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Human Material in the Communication of Capital

Atle Mikkola Kjøsen, University of Western Ontario, Faculty of Information and Media Studies, akjosjen@uwo.ca

The purpose of this article is to interrogate Marx's analysis of the circulation of capital through the 'new materialist' communications and media theory of Friedrich Kittler. It explores the connections between Marx's commodity fetish and how Kittler posits human beings as components of an information system alongside technologies and institutions. The article asks whether a 'non-human' Marxist theory is possible, i.e. if it is possible to remove the human being from its privileged position in Marx's political economy. Specifically the paper argues that human beings are programmable human matter that serves to aid the communication of value through capital's circuit. This stance necessitates adopting the point of view of capital and the fetish, bracketing the social and moving away from categories such as labour, production and class consciousness in favour of the value form, circulation and programmability.

Keywords: Karl Marx, Friedrich Kittler, Marxism, Value form, New materialism, Media theory, Communication, Programmability, Lacan, Subjectivity

We cannot know whether Pavlov's dogs can escape from their conditioned existence.

-- Krisis, *Manifesto Against Labour*

Introduction

In his interpretation and application of Claude Shannon's mathematical theory of communication, Friedrich Kittler introduces a way to read literature as a communication system.¹ Taking a similar approach, I read the circulation of capital as a (formal and material) communication process. On the assumption that the circuit of capital is a schematic or diagram of a communication process, the circulation of capital that Marx describes in *Capital Vol. 2* and *Grundrisse* can be understood as a theory of communication.² What capital communicates is value (more precisely surplus value), which can be considered as the "content" of this communication.³

Kittler argued that "[m]edia determine our situation, which – in spite or because of it – deserves a description."⁴ What follows is such a description. Capital is more than just a concept or abstraction, and despite it being an independently acting agent, it must rely on various media for its iterative communication process. Marx draws attention to this with the first logistical

¹ Claude Shannon and Warren Weaver, *The Mathematical Theory of Communication* (Urbana, IL: University of Illinois Press, 1964); Friedrich Kittler, *Discourse Networks 1800/1900* (Stanford, CA: Stanford University Press, 1990).

² Karl Marx, *Capital Vol. 2* (London: Penguin Classics, 1978); Karl Marx, *Grundrisse* (London: Penguin Classics, 1973), 401-423, 516-549, 618-690, 717-735; Vincent Manzerolle and Atle Mikkola Kjosen, "The Communication of Capital: Digital Media and the Logic of Acceleration," *tripleC* 10, no. 2 (2012): 216, 217. Considering that this paper views capital's circulation as a form of communication, it has some clear resonances with Nicholas Garnham and Christian Fuchs' arguments that the circuit of capital should be the starting point for a systematic location of media in capitalism, and with Jodi Dean's articulation of "communicative capitalism" and her emphasis on the absorption of all media into the cycle of capital accumulation. Nicholas Garnham, *Capitalism and Communications: Global Culture and the Economics of Information* (London: Sage, 1990); Christian Fuchs, "Some Theoretical Foundations of Critical Media Studies: Reflections on Karl Marx and the Media," *International Journal of Communication*, no. 3 (2009); Jodi Dean, *Democracy and Other Neoliberal Fantasies: Communicative Capitalism and Left Politics* (Durham and London, Duke University Press, 2009).

³ Marx, *Grundrisse*, 626.

⁴ Friedrich Kittler, *Gramophone, Film, Typewriter* (Stanford, CA: Stanford University Press, 1999), xxxix.

statements in *Capital*, where he writes that because the commodity is a thing it cannot walk to the market on its own; its guardian must lend it feet, and on the market his tongue to speak its price.⁵ Although commodities still need help moving, their guardians' feet have today been replaced or extended (depending on your point of view) by container boxes of intermodal freight and soon in intelligent transportation systems; human tongues are extended in universal product codes (UPC) and arphids (RFIDs), though they primarily speak to other things rather than to human beings.⁶ This paper, however, will foreground the media and mediums formed by economic categories and human beings respectively.

In the theoretical chapter of his lectures on optical media, Kittler argues that McLuhan's approach to media got it wrong. Noting that McLuhan was correct in connecting physiology directly with technology, Kittler argues that because McLuhan (being a literary critic) "understood more about perception than electronics ... he attempted to think about technologies in terms of bodies rather than the other way around."⁷ For Kittler the "unquestioned assumption that the subject of all media is naturally the human is methodologically tricky."⁸ In his communication theory, human beings are components of large-scale information systems, on the same level with technology and institutions. Human beings are not the subjects of history; they are merely along for the ride as "the nodes and operators necessary to keep the process going until the time arrives at which media are able to interact and evolve without any human go-between"⁹

I agree with Kittler. The subject of the economic communications systems represented in the circuit of capital *is* capital. In *Das Kapital*, Marx argues that the subject in the capitalist mode of production is value-as-capital. Through its self-valorization, value preserves and expands itself by constantly changing from one form into another (M – C – M'). In this process, value is "dominant" and "becomes transformed into an automatic subject."¹⁰ Similarly, in *Grundrisse*,

⁵ Karl Marx, *Capital Vol. 1* (London: Penguin Classics, 1976), 178, 189.

⁶ This should come as no surprise; commodities speak to each other, not to Men. Marx, *Capital Vol. 1*, 176-177.

⁷ Kittler, *Optical Media*, (Cambridge and Malden, MA: Polity Press, 2010), 29.

⁸ Kittler, *Optical Media*, 30.

⁹ Geoffrey Winthrop-Young, *Kittler and the Media* (Malden, MA and Cambridge: Polity Press, 2011), 65. At best human beings are "the sex organ[s] of the machine world, as the bee of the plant world, enabling it fecundate and to evolve ever new forms." Marshall McLuhan, *Understanding Media: The Extensions of Man* (London: Routledge, 1964), 56.

¹⁰ Karl Marx, *Capital Vol. 1* (London: Penguin Classics, 1976), 255.

Marx writes that capital “exists as the subject of circulation.”¹¹ In its communication, capital posits economic categories or “determined economic forms” that it must pass through to become capital. People wear these categories as “economic character masks” and are therefore their personifications.¹² As personified economic categories, individuals must carry out the logic or function associated with the economic form, such as buying, selling or valorizing capital. Consequently, from the point of view of circulating capital, human beings are its mediums of transmission. It therefore makes little sense to let the human take center stage in a description of how media determine our situation. This paper thus focuses on capital’s media rather than media for human beings.

The purpose of this paper is to analyze the roles individual human beings play and the functions they carry out in the circulation of capital through the lens of the new materialist communication and media theory of Kittler.¹³ In particular, it will explore the connections between Marx’s theory of value and how Kittler’s media theory reduces the human’s ontology to the status of components of information processing and communication systems in order to set in relief Marx’s argument that individuals are personifications of economic categories. This paper questions the subjectivity and agency of human beings when they are involved in economic activity. With reference to Kittler’s concept of discourse network, I consider whether human beings in the communication of capital can be treated as programmable human matter.¹⁴ By doing so, this paper brings Kittler’s project of “driving the spirit out of the humanities” to Marxism by removing the human being from its privileged position in Marx’s political economy.¹⁵ Consequently it examines whether a nonhuman Marxist theory is possible. Such a move necessitates taking a strong deterministic stance, adopting the point of view of capital, bracketing the social and flogged categories of labour, production and class struggle in favour of the value form, circulation and programmability.¹⁶

¹¹ Karl Marx, *Grundrisse* (London: Penguin Classics, 1973), 620, 746. Although capital is a subject, it is one that lacks consciousness and can be compared to the deity Azathoth from H. P. Lovecraft’s mythos. This elder god, living at the centre of the universe and referred to as the Blind Idiot God, is said to be completely indifferent to the cosmos and not be aware of its own existence.

¹² Marx, *Capital Vol. 1*, 92.

¹³ Kittler, *Discourse Networks*; Kittler, *Gramophone, Film, Typewriter*; Kittler, *Optical Media*; Winthrop-Young, *Kittler and the Media*; Jussi Parikka, *What is Media Archaeology?* (Cambridge and Malden, MA: Polity Press, 2012).

¹⁴ Kittler, *Discourse Networks*; Winthrop-Young, *Kittler and the Media*.

¹⁵ See, Friedrich Kittler, ed., *Austreibung des Geistes aus den Geisteswissenschaften: Programme des Poststrukturalismus* (München: Ferdinand Schöningh, 1980).

¹⁶ I leave it up to the reader whether this determinism serves as a contribution towards a critique of the bourgeois category of “free choice.”

Although the former categories are vital to Marx's theory, this paper, for the sake of argument, makes the assumption that production, exploitation and the class struggle runs as if on autopilot and thus that capital is accumulated without interruption. This line of argument and interpretation is admittedly a selective one, but necessary for pursuing the core argument of whether human beings can be treated as programmable human matter. By driving out the conscious human element, what remains is a description of capital that veers close to a fetishism of capital.¹⁷

The argument will proceed as follows: it starts with a discussion of the circuit and circulation of capital and argue, drawing on Kittler's interpretation of Shannon's mathematical theory of communication, that economic categories forms the elements of capital as a communications system. The paper then turns to Kittler's concept of the "discourse network" in order to elucidate how human behaviour can be understood as a form of programming. After discussing how economic categories program individuals' economic behaviour, the paper relies on Jacques Lacan's concept of "jammed machine" in order to consider how this programming can be understood as a limiting of choice. Lastly, the paper considers capitalism as an inhuman economy that show no regard for human beings and it speculates that humans could be eliminated from the circuit altogether.

The Circuit of Capital as Communications Diagram

Marx describes capital with the formula $M - C (Lp+Mp)...P...C' - M'$, which expresses the identity-in-difference of a universal concept (capital) that constitutes itself through a change of particular forms (M, C and P).¹⁸ Figure 1

¹⁷ Considering Kittler's strong anti-humanist, anti-sociological and anti-economist bias and his rejection of grounding technological innovation in socio-economic contexts or the desires and intentions of human subjects, the juxtaposition with Marx may seem odd. He refers dismissively to the human being and its supposedly unique characteristics of consciousness and subjectivity as "so-called Man" and, following Foucault, he questions whether there has been, is or ever will be something called "Man." With his disdain for people, Kittler would be a very strange bedfellow for Marx who has a strong humanist bias that borders on the vitalistic, and argues that labour, alongside creativity, imagination and consciousness are exclusive human characteristics. Being a good Feuerbachian, Marx bases his political economy on an anthropological critique: the social relationship of human to human is the basic principle of critical theory. Marx's task, which could not be any more different than Kittler's, is to return social phenomena (e.g. religion and economics) to relations between humans. Human practice is at the center of Marx's theory.

