Metaphors and things of the Internet

Abstract

Much has been written about the use of metaphors, particularly spatial metaphors, in relation to digital technology and the Internet. Arguments range from their necessity, usefulness and convenience to their limitations, deceptions and dangers. A common argument is that general metaphors like 'cyberspace' and the 'cloud' as well as specific interface metaphors like 'windows' and 'pages' are used to obscure the actual physical infrastructure and complex technology involved. This essay will: (a) look at different ways of thinking about the language of metaphors (b) critically review arguments about how metaphors are used to describe the Internet (c) review the physical, geographical, social and political embeddedness of the digital and finally (d) question whether the impact of metaphors is to obfuscate the machinery of the Internet.

1. Introduction – what are metaphors?

Is there a difference between literal and metaphorical meaning? Those who criticise the use of metaphors in social science, for example, sometimes make the mistake of trying to draw a clear line between the two:

> ….unless we identify metaphors we will run the risk of confusing the metaphorical with the literal (Erickson, 2012: 912)

Erickson suggests that it is necessary to distinguish the literal from the metaphorical. He argues, for example, that 'actor-network' theorists have forgotten that they are using a metaphor and confuse 'network' with the 'social phenomenon' or 'social totality' they are investigating (913). In this way, the metaphor allows academics to think they are precise when they are vague. Although Erickson reluctantly admits it is hard to escape the use of metaphors, the implication is that they are inadequate or insufficient to grasp the 'object' or 'experiénces' out there: 'by seeing the world as being *just* network, what are you not seeing?' (918 - my italic). It may well be the case that a metaphor like 'network' has become stale and used too handily without critical reflection, and it is important to analyse what a metaphor highlights, hides, misses or obscures. As Derrida (2001: 17) remarks, 'metaphor is never innocent' and may well steer or even 'fix' the results of an enquiry or research. But we should

also recognise that our relation to the world is never direct but always circumstantial, delayed, partial and indeed metaphorical (Adams, 1991: 155).

Metaphors are not something distinct from some untainted mode of objective, rational or literal meaning. As Davidson (1978: 32) argues, metaphors are not a form of communication 'alongside' what might be called 'ordinary' communication. Blumenberg (1997: 82) goes as far as to argue that metaphors are a form of rationality, 'an authentic way of grasping connections' and a fundamental part of 'the trial of theoretical curiosity'. They are much more than aesthetics or rhetoric, more than just a stand-by or an approximation. Commonly, they are said to make the unfamiliar familiar, finding a home, a place, for something new, but for Blumenberg (83) they initially introduce a heterogeneous element; they disturb, providing 'imaginative orientations'. What is interesting for Blumenberg is the point of departure, the initial stimulus for a metaphor, particularly those that give a total, tangible form to experience.

The cognitive linguistics, Lakoff and Johnson (1980) are the most cited source for understanding our use of metaphors. Like Blumenberg, they point out that metaphors are not restricted to a purely aesthetic or literary device; they play a major cognitive role that is pervasive in everyday life in language, thought and action. Our everyday conceptual system, in terms of which we think and act, is fundamentally metaphorical (Lakoff and Johnson, 1980: 3). They also contend that meaning does not objectively exist, but unlike Blumenberg, they argue that metaphor is predominantly related to our bodily experience and therefore to our perception. More widely, they claim that all our knowledge and thinking derive from temporal and spatial 'stories' systematically framed by metaphors drawn from our 'embodied' experience'.

2. Metaphors describing digital domains

Most discussions of the use of metaphors in relation to digital domains tend to apply broadly Lakoff and Johnson's cognitive linguistic approach, as for example, Jamet (2008, 2010) in her exploration of how metaphors reveal changing perceptions of the Internet. For Jamet (2010: 11), following the cognitive conceptual line, metaphors come to exist for terminological reasons; they emerge through the need to give a name to things that did not previously exist, conceptualising a fairly abstract domain of experience through a relatively concrete domain. Examples relating to the Internet would include 'page', bookmark', 'website', 'superhighway' or 'communities'. In this way,

metaphors provide a 'new vision of reality that could not exist without words'. The metaphorical term is not secondary; it comes first, making up for a linguistic gap and structuring the way we think about the Internet.

