An extra-memetic empirical methodology to accompany theoretical memetics

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Abstract

Purpose: The paper describes the difficulties encountered by researchers who are looking to operationalise theoretical memetics and provides a methodological avenue for studies that can test meme theory.

Design/Methodology/Approach: The application of evolutionary theory to organisations is reviewed by critically reflecting on the validity of its truth claims. To focus the discussion a number of applications of meme theory are reviewed to raise specific issues which ought to be the subject of empirical investigation. Subsequently, the empirical studies conducted to date are assessed in terms of the progress made and conclusions for further work are drawn.

Findings: The paper finds that the key questions posed by memetic theory have yet to be addressed empirically and that a recurring weakness is the practice of assuming the existence of a replicating unit of culture which has, however, yet to be demonstrated as a valid concept. Therefore, an 'extra-memetic' methodology is deemed to be necessary for the development of memetics as a scientific endeavour. Narrative analysis is abducted as an appropriate avenue for the operationalisation of extra-memetic empirical research.

Originality/Value: The paper highlights inconsistencies, embedded in much of the memetic literature, which have not previously been recognised and the colloquial nature of the discipline is challenged from a positive but critical perspective. Consequently, the paper develops a rationale for the adoption of a widely recognised social science methodology for memetics which has been absent to date. In proposing narrative orientated research, knowledge concerning memes' validity can be facilitated whilst avoiding the current circularity in memetic truth claims.

Key Words: Meme, Memetics, Narrative, Complexity, Evolution

Classification: Conceptual Paper

1 Introduction

One might forgive the empirically orientated researcher who, having reviewed the memetics literature, feels trepidation at the thought of designing a study which can begin to address the questions posed by the extant body of knowledge related to the field.

'Memetics' is the moniker which has become attached to the study of Dawkins' (1976) proposition of a cultural equivalent to the gene, the meme. Consequently, memetics as a discipline claims to account for the micro level dynamics which drive a Darwinian macro level evolutionary algorithm (Darwin, 1859) in culture.

However, memetics remains biased towards conceptualisation and theorising. Over a period spanning several decades the area has developed with very little, if any, moderating influence from empirical research and there has been a burgeoning of ideas contributed from alternative perspectives which embody crucial but unresolved debates. For example, Dennett (1991) and Blackmore (1999) make memes fundamental constituents of the human mind while Brodie (2009) and Lynch (1996) suggest memes parasitize the mind. Furthermore, to date the few empirical memetic projects related to organisations which have been completed (Best, 1997; Lord and Price, 2001; O'Mahoney, 2007; Shepherd and McKelvey, 2009) do not demonstrate the critical challenging of meme theory that might be expected in a discipline with very little or no existing evidence to support its truth claims. A critical review of the memetics literature reveals the need to empirically question the fundamentals of meme theory including the very existence of memes.

In this paper I describe some of the difficulties encountered when applying the meme concept to organisations and designing empirical studies in light of some of the inconsistencies in fundamental meme theory alluded to above. I go on to identify the need for an 'extra-memetic' methodology as crucial in carrying out future empirical research because only once credible evidence of memes' existence has been provided can the process of verifying and eliminating parts of the theoretical canon begin. I conclude by proposing narrative analysis as one avenue for the operationalisation of extra-memetic empirical work.

2 Evolution and Organisational Theory

Evolution is an appealing concept. The recognition that variation, selection and retention in biology constitute the components of an algorithmic process by which organisms emerge and adapt (Darwin, 1859) was such a significant insight that it famously challenged the existing paradigms of nineteenth century thought, including Charles Darwin's own (Burrow, 1985). Today evolution theory, despite having been refined since Darwin's original thesis, continues to stand in contrast to alternative explanations of life on Earth due to the mass of evidence on which it rests (Guttman, 2005). The subsequent triangulation of the theory of evolution by means of natural selection through the modern synthesis with genetics, proposed by Julian Huxley in 1942 (Huxley, 2010), has added validity to Darwin's original macro observations by describing the means by which micro variations are inherited and retained in DNA through successive generations of organisms.

