Capital Thinks Too

The Idea of the Common in the Age of Machine Intelligence

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Essay – December 11, 2015

In this contribution to Commonist Aesthetics, *[onlineopen.org/commonist-aesthetics]* Matteo Pasquinelli, referring to Alfred Sohn-Rethel and Alain Badiou, questions the master-slave relation between Captial and Number. Money can be regarded as an abstract machine like others that replaces and amplifies previous social relations. As any other machine, it can be analyzed according to its inputs and outputs, to the division of labour and social relations that it engenders. The new abstractions of science, the new technologies of computation and augmented intelligence, should be adopted within an extended definition of both money and labour, Pasquinelli asserts.

When Was Abstraction Born?

Perhaps the condition for Badiou's subtractive ontology is a thought of Capital, or more precisely, an acknowledgment that capitalism – blind, monstrous, acephalic polymorph – thinks. What if it were precisely the thought that this Thing thinks that was still unthinkable for this philosophy?
– Ray Brassier [1]

Alfred Sohn-Rethel had once a controversial yet captivating idea: that Western abstract thought (namely philosophy) was born in Greece around the seventh century BCE in the same period and thanks to the first massive circulation of minted coins. [2] More precisely, he argued that the social practice of money as *general equivalent of exchange* grounded the rise of the abstract signifiers of early Greek philosophy. The notions of identity, substance, divisibility and infinity typical of the Pre-Socratic philosophers were but mirroring the same properties that had to be measured in the new metallic medium of commerce. According to him, once money was liberated from the vertical control of the despot, its numeric form happened to galvanize philosophy as the first form of secular abstraction (being religion and mythology regimes of abstraction already in operation, of course). For Sohn-Rethel, moreover, secular thinking was born as a conscious reaction to the damages that money itself made to Greek society.

Sohn-Rethel was an influential philosopher of the twentieth century, with his intuitions silently being adopted also by his friends of the Frankfurt School. The focus of his life-long research was a materialist theory of knowledge: that is, an epistemology and a history of thinking inspired by Marx. As Anselm Jappe reminds us, Sohn-Rethel himself introduced the expression 'real abstraction' into the Marxist debate, as *Realabstraktion* is a term that originally does not appear in Marx. [3] With this expression Sohn-Rethel wanted to stress the power of abstraction that relies on the techno-monetary apparatus before its transformation into cultural and ideological superstructures.

Sohn-Rethel should be remembered if only for one basic resonance of his argumentation: the genealogical relation or *molecular contamination* that he registers between the money form and the thought form (or the labour form, we could add). Yet if such a connection is ventilated here, it is not to indulge in an archaeology of the modes of production but, on the contrary, to investigate the *cognitive effects* of the money form also in the current age (considering that, since McLuhan, we investigate the cognitive effects of all media in general). The financial conflict that was moved against Greece during the summer of 2015 appears, then, as a strange nemesis: as if Western financial capital turned back and vindicated the ultimate possibility of critical thought and resistance in the land of its own origins (attacking, this time, the moderate social-democratic government of Syriza that was just trying to mitigate the dominion of austerity upon the Greek people).

If Sohn-Rethel were right, contemporary critical theory could also be considered, in general, as an *organic* response to the current composition of capital. What would be the current form of philosophy that is shaped after the abstractions of financial capitalism and its complex techniques of speculation, such as derivatives and futures? The attempt of this text is, first, to discuss the relation between critical theory and capital, suggesting that financial and monetary structures may influence the way we think. This would imply that (*pace* Badiou) any 'idea of communism' may be shaped *by* or, in any case, have *to* respond to the deep ontology of finance. But, second, it would also imply the opposite: that the way we think, produce and resist affects the way monetary policies and financial techniques are designed and organized in order to extract *more value*. It is the attempt, in general, to challenge 'the Idea of communism' with history, that is, with mundane economies, machines-that-continually-break and accursed fellows. [4] Third, within algorithmic capitalism the distance between thinking and computation of value and price happens to shrink even further. The idea that money is 'thinking inside us' may sound a bit creepy, but in the age of cognitive capitalism, with machine learning and cryptocurrencies based on distributed computing such as Bitcoin, it brings an interesting precedent to the discussion on capital as computation and cognition. In our age, capital is emerging as a form of computation. What about the common?