Developing Hayle's (2002: 22) notion of 'material metaphor', van den Boomen (2006: 51) stresses a process of 'transference' that occurs between words and physical artefacts rather than simply between one word or concept and another. Metaphors related to the digital involve an exchange between the semantic domain and a material system. She argues that although Lakoff and Johnson's conceptual theory acknowledges that metaphors can have material consequences, they suggest metaphors in themselves remain on the semantic and cognitive level. For van den Boomen, such an approach cannot take into account the material, operational and organisational productivity of metaphors, or the 'tool and object' part as well as the 'sign' part.

Van den Boomen (14) applies a broad Foucauldian method, viewing metaphors as elements of discourse which have meaning and implications beyond human intentions or whatever meaning is assumed. Like Foucault (1972: 27), she considers discourse to have the material impact of 'events' with social-political-cultural impact. Her focus is the entanglement of, or exchange between, the discursive and the non-discursive, the relationships between humans, artefacts and technologies' or what Foucault (1980: 194) describes in terms of a *dispositif* or apparatus - 'a thoroughly heterogeneous ensemble'. Agamben (2009: 14) explains the term in this way:

> Further expanding the already large class of Foucauldian apparatuses, I shall call an apparatus literally anything that has in some way the capacity to capture, orient, determine, intercept, model, control, or secure the gestures, behaviours, opinions, or discourses of living beings.

For van den Boomen, material metaphors have the capacity to affect what we do with, as much as what we think about, the Internet.

Van den Boomen (2016) provides the most thorough and far-reaching investigation and critique of the role of metaphors in relation to the digital domain. She investigates how metaphors 'format' both digital and cultural practice, using 'transcoding', a term borrowed from Manovich (2001: 45-7) as the leading heuristic of her study. Transcoding involves the exchange from one format to another, for example, from a Word to a pdf document, but the main focus is the exchange that works both ways between what Manovich calls the

'computer layer and the cultural layer'. Manovich's most prominent example of digital-to-cultural transcoding is the database, but van den Boomen widens the scope to include the multiple exchanges, transformations and translations that occur entangling metaphors with hardware, software, code, standards, protocols, institutions, laws, the economy and politics.

Specifically, we find a host of semantic and material metaphors working across various levels of digital technology. For example, there are broad conceptual metaphors such as 'cyberspace', 'superhighway' and 'the cloud' but also those that refer more to our interactions with a computer, linked to operations ('button'), objects ('mailbox'), space ('site'),modes of representation ('windows') and social relations ('friendship'). Some go as far to argue that the internet's coherence relies on metaphors (Trend, 2001) or is 'actually *constituted* by the use of geographical metaphors' (S. Graham, 1998: 166. – original emphasis). A common assumption here (M. Graham, 2013) is that spatial metaphors in particular are cognitively necessary as it releases us from trying to grasp the infinite complexity of the Internet. For Dodge (2008: 106) spatial imaginings have been exploited to establish the Internet as something 'real' and to prove the 'matter of fact' existence of its infrastructure to different audiences by explaining 'what the Internet looks like'. Similarly, S. Graham (1998:168) argues that spatial metaphors make the Internet become visualisable, encompassing territorial systems that can 'somehow be imagined similarly to the material and social spaces and places of daily life'.

Jamet (2008, 2010) analyses the most common source domains used in metaphors that describe the Internet and concludes that these have settled on a sense of movement, a journey through space that involves exploring, surfing and navigating along with a sense of location or place as in the terms 'rooms', 'communities', 'malls' and 'sites'. The overall model has become a place in or on which we move to get information. This is perhaps a more grounded version of the early notion of 'cyberspace' that M. Graham (2013:180) describes as both an 'ethereal alternate dimension' which is infinite and everywhere and 'fixed in a distinct location', an aspatiality but also with a sense of place. Wilken (2007: 50) argues that place-based metaphors referring, for example, to 'communities' actually emerged in response to notions of a dematerialised virtual world, free from physical and geographical constraints. In contrast, metaphors encourage a sense of togetherness, drawing upon everyday social settings (see also Markham: 1998).

