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The Network's Blindspot: Exclusion, Exploitation and Marx's Process-Relational Ontology.

Robert Prey

Simon Fraser University, Vancouver, Canada, robp@sfu.ca

Abstract: The 'network metaphor' impoverishes our understanding of power. Its binary logic of inclusion/exclusion leaves it blind to relations of exploitation. However, instead of ideological critique – the standard Marxist approach - this paper reconstructs Marx's theory of exploitation from a common "process-relational ontology" that is shared by both network theorists and Marx. From this shared ontology it becomes possible to demonstrate how Marx's materialization of *process* through 'production' and his understanding of *relations* as 'internal' and 'contradictory' lead him not into an inclusion/exclusion cul-de-sac but rather to a critique of exploitation *writ large*. This paper concludes by briefly demonstrating how the theory of exploitation that emerges from Marx's process-relational ontology is ideally suited to understanding and critiquing the *intensification* and *extensification* of exploitation under informational capitalism.

Keywords: Networks, Marx, Castells, Hardt, Negri, Process-Relational Ontology, Exploitation, Exclusion, Internal Relations, Production, Contradiction, Informational Capitalism.

1. Introduction

From the terrorist networks that brought down the twin towers to the financial networks that brought about the credit crunch, today, as Hardt and Negri put it, "we see networks everywhere we look" (Hardt and Negri 2004, 142). As the key isomorphism and central metaphor of our times, the idea of the network has become the new "organizing framework" (Cavanagh 2007, 24) for how we understand social interaction in contemporary society.

This of course raises some important questions for social critique. The metaphors, narratives, and frames we draw on for meaning perform into being both forms of power and our ability to imagine critiques of power. Thus, this paper begins by asking what should be an obvious question: how does the network metaphor shape our understanding of power?

In what follows, I argue that the network metaphor provokes a one-dimensional understanding of power, one that fixates on an inclusion/exclusion binary and is largely blind to relations of exploitation. The reasons for the homology between network thinking and the critique of exclusion will be discussed, as will the inadequacy of thinking about power solely in such terms.

Given the theme of this special issue, I then turn to an examination of how Marx can provide us with a better-rounded critique of power in a world that – while increasingly connected - remains resolutely wedded to the exploitation of surplus value. However, instead of carpet bombing the network metaphor from the heights of ideological critique, this paper takes a reconstructive approach by first acknowledging a common ontological basis – what I call a "process-relational ontology" – that is shared by both network theorists and Marx. By starting from this common position it becomes possible to reconstruct the distinctive path Marx takes by materializing 'process' and internalizing 'relations'. These critical differences, I argue, explain the importance of exploitation in Marx's work and its neglect in the work of most network theorists. Our final destination is the argument that the theory of exploitation that emerges from Marx's process-relational ontology is no relic of a hierarchical world of industrial capitalism but rather a theory of social relations that is uniquely suited to critiquing power within contemporary "informational capitalism" (Castells 2000a, Fuchs 2010).

Before network thinkers and Marx can be brought together in conversation however, let us first turn our attention the network metaphor; its ubiquity and the mode of critique it engenders.

1.1. The Network Metaphor

The incessant use of the terms 'network' or 'networking' in the media may give the impression that these are simply superficial fad terms. However, in some academic circles the study of 'networks' is regarded as the new super-science (Barabasi 2003; Watts 2004) and "a leading contender for the basis of a long hoped for 'theory of everything'" (Cavanagh 2007, 25). For Manuel Castells, one of the leading theorists of 'the network society', "network theory could provide a common language, a common approach toward the understanding of nature and society through the fundamental shared

networks of biological networks, neural networks, digital networks, and human communication networks" (Castells 2011b, 795).[1] Regardless of how we judge the soundness of such statements it is certainly true, as Duncan Watts points out, that "a mutual investment in networks as a research agenda has united researchers in the physical and social sciences, and has brought together mathematicians and sociologists, psychologists and biologists in the search for understanding" (Cavanagh 2007, 25).[2]

For media and communication theorists, the network form is widely understood to be one of the key characteristics of 'new media' (Gane and Beer 2008). Indeed 'networks' are one of the information revolution's 'hurray' words as Allison Cavanagh (2007, 9) puts it. The Internet in particular is taken as the "gold standard" (Cavanagh 2007, 48) of what a network is, emerging in recent years as "the world's hardest-working metaphor" (Cavanagh 2007, 23).

Of course it is a particularly impoverished perspective that reduces the idea of 'the network' to a recent technological form. Networks are certainly not a contemporary invention.[3] They can be recognized in all societies throughout history. However, Castells and other contemporary scholars believe that "contemporary social circumstances provide, for the first time, a unique basis for [the] pervasive expansion [of networks] throughout the whole social structure" (Hepp, Krotz, Moores, and Winter 2008, 4). This basic argument – that a unique combination of technological, political and cultural factors have coalesced so that networks have emerged from under the shadow of previously dominant hierarchical forms of organization – accounts for "the rise of the network metaphor" (Cavanagh 2007).

Yet, if we accept the idea that metaphors don't just describe but also prescribe – that metaphors actively constitute the world we attempt to understand – then we must be willing to accept that there are direct political implications for how we choose to describe our world. This is not an argument against the use of metaphors. Indeed as John Urry writes: "social scientific work depends upon metaphors and much theoretical debate consists of contestation between different metaphors" (Urry 2003, 42). However, we must think carefully about the type of metaphors we employ and their effects on shaping our perceptions of social reality.[4]

Precisely how the network metaphor shifts our understanding of social and political critique will be examined in the following section. I will argue that the network metaphor orientates critique towards a binary focus on inclusion and exclusion. In doing so it simultaneously orients critique away from the problem of exploitation. In what follows I will focus on the most common tendency by network thinkers: to organize all critique under "the theme of exclusion" (Boltanski and Chiapello 2005, 347).

1.2. The Network Metaphor and 'Exclusion': A Homology

It is almost conventional wisdom amongst contemporary social and political theorists that relations of power and inequality today operate more through exclusion than through exploitation. The sociologist Scott Lash, for example, argues that exploitation has ceased to be the locus of power, having been replaced by exclusion, including the self-exclusion of "relatively disembeded" elites (Lash 2002, 4). Similarly in his latest book *Communication Power*, Castells argues:

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[1] In discussing network theory in this paper I will primarily focus on Manuel Castells' notion of networks and his thesis of the 'network society'. I do this because his is arguably the most prominent and familiar version of network theory within Communication and Media Studies. While Castells presents an original theory of networks much of my analysis and critique can be understood to apply to network theory in general.

[2] In part this has to do with how broad the definition of networks is. As Watts observes: "In a way, nothing could be simpler than a network. Stripped to its bare bones a network is nothing more than a collection of objects connected to each other in some fashion. On the other hand, the sheer generality of the term network makes it slippery to pin down precisely" (Watts 2004, 27). The myriad ways of understanding the 'network metaphor' as it is used in social theory has resulted in a situation whereby "even within a discipline it would be serendipity rather than design if two theorists were talking about the same concept at the same time" (Cavanagh 2007, 9).

[3] The attempt to understand society through the study of networks is not new either (see Quandt 2008). In Communication and Media Studies, Mattelart and Mattelart (1998) describe how pioneering communications scholar Everett Rogers drew from the work of Gregory Bateson, Georg Simmel and Jacob L. Moreno to update his theories of innovation by foregrounding communication network analysis. However, while network analysis has never been more than a marginal endeavor Castells and other contemporary proponents of the 'network society' thesis believe that it is more applicable than ever.

[4] Castells is certainly aware of this issue; indeed it is a central part of his theory of "communication power". In his most recent book he draws on neuroscience and cognitive linguistics to argue that we are made up of neural networks connected to an outside world of networks through the metaphors, narratives, and frames we draw on to make meaning. As Castells (2009, 145) puts it "[p]ower is generated in the windmills of the mind" and thus "the fundamental form of power lies in the ability to shape the human mind" (ibid., 3).

> "There is a fundamental form of exercising power that is common to all networks:
> exclusion from the network […] there is one form of exclusion – thus, of power –
> that is pervasive in a world of networks: to include everything valuable in the global
> while excluding the devalued local" (Castells 2009, 50).

We can see from this quote that not only does Castells see exclusion as "a fundamental form of exercising power", but 'exclusion' and 'power' actually appear to morph into one concept. According to Castells and other social theorists, if networks and connectivity are the dominant logic or morphology of life, then oppression is defined by disconnection from these networks. As the British geographer and theorist Nigel Thrift puts it matter-of-factly, "new forms of connection produce new forms of disconnection" (Thrift 2002, 41).

For Castells, the emergence of the new spatial logic that characterizes the network society is expressed through the fragmentation of physical space in a variable geography of hyperconnection and structurally induced "black holes" – what he refers to as "the Fourth World". This "new geography of social exclusion" includes much of Sub-Saharan Africa, American inner-city ghettos, French banlieues and Asian mega-cities' shanty towns (Castells 2000c, 168). Exclusion thus becomes the predominant side effect of contemporary 'informational capitalism'. For Castells, according to one commentator,

> "[...] large sections of the world population are not so much repressed – rather they
> are abandoned, declared worthless, and bypassed […] by the global flows of
> wealth and power […] The intense, if repressive, attention totalitarian regimes paid
> to their citizens has been replaced by the extensive neglect of informational capital-
> ism, which also declared entire populations to be "redundant", to be ignored or
> treated as undesirable migrants if they show up at the gated communities of the
> rich" (Stalder 2006, 131).

