Network

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Abstract

Network is a device for organising and conceptualising non-linear complexity. Networks defy narrative, chronology and thus also genealogy because they entail a multiplicity of traces. Networks problematize boundaries and centrality but intensify our ability to think in terms of flows and simultaneity. As a concept, network has been highly conducive to theorizing phenomena and processes such as globalization, digital media (Internet), speed, symbiosis and complexity. This in turn enables us to rethink what constitutes the foundations of intelligence, knowledge and even life itself. One particularly useful application of network as a concept is the notion of the gift, which is often seen as the archetypical figure for understanding the nature of economics and social relationships.

Keywords: Network, flow, complexity, gift, capital, symbiosis

Network as a Trope

As a term that has become an established element in the vocabulary of knowledge both inside and outside the academy, 'network' has a complex and inherently unmappable genealogy. This is because it is not simply a theoretical concept, whose origins can somehow be traced back to a particular original thinker. Instead, the usage of the concept of network is in first instance metaphorical. It is a trope.

Network consists of three elements (1) nodes, (2) links and (3) mesh. The nodes are the easiest to identify. They are the points where links are being concentrated; the crossings that bind different tangents together. The links are the most basic unit of the network; they are what constitutes the difference between what is and what is not 'bound'. Finally, the mesh is the overall structure, pattern and shape of the network; it is that which gives each network its particular dimensions and shape, and from which the deployment of the network derives its functionality (e.g. the size and shape of the holes in fishing nets determines the type of fish that can be caught and contained by them).

Node, link and mesh are essential elements of a net and they have the capacity to resist manipulation (and therefore can be said to be 'real'). That is to say, they form the 'essence' of a network, without which that we are attempting to represent as network would not be recognisable as such. The trope of network, therefore, has to have a basic consistency with the reality it alludes to.

The first observation one can make about the trope of a network is that it does not have any direction. In contrast to the trope of the chain and its associations with linearity (as in 'chain of command' or 'chain of events'), network is a trope deployed to depict a non-linear grid of multiple connections. As a trope, network is at odds with a basic literary device: the narrative. Network also disrupts our dominant vernacular of understanding time, i.e. the chronology. Indeed, the logic of networks is at odds with the basic premises of western metaphysics. A consequence of this is that whilst networks are deployed as a trope in genealogy, there is no distinctive geneaology of networks.

Alongside its resistance to linearity and chronology, a second distinctive aspect of the network is an ambiguity about its finitude. That is to say, whereas a mesh does

indicate that there are limits and boundaries separating what is within from what is beyond the network, the ontological status of the network-boundary ('the rim') is unclear. It is only when we come across problems of accessing networks that we discover that there are boundaries that mark inclusions and exclusion.

A third characteristic of networks is the relativity of a centre. In contrast to a (spider's) web which is often concentric and has an identifiable centre, networks have multiple central nodes, whose centrality is not necessarily defined by its location (e.g. the centre), but by the relative concentration of links. The more links make up a node, the more central the node. Finally, networks are marked by multiplicity. That is to say, their complexity is defined by a holistic unity of a diversity of connections.

Reflexive awareness of the trope of network is not an achievement of western (modern) thought. In Chinese cultures, for example, the term guanxi which in essence means the same as network, is an age old metaphor referring to a form of social capital (see below) that is embedded in the knowledge of and being known to significant others. Guanxi is partly established through common ancestry and kinship relations, but further extended through friendships, political and strategic alliances and economic exchanges (including gifts and favours). Indeed, even in western societies, networks were already existent well before they became analytical concepts. Relationships between patrons and clients in feudal systems, for example, involved a complex of exchanges, obligations, rights, duties and dependencies that often resembled those of guanxi. Of course, the Christian ethos of 'love thy neighbour' also shares a guanxi-type sense of obligation, which in the teachings of Jesus was being extended beyond tribal relationships, as expressed most clearly in the parable of the Good Samaritan.

Therefore, apart from what one might call ‘essential’ parameters that are derived from the trope, the conceptual deployment network is also indebted to its historical, socio-political-cultural lineage. From this diverse history, one could deduce that there is an intrinsic association between on the one hand network and strategic relationship and on the other hand network and moral codes (or ‘the Law’).

Network as a Concept

Network is not an exclusive social science concept. It has a string presence in various branches of mathematics, physics and biology. In relation to the latter, considerable work on translating the trope of network into a concept has been done by neuroscience, particularly regarding conceptualizations of how the brain works.

