a tensional situation of split reference (the levels of metaphoric transfer).

This theorization, apart from its debt to Kant, borrows from the ideas of Heidegger, but its emphasis is less on the state of Being, and abstract enquiry relative to that (and rather more specifically on the manifestations of Being in the semantic process). Ricoeur, in this sense, goes in a very different direction than Derrida, although working with a similar source conception. Instead of emphasizing the interminability of the trace — its undecidability and refusal to locate the identity of Being within presence — Ricoeur sees metaphoric vitality as a duality in which Being manifests in the process of schematic reinterpretation of the host or focus of metaphoric extension. Heidegger had essentially reinterpreted the Kantian conception of a timeless being in terms of "being as time... [so as to] ...disclose it as poesis — as an event of creative imagination..." (Kearney, 1991: 52). This move made possible a reconstruction of the ontological in terms of the creative acts of the imagination (for instance)[8]. On this account the creative deployment of the image is a form of reverie, which links the creative imagination with the process of becoming[9]. This is significant, in that Ricoeur's move, if legitimate, might be said to relate a concern with metaphor as alluding to a mode of Being, that acts of analogical transfer are not just acts of consciousness but that they may have special significance (Bruns, 1993: 36).

Considering these issues relative to complexity theory, it is appropriate to ask a range of questions. First, if these theories are correct and extensible to metaphor in general, then what is special about complexity metaphors in particular? The coining of metaphor may be a phenomenological 'act' or a 'mode of Being' as Ricoeur might put it, but is that not to make a quite special occurrence commonplace? The significance of complexity as a unificational metaphor (Khalil, 1998) then comes into play by extending a series of analogical comparisons — one is arguing for the extensibility of complexity from one plane to another (universalistic theory of extensibility of complexity based on naturalism). This is however, quite a distinct operation to a local or contingent theory of complexity as a special occurrence (Stengers, 2000). However, it remains to stress the nature of the significance of the role of metaphor in Ricoeur more clearly. Noted as related to the process of the metaphoric copula and

“...split-reference [Ricoeur's theory of metaphor], really then mirrors a double dialectic, a dialectic that is operative both at the level of what Jaspers called *Existenz*... [hence] ...it is the tensive-boundary character of man's being in the world that is in the precondition of metaphoric-symbolic utterances, and second, that it is because of this antecedent anthropological condition that metaphor both speaks and is transparent to human consciousness” (Olson, 1981: 109).

Olson notes that “metaphors are just the linguistic surface of symbols, and they owe their power to relate the semantic surface to the pre-semantic surface in the depths of human experience to the two dimensional structure of the symbol...” (Olson, 1981). This leads us into a consideration of Ricoeur's views on symbolism.

Contrasting themes: Symbolism or *differance* and complexity theorization

Apart from his theory of metaphor, which invests metaphor with a potential special significance à la Heidegger's theory of Being (in a strict sense, thereby breaking the Kantian idea of separateness of noumena and phenomena), Ricoeur subdivides forms of symbolical metaphor; he terms them *symbolic*, *oneiric*, *poetic* and *social* imaginations. Kearney (1991) notes that this subdivision was the hallmark of his philosophical enterprise, in which he moved from a “phenomenology of the will” towards a “hermeneutics of the symbol”[10]. In this (later) structure of thought, Ricoeur interprets symbols as being *cosmic* (of cosmic origin); *oneiric* (psychic function of the imagination); or *poetic* (creative imagination)

The theory of metaphor outlined may be said to be a hallmark of Ricoeur's extrapolation of these ideas towards an examination of the role of the imagination relative to linguistic categories. This work came in the 70s with *The Rule of Metaphor*. If we dwell, on our objection to the theory of Ricoeur, in the previous section — the aspect of the almost everydayness of metaphor (as Ricoeur infers it) — his theories of symbolism present a kind of answer to that. On this account, metaphor can attain symbolic prominence, in which case, it can have a significance which correlates (in certain cases) with a cosmic origin (this infers a link between human processes and a causal feature of activity). Might then, a metaphor of special significance (in that it was ‘unificational’, Khalil, 1998) — in the case of complexity – extending across distinct areas of organic, animal, human and social realms, be conceived as more likely to attain a symbolic stature? In this sense ‘unificational’ might imply that the generalizability of the complex states was a feature of holistic vitality which confirmed the value of analogical extension, in the first place. In this sense, metaphor itself acquires a kind of *élan vital* as a feature, not of invention, but of the discovery of a correlation between a cosmic (metaphysical) and physical order.

How might the key metaphor ‘emergence’ sit relative to this idea? Conceptions such as emergence, edge of chaos, CAS, etc. allude to an extension towards areas other than science. These metaphors represent portmanteau ways of grasping the experiments of science in certain areas of research. For instance, the nature of emergence as discussed by theorists of Santa Fe, in which a question is raised as to what constitutes ‘truly emergent behavior’ and, how is it recognized, is expressed as the key to the problem of ‘artificial life’[11]. On this account, emergence is a kind of pre-construct, which anticipates a form of behavior which is recognized as following a given pattern. That pattern indicates reactivity or order, which might express learning (for example). That is the heart of the conception as originally devised. Emergence is a leitmotif in this context, not for human perception, but for that of a simulation which seems to mimic human perception. In essence that might be termed ‘mimetic of forms of human conceptualization’. In certain cases, this alludes to the sense that complexity theories are phenomena fitted towards pre-existent categories at a descriptive level. That is a more local than globally epistemic theorization. However, it is a clear part of the extension of incipient meaning in emergence that such a term is extended more generally. Hence, in a certain sense, that metaphor (emergence), once chosen, becomes a seemingly inexorable candidate for future definitions of similar phenomena. But that need not mean that the conceptual framing of the observed phenomena (of complexity) is thereby pure discovery at future levels of application[12].

We could say that the conceptual category of emergence anticipated the phenomena, which would be discerned in a wider complexity theory lens. The approximation in reverse of phenomenology's conception of psychical processes such as emergence, (PCT for instance), and the projection of those towards complexity sciences, is a kind of mirroring of the process whereby tradition (as encapsulated in the more generic formation of the conception of ‘emergence’ as a feature of language) initially identified complexity theory phenomena in terms of metaphors such as emergence. One might argue that the aspect of naming is the foundation of the possibilities of a symbolism. However, the issue of what significance one ascribes to a particular conception — such as emergence — is a feature of cultural accretion. A sense exists, as Ricoeur notes, in which the issue of the aspect of the universality of a theory (for instance complexity) is traversed in philosophical terms, in that its epistemic extensibility (i.e., the issue of universality) is inferred by its (metaphoric) mobility[13]. Ricoeur's position is that symbols have an inherent quality which embodies their tendency to evolve in layers of complexification, towards more refined forms, and ultimately towards conscious expression in language; mythical narrative is the first great form of that articulation[14].