Power in 'the network society' is exercised through network gatekeeping (Barzilai-Nahon 2008) with social actors establishing their positions of power "by constituting a network that accumulates valuable resources and then by exercising their gatekeeping strategies to bar access to those who do not add value to the network or who jeopardize the interests that are dominant in the network's programs" (Castells 2011, 774). "If a node in the network ceases to perform a useful function it is phased out from the network, and the network rearranges itself – as cells do in biological process-es" (Castells 2000b, 15). Enrolling all that is useful and required for the continued survival of the network and expunging all that is considered useless or detrimental, the network "works on a bina-ry logic: inclusion/exclusion" (ibid.).

What is most important to take away from such a conceptualization of power is that it is not en-acted through personalized decisions but rather through the protocols that a network sets. A proto-col is a mechanism that binds seemingly autonomous agents together so that they are able to in-teract and form a network.[5] "Without a shared protocol, there is no network" (Galloway 2004, 75).[6] Protocol allows power to become disassociated from the acts of individual agents and instead em-beds power in the rules and regulations that make up the system.

Exclusion is perfectly situated to assume pole position as the dominant political critique in a so-ciety that seemingly coheres around networks; where being connected in constantly shifting links of affinity becomes the ultimate aim and where power is never manifested in a fixed 'class', individual, or institution.[7] As Daniel Béland explains:

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[5] In the world of digital computing, the term 'protocol' refers to the standards governing the implementation of, and the communication between, specific technologies. However protocol is not a new word. A protocol may be technical, legal, financial, or cultural in nature. As Alexander Galloway notes, "[p]rior to its usage in computing, protocol referred to any type of correct or proper behaviour within a specific system of conventions. It is an important concept in the area of social eti-quette as well as in the fields of diplomacy and international relations" (Galloway 2004, 7).

[6] For example, the highway system, like any system held together by protocols, allows "interdependence on the basis of independence" (Stalder 2006, 134). To be denied entry, or to be excluded from the system – to be refused a driver's license for example – represents the gravest threat. Thus, unlike traditional command-and-control hierarchies, which monitor the content of interaction, power operates in a network through the protocols that set the 'rules of engagement'. As Felix Stalder notes, "[t]his is precisely the point where we can locate the transformation of power operating through repression to power operating through exclusion" (Stalder 2006, 135).

[7] The post-Marxist critique of the idea that power emanates from an identifiable centre has almost become a new aca-demic orthodoxy. When Castells describes power as operating in a 'space of flows' he is building on and adding to a diverse tradition that includes Foucault, Laclau and Mouffe and other influential post-Marxist theorists. In a different way, the recent work of Hardt and Negri (2000, 2004, 2009) which I will be discussing in more detail later on, also builds on this tradition. The contribution of Castells and Hardt and Negri is in providing the perfect metaphor for the diffuse, de-centred world of post-Marxists, because "[b]y definition, a network has no centre" (Castells 2000b, 15).

> "[...] social exclusion is based on a horizontal, spatial metaphor rather than a verti-
> cal model of inequality focusing mainly on income disparities. From the perspective
> of the social exclusion paradigm, people are more 'in' or 'out' of mainstream society
> than 'up' or down' the class or the income distribution structure." (Béland 2007,
> 127)

The network metaphor is also a horizontal, spatial metaphor. The "world is flat" because it is in-increasingly networked. This is the source of the homology between the network metaphor and "the theme of exclusion" (Boltanski and Chiapello 2005, 347). In their groundbreaking text *The New Spirit of Capitalism* French academics Luc Boltanski and Ève Chiapello argue persuasively that "the theme of exclusion" is "clearly based on a representation of society constructed around the network metaphor" (Boltanski and Chiapello 2005, 348):

> "In our view, the very rapid diffusion of a definition of the social world in terms of
> networks that accompanied the establishment of the connexionist world makes it
> possible to understand how the dynamic of exclusion and inclusion – initially asso-
> ciated with the fate of marginal groups – was able to take the place previously as-
> signed to social classes in the representation of social misery and the means of
> remedying it." (Boltanski and Chiapello 2005, 349)

Thus, according to Boltanski and Chiapello, the increased focus on networks during the 1980s and 1990s helped shift social and political debate away from class inequality and income redistribution. The relative success of individuals or groups instead becomes dependent on their ability to tap into networks: to be judged to be 'of value' to the network. Failure to do so results in exclusion. If the success of an argument is determined by its simplicity and coherence then this binary model of inclusion/exclusion would certainly win the day.

1.2.1. The Problem with 'Exclusion'

While recognizing that exclusion is a worthy target of critique in our "connexionist" world, Boltanski and Chiapello take issue with the dominant, almost single-minded focus on exclusion in much of contemporary social theory.[8] This is because 'exclusion', in their opinion, exhibits numerous short-comings as the central locus of critique.

First of all, 'exclusion' defines the excluded as those who lack something, or possess negative characteristics. Boltanski and Chiapello describe how the discourse of exclusion originally emerged in the 1970s as a way to discuss the marginality of those with physical or mental handicaps, but it has since grown to include those 'at risk' populations who are considered to have social handi-caps.[9] A lack of qualifications is the explanation most frequently given for the exclusion of certain populations. "It is precisely this link between poverty and fault - or, to be more precise, between poverty and personal properties", Boltanski and Chiapello (2005, 354) recognize, "that can easily be converted into factors of individual responsibility". This is clearly a step backward as blaming the victim, in whatever guise it assumes, was something "the notion of class, and especially that of the proletariat, had succeeded in breaking" (ibid).

> "Unlike the model of social classes, where explanation of the 'proletariat's' poverty
> is based upon identifying a class (the bourgeoisie, owners of the means of produc-
> tion) responsible for its 'exploitation', the model of exclusion permits identification of
> something negative without proceeding to level accusations. The excluded are no
> one's victims, even if their membership of a common humanity (or 'common citi-
> zenship') requires that their sufferings be considered and that they be assisted."
> (Boltanski and Chiapello 2005, 347)

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[8] Likewise, in this paper I am not attempting to deny the existence of exclusion, only that it has become too hegemonic. We thus find ourselves in a very different intellectual moment compared to what Raymond Murphy (1985) was describing when he tried to overcome the limitations of the then dominant voice of critique – Marxist theories of exploitation – with an appeal to Weber's social closure theory of exclusion.

[9] In an essay entitled "The Social Exclusion Discourse" Daniel Béland documents the French origins of the concept. He writes "[a]s early as 1965, social commentator Jean Klanfer published a book entitled *L'Exclusion sociale: Étude de la mar-ginalité dans les sociétés occidentales* [Social exclusion: The study of marginality in western societies]. In this moralistic book emphasising personal responsibility, the term 'social exclusion' refers to people who cannot enjoy the positive conse-quences of economic progress due to irresponsible behavior" (Béland 2007, 126).

Thus 'exclusion' is for Boltanski and Chiapello a "topic of sentiment" rather than a "topic of denunciation". This shifting of responsibility onto the backs of the oppressed seriously weakens the political force of critique; leaving the critic with little choice of weaponry, save for appeals to generosity and compassion.[10] Exclusion, Boltanski and Chiapello recognize, is presented as "someone's misfortune (to be struggled against), not as the result of a social asymmetry from which some people profit to the detriment of others" because "exclusion, unlike exploitation, profit[s] no one" (Boltanski and Chiapello 2005, 354).

Finally, reintegration becomes the only recourse in a world where injustice is understood as being about exclusion from the system. If this is the solution though, how do we then assess oppression that occurs through the inclusion of subjects into exploitative networks or systems? Modern regimes of power – as critical thinkers from Marx to Foucault have recognized – in fact work through modes of incorporation. Modern power is productive, Foucault concluded in his study *Discipline and Punish,* because "its aim is to strengthen the social forces - to increase production, to develop the economy, spread education, raise the level of public morality; to increase and multiply." (Foucault 1991, 207). 'Panopticism' for Foucault, or capitalism for Marx, fuse the economic with the political - the creation of value with the organization of power. Any attempt to update theories of power for the contemporary era must not forget that the creation, extraction and circulation of value is fundamentally an exercise and an expression of power; it both requires asymmetries of power in order to occur and it produces new power relations in the process. It is not very clear in Castells' work, for example, how 'exclusion' as the fundamental form of exercising power in the network society increases economic productivity. It should instead be asked, as Marcuse puts it, "whether the excluded are really excluded from the system, or whether they are in fact quite useful for it but simply excluded from its benefits" (Marcuse 2002, 139).

Common to all of the shortcomings of "the theme of exclusion" is an implicit assumption: that the world is made up of an inside/outside binary. In such a world the traditional critique of exploitation makes little sense if "on one side, we have highly prosperous strong people and, on the other, little people in a miserable state, but there is no link between them and they move in completely different worlds" (Boltanski and Chiapello 2005, 360). Can this really describe the social world we live in? The answer is of course no.

This is where the problem with the single-minded focus on exclusion by network thinkers gets interesting; for isn't the 'network' the form *par excellence* for understanding the world as shared and common? Isn't "the science of networks" a super-science for "the connected age" (Watts 2003)? Here we arrive at what seems to be a contradiction: the network metaphor posits a connected and relational world while at the same time conceiving of power as operating predominantly through exclusion and disconnection.