¹⁸ Marx, *Capital Vol. 2*, 109.

represents the circuit of capital as an iterative, circular process in which value passes through a sequence of mutually connected metamorphoses of economic forms that comprise three stages of a total process. Two of the stages belong to the sphere of circulation and one to the sphere of production. In this circulatory process value both maintains itself and increases its magnitude, and can repeat the process anew after completing all the stages and assuming and discarding the forms of money- (M), productive- (P) and commodity-capital (C') in succession.¹⁹ Capital as a concept is thus the unity-in-process of the stages and particular forms; if this unity is not maintained capital is negated and devalued.²⁰ Capital is thus perpetually becoming. Movement is life; stasis is death, and ideally capital circulates as it does in the mind, at the absolute velocity of speed of thought or light.²¹ Capital is a material process, however. When capital assumes an economic form, it must also “invest itself in matter, something that may in fact be resistant to it.”²² Capital’s movement (its communication) depends on the economic and material form that it assumes, and transmission is always faster than transportation.

¹⁹ Marx, *Capital Vol. 2*, 132-133.

²⁰ Marx, *Grundrisse*, 519, 621; Marx, *Capital Vol. 2*, 123-124.

²¹ Marx, *Grundrisse*, 519, 536, 548, 621. The apotheosis of capital’s logic of compulsive acceleration is represented in high-frequency trading (HFT), which is the use of algorithms to trade securities at time-scales measured in microseconds, and has little to do with human action. Donald MacKenzie, “How to Make Money in Microseconds,” *London Review of Books* 33, no 10 (2011); see also Manzerolle and Kjösen, “The Communication of Capital,” 220.

²² Christopher John Arthur, “The Fluidity of Capital and the Logic of the Concept,” in *The Circulation of Capital: Essays on Volume Two of Marx's Capital*, ed. Christopher John Arthur and Geert Reuten (London: MacMillan Press, 1998), 117. Whether capital has the material form of bits or atoms does not, strictly speaking, matter.

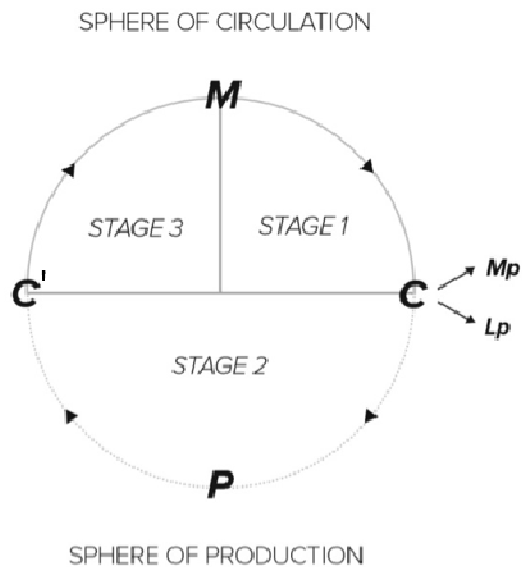


Figure 1: The circuit of Capital.

Marx stresses that capital “can only *be grasped as a movement, and not as a static thing*. Those who consider the autonomization of value as mere abstraction forget that the movement of industrial capital is this abstraction in action.”²³ The diagram of capital is thus but a static representation of an operational, physical process that proceeds in space and time by way of various media that include human beings, institutions, technical devices and increasingly more and more non-human agents. The circuit abstractly describes the purposeful movement of capital as matter in various economic guises, that is, the movement, at a given speed, of commodities and money through space and time, and their connection to the production process. As such, the particular “independent circuits of individual capitals” assume the form of supply chains, logistical networks that comprise the integration of production, transportation infrastructure and vehicles, fiber optics, packages and packets, warehouses and servers and so on. Consequently, the diagram of capital is also a topological abstraction of a physical process executed through time and space.²⁴ Because each form or stage is a point of departure and return, these moments also represent a set of spatial co-ordinates

²³ Marx, *Capital Vol. 2*, 185, emphasis added.

²⁴ Marx, *Capital Vol. 2*, 110.

or addresses and temporal waypoints, where circuits of capital intersect, and the nodes from where capital relays to value to its next destination.²⁵

In generalized commodity societies, nobody can consciously regulate the distribution of social labour among the various branches of production. This distribution is instead regulated by value. In Isaak Illich Rubin's formulation, value functions as "the transmission belt which transfers the movement of working processes from one part of society to another, making that society a functioning whole."²⁶ From this point of view, the circuit of social capital can be seen as a distributed information processor and coordinator of value. Because circuits of capital intertwine and presuppose one another, they process in parallel the distribution of labour between the various branches of production.²⁷ The circuit also expresses capital as an articulating force on the time-axes of labour and circulation; an articulation of the (cybernetic) control of dead and living labour by capital. Consequently, value's abstractions (i.e. economic forms) mediate the reproduction of social life in generalized commodity societies. When subsumed into the circuit of capital, the economic forms gain the social form of capital and therefore become forms particular to capital.²⁸

In *Grundrisse* Marx writes that nothing "can emerge at the end of the process which did not appear as a presupposition and precondition at the beginning. But, on the other hand, everything also has to come out."²⁹ A process that posits its preconditions as results of its own process is (one of) Marx's definitions of a mode of production, and the transition from one mode to the next occurs when a system is able to take pre-existing socio-economic forms and reproduce them as the mode's own conditions.³⁰ Marx bases the logic of capital's

²⁵ Marx, *Capital Vol. 2*, 180. Thus the individual points in Figure 1 can be superimposed on a world map: M refers to the location of a company's HQ; P to the point of production; C' points of exchange/ market places; and the functions M-L and M-Mp indicate the existence of labour and other commodity markets, and therefore the existence of other independent, individual circuits of capital.

²⁶ Isaak Illich Rubin, *Essays on Marx's Theory of Value*, (Montreal and New York, NY: Black Rose Books, 1973), 81.

²⁷ With social capital, Marx refers to the aggregate of all individual and particular circuits of capital; the circuit of social capital is thus a universal concept in that it contains in itself all its particular manifestations. Thus any particular circuit of capital is a representative of social capital.

²⁸ Depending on the level of analysis, Marx will refer to economic categories as "forms of value," "economic forms" or "particular forms of capital." In this paper I use the terms more or less interchangeably.

²⁹ Marx, *Grundrisse*, 304.

³⁰ Logically and historically, capital's presuppositions are external: they "come in from the outside, out of circulation... hence not emergent from its inner essence;" these

reproduction – which is contained in the concept of capital as a circuit, or spiral for expanded reproduction – on Hegel’s notion that the category that founds the system must also be the one that is demonstrably its final product for the system to feed back on itself.³¹ Because the “result is already contained in the presupposition,” all the economic forms drawn into the circuit of capital represent preconditions that are posited results, i.e. abstract points of departure and return for turnovers of capital.³²

The capitalist mode of production becomes locked in place as a fixed structure as soon as capital relates to itself as capital, that is when “capital itself is already presupposed as the condition of its own production.”³³ When this occurs capital not only presupposes itself, but becomes autonomous, establishes itself as something independent from its constituting power: the collective and generic forces of human beings.

Capital can only become an independent process and preserve itself through a constant and continual change of forms, from the general to particular. The circulation of capital is thus a “*series of transformations*, in which capital posits itself; but, as regards value, circulation does not add to it, but posits it, rather, in the *form* of value.”³⁴ The forms of money (M), commodities (C’) and capitalist social relations (Lp and Mp) are “conditions of the *production of capital itself*, in so far as its *form as capital* is posited only to the extent that it passes through them.”³⁵

external conditions, however, are subsumed by capital’s process and will consequently become “moments of the motion of capital itself, so that it has itself — regardless how they may arise historically — pre-positing them as its own moments.” By making the presuppositions part of its own movement, capital transforms pre-existing phenomena to fit its own purposes. For example, money “*makes a transition to capital*” by the capitalist buying labour-power; after one turnover money “appears as a presupposition of capital posited by capital itself.” Marx, *Grundrisse*, 450; 358.

³¹ The structure of Marx’s dialectical presentation and development of economic categories in *Das Kapital* follows the same logic. It starts with the commodity because it is both the presupposition for and demonstrable product of a mature capitalist mode of production in which all products of labour must assume that particular socio-economic form. Marx, *Capital Vol. 1*, 949.

³² Marx, *Grundrisse*, 307.

³³ Marx, *Grundrisse*, 715.

³⁴ Marx, *Grundrisse*, 625-626.

³⁵ Marx, *Grundrisse*, 742.

Economic forms as media and elements of a communication system

How can the economic forms be viewed as media and part of a communication system? I first turn to Wolfgang Ernst's definition of media and then to Kittler's interpretation of Shannon's mathematical theory of communication. Ernst operates with a narrow, channel-centric definition of media; it is the "physical passage or place, that mediates something codified and gets decodified at the other end."³⁶ Given the above argument that capital passes through the forms it posits, the economic forms can, according to Ernst's definition, be viewed as media. An economic form alone, however, is a category of knowledge, and not physical or something that can carry out functions on its own. Given that capital invests itself in matter when it assumes an economic form, by virtue of being a material object, it occupies a unique place or position in space and therefore can serve as a physical passage of value.

Because capital is actualized and exists materially as supply chains that span production and circulation, the physical passage Ernst describes must refer to the places where economic forms are gathered, which in the case of the commodity means stores, malls and other places of exchange.³⁷ The economic forms, however, lack the ability, at least currently, to execute communicative economic functions on their own. For this capital relies on mediums: individuals to take up position within the categories both internal and external to the circuit. Functions of buying and selling are processes of coding and decoding, that is, of enabling value to "pass through" the forms that occur during moments of exchange. During these moments capital's media merge with its mediums and find union with presupposed and external personified economic categories in a particular location in space. To develop this argument in more depth, it is necessary to examine what economic categories are in Marx's system and then consider how and why individuals are personifications of them.

Economic categories are the "theoretical expressions, the abstractions of the social relations of production."³⁸ That is, the categories express productive relations (i.e. class relations) between people in the capitalist mode of production. Because the relations of production "connect people only through things, the things perform a particular social function and acquire a particular social form

³⁶ Jussi Parikka, "Archival Media Theory: An Introduction to Wolfgang Ernst's Media Archaeology," in *Digital Media and the Archive*, by Wolfgang Ernst and ed. Jussi Parikka (Minneapolis, MN: University of Minnesota Press, 2012), 19.

³⁷ For the forms of money- and productive capital, the physical passage refers respectively to pockets, wallets (analog or digital), safes, mattresses and where bank accounts are kept, and to various points of production, such as factories, restaurants and offices etc.

