Blockchain Philosophy - Bitcoin

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Philosophy

Donncha Kavanagh and Gianluca Miscione introduced the concept of digital heterotopia[1] as a way to describe and analyze the special and evolutionary relationship between contemporary state and digital money, including block-based cryptocurrencies. (Miscione and Kavanagh 2015)

State features are affected by the connection with digital coins. Social systems create their own limits and remain alive according to their internal logic, which does not derive from the system environment. So, social systems are operationally and autonomously closed - interacting

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[1] Heterotopia is a concept developed by philosopher Michel Foucault to describe some cultural, institutional and discursive spaces that are in a different way: disturbing, intense, incompatible, contradictory, or transforming. Heterotopias are worlds in worlds, which at the same time mirror and still disturb those outside.

with their environment and there is a general increase in entropy, but individual systems work to maintain and preserve their internal order. Autopoietic systems (like the state, with the tendency to maintain the inner order with a remarkable degree of independence from the outside world) may contrast with allopoietic ones. It results in a state with a finite influence area, but recently troubled by the new forms of digital money and the corresponding infrastructure.

In general, the current world is polarized politically, with very few exceptions. New monetary systems, such as cryptocurrencies, fall within these exceptions, with the tendency to decouple from the state.

Satoshi Nakamoto, in designing the most powerful cryptocurrency, has in fact considered an imaginary world populated by individuals who do not trust each other. According to the ideology of freedom, one of the key objectives was to avoid any authority. The solution was Bitcoin, a variant that disturbs all current formal infrastructures.

Foucault used the idea of heterotopia to identify where hegemonic rules and constraints are not applied. He first used the term to describe spaces with multiple meanings (Foucault and Miskowiec 1986) which reflect other spaces, identifying different types of heterotopias. Blockchain manifests these attributes of heterotopia at the digital level. Blockchain is a growing element of "cyber space" that has already been identified as a form of heterotopia, (Young 1998) but it also has particular traits.

In the blockchain system we find the separate and opposable categories of heterotopias: the center and periphery, the interior and exterior, foreign and local, etc. In this space, "libraries" and "museums" as a heterotopic type function with "unlimited accumulation time". (Foucault and Miskowiec 1986, 26) So, the blockchain functions according to a similar logic.

Heterotopic spaces avoid the rules and structures established in favor of alternative social order processes that do not limit imagination, alterity and difference.

Digital technologies can also be interpreted as notational technologies, respectively a syntactic notation in a reference field, a technology version of what Nelson Goodman called a "notational system". (Dupont 2017) Notational technologies produce abstract entities through positive and reliable tests, or constitutive tests of socially acceptable sense. Consequently, blockchain technologies are effective in managing digital assets, because they produce abstract identities through scoring performance. Digital technologies create representations by abstracting complex object properties and then using these newly formed identities to control and manage entities. This process is then used to control and manage "real" entities. More recently, these technologies can control and manage real people and goods, relying on their ability to abstain and manage their identities.

Goodman believes that: "A system is notational, then, if and only if all objects complying with inscriptions belong to the same compliance class, and we can, theoretically, determine that each mark belongs to, and each object complies with inscriptions of, at most one particular character." (Goodman 1968, 156) Codes, such as binary code, machine code, and software code, are considered to be a kind of writing. There is an ontological gap between alphabetical scripting (human code) and Javascript (code for computers). But there is a simple and smooth translation between Javascript and the binary code (apparently the "language" used by computers).

Blockchain technology is an artifact of the asynchronous interaction of a network of thousands of independent nodes with simple and algorithmic rules to accomplish a multitude of financial processes. (Antonopoulos 2014, 177)

Bitcoin

Bitcoin is the main peer-to-peer and digital currency payment system that uses blockchain technology. Bitcoin network features: (Calvery 2013)

- There is no central server, the Bitcoin network is peer-to-peer.

- There is no central repository, the Bitcoin registry is distributed.

- The register is public, anyone can store it on your computer.

- There is no administrator, the registry is maintained by a network of equally privileged miners.

- Anyone can become a miner.

- Additions to the registry are maintained through competition. Until a new block is added to the registry, it is not known which miner will create the block.

- The bitcoin emission is decentralized. These cryptocurrencies are issued as a reward for creating a new block.

- Anyone can create a new Bitcoin address (a bitcoin correspondence of a bank account) without the need for approval.

- Anyone can send a transaction on the network without the need for approval, the network only confirms that the transaction is legitimate.

