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Doctoral Dissertation

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Parody of money: Techno-social imaginaries of Bitcoin and their contradictions

Doctoral Dissertation

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Declaration

1. I hereby declare that I have compiled this thesis using the listed literature and resources only.

2. I hereby declare that my thesis has not been used to gain any other academic title.

3. I fully agree to my work being used for study and scientific purposes.

In Prague: Mgr. Martin Tremčinský

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Abstract:

The dissertation thesis analyzes Bitcoin as a socio-technical phenomenon by focusing on its prevalent socio-technical imaginaries and exploring these imaginaries into their contradictory consequences. Based on ethnographic research conducted in Czech and Slovak Bitcoin communities and following Lana Swartz‘s and Nigel Dodd’s respective theories of Bitcoin, four imaginaries are identified: commodity, relation, ideology and money. Each of these imaginaries is explored in its own chapter. Bitcoin approached as a commodity explores the process of Bitcoin mining through the lens of the Marxist labour theory of value combined with Negri‘s theory of the socialized worker. The chapter explores how Bitcoin mining reproduces class antagonisms between miners and investors while also creating a new mode of production based on control via labour. The second chapter focuses on Bitcoin as a relation via the theories of kinship and knowledge developed by Marilyn Strathern. The chapter explores particular analogies of Bitcoin and kinship and how these analogies serve to develop relationless persons and personless relations. The following chapter analyzes Bitcoin as an ideology while utilizing theories of immaterial labour developed by Italian autonomists. It focuses on symbolic labour carried out in order to purify Bitcoin from the state. This purification is accompanied by establishing the market as an ahistorical, naturally occurring phenomenon. It further analyses how the ideology of self-regulating markets must be accompanied by practices of care and maintenance. The last chapter analyses Bitcoin as money through the lens of Parry’s and Bloch’s theory of transactional orders. It focuses on two transactional orders: long-term investment and short-term exchange. These two orders are identified as bitcoin’s modes of consumption which are a source of tension within the Bitcoin community. This tension is resolved through practices of conversions. The thesis concludes that since its imaginaries are rooted in liberal capitalism, Bitcoin accelerates the existing contradictions of modernity and capitalism by advancing them into the digital sphere.

Keywords: Bitcoin; Imaginaries; Labour Theory of Value; Relations; Immaterial labour; Spheres of Exchange;

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Prologue: *Escape from the Vampire castle*

Desire and fear are the appropriate reactions to vampires.
Donna Haraway: *Modest_Witness@ Second_Millennium*

In summer 2019, I joined a group of three Bitcoin enthusiasts and crypto-anarchists on a trip to northern Bohemia to meet a potential business partner at a venue he called the Bitcoincastle. What followed was one of the strangest experiences of my life, highly reminiscent of Jonathan Harker's arrival at the Transylvanian Castle of *Dracula* in the eponymous novel.

We arrived in the late afternoon, and after a half-hour waiting, so did our host. His castle, built in the late 19th century, was located above a middle-sized city near the Czech-German border. Our host was a slim young man, in his mid-twenties, with almost a boyish look who spoke fluent Czech with a slight Russian accent. He was a bit surprised to see me since I was a last-minute addition to our team. While my companions – Radan, Peter and Maria – were all well-known members of the Czech Bitcoin scene, I was pretty anonymous. Besides my interlocutors, nobody in the crypto-business knew my name nor my occupation as a researcher.

First, we were shown the castle's tower with its glorious view over the city and the deep woods of the borderland. The host enthusiastically pointed out an abandoned amphitheatre on one of the slopes behind the castle, claiming that he would love to revitalize and reopen. Right after that, we were shown a closed restaurant also waiting for a reopening. At that moment, we started to realize one thing. The castle was huge, newly renovated and yet completely empty. Once we were shortly left unobserved by our host, Radan started making jokes: "Did you hear him talking about the staff from the restaurant? 'Some people were renting it, but they're gone now.' Feels like 'when they gone they stay gone, or they be gone,'" referencing a famous scene from *Pulp Fiction*.

When we asked our host how he got this place, he told us that he was not the owner. He was provided the castle to use for free by its original owner because our host helped the owner

set up a cryptocurrency mining operation in the castle, which earned the owner significant sum of money. Our host made a joke that "during winter months when there was minus thirteen degrees Celsius outside, it was plus thirty inside", implying that the whole castle was full of mining devices, probably graphic cards, mining cryptocurrencies and producing vast amounts of surplus heat.

Our host further showed us the castle's ground floor with a small courtyard, where we sat for a while and had some snacks. During this time, he again showed interest in my presence and asked me who I was. Radan jumped into our conversation and joked that I was his (romantic) partner, which I was not, but Radan always had a taste for misinformation and mischief. I would not pay attention to these questions; understandably, one wants to know the identity of their guests. However, our host showed surprisingly detailed knowledge of my companions. He knew details of their previous work way beyond the superficial knowledge one could gain from their Wikipedia pages or a simple Google search. He knew about their previous projects, awards, and even legal issues related to these projects going more than a decade into the past. I could see on Radan's face that he was impressed while growing more and more suspicious. Suspicion of police or secret service intrusion was quite common in the Bitcoin community; however, this was the first time I saw it as a plausible explanation of the ongoing events.

Two friends of our host joined us during our soiré, and we started to hear music. A young East-European band was using one of the rooms in the castle as a recording studio. The tunes and rhythms of world music reminded me of the "gipsies" camping in Dracula's courtyard in the book. Our host's colleagues were creating a strange company. One was an older sturdy man who spoke Czech, the other a strapping young lad speaking only Russian. Both were relatively quiet, rather observant than participating. The Russian speaking guy did not join our

conversation at all, only sat there, laughed, offered us alcohol and eventually followed me to the restroom and back.

Meanwhile, our host talked about his plans to turn the whole castle into an international meeting place for the central European Bitcoin community. He elaborated on his current projects, video games, and cryptocurrencies. Finally, he explained his idea for the future of human society. It was augmented reality (AR), where people would execute specific tasks in exchange for a small reward in a native cryptocurrency. The general idea was that users of this AR would carry out minute quests without necessarily knowing the purpose of their actions. "Imagine you order one person to bring a table to the woods, another one to bring in a projector, next one delivering dinner and the last one lighting up candles. None of them knows why they are doing it, but in the end, they prepare for you a romantic date in the woods with a movie." He painted a picture of hypercapitalist utopia, where – thanks to smart technologies – everything, every action, every movement could be commodified.

After discussing the limits of such an approach until almost midnight, my companions (especially Radan) started to show increasing impatience and aimed to leave. Although our host insisted that we stay overnight, we apologized, arguing that we all had other responsibilities back in Prague. Encouraged by Radan's half-mock, half-serious paranoia, we rushed to the exit and got trapped behind a stuck gate for a short while, which only encouraged our urge to escape.

Once we drove out the gate, our anxiety dissolved into the joking ease of people who had just avoided a serious accident. With a deep sigh, we started to elaborate on our uncanny feelings of the past few hours. Radan started vividly explaining how these people must be either the Russian secret service or the Russian mafia, possibly both. The central European sense of post-soviet conspiracy (Baysha 2020) merged with the seemingly irrational fear of impenetrable networks of capital. One moment we were crying from laughter and dead-serious

the other. Radan was joking that when he saw the strapping young lad follow me into the bathroom, he thought he would never see me again. He and Peter were then, in all seriousness, discussing how the guy might have known so much about their past projects. "Even I do not remember some of these things he talked about!" exclaimed Radan.

We did not discuss our host's proposal about the AR, and social engineering implied any further during our car ride. However, this techno-social imaginary of technological coordination and economic coercion of a completely alienated mode of social being has resonated in me heavily ever since. The idea of complete subsumption of society to capital (Negri 1988), together with the whole uncanny setup of the empty mansion, has symbolically exposed the analogy of folk monsters and capital in Marxist literature (McNally 2020). We have indeed escaped the *Vampire castle*.

Introduction: *Bitcoin as "an embodiment of monetary diversity"*

Bitcoin may or may not be money, but it certainly smells like money.
(Lana Swartz: *What was Bitcoin, what will it be?*)

In the winter of 2010, a non-profit news organization WikiLeaks became an object of the US government-ordered financial blockade. This blockade was carried out by international payment systems such as Paypal, Visa, MasterCard and American Express. In response, the organization founded by former hacker Julian Assange started accepting donations in quite a new and generally unknown digital currency called Bitcoin.[1] Seven years later, Assange tweeted:

> My deepest thanks to the US government, Senator McCain and Senator Lieberman for pushing Visa, MasterCard, Payal, [American Express], Mooneybookers [sic], et al., into erecting an illegal banking blockade against WikiLeaks starting in 2010. It caused us to invest in Bitcoin – with [over] 50000% return. (14. 10. 2017)

At that time, the Bitcoin price was soaring high, and many of its fans were enthusiastically proclaiming that it would go "to the moon". Only a few months later – after it briefly touched a landmark of twenty thousand US dollars per coin – the price plummeted. Devastated retail investors started to share their stories of losing their life savings, some of them expressing suicidal thoughts.[2]

If one consumes mainly mainstream media stories covering Bitcoin and other cryptocurrencies, this is the picture they get. Bitcoin is depicted in a constant oscillation between miraculous riches and dreadful losses. Its public picture is constantly shifting in this love/hate relationship with the media. Sometimes it is a great investment opportunity, the money of the future; other times, it is an environmental catastrophe and a mere Ponzi scheme. By only looking at a selection of Forbes magazine's coverage of Bitcoin over the past couple

[1] I follow the standard of using a capital B in "Bitcoin" when referring to the technology as well as the name of the currency. However, the lowercase b in "bitcoins" refers to the units of exchange (i.e., to the coins or tokens).
[2] https://finance.yahoo.com/news/crypto-market-crash-prompts-suicide-concerns-135248250.html (retrieved 17.7.2022)

of years, one can learn that Bitcoin is a "once-in-a-generation opportunity" (Bambrough 2019), "the future of payments" (Armano 2021), "the biggest Ponzi scheme in human history" (Bambrough 2022) or that it "consumes huge computational power and energy close to what Denmark consumes annually" (Elnaj 2018).

Such contradictory statements from one medium demonstrate how dynamic and constantly changing the societal understanding of Bitcoin is. Bitcoin is full of contradictions. Even the global Bitcoin community is not in agreement on the nature of Bitcoin. Some claim it is money, some claim it is a commodity, and some claim it is a communication network.

Rise to the fame

Bitcoin first appeared in 2009, and since then, it has raised much controversy. As a decentralized, trustless, pseudonymous means of payment, it entered the public arena as a currency of hackers, druglords, child traffickers and other criminals. It became the native money of darknet markets such as the infamous Silk road.

However, besides the moral panics, Bitcoin also started to attract techno-libertarian investors and venture capitalists – most famously, the Winklevoss twins, who invested in Bitcoin already in 2012. Such attention from the tech billionaires slowly shifted the popular perception of cryptocurrencies and the underwriting *blockchain* technology. Blockchain is a source of Bitcoin's subversive character. It is an open public database that allows the execution of digital transactions without the mediation of a third party. It thus allows avoiding interference from a bank or a government.

The new popularity led to the expansion of new blockchain-based cryptocurrencies, known as altcoins. Many referred to this emergence of new projects as the *Cambrian explosion of innovation* (Pon 2016). In 2015, Vitalik Buterin released Ethereum, a blockchain for other blockchains, which made it easier to create and implement new crypto-currencies and other

tokens. New technologies such as Decentralized Finance (DeFi) or Decentralized Autonomous Organizations (DAOs) started to emerge.

Unfortunately for the investors, many of these projects were exposed as nonviable or directly fraudulent.[3] The overflow of so-called *initial coin offerings* (ICOs) in 2017 resulted in another raise of disillusionment with blockchain currencies as these projects accumulated unprecedented losses.[4]

In the wake of these and many other crises, Bitcoin has been declared dead several hundred times.[5] The first cryptocurrency has shown, despite these predicaments, surprising resilience. Bitcoin's continuity is achieved by a dedicated and growing community of supporters. Members of these communities, as well as me, and many other researchers, are trying to answer the question, what is Bitcoin? Is it a vision of the future, a conspiracy, a cult, a technology, a weapon? Is it a system, a structure, a relation, sometimes even a feeling maybe? There is no satisfactory answer to this question as long as Bitcoin is a technology in development. Our understanding of this technology shifts with every new crisis, controversy, or improvement. According to Bitcoin investors Nic Carter and Hasuflay (2018), "[v]isions of Bitcoin are not static […] Bitcoin contains multitudes, and it's important to remind ourselves of that." The visions of Bitcoin shift to such a degree that I have been recently criticized for referring to Bitcoin as a cryptocurrency. Even though the term cryptocurrency was used by Bitcoin's founder Satoshi Nakamoto, the current trend among some supporters is to distance

[3] Most famous fraudulent project was Onecoin, a Bulgarian Ponzi scheme that managed to defraud approximately four billion dollars.
[4] The Market capitlization of the whole cryptocurrency market lost aporximately seven hundred billion dollars in value between January 2018 and January 2019.
[5] According to a webpage called Bitcoin obituaries: https://99bitcoins.com/bitcoin-obituaries/ (Retrieved 22.7.2022)

Bitcoin from the other cryptocurrencies and establish it as a unique entity outside the volatile and often fraudulent crypto-market.[6]

Bitcoin multiple

The multiplicity of Bitcoin and cryptocurrencies also manifests itself in the respective academic accounts. Political scientist David Golumbia (2016) interprets Bitcoin as a right-wing ideology turned into digital code. Golumbia documents how Bitcoin enthusiasts subscribe to the same conspiracy theories of the "evil FED" as their far-right predecessors throughout the twentieth century. According to Golumbia, Bitcoin is an objectification of far-right politics. Its goal is "to enable a wide range of extractive and exploitative business practices, and thus to increase the power of corporations and capital outside the scope of any attempts by democratic polities to constrain them" (2016, n.p.).

