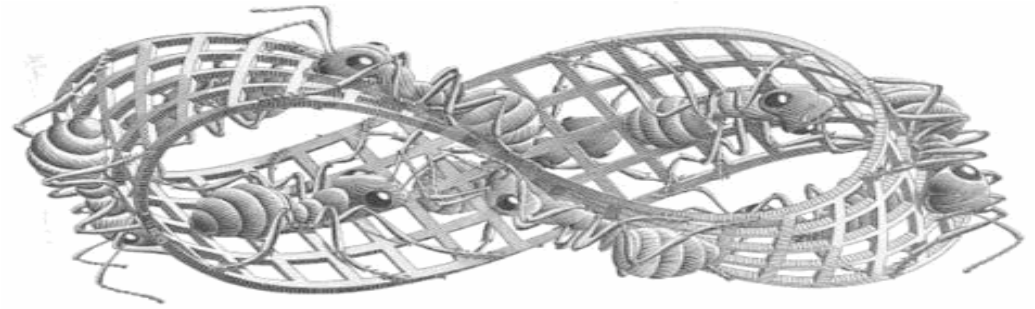
a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

EDCP 571
Bruno Latour and the Postsecular Turn in STS
Lecture Notes

S. Petrina (26 September 2013)



1. **Actor-Network Theory (ANT)** aka "Sociology of Translation" or "Sociology of Associations"
    a. *Grundrisse*, Marx (1857/1973, p. 101): The concrete is concrete because it is the concentration of many determinations, hence unity of the diverse. It appears in the process of thinking, therefore, as a process of concentration, as a result, not as a point of departure, even though it is the point of departure in reality and hence also the point of departure for observation and conception.
    b. **Field theory** (e.g., Lewin, 1939): Instead of abstracting one or another isolated element from a situation, the meaning of which cannot be understood without reference to the total situation, the theory of the field starts with a characterization of the whole situation.
        i. Lewin
            1. Lewin (1939, pp. 889, 890, 891): Whether or not a certain type of behavior occurs depends not on the presence or absence of one fact or of a number of facts as viewed in isolation but upon the constellation (structure and forces) of the specific field as a whole. The "meaning" of the single fact depends upon its position in the field; or, to say the same in more dynamical terms, the different parts of a field are mutually inter- dependent. This is of fundamental importance in social psychology…. person and environment are both parts of one dynamical field.
            2. Since Einstein it has been known that Euclidean geometry, which previously was the only geometry applied in physics, is not best fitted for representing the empirical physical space. For psychology, a recently developed nonquantitative geometry, called "topology," can be used satisfactorily in dealing with problems of structure and position in a psychological field. This space permits representation of the position inside or outside of a certain region, the relation between parts and whole, and a great number of structural characteristics.
            3. Euclidean space generally is not suited for adequately representing the structure of a social field-for instance, the relative position of groups, or a social locomotion. For example, in a social field what is meant by a straight line or an angle of 200 cannot be determined (at least not at present). However, the topological and the hodological space are, as far as I can see, applicable within sociology proper as well as in social psychology.
            4. Reiser (1936, p. 546): Lewin states that the fundamental task of all psychological problems is the determination of topological relationships.

> Topology-for those who are not acquainted with the subject-is the most general (non-metrical) science of spacial relationships. As such, it is concerned with whole-part relations, and with the cognate concepts of surrounding region, point, being-included-in, Jordan curve, etc. These and related ideas have to do with the topological structure of a region as determining the possible locomotions in that space.

ii. Bourdieu
    1. Vendenberghe (1999, p. 52): Although it is perfectly conceivable that the internally related elements would peacefully "con-spire" to form an organic whole, Bourdieu has always thought of the field as a field of struggle or, as Elias says, as a "field of tension" (Elias [1970] 1984:127). From the beginning, his relational conception of the field was mingled with a highly conflictual vision of the world as a battlefield for power, prestige, and all sorts of capital in which competitive distinction, domination, and miscrecognition prevail over cooperation, disinterest, and recognition (Swartz 1997:63). In any case, whether the field is conceived in a conflictual way or not, given that the relations between the individual elements are the resultant of all factors that constitute the "figuration," when analyzing the field one always has to "start with the relations and think from there towards the related" (Elias [1970] 1984:127).

c. **Network Theory** (e.g., Moreno & Jennings, "Statistics of Social Configurations," 1938, pp. 360-361): There are certain structural processes observable in the groups studied which are best explained if it is assumed that networks exist. One of these structural phenomena is the chain-relation…. The occurrence of these chain structures cannot be explained solely as a reflection of sociodynamic effects. Outside of a particular chain formation not only isolated or little chosen individuals but also pair structures or even leaders may remain left out. Another dynamic process must therefore stimulate chain formation. It had been seen that the individuals, who in the sociometric study of a whole community, form a social aggregate around one criterion form other social aggregates around other criteria and that the individuals who produce structures of chain-relations in one aggregate may produce them in other aggregates. If these chain-relations are traced as they cross through the boundaries of each particular aggregate, a new and larger con- figuration is seen developing,-a psychological network. The simple fact that individuals are more attracted to some individuals and not to others has many consequences.
    i. Networking
        1. Merrow, Foster & Estes (1974, pp. 283-284): The term "network" applied to individuals and organizations is easy to understand. We are all involved in net works of different kinds: Neighbors are connected by common interests in children, safe streets, garbage collection, and so forth. Business connections are another network, as are "old school ties," political interest groups, etc. Net works may be formal or informal, temporary or relatively permanent. They facilitate the flow of information, help keep us adjusted to others, and generally serve to stabilize our lives. Networking, it turns out, is basically old wine in new bottles, in the sense that it means more interaction and more in formation exchange. But networking, as we mean to use the term, also calls for systematized, more efficient interactions, which require new behavior on the part of the superintendent. Self conscious networking is not the same as neighbors united by garbage, for the latter situation does not require new behavior.

d. **Sociometry** (e.g., Moreno, "Foundations of Sociometry," 1941, p. 28): Thus, we saw the entire community broken up into several so-called "psycho-social networks." We saw them

partly overlapping one another; we saw that individuals as a rule belonged to more than one network; we saw that only a small proportion of the individuals who belonged to the same network knew each other personally—the large majority were tied to one another by a hidden chain of tele-links. We saw that only a small pro- portion of the social atoms of a community belonged to any one network; others belonged to different networks or remained un- related and scattered between the networks, doubly isolated— isolated as individuals, and left out of the networks. Once the networks in a community were described and mapped, it was easy to demonstrate their dynamic existence by a simple experiment.