The limitations acknowledged call out for a reintroduction of 'the theme of exploitation' into contemporary social critique. This is certainly not a groundbreaking realization. But when it has been acknowledged we have usually been presented with one of the following two options. The most common response taken by Marxian scholars has been that of '*ideologiekritik*': all talk of networks is deemed ideological and a return to the analysis of class and exploitation is called for (Garnham 2004; Callinicos 2006). Alternatively, following Boltanski and Chiapello's (2005) lead, we can largely accept the network discourse and attempt to generate a new theory of exploitation more suitable for our "connexionist" world.

In what follows, I attempt to offer a third approach, turning away from the discursive self-representation of a society cloaked in the metaphors and narratives of networks and towards a common ontological framework that I argue guides the thinking of network theorists and Marx. Clearly Marx was not a 'network' theorist as conventionally understood. But his discussion of capital as a relation and as value-in-motion shares deep affinities with network thinking.[11] This is no mere coincidence. In this paper I argue that this affinity stems from a shared *process-relational* ontology. By locating a common position from which to begin, it becomes possible to reconstruct the distinctive path Marx took in conceptualizing 'process' and 'relations', and in turn, understand

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[10] Béland writes "the dominant political discourse about social exclusion has done little more than legitimise modest social programmes that seldom challenge the liberal logic seeking to limit social spending while encouraging citizens to become increasingly dependent on market outcomes (ie 'recommodification')" (Béland 2007, 134).

[11] Scott Kirsch and Don Mitchell develop in detail the affinities between Marx and network theory – in particular actor-network theory: "Marx, of course, did not write in the language of networks. But he did write in the language of circuits, showing in great detail how capital – as value in motion – travels a set of circuits, from, for example, the hands of the capitalist, into the machines and buildings of the work place, and on into the produced commodity. He shows how capital precisely *because* it is a relation, becomes "frozen" for greater or lesser duration as the means of production or the produced commodity, only to be returned to the capitalist when the commodity is exchanged on the market. Commodities "stabilize" social relations in technologies and "things as such", and commodity circulation in this sense is a network." (Kirsch and Mitchell 2004, 696)

how this path leads us not into the inclusion/exclusion cul-de-sac but rather to a critique of exploitation *writ large*.[12]

2. Network Ontology

Let us now leave behind the network metaphor and work our way down to the level of ontology. Once we do so we will quickly realize that this metaphor is no more than a contemporary representative strategy of a much older philosophical position which can be traced back to the pre-Socratic Greek philosopher Heraclitus. This "process-relational ontology", as I will call it, has found new life in network analysis. I will begin by explicating what is meant by 'process'.

2.1. Process

Network thinkers emphasize processes. Social reality is composed not of static things, but of activity, of change, of flows. The idea that that process precedes substance has been the primary argument of process philosophers from Heraclitus to Alfred North Whitehead.

How does this relate to networks? Networks are *dynamic* patterns of processes. The physicist Fritjof Capra, a former colleague of Castells at Berkeley, has been a tireless popularizer of the new science of complexity and autopoeisis, which places networks at the center of all life processes. Capra, drawing on the seminal work of the Chilean biologists Humberto Maturana and Francisco Varela, argues that what makes life a dynamic process and not a static system is the characteristic of renewal and recreation. "[L]iving networks continually create, or recreate, themselves by transforming or replacing their components. In this way, they undergo continual structural changes, while preserving their web-like patterns of organization" (Capra 2004, 10). Thus, networks are not determined by one individual component (contra the genetic blueprint argument for example), nor are they characterized by the static and stable organization of relations. Instead, it is the entire *process* of interactions and the continuous bringing into being of emergent properties through interactions with the surrounding environment, which prevents a network from entering a state of decay.

Networks are also not characterized by one-off interactions but rather by enduring, recurrent, recreative patterns of interaction over time. Thus a focus on process necessarily draws our attention to the importance of temporality. From a process perspective, "how we make ourselves as beings is how we make ourselves in time, how we are time, and how time is us" (Pomeroy 2004, 108). Being *is* time because being is always becoming.

It is true that many network theorists often slip back into substantialism. The ubiquitous web diagrams that seem to accompany every discussion of networks often privilege spatiality over temporality and narrative emergence. However as Mustafa Emirbayer (1997) points out, this can be blamed on the hegemony of substantialism in everyday thought patterns and its very embeddedness in Western languages which force us to reduce processes to static conditions.[13] What is important to remember though is that network thinking (if not always its representation) conceives of networks as always in the process of becoming.

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[12] Although my focus in this paper is on exploitation and exclusion in the economic field, it is important to point out that Marx's theory of exploitation need not be limited to this field. Buchanan (1979, 122) argues that Marx's work includes "three distinct but related conceptions of exploitation: (a) a conception of exploitation in the labor process in capitalism, (b) a transhistorical conception of exploitation which applies not only to the labor process in capitalism but to the labor processes of all class-divided societies, and (c) a general conception of exploitation which is not limited to phenomena within the labor process itself". Marx's most general conception of exploitation appears in one of his earliest works, *The German Ideology,* where he describes the bourgeois view of interpersonal relations which sees all human relations *in general* as exploitable:

"[...]all[...]activity of individuals in their mutual intercourse, eg., speech, love, etc., is depicted (by the bourgeois) as a relation of utility and utilization. In this case the utility relation has a quite different meaning, namely that I derive benefit for myself by doing harm to someone else (*exploitation de l'home par l'home)* […] All this actually is the case with the bourgeois. For him only one relation is valid on its own account – the relation of exploitation; all other relations have validity for him only insofar as he can include them under this one relation, and even where he encounters relations which cannot be directly subordinated to the relation of exploitation, he does at least subordinate them to it in his imagination. The material expression of this use is money, the representation of the value of all things, people and social relations." (Marx 1974, 110).

[13] We can only express change by adding a verb to a thing. Emirbayer quotes Norbert Elias for an example of this: "We say "The wind is blowing," as if the wind were actually a thing at rest which, at a given point in time, begins to move and blow." (Elias 1978, 111f. cited in Emirbayer 1997, 283).

2.2. Relations

Relations, writes the Dutch network theorist Jan van Dijk, are "the prime focus of attention in a network perspective"[14] (van Dijk 2006, 25). Relations can be understood as the most basic form inherent to any network and a network can be said to exist whenever two or more linked relations are present.

Rather than attempting to understand actors by looking at the institutions and structures under which they live, or through the individual traits and characteristics they posses, network thinkers believe that we can learn far more about someone or something through the relations they are embedded within. This argument is based on an ontology which sees the world as constituted by forms instead of substances. Relational ontology posits that relations *between* entities are ontologically more important than the entities in and of themselves (Wildman, 2010). In any network, Felix Stalder points out, "it makes no sense to argue that nodes come first and then they begin to create connections. Rather it is through the connections that nodes create and define one another. Nodes are created by connections, and without nodes there can be no connections." (Stalder 2006, 177)

Network thinkers can be situated along a spectrum in terms of how they conceptualize the relative importance of relations to nodes. Jan van Dijk adopts what he calls a "moderate network approach" by focusing not solely on relations, but "also on the characteristics of the units (nodes) that are related in networks (people, groups, organizations, societies)" (van Dijk 2006). Other network theorists take relational ontology to its logical extreme, arguing that there are no essences (units or nodes) at all. Actor-Network theorists Bruno Latour and John Law call their approach "radical relationality". This is the principle that "[n]othing that enters into relations has fixed significance or attributes in and of itself. Instead, the attributes of any particular element in the system, any particular node in the network, are entirely defined in relation to other elements in the system, to other nodes in the network" (Law, 2003, 4).[15] It is not necessary to go to this extreme though in order to accept the central argument agreed upon by all network theorists; that "[a]ll entities […] achieve their significance by being in relation to other entities" (ibid.).

Finally, process and relation must be understood as co-dependent because "a universe driven by the movement of process is necessarily a relational universe. In fact, the processive movement itself is the self-generation of relationality" (Pomeroy 2004, 143). As I will demonstrate in the following sections, a process-relational perspective is also the key to understanding Marx's philosophy, and in particular his theory of exploitation.

3. Marx's Process-Relational Ontology

How is Marx also a process-relational thinker? How does Marx's process-relational ontology differ from that of network theorists such as Manuel Castells? In what follows, I will attempt to answer these questions by demonstrating how Marx materializes process philosophy through his category of 'production' and how Marx does not simply emphasize relations, but *internal* relations. Finally I will elaborate on the importance that 'contradiction' plays in generating the dynamic nature of Marx's ontology and how the theory of exploitation which emerges from such an ontology is particularly relevant for critiquing power within contemporary informational capitalism.

3.1. Materializing Process

As Bertell Ollman argues, Marx consistently prioritizes movement over stability in his writings:

> "With stability used to qualify change rather than the reverse, Marx – unlike most modern social scientists – did not and could not study why things change (with the implication that change is external to what they are, something that happens to them). Given that change is always a part of what things are, his research problem could only be *how, when,* and *into what* they change and why they sometimes appear not to (ideology)." (Ollman 2003, 66)

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[14] While Castells is well known for not providing clear definitions of the concepts he uses - preferring instead to let definitions emerge organically through their usage – Jan van Dijk provides a very useful definition of networks in his book *The Network Society*. "A network can be defined as *a collection of links between elements of a unit*. The elements are called nodes. Units are often called systems. The smallest number of elements is three and the smallest number of links is two. A single link of two elements is called a relation(ship)". (van Dijk 2006, 24)

[15] Just as in the idea, first proposed by de Saussure, that all words only achieve meaning when they are juxtaposed with other words – ie. father and son, day and night etc – radical relationality extends this insight beyond language to all things and beings.