Money Thinks

The first currencies of ancient Greece were made of *elektron*, a naturally occurring alloy of gold and silver that was abundant in Asia Minor. [5] Marc Shell, in an influential book on the relation between money and thought, recorded the ironical coincidence that is contained in the expression 'electronic money' that happens to completely dematerialize the original valuable substance. [6] A few generations after *elektron*-made coins entered and boosted commerce, the same cities witnessed the so-called Greek miracle, the first generation of Western philosophers such as Thales, Anaximander and Anaximenes.

The classic philosophical problem about the origin of thought contemplates basically two hypotheses. Empiricists like Hume, for instance, believe that the symbolic forms of thought emerge from direct experience and 'the impressions of sensation.' Rationalists like Kant, on the other hand, posit the faculty of reason as a priori without which the understanding of sensations would not be possible. As Jappe notices, Sohn-Rethel advanced a third hypothesis: the origin of the symbolic forms of knowledge is neither empirical nor ontological, but historical, and specifically economic. [7] Sohn-Rethel attempted a materialist genealogy of the symbolic forms of thought along Western history: the forms of thought are always the expression of the social relations of a given epoch and early Greek philosophy mirrored the 'new medium' of money circulation. As Jappe stresses: 'The faculty of abstract thinking, of seizing what is common to several objects without being visible in any of them, is not a given, a prius, as the idealistic conception of thought has always claimed, but is the result of the existence of real abstractions in the production and reproduction of human life.' [8]

Sohn-Rethel's controversial intuition about the origin of philosophy abstractions in ancient Greece appears to be wrong not because it implies that we are always busy in a sort of commercial transaction anytime we 'think' or do philosophy, but because it posits abstraction only in the sphere of circulation and not also in the sphere of production and labour, Jappe remarks. Language and labour are sources of abstraction that anticipate money circulation logically and historically. In other words, Sohn-Rethel completely overlooked the pre-monetary dimension of labour and in particular of language as *originary abstraction*.

Sohn-Rethel's intuition, however, may return as useful to sense an uncanny intimacy between contemporary philosophy and financial crisis. Is 'the idea of communism' itself immune from the current contingencies of financial capital like an anarchist bed & breakfast in the remote French countryside? What if the abstraction of the idea of communism were sharing some spurious contingencies with the abstraction of financial capital? What if the *bits* of our critical cognition were sharing a certain logic structure with the *bits* of capital's computation? Indeed, capital feeds upon our power of imagination, cognitive capabilities and desire for a better future. But maybe capital is not an alien being at all and it appears *unheimlich* [uncanny] for being extremely *heimlich* [familiar]. This is not a cynical position to say that any symbolic or logic form, any line of poetry as much as any algorithm, is whatsoever an incarnation of capital. Money should be finally demystified and secularized: there is nothing magical or sublime in financial derivatives if not a more complex and atomized set of social relations. Money is an abstract machine like others that replaces and amplifies previous social relations. As any other machine, it can be analyzed according to its inputs and outputs, to the division of labour and social relations that it engenders.

The General Intellect Leaves the Gold Standard

Who will ever hold the monopoly on the definition of abstraction? Was Sohn-Rethel right and do monetary structures really shape the way in which we think and invent new cultural and symbolic forms? Or, does the autonomy of abstraction belong first to the collective mind and to its technological extensions and therefore money is just a byproduct of human computation? If Sohn-Rethel has stressed the *monetary nature of thought*, other authors have underlined, in recent decades, the *cognitive nature of capital*.

Italian *operaismo* stressed that, for instance, in the 1970s monetary systems had to adapt and respond to rising workers' struggles around the world and specifically to the rising social autonomy of post-Fordist labour, to a general refusal of labour that was affecting progressively both blue collars and white collars. Following that intuition, they suggested a relation (yet to be extensively explored) between the rise of the knowledge society and the rise of financialization.