i. Generalizations (Moreno, 1948)
   1. The "tele" phenomenon
   2. The law of the "social atom
   3. The "network" phenomenon
   4. The "sociodynamic law"
   5. The "sociogenetic law"
   6. The "law of social gravitation"

ii. Sociogram (Bronfenbrenner, 1944)

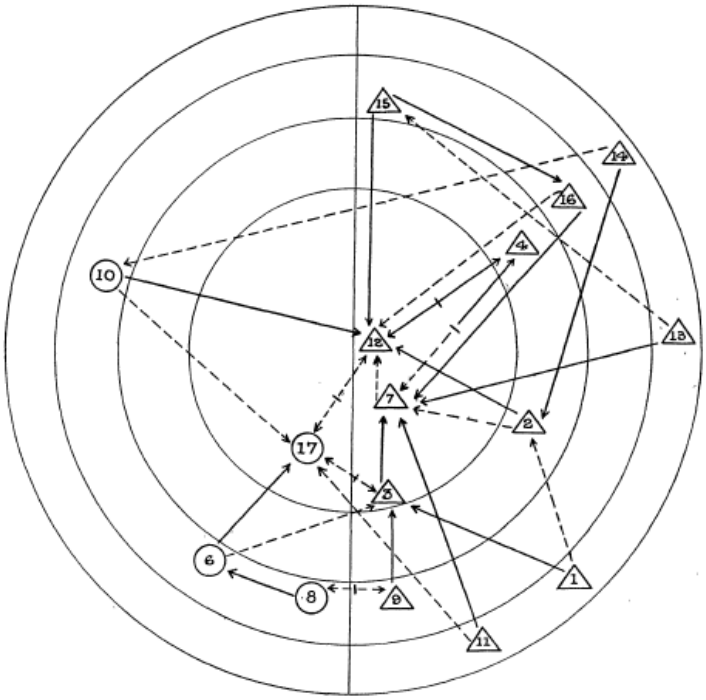


FIG. B.—SOCIOGRAM

iii. Sociomatrix

e. **Network Analysis** (e.g., J. Van Velsen, *The Politics of Kinship* (Manchester: Manchester University Press, 1964), 140: "a series of connected events to show how individuals in a particular structure (or network of relationships) handle the choices with which they are faced. Individuals are interlinked through continually changing alignments in small and often ephemeral groups."

   i. Prattis (1978, pp. 383, 384): Thus the concept of a social network involves a map of an individual's trajectory through a field of relationships by which the observer can discover whom his actions affect and by whom they are affected. This analytic focus shifts attention from notions of an actor's structured response to a system; and, as far as the choices of individuals are concerned, to their instrumentality within that same system…

ii. we are left with either highly abstract conceptual schemes that do not interpret variance and instrumentality or with analytic tools that inform us of activities in small scale actor networks and nothing else.

iii. Embirmayer (1994, pp. 1411-1412): Recent years have witnessed the emergence of a powerful new approach to the study of social structure. This mode of inquiry, commonly known as "network analysis," has achieved a high degree of technical sophistication and has proven extremely useful in a strikingly wide range of substantive applications. Since the seminal work of Barnes (1954) and Bott (1971), sociological studies utilizing network analysis have appeared with increasing frequency; a veritable explosion of such work has taken place over the last 15 years, particularly with the founding of two specialized journals, Social Networks and Connections, in the late 1970s. Today network analysis is one of the most promising currents in sociological research.

f. **Ethnomethodology** (e.g., "Studies of the Routine Grounds of Everyday Activities," Garfinkel, 1964, p. 226): Although sociologists take socially structured scenes of everyday life as a point of departure they rarely see as a task of sociological inquiry in its own right the general question of how any such common sense world is possible. Instead, the possibility of the everyday world is either settled by theoretical representation or merely assumed. As a topic and methodological ground for sociological inquiries, the definition of the common sense world of everyday life, though it is appropriately a project of sociological inquiry, has been neglected. My purposes in this paper are to demonstrate the essential relevance to the program of sociological inquires of a concern for common sense activities as a topic of inquiry in its own right and, by reporting a series of studies, to urge its "rediscovery."

i. Garfinkel (1967, pp. 11, 1-2): I use the term "ethnomethodology" to refer to the investigation of the rational properties of indexical expressions and other practical actions as contingent ongoing accomplishments of organized artful practices of everyday life.

ii. Their central recommendation is that the activities whereby members produce and manage settings of organized everyday affairs are identical with members' procedures for making those settings "accountable." The "reflexive," or "incarnate" character of accounting practices and accounts makes up the crux of that recommendation. When I speak of accountable my interests are directed to such matters as the following. I mean observable-and-reportable, i.e. available to members as situated practices of looking-and-telling. I mean, too, that such practices consist of an endless, ongoing, contingent accomplishment; that they are carried on under the auspices of, and are made to happen as events in, the same ordinary affairs that in organizing they describe; that the practices are done by parties to those settings whose skill with, knowledge of, and entitlement to the detailed work of that accomplishment- whose competence-they obstinately depend upon, recognize, use, and take for granted; and that they take their competence for granted itself furnishes parties with a setting's distinguishing and particular features, and of course it furnishes them as well as resources, troubles, projects, and the rest.

iii. Garfinkel (1988, pp. 103-104): For ethnomethodology the objective reality of social facts, in that and just how it is every society's locally, endogenously produced, naturally organized, reflexively accountable, ongoing, practical achievement, being everywhere, always, only, exactly and entirely, members' work, with no time out, and with no possibility of evasion, hiding out, passing, postponement, or buy-outs, is thereby sociology's fundamental phenomenon.

iv. Concerned with, and profoundly reasoned about generic, massively recurrent properties of human action in and as the properties of populations, *The Structure of Social Action* set an example for formal analytic sociology and has become

emblematic of analytic sociology and of the worldwide social science movement. Ethnomethodology has its origins in this wonderful book. Its earliest initiatives were taken from these texts. Ethnomethodologists have continued to consult its text to understand the practices and the achievements of formal analysis in the work of professional social science.