However, while Marx shares this predilection with network theorists, process nevertheless takes on a whole new meaning in his writings. This is because, as the philosopher Anne Fairchild Pomeroy argues, Marx materializes process through his foundational category of 'production'.[16] Pomeroy compares Marx to the process-relational philosopher Alfred North Whitehead, illustrating how the category of 'production' in Marx is the "functional equivalent" of the category of 'process' in White-head's metaphysics (Pomeroy 2004, 44).[17] A brief overview of what Marx means by 'production' may be helpful to demonstrate how it informs his process-relational ontology.

'Production' is for Marx a highly complex term that serves as a necessary abstraction. Just as 'process' for Whitehead performs multiple levels of analysis, Marx's concept of 'production' functions on numerous levels from the most abstract and general to the most concrete and specific. In Marx's writings 'production' operates:

> "(1) on the level of the general conditions found in all production as the interchange between, indeed identity between, human life and nature; (2) on the many levels of historical forms of production: communal, feudal, capitalist, (3) within each of these, on the levels of different branches of production, and (4) on the levels of the activity of the social subjects who are 'active in a greater or sparser totality of branches of production'." (Marx 1973, 86; cited in Pomeroy 2004, 46)

It is important to first nail down the most general characteristics of production because as Marx says "[n]o [specific mode of] production will be thinkable without them" (Marx 1973, 85).

Most importantly, Marx conceives of production as a temporal process. Production in general involves three analytically distinct but unified moments: *appropriation* (of the social-natural world), *productive activity* (creative re-creation by and of the subject) and *objectification* (of a novel relational being or object). Whether one is building a house or reading a magazine one is always engaged in this production process. Importantly, the subject engaging in the productive activity is also changed by and through this activity. "[P]roductive activity not only makes "things" or objects in the natural world, but also objectifies the form of the subjective activity itself. It is a production of a certain kind of individual" (Pomeroy 2004, 54). As Marx put it in *Capital*, "He acts upon external nature and changes it, and in this way he simultaneously changes his own nature" (Marx 1990, 283). Thus, "[t]he processive or productive individual *is what it does*" (Pomeroy 2004, 70). This is made very clear in *The German Ideology* where Marx and Engels write that the mode of production:

> "[...] must not be considered simply as being the production of the physical existence of the individuals. Rather it is [...] a definite *mode of life* on their part. As individuals express their life, so they are. What they are, therefore, coincides with their production, both with *what* they produce and with *how* they produce." (Marx and Engels 1974, 42)

While bourgeois economists distinguish between production, distribution and consumption, Marx argued that all were specific moments in the productive process. While clearly not identical they are distinctions within a unity. They all serve to drive the productive process forward. When I 'consume' a meal I am also 'producing' my being. "Consumption as a moment, production as a moment, are occurring for the sake of the movement itself, process itself" (Pomeroy 2004, 53).

Production as process is necessarily also production as relation. As Pomeroy expresses it, "the processive movement itself is the self-generation of relationality" (Pomeroy 2004, 143). Thus, at the centre of this production process stands not the independent, isolated producer – the Robinson Crusoe character celebrated by bourgeois thinkers – but the individual as the ensemble of social relations, or as Carol Gould (1978) phrases it, "individuals-in-relations".

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[16] Since process is a temporal concept it may be helpful to give a brief overview of Marx's theory of time. Against Kant Marx argues that time is not an a priori form of perception, nor is it an objective sequence that is located purely outside collective subjectivity (à la Newton). Instead, Marx argued, human time-consciousness emerges out of the very labouring activity which objectifies our world. This is because it is only through labouring activity (production) that real novelty comes into being. While Heidegger posits the activity of 'Being' as the source of temporality, Marx regards this activity (labour) as introducing time into things (objects, institutions etc). In turn the 'objectified' form of labour introduces objective time (see Gould, 1978, 56-68, for a much more detailed explanation).

[17] It is possible to sum up Pomeroy's argument for the equivalence of 'production' and 'process' as follows. Firstly, "[b]oth Marx and Whitehead use their respective terms to refer both to the general abstract character of all productive processive activity and to any specific concrete instance or moment of that activity." Second of all, "[p]roduction and process both refer to and serve to explicate the movement of becoming that is the temporal or historical world..." and finally "[b]oth process and production are affected by socially related individuals..." (Pomeroy 2004, 60).

> "[T]he *social* character is the general character of the whole movement: *just as* society itself produces *man as man*, so is society *produced* by him. Activity and consumption, both in their content and in their *mode of existence*, are *social*: *social* activity and *social* consumption." (Marx 1988, 104).

Thus, for Marx, each human being is what he or she does, and what he or she does, constantly, is produce. We are continuously re-producing ourselves as we produce something new.

Earlier I described how network thinkers regard the processes of renewal and recreation as crucial to how networks are able to sustain themselves. Marx's conception of 'production' performs much the same function, but for "individuals-in-relations" and the objective world produced into being. In Castells' theory of "the network society", the locus of production is transformed from individuals-in-relations to knowledge-in-networks. This is because for Castells the key source of productivity in the network society is not the knowledge worker, but knowledge itself. The tendency by network theorists to naturalize knowledge is a continuation of a long trend in economic thought of bestowing innate qualities of value on factors of production. Marx criticized this fallacy vehemently in his day and would no doubt concur that knowledge or information "is not inherently valuable but that a profound social reorganization is required to turn it into something valuable" (Schiller 1988, 32, cited in Jessop 2003, 2).

A network approach doesn't necessarily preclude a material view of process. Like Castells, Hardt and Negri (2000, 2004, 2009) posit the network as the dominant form power takes in contemporary society**.** Unlike Castells and most other network theorists though, Hardt and Negri understand power as operating through processes of *inclusion.* The logic of capital, what they call "Empire", is best understood as a "universal republic, a network of powers and counterpowers structured in a boundless and inclusive architecture" (Hardt and Negri 2000, 166). Hardt and Negri understand this logic to be one that necessitates constant movement and expansion outwards. Echoing Marx, Hardt and Negri write, "the capitalist market is one machine that has always run counter to any division between inside and outside. It is thwarted by barriers and exclusions; it thrives instead by including always more within its sphere" (Hardt and Negri 2000, 190). By focusing on inclusion, Hardt and Negri are able to better conceive of power as productive.

Who is the source of this production that 'Empire' seeks to include? In Hardt and Negri's Spinoza-influenced language, it is the 'multitude'. The multitude is a conception of class that extends beyond the wage-labourer to include all those who labour to produce "the common". It follows from this that Hardt and Negri re-evalute exploitation to be about the expropriation of the common. We could think of this as 'network exploitation' whereby the common which is produced through the networked activity of the multitude is simultaneously exploited by Empire. Capital is therefore dependent on the multitude's production.

Hardt and Negri thus follow Marx in understanding human agency to be generative of a surplus: life as a process of production. This represents an advance over network theories that can only conceive of power as working through exclusion. As discussed earlier in the paper, the theme of exclusion tends to focus attention on deficiencies or handicaps, broadly construed. The excluded are those who lack proper educational qualifications for example. Exclusion thus emerges as a problem of *lack*. Exploitation on the other hand is a problem of *excess*. 'Exploitation' defines the exploited as those who *have* something, for why else would they be exploited? As Hardt and Negri (2004, 333) write in *Multitude*, "[t]he oppressed" (or excluded) may name a marginal and powerless mass, but "the exploited" is necessarily a central, productive, and powerful subject."

By shifting the focus of critique from exclusion to inclusion, Hardt and Negri are better able to address more complex modes of power, including contemporary processes of exploitation. At the same time their adherence to the network metaphor still generates some problems that I will be addressing in more detail later. First, let us move on to a discussion of how Marx's process-relational ontology can be distinguished by its understanding of relations as internal.

3.2. Internal Relations

In his widely cited "Manifesto for a Relational Sociology", Mustafa Emirbayer (1997, 290) describes Marx as a "profoundly relational thinker" whose relational ontology is revealed through his "analyses of alienation […] his discussion of commodity fetishism, his keen insights in the internal relations among production, distribution, exchange, and consumption, and, indeed his understanding of

the capital/wage-labor relation itself". It has also been said that "[p]erhaps no word appears more frequently in Marx's writings than *Verhältnis* (relation)" (Ollman 2003, 73).[18]

But to simply state that Marx was a relational thinker does not tell us very much. The question should instead be what kind of a relational thinker was Marx?

Marx's relationality is generated from a philosophy of internal relations - what Ollman considers to be "the much-neglected foundation of his entire dialectical method" (Ollman 2003, 116). While Marx draws inspiration from Hegel, the philosophy of internal relations traces its origins to the Greek philosopher Parmenides, reappearing in the modern period as a central tenet of Spinoza's thought.

To say that all relations are internal is to imply that everything has some relation, however distant, to everything else and that these relations are *necessary*. To say that relations are necessary is to argue that they are essential to the characteristics of the *relata*. "Internal relations are those in which the individuals are changed by their relations to each other, that is, where these relations between individuals are such that both are reciprocally affected by the relation" (Gould 1978, 37). Contrarily, external relations serve to link up *relata* but "each *relatum* is understood to be a separate self-subsistent entity, which exists apart from the relation and appears to be totally without change in their nature or constitution" (Gould 1978, 38).