On 15 August 1971, US President Richard Nixon unilaterally declared the end of the convertibility of the dollar into gold, effectively terminating the Bretton Woods agreements and rendering the dollar a *fiat currency*. An endless number of art historians have recorded the rise of abstract art or the dematerialization of the art object as a reflex of the dematerialization of money (interestingly, in a way very similar to how Sohn-Rethel had framed the influence of money in shaping the thought form in ancient Greece). [9] Jean-Joseph Goux wrote in 1984:

> *Was it purely by chance that the crisis of realism in the novel and in painting coincided with the end of gold money? Or that the birth of 'abstract' art coincided with the shocking invention of inconvertible monetary signs, now in general use? Can we not see in this double crisis of money and language the collapse of guarantees and frames of reference, a rupture between sign and thing, undermining representation and ushering in the age of the floating signifier?* [10]

For Autonomist Marxism monetary systems are never autonomous spheres of agency but are always embedded in a field of forces and class conflicts. In 1977, in a key text in this tradition, the economist Christian Marazzi argued that: 'we must see how money fits into the antagonistic class relations of capital in order to reappropriate the terrain of revolutionary class struggle.' [11] According to Marazzi, monetary policies were (and, for sure, still are) conceived as an instrument to absorb social unrest and neutralize labour organization.

In September 1971, Antonio Negri wrote a programmatic text for the journal *Potere Operaio* on 'abstract labour as revolutionary subject.' In his analysis, abstract labour had to be understood in relation to the global crisis of the Keynesian state. Just a month after the US dollar was declared free from the gold standard, Negri suggested also a revolutionary disconnection between post-Fordist labour and the general law of value:

> *How has the crisis of the Keynesian State arisen since 1929? The state of determinate proportionality has broken down in the face of the massification of struggles and the extension of wage demands which confronted the state with a unification of abstract labor in the form of collective practice that demanded an increase in the value of necessary labor. This produced a rejection of the determinate proportion between necessary labor and surplus labor which, translated into exchange-value terms, is called inflation. With inflation, the crisis of the system becomes first and foremost a crisis of the state [...] The law that the state had to guarantee has been broken apart, starting from the factory itself and extending to the whole society. In the massified struggles of the mass worker, work has been disconnected from labor value. [...] At this point, capital is forced to accept the situation brought about by the disconnection between work and the general law of value.* [12]

This insight, according to Marazzi, was about an intestine war that started already in the 1970s between monetary systems and the knowledge society. [13] The end of the Bretton Woods agreements was sensed by Negri (according to Marazzi, retrospectively) as a response of capital to the virtualization of labour into the general intellect, the devalorization process inaugurated by the information society and the dissolution of the Fordist society itself. A decade after experiencing the dot-com bubble and still waiting for a recovery, we all should register that the very productive sphere of digital communication, the commonality of knowledge and ideas, has to be directly linked to the devalorization crisis of global economy (a thesis that is addressed also by Paul Mason in his book *Postcapitalism*). [14]

Here we can see that the causal link employed by Sohn-Rethel is reversed: it is finance, as the highest organization of money, that had to respond to the evolution of waged labour and to the self-organization of the social brain, not the other way around. Money has to adapt to the social power of abstraction, to the social abstraction in itself. It must be stressed that for Sohn-Rethel (as much as for his companions of the Frankfurt School) thought was always just an agent of critical consciousness, whereas for Autonomist Marxism knowledge becomes also a productive (and revolutionary) agent. [15] In any case, we can all agree that, historically, the rise of the knowledge society is accompanied by a specific stage of monetary policy. Eventually a visionary hypothesis can be encapsulated in this way: the rebirth of the dollar as the *fiat money* of globalization in 1971 was the response to the virtualization and insubordination of the collective intelligence of the information society.

Who Owns the Monopoly of Abstraction?

Throughout history, the diagram of money has gradually absorbed different functions. In the contemporary manuals of economics (still), money is said to perform three or four roles: unit of account, store of value and medium of exchange (and also of deferred payment). Yet things got more complicated. The numerical nature of money has engendered a further scale of complexity that has become apparent only in current times, under the form of electronic coinage, mathematical speculation, algorithmic trading and contractual engineering of financial products such as derivatives and futures. The mathematical nature of money happens also to have merged with extreme forms of computation such as the cryptocurrency Bitcoin. To what extent can we draw a separation between the old semiotics of money and the new semiotics emerging from the complex forms of financial abstraction? [16] To what extent, on the other hand, shall we worship and side with the mathematical sublime of finance?