³⁸ Karl Marx, *The Poverty of Philosophy* (New York, NY: Cosimo Inc., 2008), 119.

which corresponds to the given type of production relations.”³⁹ The capitalist’s status is thus determined by ownership or control over capital, the means of production and products of wage-labour; the status of the worker is determined by ownership of labour power; and the landlord is determined by ownership of land.⁴⁰ If economic categories are the “bearers” of social relations it also the case that the categories “express social functions, or social forms, which are acquired by things as intermediaries in social relations among people.”⁴¹ In the preface to the first edition of *Capital*, Marx writes:

To prevent any possible misunderstandings, let me say this. I do not by any means depict the capitalist and the landowner in any rosy colours. But *individuals are dealt with here only in so far as they are the personifications of economic categories, the bearers of particular class-relations and interests.* My standpoint... can less than any other make the individual responsible for relations whose creature he remains, socially speaking, however much he may subjectively raise himself above them.⁴²

When referring to the activity of people engaged in exchange, Marx argues that the “persons exist for one another merely as representatives and hence owners, of commodities” and “in general, that the characters who appear on the economic stage are merely personifications of economic relations; it is as the bearers of these economic relations that they come into contact with each other.”⁴³ And throughout *Capital*, Marx repeatedly refers to individuals in such a manner, for example, as wearing “economic character masks,” playing economic roles, the capitalist being a representative of capital, and the worker being “nothing more than personified labour time.”⁴⁴

What does Marx mean by this description of individuals as personified economic categories, which are also attached to things? This is, of course, Marx’s theory of the fetish, which reveals that relations between people take the form of relations between things; in generalized commodity societies, people “do not relate to each other in a direct social way; they first enter into a relationship with

³⁹ Rubin, *Essays on Marx’s Theory of Value*, 35.

⁴⁰ Rubin, *Essays on Marx’s Theory of Value*, 19.

⁴¹ Rubin, *Essays on Marx’s Theory of Value*, 35. Indeed, Marx’s system “system examines a series of increasingly complex ‘economic forms’ of things or ‘definitions of form’ which correspond to a series of increasingly complex production relations among people.” Rubin, *Essays on Marx’s Theory of Value*, 37.

⁴² Marx, *Capital Vol. 1*, 92, emphasis added.

⁴³ Marx, *Capital Vol. 1*, 178-179.

⁴⁴ Marx, *Capital Vol. 1*, 179, 206; 342, 423, 424, 739; 353.

one another during the act of exchange – through the products of their labour.”⁴⁵ Things have the social function of connecting people, and from this point of view the thing is an intermediary and consequently a bearer of the productive relation.⁴⁶ As such, these social relations are naturalized with the effect that “it appears as if things have the properties and autonomy of subjects.”⁴⁷ The implication of this argument is that the rationality behind economic activity comes from the things (the economic forms) and not from any coherent, unified human subject with consciousness and free will. I am, however, getting ahead of myself. Before developing this particular argument, I first consider how economic forms can be considered elements of the communication system that is capital. I therefore turn to Shannon’s theory of communication.

For Shannon it is not meaning, representation or anything conditioned by culture or the social that constitutes media, but is rather the act of transmitting a message coded into a signal through a noisy channel. Although Shannon was interested in the engineering aspects of technical systems, Warren Weaver argued for the theory’s wider applicability, and Kittler, with his concept of discourse network and his reading of literature as media, has demonstrated the applicability of Shannon’s model to the humanities.⁴⁸

⁴⁵ Michal Heinrich, *An Introduction to the Three Volumes of Karl Marx’s Capital* (New York, NY: Monthly Review Press, 2012), 73.

⁴⁶ Rubin, *Essays on Marx’s Theory of Value*, 31.

⁴⁷ Heinrich, *An Introduction*, 34.

⁴⁸ Shannon’s theory of communication bears some superficial resemblance to Stuart Hall’s “encoding/decoding” model (loosely based on the circuit of capital) that offers a theoretical approach to how communication (“messages”) are produced, distributed and interpreted. Although it is beyond the scope of this paper to go into the intellectual history of both Shannon and Hall’s respective models, a comparison of the two can help bring out what sort of intervention Kittler did with regards to media theory and what this paper’s intervention is in Marxist political economy. Shannon’s diagram of a general communications system (see Figure 2) and Hall’s “communicative chain” appear to be very similar; both have five elements, both uses encoding and decoding of a message, and both operate with distortion of the message; through a channel in the case of Shannon and the TV-programme in Hall. The similarity, however, is superficial and semantic. For Hall encoding yields “messages in the form of a meaningful discourse,” which in turn is “meaningfully decoded.” Meaning is irrelevant in Shannon’s model, which centers on the engineering problematic of transmitting an encoded message through a noisy channel irrespective of whether the content of the message is gibberish, a random sequence of numbers or meaningful human discourse. In Shannon’s model it is assumed that the transmitter and receiver is on the same side or co-operate against distortion or interception. Ideally decoding is simply the inverse of encoding so that there is a perfect match between message sent and message received.

By ignoring “the being for whom the message connotes or denotes meaning,” Shannon sought to “clarify the internal mechanism of communication.”⁴⁹ Once the general functions and elements of communication are known – data source, sender, channel, receiver and data sink – they can be found in any communications system. Weaver gives the following description of Shannon's system (see Figure 2):

The *information source*, selects a desired *message* out of a set of possible messages (...). The *transmitter* changes [encodes] this *message* into the *signal* which is actually sent over the *communication channel* from the transmitter to the *receiver*... The *receiver* is a sort of inverse transmitter, changing [decoding] the transmitted signal back into a message, and handing this message on to the destination.⁵⁰

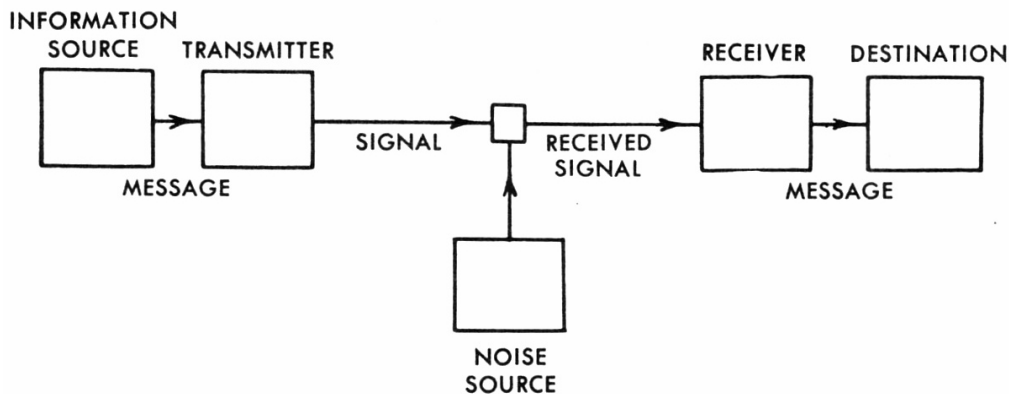


Figure 2: Shannon's general communication system.⁵¹

In Hall, however, encoding/decoding “may not be perfectly symmetrical;” there is an “asymmetry between the codes of 'source' and 'receiver' at the moment of transformation into and out of the discursive form.” This asymmetry enables resistant readings or refusals to accept the message. If resistance or refusal were possible in Shannon's theory, communication would be unsuccessful. Shannon, *The Mathematical Theory of Communication*; Stuart Hall, “Encoding/Decoding,” in *Culture, Media, Language: Working Papers in Cultural Studies, 1972-79*, ed. Stuart Hall et. al. (London, Hutchinson, 1980), 130; 131.

⁴⁹ Kittler, *Optical Media*, 44.

⁵⁰ Shannon and Weaver, *The Mathematical Theory of Communication*, 3-4.

⁵¹ Shannon and Weaver, *The Mathematical Theory of Communication*, 7.

According to Kittler, information networks can be described only when they are contrasted to one another and that this can be done on the elemental level of communication. The elements that constitute communication “can be left occupied by various agents: by men or women, rhetoricians or writers, philosophers or psychoanalysts, universities or technical institutions” because it is “completely unimportant what kinds of entities serve as data source that transmits a message and data sinks that receive a message, such as humans or gods or technical devices.”⁵² Regardless of what agents stand in for the elements of communication, they all carry out the general functions of communication – selecting the message, encoding, transmitting, receiving, decoding and storing.

Can the circuit of capital, however, be described as an information system with reference to Shannon’s five functions and elements? One could say that labour-power (Lp), and its dead counterparts (Mp), are the inputs or source; that the production process encodes labour into the signal of surplus-value, which is output and transmitted through the channel of the sphere of circulation; surplus value is then decoded and realized in exchange, and sunk in the storage medium of money, which is then fed back into the system as accumulated capital. This simple isomorphism, although tempting to commit to, is not sufficient.

Marx argues that capital is value-in-process.⁵³ If capital is seen as a communication system, it is more precise to say that capital is value-in-transmission considering that value is the form labour assumes in the capitalist mode of production.⁵⁴ The historical point of departure for the capitalist mode of production was primitive accumulation.⁵⁵ Conceptually we can interpret original accumulation as labour being coded as value (“in letters of blood and fire”)⁵⁶ by this extra systemic act of accumulation, and consequently that value can be treated as the signal that is transmitted and augmented through the circuit of capital. The reproduction of capitalist social relations—the ever-present separation of labour power from the means of production as premise and result—ensures that labour remains coded as value. In the communication of capital,

⁵² Kittler, *Discourse Networks*, 370; Kittler, *Optical Media*, 44; see also, Tiziana Terranova, *Network Culture: Politics for the Information Age* (London: Pluto Press, 2004), 15.

⁵³ Marx, *Grundrisse*, 536.

⁵⁴ Karl Marx, “Marx to Kugelmann in Hanover” (1868), Marxist Internet Archive, http://www.marxists.org/archive/marx/works/1868/letters/68_07_11-abs.htm (accessed May 14, 2013).

⁵⁵ Marx, *Capital Vol. 1*, 873-876

⁵⁶ In the chapter of primitive accumulation in *Capital Vol. 1*, Marx writes that the history of capitalism’s origin “is written in the annals of mankind in letters of blood and fire.” Marx, *Capital Vol. 1*, 875.

value is itself encoded in the particular forms of commodities and money. The acts of buying and selling represent the functions of decoding and encoding necessary for the signal to reach its destination in money, the independent form of value that is always latently capital.⁵⁷

The economic categories that are posited by capital are thus analogous to the elements of Shannon's communication model, and the functions associated with these economic forms are communicative functions. In the circuit of capital the entities that serve as the elements of communication are (a) the determined economic forms, (b) the representatives of economic categories and (c) the capital subject that, like Moses and the prophets, selects the message to "Accumulate! Accumulate!"⁵⁸ That message can be communicated only if capital keeps (re) transmitting the signal of value.⁵⁹

An economic category, however, is empty and therefore non-functional unless an individual fills it up, and personifies it by carrying out its particular function. While the categories are the elemental forms of media of capital as a communication system, individuals are its mediums because they carry out the associated function. The economic categories perform functions similar to Shannon's elements, and, importantly, because these categories are products of the system and individuals are but representatives of economic categories, the output or product of the circuit of capital are subjects *programmed to function as mediums for the transmission of value*. That is, they are the "nodes and operators that keep the system going."⁶⁰ To proceed with this argument about

⁵⁷ A significant lack to the model just described is noise, which is central to both Shannon and Kittler's respective theories. Does noise impede, slow or interrupt capital's communication, and if so, to what extent? Is the source of noise, from the point of view of capital, class struggle or from activities such as auto-reduction and digital piracy? Alternatively, is noise what enables capital to expand its reproduction? In other words, does noise enter the sphere of production from the activity of living labour?