Researchers have highlighted a "centralization trend": on the one hand, Bitcoin miners join large mining bases to minimize their revenue variation. (Böhme et al. 2015, 215–22) On the other hand, a Bitcoin "aristocracy" was formed as a result of the architecture of the code; the members of this aristocracy are those who entered Bitcoin early on.

Nigel Dodd argues in *The Social Life of Bitcoin* that the essence of Bitcoin's ideology is to take the money out of social control, including the government, there is even a Bitcoin Statement

of Independence. The statement includes a message of crypto-anarchism with the words: "Bitcoin is inherently anti-establishment, anti-system, and anti-state. Bitcoin undermines governments and disrupts institutions because bitcoin is fundamentally humanitarian." (von Hayek 1976)

David Golumbia states that the ideas that influence Bitcoin supporters appear from the right-wing extremist movements and their anti-central bank rhetoric, or, more recently, the libertarianism of Ron Paul and the Tea Party. (The Economist 2018)

Kroll et al. argue that Bitcoin's ecology will need governance structures to survive, (Kroll, Davey, and Felten 2013) already showing signs of emerging governance structures. These modes of government can be based on consensus and, if leadership opposes, the community can choose another course. Beyond that, recent developments have shown that a single mining pool could contribute so much to Bitcoin's computational processes that it could effectively control the whole system, putting an end to its decentralized structure. (Kostakis and Giotitsas 2014)

Bauwens and Kostakis argue that Bitcoin is not a community-based project, but a currency that reflects a new type of capitalism - "distributed" capitalism (Kostakis, Bauwens, and Niaros 2015) based on the liberal political ideology advocating the elimination of the state in favor of individual sovereignty. In practice, what is being achieved is concentrated capital and centralized governance.

Vasilis Kostakis and Chris Giotitsas also consider that Bitcoin exemplifies a type derived from "distributed capitalism" (Kostakis and Giotitsas 2014) although it should rather be seen as a technological innovation.

Bibliography

Antonopoulos, Andreas M. 2014. *Mastering Bitcoin: Unlocking Digital Cryptocurrencies*. 1 edition. Sebastopol CA: O'Reilly Media.

Böhme, Rainer, Christin Nicolas, Edelman Benjamin, and Tyler Moore. 2015. "Bitcoin: Economics, Technology, and Governance." https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.29.2.213.

Calvery, Jennifer Shasky. 2013. "Statement of Jennifer Shasky Calvery, Director Financial Crimes Enforcement Network United States Department of the Treasury Before the United States Senate Committee on Homeland Security and Government Affairs." https://www.fincen.gov/sites/default/files/2016-08/20131118.pdf.

Dupont, Quinn. 2017. "Blockchain Identities: Notational Technologies for Control and Management of Abstracted Entities." 2017. https://philarchive.org.

Foucault, Michel, and Jay Miskowiec. 1986. "Of Other Spaces." *Diacritics* 16 (1): 22–27. https://doi.org/10.2307/464648.

Goodman, Nelson. 1968. *Languages of Art*. Bobbs-Merrill.

Hayek, Friedrich von. 1976. "Denationalisation of Money: The Argument Refined." https://nakamotoinstitute.org/static/docs/denationalisation.pdf.

Kostakis, Vasilis, Michel Bauwens, and Vasilis Niaros. 2015. "Urban Reconfiguration after the Emergence of Peer-to-Peer Infrastructure: Four Future Scenarios with an Impact on Smart Cities." In *Smart Cities as Democratic Ecologies*, edited by Daniel Araya, 116–24. London: Palgrave Macmillan UK. https://doi.org/10.1057/9781137377203_8.

Kostakis, Vasilis, and Chris Giotitsas. 2014. "The (A)Political Economy of Bitcoin." ResearchGate. 2014. https://www.researchgate.net/publication/287241993_The_APolitical_Economy_of_Bitcoin.

Kroll, Joshua A., Ian C. Davey, and Edward W. Felten. 2013. "The Economics of Bitcoin Mining , or Bitcoin in the Presence of Adversaries." In .

Miscione, Gianluca, and Donncha Kavanagh. 2015. "Bitcoin and the Blockchain: A Coup D'État through Digital Heterotopia?" SSRN Scholarly Paper ID 2624922. Rochester, NY: Social Science Research Network. https://papers.ssrn.com/abstract=2624922.

The Economist. 2018. "Bitcoin and Other Cryptocurrencies Are Useless." *The Economist*, 2018. https://www.economist.com/leaders/2018/08/30/bitcoin-and-other-cryptocurrencies-are-useless.

Young, Sherman. 1998. "'Of Cyber Spaces: The Internet & Heterotopias." 1998. http://journal.media-culture.org.au/9811/hetero.php.