The importance of distinguishing between a relationality composed of *internal* relations and one made up of *external* relations becomes clear when we look at Castells' thesis of the network society. What allows Castells to posit the emergence of a novel social formation – a "network society" - is the distinction he makes between "modes of production" and "modes of development."[19] The current mode of production is still capitalist, according to Castells, but with a new mode of development that fuels its productivity: "*informationalism*".[20] However, Castells does not sufficiently anchor this mode of development within the mode of production. "Informationalism" appears to act as an external causal force. As already mentioned, knowledge or information is naturalized as a factor of production (like land, capital or labour) obscuring the conditions under which it is produced. Value is thus erroneously attributed to the immanent qualities of things *brought into* the production process rather than to a process generated *out of* particular social relations.

The problem, as Wayne realizes is "[h]ow can we assess the continuities and differences *within* a mode of production that is oriented toward the perpetual transformation of technological forces and social relations?" (Wayne 2004, 141). As Marx writes in *The Economic and Philosophical Manuscripts*, bourgeois political economy is unable to understand the internal dynamics and connections that drive capitalist development. Instead this development is attributed to "external and apparently accidental circumstances" (Marx 1972, 106, cited in Wayne 2004, 139). This is precisely the problem with Castells' analysis.

For Castells, network relations are external. The network society is the emergence of a new social morphology resulting from the development of new (technological) relations between pre-existing *relata*.[21] Castells is careful to acknowledge that technology does not *cause* the transformation to a network society, but he insists that it is "the indispensable *medium*" (Castells 2000b, 14). In other words, for Castells (technological) networks provide the means through which individuals are brought into relation.

Much of the commentary on this aspect of Castells' theory revolves around accusations of technological determinism (see Webster 1995; van Dijk 1999). However, I would argue that any such determinism is itself a direct result of an ontological focus on *external* rather than *internal* relations. In other words, technological determinism, or any form of determinism for that matter, is but one symptom of a philosophy constructed around external relations.

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[18] Ollman (2003, 73) also acknowledges though that "the crucial role played by *Verhaltnis* in Marx's thinking is somewhat lost to non-German-language readers of his works as a result of translations that often substitute "condition," "system," and "structure" for "relation."

[19] According to Castells, modes of production are characterized by "[t]he structural principle under which surplus is appropriated and controlled" (Castells, 2000a, 16). The "network society" is still founded on the capitalist mode of production, however the causal force which gives the network society its defining characteristics is its specific "mode of development". Modes of development are distinguished by the main source or "element" that generates their productivity.

[20] While the industrial mode of development was based on new forms and uses of energy, the current "informational mode of development" locates its source of productivity in "the technology of knowledge generation, information processing, and symbol communication" (ibid., 17). Castells acknowledges that knowledge and information is key to all modes of development throughout history, his argument is instead that specific to the informational mode of development "is the action of knowledge upon knowledge itself as the main source of productivity" (ibid.).

[21] This is even more evident in Jan van Dijk's work when he proposes that in the network society "basic units are held to be individuals, households, groups and organizations *increasingly linked by social and media networks*" (van Dijk, 2006, 28).

As different as Hardt and Negri's employment of the network metaphor is from Castells', it too offers a form of determinism that emerges out of an external relation. As autonomist Marxists, Hardt and Negri see capital as dependent on the productivity of the multitude. Indeed, the position that labour is the active subject which capital attempts to domesticate represents the single most innovative idea put forward by autonomist Marxists. It stands on its head the old orthodox Marxist position that capital unfolds according to some automatic, self-contained logic. But it is just as one-sided.

The problem is that while Hardt and Negri foreground production as the networked process that capital feeds off of, the 'multitude' and 'Empire' – are not *internally* related. The multitude is conceived of as *autonomous* from Empire. Hardt and Negri (2004, 225) insist that the multitude must not be understood as Empire's "dialectical support". "Empire and the multitude are not symmetrical: whereas Empire is constantly dependent on the multitude and its social productivity, the multitude is potentially autonomous and has the capacity to create society on its own" (ibid.).

Thus, it could be said that what network technology is to Castells' theory of the "network society", network struggle is to Hardt and Negri's "commonwealth". The theories of both Castells and Hardt and Negri can be considered essentialist to the extent that they isolate a single external causal force.

This is not to say that the influence of network technology or network forms of struggle are false explanations. Essentialist explanations are not so much false as they are partial. As Resnick and Wolff put it "…each essentialist moment is understood to be true —it illuminates a connection—*and* false—it obscures other connections that, if and when considered, will show all previously elaborated connections to have been true and false in this sense." (Resnick and Wolff 2006, 83) In other words, technological determinism and what could be called "class struggle determinism" are partial explanations, or in Marx's terminology "abstractions". According to Carol Gould, "an external relation is only an appearance for Marx in the sense that they are the way internal relations appear from a one-sided or abstract point of view" (Gould 1978, 38).

A theory of internal relations means for Marx that "interaction is, properly speaking, *inneraction* (it is "inner connections" that he claims to study)" (Ollman 2003, 27). This means that, for Marx, relationality is always already there. It doesn't require network technology to be brought into existence. It is an a priori *condition of possibility* for such technology. While the pervasiveness of network technology may serve to intensify and highlight this intrinsic relationality, it does not invent it. Facebook, for example, is an ingenious way of capturing the connective desires and practices that are internal to human relationality. Mark Zuckerberg though did not invent social networking; he simply organized sociability under one domain.

To make such an argument is certainly not to say that that network technologies and new network forms of organization have no impact on social development. Of course they do. But these technologies and forms of organization do not appear from outer space. They emerge from within, reifying and abstracting from internal social relations. Consider money, the most powerful and pervasive network 'technology'. At first glance it may appear to be an external relation that influences and distorts almost all realms of life. However Marx regards money as an abstraction of internal relations. This is most forcefully (and humorously) demonstrated in the final chapter of *Capital: Volume 1,* "The Modern Theory of Colonization". Marx tells the story of the British politician E.G. Wakefield who discovered in the colonies the truth about capitalist relations - that money has no meaning if there is no wage-labourer to buy:

> "A Mr. Peel (Wakefield) complains, took with him from England to the Swan River district of Western Australia means of subsistence and of production to the amount of £50,000. This Mr. Peel even had the foresight to bring besides, 3,000 persons of the working class, men, women, and children. Once he arrived at his destination, 'Mr. Peel was left without a servant to make his bed or fetch him water from the river.' Unhappy Mr. Peel, who provided for everything except the export of English relations of production to Swan River!" (Marx 1990, 932f.)

Here Marx is substantiating his well-known argument that "capital is not a thing, but a social relation between persons which is mediated through things" (ibid.). Exploitation describes the terms of this relationship under capitalism.

Exploitation for Marx is a *necessarily* relational concept. It could only have emerged from a philosophy of internal relations. While the exploiters require the exploited in order to generate surplus value, the exploited in the capitalist system also require the exploiters in order to sell their labour power – in order to survive. Marx's theory of exploitation is more than simply the observation that

the success of certain individuals or groups is causally related to the deprivation of others. Marx's theory of exploitation begins from the observation that the *existence* of a certain class in society is dependent on the *existence* of another class. Indeed, as with the two ideal categories in Hegel's master/slave dialectic, exploiters and the exploited need each other in order to retain their identity. In other words Marx's theory of exploitation presupposes the existence of a necessarily shared world composed of internal relations.

When network theorists such as Castells acknowledge the existence of exploitation they do so with an understanding of exploitation as an *external* relation – an event rather than a process – hich one prefigured entity or relata performs on another. In certain times and spaces this event occurs more frequently than in others but exploitation is not considered necessary to the existence of the relata.

However, it would be insufficient to end our argument here. Marx's process-relational ontology and the theory of exploitation that emerges from it cannot be understood without discussing the importance of 'contradiction'. It is to the concept of 'contradiction' that we will now turn to.

3.3. Contradiction

Contradiction offers the ability to understand *how* and *why* change occurs. Contradiction, of course, describes the existence of two structural principles within a system which simultaneously depend upon and negate each other. It is commonly acknowledged that capitalism is defined by contradictions and its relative success or failure in managing them.[22] Contradiction is also the principle that unites Marx's understanding of process and internal relations, as process is instigated through internal *contradictory* relations.

The importance of contradiction to Marx's process-relational ontology and his theory of exploitation is perhaps best revealed by contrasting it with Castells' approach. Castells offers up a model of power that minimizes contradiction. As Mike Wayne recognizes, at times Castells' mode of development even "sounds suspiciously like a new mode of production which has transcended the antagonistic contradictions of capitalism" (Wayne 2004, 142). By introducing a mode of development/mode of production duality Castells downplays the origin of all knowledge within specific class relations. In turn this flattens the dialectical contradictions which exist within Marx's mode of production argument - between the forces and relations of production.