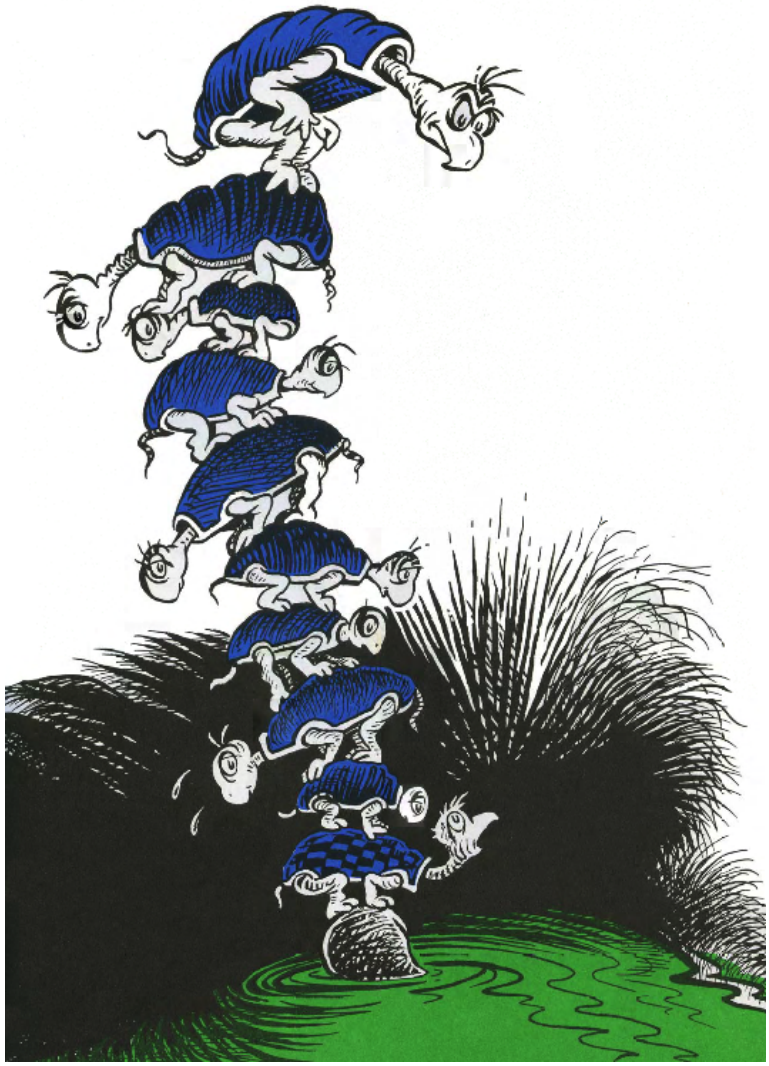
g. **Relationality** : : Primacy of Relations @ Infinite Regress v Infinite Reduction
   i. Comte (*General View of Positivism*, 1848, pp. 8-9; *System of Positive Polity*, 1851, p. 6): With this object in view the philosopher endeavours to co-ordinate the various elements of man's existence, so that it may be conceived of theoretically as an integral whole. His synthesis can only be valid in so far as it is an exact and complete representation of the relations naturally existing. The first condition is therefore that these relations be carefully studied. When the philosopher, instead of forming such a synthesis, attempts to interfere more directly with the course of practical life, he commits the error of usurping the province of the statesman, to whom all practical measures exclusively belong.
   ii. **Relativity** : : Physical, Cultural, and Philosophical
      1. Cosmology & Quantum Mechanics, ca. late 19th and early 20th centuries
         a. Anthropology
         b. Physics
         c. Philosophy (Metaphysics & Ontology)
      2. Gordin (1926, p. 520): It follows that relativity is in no way equivalent to "relative," but to relational, a term which, if it were to replace relativity, would save us from all that confusion which is caused by the use of the latter. Relationality and absoluteness are merely a twofold oneness, only two aspects, nay, one aspect, of the cosmos which is relational within and absolute without. Likewise the "within of history'" is relational, but the "without of history," that is, the future, is absolute….
      3. Cosmological relativity coincides with philosophical relativity, both equally meaning relationality, which is equivalent to structure, to use physico-biological terminology, or system, to use logical and philosophical language. We speak, therefore, of the structure of the universe and the system of history. The principle of relativity, conceived as relationality, really has been the *leit-motif* of science and philosophy almost from their very beginning in India and Greece, but was especially emphasized by Hume, Kant, and more than all by Hegel and Herbert Spencer, these latter two philosophical antipodes being at one in considering relativity as the first principle of science and philosophy. Relativity (and let us not forget that whenever we use relativity it means relationality) is only a modern formulation of the old postulate of uniformity or, as others call it, lawfulness or orderliness of nature. It has always represented the first principle of science and philosophy, at least from the days of Pythagoras, who considered the world as a cosmos, as a well-ordered unity, in a word, as a relativity system.
   iii. Whitehead
      1. Alfred North Whitehead's organic philosophy (or process thought) is some times discussed along with the work of the pragmatists. Like Dewey, Whitehead rejected the idea that attention to value required belief in a "final order" ([1929] 1978, 111), but like James, his writing did not shy from discussion of powers commonly thought of as religious. He used words like richness, quality, importance, intensity, harmony, and contrast in discussing value. Like the pragmatists, Whitehead pointed to relationality as central: "Existence ... is the upholding of value intensity. Also no unit can separate itself from the others ... yet each unit exists in its own right." ([1938] 1966,

111). Unlike the pragmatists, however, Whitehead explicitly took his metaphysics of experience and relationality "all the way down," to physics and atomic particles. (Nelson, "Value as Relationality," 2001, p. 146)

iv. …all the way down

1. James ("Rationality, Activity and Faith," 1882): The moral judgment is irreducible, and independent of all judgments of fact. It applies to the subjective interests as well as to the phenomena which they measure. Not only is it best for my social interests to keep my promise, but best for me to have those interests, and best for the cosmos to have this me. Like the old woman in the story who described the world as resting on a rock, and then explained that rock to be supported by another rock, and finally when pushed with questions said it was "rocks all the way down," he who believes this to be a radically moral universe must hold the moral order to rest either on an absolute and ultimate *should* or on a series of *shoulds* "all the way down."
2. Haraway (1997, p. 126): First, I am physically hypersensitive to the historically specific, materially/semiotically dense practices that constitute science-made, as well as science-in-the-making (Latour 1987). As my colleagues put it, science is practice and culture (Pickering 1992) at every layer of the onion. There is no core, only layers. It is "elephants all the way down," in my purloined origin story about science. "Elephants all the way down" is an aphorism from the Indian origin story that has the world supported on the back of a pachyderm, who is, in turn, supported on another elephant, and so on, ad infinitum. Everything is supported, but there is no transcendent foundation, only the infinite series of carrying all there is.
3. Hawking (*A Brief History of Time*, 1988, p. 1): A well-known scientist (some say it was Bertrand Russell) once gave a public lecture on astronomy. He described how the earth orbits around the sun and how the sun, in turn, orbits around the center of a vast collection of stars called our galaxy. At the end of the lecture, a little old lady at the back of the room got up and said: "What you have told us is rubbish. The world is really a flat plate supported on the back of a giant tortoise." The scientist gave a superior smile before replying, "What is the tortoise standing on." "You're very clever, young man, very clever," said the old lady. "But it's turtles all the way down!"
4. Russell ("Why I am not a Christian," 1927): If everything must have a cause, then God must have a cause. If there can be anything without a cause, it may just as well be the world as God, so that there cannot be any validity in that argument. It is exactly of the same nature as the Hindu's view, that the world rested upon an elephant and the elephant rested upon a tortoise; and when they said, "How about the tortoise?" the Indian said, "Suppose we change the subject." The argument is really no better than that. There is no reason why the world could not have come into being without a cause; nor, on the other hand, is there any reason why it should not have always existed. There is no reason to suppose that the world had a beginning at all. The idea that things must have a beginning is really due to the poverty of our imagination.
5. ["The earth rests on a giant elephant, which is standing on a giant turtle. After that, it's turtles all the way down."]
6. In this sense, an ontology of networks is an ontology of turtles. Yet not all the turtles are equal, or some are more equal than others. The best portrayal is Theodor Geisel (Dr. Seuss, "You Can't Build a Substantial V[ictory] out of Turtles," 1942 and *Yertle the Turtle*, 1950)