In the social sciences, network is a key component in political economic analyses, including international relations, where it is used to refer to, for example, strategic alliances (Ohmae, 1989). This type of conceptual usage of network is of central importance to understanding how processes of globalization are not ‘haphazard’ or self-steering, but intentional, engineered and managed along specific strategic lines, intersecting the flows of power, wealth and knowledge. It is here that we can see an alliance with Marxism and its concern over the role of reproduction, but also with certain strands of political science, especially regarding the role of elites (Dahl, 1961). Indeed, network is a concept that is now firmly established in a range of disciplines and domains of western thought such as social and political theory, cultural studies and political economy.

Its recent rise in popularity has to be understood in the context of globalization, as a means of conceptualizing non-linear complexes of structures and flows. The structures of multinational corporations are modelled on networks, and so are the flows of capital, goods, people, symbols and information. The digital revolution has

further provided a major impetus for conceptualizing ‘networks’ with the rise of an increasingly dense grid of electronic-based information flows, facilitated by both cable and satellite, of which the most famous example is of course the Internet.

The Internet provides a digital grid of information flows that have a potential global-instantaneous reach and immediacy. Originally called ARPANET, it was developed in the 1960s as part of a military defence strategy to decentralise communication structures to make them more immune from targeted attacks. The non-centralised character of the net would enable new centres to emerge if old ones were to collapse without damaging the overall integrity of the mesh (Martin Murphy, 2002).

Plant (1996: 178) stresses that the nature of the internet is intertwined with that of ‘text’. Indeed, the basis of internet is ‘hypertext’. The etymological origins of text lead us back to the Latin ‘texere’ meaning ‘to weave’; indeed ‘text is woven fabric’ (Barthes, 1977: 159) and thus by its very nature already a ‘network’. It is perhaps therefore not surprising that for most people today Internet is ‘the net’. Hypertext induces non-linear forms of mediation, which in turn transform the relationship between ‘author’ and ‘reader’. There is no longer a single process of mediation (governed by the text), but instead a continuous process of remediation (Bolter and Grusin, 2001). Through remediation, the self becomes itself like a network, dispersed through connections it can no longer find a home in a projection of integrity (Haraway, 1997). As McLuhan (1964) had already predicted in *Understanding Media,* electronic media engender an externalisation of our neural networks. It is only with the arrival of Internet, that we have begun to realise the full extend of this prophetic insight (Levinson, 1997).

Dirk de Kerckhove (1996) extended this basic metaphorical idea into a reflection on the way in which knowledge and intelligence would be transformed by such extensive

networks, which he referred to as *Gekoppelde Intelligentie* (articulated intelligence). Networks provide higher-order intelligence because of the multiple points of reflection and feedback; they enable a collective learning process that is much faster and far-reaching than the more old-fashioned linear (primarily paper-based) forms of communicating intelligence, which are derived from centralised forms of authorization and legitimation. Indeed the whole New Encyclopedia Project on Global Knowledge effectively deploys a network-based strategy to accumulate articulated intelligence.

It is this combination of connected knowledge-production and dissemination with world-wide structures of information and communication that informs the logic of Castells' *Rise of the Network Society*. For Castells (1996), in today's society networks form the basic grid of social structures; they are both territorialized in particular centres of economic activity and trade, but also deterritorialized in global flows of capital, goods, information, symbols and people. As the accumulation of wealth, power and knowledge takes place through these networks, the location of 'nodal points' becomes of essential strategic importance. Castells argues that the concentration of such nodal points, particularly in western capitalist societies, with the USA at the top, ensures the perpetuation of global economic, political and social inequality.

A surprisingly similar view on the strategic nature of networks can be obtained if we look at a current theoretical body of work that also deploys the concept of network as a central feature of its analytical apparatus, namely 'Actor Network Theory' or ANT (Latour, 1987). This approach perceives agency as a multiplicity of connected forces or actor networks. Actor networks are established around series of relationships between humans, animals, technologies, artefacts and spirits. In abandoning the

anthropocentric preconceptions of western humanism, such an emphasis on the interconnectedness of a multiplicity of agency sits quite comfortably alongside non-western belief systems, of which animism is perhaps the 'archetypical' example. However, ANT itself is firmly rooted in a western philosophical tradition that can be traced back to a presocratic materialism (e.g. Parmenides). More specifically, we can find traces of inspiration from more off-centre thinkers such as Nietzsche, Bergson and Alfred North Whitehead.