Contrary to Golumbia, French philosopher Mark Alizart (2020, 9) describes Bitcoin and related blockchain technologies as the second coming of communism. "The theological-political regime of crypto […] will impose a new law on us, a new *common* law, more austere than liberal laws, thus more like a regime that too deemed itself to be revolutionary in its time, even if it didn't succeed in bringing about the revolution its believers had hoped for: namely, communism – or, more precisely, *cryptocommunism*."

Bitcoin is thus, on the one hand, the technological embodiment of fascism; on the other, a promise of a communist utopia. This lays out a vast field of possible perspectives to be deployed in describing Bitcoin. As Nigel Dodd argues, "Bitcoin is both a symptom of increasing monetary pluralism in the advanced capitalist societies, and an embodiment of

[6] A czech prime expert on cryptocurrencies, Dominik Stroukal, for exmaple says: "Keep only Bitcoin and get rid of all the other cryptocurrencies, they will die out." https://www.seznamzpravy.cz/clanek/audio-podcast-ve-vate-kryptomen-se-zbavte-zaniknou-jen-bitcoin-nechte-pro-deti-rika-stroukal-207838 (Retrieved 22.7.2022)

monetary diversity in its own right.“ It is “multifaceted, politically contested and sociologically rich in its functions and meanings“ (2018, 36).

There are thus many possible angles and standpoints from which to look at Bitcoin. Some authors focus on the topics of governance and power. Kavanagh and Enis (2020) describe Bitcoin and emergent blockchain technologies as signs of emerging *blockocracy* – a system of governance overcoming Weber’s bureaucracy. Olivier Jutel (2021) goes even further and explores how blockchain technologies allow neo-colonial practices in the global south, namely in the Pacific. Jilian Crandall (2019) argues the same about the so-called “crypto-utopia” in Puerto Rico. Zac Zimmer (2017) utilizes historical comparison with the colonial extraction practices of precious metals such as the Potosí silver, claiming that the emergence of Bitcoin represents a similar moment of primitive accumulation.

Furthermore, the comparisons do not stop merely with colonialism. The various metaphors and analogies comparing Bitcoin with non-modern or non-western phenomena are also not unique. Kavanagh and Miscione (2019, 311) understand Bitcoin as an infrastructure, namely the informational infrastructure of a *carnival* – “a rich, complex, hybrid, and contested practice and set of ideas, where the central motifs are play, anarchy, dissimulation, vulgar language, and gluttony.” Keir Martin (2019, 118) understands Bitcoin as a *tabu* when he claims that “[b]oth tabu and Bitcoin demonstrate the importance that particular material or immaterial forms may have in shaping the limits of what kinds of exchange are possible.” Fitzpatrick and McKeon (2019) then relate Bitcoin and its design to a concrete pre-modern technology of Yapese stone money (described in chapter 2).

Bitcoin imaginaries

Given the multiplicity of views, it is difficult to pin cryptocurrencies down and provide a coherent definition. Koray Caliskan (2020) attempted to formulate what could be considered the general definition of blockchain cryptocurrencies. “Blockchains are *networks* of claims that

distribute ownership rights among the *actors* that use them; [...] These private or public networks create the possibility to attach *non-digital* value to the *digital* representations of owning the right to move data" (2020, 556). Blockchains thus introduce artificial scarcity to the digital environment. Whereas previously, such scarcity had to be enforced by law, blockchains allow this scarcity to be performed by the design of the digital platform. These are the core fundamentals of the blockchain technology. Around these pillars, its users, developers, critics and analysts weave the multiple webs of meanings, interpretations, and practices that make Bitcoin into a social phenomenon.

These webs can be summarized under the term *imaginary*, which understands "imagination as a social practice":

> [T]he imagination has become an organized field of social practices, a form of work (in the sense of both labor and culturally organized practice), and a form of negotiation between sites of agency (individuals) and globally defined fields of possibility. […] The imagination is now central to all forms of agency, is itself a social fact, and is the key component of the new global order. (Appadurai 1996, 31)

The imaginaries structure the actualities and possibilities of engagement with Bitcoin. In other words, they structure what Bitcoin is and what it might be in various social contexts. Such imaginaries are thus a field of constant negotiations and conflicts. These negotiations result in historical shifts, such as when Bitcoin suddenly ceases to be a cryptocurrency and becomes a category of its own.

Finn Brunton (2019) understands all monies as objectification of such social imaginaries. He calls them *cosmograms* – "things, stuff, which order the cosmos and our place in it, embedding a system of relationships, roles, and actions within their operation" (2019, 11). These cosmograms also encapsulate visions of the future, images of what might come. Bitcoin, according to Brunton, is the image of a future crisis. It "draws on a long-standing libertarian future of inflation-free 'hard money' held for an imminent and comprehensive crisis which, in 2008 and 2009, appeared to be actually happening" (2019, 203).

Lana Swartz (2018) identifies two techno-social imaginaries underlying the ontology of Bitcoin: *infrastructural mutualism* and *digital metallism.* The former imaginary sees Bitcoin as a decentralized communication network designed to secure the free *exchange* of value, whereas the latter enacts Bitcoin as a form of digital *scarcity* mimicking the properties of precious metal. Mutualism thus sees Bitcoin as a *relation*, while metallism as a *commodity*. Swartz further argues that, in the beginning, these two imaginaries were both equally present in the broader discourse surrounding Bitcoin. However, metallism started to dominate with the rise of Bitcoin's price and its rising popularity as a speculative asset (2018, 635). This shift in imaginaries has also affected the material reality of Bitcoin; its operation started to be more energetically demanding, and Bitcoin has turned into this energy-hungry juggernaut, consuming as much power as a whole country. Furthermore, Bitcoin has ceased to be perceived as a payment system and has started to be seen as a store of speculative value. "In most cases, speculation in Bitcoin as a commodity has overwhelmed and undermined its potential for use as an infrastructure of exchange" (2018, 637).

Another Bitcoin imaginary is that it is trustless money. However, as Dodd demonstrates, it depends on trust in the technology and the community that sustains it (Dodd 2018, 47), especially if one considers how opaque the design of digital technology can be for mundane users. As Kavanagh and Ennis argue: "the actual rules for how the software runs are largely coded in a programming language, which makes them inscrutable to almost everyone" (2020, 293). The communities thus have to invest time and energy into education and promotion of Bitcoin as a viable and secure alternative to existing monetary systems and that also demands significant level of trust. For Dodd, the ideology of Bitcoin is thus undermined by its actual social existence as money.

Contradictions

The multiplicity of Bitcoin and its imaginaries also inevitably produces various contradictions. The first set of contradictions is identified by Swartz (2018) and her classification of Bitcoin as a relation (mutualism) and as a commodity (metallism).

The other set of contradictions is identified by Dodd (2018), who exposes the inner conflict of Bitcoin as an ideology and as money. Dodd's "core thesis is that there is a paradox at the heart of the Bitcoin phenomenon. Bitcoin will succeed as money to the extent that it fails as an ideology" (2018, 37).

These contradictions can be traced back to the imaginary neo-classical economics and its theory of individual action as the sole driving force of the economy while obfuscating the social dimension of production and reproduction (see Fraser 2017). Bitcoin reinforces the individual subjectivity of (neo)liberalism turning each individual into "their own bank". It thus feeds into the imaginary of a priory existing individuals voluntarily interacting with others. However, it also crucially depends on a complex network of relations among all the users because that is what the blockchain is – a network of relations.

The goal of this thesis is to explore the Bitcoin imaginaries and the contradictions they produce. It asks what happens if these imaginaries are taken seriously and extended to their possibly contradictory consequences. How are these contradictions resolved? What kinds of potential futures does Bitcoin contain? The question is thus not whether Bitcoin is money, a commodity, or a relation, but *how* is it any of these things? How is Bitcoin money? How do its users use it as money? How is Bitcoin a commodity? What happens if it gets analyzed as a commodity? How is Bitcoin a relation? What kinds of relations does it develop?

Answering these questions should allow us to stretch and explore Bitcoin beyond the mere scope of its economic utility or ecological impact. It should explore the Bitcoin imaginaries into their consequences, into their limits and potentially expand or break down

these limits. In this sense, posing these questions and engaging in the subsequent analysis follows the practice of *parody.* According to Linda Hutcheon, parody is understood as a "method inscribing continuity while permitting critical distance" (2000, 20). Parody should not be confused with the destructive mockery of satire (Hutcheon 1978, 202); it is instead an opportunity for critical reflection (cf. Hannoosh 1989). While satire aims to hurt and dismiss its object and establish moral superiority, parody offers a space for comparing and contrasting the parodied and parodying forms in a playful way (Hutcheon 1978, 202-204). In other words, "satire is *social* in intent, parody *formal*" (1978, 204, emphasis added).[7]

Since parody acknowledges the parodied form and builds upon it, this also implies tacit *respect* and *care* for what is being parodied. "Parody is of necessity a sophisticated literary form. The author – and then the reader – effects a superimposition of texts, incorporation of old into new. […] Parodic art both deviates from a literary norm and *includes that norm within itself* as backgrounded material. Any attack would be self-destructive" (Hutcheon 1978, 202-204, emphasis added). My aim is thus to respect the form of the Bitcoin imaginaries, take them seriously and explore their inner consequences and contradictions. This might create sometimes surprising juxtaposition, such as comparing the relations fostered by blockchain to relations of kinship or exploring the commodity character of Bitcoin via Marx's labour theory of value, despite this theory being explicitly rejected by the Bitcoin users.

From post-anarchy to Marxism

Even though my approach is critical, my intent is not to debunk Bitcoin and its imaginaries but through Bitcoin to understand a broader context of techno-social imaginaries in late capitalism. There is something fascinating about Bitcoin that reveals certain fantasies of our current era,

[7] "Parody is an 'intramural' form with aesthetic norms, and satire's 'extramural' norms are social or moral" (Hutcheon 2000, 25).

be it fantasies of class domination, relations without persons, or escape from the state-form of our society.

When I first encountered Bitcoin and the surrounding community, I was intrigued and captivated by its futuristic promises. The idea of being indifferent to power (Newman 2017) seemed exciting and novel. However, over the course of my fieldwork, I started to be disillusioned by the extreme individualism of this specific anarchic approach. As a person coming from a socialist family whose both grandfathers were members of the communist party, I started to be upset by the ridicule of egalitarian sentiment. Even though I am far from apologetic for the era of real socialism in eastern Europe, I also do not think that "socialism is a mental disorder" as it was seen by some of the anarcho-capitalists in the community.

The constant attack on ideals of equality and social justice that I was brought up in, had a galvanizing effect on me. Even though my academic training was mainly in post-modern and post-structuralist theories, I started to perceive my field through Marxist lens ever more often.

Thus my own relationship with Bitcoin is also contradictory. On the one hand, I am still intrigued by Bitcoin and its disruptive character. On the other one, I oppose the world it aims to build – the world of rugged individualism and free markets. I am fascinated by Bitcoin, but mostly because I want it to be something else than it actually is. My reason for studying it is to explore the possibility of Bitcoin becoming something else. As John Law puts it, "this is the power of reflexive technoscience studies: it can attend to, and learn from, dangerous arousal" (2002, 64).

Structure of the thesis

There are two fields of Bitcoin's social life: *on-chain* and *off-chain*. The on-chain field consists of its design and internal functioning logic; it is the field where the Bitcoin protocol rules supreme. This sphere is best grasped by Lana Swartz (2018) and her treatment of the contradictions between Bitcoin as a commodity and as a communication network. The off-

chain range involves people and institutions that surround the technology, from states to communities. The subsequent contradictions are grasped by Nigel Dodd (2018) and his identification of the tensions between Bitcoin existing as an ideology and as money.

The first two chapters of this thesis are concerned with the on-chain design of Bitcoin. The latter two with off-chain practices surrounding the technology. The thesis is split into four chapters. Each chapter approaches Bitcoin from a different standpoint and treats it through a different imaginary, namely: commodity, relation, ideology and money.

The first chapter analyses Bitcoin as a commodity. It focuses on the production of Bitcoin (so-called mining) through two contradictory approaches to value: *the labour theory of value* formulated by Karl Marx and value as an effect of political control proposed by Antonio Negri. Bitcoin mining is used as an exemplary case of a decentralized network that utilizes abstract labour as a regulatory mechanism. The process of Bitcoin mining is described in detail, and its consequences for the organization of labour are discussed. I argue that Bitcoin mining is a form of socialized work where abstract labour becomes a mechanism of control and thus also a source of Bitcoin's value. I further demonstrate the controlling aspects of abstract labour on three interdependent dimensions: control of Bitcoin's integrity, control of access to the network, and control of the class positions within the network. Consequentially, Negri's and Marx's views on value serve as complementary approaches to value creation in decentralized networks.