You Can't Build
A Substantial
V
Out of
Turtles!
DAWDLING
PRODUCERS



v. "Manifesto for a Relational Sociology," Embirmayer (1997, p. 312): *Entities of the World—Relate!*

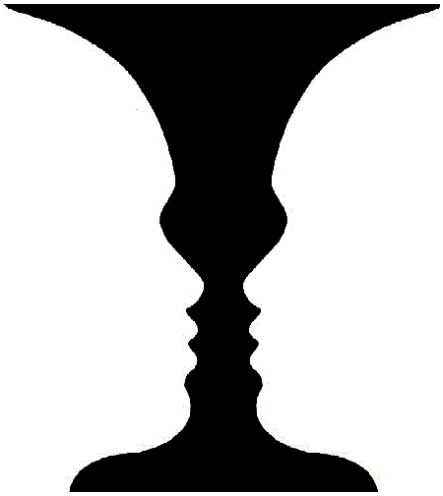
h. **Systems and Networks** (e.g., T. P. Hughes, *Networks of Power*, 1983), "The Seamless Web: Technology, Science, Etcetera, Etcetera," Hughes (1986, pp. 281-282): There are problems with the contextual approach espoused by historians of science and technology, many of whom are reacting against the internalist mode. Flaws in contextualism began to appear when historians of technology rejected the notion that science is the context of technology, or that technology is simply applied science. They proposed an interactive relationship be- tween technology and science. This, then, raised the question of whether the relationship between technology and other so-called contextual factors, such as the political and the social, should be redefined as interactive. The same question was asked about science and its context. A way out of the constraints of contextualism and into an interactive mode is now posed by the use of the 'systems' or 'networks' approach. Heterogeneous professionals — such as engineers, scientists, and managers — and heterogeneous organizations — such as manufacturing firms, utilities, and banks — become interacting entities in systems, or networks. Disciplines, persons, and organizations in systems and networks take on one another's functions as if they are part of a seamless web.
    i. Communication Networks
        1. Television Networks
        2. Broadcasting Networks
        3. Media Networks
    ii. Computer Networks
    iii. Internet(work)
    iv. Infrastructure
        1. Highways Networks
        2. Drainage Networks
        3. Electric Grid @ *Networks of Power*
    v. Neural Nets and Networks

i. **Actor Theory** (Rational Actor Theory)
    i. Renwick (1995, p. 2): How does a society composed of selfish citizens exist without the oppressive authoritarian government required by Hobbes to prevent chaos? Smith's answer was a gentle piece of brilliance. Each of us can pursue our individual self-interest and, if there is no government interference, the free market will serve as an invisible hand to ensure that the common good will emerge. This means human nature can indeed be self- interested, as Hobbes had suggested and as much empirical evidence has seemed to confirm; yet we may avoid the evils of Hobbes's authoritarian solution by recourse to the market mechanism. As articulated by Smith and his immediate followers in economics, neo-classical economic theory carries certain basic assumptions both about human psychology and about the way the world does and should work. Let me mention seven that are discussed later in this volume and which seem critical for understanding why economists may differ from other social scientists in their explanations of human behavior.
        1. Actors pursue goals.
        2. These goals reflect the actor's perceived self-interest.
        3. Behavior results from a process that involves, or functions as if it entails, conscious choice.
        4. The individual is the basic agent in society.
        5. Actors have preferences that are consistent and stable.
        6. If given options, actors will choose the alternative with the highest expected utility.

7. Actors possess extensive information on both the available alternatives and the likely consequences of their choices.

ii. Although there have been important modifications in it over the years, it is not unfair to claim that "[p]ractically the whole of classic economic theory is constructed within the framework of this model" (Simon, 1982, Vol. 1, p. 213).

j. Agency v Structure, Actor v Network, Actor v Sector, Actor v Stage, Agent v Object, Subject v Object, Individual v Culture/Context/Field/Environment/Nature/Economy/Market, Individual v State, Process v Structure, Atom v Force, Progressive v Stationary, Dynamic/Fluid v Static, Micro v Macro, Internal v External, Content v Context, Content v Container, Figure v Ground, etc.
   i. Idealism v Realism v Materialism
   ii. Mind v Experience v Nature
   iii. Fact v Value, Fact v Fetish, Fact v Fiction



k. How do actors act and how do networks network? How do actors network and how do networks act? How do actor-networks actor-network?

l. Actor-Networks
   i. "Unscrewing the Big Leviathan: How actors macro-structure reality and how sociologists help them to do so," Callon & Latour (1981, p. 280): *There are* of course macro-actors and micro-actors, but the difference between them is brought about by power relations and the constructions of networks that will elude analysis if we presume a priori that macro-actors are bigger than or superior to micro-actors. These power relations and translation processes reappear more dearly if we follow Hobbes in his strange assumption that all actors are isomorphic. Isomorphic does not mean that all actors have the *same* size but that *a priori* there is no way to decide the size since it is the consequence of a long struggle. The best way to understand this is to consider actors as networks. Two networks may have the same shape although one is almost limited to a point and the other extends all over the country, exactly like the sovereign can be one among the others and the personification of all the others. The financier's office is no larger than the cobbler's shop; neither is his brain, his culture, his network of friends nor his world. The latter is 'merely' a man; the former is, as we say, a 'great man'.
   ii. "The Sociology of an Actor-Network," Callon (1985, pp. 29, 34): How shall we describe this range of possibilities, and the translations that occur between them? In order to answer this question, we introduce the notion of actor-network. This concept allows us to describe the dynamics and internal structure of actor-worlds…. The notion of actor-network is developed in order to handle these

questions. This notion makes it possible to abandon the constricting framework of sociological analysis with its pre-established social categories and its rigid social/natural divide. [ANT, aka "the sociology of translation"]

iii. *Science in Action* (Latour, 1987)

1. "Following Scientists Around," Shapin (1988): The remainder of Latour's book uses actor-network theory to reconceptualize a series of problems usually assigned to the domains of macro- sociology, anthropology and longue duree historiography.

