

PERSONIFICATION OF THE COMPUTER: A PATHOLOGICAL METAPHOR IN IS

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ABSTRACT

Semantic and syntactic aspects of metaphor are explored and explained as a preface to an exposition of the impact on Information Systems (IS) personnel of a popular root metaphor: the personification of the computer. It is suggested that since action metaphors determine attitudes and future directions, this personification may be responsible for confusing both end-user and researcher: that if the potential of computers is to be more fully realised and utilised, our perceptions of the language in which we describe them should be illuminated. There is a danger, it is argued, that if human attributes are ascribed to the computer, personnel in IS begin to act out the metaphor pathologically.

INTRODUCTION

Metaphors in Information Systems are ubiquitous. They have been sourced to provide directions for systems development methodologies; mined to create a vocabulary; and even harnessed into service as the title of a journal. Popular usage is provoking semantic shift, so that what a metaphor 'is' may yet become whatever it is thought to be. Yet vague understandings of this most sophisticated of analogues, seem to be blurring the very communication its users seek to illuminate. At the same time ignorance of the emotive power generated by its forged connections may lead to undesirable outcomes. In particular, the personification of computers would seem to be influencing the relationship of users to PCs; and the attitudes of professionals to potentialities for applications and research.

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This paper will attempt to explain *what* a metaphor is, *how* it affects those who employ it, and to *illustrate* this with an analysis of metaphors popular in IS. Walsham (1993), in a chapter on metaphor in organisational life, has related the perceptions of Morgan (1986) to the IS field, and has sign-posted the general route taken by those with a similar approach. Here we will examine metaphors 'used in' IS, rather than those used 'in thinking about' IS (Walsham, p. 28). Our approach is similar to that of Kendall and Kendall (1993) who have begun researching the metaphors used by IS personnel in systems development methodologies. We believe we break new ground, however, in that we have explored the potential dangers presented by an action metaphor which may lead to a pathological persuasion of IS personnel.

When our focus arrives at a particular discussion of the *action metaphors* which influence the relationship between computers and computer personnel, the position taken will rest firmly on the widely cited work of Lakoff and Johnson (1980) who established the role of metaphor in defining reality and thus determining action (p. 158). A final brief suggestion that metaphor, treated as an analytical tool, may supply an impetus for the implementation of change, is again supported by Morgan's seminal work (pp. 382-3).

As yet there has been little comment in IS literature on the inherent threat to objectivity posed by metaphor, although Pindar and Bourgeois (1982) have debated this with Morgan from an Administrative Science perspective. Thus in aiming to substantiate the claim that action metaphors can lead the individual into a pathological state, the theory of metaphor explored here will be related back to the pioneering work of Richards (1936). It is on the theory which has evolved from his notions of *disparity* and *transference* that our conclusion rests: that the language we use to describe and explain computers, and what they do, can influence the efficiency and effectiveness of our use of them.

In an organisational context, much attention has been paid to the machine metaphor (Walsham, p. 29-30). Morgan (1986) for example, reminds us that classical management theory expects people to perform like 'inanimate cogs and wheels' (p. 29) and demonstrates that Taylor's ideas, built

into the technology itself, make 'the workers servants or adjuncts to machines that are in control of the organisation and pace of work' (p. 31). But Solomon (1992) points out that in the contemporary world an extension of this root metaphor has taken place as people have begun to speak of *themselves* as machines 'Every human relation becomes an "interface," and we begin to describe the workings of our own minds in the computer language of memory banks, downtime, glitches, data searches and so on.' (p. 29). Our analysis will suggest that a more significant metaphor is the inversion of this image: that computers have been personified, and as a consequence our expectations of *their* performance is modified by this linkage: that furthermore, it is because we are largely unaware of the emotional persuasion of this metaphor that we are so easily influenced by it.

It is the submerged reality lurking in this action metaphor which we believe should be ballasted to the surface of IS language, for words can be treacherous. "When I use a word," said Humpty in a much quoted pronouncement, "it means just what I chose it to mean". (Carroll, p. 269)

Most of us would like to think that we share his confidence, though Humpty of course didn't assume that *his* understanding of a word would be shared by anyone else! Even when we consciously speak ambiguously, we assume that our multi-dimensional meanings will be clear, so it seems timely, given the direction which the use and analysis of metaphor has taken us in recent years, to look more closely at *interpreted* rather than *intended* communication.