⁵⁸ "Accumulate! Accumulate! That is Moses and the prophets!" Marx, *Capital Vol. 1*, 742.

⁵⁹ That capital must keep on re-transmitting the message to accumulate rather than being satisfied with having a latent existence in the storage of money suggest that capital is inherently space-biased. Capital thus lacks a data sink, which, as Kittler argues in a very Innisian moment, is "probably an indication of our own situation if all media, as in Shannon's work, are defined as transmission rather than simply storage media." Harold A. Innis, *The Bias of Communication*, 2nd ed. (Toronto: University of Toronto Press, 2008); Kittler, *Optical Media*, 46.

⁶⁰ Winthrop-Young, *Kittler and the Media*, 65. This articulation by Winthrop-Young corresponds well with Marx's argument that with an "automatic system of

programmable subjects, it is necessary to take a closer look at the connection between subjectivity and systems. For this connection I rely on Kittler's concept of discourse network and how human activity is an effect of, and programmed by, the wiring of particular discourse networks.

Discourse networks and hermeneutically conditioned subjects

Kittler relies on Shannon's model, and seemingly Harold Innis' understanding of culture,⁶¹ to develop his concept of discourse network, which designates "the network of technologies and institutions that allow a given culture to select, store and process relevant data."⁶² As such discourse networks are "a set of large-scale historically contingent information machines" that "depending on the way the data inputs, throughputs and outputs are wired, produces basic notions as to why and to what end this machinery is supposed to function."⁶³ Among the outputs of this machinery are subjects and their activity; human beings are compelled to participate in, take up position with and act within its parameters and protocols. In Kittler's media theory, human beings are ontologically reduced to components of large-scale information systems – be it a discourse network, finite-state automata (language) running in our unconscious or, as this paper argues, the circuit of capital – on the same level as technology and institutions. Human beings are not the subjects of history, rather their subjectivity and activity is posited as functions of the system, which is equivalent to a form of programming, in order to maintain its continued existence.

For example, in the 1800 discourse network, people were "hermeneutically conditioned" to interpret all signifiers (sounds and words), including noise, as filled with or at the threshold of meaning. Kittler bases his analysis on an interpretation of Goethe's poem "*Wanderers Nachtlied*" ("Wanderer's Nightsong").⁶⁴ Kittler is "less interested in what the poem is saying

machinery... the workers themselves are cast merely as its conscious linkages." Marx, *Grundrisse*, 692.

⁶¹ Innis provides two very short definitions of the function of culture: (1) "It is designed to train the individual to decide how much information he needs and how little he needs, to give him some sense of balance and proportion;" (2) "Culture is concerned with the capacity of the individual to appraise problems in terms of space and time and with enabling him to take the proper steps at the right time." Harold A. Innis, "A Plea for Time," in Innis, *The Bias of Communication*, 85.

⁶² Kittler, *Discourse Networks*, 369.

⁶³ Winthrop-Young, *Kittler and the Media*, 46; 40.

⁶⁴ Because understanding Kittler's analysis from *Discourse Networks* and *Dichter, Mutter, Kind* requires a graduate level knowledge of German literature, I base this overview on Geoffrey Winthrop-Young and David E. Wellerby's interpretations. For

than in uncovering the mechanisms that produce meaning in the first place.”⁶⁵ This mechanism lies at the center of the 1800 discourse network, which according to David Wellerby is the “discursive production of the Mother as the source of discursive production.”⁶⁶ In terms of Shannon’s five functions, the Mother is the information source.

In the age of Goethe, mothers were tasked with “turning raw infant material into individuals equipped with a sufficiently developed psychic center of resonance and reflexivity, commonly referred to as spirit or soul.”⁶⁷ Instead of putting a baby to sleep with sedatives or narcotics, as had been the norm, mothers were told to use their loving voice singing lullabies, and in general and in accordance with the new pedagogy of language teaching, to voice what Kittler refers to as “minimal signifieds.”⁶⁸ In German these are represented by sounds such as *du mu bu be ma am ag ga*, which can easily merge into words. For example, *bu* and *be* result in *Bube* (little boy) and repeating *ma* gives *Mama*.⁶⁹

The effortless fusion is based on the assumption that minimal signifieds... are always already pregnant with meaning... This assumption is reinforced by the new and intimate bond between mother and infant, for the latter will perceive the voice of the former as always being directed toward something. Together, the love of the mother and the semantic plenitude of language guarantee that whatever comes out of the mother’s mouth will and must be meaningful.⁷⁰

Kittler argues that Goethe’s poem is an interpellation: a voice addresses the wanderer, and in his analysis, it is the voice of the mother who is “speaking to the wanderer of the way in which nature is speaking to him, with the result that the wanderer (and his readers) cannot but interpret even the most meaningless noise as a meaningful message.”⁷¹ The poem recreates the salient features of the mother’s voice and thereby “trigger[s] in the wanderer and, by extension, in hermeneutically conditioned readers a response similar to that of an infant listening to *Hush-a-bye-Baby on the Tree Top*.”⁷² The poem is thus a remediation

reference, Goethe’s “Wanderer’s Nightsong” is in Appendix 1. Friedrich A. Kittler, *Dichter, Mutter, Kind* (Munich: Fink, 1991).

⁶⁵ Winthrop-Young, *Kittler and the Media*, 31.

⁶⁶ David E. Wellerby, “Introduction,” in Kittler, *Discourse Networks*, xxiii.

⁶⁷ Winthrop-Young, *Kittler and the Media*, 32.

⁶⁸ Winthrop-Young, *Kittler and the Media*, 32; Kittler, *Discourse Networks*, 78.

⁶⁹ Winthrop-Young, *Kittler and the Media*, 32-33.

⁷⁰ Winthrop-Young, *Kittler and the Media*, 32-33.

⁷¹ Winthrop-Young, *Kittler and the Media*, 31.

⁷² Winthrop-Young, *Kittler and the Media*, 32.

of maternal lullabies. Goethe's wanderer perceives meaningless sounds to be "brimming with existential significance" because as an infant and child the mother's minimal signifieds were always on the threshold of meaning.⁷³ In effect, mothers equipped their children with a decoder; the poet-philosopher's cipher that transform all noise into meaning. Omnipresent meaning is thus the programmed output of the 1800 discourse network (Figure 3) in which the Mother is the source of information. She "enters the channel of Poetry as input and, upon exiting the other side, is collected in the storage medium of Philosophy."⁷⁴

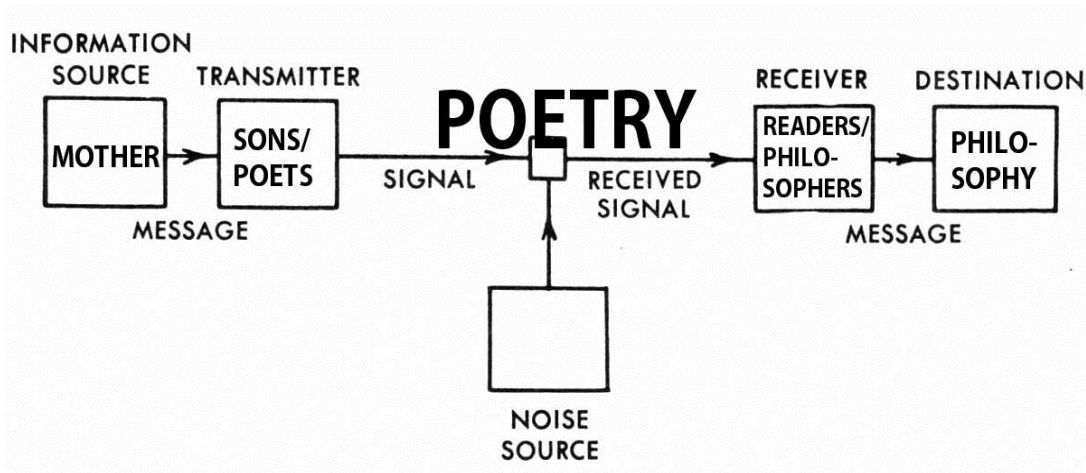


Figure 3: Discourse Network 1800.

I present this description of the discourse network with a view to considering how we might in turn conceive of economic forms and the individuals that fill them as the programmed output of a circuit in which capital is at the source of the communication system. In order to continue with the argument we need to pay attention to Marx's intent with his labour theory of value and the value form.

IF you inhabit an economic category, THEN execute its logic

⁷³ Winthrop-Young, *Kittler and the Media*, 33.

⁷⁴ Friedrich Kittler and Stefan Banz, *Platz der Luftbrücke: Ein Gespräch* (Berlin: Oktagon, 1996), 45, quoted in Winthrop-Young, *Kittler and the Media*, 46.

Michael Heinrich argues that with “value theory Marx seeks to uncover a specific social structure that individuals *must* conform to, *regardless of what they think*.”⁷⁵ Even a class conscious, militant anarchist communist is subject to the commodity fetish. All inhabitants of a commodity-producing society are under the control of things and, by extension, capital. Value is an impersonal relation of domination that acts through “thingified” economic abstractions. That is, this domination occurs because “people relate to things in a particular way – as commodities.”⁷⁶ Individuals do not interact on the free market as the rational actors of vulgar economics’ *homo economicus*, but rather “they act as executors of constraints generated and reproduced by themselves, which are implemented in and through their conscious actions without, however, these being consciously accessible to them.”⁷⁷

With value theory Marx argues that the logic of economic “agents” does not come from themselves as coherent, rational subjects, but in general from the system of capital and in particular from the economic categories that the system posits. Marx refers to this as “economic form determination.” The economic form determinants are the “given preconditions for the activity and considerations of commodity-owners who then continually reproduce these conditions during their activity.”⁷⁸ As owners of commodities, individuals “must place themselves in relation to another as persons *whose will resides in those objects*.”⁷⁹ Although people engaged in economic activity, such as the exchange of commodities, are formally free in their behaviour, “as commodity-owners they must follow the laws imposed on them by the nature of commodities.”⁸⁰ Behaviour on the market can consequently be understood as unconscious acts.