The second chapter focuses on Bitcoin as a relation. It analyses the blockchain via Marylin Strathern's theory of kinship and explores how blockchain technology produces *relation-less persons* and *person-less relations*. The chapter utilizes what Sarah Franklin, referring to Strathern, calls the *analogical return*. Analogical return is a situation when the signified changes the signifier; for example, when Darwin used kinship (signifier) as an analogy for evolution (signified), but this analogy also changed the content of kinship. The

chapter thus views how the analogical return shifts the understanding of kinship relations, especially through the figures of DNA, the primitive and the individual. All these analogies are utilized in descriptions of Bitcoin, yet they also change our understanding of these respective categories.

The following chapter then focuses on the *ideological* construction of Bitcoin carried out by the immaterial labour of its users and advocates. This immaterial labour lays down tracks that allow Bitcoin's social adoption and circulation. Its proponents describe it as an *evolutionary technology* overcoming modernity's shortcomings by replacing the institutions of modern sovereignty – i.e. the State – with a technological infrastructure carrying out computational consensus. The sudden absence of the transcendent State is – within the community's socio-technical imaginary – replaced by the reification of the market, seen as an objective organizing principle. However, liberated from the State's transcendent control, the self-organizing market is highly dynamic and unstable. It poses new challenges to the Bitcoin community, constantly threatening to dissolve the whole Bitcoin network. This situation exposes capitalism's dialectical character as an anarchic flow of desire (market) in need of some breaks (State) that would allow the accumulation of surplus value. Bitcoin, therefore, threatens the core base of the creation of capital. However, it does so by accelerating the very logic of capitalism. Based on ethnographic fieldwork, this chapter analyzes how the Czech and Slovak Bitcoin community deals with this paradox and what kind of breaks it aims to put in place to secure continual accumulation. In the absence of a transcendent State, the breaks are sought in the ideological construction of immanent "human nature" and "natural law". The Human is conceptualized as a naturally rational, profit-seeking homo economicus with private property as his natural right. These apriori assumptions are at the core of Bitcoin's design which presupposes that users always follow cost-effective incentives to maximize individual profits. Although the human agency within the network is formally free, it is structurally limited to

rational choice. Within these boundaries of naturalized free-market ideology, Bitcoin functions as an attempt to automatize the whole process of circulation of value. Nevertheless, to do so, the Bitcoin community must carry out large amounts of immaterial labour of education and ideological production, opening the question of maintenance and care for the network.

The fourth chapter finally analyzes how the ideology of always rational homo economicus gets translated into practice in the acts of spending and hoarding Bitcoin, i.e. when Bitcoin is used as *money*. It examines the consequences of the diverse ways of consumption for the Bitcoin economy. The chapter identifies two discrete spheres of consumption that closely correlate with "transactional orders" or spheres of exchange as described in classical works of economic anthropology, for example, by Parry and Bloch (1989). One of the spheres is concerned with the reproduction of social order, while the other considers the personal gain of individual consumers. The text also examines the tension between these two spheres and how it is dialectically resolved through strategies of conversion. In the final discussion, the case of Bitcoin is compared with other anthropological accounts of spheres of exchange with special attention oriented towards their dissimilarities.

Fieldwork

This dissertation is based on ethnographic research in the Czech and Slovak Bitcoin community conducted between 2016 and 2020, as well as on the analysis of technical documentation and associated discussion of Bitcoin's design. It aims to describe and critically challenge how Bitcoin is enacted within this community as a socio-technological phenomenon.

The research took place in communities of people who have actively engaged with Bitcoin and eagerly participated in developing its infrastructure, either via technological innovation or education of the public. These communities are particular to their local context, and any generalizations — based on their characteristics — about other Bitcoin communities

around the globe (especially in the global south) would be questionable and probably misleading.

Members of the Czech and Slovak Bitcoin community are almost exclusively right-wing libertarians, sometimes describing themselves as anarcho-capitalists. Their primary sources of influence are the works of the Austrian school, mainly Ludwig von Mises. In general, their point of view is that the state should intervene in the economy as little as possible; in extreme cases, some say that the state should be abolished altogether. It can be effectively summarized under the definitions of the *liberal creed* provided by Karl Polanyi as a "veritable faith in man's secular salvation through a self-regulating market" (1944, 141). Even though the community is far from homogenous, it consists predominantly of young, cosmopolitan men, with women constituting less than a quarter of its members. They could be described as a *cosmopolitan class*, a class that has high social and cultural capital but, due to young age, lacks capital in the form of real-estate property (Prokop et al., 2019). Many members perceive the state as an ineffective institution that merely obstructs the free market from effective functioning, and they stress the importance of individual responsibility in pursuit of well-being. Therefore, they refuse to work for or cooperate with the state and to compete for any state or international grants funded by public resources. They aim to cooperate exclusively with the private sector. The membership is quite open and, as such, very fluid; therefore, it is difficult to give any exact numbers, but my rough estimate is that the core community in Prague and Bratislava consists of not more than one hundred people. The only practical limit to membership is the willingness to consume Bitcoin in daily exchanges (usually for coffee or soft drinks). Consumption of Bitcoin here creates an almost *Bourdiean distinction*. As one of the members puts it, "Cryptocurrencies are a nice filter of people. People who are open, who have an open mind, and are open to new experiences, they come here [and use cryptocurrencies], and those who are not [open], don't [come]."

Although spread over two independent countries, the Czech and Slovak communities are almost unified, given their shared history. That is why I usually speak of one community despite minor distinctions. The term community is here used as an emic term applied by its members themselves. The Facebook group called Bitcoin community CZ & SK [Bitcoinová komunita CZ & SK] has almost 30 thousand members. Moreover, a significantly smaller portion of the community members (circa 150 to 200 members) meets face-to-face in various hackerspaces and Bitcoin cafés. The technical documentation cited throughout this dissertation is gathered from lectures and discussions in these spaces and the Facebook group where it was frequently quoted.

My assessment of the Bitcoin phenomenon as enacted by this community is critical not because I would think that the community suffers from some type of false consciousness but because I want to offer a particular counter narration to the community's self-presentation. Many community members have their own blogs, vlogs, printed books, and other media outlets. The last thing they need from me is to treat them according to the "giving voice to the voiceless" cliché (see Bangstad 2017).

I conducted the onground fieldwork in several spaces dedicated to promoting Bitcoin in Prague and Bratislava. Some of these spaces are internationally recognized, and the affiliated members organize events for a broad international audience. Some other spaces dedicate their educational mission to the memory of the Czechoslovak dissent of the socialist era and see themselves as its continuation.

Many of the members are also self-described privacy extremists. Their concern for privacy, in combination with a relatively small community, makes ethnographic writing quite challenging. Out of respect to my interlocutors, all the quotes in this text have been anonymized.

1. Commodity: *Labour, control, and value*

> *Fundamentally, […] work is the best policeman, […] it keeps everyone in bounds and can mightily hinder the development of reason, covetousness, desire for independence. For it uses up an extraordinary amount of nervous energy, which is thus denied to reflection, brooding, dreaming, worrying, loving, hating; it sets a small goal always in sight and guarantees easy and regular satisfactions. Thus a society in which there is continual hard work will have more security: and security is now worshipped as the supreme divinity.*
>
> (Friedrich Nietzsche: *Daybreak*)

Ever since Clifford Geertz (1973) wrote his text about Balinese cockfights, ethnographers have been fascinated with stories about entering the field and building trust with their interlocutors. And I am no exception. As was already mentioned, I conducted fieldwork amongst privacy extremists with a high level of suspicion, bordering with paranoia. On a few occasions, I was accused of being a spy or a "cop". These accusations were usually made jokingly; however, there was always a serious undertone. It was not just my experience. One of my fellow anthropologists, who wanted to conduct fieldwork in the same Bitcoin café as me, was directly asked to prove she was not a police informer during an internship interview. In Slovakia, I also rose suspicion since I, as a Czech person, was moving against the standard migratory direction, which goes from Slovakia to the Czech republic or further west.

The suspicion against ethnographers in their field is understandable since their practice is not that different from a practice of a spy (Verdery 2018, 18). Not by coincidence had ethnographers been used willingly or unwillingly to penetrate various communities by various state secret services (Verdery 2018, 94; cf. Price 2011). It is thus no surprise that sometimes the sentence "there is a snitch among us, and I know who it is" had been uttered loudly and provocatively in my presence. Other times, someone walked by during a chat or an interview and abruptly interrupted the conversation urging my interlocutor, "don't tell him anything. He

wants to study us!" while laughing. These occurrences of suspicion masked as jokes were not frequent and, in the end, never interfered with my research. However, they caused me a few sweaty moments of anxiety and worry that my field would become irreversibly closed to me.

I concluded that a possible strategy to lessen these suspicions is engaging in manual labour with/for my interlocutors. I inadvertently started doing that during one of my first visits to the field in Prague in 2016, when I was conducting research concerning informational privacy. I came to a Bitcoin café, where a talk about transhumanism was held, and I engaged in conversation with some organizers. We drank several cocktails during the evening until some random passerby from the street entered the café and vomited all over the floor. While the staff members were busy throwing out the drunkard, who probably just got lost from his stag party, I volunteered to clean up the vomit. During my following visits, I was repeatedly introduced as "the guy who cleans up vomit on his first day".

In the following years, I, therefore, always volunteered for some manual labour. Since I was not skilled in IT, I could not engage in programming new tools or repairing misbehaving equipment. But I could always paint a piece of furniture, hang the curtains or move some chairs. It gave me the opportunity to hang out with other members of the community and chat about their views on cryptocurrencies and other related topics just to kill some time during a random mundane activity. These activities sometimes created a bond of friendship and helped me to move around the space, which was otherwise quite resistant to a peaking eye of a researcher. As Verdery claims "a spy is someone who has no one to defend her—no relatives, at best an 'entourage' […]. She has no network other than one she has fashioned on the fly" (2018, 136). My strategy thus was to create such entourage through manual labour.

When I later recollected my fieldwork, I was surprised how much manual labour was necessary while studying such a virtual and nonmaterial phenomenon as digital currencies. These activities were seldom Bitcoin-related. Painting a fifty-meter wall is something you can

do in many places and many contexts. It posed an interesting contrast to the topics discussed during these back-breaking hours of swinging a brush. The things we usually talked about with my fellow volunteers were of a different world – a frictionless world of automation, smooth communication networks and artificial intelligence. Material labour seldom came to our mind as something to talk about. Bitcoin and other technologies were inciting an imaginary of an immaterial world where "machines are made of sunshine; they are all light and clean because they are nothing but signals, electromagnetic waves" (Haraway 1991, 153).

However, there is a dimension of Bitcoin that is essentially dependent on material labour – it is certainly more crucial to the functioning of Bitcoin than my manual labour was to the functioning of the Bitcoin community. I am talking about *mining*.

Institute of human obsolescence

In September 2016, by the power of sheer luck, I visited an annual multimedia art festival called GOGBOT in the small Dutch town of Enschede. In the desacralized halls of the Grote Kerk, I saw a man wearing a thermoelectric bodysuit harvesting his body temperature and using it to mine newly emerging cryptocurrencies. He was laying there and reading a book while connected to a computer with some wires. Behind him was a large plasma screen showing how much energy was harvested from his body and how much money this energy earned.

The installation was part of a critical design project quite fittingly named *Institute of Human Obsolescence* (IoHO), founded by an artist and activist Manuel Beltrán.[8] The installation showed that in digitalized capitalism, value is being extracted even when the workers rest or engage in some other "unproductive" activities. IoHO thus manifests the

[8] See http://speculative.capital/ (retrieved 20.7.2021).

increasing ability of digital capital to extract value from processes of social reproduction, which in the era of industrial capital belonged to the leisure time outside of the productive processes.[9]

The Italian post-autonomist Antonio Negri (1988; 1989) analysed this process of extracting value from productive and reproductive processes since the early 1980s. Negri argued that with the real subsumption of social life to capital, Marx's labour theory of value became obsolete. Contrary to Negri, I argue that Marx's theory of labour continues to be useful to think with as we experience an intensifying digitalisation of various social processes.

While IoHO's use of cryptocurrencies was only illustrative, I aim to explore Bitcoin as an exemplary structure that transforms reproductive labour into a source of value while utilizing abstract labour as a mechanism of control. The processes of production and reproduction of Bitcoin are closely related to labour. No matter whether one focuses on Bitcoin's deflationary character of a *digital commodity* or its censorship-resistance of a decentralised *social network* (see Swartz 2018), both those aspects of Bitcoin are directly dependent on the computational labour of mining and its ability to replace the control of centralized institutions.

First, I shortly summarise Marx's understanding of the labour theory of value and Negri's theory of socialized worker. Then, I introduce a detailed description of Bitcoin's production process and later discuss it in light of the aforementioned theory. I conclude that Bitcoin serves as an example of how abstract labour is utilized in socialized capitalism, not directly as a measure of value but as a mechanism of immanent control.

Unfortunately, my data and the scope of this chapter do not allow me to address the *practice* of mining. Since my data are based on (both on-line and on-ground) presentations, texts and discussions of Bitcoin enthusiasts, not miners, the chapter focuses on how mining is

[9] Although, as Nancy Fraser (2017) argues, even these reproductive processes were historically indirect sources of value for capitalist accumulation.

negotiated as an ideal *social structure*. However, it is crucial to keep in mind that behind all the seemingly automated computational work, there is another layer of activities conducted by particular people with concrete histories, aspirations, and struggles. To all these people, this chapter does not do justice because it leaves them unheard.