WHAT IS METAPHOR?

Although traditionally metaphor is taken to be the most fundamental form of figurative language, since it has no pristine form, its role is much debated. Initially imported into the literature of IS (perhaps via other disciplines), and from thence into popular IS usage, from the critical idiom of English Literature, the word *metaphor* comes from the Greek *μετα* meaning 'over' and *φέρειν* 'to carry'. It refers to a particular set of linguistic processes whereby aspects of one object are 'carried over' or transferred to another object so that the second object is spoken of as if it were the first. (Hawke, 1972, p. 1.)

Followers of the Aristotelian interpretation regard metaphor as a *departure* from ordinary modes of language, as a fanciful 'embroidery' of the facts, while those who believe themselves to be followers of Plato, see metaphor as a way of *experiencing* the facts (Hawkes, p. 38). This latter holistic, or Gestalt, view is the one which has most

influenced evolving theories of metaphor in linguistics, psychology, and more lately, IS.

In order to clearly substantiate the processes by which metaphors achieve their effect upon IS personnel, the terms coined by I.A. Richards (1936) for the two main components of metaphor - vehicle and tenor - will be utilised. When comparing the 'different relations which, in different cases, the two members of a metaphor hold to one another' (p. 96), Richards denoted the underlying idea, or 'principle subject' as the tenor, and that part of the metaphor which describes or qualifies the tenor, as the vehicle.

INTERACTION THEORY

Richards, whose theories were later developed in the more widely read work of Max Black (1962, pp. 38-9) argued that meaning in metaphor is the result of a two-way *interaction* between tenor and vehicle: that it is in *transference*, in the effect that the linking of tenor and vehicle has, each on the other that meaning is created. Indurkha (1988), in a formal theory of metaphor which he describes as Constrained Semantic Transfer, elaborates on this process (pp. 129-135). He suggests that although Black finally concluded that the two distinct 'subjects' of metaphor should be regarded as primary (tenor) and secondary (vehicle), interaction is equally vital from either direction; and it would therefore be more appropriate to discuss the primary subject or tenor as the target domain, and the secondary subject or vehicle as the source domain. His claim is that both must together be regarded as a system, rather than as individual things, and that each domain has an 'associated implicative complex' (p. 131), a set of inferences that can be drawn about that domain, and from which a metaphor 'selects, emphasises, suppresses, and organises' features in order to effect a particular interaction between domains.

TRANSFERENCE AND DISPARITY

Interaction may finally result in a total *transference* of meaning, even if the original metaphor was built upon a connection between very distinctively different domains. Richards, when he returns to this thesis in a later lecture, highlights an attribute of metaphor which is of crucial significance in any discussion of the use of metaphor in scientific discourse. He reminds us of the very broad division that can 'be made between metaphors which work through some direct resemblance between two things, the tenor and the vehicle, and those which work through some common attitude which we may (often through accidental and extraneous reasons) take up towards them both.' (p.

118). Thus when a mechanical object, small, rounded, and sporting a long tail slips across the desk top, its resemblance to a mouse is a spontaneous mental association; but when readers are expected to accept that lovers are like a compass, as in Donne's famous metaphysical conceit, or indeed that the organised anarchy of a university organisation is like a garbage can (Cohen et al, 1976) they might, with Dr Johnson, object that 'the most heterogeneous ideas' have been 'yoked by violence together' and that such a reader, though s/he 'sometimes admires, is seldom pleased.' (1906, p. 14)

It is from his theory of interaction that Richards moves on to discuss the role of *disparity* in the connections which a metaphor forges in the mind. As well as the more central experience of the holistic, the organic entity which is the completed metaphor, Richards explains that it is the *disparity* (between vehicle and tenor) which presents potential dangers. When vital metaphors evolve into dead metaphors, they yet continue to direct the subconscious into channelled modes of thinking and experiencing. Although, for example, our rational faculties may confidently reject the notion that a computer has human attributes, metaphor's power is such that an emotional response to a computer described in this way, may still live on. It is the context of this understanding that the root metaphor of the personified computer gives cause for concern.

In such a radical perception, one which insists that metaphor entails acceptance of a seemingly impossible *meaning*, (rather than being just a way of describing or explaining something) metaphor becomes an 'autonomous trick, or trope, of language which insists that all things are possible'. Such a reading Parker (1982) concludes, makes it 'more repugnant to reason than more distanced and mediated tropes' (p. 139).