The modern synthesis has proved attractive enough for some to suggest that an evolutionary process similar to that seen in biology will occur in any circumstances where the three algorithmic components are present (Dawkins, 1982; Dennett, 1995, Aldrich et al., 2008). Indeed, organisation studies have not been exempt from such applications of the evolutionary algorithm. Evolutionary theory can act as a metaphor with which to understand life in organisations (Morgan, 1998). It has been used to classify 'organisational species' based on their distinctive competencies (McKelvey, 1982) and it can be used to construct a metatheory which can accommodate a range of approaches to the study of organisations (Aldrich, 1999; Aldrich and Ruef, 2006). More generally, it has been applied to help study the internal and external contexts in which organisations operate, in for example economics, sociology, psychology, political science, anthropology and organisational behaviour (Sammut-Bonnici and Wensley, 2002).

However, despite the advent of the modern synthesis in biology, amongst the range of applications of the evolutionary concept to organisations there is a bias towards the macro, or algorithmic component (Shepherd and McKelvey, 2009). Subsequently, with the lack of an equivalent to genetics, there remains an unresolved debate over what should be considered as the unit of selection in the organisational context. Suggestions for such a unit range from internal organisational elements such as competencies (McKelvey, 1982) to external population-like patterns such as organisational fields[1] (DiMaggio and Powell, 1983). Therefore, evolutionary theory in organisational studies requires contributions from other disciplines to help explain the *engines* of evolution (Sammut-Bonnici and Wensley, 2002) and this weakness might explain why, in contrast to their counterparts in biology, organisational scholars seem less than unanimous in their support for evolutionary theory.

The modern synthesis in biology rests on many iterations of theorising and empirical research both at the micro level of genetics and the macro level of the evolved phenotypic expressions which interact as individuals and groups. However, the theory in organisations does not, at least as yet, rest on similar evidence. Consequently, it is difficult to know whether or not all evolutionary accounts of organisations should be regarded as more akin to Morgan's (1998) metaphorical analysis rather than the apparently more realist accounts of, for example, Aldrich and Ruef (2006) and McKevley (1982). Of course, such a distinction has consequences for the nature of the validity which can be claimed for any subsequent analyses. Although both metaphorical and realist accounts might be construed as equally valid, a metaphorical account misconstrued as realist should be recognised as epistemologically naive.

3 A Modern Synthesis for Culture?

To synthesise the micro and macro factors of culture in an evolutionary theory of organisations, which might carry similar validity to that of biological evolution, a counterpart to the role played by genetics is required and a contender for this part is memetics. In proposing the meme as a cultural equivalent to the gene Dawkins (1976; 1989) draws attention to the importance of addressing the question of what acts as the unit of selection in evolutionary systems and suggests that both genes and memes fulfil this role by way of their innate 'replicator'[[2]] qualities. Replication is the vital factor in Dawkins' theory where evolution in biology exists only because of the replication of genes and it is this key feature therefore, which is carried over to the meme concept. Consequently, evidence for or against a replicator driven component to evolution in culture is vital for clarifying whether or not evolutionary accounts of organisations can declare a similar validity to those in biology by demonstrating an equivalent micro triangulation of the macro observations. Similar empirical justification would help to reify the 'evolving organisations' metaphor, where appropriate, and support the objectivist ontology which underpins Dawkins' original conceptualisation of the meme (Dawkins, 1998).

Therefore, although it is tempting to carry over the validity of evolution in biology to cultural applications perhaps a more circumspect approach is called for because clarity concerning the ontological nature of evolution in the abiotic domain is crucial. For the majority of human history the products of biological evolution were mistakenly understood as the work of a designer but today the modern synthesis is a powerful alternative explanation for what is real (Dawkins, 1988; Guttman,

2005). Darwinism recognises a causal logic at play in biology operating via the feedback loop which occurs due to replication and heredity (Hull, 1998; Stoelhorst, 2008).

In accepting the hypothesis of cultural evolution based on the validity for the concept demonstrated in biology there is a risk of a type I error. Simply by categorising elements of organisational life as either variation, selection or retention might suggest that there is an algorithmic process at work where in fact, without replication, instead of the causal logic of a feedback loop there is actually human design. Replication is a prerequisite in justifying the invocation of Dawkinsian biological and genetic analogy in cultural settings with pretentions to apply anything more than a metaphor. However, replication in biology makes the evolutionary algorithm blind, i.e. there is no agency to support a teleological account (Dawkins, 1976).