If one considers the complexity theory metaphors, it is fairly clear that they form a pattern which, in terms of metaphorical parlance, allude to the emergence of order from chaos; the phenomena under observation (complex life) are expressed as metaphors which are redolent of that initial archaic drama as expressed by Ricoeur. A further aspect of the redolence of archaic

drama is the parlance of 'chaos'. 'Edge of chaos' for instance might be equated with the aspect of mythical drama, not of the beginning, but of the end of time whereas 'chaos' is redolent of that but in that aspect, chaos is allusive of a drama which was prior to our consciousness (or 'awakening') and the Adamic myth which is illustrative of that. Transliterated into the societal realm of the resolution of the imperfection of the social world as set against the market, the emergence sought is a kind of resolution of that imperfection of an exemplary nature[15]. This has an ethical dimension. It represents a kind of resolution of the original sin of Darwinism (which echoes the effect of self-organization theorization in terms of ameliorating the chance orientated stochastic nature of social Darwinism).

Emergence as a metaphor expresses the continuum of time; it is marked by a passage from one state to another within the time or process of *becoming*. An expression of the specific moment of transformation in the scientific realm is analogically re-specified in a societal realm. These features within the complexity sciences themselves are subject to particular variations of classical theorization — for instance that at particular points of non-equilibrium, new forms of order arise (Prigogine, discussed in Capra, 1996: 184)[16]. In this context, irreversible processes are interpreted as having a constructive role. However, these aspects of development are non-psychical at the scientific level; a system such as PCT (loosely) extends them to the human sensibility by virtue of the expression of scientific emergence as a leitmotif of exemplary restoration of self, or awakening in a psychical sense.

An alternative view of phenomenology — *differance* — is resilient against the investiture of the temporal, or the differentiated, with the aspect of Being; it is resilient even to the attempt by Heidegger to gain a foothold on the idea of a primordial state of Being. Derrida, in this sense, follows Nietzsche in that he expresses difference as a free play of forces. This said, he resists the attempt made by authors like Ricoeur, in the wake of Heidegger, to invest metaphor with any particular sacral connotations. His view of metaphor is that it leads to the metaphysical and that this process is one which does not ultimately reflect a transcendence — that is because *differance* is a mode of evading the causal transcendence which authors like Heidegger (to Derrida) persist in believing exists at some causative point (for instance in terms of Heidegger's idea that a pre-Platonic 'conception' of Being — before its dissemination into 'beings' — could 'recover' Western philosophy).

Therefore, the difference (or one difference) between Derrida and Ricoeur, is that Ricoeur believes that "phenomenology will understand a symbol by ritual and myth..." (Ricoeur, 1974: 297). Ricoeur therefore looks to the earliest symbols as they manifest a deeper truth in his eyes — but rather that symbols constitute an indestructible substance "which gives rise to thought... [therefore] ...I am convinced [Ricoeur] that we must think not *behind* the symbols, but starting from symbols..." In contrast, Derrida is more concerned with the transcendental nature of meaning — its evanescence — within the sensation of time.

How can we summarize these points relative to complexity theory and PCT? There is a sense, in which the theorists of Santa Fe (including Holland, 1998 and Kauffman, 1992) originated metaphors within a scientific area of studies. They perceived phenomena which they sought to place 'ready to hand' hooks of a metaphoric nature towards. For instance, when Kauffman identified a self-organizing principle to supplement Darwinism, the parlance (or nomenclature) of the 'edge of chaos' suggested itself. On this basis of interpretation, one might say that it was fallacious to invest features of scientific discovery with cosmic (or mythic) significance. Are not the metaphors of complexity decorative? This would suggest that they have status as metaphoric creations (being extrapolations or developments of an imaginative nature), which might seem to infer an invented or creative basis of development rather than aspect of scientific discovery.

Clearly, the issue is perhaps, how deep does metaphor go? Can we attach this kind of (interpretative) significance which Ricoeur does? Ricoeur's faith in the value of symbolism is at least proto-Christian, and this infers a kind of moral order underpinning the symbolism which is not necessarily philosophically valid. Are we not trapped in a kind of hermeneutic cultural validation of the significance of metaphor, on this account?

In the next section, I will look at the ideas of Lakoff and Johnson, which provide a further contrast with the deployment of Ricoeur, relative to the interpretation of metaphor.

Lakoff and Johnson: A perspective on cognitive science and metaphor

Lakoff and Johnson regard semantics “as the study of how linguistic expressions can fit the world directly, without the intervention of human understanding” (Lakoff & Johnson, 1980). This is an alternative to an ‘objectivist’ theory of metaphor, as pursued by a theorist such as Searle[17]. Their theories are also opposed to a purely subjectivist construction of metaphor (for example Davidson, quoted in Ricoeur, 1979) in that, whereas partly imaginative in function, metaphor is held to be also a feature of reason[18]. Lakoff and Johnson propose an ‘experientialist synthesis’, in which metaphor is conceived of as uniting reason and imagination. This leads to a conception of a kind of ‘imaginative rationality’. It is argued that everyday reasoning involves metaphoric entailments and is therefore imaginative in nature and, conversely, that poetic imagination (novel use of metaphor) is partially rational in nature. Does this help us? I think it alludes to the recognition of the prevalence of metaphor in rational discourse. However, it does not solve the issue of what measure of status or significance we attach to metaphor of a particular kind — unificational (Khalil, 1998) — as opposed to more mundane or everyday metaphors. If metaphor is so special why is it so commonplace? Why is such an antagonism to metaphor present in the sciences?

Lakoff and Johnson have evolved a theory known as *embodied realism*. The significance of this feature (feeling/embeddedness) in metaphoric theorization is that it lends itself to lived experience, which corresponds to phenomenological theorization. This particular approach towards metaphor tends to follow a distinct line, being more akin to the ideas of Merleau-Ponty, and intuitive/sensation based aspects of phenomenological experience (Merleau-Ponty, 1962). Lakoff and Johnson argue that a strong theory of metaphor “rejects a subject/object dichotomy”[19], and “that we are coupled to the world through our embodied interactions” (Lakoff & Johnson, 1999: 93). Metaphor on this account, is a vital feature of thought, i.e., “can we think of subjective experience and judgement without metaphor?” (Lakoff & Johnson, 1999: 59).

Clearly, both Lakoff and Johnson and Ricoeur share a view of metaphor as of crucial importance. This said, the feature of influence on Lakoff and Johnson, within a philosophical frame is that of Merleau-Ponty (and, also stated, as influenced by Dewey’s pragmatism) rather than Ricoeur. Both Ricoeur and Merleau-Ponty have phenomenological credentials, however Lakoff and Johnson in the wake of Merleau-Ponty emphasize the existential dimension of human experience. This can take the form of an emphasis on ontological metaphors, which have many conceptual connections and thereby have an ordering or systematic structure (Medina, 2005: 130). These cohesively link areas of theory (like the role of emergence in complexity), and they may have an orientational nature. So, in the case of emergence — whether in time or out — this can be figuratively depicted (for example the Lorenz attractor or phase-space formations) as a spatial construction.