The master-slave relation between Capital and Number, as described for instance by Alain Badiou, must be questioned. In a passage from *Number and Numbers*, Badiou stresses that capital obfuscates the way we can think the Number, inadvertently reinforcing economy as a mystery cult:

> *In our situation, that of Capital, the reign of number is thus the reign of the unthought slavery of numericality itself. Number, which, so it is claimed, underlies everything of value, is in actual fact a proscription against any thinking of number itself. Number operates as that obscure point where the situation concentrates its law; obscure through its being at once sovereign and subtracted from all thought, and even from every investigation that orients itself towards some truth. The result is that all thought necessarily deploys itself today in a retreat with regard to the reign of number, including every thought that tries to make a truth of Number.* [17]

This passage frames the relation between capital and number in a very Platonic way: an account of the technologies of computation, of the *empirical* techniques of the division of labour in operation across the twentieth century, is missing. More precisely, after WWII the numerical nature of capital integrated itself with the numeric nature of computation: what has emerged is a Turing capitalism that is able to encode any form of knowledge and labour into data patterns and shows phenomena of autonomous cognition on a global scale (see the machine learning algorithms behind Google, Amazon, etc.). In fact this is not the 'the reign of the unthought,' this is a new crystalline conflict.

Under these conditions, even the old 'socialist calculation debate,' the famous problem of setting the optimal price of commodities in different economic regimes, takes an unexpected spin. Soviet countries were used to centralizing the calculation of commodity prices and failed to find the right equilibrium: the lack of a flexible intelligence of the market has been always stigmatized as their structural limit. On the opposite side, Friedrich Hayek and the Chicago School stressed the spontaneous ability of the Invisible Hand of the market to set the optimal commodity price. The law of supply and demand resolve the calculation: the definition of *Invisible Mind* would be here more accurate, as market processes spontaneously compute the value of prices. Hayek famously stressed that: 'the *data* from which the economic calculus starts are never for the whole society given to a single mind which could work out the implications and can never be so given.' [18] Today, 'the single mind' is finally possible: with the rise of computational capital, centralized calculation meeting the free market. The two models merge in a new monster business model. Global companies such as Uber calculate the cost of urban mobility in real time accessing vast databases of user data from a centralized algorithm. Amazon can modulate the price of billions of items sold and dispatched all over the world in real time.

It is no longer capital to enslave mathematics and make the number 'unthought,' but it is computation as the highest degree of the division of labour to make capital *think*. As Romano Alquati already envisioned in 1963, it is thanks to the cybernetic *bit* that the *labour of information* can be linked and transformed into the figures of the economic plan [19] If earlier in this text language was mentioned as the symbolic form that historically predates the abstraction of money, it is clear that language is no longer the most accurate model to describe the complexity of both money and labour. As much as work has been 'verbalized' in post-Fordism (as Virno remarked once), [20] today's work is also *technified* and *abstractified* at the highest degree. [21] As much as the sphere of language has introduced a wider field of abstraction into money and labour, information technologies have further expanded that trajectory of abstraction. Considering 'natural languages' as the model of post-Fordist labour and money (as Marazzi, Virno and many others once suggested) is a simplification in the age of algorithmic governance, computational capital and financial derivatives.

To conclude, the new abstractions of science, the new technologies of computation and augmented intelligence, should be adopted within an extended definition of both money and labour (ending the *linguistic turn* of the '90s). As much as Marx framed the impact of 'general scientific labour' and 'general social knowledge' on the industrial machine, in the same way the impact of new technologies of intelligence on the financial machine has to be registered. Computational economics is directly incarnated today by the digital apparatuses and central algorithms of global corporations. Indeed as Phillip Mirowski has argued following Donna Haraway's insight, economics has become a 'cyborg science.' [22] At the end of 2015, IBM launched the application of its Artificial Intelligence system Watson to business solutions. Looking for a new brand, IBM came up with the clumsy expression *cognitive business*. The pay-off reads: 'cognitive business is a business that thinks.' [23] Artificial Intelligence is advertised here as the best way to turn endless dataflows into the recognition of social patterns and prediction of social tendencies. How do you think a form of capital that is already thinking you?