Much of the evolution based organisation theory equivocates over reconciling human agency and the algorithmic process by invoking the notion of 'bounded rationality' (March and Simon, 1958; McKelvey, 1982) or a dynamic where individual rationality, exercised locally, leads to emergent group properties (DiMaggio and Powell, 1983). This view directly contradicts the concept of replication where there is blind undirected action at the local micro level so, a question is begged. Why adapt a theory from biology, which needs to be distorted, when the actual phenomena of interest, such as bounded rationality can be studied, without the baggage of an evolutionary metaphor, through established social science such as discourse analysis?

Subsequently, although meme theory might help to illuminate the case for cultural evolution at the micro level, in light of the alternative approaches to social science, some reject it through a fundamental opposition to the adoption of 'natural science' epistemological assumptions and methodological conventions in the social sciences, for example, Midgley (1979; 1983) and Robinson (2010) who react negatively to the implications a blind evolutionary dynamic has for the notion of the human 'self'. Others, despite being sympathetic to the evolutionary approach, have recognised the lack of evidence to justify the assertions made by meme theorists, for example Aunger (2002), Lissack (2003) and Edmonds (2002). The critique has included some rather direct questioning of the very foundations of the concept.

> No one knows what a meme is. Certainly the existence of one has yet to be demonstrated. That no one has sounded an alarm about this is astounding ... (Aunger, 2002, p21)

Empirical evidence for meme theory would provide both knowledge of the engines of evolution in organisations and add construct validity to the macro evolutionary theories which remain inconclusive in terms of the unit of selection. The attempts to apply meme theory to organisations illustrate, more specifically, the types of questions which ought to be addressed.

4 The State of Applied Memetic Theory

There is a range of instances where the meme concept has been applied to organisations, for example, Weeks and Galunic (2003) propose a memetic theory of the firm, Price and Shaw (1998) suggest memetic patterns influence organisational culture, O'Mahoney (2007) takes a memetic view of the adoption and diffusion of Business Process Re-engineering (BPR), Vos and Kelleher (2001) take a memetic approach to the study of mergers and acquisitions and both Voelpel et al. (2005) and Pech (2003) apply memes to innovation strategy.

Despite the absence of any empirical evidence for memes' existence, seemingly without exception each study assumes their existence. Subsequently, the definition of what a meme is varies from study to study so on each occasion memes are couched in terms which suit the message of the thesis rather than a consensus of what might constitute a putatively real entity. For example, memes might be core elements of culture which are imitated (Voelpel et al., 2005; Weeks and Galunic, 2003), self-replicating ideas or thoughts (Pech, 2003) distinct memorable units (O'Mahoney, 2007), anything that is copied (Vos and Kelleher, 2001) or the smallest element capable of being exchanged with an associated sense of meaning and interpretation (Price and Shaw, 1998).

Although criticising the minutiae of definitions might be dismissed as semantic pedantry, because it is normal for scholars to synthesise ideas, surely definitions should be reasonably clearly *defined* points of common understanding. More critically, the variations in definition betray an unresolved problem at the heart of fundamental memetic theorising which has been ignored in its application to organisations. The debate is raised by Dawkins' (1976; 1989) concept of selfish replication.

Replication and the associated blind evolutionary algorithm question the degree to which humans can exercise free will[3]. On the one hand there are those who assume freewill and in this case memes are characterised as viruses which infect people's minds (Dawkins, 1993; Brodie, 2009; Lynch, 1996). On the other hand, others propose memes are constituent elements of the human mind, so human freedom, distinct from memes, is either limited (Dennett, 1991), or an illusion

(Blackmore, 1999)[4]. Such a point of view refutes the meme as virus concept because memes would be constituent components of any notion of the human agency purportedly infected by the meme as virus connotation (Distin, 2005).

Without exception the applied studies mentioned here assume significant degrees of management control. Some are explicitly orientated to meme management and the issue of agency is either unrecognised (Pech, 2003) or handled in a cursory fashion by invoking bounded rationality, for example. Such a stance ought to be justified by clearly adopting the meme as virus side of the agency debate and indeed, memes tend to be referred to in this manner. However, support for the definitions of memes tends to be drawn from authors on both sides of the agency debate. Dennett and Blackmore are regularly cited but the implications of incorporating their theories are not recognised. Surely this must undermine the credibility of the definitions outlined above and the usefulness of any proposed management action. For example, Pech (2003) is not alone in invoking Blackmore's conceptualisation of memes whilst proposing the 'meme as virus' concept to suggest memes can be managed via a 'meme audit'. Such a perspective contains an internal contradiction which is repeated by Weeks and Galunic (2003), Vos and Kelleher (2001) and Voelpel et al. (2005).