One mode of reading Lakoff and Johnson’s theorization suggests that metaphor is able to project a level of meaning (as in the case of complexity concepts) which is sub-discursive and pre-conscious, exploiting subjective or emotional reactions (Maasen, 2000). On this argument, it is precisely this arational feature of metaphor which allows science to penetrate to a popular state, and allows metaphors such as the ‘edge of chaos’ to be capable of flexible adaptation to contexts other than their origins (of scientific inception). The feature of relational holism, mentioned in the context of complexity, may apply to metaphors as expressed in terms of the ‘imaginative rationality’ which Lakoff and Johnson suggest. On this account, metaphor binds distinct levels of conceptual operations — for example the cellular automata may be seen as the heuristic basis for the transference of complexity principles associated with the complex adaptive system. It is discussed in Johnson (1995) as an operative example of the creation of a complex system by virtue of phase-transitions[20]. However, unlike Ricoeur, Lakoff and Johnson do not specifically argue for a heightened or cosmological role for symbolism. That view tends to be more of a supra-discursive nature. Relative to Lakoff and Johnson, complexity theory’s conception of emergence would be one primary (orientational) metaphor amongst many. Indeed, on this account, these types of metaphors are reduced to “inferential patterns used in sensorimotor processes that are tied to the body” as representing the neural patterning of primary metaphor (Lakoff & Johnson, 1999: 77).

What special role might complexity hold in the theorization of Lakoff and Johnson from the standpoint of cognitive science? One possibility does exist, and that is to tie these types of theorization as to the nature of metaphor, to the idea of a reinterpretation of cognitive theorization in terms of the dynamics of neural development (interpreted from the angle of behavioral attractors which predicate language emergence as well as bodily behavior at distinct phases of human development). Such a particular interpretation would argue that those motor functions which underpinned learning, and hence language deployment, could be modeled in the spirit of complexity related exemplars (Thelen & Smith, 1994). However, the virtue of this approach would be that it would correlate the significance of metaphor in cognitive sciences with that of motor development as expressed in terms of the complex sciences. This type of combination would emphasize less the phenomenological aspect within Lakoff and Johnson.

Lakoff and Johnson are committed to a theorization which employs a series of theorizations of cognitive science — albeit reinterpreted (as they term it) in terms of a second generation of theories (for example, that conceptual structures arise from our sensorimotor experience and these structures are characterized by image schemas, etc.)[21]. The theorization is argued as non-Cartesian (in contrast to first generation theorizations based on representation). However, it does at least apply *ana priori* adoption of certain philosophical presuppositions as to embodiment (Merleau-Ponty, 1962). As Lakoff and Johnson note: “the distinction [of first and second generation cognitive science] is one of philosophical and methodological assumptions” (Lakoff & Johnson, 1999: 78). One can note clear affinities with Ricoeur’s discursive semantic theorizations and Lakoff and Johnson’s ‘take’ on Merleau-Ponty. Ricoeur notes that:

“I think that it is always through the mediation of structuring operations that one apprehends the fundamental meaning of existence, what Merleau-Ponty called l’etre sauvage. Merleau-Ponty sought this etre sauvage throughout his philosophical career and consistently criticized its deformation and obfuscation in science. I for my part have always attempted to identify

those mediations of language which are not reducible to the dissimulations of scientific objectivity, but which continue to bear witness to creative linguistic potentialities” (Ricoeur, in Kearney, 2004: 104).

By way of clarification, the latter comment distinguishes Ricoeur from the perspective of Husserl and the quasi-Cartesian perspective. Ricoeur goes on to add that he is looking for an “essential connection between speculative and poetic discourse — evidenced, for example in the whole question of analogy” (Ricoeur, in Kearney, 2004: 104). Is this evidence of relativism or anti-scientific thinking? I think Ricoeur’s point is the essential aspect of metaphor in discourse to reveal *ontological* truth — ‘truth’ at an existential level. However, as will be noted in succeeding sections, I do not read Ricoeur as therefore being a relativist regarding the presence (or absence) of underlying truth in ontological matters (what I will refer to as the *arche*)[22].

Phenomenology and Ricoeur’s symbolism relative to complexity

I have suggested the applicability of Ricoeur’s hermeneutic theory of metaphor (and symbol) to complexity metaphor and especially its mobility between its source scientific realm and the area of phenomenology. However, metaphorical theorization suffers from its own varied and arguable status, in epistemological terms. I have adopted specific views of metaphor and discussed their applicability, but one might argue that these were arbitrary selections. The special claim of trying to develop Ricoeur’s theorization, as opposed to a contrasting theorization such as Derrida’s, is that it allows metaphor to be valued more highly as a feature of the transformation process of complexity metaphor[23]. This diminishes the idea that metaphor is purely decorative and occurring at the word-substitutive level (Aristotelian theorizations). Also, Ricoeur’s theorizations, being phenomenological and hermeneutic — are not caught in the constraints of debate which might mire a pro-Cartesian view.

This admitted, is it possible to form any sort of linkage between Ricoeur and his hermeneutic phenomenology and the other, more seemingly scientifically based theories of metaphor, such as Lakoff and Johnson’s? Could this give the phenomenological case a feature of resonance with contemporary cognitive science theorization on metaphor?

The symbol is not a special metaphysical category in Lakoff and Johnson, as it is in Ricoeur, in which case it is the mode of underpinning which stands in stead of a kind of *arche* or source theorization. Correlations may be suggested which tie phenomenology in its form as advanced by Ricoeur, and that suggested by the ideas of Lakoff and Johnson. Rather like Lakoff and Johnson, Ricoeur stresses a role for metaphor in terms of ideational reform, giving metaphor a social dimension (Ricoeur, 1979: 154). He also stresses the emotional aspect of interpretation relative to the formulation and comprehension of metaphor: “feelings, first, accompany and complete imagination in its function of schematization of the new predicative congruence (of metaphor)” (Ricoeur, 1979: 154). That gives a role for feeling which tends to embed the formulation of the metaphoric process (or conversely one’s reaction to it) in terms of a non-cognitive mode of thinking. This has affinities with the pre-logical thinking which Ricoeur associates with the cosmological symbol.

Ricoeur believes that the metaphor is a kind of conscious echo of the immanence of the (mythical) origins of an ideal state of Being. That oneiric, or dream imagery, can correlate the cosmic totality or source of mythic symbolism and conscious metaphor[24]. It is possible to find indications of this regressive order within the secondary (‘popular’) management literature. These act as a kind of equivalent of oneiric or psychic symbolism (as evinced at a social level), but with cosmic affiliations[25]. On this account, such symbols tie lesser to more conscious states through the unconscious. This has clear links with the pro-cognitive science theorizations of Lakoff and Johnson. Ricoeur is also influenced in his theorization from an encounter with the literature of Freud — hence the development of his idea of the symbol as a *liminal* feature which expresses at a cosmic level, dream symbolism. Such perspectives lend themselves to congruence with the interpretative paradigm in management studies.

If one desired a specifically Christian cultural interpretation of the symbolism in question — the influence of Eliade (e.g., 1971 – in Coupe, 1997: 60) can also be remarked in relation to Ricoeur. Mircea Eliade’s views suggest a mythic sensibility as existent at some past state, and a feature which he terms *hierophany*[26]. If we marry this concept with the idea of emergence (à la complexity), and consider our ideas of cosmic symbolism (above), we could say that the Garden of Eden was like a first Complex Adaptive System, in relation to which, Darwinism was a kind of principle of the theme of the Fall, but self-organization a feature of potential redemption. In this vein, the parable of the Garden, or paradise, is a *mythical* originary point, whereas the fall (or loss of innocence) relates to an ‘awakening’ or emergence. But, also, in terms of cultural accretions, and in the spirit of Ricoeur’s own analysis, the creative form of metaphor itself may be viewed as a kind of re-evocation of immanence or mode of discursive hierophany. On this account, metaphor has resonance with the goals of phenomenology, in that it is plausible to suggest that an experiential basis towards the phenomenological quest involves the absorption of the transcendent within the immanent[27].