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Footnotes

1. Ray Brassier, 'Nihil Unbound: Remarks on Subtractive Ontology and Thinking Capitalism,' in *Think Again: Alain Badiou and the Future of Philosophy*, ed. Peter Hallward (London: A&C Black, 2004), 58. Back then Brassier was implicitly challenging Alain Badiou with Nick Land's gothic technovitalism.
2. Alfred Sohn-Rethel, *Intellectual and Manual Labour: A Critique of Epistemology* (London: Macmillan, 1978), 59.
3. See Anselm Jappe, 'Sohn-Rethel and the Origin of Real Abstraction: A Critique of Production or a Critique of Circulation?,' *Historical Materialism* 21, no. 1 (2013). Outside Marxism, the expression appears in Georg Simmel, *Philosophie des Geldes* (Leipzig: Duncker & Humblot, 1900). English version: *The Philosophy of Money,* trans. Thomas Bottomore and David Frisby (London: Routledge, 2011).
4. An engagement with the spurious accidents of history is missing in the approach of the communization theory and its commentators. For an example of an idealizing discussion on capital's abstractions, see Ray Brassier, 'Wandering Abstraction,' *Mute* 13 (February 2014), www.metamute.org
5. See Marc Shell, *Money, Language, and Thought: Literary and Philosophical Economies from the Medieval to the Modern Era* (Berkeley: University of California Press, 1982).
6. In ancient Greek elektron was also a name for amber and it means 'shining light,' a property that can be recognized in gold as much as in modern 'electricity.' The notion of value appears to be always linked then to a surplus of energy and scintillation.
7. See Jappe, 'Sohn-Rethel and the Origin of Real Abstraction.'
8. See ibid.
9. See Lucy Lippard, *Six Years: The Dematerialization of the Art Object from 1966 to 1972* (New York: Praeger, 1973). Also John Roberts, *The Intangibilities of Form: Skill and Deskilling in Art After the Readymade* (London: Verso, 2007) and Antonio Negri, *Art and Multitude* (London: Polity, 2011).
10. Jean-Joseph Goux, *The Coiners of Language* (Norman: University of Oklahoma Press, 1994). Originally published as *Les Monnayeurs du langage* (Paris: Galilée, 1984), 3.
11. Christian Marazzi, 'Money in the World Crisis. The New Basis of Capitalist Power,' *Zerowork* no. 2 (Autumn 1977): 207. See also Stefano Lucarelli, 'The 1973–1978 workgroup on money of the journal Primo Maggio: an example of a pluralist critique of political economy,' *International Journal of Pluralism and Economics Education* 4, no. 1 (2013): 30–50.
12. Antonio Negri, 'Crisis of the Planner State,' in *Books for Burning* (London: Verso, 2005), 23. Original version: 'Crisi dello Stato-piano,' *Potere Operaio*, no. 45 (September 1971).
13. Christian Marazzi, *Diario della crisi infinita* (Verona: Ombrecorte, 2015). Negri's analysis was different from the more recent and more generic simple reception of Autonomist Marxism as the program for 'the autonomy of the general intellect.'
14. See Paul Mason, *Postcapitalism: A Guide to Our Future* (London: Penguin, 2015).
15. Antonio Negri also advocated an epistemological model in which abstraction is considered 'the method of antagonistic tendency,' that is the method of political intervention and organization. See Antonio Negri, *Marx oltre Marx: quaderno di lavoro sui Grundrisse* (Milan: Feltrinelli, 1979). English version: *Marx beyond Marx: Lessons on the Grundrisse*, trans. Henry Cleaver, Michael Ryan and Maurizio Viano (New York: Autonomedia, 1991).
16. For an in-depth exploration of the ontology of value in financial systems see Suhail Malik, 'The Ontology of Finance: Price, Power, and the Arkhéderivative,' in *Collapse Vol. VIII: Casino Real*, ed. Robin MacKay (Falmouth, UK: Urbanomic, 2014), 629–811.
17. Alain Badiou, *Number and Numbers* (London: Polity, 2008), 213.
18. See Friederich Hayek, 'The Use of Knowledge in Society,' *American Economic Review* 35, no. 4 (1945).
19. See Matteo Pasquinelli, 'Italian Operaismo and the Information Machine,' *Theory, Culture & Society* 32, no. 3 (2015): 49–68.

20. See Paolo Virno, *A Grammar of the Multitude* (Los Angeles: Semiotext(e), 2003).
21. The technogenesis of labour crosses different spheres of production and media. See, for instance Jonathan Beller, *The Cinematic Mode of Production: Attention Economy and the Society of the Spectacle* (Lebanon, New Hampshire: UPNE, 2006).
22. See Philip Mirowski, *Machine Dreams: Economics Becomes a Cyborg Science* (Cambridge: Cambridge University Press, 2002).
23. See www.ibm.com.

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