In the face of an inconclusive fundamental theory of memes the applied literature reverts to genetic and biological analogies for support. After all, the virus concept itself is a genetic analogy but more specifically O'Mahoney (2007) suggests that some innovations travel like 'spores' and organisations are 'hosts' to their infections. Price and Shaw (1998) suggest their memetic patterns are akin to evolutionary stable strategies (ESSs) and that drop-in rooms can be thought of as transposons[5]. Invoking the meme as virus concept as well as other biological analogies introduces assumptions of something akin to evolved cellular replicating machinery which may not be an appropriate extension of replicator theory for culture because the replicator/phenotype distinction is another unresolved fundamental debate. Similarly, invoking the dynamics described by ESSs tends to assume complex life, population dynamics and sexual reproduction. In biology ESSs can be game theoretically modelled on the basis that payoffs are accrued blindly through survival and reproduction (Axelrod, 1990; Maynard Smith, 1982) so applying the concept to organisations assumes some cultural counterpart[6]. The limits of these metaphors are seldom explored and it may well be more instructive to offer sociological explanations rather than genetic analogies which are at risk of being reified along with the underlying assumptions which are embedded within them.

Organisational applications of memetics demonstrate the potential uses for a rigorously devised and applied theory of memetics but they also demonstrate the urgent need to reflect critically on meme theory at a fundamental level via empirical investigations devoted to issues such as the extent of freedom in human action and the search for instances of replication. As Aunger (2002) notes, memes must be shown to be replicators to make evolutionary sense. The assumption of memes' existence based only on a theoretical extension of genetics is a flaw in the credibility of memetics. If replication, similar in a real sense to that described by the selfish gene concept, cannot be justified in culture then memetics is not supported and its analytical power is reduced to metaphor, only to be used in a similar way one might describe the complexity of biology as design.

However, in recognising the problematic assumptions underpinning applied memetics one can identify areas where empirical work should be focused to help resolve some of the contradictions embedded in fundamental meme theory.

5 Empirical Evidence for Memes

The theoretical and empirical elements of a scientific endeavour should work in tandem through iterations of theory testing, to empirically confirm or reject assertions, and theory generation with the aid of empirical observation (Gell-Mann, 1995). Every problem with a theory should be a candidate for translation into an empirical question because "that makes for fine and interesting science" (McKelvey, 1982, p8). The scientific status of memetics is undermined because it is significantly biased towards theorising.

There is a small corpus of empirical research pertaining to memes but there has been a tendency to follow the applied theory and assume memes existence based on piecemeal support from fundamental meme theory *a priori* to the research design. Subsequently, meme definitions are constructed differently in each study and range from, the largest reliably replicating unit of text (Best, 1997), to beliefs and practices (Lord and Price, 2001) and business programmes such as BPR (O'Mahoney, 2007).

Adopting a 'suitable' meme definition on which to design a study tends to result in data collection and coding which conforms to your definition of a meme so the findings do not represent a critical and rigorous test of the theory. Lord and Price (2001), for example, construct a sample of the beliefs and practices (memes) of various religious denominations from secondary data. The data is then

clustered to observe whether a pattern of descent can be discerned which matches historical accounts of how the denominations split into new groups over time. However, such an analysis cannot show that any links between the groups are due to anything other than people consciously deciding to make adjustments to their worship practices for whatever reasons they deemed to be important. Seen in this way there is no need to assume replication. Indeed, a picture of 'descent' should be expected to occur in the findings because, after all, the phenomenon has been sufficiently recognised for an historical account to be written which can be used to make comparisons against. Much of the validity for the study (Lord and Price, 2001) seems to be grounded in the assumption that religions are not rationally based on evidence, thereby covertly invoking the meme as virus concept but the study *is* memetic simply because the beliefs and practices have been called memes at the outset. It could be argued that similar reasoning led to the attributing of divine creation to biology because the evidence for the desired outcome is embedded in the underpinning philosophy of the study and inherent in its operationalisation of the meme concept. There are similar circular arguments based on the presumed existence of memes when Best (1997) conducts a cluster analysis based on internet postings and O'Mahoney (2007) attributes replication on the basis that a practice deleterious to firms might be spread simply because it suits individuals rather than the organisation.