Ricoeur noted that there was an opposition between reflective thought and mythical thought in *The Symbolism of Evil*, but in essence he transposed that dilemma in connecting myth and metaphor in the layers of symbols (cosmic/oneiric/poetic/social). This developed a process for the ontologization of the semantic in a discursive narrative, in respect of which, Being was linked with the aspect of metaphoric enaction in a temporal (ontic) context of activity. This move follows in part the prevalence of the view — demonstrated for instance in Nietzsche — that conceptions are metaphoric in their inception, but that it is the forgetting and opposition of this which is a feature of Western metaphysics (Kofman, 1983). Derrida famously developed this aspect of

interpretation with his critique of Husserl's 'metaphysics of presence'. Ricoeur therefore follows the tendency of structuralism (and consequentially post-structuralism) towards incorporating the semantic in a consideration of phenomenology, but he does so in an alternate direction to that of Derrida — indirectly absorbing the cultural accretions of Western metaphysics (for instance the quasi-Christian cosmology) as an acknowledged feature of Being, rather than stating that such discourse (and ultimately the discourse of Being itself) is a kind of conceptual trap which mires thought.

However, such a particular form of interpretation is quite *partial* in cultural terms, one is reminded perhaps of the limitations (which Ricoeur himself acknowledged) of the cultural categories which are the appurtenances of Being[28]. Being as a category — the topic of Heidegger — is in fact presupposed by Ricoeur as an area of argument capable of being placed in a semantic context. This indicates the limits of the application of a particular derivation of phenomenological theorization derived from a semantic improvisation upon the ideas of both Heidegger and Kant. One might feel in some sense an element of sympathy at times with Derrida, in that he would be free of such limitations, freeing thought of its mythic accretions.

Metaphor's epistemic status in complexity and local 'truth' claims

A recent aversion has occurred at a more distinctly conceptual level, towards metaphor in complexity theorization. More usually metaphor has been side-stepped by theorists. De Landa's (2002) conception of non-metaphoric thinking is representative of an approach critical of metaphor. In a certain sense, it may be conceived as a kind of intellectual Protestantism against the image, relative to his claim for complexity to specify "relevant and important problems," and of the idea of a "concrete universal" (De Landa, 2002, quoted in McKenzie, 2005: 54). This latter relies on an discussion of the extrapolation of mechanism-independent topological transformations related to phase-space. De Landa relies on a series of abstractions from an initial physical state which is modeled, and expressed metaphorically in an initial conception of a physical system. De Landa's point is that mathematical variation is not itself necessarily metaphor dependent, but the significance of the successive abstractions relies on their initial portrayal in a metaphoric context (i.e., in this case the Lorenz attractor as a spatially conceived entity)[29]. In an important sense, the process of abstraction relies on an image, or metaphor, within the complexity sciences from whence to abstract or ideationally 'purify'. Secondly, the aspect of the metaphoric expression of the Lorenz attractor is part of its potential cognitive mobility in terms of our initial grasp of the conception at an other than highly abstract (mathematical) level. So, an inference of abstraction ('concrete universals') is that the capability for a coherent absorption of such conceptions to be part of a *theory* of complexity, may be diminished.

Of course, what De Landa argues relates to the felt connection between the (seemingly flawed or contentious) universalistic theory of complexity and metaphor. On this account, the cohesive aspect of metaphor, within complexity theorization — allowing for the sense of an emergent theoretical movement (allied to themes such as relational holism) — is undercut. In terms of its axiological status, metaphor is viewed as being less sure than a process of non-metaphoric abstraction, relative to the aspect of 'theory-building'. This places the spotlight firmly on the relevance and value of the analogical process as a topic of contention relative to the construction of a 'universalistic' theory of complexity. This may result in divergent interpretations regarding the status of metaphor in any give case (I have noted Khalil's view of the unificational metaphor relative to complexity as one case of this). It is possible to debate what does and does not consist of metaphor on the basis of a particular or partial interpretation of metaphor relative to axiological prerequisites (philosophical underpinnings of perspective).

Letiche & Uden (1998)[30] interestingly note that the contrast between metaphor (in terms of the contrast between a minimal realism) and those who 'assume' underlying structures, powers, mechanisms and tendencies exist, whether or not detected, that govern actual events, i.e., what he defines as the contrast between transcendent and local realisms. However, one can at the same time be a 'local realist' relative to metaphor and its claims (if Letiche can be so described), and yet inferentially extend theories which infer complexity theory's global epistemic status — as I have argued is the case with PCT. So, in the case of Ricoeur (despite the seeming 'grass roots' basis of his theories as to the role of metaphor in sentence deployment) he is clearly a theorist who alludes to a transcendent ground indirectly in his theories of metaphor (the dynamic tension in the metaphoric copula), and more explicitly in the theories of symbolism which allude to the sacred. This can be expressed in terms of the aspect of double-reference within Ricoeur's usage of metaphor (see Stellardi, 2000)[31]. What can then happen is that a (seemingly fashionable) case for local knowledge or modesty of claim is made, which cannot be sustained as the theoretical movements so defined are everywhere imperialistic in the extensibility or mobility of their cases.

The case, made recently by Stengers (2000), tends to fit with the idea remarked above of a local or contingent realism. It is a valid point to note the limitations of complexity in order to avoid blasé extension of its theoretical points, but the further inference of the local case is a defence mechanism for theoretically ruling out a contrary case to complexity. Such a "contrary case" is implicit in too ambitious or blasé an extension of complexity theory. The issue would not have been raised if the metaphor had not been very mobile in the first place. If followed to a logical conclusion, one might ask: "how is it that a complexity theory exists at all if all knowledge is local?" Should not then complex features be remarked as the distinct features of disparate areas such as dissipative systems, chaos theory, etc? Surely the hallmark of a coherent discipline is that distinct areas have a sense of co-extensive principles of science which infer the prospect of a series of thematic commonalities. Relational holism for instance can tie a variety of aspects of complexity theorization, as well as an emphasis on the striking characteristics at the local or contingent level of particular cases — such as remarkable self-organizing phenomena.

An argument that complexity seems to have an element of common cause with poststructuralism, is made by Dillon (2000), relative to what he defines as “an anteriority of radical relationality” (Dillon, 2000: 5). By “anterior” I think we mean a kind of *arche* or presupposition of an axiological nature. Of course, as theorists such as Derrida define *differance*, its status as *arche* is resisted. Dillon identifies “implicate orderliness” (following Bohm, 1980, cited in Dillon, 2005: 4) as complexity theory’s particular form of relationality. This relates to the aspect of extensibility of different levels of complex activity, which infers a common principle (holism) as generative of these forms of order. In contrast, he notes that poststructuralism is marked by relationality as ‘disruptive movement’ — an interminable feature of alterity is its hallmark, which one might argue is a quasi-symbolic leitmotif in the case of Derrida’s difference. That latter drives apart, and never consolidates, its presence (hence its antithetical nature as a countervailing ‘force’ or sequence of forces to what Derrida characterised as the metaphysics of presence). In between the two distinct approaches represented by Dillon, we have a distinct attitude to the issue of ontology. His point is, of course, that the two movements have a different mode of relationality — one which forces apart and one which joins (holism). The ontologization inferred by *differance* proceeds to undercut the possibility of a transcendent ground for thought, but one might suggest it is also antithetical in nature to a holism which binds — in that *differance* constantly divides, and in that sense therefore cuts, or disperses.