Marx's Value theory and Negri's Socialized worker

Marx's theory of value is often understood as a theory of exploitation: "It is a theory that focuses on the consequences of value operating as a regulatory norm in the market for the experience of labourers condemned by their situation to work for capital" (Harvey 2018a). Although exploitation is not the only dimension of Marx's value theory (Bellofiore 2018), it "gives us a tool for analysing how capitalist exploitation works, and changes and develops; for understanding capitalist exploitation in process" (Elson 1979, 171).

Marx's analysis starts from the commodity as a historically specific *modern* form of objectified labour in capitalism (Postone 2009). The commodity is analysed in terms of its dual nature of *use-value* and *value* – value being necessarily manifested as *exchange-value* – both outcomes of different aspects of labour: *concrete* labour and *abstract* labour. Abstract labour acts as a common denominator of commodities expressed in *socially necessary labour time* employed to produce various commodities given the historically specific means of production. "As such, *as an objectification of pure duration of labour*, it has cardinal measurability" (Elson 1979, 138, emphasis added).

The cardinal measurability allows measuring value produced by abstract labour and manifest it in the medium of money as an arithmetical unit. The exploitation of workers in industrial capitalism is possible because they do not sell their labour but their labour-power: a capacity to work. Labour-power is a commodity, and like other commodities, its value is measured in labour-time necessary for its production. Any value produced by the workers

beyond the necessary labour time is surplus value accumulated by the capitalist. The capitalist accumulates the surplus by extending the labour day or intensifying the labouring process via machinery (thus shortening the necessary labour-time of the workers' reproduction).

Capitalism is a specific historical, social form where power is exercised not through political domination but through economic incentives and property relations (Meiksins Wood 2017). This is what distinguishes capitalism from other social forms such as feudalism. The workers are dispossessed of the means of production and therefore have to sell their own labour-power to reproduce themselves (Tronti 2018). Their labour-power is utilized beyond the socially necessary labour-time for their reproduction. It thus generates a surplus that the capitalists appropriate as the owners of the means of production. According to Tronti, the workers' dialectical relation of being excluded from and at the same time existentially depend on the means of production constitutes them as *working class.* The struggle to *control* the working class then becomes the driving force of capital.

The analysis of value via the quantification of labour has been since the late 1970's challenged by the Italian autonomist Antonio Negri. Negri emphasises that there is *real subsumption* of both productive and reproductive labour to capital in current capitalism, meaning that it is no longer possible to distinguish between production and reproduction and, therefore, labour-time cannot be quantified anymore (1989). This theory sparks justified criticism arguing that Negri's view is Eurocentric, overly focused on the experience of the affluent middle class and does not consider the cases of *formal subsumption* to capital around the globe, which are also crucial to capitalist accumulation (e.g. Camfield 2007; Campbel 2018; Rigi 2015; Wilson 2012).

Even though Negri's theory of real subsumption of society to capital is from the anthropological standpoint analytically obscuring people's diverse lived experience, it proves almost prophetic within the niche of newly emerging information and communication

technologies such as automation, social media or cryptocurrencies (especially in the wake of the global pandemics).

In Negri's view, the whole process of societal reproduction is being commodified as the mass worker gives way to the socialized worker (1988).[10] Since the value produced by the socialized worker is beyond measure, value is being appropriated via political means, and its only measure is control and political power (2018, 18).

The socialized worker is a consequence of the *diffused forms of production* (1988, 208-209), where workers are not disciplined within the confined space of the factory anymore, but their productive activities take place on numerous thickly interconnected sites. Therefore, "the work has become diffused throughout the entire society [and] every subject of this productive complex is caught up in overpowering cooperative networks" (1989, 77). The new subjectivity, according to Negri, also sparks up a new potentiality for emerging class consciousness (1988, 209). However, the new socialized working class is met with the new control methods of singularization (2018, 19).

This chapter shows that even the decentralized networks of socialized production described by Negri do not overcome capitalism's law of value formulated by Marx. Quite the opposite, the capitalist command of labour can be directly incorporated into the design of these structures and serve to extract value. If the socialized worker was a sign of an emerging postmodern network (Negri 1989; Hardt and Negri 2000), Bitcoin returns social labour back to the modern factory.

[10] This position is later expanded and reformulated as the hegemonic dominance of immaterial labour in Negri's most famous work, the Empire trilogy (together with Michael Hardt, 2000; 2004; 2009). In this chapter, my aim is to avoid the concept of immaterial labour, since the concept brings many controversies into the discussion.

Mining and production of Bitcoin

Bitcoin is a digital peer-to-peer network designed by an anonymous developer(s) appearing under the pseudonym Satoshi Nakamoto (2008). This network aims to secure a private movement of value over the internet unmediated by third parties such as banks and nation-states. The value transferred via this network is usually quantitively expressed in bitcoins. Given its decentralized nature, the entire infrastructure of Bitcoin serves as common property – i.e. nobody owns "the Bitcoin"; people can only own specific bitcoins. There are two ways to get bitcoins; one can either buy existing coins or mint new ones. However, minting new coins has to follow the strict rules of the Bitcoin protocol.

New bitcoins are rewarded for so-called *mining* – computational work carried out by actors securing the network. Mining is a process of validating transactions to avoid double-spending of individual bitcoins. It is a process of automatized social control where every transaction is recorded into a public ledger called Blockchain. Transactions are publicly visible to other users as unique events. Miners serve as independent *nodes* in the network, each having their own up-to-date version of the Blockchain. They provide their computational power to the Bitcoin network and are rewarded for that.

Nevertheless, miners are not rewarded steadily, but they rather compete with each other for the reward. The more computational power they have, the higher are their chances for success. Successful miners are rewarded for their work in two ways: they receive the newly emitted coins, and they also receive transaction fees for the transactions they confirmed into the Blockchain.

The intensity of mining depends on the mechanism called *proof-of-work* (PoW). PoW serves two functions: 1) it discourages malicious actors from an attack against the network, and 2) it regulates the rate of production of newly emitted bitcoins.[11]

PoW demands that each miner executes a cryptographical operation called *hash function* (namely function SHA 256) before the transactions can be recorded into the public ledger. The hash function is an asymmetric cryptographic function that creates a digital fingerprint (hash) specific to a series of Bitcoin transactions organised into one block. Each block has its own hash, and each hash also contains the hash of previous blocks. Blocks are thus arranged into a chain via their hashes (hence the name Blockchain). If an attacker wanted to change old transactions in old blocks (to spend their bitcoins twice), they would have to change the block's hash containing their transaction and every hash of every following block. This process would require significant computational power to work. The assumption in this design is that it would be too risky and too difficult to attack the chain and that it is more rational to follow the rules and utilise one's computational power to mine "honestly":

> If a greedy attacker is able to assemble more CPU power than all the honest nodes, he would have to choose between using it to defraud people by stealing back his payments, or using it to generate new coins. He ought to find it more profitable to play by the rules, such rules that favour him with more new coins than everyone else combined, than to undermine the system and the validity of his own wealth. (Nakamoto 2008, 4)

The computational power dedicated to the hash function is called *hash rate*: the capacity to compute the hash function. The total hash rate depends on the sum of hardware connected to

[11] Proof of work is not the only mechanism of validating transactions of cryptocurrencies, although it is most common. The other way is called the proof of stake (PoS), which is more reminiscent of the traditional banking system. In PoS, the validators have to put down a stake in the form of a certain amount of native coins, and then they can validate transactions. If they validate honestly, they receive back their stake and part of newly emitted coins plus transaction fees. If serious disputes over their validation occur, they lose a part of their stake. The higher the stake, the higher the reward for the validation in a proportional share. This system thus rewards the richer validators for being able to afford higher stakes (similarly as more prosperous banks are allowed to emit higher amounts of new credit money).

the network and the skill of the miners to operate the hardware properly (set the technical parameters, so the hardware performs at full capacity).

The difficulty of the hash function varies in dependency on the available hash rate in the network. Every 2016 blocks (approximately every two weeks), the mining difficulty gets adjusted, so the average mining speed is six blocks per hour. "To compensate for increasing hardware speed and varying interest in running nodes over time, the proof-of-work difficulty is determined by a moving average targeting an average number of blocks per hour. If they're generated too fast, the difficulty increases" (Nakamoto 2008, 3). This measure is deployed to provide a stable emission of new coins. No matter how much hash rate is available to the network – i.e. how much computational labour is being carried out – the rate of production is constant.

The mining difficulty gets adjusted by the range of acceptable solutions to the hash function (*difficulty target*). If the hash rate in the network rises, the range of proper solutions narrows down, so it is more difficult to find it. To find the right solution, the miners have to run the hash function – with the data of the transactions and the hash of the previous block – over and over again, while each time changing one variable (so-called *nonce*) until they hit the required difficulty target. Sometimes this process is compared to throwing a dice until one gets a number lower than X. However, the dice in SHA 256 has 2^{256} sides. Consequentially, the greater the hash rate miner has, the faster they can "throw the dice" until they find the solution below the difficulty target. The hash function is used because it is difficult to find the correct solution; however, it is relatively easy to verify it by the other nodes once this solution is found and distributed.

Ideally, then the process of mining proceeds as follows:

- users exchange bitcoins between two addresses
- the unconfirmed transactions go into *mempool*

- the miners take the unconfirmed transaction from the mempool and add it to their block
- the block size is circa 1MB and fits about 2000 transactions
- once the block is full, the miner aims to stamp it with a *hash*
- the miner thus competes with other miners trying to find a hash below the difficulty target
- once a hash below the difficulty target is found, the new block is added and signalled to all other miners in the network
- the winning miner receives a reward in the form of newly released bitcoins and all the transaction fees associated with the transactions in their block
- this process repeats circa every 10 minutes

The process of production is supposed to mimic the ideal production of precious metals: "The steady addition of a constant of amount of new coins is *analogous to gold miners* expending resources to add gold to circulation. In our case, it is CPU time and electricity that is expended" (Nakamoto 2008, 4, emphasis added). As a result, the demand for computational power in mining increased several hundred thousand times over the last decade.[12] To secure a low inflation rate, the reward for each block decreases by 50% every 210,000 blocks (approximately every four years). This process is called *halving*. Hence, in 2009 the reward was 50 bitcoins, in 2012, 25 bitcoins, 12,5 bitcoins in 2016, and in May 2020, the reward dropped to 6,25 bitcoins per block.

Furthermore, with the increasing popularity of mining in late 2017 and 2018, the question of its ecological footprint has risen in importance. It is problematic to compute Bitcoin's overall electricity consumption accurately, yet the brute approximations claim that all the miners annually burn a similar amount of energy as a small country or a large city (Stoll et al. 2019; de Vries 2020). Other estimates were that in 2019 around 58% of the Chinese miners used hydropower, while 42% used coal-produced electricity (Stoll et al. 2019, 1655). Although it is

[12] The productivity of the mining devices increased from less than 0,01 gigahashes per second (GH/s) in 2009 up to 44,000 GH/s in 2019; at the same time, the energetic demands lowered from 9000 joule per gigahash (J/GH) to 0,05 J/GH within the same period (Stoll et al. 2019, 1648; de Vries 2020, 4).

intricate to estimate the concrete impact Bitcoin has on nature, there is no doubt that mining is an environmentally exploitative practice. Natural resources, mainly in the form of electrical energy, are the object of productive consumption during the process of Bitcoin's reproduction and their accessibility directly determines the rates of revenue of Bitcoin mining.

Bitcoin network utilizes the increasing difficulty of its production to secure its profitability as an investment. The expectation is that while all the other commodities will produce faster and cheaper, Bitcoin's production rate will exponentially decrease over the years to come. As Phil Champagne explains in his comment on Satoshi:

> Imagine if the population were to discover, through real life experience, what it is to conduct their lives with a currency that does not lose its value, but in reality gains in value. *As our economy grows and as our manufacturing capabilities increase, prices go down.* The only reason that prices are not going down today […] is because of government-caused currency inflation. (Champagne 2014, 105, emphasis added)

Therefore with the increasing labour put into its production, Bitcoin's value will rise and reward the miners and investors for their early support.

Monopolization of mining

Since its beginning, mining has never really been a profitable enterprise; the electrical bill has been higher than the uncertain reward. As Antonopoulos (2017c) remarks: "Bitcoin mining is probably the worst way to try to get rich, and it will end poorly for most people."[13] Because of the deflationary design, mining is a practice with steadily decreasing bitcoin rewards and increasing hardware and energy consumption costs. Given the final amount of 21 million bitcoins, more than 93% of that total amount has been already mined. Moreover, 50% of the

[13] Stoll et al. further support this claim: "Back in January 2011, a miner with an up-to-date GPU (2 GH/s) could expect to find more than two blocks a day [with reward 100 bitcoins]. In November 2018, because of the increasing difficulty of the search puzzle, the same miner could expect to find a block every 472,339 years [with reward 12,5 bitcoins]" (2019, 1651, emphasis added).

total amount of bitcoins were mined in the first three years. This can be understood as a form of *primitive accumulation* within the Bitcoin economy. The early adopters have accumulated substantial portions of coins, while the newcomers now have to compete for scraps.

If somebody mined Bitcoin on their CPU in 2010, it was a losing operation; nevertheless, if they kept their coins, these might be worth hundreds of thousands of dollars now.[14] However, the chance of mining the whole block by an individual miner is getting thinner and thinner. Historically, two mutually non-exclusive reactions emerged to this increase in competition: 1) mining farms and 2) mining pools.