In other words, economic rationality is stored in things and during the communication of capital an individual copies and then executes this rationality as a communicative function when inhabiting an economic category. Importantly, if “their actions correspond to this rationality, then the activity of individuals also

⁷⁵ Heinrich, *An Introduction*, 46.

⁷⁶ Heinrich, *An Introduction*, 75.

⁷⁷ Helmut Reichelt, “Marx’s Critique of Economic Categories: Reflections on the Problem of Validity in the Dialectical Method of Presentation in Capital,” *Historical Materialism* 15 (2007):5.

⁷⁸ Heinrich, *An Introduction*, 63. The structure of Marx’s presentation in *Capital Vol. 1*, particularly the first two chapters, is revealing because they respectively introduce the “economic form determinations” and the behaviour of people. If the logic of economic categories determines the activity of human beings, this logic has to be presented and analyzed prior to the behaviour of so-called human beings.

⁷⁹ Marx, *Capital Vol. 1*, 178.

⁸⁰ Heinrich, *An Introduction*, 63.

reproduce the presupposed social relations.”⁸¹ According to Marx, “commodity-owners think like Faust: ‘In the beginning was the deed.’ They have therefore already acted before thinking. The natural laws of the commodity have *manifested themselves in the natural instinct of the owners of commodities.*”⁸²

Thus the valorization of value is the capitalist's “subjective purpose, and it is only in so far as the appropriation of more wealth in the abstract is the sole driving force behind his operations that he functions as a capitalist, i.e. *as capital personified and endowed with consciousness and will.*”⁸³ In an imaginary discussion over the “law of commodity exchange”⁸⁴ between a capitalist and the labour power-owning worker, the latter says: “You may be a model citizen, perhaps a member of the R.S.P.C.A., and you may be the odour of sanctity as well; but the thing you represent when you come face to face with me has no heart in its breast. What seems to throb there is my own heartbeat.”⁸⁵ The worker makes salient the following points: it is living labour that creates value and animates the life process of capital. In other words, labour is the use-value of capital. More importantly, however, the worker points out that an individual's personal morals or ethics are of no importance because the capitalist is a representative of capital and is therefore programmed to follow its logic of ceaseless and limitless valorization. That capital compels the capitalist to do (and say) things that he may not have done or said if he were not a capitalist, is something that Marx returns to over and again in *Capital*.

Après moi le deluge! is the watchword of every capitalist and of every capitalist nation. Capital therefore takes no account of the health and the life of the worker, unless society forces it to do so. Its answer to the outcry about the physical and mental degradation, the premature death, the torture of over-work, is this: Should that pain trouble us, since it increases our pleasure (profit)? But looking at these things as a whole, *it is evident that this does not depend on the will, either good or bad, of the individual capitalist. Under free competition, the immanent laws of capitalist production confront the individual capitalist as a coercive force external to him.*⁸⁶

⁸¹ Heinrich, *An Introduction*, 46.

⁸² Marx, *Capital Vol. 1*, 180, emphasis added.

⁸³ Marx, *Capital Vol. 1*, 254, emphasis added.

⁸⁴ The law of commodity exchange states that what is exchanged must be quantitatively equivalent; no defrauding can happen during exchange.

⁸⁵ Marx, *Capital Vol. 1*, 343.

⁸⁶ Marx, *Capital Vol. 1*, 381, emphasis added.

The “laws of capitalist production” manifest themselves in society through the “coercive laws of competition,” and these laws “therefore enter into the consciousness of the individual capitalist as the motives which drive him forward.”⁸⁷ These laws of capital are independent of the will and volition of all individual capitalists. Competition compels capitalists, on pain of ruin, to increase productivity, lengthening the workday in order to increase the valorization of capital even if they have no interest in doing so at an individual level. New methods of production that enable and compel a capitalist to sell his commodities for less than their current social value forces his competitors to adopt the same method because they cannot escape the law of determination of value by labour time.⁸⁸ The capitalist’s motivating force is thus “an effect of a social mechanism in which he is merely a cog.”⁸⁹

Effectively, the capital subject programs individuals according to the economic form determinants to ensure the transmission of value through the circuit of capital. This programming can be considered as a limiting of an individual’s choice, which I will argue with reference to Jacques Lacan’s concept of the “jammed machine.”⁹⁰ In order to get to this concept and proceed with the argument, however, we have to return to Kittler’s discourse networks where we historically left them: right at the point when Mother was replaced as the information source of modernity, her removal entailing the end of the omnipresence of meaning. In the 1900 discourse network the source of discourse is arbitrary; the source is noise and therefore needs institutions of selection, like psychoanalysis and psychiatry, to identify human discourse, i.e. to distinguish between noise and signal.⁹¹

Discourse Network 1900

In discourse network 1800, all data streams had to go through the bottleneck of the symbolic: writing had a monopoly. Reading worked “to raise and cultivate a soul, to internalize the fundamental order of culture and nature, and to extend an empire of meaning across the expanse of being. To read was to exorcize

⁸⁷ Marx, *Capital Vol. 1*, 433.

⁸⁸ Marx, *Capital Vol. 1*, 436.

⁸⁹ Marx, *Capital Vol. 1*, 739.

⁹⁰ Jacques Lacan, *The Seminars of Jacques Lacan. Book II: The Ego in Freud’s Theory and in the Technique of Psychoanalysis 1954-1955* (New York, NY and London: W. W. Norton and Company, 1988), 31.

⁹¹ Richard Armitage, “From Discourse Networks to Cultural Mathematics. An Interview with Friedrich A. Kittler, “*Theory, Culture & Society* 23, no. 7-8 (2006):19. In discourse network 1900, human discourse is merely a privileged category of noise.

meaningless noise in favor of omnipresent meaning.”⁹² Phenomena such as reading, speaking, writing and remembering were subsumed by souls, consciousness and subjectivity; they were therefore thought unique to human beings.⁹³ Kittler identifies Hegel as one of the main culprits of such subsumptions; he “summed up the perfect alphabetism of his age, he called it Spirit.”⁹⁴ One of the main outputs of the materiality of the dominant media technology of the 1800 discourse network was “the individual, conscious thinking subject that produces the world through mental activity.”⁹⁵ The introduction of technological media, or more precisely pathological senses as objects of science, thematizes and separates writing into acoustic, optical and symbolic data streams. This technological differentiation explodes Gutenberg’s writing monopoly, and consequently the uniqueness and internal coherence of human beings must be questioned. Man’s

essence escapes into apparatuses. Machines take over functions of the central nervous system, and no longer, as in times past, merely those of muscles. ... When it comes to inventing phonography and cinema, the age-old dreams of humankind are no longer sufficient. The physiology of eyes, ears, and brains have to become objects of scientific research. For mechanized writing to be optimized, one can no longer dream of writing as the expression of individuals or the trace of bodies. The very forms, differences, and frequencies of its letters have to be reduced to formulas. So-called Man is split up into physiology and information technology.⁹⁶

Kittler argues that Freud’s talking cure revealed language as data stream; one that operates according to its own set of rules, which can be recorded.⁹⁷

⁹² Winthrop-Young, *Kittler and the Media*, 63.

⁹³ Winthrop-Young, *Kittler and the Media*, 60-61.

⁹⁴ Kittler, *Gramophone, Film, Typewriter*, 16.

⁹⁵ Bernd Frohmann, “General intellect, communication, and contemporary media theory” (paper presented at mediations 2.7, Faculty of Information and Media Studies, University of Western Ontario, London, Ontario, March 15, 2013).

⁹⁶ Kittler, *Gramophone, Film, Typewriter*, 16.

⁹⁷ As Lacan notes, even a game of heads and tails that is completely random gives rise to an emergent order, which a recording of the results reveals. “[T]he very recording of random events gives rise to a rudimentary form of order, since it allows the formation of units and hence the emergence of a syntax governing their possible sequences of succession.” Lacan, *Seminar II*, 192-194; see also John Johnston, *The Allure of Machinic Life: Cybernetics, Artificial Life, and the New AI* (Cambridge, MA: The MIT Press, 2008), 76-77.

Freud's intervention reverses the relationship between language and speaker: we are secondary to language; it speaks us rather than the other way around. The typewriter, because it "provides writing as a selection from the finite and arranged stock of its keyboard" forces humans to change their position "from the agency of writing to an inscription surface."⁹⁸ The typewriter therefore "designates the turning point at which communications technologies can no longer be related back to humans."⁹⁹ When information can no longer be mistaken for spirit, "[t]hought is replaced by a Boolean algebra, and consciousness by the unconscious, which (at least since Lacan's reading) makes of Poe's 'Purloined Letter' a Markoff Chain."¹⁰⁰

Lacan's reading of Poe was indebted to his encounter with cybernetics, which for him revealed that symbolic processes are autonomous; language speaks us because it is essentially a machine, specifically a finite state automaton running in the unconscious.¹⁰¹ With reference to Boolean logic gates, Lacan noted that cybernetics introduces "machines which calculate all by themselves" and then argues that while we are aware that these machines do not think since they have been told (programmed) what to think, this does not reveal any superiority of man over machine.¹⁰² Rather, "if the machine doesn't think, it is obvious that we don't think either when we are performing an operation. We follow the same procedures as the machine."¹⁰³

Shannon had proved how "statistical properties of any natural written language can be computed in terms of transition probabilities between its symbols... the probability of any symbol following any other."¹⁰⁴ In English, "the probability is actually zero that an initial j be followed by the letters b, c, d, f, g, j, k, l, q, r, t, v, w, x, or z."¹⁰⁵ This stochastic process, known as a discrete Markoff process determines the output of speakers and writers. Bernd Frohmann argues that as

writers produce strings of letters that constitute English words, their writing down of thoughts is machinic insofar as the transition from letter to letter is a discrete Markov process. Whether using quill pen, typewriter, or computer keyboard, the writers function as

⁹⁸ Kittler, *Gramophone, Film, Typewriter*, 16; 210.

⁹⁹ Kittler, *Gramophone, Film, Typewriter*, 211.

¹⁰⁰ Kittler, *Gramophone, Film, Typewriter*, 16.

¹⁰¹ Lacan, *Seminar II*, 294-308; John Johnston, *Allure*, 75-79.

¹⁰² Lacan, *Seminar II*, 302; 302-304.

¹⁰³ Lacan, *Seminar II*, 304.

¹⁰⁴ Frohmann, "General Intellect."