Morgan suggests that we think of corporate culture as '- an iceberg, - an onion, - an umbrella, - sticky glue' (1989, p. 157) and then advises that in the more novel, or even shocking juxtapositions, 'when two things belonging to very different orders of experience are put together in a sudden and striking fashion' the mental energy expended in an effort to make connections, leaves an indelible impression. And significantly 'the mind is a connecting organ ... it can connect any two things in an indefinitely large number of different ways'. (p. 125).

LIFE CYCLE OF A METAPHOR

Ironically though, as Wheelwright remarks, the more powerful, and therefore effective, the original metaphor, the more likely it is to survive, be taken up into popular usage, become cliched, and finally, one dimensional as cognisance

of the tenor fades. As metaphors become 'fossilised', they 'enter into our everyday speech as steno-symbols which have lost their one-time colour and allusiveness and power to stir.' (1962, p. 118)

Examples of such 'fossilised' metaphors abound in the language of IS, where computers are persistently personified with the computer as the tenor and a human as the vehicle. In popular parlance computers are said to be of a certain *generation*, to be *user-friendly*, and to *communicate* with each other. They are said to *talk* to each other if not *incompatible*, though this may be said to require a well-defined *protocol*. While their procedural *languages* are becoming more *sophisticated*, like *natural languages*, many have evolved into particular *dialects*. Computers are said to have *memories*, to *read* and *write* data, and to be number-*crunchers*. Simple noise words are an integral part of *language* syntax; and *house-keeping* software is a more comprehensible name for an operating system.

If the hardware is not operating it is waiting for someone to *boot* it into action, or if it fails, it is said to *die*. If a user *corrupts* it, it can be *purged*, but should *primary memory* be lost it must be *flushed*. In keeping with the many ironies of language, a computer lacking all software is said to be a *naked machine*. It is vulnerable to *worms* and *viruses*, which *infect* the *memory*. *Aborting* is a practice of last resort, and nowadays of course, a *disk doctor* may be available.

Infotech Weekly, a New Zealand newspaper, reports comments made by politicians on an aging computer system bought for Parliament in 1985: 'A revamp of the system is drastically overdue because it is not *user friendly*.' Maurice Williamson, Cabinet Minister; and 'It has a *mind of its own* and not many members bother with it,' says Geoff Braybrooke, Backbencher. (October 11, 1993 p. 2).

Interestingly, this *artificially intelligent* 'person', with *expert* systems is controlled by a *mouse*. As already noted, this is a small, artfully rounded object, with a 'tail'. It grows warm within the hand of the user - who must 'intimately' hold it!

While they may no longer evoke a response at a conscious level, dead metaphors such as these, betray attitudes and values, and may also expose the archetypal experience from which they were formed. This process is described by Indurkha when discussing the role that metaphors play in semantic shift: a new and vital metaphor may, through repeated use, evolve into a new literal meaning, or polysemy (p. 135), as in Figure 1.

If we pause long enough to think about, and research, the metaphoric origins of words, the evolutionary process just outlined may reveal more than the obvious links between disparate domains; and in computer/user relationships (or interfaces!) may reveal just how intimate the link is. Our

mouse, for example, is in the experience of both visual and tactile senses, a metaphoric little animal. But the English word 'muscle' is derived from the diminutive of the Latin 'mus', a mouse.