Of the broader metaphors used to describe the digital realm such as 'cyberspace' , it is tempting to suggest that the cluster of metaphorical conceptions of 'network', 'net', and 'internet' come closer to a formal, material definition of the technology involved. For Castells (2002: 1) a network is simply a set of 'interconnected nodes'. Certainly, network terms have become one of the most prevalent metaphors for describing the digital domain that people access through their phones, tablets lap-tops and other devices. Van den Boomen (2016) suggests that the term network involves three root metaphors: the telegraph, the nervous system and graph. Dodge (2008: 126-8) illustrates how a spatially extensive infrastructure as a physical network of wires is the commonest visual analogy to explain the Internet. Images of the globe have also become a popular visual metaphor with network arcs wrapped around the world. But as Dodge highlights, perhaps the most influential examples of this metaphorical image are the dense, multi-coloured graphs produced by [Cheswick and Burch](#) based on the survey of the topology of thousands of Internet connections. The quotation from the researchers is instructive:

> 'We don't try to lay out the Internet according to geography ..... The Internet is its own space, independent of geography (cited in Dodge, 2008: 137)

Latour (1987: 180) qualifies such a conception of network:

> '…. resources are concentrated in a few places – the knots and the nodes – which are connected with one another – the links and the mesh: these connections transform the scattered resources into a net that may seem to extend everywhere'.

As Latour highlights, networks are far from being independent of geography; they are embedded geographically, materially, socially and politically. As we will see, this is hard to deny, but can we go on to argue that metaphors tend to make this embeddedness invisible?

3. Do metaphors hide the embeddedness of the digital?

Such embeddedness is analysed from various perspectives in the literature. For example, Starosielski (2015) explores the history of the material infrastructure sustaining the global information economy: the fibre optic cables that carry information data between continents, including the nodes of cable stations, the pressure points of cable landings, the islands that mediate network traffic

and the effects on the ocean environment. From another perspective, *Zook et al* (2004: 466) demonstrate how powerful clusters of 'privileged individuals and places are ever more embedded' in digital geographies, or what S. Graham (1998: 167) describes as the 'range of social and cultural interactions, and exchanges of labour power, data, services, money and finance that flow over them'. In turn, M. Graham (2013:179) outlines how 'cyberspace' - as a specific term used by politician and policy makers - constrains, enables, and structures very distinct ways of imagining the interactions between code, machines, information and people, masking the selective connections between people and information and in turn reinforcing uneven 'global patterns of visibility, representation and voice'.

Tranos and Nijkamp (2013: 856) show that 'proximity' is a crucial factor in, for example, the digital economy, in terms of physical distance and relational distance, or how people in organisations are connected. Wilson (2001) analyses the domain name registration process and shows that the Internet is firmly rooted in the 'existing institutional framework' and shaped by the underlying geographies of law, politics and infrastructure. For Wilson the real estate metaphor is a good description of the battle to find a location on the Internet. Firms and organizations seek the best `places' in order to be easily found and identified by their customers and the public (60).

Finally, Zook and Graham (2007) add to a growing literature that explores how computer code is almost infinitely flexible but is fundamentally structured to highlight or obscure on the basis of algorithms designed with particularly political and economic agendas. Code increasingly sets the parameters of the Internet and its default settings and as Dodge and Kitchen (2005:209) argue it 'has the power to shape the material world'.

The digital is materially rooted in various complex ways, but do both broad conceptual and specific interface metaphors function in any way to hide this rootedness? Along with the common view that holds that metaphors make the unfamiliar familiar, we often find an accompanying narrative of the helpless, naïve user who needs tangible metaphors to grasp the complications of digital technology:

> A key part of the power of the Internet has been its ability to provide seamless, end-to-end, communications services so that users do not have to worry about the structure of the underlying networks and the complex ways in which traffic is transmitted (Dodge, 2008: 112).

A frequent argument is that material infrastructures are 'treated by users as unproblematic' or considered 'without much thought' (S. Graham, 1998: 184). Dodge (2008: 116) goes as far to suggest that that use of metaphors is 'deliberate' and provides an 'effective cloak under which dubious or iniquitous practices can be safely carried out by institutions owning and operating' the infrastructure of the Internet. All of this seems a very simplistic top-down narrative of how power relations work. It is true that the early technological utopians celebrated 'cyberspace' as an anti-spatial, ethereal realm and naively envisioned the end of geography, as typified by Cheswick and Burch's graph. As Dodge clearly demonstrates institutions also use visual metaphors such as charts and maps to market, for example, their extensive range of Internet services. But it is another step to suggest that various metaphors deliberately hide the Internet's physical and geographical infrastructure.