Mining farms are typical examples of the development of the capitalist mode of production. These establishments function as factories with thousand of mining devices and servicing staff working for a wage. Because Bitcoin mining consumes large amounts of electricity and produces large amounts of surplus heat, these farms are usually situated in suitable areas with relatively cheap energy, a colder climate and a fitting national legal framework.[15]

Mining pools are aggregates of individual miners and farms connected and synchronised via a digital platform. The miners unite to have a more significant hash rate and, therefore, higher chances to mine a block; the rewards are then split according to the provided hash rate of the individual miners. Miners within a pool thus do not compete but cooperate. The individual miners in the pool do not serve as independent nodes anymore; the pool does. On the one hand, mining pools are more effective; on the other hand, mining thus becomes more centralized. As of 2020, there was only eleven pools mining Bitcoin; yet these eleven pools split over 90% of all the mining rewards (Chainalysis 2020).

[14] Current price per one bitcoin is $18,604 (https://coinmarketcap.com/currencies/bitcoin/markets/ retrieved 20.11.2020).
[15] The most significant share of the hash rate was previously allocated in China (up to 70%), but after the Chines government's crackdown on mining in June 2021 map of global mining will undoubtedly be redrawn.

The owner of the platform collects a fee for providing this service, which is usually around 2% of the pool's earnings. Even though the miners in the pool only get a relative fraction from the block-reward, they mine a block more often. Joining a pool thus promises smaller but more stable rewards.

Mining pools, in this sense, function as *lean platforms* where everything is outsourced: the mining machines, cooling systems, maintenance service, miners' training. Everything is delegated onto individual miners (including mining farms). "All that remains is a bare extractive minimum – control over the platform that enables a monopoly rent to be gained" (Srnicek 2017, 76).

Bitcoin: Network meets factory

Bitcoin and its proof-of-work design represent a techno-economic imaginary of late capitalism. As well as Bitcoin, late capitalism is a system stabilised by its perpetual growth and acceleration (Rosa et al., 2013). Such a system, therefore, continuously intensifies labour (Green 2001; Green & McIntosh 2001) up to extreme levels (Granter et al. 2015) without even the basic ability to justify this process of intensification (Graeber 2018). Labour becomes a self-referential activity showing that someone (or something) is worthy (Fouksman 2020), worthy of recognition (Honneth 2014), worthy of trust (Lazzarato 2012). Proof-of-work emerges from this late-capitalist condition merely as an objectified product of a historically situated political consciousness *of homo economicus*. In Negri's words: "the computerized control structures are not only a reflection, but are the *embodiment of command*" (1989, 107, emphasis added).

Bitcoin mining is a process of *control*. As Koray Caliskan (2020, 557) explains: "blockchains are networks of claims that distribute ownership rights among the actors that use them." Mining serves to control that these rights are not abused nor denied. However, while

Caliskan distinguishes open and private blockchains based on their *formal* properties, a Marxist analysis can show how formally open Blockchain such as Bitcoin sets up discriminating control mechanisms immanent to its labour-intensive design.

From Hardt and Negri's perspective, Bitcoin mining is an example of socialized work in the form of *network production* (2000, 294-297). It is a deterritorialized process where "the assembly line has been replaced by the network as the organizational model of production [which] requires no territorial or physical center. […] The novelty of the new information infrastructure is the fact that it is embedded within and completely immanent to the new production processes" (295-298).

Moreover, we can speak of real subsumption because they do not work for a wage; only winners of the mining game get any reward and the rest is rewarded merely by the valorization of the very social network they reproduce. The mining process relies on *abstract cooperation* (296), where labourers do not know each other and communicate through productive information, namely their hash rate and signalling of the mined blocks. "The circuit of cooperation is consolidated in the network and the commodity at an abstract level" (296). However, Hardt and Negri also claim that "every fixed measure of value tends to be dissolved" (2000, 355), but this is not the case with Bitcoin.

Bitcoin mining represents a route towards automatization of social exchange (Berardi 2017) because – as the prominent crypto-evangelist Andreas Antonopoulos (2015) argues – the network does not care if the interacting agents are people, smart contracts, devices or institutions. It is an entirely objectified system of capitalist competition which drives itself into an ever-intensifying spiral of labour and energy consumption. Furthermore, with the development and intensification of mining, the computational power concentrates in a few mining pools and yet again confirms that "the necessary result of competition is the accumulation of capital in a few hands" (Marx 1974, 62). Even though Bitcoin's design is

decentralized, the dynamic of capital drives it towards monopolization via the market mechanisms of the commodification of abstract labour. The intensifying demand for labour serves as a mechanism of control; it controls the *integrity of, access to* and *positions within* the network.

Integrity: Labour theory of control

The security and resilience of the Bitcoin network is its use-value. The main characteristic is that Bitcoin is a censorship-resistant decentralized infrastructure that can collectively create and control unique digital information. In other words, Bitcoin manages to create *digital scarcity*. And it does so by simulating the scarcity of the material world, namely of gold. Gold is chosen because, in western economic imagination, gold is incorruptible. It is the *sound money*. No matter how much alchymists, counterfeiters, or gougers tried, they could never duplicate the real deal perfectly.

The imagined characteristics of gold are imitated by steadily increasing the necessary labour time and intensity of its production. Whereas in 2010, the necessary labour time per one bitcoin was approximately 12 seconds, in 2020, it is 96 seconds. Furthermore, the intensity of labour demanded to produce one bitcoin (i.e. the hash rate) has risen several million times. In 2009 Satoshi Nakamoto himself indirectly acknowledged the relation of Bitcoin's value with the computational labour enacted in its production:

> In this sense, it's more typical of a precious metal. Instead of the supply changing to keep the value the same, the supply is predetermined and the value changes. As the number of users grows, the value per coin increases. It has the potential for a positive feedback loop; as users increase, the value goes up, which could attract more users to take advantage of the increasing value. (Champagne 2014, 106)

However, neither the limited supply of bitcoins nor its increasing difficulty of production are its material characteristics (unlike gold). These are *design choices* – technologies of control.

While gold mining utilizes human labour to overcome matter's natural resistance to expansion, Bitcoin utilizes computational labour to overcome information's natural resistance to control.

Other Bitcoin enthusiasts following in Satoshi's steps have elaborated on the question of Bitcoin's intrinsic value:

> Whether one views Bitcoin as an immutable digital ledger or a resilient software network with hardware infrastructure, Bitcoin can be described to have a 'commodity' component of value. […] If we simplify the total cost of bitcoin production to an equivalent amount of energy we can estimate each bitcoin to be worth about 58 Megawatts-hrs of electricity. (Steemrollin 2017)

> Bitcoin is, in a sense, guaranteed (or rather substantiated) by the computing power expended. (Tětek 2020)

Nevertheless, the subsequent Facebook discussions in the Czech and Slovak Bitcoin community show that the community struggles with pinning down the substance of Bitcoin's value:

Commentator: *Nice article; however, I have a few reservations about Bitcoin being linked to computational power. Cryptocurrencies are not guaranteed by computational power because it is impossible to convert them back into this computational power. Computational power, once utilized, is lost; there is no sense in linking the existing coins to it.* (23.11.2020)

Tětek: *Yes, I agree; instead, I had in mind that there is "something" behind Bitcoin – not in terms of exchangeability, but in terms of its connection to the material world.* (23.11.2020)

The commentator uses the same argument about computational labour as Marx, claiming that labour "disappears in the product" (2010, 190), while Tětek insists that Bitcoin has some inherent value based on its materiality: the computational labour put into its production.

These interpretations are almost Ricardian. Petr – one of my interlocutors working in IT and a passionate promoter of Bitcoin and crypto-anarchy – even explicitly supports the *labour*

theory of wealth (Postone 2009, 39) by claiming that: "resources do not have value, only labour has value. The value of a resource is the value of the labour of the people who extracted it." Such interpretation assumes that labour is a culturally universal and ahistorical source of value and thus would refute Marx's position about labour-as-value being specific to capitalism. However, Tětek's inability to pin down the substance and form of Bitcoin's value suggests that value cannot be directly expressed in the spent computational labour and that the labour is being transformed. Furthermore, numerous community members recently started to interpret Bitcoin as a "battery of surplus energy." One of its prominent members quoted an article claiming that:

> The thesis that Bitcoin spends energy is a myth. From elementary school, we know that energy cannot be spent; it can only be transformed. Bitcoin transforms energy into information representing economic value. The energy thus can flow from watts into bitcoins and back. (Pilař 2021)

This statement operationalizes Bitcoin and energy as two forms of *common substance* that are *transformed* into each other. "Only with such a concept [of a common substance] is a materialist account of the process of transformation and conservation of energy and matter possible" (Elson 1979, 158).

The common substance then finds its manifestation in money. This does not mean that the value of Bitcoin is the same thing as its price; it only shows that "divorced from its expression as exchange-value, value is simply an abstraction, without practical reality" (Elson 1979, 134). As Filip – a middle-aged Hayekian economist and a Bitcoin enthusiast – points out, "today, the whole Bitcoin is connected to the real world only through institutional crypto-exchanges, nothing else. Without the crypto-exchanges, there is no exchange-value of Bitcoin; it does not exist outside the dollar economy."

These elaborations on the source of Bitcoin's value suggest that Bitcoin does not create its economic sphere but is embedded in the dominant capitalist mode of production. Bitcoin

takes the form of a digital commodity, and this commodity nature is – quite understandably – the source of both its use-value and exchange-value.

In the Communist Manifesto, Marx and Engels describe the coming capitalism as a driver of constant change that will tear apart all the social relations of traditional society: "*All that is solid, melts into air*" (2002, 223). Satoshi's design goes in the opposite direction solidifying the ever-abundant digital information into a fixed and finite quantity. Labour serves to tame the socially produced digital information and prevents it from multiplying uncontrollably. In the absence of other regulating agents, it becomes an element of immanent control. As Negri points out, control – instead of labour – becomes the measure of value in late capitalism. However, in the Bitcoin economy, *control is a consequence of labour*.

Access: Value motivates, labour regulates

The process of mining integrates production and reproduction together. Mining is an integral part of the transactions that are being verified; however, it also needs those transactions. Without any exchange, there is no exchange value, and without any movement in the network, there is nothing to verify. Bitcoin serves as an example of socialized labour, which is a production not only of value but also "of the social cooperation necessary for work" (Negri 1989, 80). The transactions are at the same time the raw material and the product of mining.

Access to the Bitcoin network is structured around labour. Labour verifies transactions, thus granting the transacting parties access to their coins. Given the rigidity of Bitcoin, there is a limited number of transactions that can be carried out at one time (up to eight transactions per second). The network itself prevents revolutions in production from happening to secure its scarcity. Therefore, the reproductive labour of transacting is subjugated to the productive labour of mining.

Labour implied in the verification of transactions is hidden on several levels. First, there is the workers' labour providing the very material infrastructure of information and communication technologies (see Fuchs 2014, Part II). Here belongs the extraction of minerals, the exploitation of workers assembling the hardware in Foxconn factories, and workers coding any software critical for the Bitcoin economy such as exchange interfaces, digital wallets or mining software. This dimension of labour is omitted in this chapter, despite being absolutely crucial to the Bitcoin network.

Second, there is the computational labour performed by the miners by solving the hash function and providing the *proof-of-work*. This is another aspect of value-creating labour because it is not deployed to produce a commodity as its objectification but to prove the miner's dedication to "honestly" participate in the reproduction of the Bitcoin network. Their sacrifice of computational labour allows miners to access the Blockchain and record new transactions. Labour thus plays a regulatory role.

Subject to the command of Bitcoin mining is the utility-maximizing *homo economicus* who is motivated and regulated by its design. The design motivates miners to increase their computational power because of its competitive feature, and at the same time, it regulates their behaviour by discouraging any "dishonest" verifications. This strategy directly relies on the idea of abstract labour as the dominant source of value; it assumes the total amount of labour in society as something scarce and limited in need of rational distribution. The sum of all labour is represented, or abstracted, as energy. The distribution of energy (utilized as computational labour) within the Bitcoin network is carried out through simple incentives of market profitability: "It depends on a simple mathematical formula of incentives and rewards. […] It's game theory. It's like a giant game of sudoku" (Antonopoulos 2014b).

Michael Burawoy (1979) famously argued that such individualization and autonomization of workers via competitive game design redistributes conflict within the labour

process from the hierarchical direction into a lateral direction. This kind of reorientation serves as a disguise of the class conflict within the relations of production.

Position: The class struggle in the network

Unlike labour-power in industrial capitalism, miners' computational power is not a commodity sold on the market. Instead, it is an entry requirement to participate in a *game of chance*. The higher one's computational power, the higher their chance to win. This design choice corresponds to the current ideology of the entrepreneurial self. As Karel – a self-employed IT worker and a respected Bitcoin guru – claims: "Succes comes to the people who expose themselves to the possibility of success. The more you expose yourself, the more risks you take, the higher probability of success you have." "Exposure to success" refers to such phenomena of socialized work as self-improvement, education, or investment. Bitcoin thus reproduces the gambling feature of so-called *casino capitalism,* where individuals are increasingly driven towards economic speculation via incentives of responsibility and aspiration (Strange 1986).