[Note that in *Science in Action*, Latour does not refer to "actor-networks" or "actor-network theory" at all]

iv. Haraway (1990, p. 9): I'm most influenced by Bruno Latour's actor-network theory which argues that in a sociological account of science all sorts of things are actors, only some of which are human language-bearing actors, and that you have to include, as sociological actors, all kinds of heterogeneous entities. I'm aware that it's a risky business, but this imperative helps to breaks down the notion that only the language-bearing actors have a kind of agency. Perhaps only these organized by language are subjects, but agents are more heterogenous. Not all the actors have language. And so that presents a contradiction in terms because our notions of agency, action and subjectivity are all about language. So you're faced with the contradictory project of finding the metaphors that allow you to imagine a knowledge situation that does not set up an active/passive split, an Aristotelian split of the world as the ground for the construction of the agent; nor an essentially Platonist resolution of that, through one or another essentialist move. One has to look for a system of figures to describe an encounter in knowledge that refuses the active/passive binary which is overwhelmingly the discursive tradition that Western folks have inherited. So you go for metaphors like the coyote, or trickster figure.

v. "Notes on the Theory of the Actor-Network," Law (1992, p. 381): networks are composed not only of people, but also of machines, animals, texts, money, architectures – any material that you care to mention. So the argument is that the stuff of the social isn't simply human. It is all these other materials too. Indeed, the argument is that we wouldn't have a society at all if it weren't for the heterogeneity of the networks of the social. So in this view the task of sociology is to characterise these networks in their heterogeneity, and explore how it is that they come to be patterned to generate effects like organizations, inequality and power.

vi. "After the Individual in Society: Lessons on collectivity from science, technology and society," Callon & Law (1997, p. 3): People are networks. Devices are networks…. And we've said that entities are networks, or network effects.

vii. "Actor Network and After" Workshop, Keele University, July 1997: "On Recalling ANT," Latour (1997/1999): There are four things that do not work with actor-network theory; the word actor, the word network, the word theory and the hyphen! Four nails in the coffin.

1. The first nail in the coffin is I guess the word `network' as John as already mentioned. This is the great danger of using a technical metaphor slightly ahead of everyone's common use. Now with the Web everyone believes they understand what a network is. 20 years ago there war still some freshness in the term.

2. The second nail in the coffin is the word actor in its hyphenated connection with the notion of net. From day one, I objected to the hyphen because

inevitably it would remind sociologists of the agency/structure cliché, or `*pont aux ânes'* [tool to hold the horse's mouth open] as we say in French.

3. The third nail in the coffin is the word theory. As Mike Lynch said sometimes ago, ANT should really be called `actant-rhyzome ontology' but who would have cared for such a horrible mouthful of words, not to mention the acronym ARO? Yet, he has a point. If it is a theory, it is a theory of what?

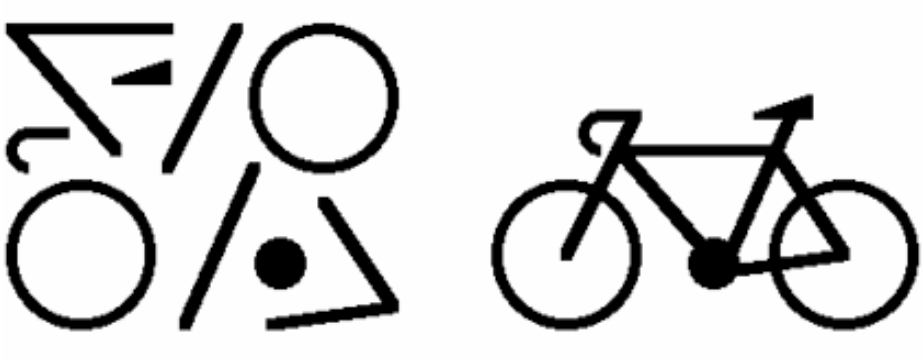
4. Yes, I think there is life after ANT. Once we will have strongly pushed a stake into the heart of the creature safely buried in its coffin -thus abandoning what is so wrong with ANT, that is `actor', `network', `theory' without forgetting the hyphen!— some other creature will emerge, light and beautiful, our future collective achievement.

viii. *Reassembling the Social*, Latour (2005, p. 9): To clarify, I will call the first approach 'sociology of the social' and the second 'sociology of associations' (I wish I could use 'associology'). I know this is very unfair to the many nuances of the social sciences l have thus lumped together, but this is acceptable for an introduction which has to be very precise on the unfamiliar arguments it chooses to describe as it sketches the well-known terrain. I may be forgiven for this roughness because there exist many excellent introductions for the sociology of the social but none, to my knowledge, for this small subfield of social theory that has been called—by the way, what is it to be called? Alas, the historical name is 'actor-network-theory', a name that is so awkward, so confusing, so meaningless that it deserves to be kept. If the author, for instance, of a travel guide is free to propose new comments on the land he has chosen to present, he is certainly not free to change its most common name since the easiest signpost is the best—after all, the origin of the word 'America' is even more awkward. I was ready to drop this label for more elaborate ones like 'sociology of translation', 'actant-rhyzome ontology', 'sociology of innovation', and so on, until someone pointed out to me that the acronym A.N.T. was perfectly fit for a blind, myopic, workaholic, trail-sniffing, and collective traveler. An ant writing for other ants, this fits my project very well!

ix. I have to apologize for taking the exact opposite position here as the one taken in Bruno Latour (1999c), 'On Recalling ANT'. Whereas at the time I criticized all the elements of his horrendous expression, including the hyphen, I will now defend all of them, including the hyphen!