Remember that power, for Castells, circulates through the 'space of flows' which by definition contains no centre. Instead it works through inclusion and exclusion; enrolling what is of value and rejecting all else. Castells does not shy away from critiquing the injustices that emerge from such an account of power, such as the aforementioned 'black holes'. However such critique, regardless of how arresting it may be, offers only *description* not *explanation.* Massimo De Angelis captures this problem well:

> "When we understand power as a flow, however insightful the metaphor may be, until we pose this 'flow' in terms of a flow of social relations and the *mode* of their exercise, power remains a thing (a fluid thing, but a thing nevertheless), since it is not explained how its exercise as a *relation* makes it move. Thus, I can understand capital flows as a thing in terms of interest rate differentials across countries, but until I have related this movement to the broad problematic of how livelihoods in the two countries are systemically pitted against each other *by virtue* of this capital movement or the threat of this movement, and until I have understood and problematised the *rationale* of this, my concept of power is quite useless from the perspective of radical alternatives." (De Angelis 2007, 172)

No matter how highly sophisticated and detailed Castells' theory of the transition to a society constructed around networks is, at its core it is still based on a traditional cause-and-effect chain of description. Such an account of social change is what Hegel referred to as "bad infinity": an end-

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[22] Bob Jessop (2001, 4) describes some of the main contradictions within capitalism:

"For example, the commodity is both an exchange-value and a use-value; the worker is both an abstract unit of labour power substitutable by other such units (or, indeed, other factors of production) and a concrete individual with specific skills, knowledge, and creativity; the wage is both a cost of production and a source of demand; money functions both as an international currency and as national money; productive capital is both abstract value in motion (notably in the form of realised profits available for re-investment) and a concrete stock of time- and place-specific assets in the course of being valorised; and so forth."

less series of causes generated from effects caused by previous effects that never arrives at an explanation of the *how* or the *why* (Rees 1998, 7).

As discussed earlier, this is due to the tendency to understand 'cause' as something *external* rather than *internal* to the system. As Ollman (2003, 18) writes "[w]hereas nondialectical thinkers […] are involved in a nonstop search for the 'outside agitator', for something or someone that comes from outside the problem under examination and is the cause for whatever occurs, dialectical thinkers attribute the main responsibility for all change to the inner contradictions of the system or systems in which it occurs".

It is this legacy of Hegel's dialectical philosophy that most clearly distinguishes Marx's process-relational ontology from that of network theorists such as Castells. For it is through relations of exploitation that Marx was able to materialize Hegel's idealist concept of contradiction. Under capitalism, exploitation is simultaneously a central source and expression of contradiction as "the worker is both an abstract unit of labour power...and a concrete individual with specific skills, knowledge, and creativity" (Jessop 2003, 4).

However contradiction should not be understood to work itself out in a predictable teleological fashion. Contradiction necessarily implies "overdetermination" meaning that "an individual, an event, a social movement, and so on – is constituted by all the other aspects of the social and natural totality within which it occurs" (Resnick and Wolff 2006, 80). Every entity, every aspect of history is contradictory in that it is constantly being pushed and pulled in multiple different directions by all its overdeterminants. Indeed history can be conceived of as "a dense network of overdeterminations" or in Althusser's famous phrase, "a process without a subject" (ibid).

Resnick and Wolff (2006) develop Althusser's concept of "overdetermination" to highlight the role contradiction plays in Marx's process-relational ontology. The "contradictoriness of any existent impels it to change (i.e. makes every existent a process), which thereby alters how it overdetermines all existents" (ibid.). Marx's conceptualization of process thus achieves its dynamism through the contradictions inherent within and between internal relations. Leaving behind the language of 'cause' and 'effect' we thus enter the "logic of overdetermined constitutivity" (ibid.).

Hardt and Negri, with their invocation of the network metaphor to describe the constitution of the 'multitude' and 'Empire', do recognize that "[i]nformational networks aggravate the capitalist contradiction between the collective production and the individual appropriation of goods" (Fuchs and Zimmerman 2009, 107). Indeed this contradiction forms the core of the antagonistic relationship between 'Empire' and the 'multitude'. But while this may be a central contradiction at the heart of informational capitalism, it can also be considered an '*under*determined' contradiction. This is because Hardt and Negri fail to interrogate the complex class dynamics and contradictions within both capital understood as 'Empire' and labour understood as the 'multitude'. When critics point out the subjectivist and overly optimistic tone of Hardt and Negri's work, they are really pointing out the absence of overdetermination.

Certainly, as I've repeated throughout this paper, capital is a relation that through exploitation "both presupposes and reproduces the mutual interdependence of capital and wage-labour" (Callinicos 2006, 200f.). But, as Alex Callinicos points out "the capital-relation also necessarily includes 'many capitals' because it is through the competitive struggle among rival firms that the characteristic tendencies of the capitalist mode become operative" (Callinicos 2006, 201). Following Robert Brenner, Callinicos argues that we can understand the capitalist mode of production as constituted by two contradictory relations: the 'vertical relationship' between capitalists and labour and the 'horizontal relationship' between 'many capitals'.

Pointing this out serves to reintroduce contradiction into the flattened category of 'Empire'. The same must be done for the 'multitude'. For instance, the exploited multitude, as Fuchs and Zimmerman (2009, 93) remind us, "is itself antagonistically constituted by exploiting and exploited classes and class fractions." What is needed is an accounting of the myriad transnational networks of production and the "contradictory class positions" (Wright 1985) that make up the 'multitude'.[23] By ignoring the exploitative relations that operate *within* the multitude the network metaphor's flattening trick is allowed to work its magic once again.

A better, more "overdetermined", approach may be visualized through a diagram David Harvey uses to explain Marx's dialectical method (see figure 1). Each of these 'hubs' in Harvey's diagram

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[23] Of course contradictions between differentially situated workers do not necessarily have to provoke division and antagonism. However unity is also not automatic. It must be worked at. For example, in their study of the trends in the trade union movement in both the developed and developing world Catherine McKercher and Vincent Mosco describe "the consolidation of small and narrowly-focused unions into larger and more diverse organisations, representing not simply workers in a specific trade, or even within a single industry but in a broad sector of the economy, such as the converging communications, culture, and information sector" (McKercher and Mosco 2010, 3).

can be isolated as the determining force in social change but in order to get the full picture all must be taken into consideration - relationally, dialectically – as dynamic moments within an "ecological totality" (Harvey 2010, 196). This process of explanation is ongoing; there is no completion, closure or final destination.

It is with the recognition that all internal relations are contradictory, and in turn overdetermined, that we can finally see how Marx's process-relational ontology achieves its dynamic form. In turn, such a process-relational approach breathes new life into Marx's theory of exploitation, permitting us to understand its contemporary relevance.
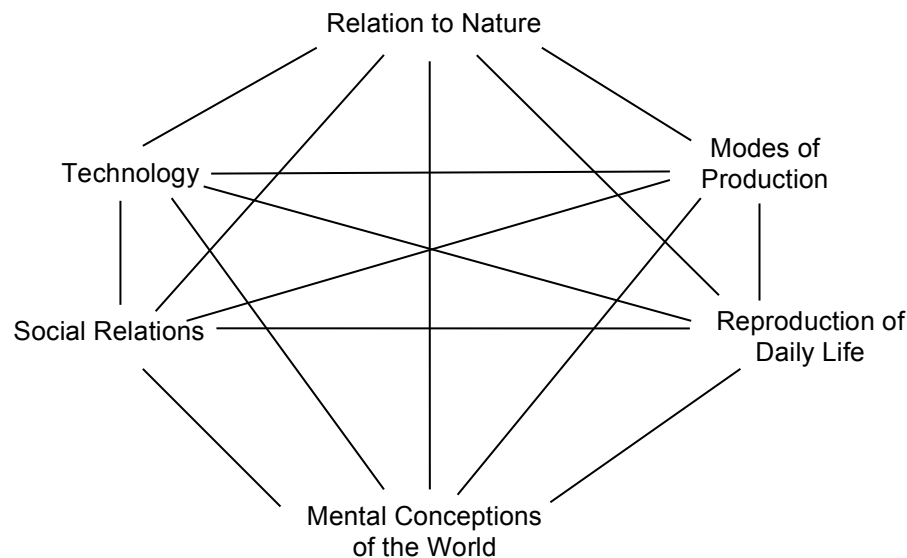

Figure 1 (Harvey 2010, 195)

4. Global Informational Capitalism and Exploitation

Our discussion thus far has concerned itself with explicating Marx's process-relational ontology and the question of why it leads us not into an inclusion/exclusion cul-de-sac but rather to a critique of exploitation. We can understand why this is so now that we have considered the role contradiction, internal relations, and production as the materialization of process play in Marx's ontology.

In the limited space that remains I will briefly touch upon what I will refer to as the *intensification* and *extensification* of exploitation under informational capitalism. In doing so I hope to make clear that the theory of exploitation that emerges from Marx's process-relational ontology is well suited to addressing issues of concern in contemporary communication and media studies.

4.1. Intensification

The "official" version of Marx's conception of exploitation – derived from *Capital Vol. 1* – concerns the unequal exchange of labour. Exploitation involves the worker's surrender of control over his/her creative power, which the capitalist buys the rights to for a specified period of time in order to capture the surplus value produced.[24] Marx's famous claim that "moments are the elements of profit" is still important for understanding and critiquing the exploitation of all paid labour, including labour in the communication and media sector. Recent critical scholarship on labour in communication in-

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[24] Any given stretch of life activity includes both reproductive and productive time, "time for reenactment of pattern and time for creativity beyond mere physical reproduction" (Pomeroy 2004, 112). During the time period when the worker has sold his labour power to the capitalist, "reproductive" and "productive" time are represented through Marx's categories of necessary labour time (that part of the working day that the worker needs to produce value equal to the wage he or she is paid) and surplus labour time (that part of the day that extends beyond this time). As Pomeroy puts it concisely, "the capitalist pays for reproduction and gains production." (Pomeroy 2004, 100)

dustries demonstrates this in great detail (see Mosco and McKercher 2008; Ross 2009; McKercher, Mosco, and Huws 2010). In particular, the perceived glamour and desirability of many jobs in the media industry often permit employers to resort to 19th century levels of 'absolute exploitation'. For example, research on the video game industry by Dyer-Witheford and de Peuter (2006) reveals the extent of overwork that exists; with seven-day, 85-hour work weeks, uncompensated either by overtime pay or time off, considered routine.