¹⁰⁵ Shannon and Weaver, *Mathematical Theory of Communication*, 6.

machinic writing apparatuses, without any consciousness of the probability distributions governing their writing.¹⁰⁶

The abstraction of labour perpetrated by individual buyers and sellers can be compared to the writer determined by a Markoff-chain. This abstraction is not a conscious process, but takes place tacitly: “value... is constituted unconsciously: the act of equating takes place in a manner which remains obscure to the participants themselves.”¹⁰⁷ Because value is a social characteristic, it is supersensible, but it nevertheless appears as a tangible characteristic of the thing. During the moment of exchange we can only perceive the sensuous object, i.e. the commodity’s use value that confronts the money in our pockets or the databases of banks. Although the abstraction of labour is an action that takes place in the mind, it does not occur consciously. Hence, the abstraction carried out in the moment of exchange is not a mental abstraction, but rather a “real abstraction” by way of the behaviour of human beings irrespective of their awareness of it.

With a finite state automaton operating in our unconscious, the “movement of a symbol dictates the correlation between a place in a structure and a state of the subject.”¹⁰⁸ In such a structure, all that a human being really can do is to “take up position.” Subjectivity therefore becomes “a matter of subject position, of where the subject finds himself or herself in a predetermined structure.”¹⁰⁹ As an expression of the equal social validity of two qualitatively different acts of labour (crystallized in their commodity forms), value represents a specific social relationship. The particular forms capital clothes itself in thus express the particular content of productive relationships and dictates the position and function within capital’s circular structure. The following quote from *Capital*

¹⁰⁶ Frohmann, “General Intellect.”

¹⁰⁷ Reichelt, “Marx’s Critique,” 20; see also Marx, *Capital Vol. 1*, 166-167. Abstract labour is the condition of possibility for the existence of value, which is not a property of any individual commodity, but is a social characteristic that expresses the relationship of individual commodities to the entire world of commodities. Because commodities are the product of labour, value therefore expresses the relationship of individual concrete acts of labour to the total labour of society. That is, value, or more precisely in its form as exchange value, is a mode of expression of abstract labour, and the act of exchange that equates two qualitatively different commodities as values, is an abstraction from individual concrete acts of labour. Exchange accomplishes the abstraction that underlies abstract labor and validates the surplus value created during the production process.

¹⁰⁸ Johnston, *Allure*, 68.

¹⁰⁹ Johnston, *Allure*, 68.

Vol. 1 helps to illustrate how individuals take up position in circuit of capital. Marx argues that by

taking part in the act of sale, the commodity-owner becomes a seller; in the act of purchase he becomes a buyer. *Being a seller and being a buyer are... not fixed roles, but constantly attach themselves to different persons in the course of the circulation of commodities.* The complete metamorphosis of a commodity, in its simplest form [C-M-C], implies... three *dramatis personae*. First a commodity comes face to face with money... A commodity-owner is thus confronted with a money-owner... Money, the final stage of the first transformation, is at the same time the starting point for the second. The person who is a seller in the first transaction thus becomes a buyer in the second, in which a third commodity-owner comes to meet him as a seller.¹¹⁰

Only commodities and money have faces; individuals wear them as masks and their physiognomy changes, though only temporarily, according to the economic form they are positioned within. Having carried out the determined economic function, the individual leaves the particular subject position, but is then ready to take up position again. In the sphere of circulation, the subject forms posited by the circuit of capital can broadly be divided into commodity-owners/sellers and money-owners/buyers; when entering the sphere of production, “a certain change takes place, or so it appears, in the physiognomy of our *dramatis personae*. He who was previously the money-owner now strides out in front as a capitalist; the possessor of labour-power follows as his worker.”¹¹¹ Figure 4 shows the presupposed economic roles divided into internal and external positions by economic functions of buying and selling, and Figure 5 depicts the physiognomic changes of an individual whose only property is labour-power.

¹¹⁰ I should note that in this passage Marx is not referring to the circulation of capital, but to the circulation of commodities disconnected from a capitalist production process. In this specific instance, however, all that matters is that economic forms determine a specific position in the process of circulation. Marx, *Capital Vol. 1*, 206, emphasis added.

¹¹¹ Marx, *Capital Vol. 1*, 280.

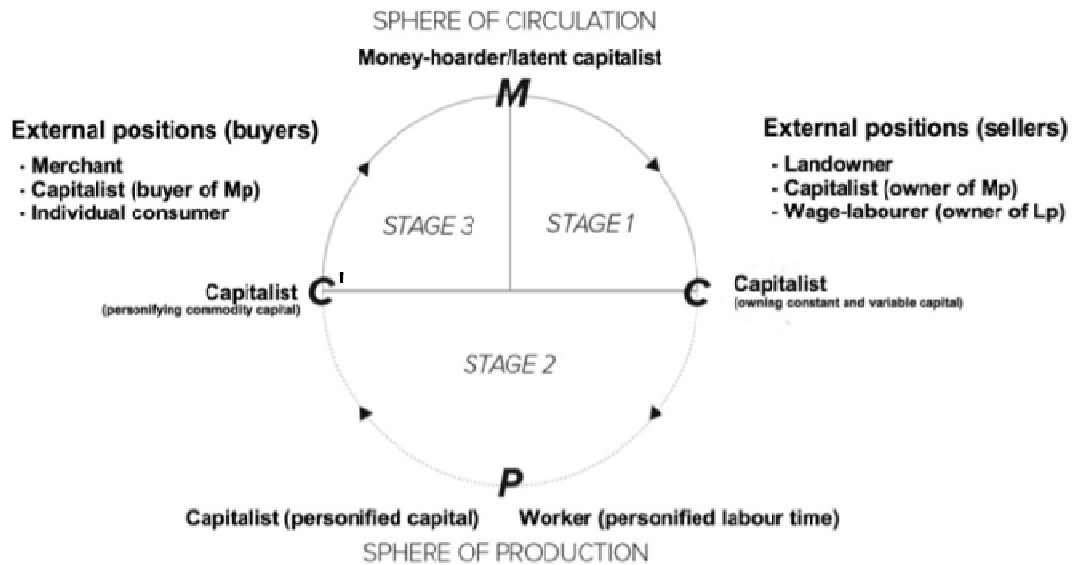


Figure 4: Economic roles and subject position in the circuit of capital¹¹²

¹¹² The latent capitalist becomes a capitalist by purchasing labour-power and means of production from the various owners of commodities: landowner, capitalist owning means of production and the wage-labourer who possesses labour-power. After exchange the capitalist has coded his money into variable (labour-power) and constant capital (means of production); in production he sets these in motion, is therefore personified capital and personifies commodity-capital when production is complete. Having commodities to sell, he encounters owners of money: the merchant capitalist, the industrial capitalist and the individual consumer (the only position that transcends class and which therefore can be occupied by both workers and capitalists).

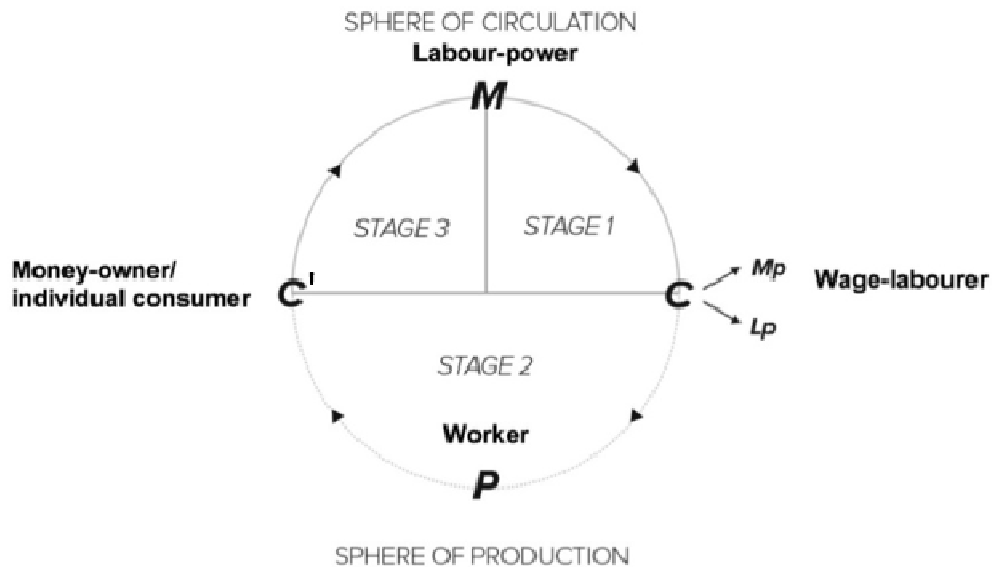


Figure 5: Subject positions for the owner of labour-power¹¹³

According to the *Wertkritiker* (value critic) Anselm Jappe, the “subject is the substrate, the agent, the bearer that the fetishist system of valorization requires to assure production and consumption. It is not completely identical to the individual or the human being, who may on occasion feel the subject-form as a straightjacket.”¹¹⁴ The subject, or more precisely subject-form or position, is what

¹¹³ In order to acquire the means of subsistence with which to reproduce herself, the owner of labour-power enters the market as a wage-labourer in order to sell her only possession to a capitalist other. After entering into exchange with capital, the wage labourer is subsumed by capital (indicated by the subject designation being placed inside the circuit), is a worker, or more precisely “personified labour time” in the sphere of production and for the duration of the working day. Back on the market, the former worker is now in possession of money (her wages) that she uses to buy the commodities necessary for her reproduction and thus returning to the position of being a store of labour-power. From the point of view of the worker, the sphere of circulation is the sphere of domestic (re)production.

¹¹⁴ Jappe’s critique of the subject is covers both political and economic fetishized categories. In addition to the economic categories and subject forms of buyer, seller, landowner, peasant, capitalist and worker, Jappe lists fetishized political categories such as male, female and even success. Anselm Jappe, “The Princess of Clèves

an individual assumes when carrying out economic functions. The particular uniqueness of an individual human being is immaterial; what matters is that individuals take up position within economic categories and execute its function. Any individual can thus stand in for any other individual in Marx's presentation; all that matters is that "they reproduce the preconditioned economic-form determinant" in order for capital to assume its next form thus guaranteeing capital's movement.¹¹⁵

Jammed Machines

By taking up positions within the structure of capital's circuit, individual human beings are programmed in the sense that their freedom of choice is limited, which Jappe's straightjacket comment indicates. As we will see below, with regards to communication this limitation is not a bad thing; it is necessary for effective communication. Collectively, the economic form determinants can consequently be understood as a jamming mechanism that temporarily fixes the individual to make a specific pre-determined selection. That is, by taking up position within an economic form, the human becomes more jammed than it already is. According to Lacan, the

animal is a jammed machine. It's a machine with certain parameters that are no longer capable of variation. And why? Because the external environment determines the animal, and turns it into a fixed type. It is in as much as, compared to the animal, we are machines, that is to say something decomposed, that we possess greater freedom, in the sense in which freedom means the multiplicity of possible choices.¹¹⁶

Lacan operates with an information theoretic definition of freedom or agency; the measure of agency is information. And information is the measure of the probability of the occurrence of an event and a single selection from a set of possible states.¹¹⁷ In other words, it is a measure of uncertainty, i.e. "a measure of what the person receiving the message does not know about it before it

Today," Libcom, <http://libcom.org/library/princess-cl%C3%A8ves-today-anselm-jappe> (Accessed May 14, 2013).