The primary focus of ANT is on understanding patterns of 'ordering' which we recognise as 'structures' or 'organisations' of ideas and matter without relying on an a-priori (Kantian) dualism of subjects and objects. That is to say, ANT does not presuppose that order, or perhaps better continuity, is a reflection of some reality 'out there', but instead that it is the consequence of a (temporary) stabilization of a particular set of forces that can be conceptualised as a network. This stabilization is achieved by a temporary closure of possibilities and is highly dependent on the density of the mesh, and thus on the strength of the links and the connectedness of the different nodes. However, rather than focusing on network-structures, ANT shifts attention to network*ing* as a continuous practice of enrolment, translation and redefinition. Especially in response to challenges from within, ANT moved towards a more post-structuralist ethos stressing fluidity, transformation and ambivalence.

The Matter of Networking: Reproduction and Gifts

In writing on guanxi, Kipnis (2002) makes a distinction between networks as strategic alliances and networks as moral systems. He accuses western thought of privileging the former over the latter. Indeed, it can be argued that if we consider the writings on

networking in contemporary political and social theory, there is an implied rationale which conceives of networking as motivated by a desire to increase wealth (Castells), power (Latour) and knowledge (de Kerckhove). All three types of motivation are instrumental in relation to networking activities. They presume that networks will only flourish in so far as they serve the direct interests of those who form and take part in them.

However, if we look at earlier notions of networks in social theory and particularly anthropology, we see that the moral dimension had not been entirely ignored within the western tradition. For example, network is central to one of the key methods of traditional anthropological research, i.e. genealogy. The purpose of anthropological genealogy is to map the links between different members of a society or tribe, to visualise kinship relations and to establish patterns of associations between members. The form in which genealogy is displayed is like a simple net, with horizontal lines depicting marriages and sibling relations and vertical lines depicting inter-generational (parent-child) relationships. Especially for nomadic clans solidarity and loyalty are essential resources for military success and economic prosperity. Such strategic alliances could not be created by means of economic exchange, i.e. gifts or wage, but had to be forged by means of moral obligation derived from blood-bonds.

Genealogy highlights networks of biological and social reproduction and it is this theme that has been the primary concern of early-modern western thought. That is to say, the kinship-networks of non-western societies were analysed and interpreted from the vantage point of the Euro-American (Western) tradition, which was intrinsically biased towards finding similarities with its own familiar modes of operation.

In such a viewpoint the nodes of the network are discrete individuals, the links are kinship ties, supported by moral codes, and the mesh is the structure of social reproduction that characterises a particular society or culture. Anthropological research concerned with structures of reproduction was primarily interested in what constitutes the nature of the links (the person – the node - was taken to be an unproblematic and self-contained universal, Strathern, 1997).

The concept of the gift stood out as having a particularly fundamental appeal to providing a universal language that – at least genealogically – would inaugurate one dimension of the ground zero of contemporary academic debates on networks, for example as in writings on guanxi (Yang, 1994; and Yunxian Yan, 1996). What makes the concept of gift seminal to understanding networks is that it provides a tangible referent (matter) to the abstract idea of 'link' or 'relationship'.

The British Anthropologist, Marilyn Strathern (1997: 295) is critical of the very idea of 'moral economy' as a generic concept by pointing out that it implicitly universalises the consumerist viewpoint that is embedded in modern Euro-American culture. That is to say, gift-relationships in modern Euro-American culture tend to take place in small settings of family and friendship-based relations, thereby foregrounding a moral-voluntarist familiarity with intentional acts of generosity that can take on a 'moral stature'. The 'normal' vantage point of interactions between strangers is not that of the gift, but of commodities, which are exchanged in anonymous market-style settings and for which we reserve the term 'consumption'. In other words, she does not necessarily want to dispute that in modern Euro-American culture the difference between gifts and commodities is of huge importance, but she wants to resist its usage as a universal model for understanding sociality and reproduction.

The misconceived universalism of moral economy is reflected in subsequent romanticised conceptions of gift-economies which have ignored the importance of the contingency of strategic action in favour of an allusion to a timeless moral necessity (Strathern, 1997: 294). However, whereas this might be a fair comment on the nature of understanding gift-economies in Western anthropology, it does not apply to a rather different Euro-American tradition of understanding networks – that of political theory.