Despite realising that there is no meme based empirical research of consequence which antecedes their study, rather than addressing the weaknesses of invoking a presumed cultural replicator, Shepherd and Mckelvey (2009) propose yet another *a priori* definition of memes which neglects the central issue of replication. They suggest that memes are:

> … independent knowledge-based units of meaning that can be (socially) exchanged - transmitted- with more or less accurate transfer with or without alteration of meaning. (Shepherd and McKelvey, 2009, p138)

With a definition of memes unsupported by evidence Shepherd and McKelvey (2009) follow the preceding empirical studies by reverting to genetic analogy to justify and construct a methodology designed to operationalise the assumed memes, thereby risking the unrecognised invocation of genetically evolved traits which are not substantiated in culture. It is suggested, for example, that memes recombine in a manner akin to crossing over via mating in biology which assumes cellular replicating machinery and sexual reproduction. Subsequently, portions of Shepherd and McKelvey's (2009) transcribed data are coded as memes on the basis that words are equivalent to codons[7] but the implications that words are deployed without human agency and in some way achieve a task

akin to synthesising an amino acid are not developed. Nor is there any justification for adopting an approach to analysing text via genetic analogy over and above the methods proposed by linguistics or semiotics. The only reason to suppose that the study is memetic is that pieces of text have been called memes and where the genetic analogy raises the question of agency, Shepherd and McKelvey (2009) offer inconsistent arguments. First it is suggested that only variation is blind, then the whole variation, selection and retention process is referred to as blind and then later it is suggested that variation can be consciously managed by people.

Indeed, throughout the empirical research reviewed here there seems to be an assumption of human agency and even managerialism which means the agency question raised by fundamental memetic theorising is sidestepped and the invocation of theory from both sides of the agency debate by O'Mahoney (2007) and Shepherd and McKelvey (2009) attests to this point. Subsequently, the meme as virus concept is assumed although not necessarily recognised and the key issue raised by the applied literature, i.e. is there evidence for replication which can be justified without recourse to genetic/biological analogy, is not addressed.

The issues highlighted by reviewing the empirical memetic work suggest that, in order to redress the balance between theoretical and empirical memetics, extra-memetic studies which do not revert to genetic analogies should be designed. Only by adopting such an approach can the key debates surrounding the discipline be addressed thereby leading it to a more secure ontological basis for its truth claims.

6 A Congruence of Conceptual Elements

To improve the status of memetics as a credible scientific endeavour the imbalance between theory development and empirical investigation should be redressed in a manner which tests the fundamental question of whether or not there is a phenomenon in culture which can justifiably be termed replication. Such a phenomenon should be tested against the fundamental principles of the replication of genes because that is what memes purport to be (Dawkins, 1976) but it should be describable independently of genetic analogy because direct equivalents to genetic replicating machinery cannot be assumed. Such a research project questions the nature of human agency so it is likely that a reflexive approach to the work will need to be incorporated so that the researchers' own part in the construction of knowledge can be recorded and reflected upon (Johnson and Duberley, 2000). Also, an extra-memetic method is required to avoid the *a priori* embedding of

outcomes in the design of empirical research, thereby enabling the underlying assumptions evident in the literature to be challenged.

Although there is no obvious methodology for memetics readily available in the literature an approach can be creatively abducted by way of what is inferred (Blackburn, 2008). Conceiving of the evolutionary algorithm as a Complex Adaptive System (CAS) provides a mechanism for describing the fundamental processes which would lead to evolution in either the biotic or abiotic domains without one having to presuppose the other (Gell-Mann, 1995). Despite it being a biological CAS system that spawns cultural CASs each 'level' will evolve, what Gell-Mann (1995) calls, a schema. Schemata recognise the regularity in an environment and represent a set of instructions for acting in it. So, where genomes represent biological schemata, cultural schemata would be encoded differently. However, the two can be united at a fundamental level because Gell-Mann (1995) suggests that a written account of the regularity recognised by a schema can be used as a measure of the complexity in that system no matter in what domain the CAS happens to be operating.