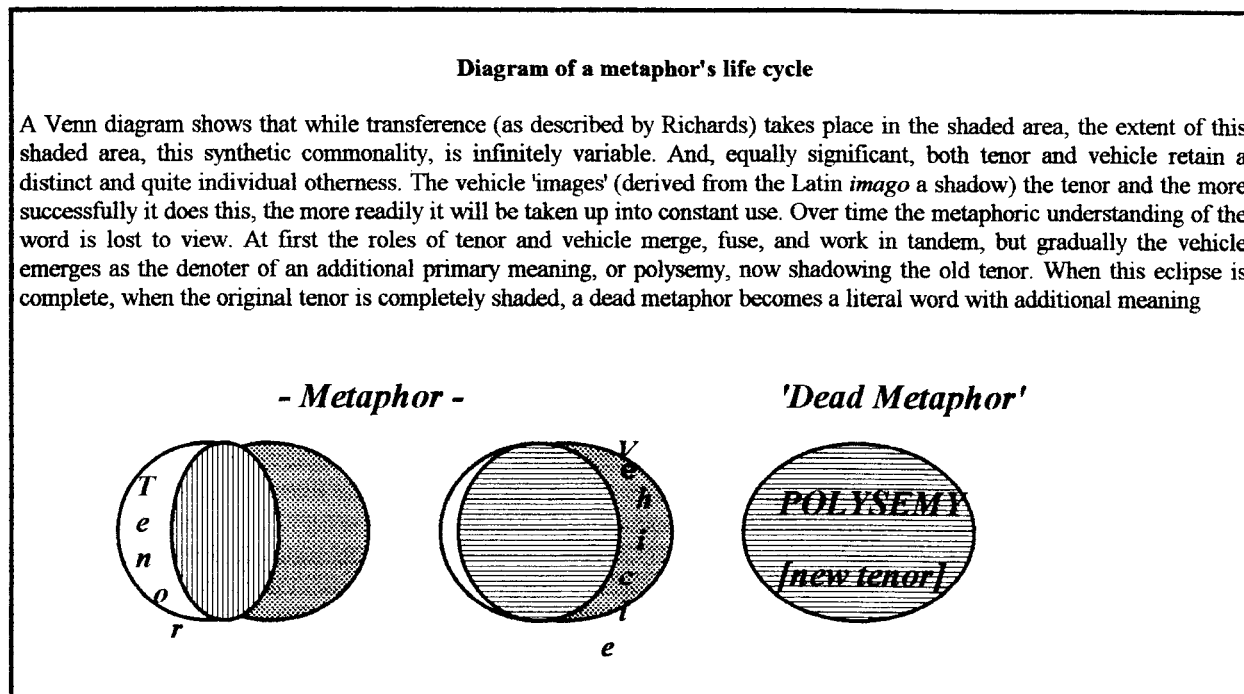


Figure 1

Perhaps the Roman perception of that analogous relationship, is now being relived by the operator who experiences control of the personified computer through an extension of the arm muscle!

This is a linguistic process which may have a powerful role in dictating evolving attitudes, values and intellectual positioning in applied fields such as IS, and it is into this dichotomous picture of the relationship between life and language that the IS theorist, practitioner and end-user have wandered, or perhaps stumbled. One of the powers of metaphor is the emotive strength of the connection which it forges - justified or not, and herein rages the debate which so often surrounds it!. Even when there is initially an instinctive recoil from a seemingly unnatural or unjustified comparison, if the emotional shock of the initial connection combines with intellectual logic to force an acceptance of the comparison, an indelible imprint is often left in the mind.

ACTION METAPHORS

Proponents of Gestalt theories of metaphor: the view that meaning is created through the *interaction* of tenor and

vehicle, have seen a further extension of their ideas developed in the work of Lakoff and Johnson. In their descriptions of *action* metaphors we see revealed yet another step in the evolution of the life/language relationship. They argue that as it is in language, so it is in life. Initially, in order to interpret *aspects* of what we do, we make connections between one activity and another: we *describe* one activity in terms of another. Thus business is described as warfare, or as a game; a game is described in the terms of warfare; a VDU is described as if it were a desktop; and a personal computer is described as if it had human attributes and skills such as intellect (thinking, reading, writing) and a body (prone to disease!).

Over time the original activity, which equates with the tenor and which we will term the *action target*, is subsumed into the 'vehicle', the *action source*. Ultimately we are left only with the image of the action source, and understanding is compromised. As has already been demonstrated, the original metaphor gained its impact from novelty: even as the justice of forging some attributes was conceded, intellectual tension resulted from a recognition of the disparity of other attributes. As the image of the action source blots out the action target the perception of disparity fades away.

IMPLICATIONS FOR PERSONNEL IN IS

So wherein lies the danger? As has been demonstrated, metaphors in popular use in IS often personify the computer. Computer users everywhere may have been persuaded, through the language of applications, architects and end-users to think of computers as having the powers, potentialities, and personalities of humankind. The metaphors which convey this perception also suggest that it is possible for humankind to 'relate' to a computer. Should such a relationship (given the degree of quality time, the dependence, and the attachment that some computer personnel commit to a PC) be seen as pathological? This too could be seen to be one kind of outcome of action metaphor.