¹¹⁵ Helmut Reichelt, "Social reality as appearance: some notes on Marx's conception of reality," in *Human Dignity: Social Autonomy and The Critique of Capitalism*, ed. Werner Bonefeld and Kosmas Psychopedis (Aldershot and Burlington, VT: Ashgate, 2005), 63; Heinrich, *An Introduction*, 88.

¹¹⁶ Lacan, *Seminar II*, 31.

¹¹⁷ Shannon and Weaver, *The Mathematical Theory of Communication*, 5.

arrives.”¹¹⁸ The more freedom of choice in selecting the message, the greater is the uncertainty and the more information is contained in the system.¹¹⁹ Lacan is interested in such a definition of agency considering he argues that the unconscious is structured like a language and he is, in part, interested in the unfreedom in selecting what to say, such as occurs with a Freudian slip. But what does Lacan mean by saying that compared to the animal we are like machines because we have a greater degree of freedom of choice? Let us first take a detour through Kittler on machine subjects, before returning to the difference between animal, man and machine with reference to Marx’s discussion on labour in the *1844 Manuscripts*.¹²⁰

According to Kittler machines became subjects in 1938 when Konrad Zuse invented the conditional jump. “Computers operating on IF-THEN commands are machine subjects” because through conditional jumps a program is able to determine its future through successive commands, i.e. choices, after the IF condition is met; IF-THEN thus refers to the “discourse of the other”.¹²¹ Not surprisingly Kittler argues that “both people and computers are ‘subject to the appeal of the signifier’; that is, they are both run by programs.”¹²² Without a conditional jump, the machine would be a fixed type, like the animal, because without the IF condition it would not be able to make choices based on changes to its environment that otherwise would have triggered a jump. What about the difference between animals and human machines?

As Lacan argues, it is the external environment that “jams” the animal and turns it into a fixed type. The implication is that the human being has been “freed” from its environment. In the *1844 Manuscripts*, Marx writes:

Admittedly animals also produce. They build themselves nests, dwellings, like the bees, beavers, ants, etc. But an animal only produces what it immediately needs for itself and its young. It produces one-sidedly, whilst man produces universally. It produces only under the dominion of immediate physical need, while man produces even when he is free from physical need and only truly produces in freedom therefrom.¹²³

¹¹⁸ Claude Shannon, quoted in Terranova, *Network Culture*, 21.

¹¹⁹ Shannon and Weaver, *The Mathematical Theory of Communication*, 10.

¹²⁰ Karl Marx, *Economic and Philosophic Manuscripts of 1844* (Buffalo, NY: Prometheus Books, 1987).

¹²¹ Kittler, *Gramophone, Film, Typewriter*, 259; 258-259.

¹²² Kittler, *Gramophone, Film, Typewriter*, 17.

¹²³ Marx, *Economic and Philosophic Manuscripts*, 77.

The human being has greater freedom of choice in what to produce since it, compared to the animal, produces universally rather than one-sidedly. With “universal,” Marx means “an individual object which in itself *includes* all real existing types of the same object... for example animal.”¹²⁴ A particular object is not subsumed by a universal, but is included in it; universal refers to both abstraction and totality.¹²⁵ Thus the human being – as an individual of *Homo sapiens* – is freer than the animal because it can choose from all possibilities of production rather than being determined by its environment and “life-activity.” Life-activity is productive life and appears to the human being as a means of satisfying needs. What distinguishes human life-activity from the animal’s is that the former can take its life-activity as an “object of will and consciousness,” whereas the animal is “immediately identical with its life activity. It does not distinguish itself from it. It is its life-activity.”¹²⁶ Free, conscious activity is humankind’s life-activity, but cannot occur when the “pure expenditure of labour power has been raised to an abstract principle.”¹²⁷ In the capitalist mode of production, workers are identical with wage-labour, i.e. their perverted life-activity. Thus the commodity-owning worker, in possession of nothing but their capacity to labour, is a jammed machine; jammed by capitalist social relations. These social relations, in which the proletarian is separated from the means of production, limits the choices an individual has in deciding how to acquire the means of subsistence, i.e. how to reproduce their life.¹²⁸

According to Lacan human beings are “jammed, sucked in by the image” and therefore the “subject is no one;” it is “decomposed, in pieces” and can only find its “unity in the image of the other,” for our purposes, in commodity exchange.¹²⁹ Although we do not turn into fixed types, for occupying an economic category is fleeting, we are temporarily fixed towards a certain choice of action: jammed into either buying or selling depending on your position and fixity as a commodity or money-owner. In exchange, the “image of the other” is the

¹²⁴ Reichelt, “Marx’s Critique,” 26.

¹²⁵ The most salient example of a universal in Marx’s theoretical framework is, of course, money as the universal equivalent that contains in itself the world of commodities. Marx, *Capital Vol. 1*, 157-163.

¹²⁶ Marx, *Economic and Philosophic Manuscripts*, 76.

¹²⁷ Krisis, “Manifesto Against Labour,” Letters Journal, <http://www.lettersjournal.org/manifestoagainstlabour.html> (accessed May 14, 2013).

¹²⁸ As Nick Dyer-Witford pointed out in an earlier draft of this paper, an implication of this argument is that individuals are subject to contradictory interpellations. The idea of freedom of choice is intrinsic to capitalist interpellation. The worker must be double free: from the means of production and free to dispose of her labour-power on the market, while also being compelled to make that sale.

¹²⁹ Lacan, *Seminar II*, 54.

commodity standing in the equivalent form.¹³⁰ The individual finds temporary unity as a subject with another individual occupying an antithetical position, because when two commodities are confronted with one another they temporarily sublimate the internal contradiction of the commodity in exchange value by carrying out the real abstraction of labour.¹³¹ The subject finds unity in exchange because the subject does not exist for anything but for the purpose of ensuring capital's communication.

According to Tiziana Terranova, in Shannon's model the conceptual "problem of communication is reduced to that of establishing a bridge or contact between a sender and a receiver. The two extremities of the channel 'are on the same side, tied together by mutual interest: they battle together against noise.'"¹³² When it comes to the communication of capital, all individuals are on the same side as the capital subject because during the moment of exchange they are for all intents and purposes tied together by mutual interest; both social individuals and social capital must reproduce their life process and this reproduction occurs in part through commodity-exchange. This mutual interest, however, is perverse considering it derives from an antagonism founded on capital's original accumulation.

The mutual interest between capital and human individuals is established by the former jamming the latter, i.e. by reducing the possible choices the individual can make. Because information is a measure of uncertainty, an implication of uncertainty is that "[c]ommunication is the extent a sender is able to limit the receiver's choices, and *information* is the extent a receiver knows the senders choices."¹³³ Through its particular forms capital is able to limit the choices of the individuals that take up positions within them. This limitation is expressed as a lack of choice in what economic-communicative function is executed. Although capitalism appears as an immense collection of commodities,

¹³⁰ Any moment of exchange can be described as $x\text{CommodityA} = y\text{CommodityB}$. Commodity A is in the relative form, while commodity B is the equivalent form. See Marx, *Capital Vol. 1*, 139-140.

¹³¹ In Marx's presentation of the exchange relationship, it is assumed that a human commodity-owner confronts another human commodity owner. Today, this is not the case. Increasingly, the abstraction of labour occurs between Man and machine as happens with, for example, self-service checkout in supermarkets or online shopping. This condition indicates that non-humans are capable of standing in the place of humans. It also suggests a research avenue for a Marxist media archaeology; an archaeology of the abstraction of labour centered on the evolution of payment systems.

¹³² Terranova, *Network Culture*, 15.

¹³³ Klaus Krippendorf, "Mathematical Theory of Communication," in *Encyclopedia of Communication Theory*, ed. Stephen W. Littlejohn and Karen A. Foss (Thousand Oaks, CA and London: Sage Publications, 2009), 615.

which leads to the belief that the individual has a large degree of freedom of choice, this is mere appearance and hides the chronic unfreedom and utter predictability of the capitalist economic system as such.¹³⁴ Because all products of labour are commodities and their production occurs under capitalist social relations, the means of subsistence must be acquired in commodity form and therefore be bought. On the market this social relationship manifests as the choice of either buying or selling, depending on what commodity you possess. From the point of view of social capital all commodities are pseudo-individualized; activity on the market place is conducted under a “halo of free choice.”¹³⁵ It turns out that social capital – the automatic subject of value – is very effective at communication because it is “able to limit the receiver’s choices” and therefore predict what an individual will do during the moment of exchange. In the communication of capital, there are no human beings, only programmable human matter.

With reference to logistics, the communication of capital is thus about the co-ordination or scheduling of individuals (capital’s mediums) and fetishized economic forms that are attached to things (capital’s media) in a particular point in space and time. In this sense we can understand that the movement of capital, to paraphrase Johnston, (a) dictates the correlation between a place in the circuit of capital, (b) a state (subject form) of the individual and (c) what economic function must be carried out.

Noting that humans have a command of free will (just like cruise missiles), Kittler argues that with the emergence of computational media “programmability replaces free will.”¹³⁶ In the history of hitherto existing societies there has never been free will, only human matter programmed to believe they possess it. Humans, just like Pavlov’s dog and cruise missiles, are programmed to think and act in very specific ways. Revealing the programmability of seemingly free agents is the benefit of conceptualizing the circulation of capital as a communications system and accepting the post-structuralist primacy of systems over subjects. Subjectivity is thus like a program, which is executed when we take up positions within fetishized economic categories. Individuals are therefore capital’s mediums; programmable human

¹³⁴ From the point of view of social capital the moment of exchange is completely predictable and has very little uncertainty. From the point of view of independent circuits of individual capitals, however, the moment of exchange is uncertain; there is nothing guaranteeing that an individual will buy the commodity produced in your particular circuit.

¹³⁵ Theodore Adorno, “On Popular Music,” *Studies in Philosophy and Social Science* 9 (1941): 25.

¹³⁶ Kittler, *Gramophone, Film, Typewriter*, 259.

matter, which is the perfect complement to the “human resources” found in production. Capital may need us now as mediums to course through, but human material may be replaced by other materials. We are part of the diagram of capital now only because we were part of its historical development, one of the preconditions that has been absorbed and made to proceed from it, but it is conceivable that we will be eliminated from the circuit altogether.