Dawkins (1999) offers a genetic replicator perspective of this principle by suggesting that, even without knowledge of the genes involved, the effects of genetic replicators can be studied via the evolved survival strategies that they encode and that the methodology for studying such strategies is to write an account of them.

> ... although no program was ever written down, just as in the case of a computer running a program which has been lost, it is convenient for us to think of the animal as ‘obeying’ a program ‘written’ in some easily understood language such as English. (Dawkins, 1999, p119)

Similarly Axelrod (1990), who models such genetic strategies via iterated games of prisoners' dilemma, suggests the longer a strategy is, when written down, the more complex that strategy is, thereby adopting Gell-Mann's measure of complexity.

In the social sciences written accounts of events and actions constitute narratives (Czarniawska, 2004) so a written account of an organism’s actions related to events can be regarded as a narrative of the organism’s survival strategy encoded in its genotype. Therefore, in sociological terms Dawkins (1999) is suggesting that one can search for genetic replicators by investigating the narrative account of the strategy they encode. This approach is dependent on the adoption of Dawkins' 'optimon' definition of a gene, of course[8].

Having recognised a link to narrative at a fundamental level it is striking that narrative, stories and storytelling are a recurring theme in the memetics literature. Dennett (1991) not only describes memes as components of human consciousness which constitute an internal centre of narrative gravity but goes on to suggest that, at an interpersonal level, narrative is deployed in the social world by people as a way of navigating the social landscape. To do this people anticipate future events by exploiting a stock of narrative schemata which generate narrative imperatives because stories try to be re-enacted (Dennett, 1996). Similarly, Blackmore (1999) develops the centre of narrative gravity concept to suggest the human experience of a 'self' is no more than a 'selfplex' of memes. Urban legends are proposed as an example of the type of memes which are attractive to the selfplex and storytelling is proposed as a mode of memetic spread (Blackmore 1999).

If narratives are fundamental cultural schemata then narrative accounts can not only be regarded as the cultural counterpart to genotypes because they are the mechanism by which CASs embody cultural information but they can also play the same role in culture that Dawkins hints at in biology, i.e. they can be used as the basis for operationalising the search for optimon type replicators. Indeed, Pratchett et al (2002) suggest memes played a role in storytelling becoming a fundamental element of human existence. In using the format of a novel to illustrate their ideas they characterise humans as pan narrans, the storytelling chimpanzee.

The concept of narrative recurs in the applied literature. Price and Shaw (1998) recognise the role of storytelling in organisations which is played out through organisational myths reflecting the past and creating future realities. Similarly, Vos and Kelleher (2001) liken managers' ideas and visions for the future to stories. O'Mahoney (2007) goes further in recognising that organisational memes would be mediated by dominant organisational discourses but the conceptualisation of narrative, as a technical tool with which to engage discourse, is not developed by the organisational scholars who have contributed to the meme debate. However, the congruence of narrative factors which are summarised in figure 1, suggest that narrative analysis offers an extra-memetic approach suitable for the search for replication in culture.

(Figure 1 here)

7 Memes and Narrative Analysis

A review of the literature pertaining to narrative methodology reveals a potential nexus with the ideas which underpin memetics because narrative can be seen as a fundamental component of human experience, where life *is* an enacted narrative as well as narrative being simply an approach to social research (Czarniawska, 1998; 2004). Telling stories is a defining characteristic of human intelligence and of the human species (Landau 1984), therefore, the origins of narrative can be sought via both a phylogenetic approach, related to the diversity of human cultural heritage, and an ontogenetic approach, related to psychology and biology (Cobley, 2001).

Czarniawska (2004) suggests that humans have a 'protolinguistic' readiness for narrative organisation and mirrors Pratchett et al's (2002) notion of Pan Narrans by citing Walter R. Fisher's characterisation of people as Homo Narrans[9]. Such a grounding of narrative in biology implies that, where biology is the product of a CAS, narrative might be considered as a candidate for higher level CAS which has been spawned by genetic capacity. The link to narrative as the product of a CAS is strengthened because the expectations about how a story should proceed are its 'plot' and the plot can be considered as a story schema (Czarniawska, 2004).