x. Mol (2009, pp. 265-266): ANT is not a "theory", or, if it is, then a "theory" does not necessarily offer a coherent framework, but may as well be an adaptable, open repository. A list of terms. A set of sensitivities. The strength of ANT, then, is not that it is solid, but rather that it is adaptable. It has assembled a rich array of explorative and experimental ways of attuning to the world. The terms and texts

that circulate in ANT are co ordination devices. They move topics and concerns from one context to another. They translate and betray what they help to analyse. They sharpen the sensitivity of their readers, attuning them/us to what is going on and to what changes, here, there, elsewhere. In one way or another they also intervene, not from a place of overview, but rather in a doctoring mode. They care, they tinker. They shift and add perspectives.



xi. Criticisms of ANT : : Issues of ANT

1. For initial criticisms, see Pickering ("The Mangle of Practice: Agency and Emergence in the Sociology of Science," 1993)
2. e.g., Lee & Brown ("Otherness and the Actor Network," 1994, p. 781): We suggest that the actor network approach finds itself in a similar position. Having converted the world into a play of forces, it has no way of circumventing the formulaic circle of expansion, domination, and collapse. ANT has achieved a metalinguistic formulation—inscribed as problematization, interessment, enrollment, mobilization, and dissidence (CalIon, 1986)—into which any sequence of human or nonhuman actions can be encoded. This amounts to a foreclosure on all alternative descriptions of the world through the assertion of total democracy and complete ontological monadism. When combined, these two strategies make for an analytic that is perfectly designed for making accounts of the production of power and actants. The difficulty is that ANT offers no critique and countenances neither alternative nor supplement. As Latour (1988a) puts it: "We will never do any better" (p. 256).
3. ANT "opens discussion by problematizing the nonhuman and leaving the question of human agency itself unasked" (p. 772).
4. e.g., Radder ("The Politics of STS," 1998, pp. 326-327): Now I agree that this is precisely the position to which a systematic employment of ANT will lead. Hence Singleton's analysis confirms my earlier assessment that this theory, if applied consistently, cannot help you in answering the political question of 'What to do?' - and not just in particular cases (such as the cervical smear test programme), but as a matter of principle. In order to grasp the far-reaching implications of this conclusion, imagine a situation in which everyone endorses the actor-network approach and generally adheres to its rules. Clearly, such a global acceptance of Singleton's stance would entail the impossibility of any deliberate, future-oriented policy. Because of this, the argument had better be reversed. Since human beings are (and will remain) 'political animals', the politics of STS should not be constrained by the paralyzing framework of ANT.
5. **Description v Explanation**

a. Is it enough to describe? See Fuller's criticism of case studies, regarding the normative and axiological dimension of research.
b. "Society is Technology Made Durable," Latour (1991, pp. 129-130): Society and technology are not two ontologically distinct entities but more like phases of the same essential action. By replacing those two arbitrary divisions with syntagm and paradigm, we may draw a few more methodological conclusions. The description of socio-technical networks is often opposed to their explanation, which is supposed to come afterwards. ... If we display a socio-technical network — defining trajectories by actants' association and substitution, defining actants by all the trajectories in which they enter, by following translations and, finally, by varying the observer's point of view — we have no need to look for any additional causes. The explanation emerges once the description is saturated. ... Explanation, as the name indicates, is to deploy, to explicate. There is no need to go searching for mysterious or global causes outside networks. If something is missing, it is because something is missing. Period."
c. "Politics of an Explanation," Latour (1988, p. 159): In other words, why should we want to explain anything? In what sort of peculiar situation is an explanation necessary and when is a powerful explanation seen as inherently better than a weak one?

6. Relations and Signs : : From Networks to Networld

a. In spite of its principle of irreduction, does ANT risk reducing to— translating and transforming, or composing— a universe and world "exclusively of signs?"
b. This is not a question of the "symbolic world," the world of representation. Indeed, here Latour (2013, p. 249) assures us that we do *not* "live in a 'symbolic world'," that is somehow different or other than a real world, or the world.
c. The question has more to do with relationality than representation. Surely, a sign is a network, whether that sign is in the form of Peirce, Saussure, or Greimas.
d. As Peircean scholar David Savan ("Questions Concerning Certain Classifications Claimed for Signs," 1977, p. 187) clarifies: a sign is a relation in which the order of the three relata is of the greatest importance. This is sometimes obscured by the fact that Peirce tends to use the language of relatives rather than of relations. To repeat, a relative is a term defined by a relation. . . . Peirce frequently speaks as if a sign were a relative, the first relate or subject in a three place relation. But it is clear that what Peirce intends is that a sign is neither any one relate . . . nor . . . the relation apart from the relata. A sign is a trio of relata as they are ordered within a genuine triadic relation.
e. And what is a network?
f. If a Sign is a Relation, are relations signs?
    i. Peirce ("Basis of Pragmaticism," in *Collected Papers V*, 1906): It seems a strange thing, when one comes to ponder over it, that a sign should leave its interpreter to supply a part of its meaning; but the explanation of the phenomenon lies in the fact that the entire universe — not merely the universe of existents, but all that wider universe, embracing the universe of existents as a part, the universe which we are all

accustomed to refer to as "the truth" — that all this universe is perfused with signs, if it is not composed exclusively of signs.

g. If a Word is a Network, is a network a word?
    i. Walpole (1937, p. 401): "each word is a network of interlinked definitions."
    ii. See *Word Economy* and *The Loom of Language*
h. If a Text is a Network, is not a network a text?
    i. Michel Serres and Carl Lovitt ("India (The Black and the Archipelago) on Fire," 1973, p. 57) once proclaimed of something specific, yet also perhaps something more general: "The text is a network of figures, a constellation of words. That which physicists since Maxwell, after listing, called a complex."
    ii. Derrida @ world as Text
    iii. Barthes @ from semiology to mythology
        1. "in the field of the text (better, of which the text is the field."
        2. Seamless web of inter-textuality
i. Is a world of signs a world of networks? Is not a world of networks a world of signs?
j. What is "the networked world"?
    i. Geodesic Globe @ Bucky Fuller
    ii. Internetworking the world
k. From Networks to Networld: "Human communication has become the major use of computer networks and has transformed them into a social space where people connect with one another. Computer networks are not merely tools whereby we network; they have come to be experienced as places where we network: a networld." Harasim, Linda M. "Networlds: Networks as Social Space," in *Global Networks: Computers and International Communication*, Ed. Linda M. Harasim (Cambridge: MIT, 1993).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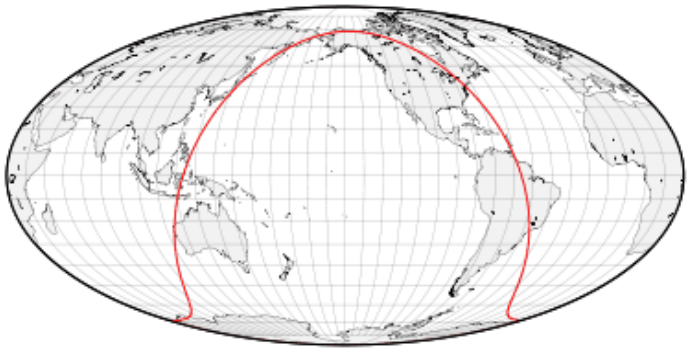