Van den Boomen's (2016) forceful analysis leads to a 'manifesto' to trace, or in her words 'hack' what a particular metaphor highlights, what it ignores and how it addresses the user, opening up 'black boxes of code and machinery'. She refers to the impact rather than the intention behind the use of metaphors, but frequently she too endorses the argument that complex material machinery tends to withdraw behind the representations of the digital, smoothing out any creases of ambiguity and making the chain of elaborate technology invisible. This position has some links with Bolter and Grusin's (2000: 5) argument about new media and that 'our culture wants both to multiply its media and to erase all traces of mediation'**.** For example, Van den Boomen (2016: 17) argues that user interfaces are built around various metaphors of one-click immediacy (EG icons, menu options, hyperlinks, like buttons, share buttons). Although such metaphors contribute to user friendliness and wider adoption of digital devices, they 'also withhold user control and knowledge about the system' and 'hide their tool-being'. Another example of such obfuscating metaphor is the operating system that poses as transparent 'windows' that actually obscures its implied material architecture and denies its users 'access to backdoors, hidden corridors, underground cellars, and useful tools' (111).

We have seen that there is plenty of evidence of the physical, geographical, political and social embeddedness of, for example, the Internet, but how do metaphors work to make this invisible? Do metaphors have to have an additional devious meaning or implication, as much of the literature seems to argue? Davidson (1978: 32) demonstrates that metaphors are not a form of

communication 'alongside' what might be called 'ordinary' communication. When we talk about the 'mouth of a river', we are not thinking about an anatomical aperture; we are talking literally. That is what it is. Similarly, when we talk about a web 'page' are we not talking about a web page, literally? The term has a familiarity which can be useful to the user but is it hiding anything? But what about broader conceptual terms like 'the cloud'? Surely this is one of the most prevalent and obfuscating metaphors that are used today?

4. Conclusion – reversing the 'cloud '

Van den Boomen (2016: 100) argues that 'the cloud' is a metaphor that 'obscures its own materiality while creating robust matters of fact'. Unlike say the Web 2.0 metaphor, it discounts and confuses the role of, for example, software design, technical skills, labour and business monopolies, putting forward a vague image of ownerless place in the sky that is freely available for human social use. Such arguments replay earlier ones concerning the unhelpful, anti-spatial 'ethereal alternate dimension' of 'cyberspace' (M. Graham, 2013: 181). It is true that the machinery of 'the cloud' involves vast, highly secured data centres, where the geo-political region, the actual location, matters in terms of the degree of speed, redundancy, accessibility and security (Koerner, 2018). The cloud is very much on the ground and under the oceans (Starosielski, 2015). However, treating data centres as a location for anthropological research, Taylor (2017) questions the assumption that industries strive for invisibility and use the cloud metaphor to obscure the reality of data storage'. His research suggests the opposite. Industries have become uncomfortably stuck with a marketable but clearly misleading metaphor. As Davidson (1978) argues metaphors tend to be blatantly false or blatantly true. The metaphor of the cloud is patently untrue and it brings confusion. If anything, it seems to reverse classic conceptual theories of metaphor and makes the familiar unfamiliar. According to Taylor (2017) the consequence is that owners of data centres are now devising marketing strategies to raise 'awareness that the cloud is *material* by rendering data centres more *visible*' (my emphases). The metaphor is reversed.

It is clearly another marketing ploy but global Internet companies have started to the open the 'black box' to reveal some of their previously 'invisible' infrastructure. The photographer Timo Arnall, for instance, was allowed in 2014 to produce a multi-screen film*, Internet Machine,* in what was at the time one of the largest, most secure and 'fault-tolerant' data-centres in the world run by *Telefonica* in Spain. Here the 'cloud' is transformed into noisy

rooms with multiple racks of servers and routers. We can see how power is supplied not only through the mains, but backed up with caverns of lead batteries, which in turn are supported by rows of generators, supplied by diesel storage tanks and contracts with fuel supply companies. We can note the vast stainless steel water tanks outside the buildings.

Similarly, such companies as Google, Facebook and Apple provide a range of **videos and photographs** of their sprawling data centres, illustrating and explaining the complex buildings and technology and the staff that manage them. Effective marketing, perhaps, but it at least raises questions about how metaphors like the cloud actually work. It is questionable whether there was any intention to hide physical infrastructure through these metaphors. It is clear that companies are now trying to make the infrastructure more visible. Certainly, metaphors can steer the way we engage with digital technology and they the can be handy as well as marketable tools but that does not necessarily make them somehow devious in the way much literature argues. As technology develops new metaphors will be introduced (for example, 'edge' computing taking over cloud computing) but the trend seems to be to display physical infrastructures as they sprawl across the globe. Political and ethical questions of scarce resources, labour exploitation, monopolies, security, control, the digital divide and many more remain, but not metaphorical ones.

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