Western political theory has never really enjoyed a hegemonic paradigmatic unity. Before the official birth of political philosophy, there were already distinct traditions in understanding the nature of political relationships. The first is derived from the Platonic tradition and understands politics as virtuous in the moral sense (as expressed in the thinking of for example Cicero, Hobbes, Kant and Hegel); the second was its anthithesis and acquired fame by virtue of thinkers such as Machiavelli and, from a non-Western perspective, Lao Tze. These thinkers emphasized the virtue of strength rather than righteousness. For them, the key motivation of the political was always the maximization of force.

It is from this second tradition, which on the way also includes Nietzsche, Pareto, Michels and Schmitt (the latter three were all contemporaries of Mauss), that modern political theory has derived its depth. In the very idea of political struggle lies a preconception of relationality (allies versus enemies). For such thinkers, the social does not really exist except as a strategic resource. A well-known expression of this type of thinking is the former British Prime Minister Margaret Thatcher's famous claim that 'society does not exist'. The 'homo economicus' of neo liberalism is an equally obvious example.

Perhaps in an awareness of the dominant modes of political thought of his contemporaries that Mauss sought to re-assert the centrality of the social, which for him – just like his mentor Durkheim – was essentially moral in nature (in the sense of the binding nature of duties and obligations). It is from within this tradition that the French sociologist Pierre Bourdieu (1979) sought to re-articulate a sense of the political, not as external or oppositional to the social, but as co-constitutive realms of modern, capitalist society.

Like Mauss, Bourdieu was interested in the *matter* of social relations, i.e. networked links. Rather than gift, however, Bourdieu deployed the notion of 'capital'. This gave him the ability to understand the intrinsic relationship between social relations and economic practices. That is, he enabled a conceptualisation of networks as being formed on the basis of *valorization*. Networked-operations thus involve evaluations and value-estimations in terms of various kinds of exchanges between nodes. The mesh of such networks becomes complex set of value-estimations, translations and transferences.

In his famous work *La Distinction*, for example, Bourdieu (1979) shows how different forms of capital are being translated into one another: financial capital into cultural capital, cultural capital into social capital, social capital into symbolic capital, symbolic capital into financial capital etc. What emerges from this approach is the idea of a multiplicity of flows which enable the accumulation of wealth, power and knowledge. Furthermore, Bourdieu showed how such valorizations and translations are related to distinctive fields, which are institutionally maintained and thereby obtain an almost natural sense of self-reproduction. His earlier work already established quite convincingly how in the field of education, the selective accumulation of cultural capital was maintained by an elaborate system of evaluation

(including formal examinations) which naturalised the basic arbitrariness of what counts as 'valuable knowledge' (Bourdieu and Passeron, 1970)

Bourdieu's analysis offers us a critical perspective on networks as selective and self-reproducing devices for the maintenance of particular social orderings. It thereby also fits a more loosely Marxist paradigm focusing on class-struggle as the engine of social ordering and social change. However, underneath lies a much closer association with Durkheimian sociology than is often acknowledged. The link with Mauss is particularly revealing. The gift that establishes an obligation to return is being transformed into capital, thereby unfettering the moral prohibition on profiting from the gift (Sahlins, 1997). This is the shift that marks networks in western societies. The *hau* which Sahlins translates as 'profit' in Maori culture is not dissociated from a moral coding. In modern Euro-American culture, however, the *hau* is no longer bound. Instead, it can flow freely and thereby inaugurate infinite possibilities for networking and accumulation of different types of capital.

It is alongside similar lines that we can interpret Derrida's philosophical intervention in *Given Time I: Counterfeit Money*. Derrida (1991) seeks to trace a new depth, below Mauss' more structuralist leanings so to speak, to argue for a sharper distinction between gift and exchange. For Derrida, the essence of the gift is that it cannot be returned, for returning - even if merely in the form of recognition - would annihilate the gift. Hence, the gift has to be passed on as something else. The peculiar nature of the German word *Gift* is that can also be translated as *poison*, thereby making a link with *Pharmakon* which in Greek means both poison and medicine (Derrida, 1972).

Derrida argues that what makes the (indeterminate and ambivalent) Gift unique is that it creates an event. He uses Baudelaire's story of counterfeit money to illustrate the possibilities that a particular (poisoned) gift could set into motion. This takes us well

beyond the use of gifts to establish, affirm or maintain social relationships, because the 'return' on the real gift is not reciprocity, friendship or trust but an opening up of time, an inauguration of unknown consequences, an affirmation of being as an event.