Given its competitive design, the Bitcoin network rewards only the winning miner who verifies the block, finds the hash below the difficulty target and adds it to the Blockchain. In other words, it only rewards the computational labour immediately necessary for its reproduction. However, the labour expended by the unsuccessful miners is not lost; it is utilized to deduce the computational power within the network and adjust the difficulty target of mining to make the network more "secure" against corruption (including inflation). With significantly higher demands on their technological equipment, miners are subjected to continuous *dispossession* of computational labour. The investors appropriate the value created by this labour as it makes the network more resilient. In other words, the more there are miners, the higher is their competition, but at the same time, the safer is the network for the investors.

Even though it is difficult to verify this assumption empirically, it can be analysed as part of the techno-economic imaginary of Bitcoin through the hypothetical situation called *spiral of death*. Spiral of death is a speculative scenario that is supposed to happen when the computational power in the network drops (e.g. because of the decrease in rewards after halving). Consequentially, the speculators abandon the network because of the decrease in security, resulting in lowering the price of Bitcoin. The lower price results in a further decrease in computational power, and the cycle starts anew, consequentially bringing Bitcoin to the ground. Bitcoin's value and the computational power employed in its production are perceived as correlates.

Moreover, since mining is continually getting more expensive, miners bear increasing risks, while investors can quickly realise their gains or losses and withdraw from the network altogether. Saifedean Ammous, in his popular book *Bitcoin standard,* interprets this power asymmetry as a desirable feature incentivizing miners to perform "honestly":

> All of these miners have no conceivable purpose but verifying Bitcoin transactions and solving proof-of-work. Should Bitcoin fail for whatever reason, these ASICs [type of mining hardware] would be rendered useless and their owners' investment would be lost, so they have a strong incentive to maintain the honesty of the network. […] the real protection of the Bitcoin network at any point in time is that the value of its tokens is entirely dependent on the integrity of the network. […] Being an entirely voluntary system, Bitcoin can only operate if it is honest, as users [investors] can very easily leave it otherwise. (2018, 220-221)

Miners are thus dependent on the investors' interest in Bitcoin and have to accommodate the latter's respective expectations. This means that even if the miners wanted to change the technological design of Bitcoin– e.g. to increase the block size to fit in more transactions and collect more transaction fees – they would still need to convince the investors that such change

is desirable.[16] Formally, the miners could do it; the change in Bitcoin's design can be introduced solely through the miners' consensus by validating the appropriate blocks. However, the miners hesitate to do so because any signs of conflict could discourage investors. As one of the early Bitcoin developers, Mike Hearn (2016), put it: "[miners are] terrified of doing anything that might make the news as a 'split' and cause investor panic." In Negri's words: "Capital goes into crisis every time that labour-power transmutes to become working class" (1988, 212). And if Bitcoin is to serve as crisis-resistant money (Brunton 2020) then unjustified crisis inside Bitcoin must be avoided at any costs.

While the investors can express their collective will via the market signals, the miners are singularized in a competitive game of chance as the increasing production costs make them dependent on Bitcoin's market valorization. "The constitution of the worker as one among many *competing and conflicting others* masks their common membership in a class" (Burawoy 1979, 81, emphasis added).

The inner conflict is further strengthened by the semantic replacement of values by prices. As can be seen from the previous quotes, the community often uses these two terms interchangeably. That is mainly caused by the community's subscription to the Austrian school of economics, which is based on methodological individualism and thus interprets values as subjective valuations of commodities clashing with their market supply – hence as prices (Godelier 1978, 41). The popular saying within the community is that "the value of Bitcoin is precisely as much as anybody is willing to pay for it."

[16] Such conflict over the block size and Bitcoin's scalability occurred in 2017. A small group of developers and miners separated from the Bitcoin Blockchain (so-called hard-fork) and created a new cryptocurrency called Bitcoin Cash, which allows the size of blocks to be adjusted according to the needs of the network. Nevertheless, Bitcoin Cash is being strongly ostracized by many members of the Bitcoin community as a "shitcoin" and the majority of the investors rejected the new cryptocurrency and stayed with the original Bitcoin (see Jeffries 2018). Some commentators described this split as a "Crypto civil war" (Clifford 2018). I describe this split in further detail in the next chapter.

Since *value collapses into prices* (cf. Engels 1987, 174), the class antagonism is stated as a conflict between sellers (miners) and buyers (investors), making it seem like the "very Eden of the innate rights of man [where] alone rule Freedom, Equality, Property and Bentham" (Marx 2010, 186). However, as Marx explained, "supply and demand regulate nothing but the temporary *fluctuations* of market prices" (1947, 29). Marx also further described that "there is *competition between the buyers and the sellers*":

> The result of this competition between buyers and sellers will depend upon the relations between the two above-mentioned camps of competitors, i.e., upon whether the competition in the army of buyers or the competition in the army of sellers is stronger. Industry leads two great armies into the field against each other, and each of these again is engaged in a battle among its own troops in its own ranks. The army among whose troops there is less fighting carries off the victory over the opposing host.

Because the investors, as buyers, carry significantly lower costs than miners, they can adjust their strategy and reduce the competition in their own ranks.[17]

The miners, on the other hand, are compelled against each other by the increasing mining costs (e.g. electricity, mining hardware, pool fees). Therefore, they cannot afford to keep their rewards in bitcoins and transfer them into fiat money almost immediately to cover their expenditures. Chainalysis (2020) points out that mining pools keep bitcoins in their wallets for merely two days. Miners depend on the immediate valorization of the network, and similarly, as the workers sell their labour-power, they "cannot leave the whole class of buyers, i.e., the capitalist class, unless [they give up their] own existence" (Marx 1975, 20).

Such asymmetry leads to a stage when "price signals betray the values they are supposed to represent [and] a rational capitalist will place their money [into speculation] rather than in the sphere of productive activity" (Harvey 2018b, 94). This brings us back to Antonopoulos'

[17] There are actually numerous platforms – from YouTube channels to Facebook groups to Telegram channels – where investors coordinate their trading strategies.

claim that mining is not a profitable enterprise, and indeed many community members often discourage newcomers from mining, explaining that trading is a more secure and reasonable investment.

Consequentially, while the early adopters and capitalist investors form a collective subject of an empowered consumer *class* (see Henry 2005), the miners – and especially the newly coming small scale miners – are constantly undermined by the algorithm, individualized, and their collectivity is expressed solely in their mass of computational power as mere labour-power. They thus form only a class *in* itself but not yet the class *for* itself (Carrier 2014, 30). The situation even intensifies with the increasing interest in cryptocurrencies from hedge fund managers and capitalist tycoons such as Elon Musk, who can directly influence the prices because of their enormous purchase power. With their influence on prices, they can (and do) also indirectly influence miners (Newburger 2021).

The miners are thus locked in ever speeding spiral of labour and expenditure. Consequentially, some miners become workers employed at the mining farms; others join the lean platforms of mining pools; still, others manage to open their own mining farms, have employees and thus occupy *the contradictory class locations* (Wright 1978). The competitive mode of distribution of new bitcoins makes them subsumed to the power of capital because to realize at least a promise of future profits, they have to conform with the investors' expectations.

Conclusion

The ever-intensifying digitalization of social life – in this case, represented by economic transactions – also allows its increasing quantification. Consequentially, it allows the labour of social reproduction to be turned into abstract labour. In the current condition of the "west", the ability of capital to extract value from mundane everyday activities of social reproduction

seems almost endless – from the *financialization of daily life* (Martin 2002) to *surveillance capitalism* (Zuboff 2019) to *quantified self* (Lupton 2016), our social lives are being quantified and commodified. Once these quantifying trends are combined with Bitcoin's decentralized design of labour control, the real subsumption of social life to capital can become a more realistic threat than under the current neoliberal regime.

Despite the seeming contradiction of Negri's and Marx's conceptualizations of value, their theories appear complementary when analysing Bitcoin's value creation. Within the strict and automatized confines of the Bitcoin algorithm, abstract labour becomes the mechanism of control and, consequently, its source of value. Bitcoin can thus serve as an exemplar of an emerging relation of production where the decentralized autonomous networks are designed to extract surplus value without necessarily resorting to the centralized political command. The central authority is replaced by abstract labour as the technology of immanent control.

After all, such a warning was the point of the IoHO's speculative design which I mentioned earlier in this chapter. Such design could regulate social behaviour according to algorithmic rules that would turn social reproduction into abstract labour and thus also into a competition. The logic of capital could then eventually hold sway over all social life.

2. Relation: *Kinship analogy and logic of separation*

> *If one could picture to oneself a person like Kant among the old Maoris – which indeed is difficult – one should not be surprised if to the fundamental categories of knowledge, time and space, he had added:* kinship.
>
> (Jørgen Prytz-Johansen: *The Maori and His Religion in Its Non-Ritualistic Aspects*)

When entering a Bitcoin café, one usually witnesses merely a few unique features such as the Bitcoin logo or the Bitcoin ATM placed near the door. Otherwise, the modern interior design does not significantly deviate from other similar spaces in gentrified areas of large central European cities. There is a big robust coffee machine, designed chairs and tables, art on the wall from local artists, a small library in the corner and decorative flowers on minimalistic shelves. If there is an event, some community members welcome newcomers and show them how to buy their first cryptocurrencies (a process described in detail in chapter 4). These core members are usually quite distinguishable because they wear custom-made merchandise clothes such as t-shirts or hoodies with the logo of the café or some other crypto-related design.

Quite understandably, this merchandise is also available for sale in exchange for cryptocurrencies. There are hoodies, t-shirts, baseball caps, beanies, wristbands, keychains, mugs, pins, socks, notebooks, tote bags and other standard merchandise products, all with a design referring to cryptoanarchy, Bitcoin or blockchain. Moreover, there are also books and magazines about Bitcoin, the Austrian school of economics, and biohacking.

One of the cafés where I conducted my research was extraordinarily persistent on biohacking being an integral part of the crypto-anarchy practice. Some of its core members were on a low sugar diet, and the café served a selection of health- and performance-enhancing products such as kombuchas, smart mushrooms, anti-ageing food supplements, and also *DNA testing kits*.

These DNA testing kits sometimes sparked quite a discussion. Some of the members wanted to use them to know themselves better and their bodies, be prepared for possible future diagnoses and explore their family medical history. However, the kit was quite expensive (around one hundred euros), and also privacy concerns were creeping in. I remember Jonathan – a young IT specialist who is also one of the core members of the Czechoslovak community – explaining to his fellows why he does not want to use the kit. He argued that using the kit and exploring his genetic genealogy would intrude on his family's privacy. "What if I discovered that some people are not genetically related to me? I don't want to violate their privacy like this."

Such hesitancy of a Bitcoin user to disclose private social and biological relations within a family (even to the family members) presents a stark contrast to their willingness to record all economic relations onto a public blockchain. Despite public supposition that Bitcoin is an anonymous payment network, it is merely a pseudonymous one. This means that every transaction ever conducted is visible in the public blockchain. The identity of transactors is obscured only as long as they manage to keep their Bitcoin addresses secret. Once the Bitcoin address is connected to a concrete person, their whole transaction history can be uncovered.

This invites the question, how is the contradiction of secrecy and transparency within the Bitcoin ecosystem resolved? What types of social imaginaries are mobilized to accommodate this resolution? And how do these imaginaries relate to the broader historical imaginaries of the Internet culture? I argue that the answer to these questions can be found in anthropological theories of kinship – namely, the theories of Marilyn Strathern.

According to Anna L. Tsing (2018), Strathernian comparison is supposed to be both serious and playful. Strathern re-introduced provocative and critical comparisons of seemingly incomparable reifications of social reality into social anthropology. In this chapter, I compare

anthropological theories of kinship as a system of knowledge-making with the reified structure of blockchain.

I argue that this comparison allows exploring what Sarah Franklin (2018), referring to Strathern, describes as an *analogical return*. Franklin uses this term to describe how analogies between signifier and signified (e.g. kinship and nature) first change the signified object but then also travel back and can shift our understanding of the signifier. As an example, she refers to how Darwin used kinship to describe the evolution of life (and thus encultured nature) and, in return, naturalised kinship (Franklin 2018, 250).

To know thy kin

Jonathan's hesitancy to uncover his genetic ancestry resonates with Marilyn Strathern's understanding of the genetic family, which "precludes choice and is indifferent to the character of family life" and where "information about any one member of the family is merged with information about them all" (2005, 73). Jonathan was afraid that the knowledge of his genetic family might collide with his legally and socially recognized family and that it would intrude on the privacy of his family members, specifically his parents. Jonathan expresses concern over a specific *cultural dilemma* that DNA testing creates. "If information might yield compromising evidence about paternity, the dilemma is precisely that of a culture which assumes a father and child share a genetic bond" (Strahern 1997, 50).

Strathern stresses that in the case of the genetic family and relationships it creates, "one has no option over the relationships; any subsequent selection or rejection implies selecting or rejecting those who are already one's relatives or else revealed not to be relatives at all" (2005, 69). This revelation of relation or its absence is, according to Jonathan, an intrusion on individual privacy. In other words, relations among people and knowledge about them are, for Jonathan, a private matter.

According to Strathern, kinship is – in the Euro-Atlantic understanding of the term – closely linked with knowledge. "People who find things out about their ancestry, and thus about their relations with others, acquire identity by that very discovery. The information constitutes what they know about themselves" (Strathern 2005, 69). It affects not only what one knows about herself but also what one knows about others and what others know about her (2005, 36). Thus it threatens to expose information that one does not wish to disclose. And this is why Jonathan, as a privacy extremist, explicitly rejects using such technology. As he says: "It is not my place to reveal such information."