An Inhuman Economy

According to Kittler, the ultimate subject of history is technology, which he understands in a broad sense as “the processing of nature.” This processing was once dependent on human beings as intermediaries, but since the advent of digital technology humans are left behind and we are coming progressively closer to a self-processing of nature.¹³⁷ Thus while there was a need for subjects “at one point in the long history in the encounter between media and bodies” they are no longer needed once machines can read, write, process, transmit and store without human input. In a time when computers write themselves and machine-to-machine communication will soon dwarf human-to-human communication, “biological prostheses become obsolete” because computers “optimize certain patterns of information processing that were also imposed on human beings and that subsequently were mistaken for innately human qualities.”¹³⁸ Kittler’s reading of literature as media and his focus on systems over subject, specifically with the concept of discourse network, reveal that subjectivity was nothing but programmability. Winthrop-Young summarizes this pithily: “Where subjects were, there programs shall be – because programs were there in the first place.”¹³⁹ As such, “each subject is thus an unfree appendage of an undecipherable social autonomization that the subjects themselves produce and reproduce but which turns against them.”¹⁴⁰ The political implication, according to the *Wertkritiker*, is therefore that the subject is “that from which we must be emancipated, and not that through which in terms of which we must be emancipated.”¹⁴¹

If human beings are not subjects, then what is the subject in Marx’s political economy? We have now come full circuit; back to the communicating subject called capital. The basic thought of Marx is that human beings confront their collective, generic forces for creation as an autonomous, alien deity. The

¹³⁷ Kittler, *Gramophone, Film, Typewriter*, 243-263; Winthrop-Young, *Kittler and the Media*, 80.

¹³⁸ Winthrop-Young, *Kittler and the Media*, 80.

¹³⁹ Winthrop-Young, *Kittler and the Media*, 80.

¹⁴⁰ Reichelt, “Social Reality,” 63.

¹⁴¹ Jappe, “The Princess;” see also Krisis, “Manifesto Against Labour.”

culmination of this argument is the “conception of the autonomous totality of social capital as a real total subject, which abstracts itself from the weal and woe of individual subjects and is ‘indifferent’ to them.”¹⁴²

In the *1844 Manuscripts* Marx argues that the economy is under the sway of an “inhuman power” and in *Capital Vol. I*, Marx argues that value is indifferent to use value.¹⁴³ Although value relies on use value to be realized, it is of no importance what that particular use value is as long as someone will buy it. As *Krisis* writes in its provocative “Manifesto Against Labour:”

[I]t doesn’t matter what is being produced as well as what use is made of it – not to mention the indifference to social and environmental consequences. Whether houses are built or landmines are produced, whether books are printed or genetically modified tomatoes are grown, whether people fall sick as a result, whether the air gets polluted or ‘only’ good taste goes to the dogs – all this is irrelevant as long as, whatever it takes, commodities can be transformed into money and money into fresh labour. The fact that any commodity demands a concrete use, and should it be a destructive one, has no relevance for the economic rationality for which the product is nothing but a carrier of once expended labour, or ‘dead labour.’¹⁴⁴

In other words, the inhuman, alien power of the capital subject is indifferent to human beings and their needs. The object, the particular use value is “dragged along” by value, and it must persist so that the “independent value does not collapse into itself” and so that the production of value in objective form does not lose its secure basis.”¹⁴⁵ Capitalist commodity production was never directly geared towards the satisfaction of needs, but always towards the ceaseless and unlimited valorization of value. If any human needs are satisfied in the process, it is only a by-product of the real aim of capitalist production, which is surplus value. Use value is only necessary in so far as it aids value in its movement, transformation and self-augmentation; it is merely an interface between the inhuman life of capital and human social life. And as all interfaces do, they trick us into believing that the system is about us. Kittler introduces us to the inhumanity of the technological systems we inhabit. He observes that the internet is a point-to-point transmission system that copies “almost infallibly not from

¹⁴² Hans-Georg Backhaus, “Between Philosophy and Science: Marxian Social Economy as Critical Theory,” in *Open Marxism Volume 1*, ed. Werner Bonefeld, Richard Gunn and Kosmas Psychopedis (London: Pluto Press, 1992), 81.

¹⁴³ Marx, *Economic and Philosophic Manuscripts*, 125.

¹⁴⁴ *Krisis*, “Manifesto Against Labour.”

¹⁴⁵ Reichelt, “Marx’s Critique,” 42.

men to men, but, quite the contrary, from machine to machine.”¹⁴⁶ With similar intent, Bernhard Siegert argues that the

more optimal that codes, connections, and transmissions become, the more they distance themselves from humans and their redundant languages. If a computer system were not surrounded by an environment of everyday languages, there thus would be no software. User interfaces alone provide humans with the narcissistic belief that everything that goes on is being delivered to them.¹⁴⁷

In the limitless dynamic of capital as self-valorizing value, all that matters is that value is transmitted through the circuit and capital is accumulated. Hence, let us drop any foolish notions that an economy based on generalized commodity exchange is for, let alone beneficial to, human beings or, for that matter, the environment. *Après moi le deluge!* It therefore makes sense to bracket the social and such notions as class struggle, exploitation and labour, and assume, quite deterministically, that capital’s accumulation runs on autopilot.

If capital accumulation does run on autopilot, class struggle does not fulfill its negative potential, and the human being is not just pushed to the side of production, but pushed to the side of the economy as such, how would that affect human beings? If capitalism is about unemployment as Frederic Jameson argues, there would be a progressive rise in the surplus population that would at some point, from the point of view of capital, become an unnecessary overstock of human material that at some point will be discarded or destroyed.¹⁴⁸ Such a world would bear a striking resemblance to the one described in F. T. Marinetti’s futurist visionary hypothesis of “Electric War,” but with the human engineers in the vision removed altogether and replaced with non-human matter.¹⁴⁹ Beyond the technological singularity, a capitalism without human beings may very well look like something out of Charles Stross’ *Accelerando* or *Saturn’s Children* in which humanity has been expelled from the solar system by a capitalism run amok or gone extinct, but survived by their artificial progeny.¹⁵⁰

¹⁴⁶ Friedrich Kittler, “Universities: Wet, Hard, Soft and Harder,” *Critical Inquiry* 31, no. 1 (2004):252.

¹⁴⁷ Bernhard Siegert, *Relays: Literature as an Epoch of the Postal System* (Stanford, CA: Stanford University Press, 1999), 263.

¹⁴⁸ Frederic Jameson, *Representing Capital: A Reading of Volume 1* (London and New York: Verso Books, 2011), 2.

¹⁴⁹ F. T. Marinetti, “Electric War: A Futurist Visionary Hypothesis,” in F. T. Marinetti, *Critical Writings* (New York: Farrar, Straus and Giroux, 2006).

¹⁵⁰ Charles Stross, *Accelerando* (London: Ace Books, 2006); Charles Stross, *Saturn’s Children* (London: Ace Books, 2008). Ray Kurzweil defines the singularity in terms of

Postscript

The preceding has been a description of how media determine our situation. When referring to the systems of communication that is the circuit of capital, it is more precisely the economic forms that determine our situation and deserve a description. This description does not need to include human beings, articulating instead the forms they personify. At present, the circulation of capital requires human matter to facilitate its movement and self-valorization, but non-humans, such as machines, robots, androids and software bots, can arguably play that same role.¹⁵¹ A human focus or centering is not required.¹⁵² By bracketing the social in favour of a determinism of capital, it is possible to read the circulation of capital as a physical process subject to the laws of thermodynamics, gravity and nation-states, but not human will. The question then becomes whether non-humans can play a similar role in production.

The capitalist economy represents a totality of social relations of production (social forms) and forces of production (material-technological). From the point of view of Marxist political economy, Kittler's brand of new materialism could be said to belong to the latter category, though one in which some of the forces of production are post-human agents. Machines "take on tasks—drawing, writing, seeing, hearing, word processing, memory, and even knowing—that once were thought unique to human and often perform them better."¹⁵³ What is thought unique to human beings in Marx's theoretical framework is to labour. To possibly merge the technical with the social thus hinges on whether non-humans, such as androids, robots and software bots can

a technological creation of (artificial) super-intelligence, though predicting what a post-singular world or being would be like is nearly impossible. Ray Kurzweil, *The Singularity is Near* (London: Penguin Books, 2006), 135-136.

¹⁵¹ Although HFT relates to the abbreviated circuit of finance capital ($M - M'$), the phenomenon is a salient example of non-human agents standing in for human beings in economic categories.

¹⁵² As such, the core argument of this paper shares an affinity with Actor Network Theory, which insists on the capacity of non-humans to participate and act in networks. It is beyond the scope of this paper to consider the affinity of Marxism and ANT. For an investigation of the theoretical similarities and differences between Autonomist and Open Marxism with ANT, see *ephemera* 10, no 2 (2010) special issue on "The State of Things", but in particular Johan Söderberg and Adam Netzén, "When all that is theory melts into (hot) air: Contrasts and parallels between actor network theory, autonomist Marxism and open Marxism," *ephemera* 10, no. 2 (2010).

¹⁵³ John Durham Peters, "Introduction: Friedrich Kittler's Light Shows," in Kittler, *Optical Media*, 11.

consciously and purposively labour and therefore create surplus value. The orthodox answer to the question of “Do androids dream of surplus value?” is “no” because “they are values already.”¹⁵⁴ Artificial intelligence (AI) and artificial life forms—although these sciences are still in its infancy and it is questionable whether AI will ever achieve the flexibility and generality of human intelligence—do pose a challenge to Marx’s exclusively anthropological value theory. The question must then be answered by considering under what conditions (science fictional or otherwise) non-humans could potentially labour and create value. Such a discussion would return to the central Marxist categories, such as exploitation and class struggle, which have been bracketed in this paper.¹⁵⁵

¹⁵⁴ See e.g. George Caffentzis, “Why Machines Cannot Create Value; or, Marx’s Theory of Machines,” in *Cutting Edge: Technology, Information Capitalism and Social Revolution*, ed. Jim Davis, Thomas A. Hirschl and Michal Stack (London: Verso, 1997), 54.

¹⁵⁵ See Atle Mikkola Kjøsén, “Do Androids Dream of Surplus Value?” (paper presented at mediations 2.5, Faculty of Information and Media Studies, University of Western Ontario, London, Ontario, January 18, 2013).

Appendix 1: Göethe's Wanderers Nachtlied/ Wanderer's Nightsong

*Über allen Gipfeln
Ist Ruh,
In allen Wipfeln
Spürest du
Kaum einen Hauch;
Die Vögelein schweigen im Walde.
Warte nur, balde
Ruhest du auch.*

*Above all summits
it is calm.
In all the tree-tops
you feel
scarcely a breath;
The birds in the forest are silent,
just wait, soon
you will rest as well!*

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