The stress on relational holism (Dillon, 2000) points to a distinction between one of the currents which is part of the unification metaphor of complexity (Khalil, 1998), and the poststructuralist theorization (as epitomized in *differance*). This shows the kind of innate tension which lies within complexity theorization (at a global level, wherein it has been created by analogical transfer of locally evinced scientific exemplars), towards its localization. One could argue the issue regarding the salience of relational holism (Dillon’s point), but most definitions of complexity tend to look for thematic similarities between disparate disciplines and levels of discourse related to complexity, whatever they may be. A purely localized series of complexity instances loses the sense of asking “what is complexity?” On this account, we could have no overarching theorization therefore that sense of unity would be replaced by incompleteness. Cilliers suggested that “the view from complexity means that we cannot have perfect knowledge of complex systems” (Cilliers, 2005: 263), but there is a difference between that comment of the empirical phenomena of complexity (incompleteness of data at a local level) and a generalization that complexity is intrinsically incomplete as completeness is not possible in a complex world. Incompleteness would suit a poststructural interpretation in that it stresses the contingency of complexity outcomes and thereby avoids the need to deal with the issue of whether complexity theory is a kind of global epistemic order (or contains the seeds of that argument incipiently).

Metaphor is, after all, not just a particular form of analogical extension, but built on the extension of imputed significance from one category to another on the basis of their difference (in some sense), as well as of similarity. Metaphor, “through analogy, establishes connections not only between different objects, but also through different semantic fields and linguistic games” (Stellardi, 2000: 48), and plays a part in the mobilization of discourse. An illustration of this process perceived as ‘force’, is the appeal of Derrida’s conception of *differance* — exemplified in Cilliers’s imaginative extrapolation of the neural network and its traces to a series of differences — whose structure is erasure and whose lack of presence implies volatility (Cilliers, 1998: 82). But, such a structure of similarity between the nature of *differance* and neural connections is, apart from an attempt to discern an analogical resemblance, (which, albeit ironically, hints at a literal ‘truth’) also a resemblance of source to target of metaphoric application. The ‘source’ being poststructuralist theory — the target for the metaphor being cognitive science (connectionism). How we interpret this metaphoric application — whether metaphor as incidental vehicle or essential feature of thought — does not avert the reality of metaphor being the glove that fits around the fit of the poststructuralist thesis to the connectionist case (neural firing in the brain). In this sense, we face the tenacity of acknowledging the value of metaphor in our thinking processes, but that does not discharge the aspect of how we ‘weight’ or read metaphor, or which theorizations we choose to ‘read’ metaphor as representing. The poststructuralist case tends to avoid the metaphoric ‘freight’ by engagement in the conceptual play of the ideas, but the feature of considering *differance* as self-reflective for instance — a looser version of Cilliers’s point — itself engages the *differance* process with the charge of modeling human identity and, inferentially, as proving a key or *arche*, to the dilemma of doing this.

Conclusion

This resistance towards transcendence is the true reason why the correlation between the symbolic and the process of differentiation, associated with causal power in the theories of Ricoeur (for instance), is viewed as illusion — hence the view that “Derrida’s deconstruction ends up by dissolving the symbolic within the imaginary” (Dupuy, 1998: 83). That is a distinct case from a suspicious viewing of Ricoeur’s arguments as underscored by theological presuppositions (which I would share). I suspect also the view of complexity as ‘local’ lends itself to the anti-symbolic camp precisely because if we can render tenuous the issue of a causative point (or the matter of transcendent perspective from whence to decide what is or is not the case — relative to the truth of complexity), then we can avoid the entire issue of argument by a quasi-philosophical presupposition (for instance Derrida’s) as to the significance of metaphor. Plainly, this will not do. All that is then occurring is that the doubts as to the status of the complexity theory as an *arche*, at an epistemic level, are being transposed as a feature of ontological ambiguity relative to poststructural perspectives.

Conversely, the view of a kind of ‘implicate order’, or of co-extensive ranges of principles (such as holism) which might generalize complexity towards the position of a strong naturalism, has resulted in a sense that complexity is overstretched in its

claims relative to its scientific evidence (at a local level). Nevertheless, these types of ambitious theorization have been the basis of the advancement of complexity towards areas of non-conscious life, and mark the first significant phase of complexity theory advancement. The shift towards higher cognitive levels of absorption has also brought an encroachment of complexity theorization into areas of philosophy, for example phenomenology. This, in turn leads to an involvement in the aspect of ontology (the nature of things 'in themselves', or the concern with Being, as defined in Heidegger's reflections on the Kantian view).

A strong problem with Derridean theorization is that it resists categorization in terms of presence; it alludes to a pre-epistemic base in its emphasis on origin and indecidability (the conception of *differance*). Ricoeur is perhaps more at home with presence, though the device of the metaphoric copula he deploys, alludes to both non-being and Being (in that respect we see the resonance of Heidegger). It could be suggested, however, that Derrida's *differance* claims a truth status, as a form of 'arche' or origin. Derrida self-consciously uses the term 'arche-writing' to indicate a language prior to speech, but "negating the sense of an origin as primordial source" (Protevi, 2005: 33). Hence, this is an issue which Derrida is aware of. Derrida's concern is with writing, and the 'movement of difference' marks his view of language as system of 'traces'. These ideas may be said to resist classical correspondence theories of language; they play with the aspects of the nature of an 'origin', and hence the causal basis for language equivalence and definitions. It might be suggested that Ricoeur's approach is more direct, and in that sense avoids the potential charge of being a claim of truth which self-consciously undercuts the basis of its own 'truth-claim'. These two philosophies are cases whose value lies at the cusp of the expansion of complexity theorization within the terms of debate I describe. These occur in terms of metaphor being engaged as a methodological feature implicated by semantics; but in turn, attitudes to these features of discourse reflect particular philosophical postures relative to the status of ontology.

These thoughts seem to indicate the inevitability of the source analogy (complexity theory at a primary level of scientific level of analysis) becoming colored with metaphor as it is conceived, not purely as it is withdrawn from the womb of analysis. Precisely how that coloring might take flesh, the take on metaphor in complexity following primarily Ricoeur and his hermeneutical theorization (with some further consideration of Lakoff and Johnson) is one aspect of this paper. Mobility of complexity theory is tenacious and, in part, occurs because of the close affinity of analogization and holism. Recent debate, however, with the 'linguistic turn' has tended to import the idea of 'local' rather than transcendent 'truth'. This maybe fashionable, but as a mode of ideology rather than argument, its claims ought to be debated. Metaphor, itself a topic of critique of Western metaphysics in the post-structural precursor theorizations of Nietzsche (for instance), has become a basis by which complexity theory can extend itself from its areas of scientific inception, towards the social sciences. This 'mobility' of metaphor can therefore give rise to the claims of complexity theory to act as a 'universalistic' theory which cuts across disciplines. However, there is of course a distinction between complexity as a global epistemic theorization — implied by metaphoric extensions — and the alternate use of metaphor as a kind of critique of 'transcendent' truth claims. This twist, in the construction of the value attached to metaphor, has come as a result of the recognition that a global epistemic base of complexity is a close cousin to a claim for a transcendent basis of knowledge (eschewed at an ontological level by poststructuralism). It is suggested that one avenue away from this nexus of controversy, is to adopt a phenomenological view of complexity which can avoid these difficulties by virtue of its not having a direct problem with the idea of an arche, at an ontological level — hence the presentation of Ricoeur's theorization.