Alluding to Steven Shapin (1994), Strathern accentuates that modern scientific knowledge is, at its core, relational since it has historically been based on a reliable person's testimony (2005, 62). "Relations were also doing something else. It was relations that produced knowledge out of information. […] 'Knowledge' became understood as accountable information, and it was by virtue of being relational that it was accountable" (Ibid.).

Kinship then started to be associated with knowledge-making relations in the 17th century (2005, 64).[18] Before that, the terms *relative* or *relation* were used to describe logical relations. Strathern traces the analogy of kinship and knowledge back to John Locke, who "took kin relationships as immediately accessible exemplars of logical relations" (2005, 66). Kinship terms thus serve to explore and explain logical relations between phenomena. They are ready-to-hand concepts for members of western culture that allow comprehension of these relations, i.e. knowledge. Strathern argues that based on "a set of parallels between *knowledge* and *kinship,* it would seem that since early modern times English-speakers have kept these domains in tandem" (2005, 68, emphasis added).

[18] Stefani Engelstein (2017) further analyzes how the kinship relations, namely the category o siblings, became intertwined with modern epistemology and politics in the 18th and 19th century.

Although the use of relations in knowledge practices and kinship influenced each other, the former holds a "privileged position" over the latter (2005, 67). However, the adoption of relations from knowledge to kinship also changed the way Euro-American culture performs kinship. Kinship became "an artefact of knowledge", which can be described from various standpoints. "And with that comes different ways of *verifying connections between persons*" (2005, 46, emphasis added). And what else is blockchain, other than a new way of verifying connections (respectively, transactions) between persons? The Bitcoin blockchain is a virtual machine – recollecting the relations and subsequent obligations of each member to one another in the form of the transfer of ownership rights (Caliskan 2020) – that presents the relational structure upon request so new relations might be added to the chain in the form of new transactions, i.e. new transfers of said ownership rights. "Property relations, after all, are a type of social relations – connections between persons constructed in terms of connections between persons and things" (Strathern 1985a, 202). It is the goal of this chapter to deploy kinship in an unexpected context of blockchain architecture to enlighten the underlying social structure it aims to enact.

Coded DNA

Despite Jonathan's refusal to test his DNA, he and his Bitcoin friends utilize the image of DNA in their understanding of the Bitcoin blockchain. One member of the Facebook group called the *Czech and Slovak Bitcoin community* posted a picture of a genetic sequence of a protein of E-coli, with the tags rewritten as "blockchain", "sidechains", and "sub-sidechains" (Appendix 1). A comment introduced the picture: "Have I already told you that to think of Bitcoin as money is total nonsense? [smiley face, smiley face]" (19.5.2019). When another member asked for clarification, the author of this post elaborated that "it is crucial to abandon the idea that Bitcoin is a form of any financial operation, money or worse, a currency. The faster you deal with this fact, the more at ease you will be" (19.5.2019).

So while Jonathan refuses to expose the DNA of his family even to the family members, he actively supports technology with very similar properties, which relies on the stored information being public.

As described in the previous chapter, the Bitcoin blockchain is a system of publicly visible relations between transactions, these transactions being bundled into blocks. These blocks are linked to each other via their subsequent hashes, thus creating a chain – hence the name, blockchain. As Koray Caliskan describes, "blockchains are networks of claims that distribute *ownership rights* among the *actors* that use them" (2020, 556, emphasis in original). The purpose of blockchains is to organize information into knowledge; it is to know who owns what.

The analogy between blockchains and kinship does not end with mere similarity. Researchers are now trying to store genetic data on private blockchains:

> Blockchain provides immutability such that the data cannot be altered, whether intentionally or accidentally. This is an important aspect of the system not only for personal, private data but also for large-scale open genomic data. Large-scale open data such as those from the 1,000 Genomes Project or the Personal Genomes Project, especially in centralized data storage systems, are vulnerable to corruption and tampering. (Gürsoy et al. 2022, 14)

Alternatively, an art collective called BitMouseDAO aims to inject Bitcoin private keys into a mouse's genes, so the private keys would then be transferred onto its offspring: "Once the mouse has the private key encoded in its DNA via genetic engineering, then BitMouseDAO envisions that its children will, too" (Gault 2022).

Such practice collapses the categories of kinship and economy into one. According to Strathern, these two categories can be treated as a dichotomic pair, where kinship is concerned with the relations of persons, while economy with the relations of things. Western society usually keeps these spheres separate (Strathern 1985a). The moral demand not to mix these two spheres of social life can also be seen in Gault's (2022) reporting on the BitMouse:

> Call me old fashioned, but the idea of genetically engineering something with the code to a crypto wallet inside it is a grim portent. In a bizarre world where a segment of the population wants to financialize everything, tying a literal life to the blockchain is a step over a moral and ethical line. It's just a mouse, but even a mouse deserves the dignity of being worth more than its place on the blockchain.

Despite the moral imperative to treat kinship as separate from the economy, it might be helpful to bracket out this separation and look at kinship and economy as a part of the same social matrix. "For to say that in such and such a society kinship is economy, […] has revelatory force as a counter to cultural assumptions which otherwise take their separation for granted" (Strahern 1986, 193). Understanding blockchain and its reproductive processes via the concept of kinship reveals the forms of sociality inscribed into this technology. Such sociality is, on one side, a-modern[19] obfuscating and avoiding the modern institutions of social control and, on the other side, post-human, delegating social relations to non-human agents.

Furthermore, the analogical return of Blockchain and DNA can be observed in the research of Oleg Abramov, a senior scientist at the Planetary Science Institute:

> We present evidence that a blockchain shares a large number of functional and structural similarities with DNA, a chemistry-based data structure that provides fundamental instructions for all known forms of life. We demonstrate that blockchain-based distributed systems possess specific characteristics associated with life, such as growth and change, responses to environment, homeostasis, reproduction, and genetics through a series of reproducible observations conducted on public blockchain-based dVMs [distributed virtual machines]. We present a model of a simple decentralized, self-sustaining, self-organizing, self-regulating blockchain-based organism as an operationally closed system, and describe developing technologies that could enable it in the near future. Such systems would have a number of specific advantages over biological life, including significantly improved speed, accuracy, redundancy, and unlimited size of blockchain as opposed to DNA, the ability to pass acquired traits to offspring, the ability of specialized cells to operate independently of host organism, and a lack of programmed senescence and death. Public blockchain-based dVMs provide an uncontained environment for the development of [artificial neural

[19] The term a-modern refers to non-modern societies without invoking their historical sequence (see Latour 1993).

> networks]-based artificial general intelligence (AGI), potentially leading to an ability to direct their own evolution, resulting in rapid self-improvements and the potential to exceed human intelligence. (Abramov et al. 2021, 146)

The analogy between blockchains and genetic code not only shapes how we understand blockchains but also extends to our understanding of DNA and artificial life. Blockchains thus could serve in the future of creating forms of life overcoming the biological life as we have known it so far.

Return of the "primitive"

The interchangeability of kinship and economy (Strathern 1985a, 193) is usually associated with the so-called "primitive" or a-modern societies.[20] The dichotomy of modern versus "primitive" has little significance as an objective marker of two forms of social organization; instead, it is a direct product of modernity. Modernity defines itself in opposition to "primitive" or traditional society as its evolutionary successor. "Modern society was defined above all by the territorial state, the monogamous family, and private property. *Primitive society must therefore have been nomadic, ordered by blood ties, sexually promiscuous and communist*" (Kuper 2005, 11, emphasis added). The reification of the "primitive" thus played a crucial role in constructing the identity of the "modern".

"Primitive" society has initially been an object of interest, mainly for lawyers seeking to understand the emergence and dynamics of ancient law with its organization of kinship, property, and the state (Kuper 2005, 3). Social scientists then further invested in this interest and developed multiple axes of division between primitive and modern society. "Marx defined a capitalist society emerging from a feudal society; Weber was to write about the rationalization, the bureaucratization, the disenchantment of the old world; Tönnies about the

[20] Strathern stresses (1985, 200) that the a-modern social systems are not homogenous and there are significant differences among them concerning the relation between kinship and economy.

move from community to an association; Durkheim about the change from mechanical to organic forms of solidarity" (Kuper 2005, 11). Lewis Henry Morgan summarised the distinction into two categories – the first form of society was based on personal relationships, i.e. kinship; the other form was then based upon property and territory, hence the state (1877, 6-7; cited in Kuper 1982, 74).

The individualization is then further carried out by the emergence of modern institutions, namely the *modern state,* which creates a "social order which exists beyond the individual [and] is a collectivity presented to the person as the field of rights and duties by which he/she is defined" (Strathern 1992, 109).

Modernity, therefore, radically changes social relations, and although these relations are weaker, more superficial and alienated, they are also more complex and out of reach of an individual's will and power. Modernity is thus experienced as an accelerating movement full of turbulent changes. Therefore, modernity is a moment of constant uncertainty and risk calling for instant reflexivity and expert knowledge (Giddens 1991, 38-40).

During the appearance of modernity, kinship relations ceased to be the dominant political principle of governing and were replaced by the emergence of social science. "If the notion of the art of government as a means of managing populations emerged in Europe between the sixteenth and eighteenth centuries, this was also the time when, as a model for government, the family (and patriarchy) disappeared. In its place was a new understanding of internal organisation, to be found, in Foucault's phrase, in statistics as the science of the state" (Strathern 2005, 38). At this moment, nature and society get separated from the phenomenological experience of being and become reified by science. Furthermore, the reified society is then the object of the state: "While factories and forests might be planned by private entrepreneurs, the ambition of engineering whole societies was almost exclusively a project of the nation-state. […] One essential precondition of this transformation was the discovery of

society as a reified object that was separate from the state and that could be scientifically described" (Scott 1998, 91).

All in all, comparing the "primitive" and the "modern" during the nineteenth and twentieth centuries first served to distinguish one from the other, establishing the former as natural, crude or authentic while the latter as rational, disenchanted, and alienating.

However, the modern individualism made its analogical return in the understanding of the "primitive" social structures. As Strathern (1985b) demonstrates, the modern standpoint directly shaped how westerners started to understand and interpret non-western social structure including its customary law and social control. Social control of a-modern societies thus became interpreted as a set of "regulating mechanisms which are held to replicate the controlling functions of law." This analogical return introduced into the western understanding of other cultures the ideology of law, drawing "on a model of social life […] which belongs to the industrial west," by upholding "the notion that […] society itself is imposed upon individuals who are by natural propensity asocial beings" (1985b, 113). Therefore, individuals can be perceived as pre-existing the social order that surrounds them. Modern individuality can thus make a universalist claim about itself and colonize other forms of subjectivity.

The modern individuality is produced and maintained by the state and its institutions as a legacy of the French revolution (Scott et al. 2002, 16). Even though the modern state becomes an embodiment of society, producing its subjects as individuals imbued with rights and duties, this situation creates an increasing ideological – and subsequently also practical – tension. From one standpoint, individuality is a natural substance of a person; nevertheless, from the other point of view, this individual has to be produced by society (Strathern 1992, 87). Strathern argues that in the 1980s discourse, the former standpoint gained political ground, and its target became "the *tyranny of the collective"* (1992, 45) embodied in the state as an external entity. The situation is analogous to Hegelian master-slave dialectics where the "Individual and state

[are] in an adversary confrontation, the one seeking to 'control' the other." Such situation "is imaginably analogous to two individuals each controlling the influence the other has on his or her person" (Strathern 1985b, 115). This is the era of Margaret thatcher and her famous proclamation that there is no such thing as society, only individuals and their families.

In the same era, new forms of networked sociality also started emerging. With the dawn of constantly accelerating mass communication, the imaginary of society changes once again. The modern Hobbesian analogy of the *sovereign body* of a leviathan was, during the 20th century, continuously replaced with the analogy of a *network*.

Global Village

This new networked sociality was already present in anthropological literature in the first half of the 20th century, specifically concerning the emergence of mass media and the diffusion of science. Malinowski (1930, 405) writes about the "*world-wide net* of broadcasting". Edward Sapir commented on the newly emerging webs of interconnectedness caused by communication media that "the multiplication of far-reaching communication techniques […] increases the sheer radius of communication, so that for certain purposes the whole civilized world is made the psychological equivalent of a *primitive tribe*" (Sapir 1933, 80). Marshall McLuhan then later coined the term *global village "*since our new electric culture provides our lives again with a tribal base" (McLuhan 1962, 31).

The imaginary of a networked society was informed by the idea of social connection unmediated by a central institution. Such a decentralized structure became very appealing during the Cold War when the threat of nuclear strike became an ever-present concern for government and military organizations. The army became a strategic hub for creating and implementing cybernetic systems designed to govern various populations and military bodies in the case of a nuclear attack (Orr 2006, chapter 3). In cooperation with the top universities, the US Army started developing a decentralized network of communication which would allow

the military chain of command to continue, even if some of its centres were paralyzed or destroyed. This decentralized network became known as ARPANET, a direct predecessor of the Internet (see Abbate 2000).

In general, the global system of information circuits that emerged thanks to mass media and later was accelerated by the Internet caused scientists and non-specialists to seek a new model to understand the emerging social structure. Eventually, this model was found in the immanent, seemingly unmediated structure of the "primitive" society. "It is as though the net were a technological enlargement of the primitive human capacity to interrelate" (Strathern 1997, 23).