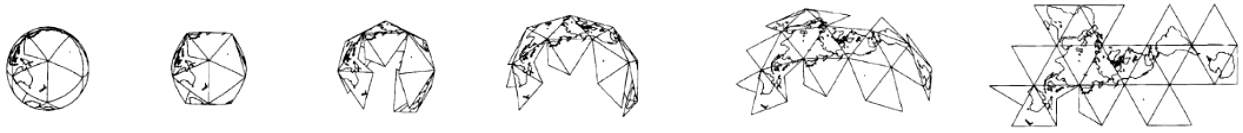

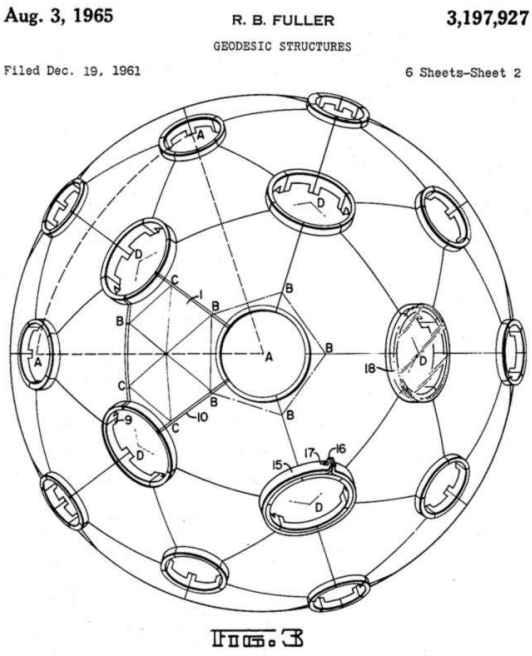
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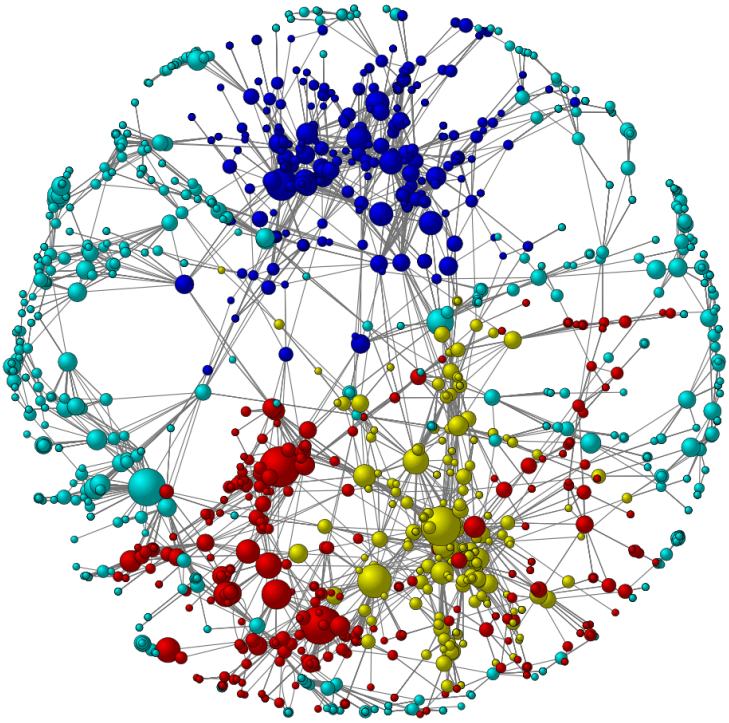


7. **Visualization of Networks** (Data Visualization, Knowledge Mapping, Social Cartography, etc.) @ SciViz & NetViz
    a. Images of Networks
        i. See Journal of Social Structure
        http://www.cmu.edu/joss/content/issues/vizsymposium.html
        ii. See Question of Signs above

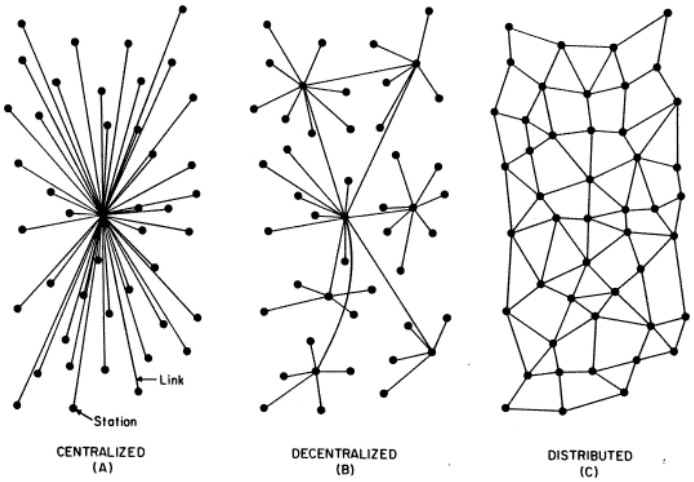
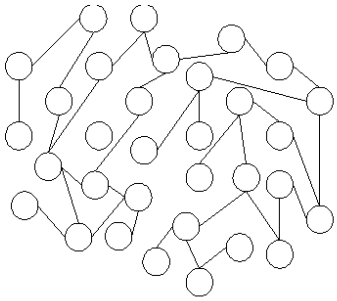
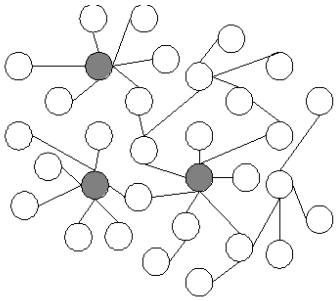


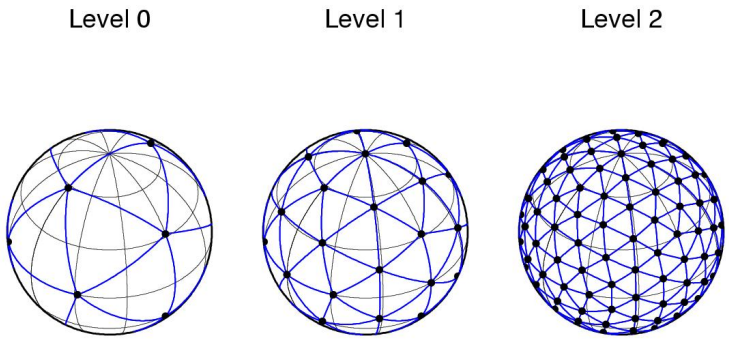
FIG. 1 — Centralized, Decentralized and Distributed Networks