Appendix 1: Summary of points of distinction PCT and Ricoeur's phenomenological hermeneutic of metaphor

In this appendix I summarize these features and also make further discussion of the conception of difference, explored in the first paper in this series.

If once conceives of PCT (Letiche) relative to these aspects, (see Letiche, 2000a, 2000b) the metaphor of 'emergence' would be temporalized within the type of theorization that Ricoeur presents. It would be ontic (inside time). Its 'emergence' would then relate to the aspect of transition between distinct phases of metaphoric transference, which flickered between Being and non-Being (according to Ricoeur's incorporation of Heidegger's theorizations).

Hence on this account the metaphoric process would correlate Being and time. However, of course, Letiche makes no such correlation with metaphor. Rather, Letiche eschews a temporalizing of the satellite metaphors of complexity — such as 'emergence' or 'the edge of chaos'. As far as Derrida was concerned, Heidegger reached out towards (but had not completely defined) the problem of the origins of metaphysical thought (if the problem can be so defined). Derrida's conception of difference is notable in this regard: "differance is not, does not exist, is not a present-being (on) in any form..." and that: "In a conceptuality adhering to classical strictures 'differance' would be said to designate a constitutive, productive and originary causality, the process of scission which would produce or constitute different things or differences..." (Derrida, 1982: 9). That aspect of a split (or schism) is antecedent to the conception on Being (on this account) (Derrida, 1982).

Hence, at the risk of reiteration: Letiche cannot define Being as within or without of time because he follows Derrida who indicates differance as a mode of description of a process which hovers at that point between a temporal and atemporal perspective (as indicative of an originary or motive force within perception). Hence, complexity metaphors within Letiche's PCT could not possibly be construed as either one thing or another in terms of time; they are caught in the differance process. Emergence then becomes synonymous with differance on that score. However, there is a difference, in that one is not purely

dealing with a view of emergence relative to phenomenology, but also looking to impute that phenomenological basis of understanding relative to the complexity sciences, of which the metaphors are representatives.

A phenomenological perspective which is underpinned by Ricoeur's viewpoint might tend to locate emergence, and other associated complexity metaphors more clearly in an ontic or ontological realm — ontic to the extent that the metaphors are conscious creations (poetical metaphor transposed into a social realm) or ontological to the extent that they are symbolic features (cosmic symbols). That said, the problem remains as to whether we construe the symbols as features within or out of time, (it depends on the definition of Being one adopts I think). In contrast, PCT (following Derrida) must locate on the fault line between time and an atemporal state (as Letiche notes). This said, the scientific activities to which complexity metaphors refer are clearly occurring within time; it is our perception of their activities which can be portrayed in terms of *differance*. In this sense, the complexity metaphors which Letiche locks into, and equates with PCT, are epistemologically bound as activities, but in their descriptive sense (relative to his particular philosophical constructions of PCT on the influence of Derridean theory) the metaphors are locked out of the epistemological realm by virtue of their abiding (ceaselessly) on the ontico-ontological divide.

Notes

[1] Khalil notes that “the realm of the social should not be juxtaposed to the natural. The social is simply a variety of the natural. Citing Danto he also notes that “naturalism is polemically defined as repudiating the view that there exists or could exist any entities or events which lie, in principle, beyond the scope of scientific explanation (Danto, 1967: 448)...” in Khalil, (1997: 47).

[2] Khalil notes that “such theorists (those that assert intentionality), have erected a dichotomy between natural and human phenomena on the supposed grounds that a mechanistic view of behavior and a reductionist view of organization should be restricted to non-human organisms. Similar to vital-ism, i.e.) the postulate of the discontinuity between animate and inanimate matter, such anti-naturalist researchers have appealed to some extra-natural variables, such as free will and the role of interpretation, in order to establish the uniqueness of human behaviour and organization...” (Khalil, 1997: 48).

[3] See Mackenzie, (2005), discussing Stengers, (2000).

[4] Khalil notes that “For instance, Newton's law of gravitation established a unity between celestial motion and terrestrial acceleration of bodies as they fall downwards. Both disparate events are regulated by the same law of gravity.” (Khalil, 1998: 6).

[5] I summarize features of the discussion and make fresh points by way of comparison of Letiche's PCT and Ricoeur's perspectives in Appendix 1.

[6] Ricoeur defines this in terms of a metaphorical meaning which is a fresh scale of perception. This is a “mode of schematizing a synthetic operation” relative to Kantian theories; in which case it is described as “both a thinking and a seeing. It is a thinking to the extent that it effects a re-structuration of semantic fields; it is transcategorical because it is categorical...” (Ricoeur, 1979: 146-148).

[7] Hermeneutics may be defined as related to Heidegger's phenomenology and discloses a fore-structure of understanding related to ontological structures rather than being purely methodological means of textual interpretation: “It [the hermeneutic circle] is not to be reduced to the level of a vicious circle, or even of a circle which is merely tolerated. In the circle is hidden a positive possibility of the most primordial kind of knowing...” (Gadamer, 1989: 265- 307), in Moran and Mooney (2002: 328).

[8] Hence, Kearney notes that Ricoeur combines a “psychology of the imaginary” with the semantic theory of metaphor – this is a matter of stressing a creative function for the verbal imagination, which is complemented by a conjunction with “a sensible moment of metaphoric creation.” (Kearney, 1991: 151).

[9] Kearney notes that Ricoeur is also influenced by Bachelard, (the Poetics of Reverie) to whom the image is a trans-subjective construction – which can cut across individual subjective divides. (Kearney, 1991: 91-93).

[10] Kearney states that the significance of this is that Ricoeur is shifting from phenomenology which rests on a reflection of intentionality (following the phenomenological tradition of Husserl and especially, in Ricoeur's case, taking into account the further work of Heidegger), towards, a belief in the primacy of signs and symbols in the process of intuition. (Kearney, 1998: 150).

[11] Waldrop notes as follows, (of Santa Fe theorists on the issue of ‘artificial life’): “Holland remained to be convinced; he had seen too many examples of ‘emergent’ behavior that was tacitly built into the program from the start... ‘But for myself,’ he says, ‘I couldn't see how you could define ‘truly’ emergent behavior.’ In some sense, everything that happens in the universe, including life itself, is already built into the rules that govern the behavior of quarks. So what is emergence, anyway? And how do you recognize it when you see it? ‘That goes to the heart of the problem in artificial life,’ he says.” (Waldrop, 1992: 242).