Although the impact of action metaphors on everyday activity and thought patterns is widely associated with the work of Lakoff and Johnson, their work is pre-dated by more than four decades by Richards (1936) who speaks more particularly of the impact that response to metaphor can have on behaviour. While Aristotle reserved his deepest respect for those who have a 'command of metaphor', Richards explains (p. 135) that where this command is inverted, where metaphor commands the person, rather than the person commanding the metaphor, the mind so commanded is, as psychologists now also point out, in a pathological state.

Morgan's conclusions (1986, pp. 33-38) indicate that if individuals from an organisation moulded by Taylorism (and communicating its activities through machine metaphors), move into a flatter, versatile entity (one more inclined to describe itself in organic images), but are unable to discard the old vehicle for the new (the mental vocabulary of the machine for the language of the 'biological age'), then they would inevitably act inappropriately. Such a person would be allowing the metaphor to control the mind rather than conversely, 'mastering the metaphor'. While to suggest that such a person could therefore be said to be in a pathological state would be an extravagant claim, such a scenario does link 'normal' behaviour with its pathological equivalent. As is often the case in the examination of psychological states, the pathological extreme, causing dysfunction, provides an exaggerated example of the normal pattern.

In an IS context we have only to substitute 'relationship' for the organisational 'situation' above (the person with a PC, for the person in an organisation) to see revealed the 'pathological' state that personification of the computer may initiate.

Richards concluded that the person *should* [our italics] control the metaphor. Lakoff and Johnson did not become

prescriptive. They simply maintained that their evidence demonstrates that 'metaphor pervades our normal conceptual system' (p. 115), that not only do metaphors 'make coherent certain aspects of our experience' (p. 156), they also 'create realities for us, especially social realities. A metaphor may thus be a guide for future action. Such action will, of course, fit the metaphor. This will, in turn, reinforce the power of the metaphor to make experience coherent.' (p. 156) But they do also admit that in this sense metaphors can be self-fulfilling prophecies.

Empson (1930) demonstrates what it could well be salutary for IS theorists to note: that metaphors should be respected as much for their seductive danger as for their excitement and challenge:

Statements are made as if they were connected, and the reader is forced to consider their relation for himself. The reason why these statements should have been selected is left for him to invent; he will invent a variety of reasons and order them in his own mind. (p. 32)

Herein lies the possibility of the distortion that IS language may breed. Computers are tools, albeit very sophisticated tools, which can neither think nor feel. Their every function is dependent upon the human technician, programmer and user. The metaphors by which they are described and explained tend to hide this reality, and, given the power of the action metaphor, may well persuade people to ascribe to them human attributes which they do not have. Such a distortion of reality, may hamper efficient use and inspire misdirected research

It is a distortion which Karlqvist and Svedin (1993) describe as the ultimate hubris:

The attempt to transform Man's own technical artificial creations into something similar to life is considered the ultimate hubris. (p. 1).

They also remind us of the ballet, *Coppelia* in which an old doll maker works unsuccessfully to give life to the doll that he has elaborately created:

The lesson is that the aspiration of transcending the borderline from man-made artefacts to living things is not only pathological but also futile Life is seen as a qualitatively different type of phenomenon from artefacts [such as] self-instructing programming machines' (p. 2)

CONCLUSION

Words do not (in defiance of Humpty Dumpty!) always mean what we intend them to mean: *interpreted* meaning may differ radically from *intended* meaning, for meaning is

inextricably bound to social environment and linguistic context. When words are metaphorical, transference as seen in action metaphors, may result in what you *imagine* yourself to be doing, becoming what you *actually* do. Thus if we would have end-users, professional and researchers focus on technology as technology rather than as a pseudo-person, then we must consider adapting the language in which we describe our relationships to that technology.

FURTHER RESEARCH

Our current research is progressing in two distinct directions: the first is focusing on possible confusions of meaning resulting from indiscriminate use of the terms model, metaphor and analogy; and the second is an analysis of the influence of popular metaphors in the determination of action outcome.

A literary search to establish distinct understandings of the terminology of analogies is complete, and the findings are being applied to the literature of IS in order to discover possible confusions in current usage. As one example, we will suggest that the so-called desktop metaphor is in fact not a metaphor, but a model.

A number of the metaphors which contribute to the personification of the computer are being researched, and the possibility that these images may convey a gender bias is being explored.

A further group of action metaphors being analysed are those of 'warfare' and of 'games', and the intention is to establish the influence that such discourse has upon IS personnel working in organisations where such metaphors feature in popular communication.

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