Yet, it would be wrong to assume that for Marx exploitation is a concept trapped within the factory walls. Building off of Marx's category of production discussed earlier it is not difficult to imagine a more general conception of exploitation in Marx's writings, one that transcends a particular production process (Buchanan 1979). Remember that Marx argues that we *all* produce *all the time*. Production is thus the foundational process of life.[25] Production "not only creates an object for the subject but also a subject for the object" (Marx 1973, 92). Under capitalism, this circular, continuous process of production is intersected by the process of commodification which transforms use values into exchange values. Often this occurs under relations of wage labour but just as often it occurs outside of what Marx called "real subsumption". This appears to be a growing phenomenon given the increased reliance upon, commodification of, and control over knowledge and information under contemporary capitalism, particularly on the Internet. This trend exacerbates what Marx recognized as the fundamental contradiction within the capitalist mode of production: the contradiction between the increasing socialization of productive forces and the private control of the means of production.[26] As Fuchs and Zimmerman explain:

> "[...] knowledge is not only produced in corporations in the form of knowledge goods, but also in everyday life by e.g. parents who educate their children, citizens who engage in everyday politics, consumers of media who produce social meaning and hence are prosumers, users of MySpace, YouTube, Facebook, etc. who produce informational content that is appropriated by capital, radio listeners and television viewers who call in live on air in order to discuss with studio guests and convey their ideas that are instantly commodified in the real-time economy, etc. *Hence the production of knowledge is a social, common process, but knowledge is appropriated by capital, and by this appropriation the producers of knowledge become just like traditional industrial labour an exploited class.*" (Fuchs and Zimmerman 2009, 95)

To follow this argument requires one to abolish any meaningful distinction between work and leisure, production and reproduction. In effect, as Max Henninger puts it "life time and production time fully coincide" (Max Henninger 2007, 170). While this is a radical claim it is not entirely new for communication and media studies scholars who remember Dallas Smythe's "audience commodity" thesis. Smythe's thesis provides a good example of how Marx's process-relational theory of exploitation can be extended into the realm of contemporary communication. As Vincent Mosco explains, for Smythe the media commodification process:

> "[...] brought together a triad that linked media companies, audiences, and advertisers in a set of *reciprocal relationships*. Media firms use their programming to construct audiences; advertisers pay media companies for access to these audiences; audiences are thereby delivered to advertisers. Such an argument broadens the space within which media commodification takes place beyond the immediate process whereby media companies produce newspapers, radio broadcasts, television programs and films, and websites to include advertisers or capital in general. The process of commodification thoroughly integrates the media industries into the total capitalist economy...by producing audiences, *en masse* and in specific demographically desirable forms, for advertisers." (Mosco 2009, 137)

Smythe's "audience commodity" contribution is a productive and dynamic metaphor because it "offers a way to think about the triad of media company-audience-advertiser without submitting to the mechanistic thinking that such a structural argument invites" (Mosco 2009, 137). It instead pro-

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[25] Marx's idea that production is a process renders incoherent arguments that the term "production" doesn't capture the ongoing process of creation in the online world because it signifies finality and thus should be replaced, for example, with the term "produsage" (Bruns 2008).
[26] This contradiction is increasingly played out in attempts to claim and protect intellectual property rights over what are inherently 'leaky' knowledge and information commodities on the Internet.

vides a process-relational understanding of exploitation, one example of Vincent Mosco's call for media and communication studies to "plac(e) social processes and social relations in the foreground" (Mosco 2009, 129). What this necessitates is the choice of different entry points in order to emphasize, for example, the processes of commodification that congeal in the capturing of popular stories by private entities, instead of simply beginning and ending study with media institutions.

Indeed Smythe's argument appears to be even more suggestive today with 'Web 2.0' and the rise of what can be called the "prosumer commodity" (Manzerolle 2010). 'Web 2.0' has provided a whole new shift of workers for what autonomist Marxists call the "social factory" – the "total subsumption of society" (Negri 1996, 150). As Erin Fisher writes in his recent book:

> "An increasingly large chunk of the new economy…is built—indeed conditioned—on labor that is not compensated or […] involves new, more precarious, and partial modes of compensation […] these new relations between capital and labor […] have been a trend ever since the introduction of network technology, with companies getting ever more sophisticated at extracting profit with minimal or no monetary return to workers." (Fisher 2010, 118)

Thus, it could be said that 'Web 2.0' and network technology in general facilitate new relations of production in order to open up new avenues for exploitation. This 'intensification' of exploitation can be most clearly seen with the continuous refinement of practices of 'crowdsourcing' and other means of exploiting value from 'free time'. Fisher points to the cover of one *Wired* magazine issue which reads "Crowdsourcing: A Billion Amateurs Want Your Job". As Fisher notes: "[t]he threat is clear: one's position in the work force is threatened not so much by other workers but by a new class of workers: a new reserve army of […] amateurs" (Fisher 2010, 117).

However, what autonomist Marxists call the "social factory" does not only refer to a quantitative extension of value extraction beyond the factory gates and normal working hours but to a qualitative state of capitalist intensification whereby the very 'soul' of the worker is mobilized in the circuit of production (Berardi 2009). This is a very radical claim: the human being is not only rendered productive for the entire duration of their life, but capitalism is said to "invade our lives" by producing "subjectivity and economic value at the same time" (Lazzarato 1996). Radical yes, but also a retrieval and reinterpretation of Marx's claim that production "not only creates an object for the subject but also a subject for the object" (Marx 1973, 92).

Thus, the continued vitality of Marx's theory of exploitation for contemporary communication and media scholarship requires an understanding of how production for Marx is *both* a particular activity under the capitalist mode of production (Marx 1990) and a general processive activity of human 'species-being' (Marx 1973, 1988). Latent in Marx's general conception of production, we can find inspiration for communication research that critiques the exploitation of so-called "produsers" or "prosumers" (Fuchs 2010; 2011), "double exploitation"[27] (Murdock 2011), and the exploitation of sociability - what Mark Andrejevic (2009) refers to as "exploitation 2.0" – all examples of the intensification of exploitation under contemporary informational capitalism. Critical scholarship of this type helps render moot the argument that exploitation resides in the boiler rooms of industrial capitalism, not in our shiny new world of networked informational capitalism.

4.2. Extensification

The 'intensification' of exploitation through attempts to make daily life more generative of value exists side-by-side its 'extensification'– the spatial expansion of relations of exploitation. Indeed there is a dialectical relationship between the two. Since the degree of exploitation is always a result of the state of struggle against exploitation, the greater the resistance to intensification the more important extensification becomes for sustaining value accumulation, and vice versa.

Capitalism has always moved by necessity towards the creation of what Marx called "the world market" in order to resolve – always partially and provisionally at best - its contradictions. While communication has long been important in this regard it has become increasingly so since the computer was transformed from a computational device into a "coordination technology" across space (Malone and Rockart 1991).

Network theorists such as Castells have been deeply involved in studying how global networks have emerged and transformed the process of production. According to Castells "the network en-

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[27] Murdock (2011, 33) discusses the "double exploitation" that occurs when those 'prosumers' who contribute their free labour then have to pay a "price premium" as customers for the "fruits of their labor" since co-created products often cost more than those products created by traditional production systems.

terprise" (Castells 2000a, 163-215) is the new organizational form that has arisen as a response to the more general consolidation of networking logic and technology. Castells' global production system is reliant on "a combination of strategic alliances and *ad hoc* cooperation projects between corporations, decentralized units of each major corporation, and networks of small and medium enterprises connecting among themselves and/or with large corporations or networks of corporations" (Castells 2000a, 123).

However, Castells' global production networks are not co-extensive with all those involved in the totality of the production process. Here the network metaphor seems to preclude an analysis of what lies outside of direct production chains. This is likely due to the fact that Castells' focus is on "how business is organized (*mode of development*), rather than on the social character of this organization (*mode of production*)" (Stadler 2006, 56). But what is 'inside' these production chains and what lies 'outside' are mutually constituted, or *internally* related. As with the 'intensification' of exploitation discussed above, reproduction time and the value it generates figures prominently in the 'extensification' of exploitation. In other words there is an internal relationship between the costs of reproduction and production across the differentiated spaces of the global economy. In contemporary global capitalism, Massimo De Angelis writes:

> "[...] the most abhorrent human practices are not simply 'still' present in some distant land, the heritage of archaic times, but become instead *constituent moments* of contemporary capitalist relations. Thus, for example, modern slavery...*trickles up* in the global production chain by allowing cheaper food and cheaper generic conditions of reproduction, thus lowering the value of labour power, say, for skilled Indian programmers connected by instant communications to their America clients." (De Angelis 2007, 72f.)

The concept of "trickle up" allows us to incorporate Marx's most general category of production – production-as-life – into the equation. As such, it is a helpful way to understand exploitation in a process-relational manner because it forces us to consider production as a process that is internally related in its totality.