[12] On the theme of discovery and invention, John-son embellishes the point with clarity around his suggestion that science has its own ‘creation myths’: “We are left to wonder to what extent abstractions like fitness landscapes and scales ranging from order to chaos are features of the universe and to what extent they are attractive inventions- more sophisticated than dividing the world into concentric tetrads of mesas and mountain's extending from the pueblo's spirit hold, but projections nevertheless”

(Johnson, 1995: 290).

[13] Ricoeur notes: “How can philosophical reflection be articulated upon the hermeneutics of symbols? I shall say a few words about the question itself. A meditation on symbols occurs at a certain moment of reflection; it answers to a certain situation of philosophy and perhaps even of modern culture. This recourse to the archaic, the nocturnal, and the oneiric, which is also an approach to the birthplace of language, represents an attempt to avoid the difficulties in the problem of a starting point in philosophy” (Ricoeur, 1974: 287).

[14] Ricoeur notes: “These great narratives, which as was said, put into play space, time and characters woven into story form, have in fact an irreducible function. It is a threefold one. First they place the whole of mankind and its drama under the sign of an exemplary man, an Anthropos, or Adam, who symbolically stands for the concrete universal of human experience. Second, they give to this history an élan, a direction, an orientation, by unfolding it between beginning and end... finally, and more fundamentally, they explore the cleavage in human reality represented by the passage or leap from innocence to guilt” (Ricoeur, 1974: 293).

[15] Ricoeur notes that: “This dynamic [that as Ricoeur puts it “myths have never stopped battling each other...”], is animated by a deep seated opposition: on one side are the myths that take the origin of evil back to a catastrophe or primordial conflict prior to man: on the other hand are the myths that take the origin back to man...” (Ricoeur, 1974: 294).

[16] These features relate to the phenomena of irreversibility and the arrow of time.

[17] Searle views metaphor as a deviation from literal equivalence and as a fixed range of alternative meanings which can be potentially read into a given metaphor.

[18] Davidson argues metaphor has no isolable decipherable meaning, he argues that: “Metaphors mean only what they appear to mean on the surface in their most literal sense...” (Haskell, 1987: 35). However, beyond the surface; subjectively speaking

– metaphor has unbounded or unlimited meaning (contrast with Searle).

[19] My view is that there is a sense in which the subject/object divide is elided by holism (as promoted by complexity theory) but that sense is distinct from the argument of phenomenology as to the dissolution of the subject/object divide; and stems from a different basis of reasoning. This aspect of elision – of the subject/object divide, is a feature of similarity which might be interpreted as being a commonality between the holistic aspect of complexity theories and a particular phenomenological interpretation. These aspects are discussed by Morçöl as phenomenology’s questioning of an exo-physical determination of the relationship between subject and object. He argues that complexity theory infers an inter-relationship of subject and object (as relational holism). See also Morçöl (2001: 104-119) in discussion of Makaryk (1993) and Rossler in Holden (1986).

[20] See Johnson, (1995: 284-286). Rather interestingly, Johnson notes that Crutchfield (a scientist at Santa Fe), believed that the description ‘edge of chaos’ was misapplied, by Kauffman, Langton and others – a case of making the facts fit the theory, in that it applied the principles of dynamical systems theory to cellular automata, which Crutchfield believed was mistaken. The case is an interesting one in that it raises the issue of whether scientific discovery is a matter of simply uncovering facts or making “discoveries”.

[21] It is beyond the point in this article to fully narrate these theorizations, see Lakoff and Johnson, (1999: 77-79) and fuller arguments therein advanced.

[22] The issue of Ricoeur’s cultural or conceptual relativism or his partiality to a values frame which is from a particularly western perspective (for instance), is further discussed in Medina, (2005: 131+)

[23] Derrida’s views as to metaphor, in *White Mythology*, (Derrida, 1982) tend to represent the metaphoric process in terms of a continual renewal of semantic life by metaphor and then a falling away of metaphoric vitality. It is true that Derrida does import a complex notion of usure which might be interpreted to promote the idea of surplus value or additional value to metaphoric creation, but generally speaking the drift of Derrida’s viewpoint is to argue that metaphor reinvigorates semantic novelty only to result in a hardening or erosion of that vitality towards metaphysical “normalcy” (Derrida, 1982: 210). Ricoeur adopts an approach whereby metaphors are novel and in time they become trivial, but he also argues that the function of metaphors is epistemic as well as ontological (Medina, 2005: 121-131)

[24] Ricoeur defines these regressive features in the following terms: “The progressive order of symbolism is not exterior to the regressive order of fantasies; the plunge into the archaic mythologies of the unconscious (thereby) brings to the surface new signs of the sacred. The eschatology of consciousness is always a creative repetition of its own archaeology” (Ricoeur, 1974: 334-335).

[25] In an earlier study I noticed that mythic archetypes or themes could be discerned in the management literature, and linked this idea to a consideration of complexity theory. These ideas reinforce the theories developed in relation to Ricoeur here outlined. See Sheard (2001).

[26] Eliade’s hierophanic state is timeless and resonates with ideas of a pre-Edenic fall. Eliade believed that a restoration into

formlessness was necessary if reinvigoration was to be achieved (Eliade, 1971, in Coupe, 1997: 60). He considered Myth as a form of desire to be at one with a “continual present”; ritual can invoke the moment in which order was created out of chaos; the merely individual can become the archetypal; the profane is invested (momentarily) with the signs of the sacred. Such moments are ‘hierophanies’ or special occurrences: “Any form whatever, by the mere fact that it exists as such and endures, necessarily loses vigor and becomes worn; to recover vigor it must be reabsorbed into formlessness if only for an instant; it must be restored to the primordial unity from which it issued; in other words it must return to ‘chaos’ (on the cosmic plane).” Eliade (1971), in Coupe (1997: 60).

[27] Statement derived from Evans: “Both the phenomenological reduction and the turn of experience imply the reduction of transcendence to immanence.” (Evans, 2003: 19).

[28] See for instance the brief synopsis of Ricoeur’s hermeneutics as expressed in Cutrofella (2005: 293-303). This shows the complexity of Ricoeur’s position: “Ricoeur suggests that it is necessary to ‘demythologize’ the symbol (so as to avoid the allegorizing temptation).” It is easier said than done, however; as Ricoeur realizes – noting the tension between reflective thought and allegorization which he argues – realizes a cusp or focus in symbolism.

[29] See the very full discussion of De Landa in Mckenzie, (2005: 48-54).

[30] Letiche & Van Uden (1998) cites Lawson, (1997: 21)

[31] Stellardi notes that: “Metaphor is now founded on a double-reference: a first degree reference to reality, and a second degree reference of a poetic nature. The metaphorical power plays in the space of these two limits, and must be understood not in the form of a rhetorical figure centred on the word, or as semantic impertinence internal to the linguistic code but rather as a redescription of reality with the space of one or many possible “modes of discourse”. This type of discourse requires its own structure and activates its own specific kind of truth: a tensional truth, a “metaphorical truth” implemented in the copula the is which means at the same time is not and is as” (Stellardi, 2000: 80).