The plots which constitute people's understanding of the social world are deployed as they use their past knowledge held in memory to direct their actions in the present based on an expectation of the future, i.e. the plot is an intelligible whole in someone's mind which governs the succession of events in a story (Cobley, 2001). Subsequently, narrative data record actors' interactions with a series of events (Czarnaiwska, 2004) and a series of such events can be seen to move a narrative from its beginning to its end via a 'fabula' which forms the structure of the narrative. Analysis of the fabula enables classification of narrative as one might classify organisms (Propp, 1968). However, people do not naturally see such a series of events because the narrative condition is ubiquitous, rather they comprehend just beginnings, middles and ends (Cobley, 2001).

> There can be little doubt that human consciousness is now suffused with narrative. (Cobley, 2001, p209)

Indeed, Czarniawska (1998) identifies narratives as both the main carriers of knowledge in modern societies and the main mode of communication meaning the greater part of organisational learning happens through the circulation of stories. Such a perspective is sympathetic with Price and Shaw's (1998) view that memetic patterns, if they exist, will be suffused with organisational stories.

Unlike much of the applied memetics theory, narrative method recognises the potential limits of human action. Although people's intentions are countenanced as the impetus behind events and action in a narrative account, inanimate objects (Propp, 1968) and impersonal causes (Czarniawska, 1998) may also impact on the series of events and actions which constitute the narrative account. Bal (1997) goes further by suggesting that the process of the fabula can be thought of as the execution of a program which echoes Dawkins' (1999) suggestion that the survival strategies of animals can be considered as genetic programming. Alternative narrative programmes may then compete as programmes and anti-programmes which are deployed by people based on alternative assumptions and expectations. In such situations the actors can be seen to co-evolve in a manner which is no more teleological than Darwinian evolution (Latour, 1991). In fact, Levi Strauss (1972), in suggesting there is a canonical formula for the structure of myth, points to game theory as an outstanding achievement which is underutilised by social scientists.

8 Conclusions

For those with a managerialist outlook memetics provides an attractive explanation for why the best laid plans of managers may not provide the outcomes expected of them. Having virus-like entities infecting people's minds provides an excellent alternative explanation for failures which in the planning and control paradigm of managerialism would perhaps be levelled at poor management ability. However, the case for evolution in organisations is weak in comparison to the validity demonstrated for it in biology via the modern synthesis so it is tempting to resort to the biotic domain to support the cultural replicator thesis. Reserving the human agency which might be infected by a mind virus undermines the concept of a cultural replicator if it is applied with naïve disregard for the fundamental premise of such an entity.

Biology and genetics still encompass debates concerning the nature of evolution but together they form a reciprocal dualism which unifies the micro and macro level observations of, what can be claimed to be, a real duality that exists in nature. Although there are accounts of culture which can be credibly articulated through the Darwinian evolutionary algorithm, their validity should remain limited to that of metaphor, and should be recognised as such, unless the engines of cultural evolution can be explained and synthesised with the cultural examples characterised as variation, selection or retention. It could be argued that the current state of affairs is somewhat similar to that which persisted in biology until the demonstration Mendelian particulate heredity, evidence of

which had eluded Darwin and others for some time even following Gregor Mendel's discoveries (Guttman, 2005).

Until there is empirical evidence for a similar micro/macro relationship in culture theorising about the appropriate levels at which to study cultural evolution in organisations, what the units of selection might be and whether there is a distinction between replicators and phenotypes will remain grounded in assumptions and biological analogies. Indeed, even if there is memetic replication in culture the replicator/phenotype distinction may not exist (Stoelhorst, 2008). However, if after all only metaphorical accounts of evolution in culture can be justified, these questions cease to be important. Only the validity of the metaphor counts in such cases.

With no evidence for a cultural entity which selfishly replicates in a manner similar to DNA, and in an ontologically real sense, realist memetics remains no more than a pseudo scientific explanation for situations where it is difficult to attribute causality to human action. In such a case memetics would rank along side Intelligent Design as an unsubstantiated combination of philosophical dogma and scientific façade.

To empirically investigate the meme concept an extra-memetic methodology is required to avoid operationalising memes as part of its design. Narrative research, which can be used to investigate the fundamental schemata of both biological and cultural systems, proposes a systematic approach to engaging reflexively with the socially constructed realities we experience in organisations and accepts a degree of limitation to human action so may reveal instances which can be considered to be replication.