Even when we shift from an analysis of the 'extra-economic' process and step into the standard wage-labour model of production we cannot afford to lose track of the internal relations. It is all too easy to do so. The attention paid to "immaterial" work done at 'high-tech', knowledge-intensive firms often distracts us from the reality that these jobs coincide and are indeed underwritten by 'low-tech' labour-intensive work in developing countries around the world. As George Caffentzis explains:

> "In order for there to be an average rate of profit throughout the capitalist system, branches of industry that employ very little labour but a lot of machinery must be able to have the right to call on the pool of value that high-labour, low-tech branches create. If there were no such branches or no such right, then the average rate of profit would be so low in the high-tech, low-labour industries that all investment would stop and the system would terminate... the computer requires the sweatshop, the cyborg's existence is premised on the slave." (Caffentzis 2005b, 34)

Or as Caffentzis put it in an earlier article, "as always in capitalism's history, a leap in technology is financed out of the skins of the most technologically starved workers" (cited in Henninger 2007, 163). This means, in Marx's terminology, that 'real subsumption' and 'formal subsumption' not only coexist but they are co-implicated. Real subsumption can never completely replace formal subsumption due to the tendency of capitalism to experience a falling rate of profit. As Caffentzis explains "if the branches of high organic composition increase without limit, the rate of profit will fall to zero [...] unless there are countervailing forces that shift the weight back to the column of formal subsumption" (Caffentzis 2005a, 107).

The "global worker" was the evocative way Marx referred to "all those whose labour is indispensable to produce the final product" (Mandell 1990, 945); whose individual jobs have become part of the "*co-operative totality*" (ibid., 946). Thus, we cannot talk about 'knowledge work' without including women migrant labourers who assemble computers in China (see McKercher, Mosco and Huws 2010). In other words our definition of "the knowledge worker" must be expansive enough to include those (often gendered and racialized) workers at the other end of the spectrum whose labour is essential to the 'networks' and value chains that privilege the so-called "creative class" and its products/services in the West.

The implication of Castells' dualistic (mode of production/mode of development) approach is that the network society is seen to prioritize these highly skilled workers who can add knowledge to the network and keep up with rapid developments in technology. The corollary of course is that lower skilled workers risk being excluded as they have less knowledge to exchange, and are thus of less value to the network. Exploitation is thus a blind spot when exclusion becomes the only concern. This is why it is crucial that transformations in the mode of development be understood *internally*, within the overall mode of production - the operating logic of which remains the exploitation of the surplus value produced by the "global worker".

Clearly if we want to understand the operation of power under contemporary capitalism we should not heed the calls of Castells, Lash and other network theorists to shift our attention away from exploitation to exclusion. Castells (2009, 33) argues "[t]he primary concern for much of the world's population is to avoid irrelevance, and instead engage in a meaningful relationship, such as that which we call exploitation – because exploitation does have a meaning for the exploited". It is imperative that we reject such facile and fatalistic arguments. Contemporary capitalism, its contradictions and crises, cannot even begin to be understood without a theory of exploitation. This becomes even more obvious when we start to see the relationship between 'network' technology, 'network' production and the 'intensification' and 'extensification' of exploitation.

As Marx recognized, one of the defining characteristics of capitalism in comparison to previous systems of exploitation such as slavery or serfdom is its ability to mask exploitation by passing it through a complicated series of detours. Certainly exploitation is even more difficult to trace and measure through contemporary global production chains. Exclusion on the contrary is much more visible and easily identifiable. The street cleaner in Nairobi is – however difficult it may be to trace and measure – the nth node in a chain of exploitation; less 'excluded' from networks as excluded from the value produced. This is a process of shifting certain actors to less desirable positions in the value chain rather than removing them from the chain altogether. In short, more an issue of 'marginalization' than 'exclusion'.

Of course, one should not have to choose between critiquing either exploitation or exclusion. There is an intimate relationship between exclusion and exploitation that is itself process-relational. Most obviously, the exploitation of labour is, and has always been, dependent on the existence of a structurally unemployed surplus labour force which exists in large part in order to drive down the wages of the employed. At the same time, as Boltanski and Chiapello recognize, "[e]xclusion outside the firm often begins with exploitation inside it, particularly of poorly qualified workers or irregular workers" (Boltanski and Chiapello 2005, 404). What is more, exclusion from the firm is sometimes a direct result of the degree of exploitation within it. For example in their study of the video-game industry Dyer-Witheford and de Peuter recognize that "[...] the insane hours of work [...] extracted from this male-dominated cultural activity and workplace in turn become a barrier to the participation of women, who will often carry the burden of a 'second shift'...of childcare and domesticity awaiting them at home." (Dyer-Witheford and de Peuter 2006, 607)

The concept of the 'social factory' alerts us to what promises to become an increasing concern - that exclusion from the workforce will follow an increase in the ability to perfect exploitation outside of it. While this may be a new trend it builds on an old practice, most famously described in Marx's discussion of "so-called primitive accumulation". For the exploitation of the commons always first requires the exclusion (dispossession) of those populations who may legitimately make a claim to it. Only after exclusionary barriers are enacted can rent be extracted. Thus exclusion is both the symptom *and* the defining act of this form of exploitation.[28] In other words, exclusion and exploitation are themselves internally related.

5. Conclusion: Networks and Exploitation

This paper has attempted to accomplish two main tasks. The first task was to demonstrate that the overwhelming popularity of the network metaphor, like all metaphors, is useful as a heuristic device but not innocent of power effects. How we choose to describe the world we inhabit has direct political implications. I argue that while the network metaphor may illuminate new organizational forms throughout contemporary society it also serves to focus social critique on the problem of exclusion to the neglect of processes of exploitation.[29] While exclusion is an important and obvious injustice,

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[28] David Harvey (2005) provides us with a dialectical understanding of this process, a continuous unfolding of 'primitive accumulation', that he calls "accumulation by dispossession*".*

[29] While I critique the network metaphor for its 'blindspot', I am mostly in agreement with Felix Stalder's assessment that the network society thesis signals "the return of sociological macrotheory after years of postmodern pessimism about the possibility, or even desirability, of such a project" (Stalder 2006, 1). This is generally something to be welcomed but I attribute it largely to the process-relational ontology that guides this thesis, which brings our attention back to structural

it is not, as Castells (2009, 33) and others (ie. Lash 2002, 4) argue, the preeminent mode of injustice in 'the network society', nor is exploitation a derivative form of exclusion (Murphy 1985). At the same time, while the purpose of this essay has been to highlight exploitation - the network's 'blindspot' - this should not be taken to mean that 'exclusion' is a mirage. Instead, what we need is a better understanding of the internal relations between processes of exclusion and exploitation.

'Exclusion' though, as I argued, leaves much to be desired as the central theme of social critique. 'Exploitation' in fact seems to do a better job of reminding us of the shared and dynamic basis of social reality. However, instead of following Boltanski and Chiapello's lead and generating a new theory of exploitation more suitable for a 'connexionist' world this paper argues that we already have a theory of exploitation for such a world – Marx's theory of exploitation.

The second major task of this paper was to demonstrate why Marx's theory of exploitation is still relevant for critiquing power within contemporary 'informational capitalism'. I first reveal how network theories are rooted in a process-relational ontology that shares much with Marx's ontology. Marx's particular understanding of *process* and *relation*, and his recognition of *contradiction*, is contrasted with that of contemporary network theorists, particularly Manuel Castells but also Hardt and Negri. It is this common *process-relational* perspective that allows us to understand Marx's contemporary relevance, but it is these key distinctions – differences that make a difference – which promise to reinvigorate critique.

Peter Marcuse critiques Castells for presenting "the excluded without the excluders" (cited in Stalder, 2006 140). However my argument is that this is not a criticism that can be limited to Castells. Rather, it appears to be inherent to all social critique built around the network metaphor. This is because network theorists conceive of power as a de-centered 'flow', operating through the protocols that set the network's "rules of engagement". This Foucaultian conception of power - whereby power is seen to permeate society in constantly morphing formations of interlinked networks - is often contrasted with a supposed Marxist idea of power as a 'resource', emanating from a fixed external location. However, I hope that this paper's explication of Marx's process-relational ontology and his concomitant theory of exploitation makes it clear that such an interpretation is wrong-headed. I argue that Marx's philosophy of *internal* relations, his materialization of process through the category of 'production', and the unifying role that contradiction plays, allow Marx to develop a theory of exploitation *writ large.* In turn, I make an initial attempt to demonstrate how a process-relational reading of Marx's theory of exploitation reveals its continued relevance and potential for contemporary communication and media scholars interested in critiquing exploitation within contemporary informational capitalism.

In conclusion, Bertell Ollman neatly summarizes the purpose behind Marx's process-relational ontology:

> "Marx's quest […] is never for why something starts to change (as if it were not already changing) but for the various forms this change assumes and why it may *appear* to have stopped. Likewise, it is never for how a relation gets established (as if there were no relation there before), but again for the different forms it takes and why aspects of an already existing relation may *appear* to be independent." (Ollman 2003, 14)

As we look out of our windows, at a world that appears to be both ever more in flux and ever more interconnected, the task we are faced with is to not get carried away by these appearances. Instead we must ask how these appearances assume particular forms and why they reveal themselves to us in particular ways. By doing so we allow ourselves the ability to realize that Marx's theory of exploitation, contrary to popular perception, is no relic of a hierarchical world of industrial capitalism but rather a theory of social relations that is highly suited to critiquing power within contemporary informational capitalism.

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About the Author

Robert Prey
Robert Prey is a doctoral candidate in the School of Communication at Simon Fraser University in Vancouver, Canada. His research interests include the political economy of communication, international communication, and immaterial and migrant labour. From 2006-2008 he worked with Migrant World Television (MWTV) in South Korea and from 2007-2008 he was a visiting researcher in the Department of Sociology at Sungkonghoe University in Seoul, South Korea.