References

1. Bruns, G. (1993). “Against poetry: Heidegger, Ricoeur, and the originary scene of hermeneutics,” in D. E. Klemm and W. Schwieker (eds.), *Meanings in texts and actions: Questioning Paul Ricoeur*, Charlottesville, VA: University Press of Virginia, ISBN 0813914116.
2. Capra, F. (1996). *The web of life: A new synthesis of mind and matter*, London, England: Harper Collins, ISBN 0002554992.
3. Cilliers, P. (1998). *Complexity and postmodernism: Understanding complex systems*, New York, NY: Routledge, ISBN 0415152879 (2000).
4. Cilliers, P. (2005). “Complexity, deconstruction, and relativism”, *Theory, culture and society*, ISSN 0263-2764, 22(5): 255-267.
5. Coupe, L. (1997). *Myth: The new critical idiom*, London, England: Routledge, ISBN 0415134943.
6. Cutrofella, A. (2005). *Continental philosophy: A contemporary introduction*, New York, NY: Routledge, ISBN 0415242096.
7. De Landa, M. (2002). *Intensive science and virtual philosophy*, London, England: Continuum, ISBN 0826479324 (2005).
8. Derrida, J. (1982). “White mythology,” in A. Bass (trans.), *Margins of philosophy*, Chicago, IL: University of Chicago Press, ISBN 0226143260 (1984).
9. Dillon, M. (2000). “Poststructuralism, complexity and poetics,” *Theory, Culture and Society*, ISSN 0263-2764, 17(5): 1-26.
10. Dupuy, J.-P. (1998). “The autonomy of social reality: On the contribution of systems theory to the theory of society,” in E. L. Khalil and K. E. Boulding (eds.), *Evolution, order and complexity*, London, England: Routledge, ISBN 0415137284 (1996).
11. Evans, F. (2003). “The beginnings of postmodernism: Phenomenology and Bergsonism, Derrida and Deleuze,” in L. Lawlor (ed.), *Thinking through French philosophy: The being of the question*, Bloomington, IN: Indiana University Press, ISBN 0253215919.
12. Haskell, R. E. (1987). *Cognitive and symbolic structures: The psychology of metaphoric transformation*, Norwood, NJ: Ablex, ISBN 0893913685.
13. Holland, J. H. (1998). *Emergence: From chaos to order*, Oxford, England: Oxford University Press, ISBN 0192862111 (2002).
14. Johnson, G. (1995). *Fire in the mind: Science, faith, and the search for order*, London, England: Penguin Books, ISBN 0140174222.

15. Kauffman, S. A. (1992). *Origins of order: Self-organization and selection in evolution*, New York, NY: Oxford University Press, ISBN 0195079515 (1993).
16. Kearney, R. (1991). *Poetics of imagining: Modern to postmodern*, Edinburgh, Scotland: Edinburgh University Press, ISBN 0823218724 (1998).
17. Kearney, R. (2004). *Debates in continental philosophy: conversations with contemporary thinkers*, New York, NY: Fordham University Press, ISBN 0823223183.
18. Khalil, E. L. (1997). "Biological metaphors, socio-economic theory and reductionism," *Economic Issues*, ISSN X000-9529, 2(2): 45-57.
19. Khalil, E. L. (1998). "Social theory and naturalism: An introduction," in E. L. Khalil and K. E. Boulding (eds.), *Evolution, order and complexity*, London, England: Routledge, ISBN 0415137284 (1996).
20. Kofman, S. (1983). *Nietzsche and metaphor*, London, England: Continuum, ISBN 0485120984 (1993).
21. Lakoff, G and Johnson, M. (1980). *Metaphors we live by*, Chicago, IL: Chicago University Press, ISBN 0226468011.
22. Lakoff, G and Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought*, New York, NY: Basic Books, ISBN 0465056733.
23. Lawlor, L. (2002). *The basic problem of phenomenology*, Bloomington, IN: Indiana University Press, ISBN 0253215080.
24. Letiche, H. (2000a). "Phenomenal complexity theory as informed by Bergson," *Journal of Organizational Change Management*, ISSN 0953-4814, 13(6): 545-57.
25. Letiche, H. (2000b). "Self-organization, action theory and entrainment," in *Emergence: A Journal of Complexity Issues in Organizations and Management*, ISSN 1521-3250, 2(2): 24-37.
26. Letiche, H. and Van Uden, J. (1998). "Answers to a discussion note: On the 'metaphor of the metaphor,'" in *Organization Studies*, ISSN 0170-8406, 19(6): 1029-33.
27. Maasen, S. (2000). "Metaphors in the social sciences: Making use and making sense of them," in F. Hallyn (ed.), *Metaphor and analogy in the sciences*, Boston, MA: Kluwer Academic Publishers, ISBN 0792365607.
28. Mckenzie, A. (2005). "The problem of the attractor: A singular generality between sciences and social theory," *Theory, Culture and Society*, ISSN 0263-2764, 22(5): 45-65.
29. Medina, J. (2005). *Language: Key concepts in philosophy*, London, England: Continuum, ISBN 0826471676.
30. Merleau-Ponty, M. (1962). *The phenomenology of perception*, London, England: Routledge, ISBN 0415278414 (2002).
31. Moran, D and Mooney, T. (2002). *The phenomenology reader*, London, England: Routledge, ISBN 0415224225.
32. Morçôl, G. (2001). "What is complexity science? Postmodernist or Post-positivist?" in *Emergence: A Journal of Complexity Issues in Organizations and Management*, ISSN 1521-3250, 3(1): 104-119.
33. Olson, M. (1981). "Symbol and metaphorical truth," in *Myth, symbol and metaphorical truth*, Paris, France: University of Notre Dame Press, ISBN 0268013497 (1982)
34. Prigogine, I, and Stengers, I. (1984). *Order out of chaos*, London, England: Flamingo, ISBN 0394542045.
35. Protevi, J. (2005). *The Edinburgh dictionary of continental philosophy*, Edinburgh, Scotland: Edinburgh University Press, ISBN 0748617167.
36. Ricoeur, P. (1974). "The hermeneutics of symbols and philosophical reflection: I," in D. Ihde (ed.), *The conflict of interpretations: Essays in hermeneutics*, London, England: Continuum, ISBN 0485300613.
37. Ricoeur, P. (1979). "The metaphorical process as cognition, imagination and feeling", in S. Sacks (ed.), *On metaphor*, Chicago, IL: University of Chicago Press, ISBN 0226733343, pp. 141-159.
38. Sheard, S. (2001). "Slain God: A symbolist perspective on the new science and related management theorization," *Emergence: A Journal of Complexity Issues in Organizations and Management*, ISSN 1521-3250, 3(2): 78-112.
39. Sheard, S. (2005). "Continental philosophy and complexity - part 1: A review of Letiche's Phenomenological Complexity theory," *Emergence, Complexity and Organization*, ISSN 1521-3250, 7(3-4): 105-118.
40. Stellardi, G. (2000). *Heidegger and Derrida on philosophy and metaphor: Imperfect thought*, New York, NY: Humanity books, ISBN 1573928240.

41. Stengers, I. (2000). *The invention of modern science: Theory out of bounds*, Minneapolis, MN: University of Minnesota Press, ISBN 0816630569.
42. Thelen, E. and Smith, L. B. (1994). *A dynamic systems approach to the development of cognition and action*, Cambridge, MA: MIT Press, ISBN 0262200953.
43. Waldorp, M. M. (1992). *Complexity: The emerging science at the edge of chaos*, New York, NY: Simon and Schuster, ISBN 0140179682.