All science ultimately rests on some degree of epistemological circularity (Johnson and Duberley, 2000) but a narrative approach will avoid embedding biological and genetic assumptions into the methodology. Where the applications of memetics to organisations and the empirical studies reviewed above naively assume the existence of memes, a narrative approach is more likely to help the (memetic) researcher recognise the inherent epistemological circularity which underlies their (and all) claims to truth because narrative accounts are always a fragmented 're-presentation' of reality (Czarniawska, 2004). Consequently, narrative methodology encourages the reflexive approach to the writing of research findings which is called for in instances which impinge on questions of agency.

By avoiding the assumption of memes narrative analysis provides an extra-memetic methodology because there are two potential outcomes. Firstly, the study of narratives will reveal instances of replication in culture as people deploy narrative programmes or secondly, the concept of an evolutionary process at work in culture and organisations will be revealed as the result of theorists' narration of organisational events based on no more than a plot learnt in the biotic domain of biology and genetics which is then naively deployed as metaphor in the abiotic domain.

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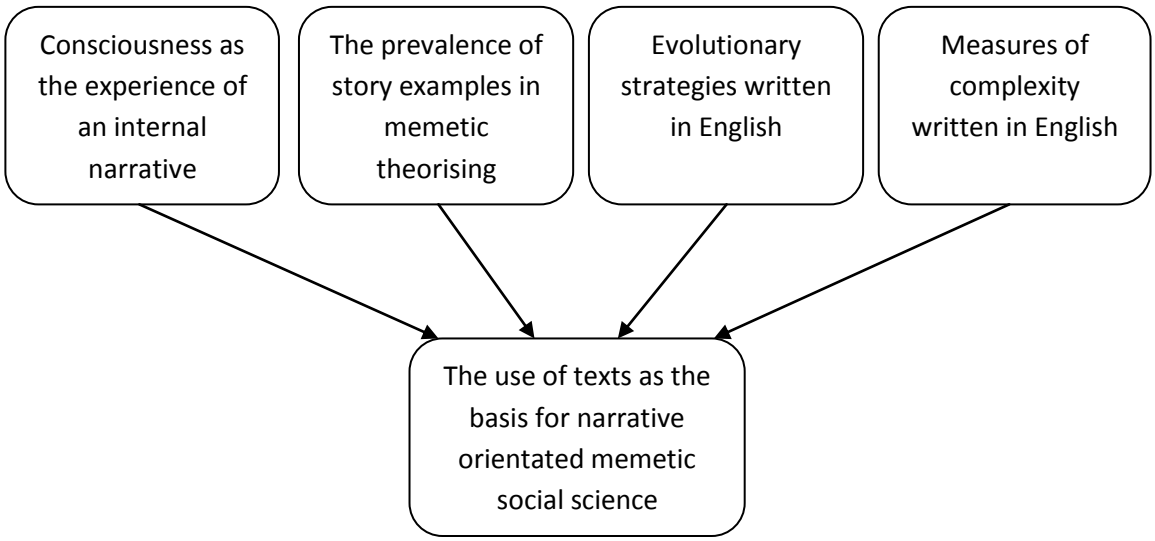

Figure 1 The Congruence of ideas which suggest a narrative approach to memetics

Endnotes

[1] Organisational fields are institutionally defined groups of organisations which constitute a recognised area of institutionalised life (DiMaggio and Powell, 1983).

[2] A replicator is an entity which tends to make copies of itself when the resources for it to do so are available (Dawkins, 1976; 1989).

[3] Other unresolved debates in fundamental meme theory include, what constitutes a unit of culture and what might be the nature of any replicator/phenotype relationship in culture.

[4] Blackmore struggles to maintain such an 'extreme' view of human agency in her own writing.

[5] Transposons are genetic elements that can move from place to place in a genome (Guttman et al, 2002).

[6] Axelrod (1990) does extend the same theoretical modelling to social instances where agency is assumed but if humans can react to dilemmas through free choice then the suggestion that a strategy must be employed is weakened.

[7] Codons are a triple unit (of nucleotides) which specify the synthesis of an amino acid (Dawkins, 1999 Guttman et al., 2002).

[8] An optimon is the genetic material which can be seen to evoke an alternate phenotypic effect, compared with its alleles, when all else is equal (Dawkins 1999), i.e. it is the tautological embodiment of a unit of natural selection.

[9] Pratchett et al (2002) choose Pan rather than Homo to make an ironic statement about humans self proclamation of wisdom.