Combining Bourdieu and Derrida, we may argue that the gift highlights the central associations between networks, capital and flow. What constitutes the essence of networks is therefore not the consolidation of a complexity of social bindings between individuated nodes. Instead, it is the undeterminability of the events, opened up by the non-linear constellation of gift-based associations. Network links are not best conceived of as exchanges, and hence the very notion of 'strategic alliance' is seriously problematic. Without a sense of obligation, without an appreciation of the bound nature (*hau)* of value, networks are unlikely to sustain themselves. Their basis is neither the Contract (e.g. Hobbes, Rousseau) nor Force (Machiavelli, Nietzsche), but the Law. This is not the law of a state, or of man in general, but a natural law that we can already sense from the Maori use of the *hau*, resonating with a wide cultural diversity of belief systems, including for example Judeo-Christianity.

This Law is not external to networks but immanent in them. It is inaugurated by the very nature (spirit) of the gift. The obligation to reciprocate, which is to take place in time, is moral in nature and bound to our very being in the world. From this perspective, networks include a wide variety of social relationships, not simply mutualism but also parasitism and even predation (as expressed for example in the Machabees' zeal for the purging of heretical desecration). The Law is not finite but like the networks it maintains, ever in flux.

Finally, as Strathern has maintained, western thought often works with a concept of an isomorphic, isolated, independent and integral sense of the self. Such a self is usually equated as nodes in a network. Network relationships are drawn around such

individuated entities. This sets up a very strange dichotomy between self-entities (nodes) and ‘others’. As western concepts of networks can only identify other self-entities as nodes, questions arise about what constitutes non-entities such as ‘the environment’ and ‘nature’. It is perhaps not surprising that western thought usually entails an implicit dualism between environments defined as ‘other entities’ and more abstract non-entities. The term society for example contains this dualism very clearly.

In contrast, Strathern argues that Malinesian thought does not make such distinctions because here selves are never self-contained and isomorphic. Instead, they are open. Moreover, environments are never abstract but always themselves constellations of parts and particles which can in turn function as both nodes and as gifts (the ‘matter’ of links). In a similar vein, much of European thought has strongly embraced a non-individuated concept of ‘action’. Here ‘actors’ are not necessarily human nor self-contained. In fact, the very nature of this open and fluid networking is bound up with a partialization of entities, which are thus always multiplicities. As multiplicities they are able to generate connections across temporarily associated constellations (we can still call these networks). This brings ‘life’ to the networks and allows us to talk about entire networks as themselves– in Latour’s terminology - actants.

Latour’s undifferentiated notion of actant (which could be human, animal, technological or spiritual in nature), however, also exposes a final weakness in his concept of actor network. Because he inadequately interprets the motivation of networking as the accumulation of power, Latour tends to be too focused on networking as a means of stabilization and consolidation. Strong networks then are identified by their relative rigidity. It is here that the trope starts to break. If Latour’s model is followed to the extreme, the most resilient networks are not networks but cages. This defies the nature of the network which instead requires suppleness and a

certain degree of fluidity and amorphousness. The mesh has to be open to instant modification to adjust to emerging contingencies and requirements.

For Latour, networks evolve, but their evolution can only be understood as relatively continuous. It follows the Darwinist line of natural selection of intra-species hereditary changes. However, as a result, Latour's ANT is unable to conceptualise and address more radical (r)evolutionary processes such as the emergence of a new type of species (let alone a higher order of classification). This problem is of course not unique to sociology but also central to biology (Ryan, 2003). It is from biology, and particularly the work of Margulis, that we can perhaps derive a more radical notion of evolution, namely that of *symbiosis*. In symbiosis, it is not the integrity of the nodes that matters but how they redefine themselves and each other through an intensive 'exchange' of molecular information (this could be at the level of cells or even below that, at the level of genes). In this type of networking, it is unlikely that any node will stay the same for very long.

Such a concept of networking comes much closer to that of assemblage. It is no longer confined to a rigidity that means that networks will disintegrate – but only in terms of their links - before new ones can be established, but looks for patterns of emergence, transformation and revolution that affect the nodes and mesh as well as the links.

This forces us also to rethink the nature of the mesh. Unlike Latour's actor networks, the primary motive of the network may not be self-preservation, but transformation. Networked intelligence then, is perhaps most astute if it is most ignorant of itself. As soon as an overall concept of 'self' starts to emerge (as for example is the case in defined academic networks), boundaries marking inclusion and exclusion become visible; the network becomes reified and its mesh loses its fluidity. Such networks

invite parasites, operating ‘at the rim’ as brokers for the importation of viral material which could seriously undermine the integrity of the network. Of course, even these networks may still evolve and rediscover their vitality, but this will be done in spite of themselves.

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