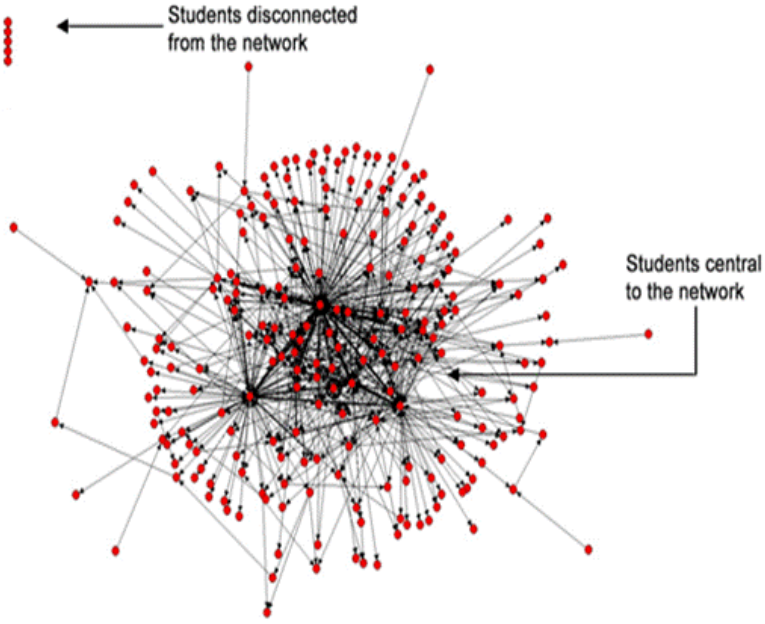
(a) Random network



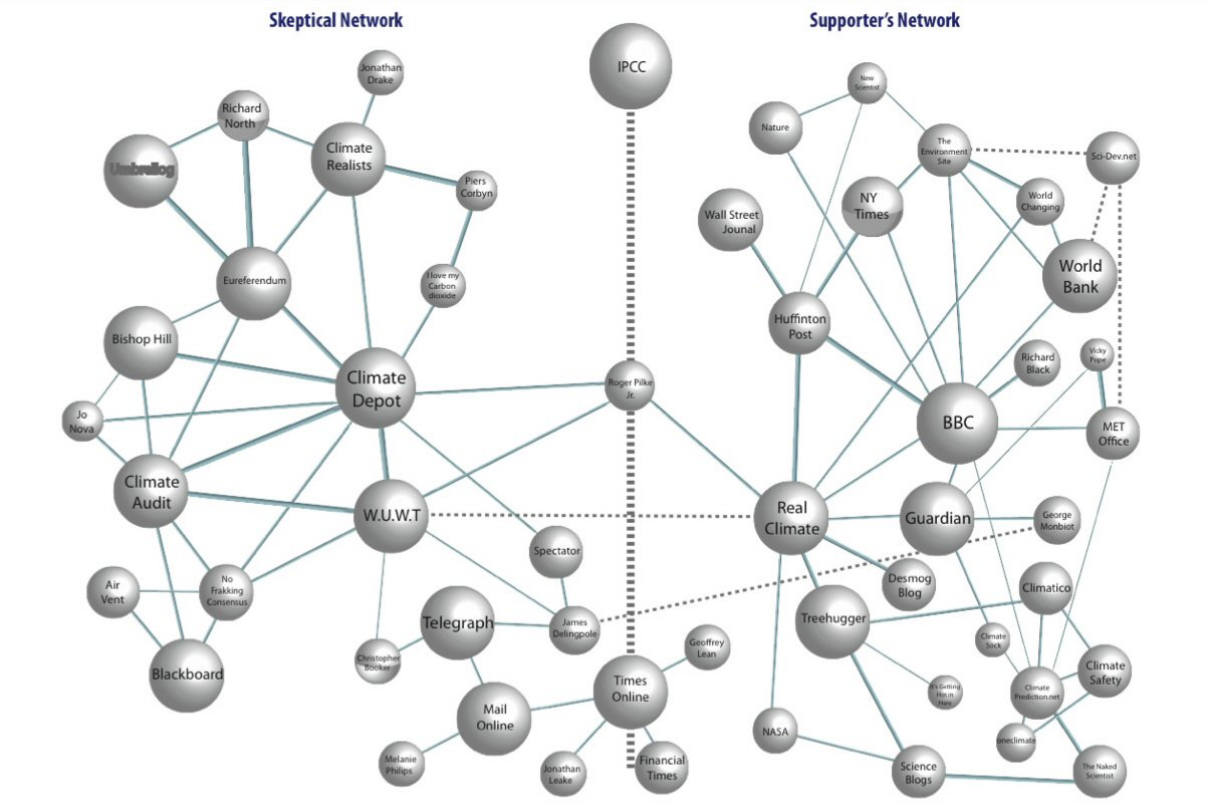
(b) Scale-free network



8. Identification and Disidentification



9. **Networks and counter-networks** (ANT v cANT) @ Conflict & Rival Networks : : Kritik ANT (KANT)



Note on Image:

- Climategate http://www.theguardian.com/environment/hacked-climate-science-emails
- Climategate Image by Profero (subsidiary Unsimplify) http://www.profero.com
  - http://rankexploits.com/musings/2010/proferounsimplify-clarifies-sort-of/
- Study commissioned by Oxfam http://www.oxfam.org
- Written by Stewart Conway of Trees, Water & People http://www.treeswaterpeople.org
  - "*there are no progressive networks" – just hubs of activity here and there, lacking interconnection.*"
- Left Foot Forward response: http://www.leftfootforward.org/2010/03/combating-the-growing-influence-of-climate-sceptics/
- Analysis http://devconsultancygroup.blogspot.ca/2010/03/oxfam-study-network-analysis-of-climate.html

10. **Power** (Resistance, Dissent, Dissensus, etc.)
    a. Can a flat ontology—a network— account for power relations?
        i. ANT has been adamant that the only answer to this question is that power is redefined *a la* Foucault— power is distributed, not held in potential.
        ii. ANT has been adamant that power is a network artifact
        iii. Power relations
11. **Actors**