Primitive money

The trend of using the "primitive" or non-modern societies as a trope for understanding digital culture further also expands into writings on peer-to-peer (P2P) architectures, including Bitcoin. Ori Brafman and Rod A. Beckstrom (2006, chap. 1) use the historical example of north-America Apache social organization to explain the durability of decentralized P2P systems. The authors use the case of the Apache resistance toward the Spanish army to explain why the music recording industry could not stop the P2P sharing services such as Pirate Bay. According to the authors, both preserve because of their decentralized political organization:

> On first impression, it may sound like the Apaches were loosey-goosey and disorganized. In reality, however, they were an advanced and sophisticated society—it's just that a decentralized organization is a completely different creature […] the traits of a decentralized society—flexibility, shared power, ambiguity—made the Apaches immune to attacks that would have destroyed a centralized society. (2006, 21)

The analogy of a-modern societies with distributed computational systems is further developed in many (both popular and academic) writings on Bitcoin. Its design as a decentralized ledger invites many authors to compare it to another, much older means of exchange with similar properties – namely the Rai stones of Yap (e.g. Ammous 2016; Maiello 2021; Mankiw 2019;

etc.). Scott Fitzpatrick and Stephen McKeon (2020) argue that the blockchain architecture utilizes similar social dynamics as the famous Yapese money based on an oral ledger of ownership.

The Yapese stone money are made of huge stones reaching up to three meters in diameter carved on a nearby island. The scale of these stones makes them very difficult to be moved. Thus the ownership is often not determined by their physical possession but by the shared knowledge of other society members. The most common example is the story of one stone being lost during transportation and ending up at the bottom of the sea; however, the knowledge of ownership was not limited by its physical absence. Everybody knew it was at the bottom of the sea and to whom this stone belonged. In other words, the Yaps held a shared ledger of ownership enforced by the group's collective memory.

However, while the Yaps were always standing against the limit of scale – there is a cognitive limit on the number of transactions a non-literate society can remember (Fitzpatrick and McKeon 2020, 16) – blockchain is, in this sense, virtually limitless.[21] The authors further speculate that the idea of Rai stones might have inspired Satoshi Nakamoto to design the distributed ledger of the blockchain. Although there is no proof that this was the case, it is true that the Bitcoin community uses the Rai stones as an example of other distributed ledgers in human history. Most famously is this analogy explored by an economist and Bitcoin enthusiast, Saifedean Ammous, in the *Bitcoin standard* (2018):

> Whereas in Yap the islanders would meet to announce the transfer of the ownership of a stone from one person to the other, and the entire town would know who owned which stone, in Bitcoin members of the network would broadcast their transaction to all network members, who would verify that the sender has the balance necessary for the transaction, and credit it to the recipient. (2018, 174)

[21] Nevertheless, Fitzpatrick and McKeon (2020, 16) acknowledge, that Bitcoin also has scaling issues, although of different consequences; it is not the history that would limit Bitcoin in its capacities, it is the speed. Since each block has limited space, there is a technological limit on the number of transactions that can be processed per unit of time. The assumed limit of Bitcoin transactions is claimed to be eight transactions per second.

The example of the rai stones thus also depends on the mechanism of social control. The ownership is supposed to be enforced by the collective knowledge of all the community members.

Although the comparison of Rai stones and blockchain is misguided and misleading (Walton 2022) and can be considered a cultural appropriation of the Yapese culture, it also allows exploring how Bitcoin is symbolically enacted as natural or pre-political in its design. In the words of a Bitcoin entrepreneur, Ferdous Bhai: "The philosophies and principles behind Bitcoin are ancient" (Pearson, 2017). The reification of the Yapese economic life serves to make claims about the ancient wisdom of Bitcoin. However, this comparison also strikes back since it projects the western money forms onto the Yaps. As Jo L. Walton (2022, 2) argues, the analogy of Bitcoin and Rai reinforces the idea that stone money functioned as a sole medium of exchange, contrary to any evidence. The stone disks were most probably employed in highly complex and ritualized gift exchanges, for example, during wedding ceremonies, and as such played an important role in processes of social reproduction (Labby 1972, 89-90).

However, the analogical return of Rai stones and modern money is not specific to Bitcoin. As Walton shows, numerous economists and economic textbooks project their beliefs and ideologies onto these stones to justify their claims (2022, 5-9). Bitcoin thus fits into an already existing analogical return and further reinforces it. The reference to the primitive money does serves as an argument for Bitcoin, and at the same motion it also transforms the a-modern modes of economic life, by reinterpreting them as rational.

Kinship in the NET

The logic of kinship is also projected onto the question of blockchain governance. Usually, two types of governance are distinguished in the blockchain ecosystem: *on-chain* and *off-chain* governance. Off-chain governance describes oversight over the code by various blockchain developers and also state regulation of the whole crypto-ecosystem (from mining to trading).

On-chain governance refers to the rules set and enforced by the current Bitcoin protocol, i.e. the rules that are followed by the mining machines, verifying nodes and transacting wallets.

The blockchain design creates a specific post-human lineage system, where each block presents a particular generation. The terminology of its architecture directly builds on the terminology of consanguinity:

> Each block within the blockchain is identified by a hash, generated using the SHA256 cryptographic hash algorithm on the header of the block. Each block also references a previous block, known as the *parent* block, through the "previous block hash" field in the block header. In other words, each block contains the hash of its parent inside its own header. The sequence of hashes linking each block to its parent creates a chain going back all the way to the first block ever created, known as the *genesis* block. (Antonopoulos 2017b, 195, emphasis in original)

> [The] new block is *a child* of the last block on the chain and extends the existing blockchain. (Antonopoulos 2015, 164, emphasis added)

Moreover, inside the blocks, the architecture employs so-called *Merkle trees,* which also utilize the parent-child dichotomy (Ibid.). The arboreal structure and use of kinship terms in cryptography support Stefani Engelstain's argument that kinship-making practices of genealogy tracing and drawing family trees became fetishized in knowledge-making practices (2017, 165). Also other depictions of blockchain and its history utilize the "crypto family tree" figure.[22]

This use of kinship terms shows how "a reference to kinship can give fresh concreteness to the abstract perception of relations" (Strathern 2005, 70). The analogy with kinship allows not only to express the relations between two subsequent blocks but also the relation of all existing valid blocks. All the valid blocks are traceable to the genesis block, meaning that every bitcoin is traceable back to its origin when it was emitted. This transparency is why blockchain

[22] https://twitter.com/CoinDeskData/status/1374111792025198601?s=20&t=4jPSo5v5aqjfsrdDYOmlQQ (retrieved 17.7.2022)

– by the Bitcoin community members – is often described as the *source of truth* or the *machine of truth*. The genealogy of each bitcoin allows the verifying nodes to know that it has not been spent twice.

Since no central authority would enforce the rules of descent, these rules must be part of the Bitcoin protocol itself. As such, it invites further cross-reading with Meyer Fortes' description of the structure of unilineal descent groups where "the primary emphasis […] is on the legal aspect of the lineage" (1953, 26). Fortes describes lineage systems as the systems of political organization in which "the individual has no legal or political status except as a member of a lineage" (Ibid.). Bitcoin addresses and transactions between them do not exist outside of the lineage system of the blockchain. Even the newly emitted "virgin" bitcoins are brought into being as an input recorded in the newly emitted block.

The political dimension of blockchain is best visible in moments of ambiguity. On some occasions, two blocks can be mined simultaneously. In that case, the blockchain splits into two, and the system waits to see which fork of the chain will be the longest:

> The majority decision is represented by the longest chain, which has the greatest proof-of-work effort invested in it. If a majority of CPU power is controlled by honest nodes, the honest chain will grow the fastest and outpace any competing chains. […] Nodes always consider the longest chain to be the correct one and will keep working on extending it. If two nodes broadcast different versions of the next block simultaneously, some nodes may receive one or the other first. In that case, they work on the first one they received, but save the other branch in case it becomes longer. The tie will be broken when the next proof-of-work is found and one branch becomes longer; the nodes that were working on the other branch will then switch to the longer one. (Nakamoto 2008, 3)

The shorter chain's blocks are called *orphaned blocks,* and their transactions usually go back to mempool (in case they were not included in the longer chain). Thus, the blockchain is organized to always promote the most potent lineage, i.e. the lineage with the most hash power spent on its proof-of-work during the mining process. "The political unit is thought of then as

the most inclusive, or maximal, lineage to which a person can belong, and it may be conceptualized as embracing the whole tribal unit" (Fortes 1953, 28). No person nor institution has sovereign power over the conflicting chains. The force of the chain automatically achieves conflict resolution.

However, accidents are not the only moments when the block splits. Every time a new version of the Bitcoin protocol gets introduced, it must be implemented by miners and verifying nodes. If all the miners and nodes do not agree on the protocol update, a hard-fork happens, meaning that a part of the network splits into two. One fork follows old protocol rules, while the other follows new ones. "A society made up of corporate lineages is in danger of splitting into rival lineage factions" (Fortes 1953, 28). Since its beginning in 2009, Bitcoin has experienced forty-five hard-forks. "[T]he greater the time depth that is attributed to the lineage system as a whole, the more elaborate is its internal segmentation" (1953, 31).

Similarly, as a head of a segmented lineage, the blockchain protocol does "not have legal sanctions by means of which to enforce [its] authority in internal affairs; but [it] holds his position by consent of all [its] members" (Fortes 1953, 32). The protocol stays "in power" only as long the miners, nodes, and users adopt it. In other words, there is always a potential conflict in off-chain governance over the on-chain governance.

The most notorious hard-fork occurred in 2017 when the Bitcoin blockchain split into Bitcoin and Bitcoin Cash. This fork was an outcome of a yearslong conflict between two camps of Bitcoin adopters, mainly over the block size in the Bitcoin blockchain. The main concern in this conflict was that with a limited block size of 1 MB, the Bitcoin network would not be able to scale with broader adoption. The block size limit determines how many transactions fit into each block, and since the pace of new blocks being added is strictly set to one block per ten minutes, it would also determine how many transactions could be confirmed per second. One camp (so-called *small-blockers*) wanted to stay the blocksize the same, arguing that if the block

size increases, the blockchain would become too big to be confirmed by small-scale nodes and miners. This would mean that only big corporations could access sufficient computational infrastructure to operate the network. The other camp (*large-blockers*) claimed that small blocks would put a cap on transactions, making the network too slow to be globally adopted as a payment network. The small blocks Bitcoin is capable of processing only eight transactions per second. Compared to Visa, which processes several thousand transactions per second, this indeed is painstakingly slow.

Interestingly both camps referred to Satoshi Nakamoto and his vision of Bitcoin. However, since Satoshi ceased communicating with all their followers in 2012, both camps were sentenced to interpret mere fragments of Satoshi's writings.

After several years of negotiations between various stakeholders, from developers to miners to investors, the blockchain split into two. The small-blockers kept the name Bitcoin, while the large-blockers adopted a new name, Bitcoin Cash.

According to Bitcoin investor Jonathan Bier, this conflict, known as *the Blocksize wars*, "went right to the core of *Bitcoin's DNA*" (2021, emphasis added). Bier thus also employs the kinship analogy to express the political significance of the conflict within the global Bitcoin community. The Bitcoin protocol is perceived as a genetic code carried on by the blocks in the blockchain, and a new protocol represents a new mutation, a new lineage. New identities start to form around these lineages: small-blockers, large-blockers, Bitcoin-maximalists, alt-coiners and so on.

Bitcoin maximalists are members of the community who believe that every new mutation is inferior to the original Bitcoin. "If the new altcoin has some good features, sooner or later, these features will be implemented to the Bitcoin core. And if they aren't, they were not good features after all," explained to me one of the Czech "Bitcoin maxis". Another member of the Czechoslovak community who is quite critical of Bitcoin maximalists described it as a form of

"tribalism". Later, switching the metaphor to sports, he said that "it is like everybody is rooting for their football team no matter what." The structure of rival on-chain lineages thus becomes also transferred into the conflict between off-chain identities and policies.

Separation of persons from relations

The off-chain identities of Bitcoin-maximalists, large-blockers, small-blockers or alt-coiners are not socially fixed and can be switched freely depending on personal experience or preference. The on-chain identities (of particular blocks), on the other hand, are set in the blockchain forever and can be changed only with a subsequent block which will nevertheless always carry the residue of these past identities in its hash. So even the large blocks of Bitcoin Cash (with all the other Bitcoin hard forks) are traceable back to the genesis block of the entire Bitcoin blockchain. Human individuality gets strictly separated from non-human sociality. In the words of Marilyn Strathern: "To have persons without relations […] would, then, find a counterpart in *relations without persons*" (Strathern 1997, 23). Blockchain, in its architecture, represents these personless relations. It is a tool to accomplish the highest stage of individualism in which social relations are fully delegated to digital technology.

These personless relations invite a new kind of sociality that sociologist Karin Knorr Cetina (1997) describes as post-social. Knorr Cetina argues that in such a form of sociality, "the modern untying of identities has been accompanied by the expansion of *object-centered* environments which *situate and stabilize selves, define individual identity just as much as communities or families used to do*" (1997, 1, emphasis added). She further argues that in a post-social arrangement, "[w]hen person-provided services are replaced by automated electronic services, no social structures at all need to be in place — only electronic information structures" (1997, 6).

The separation of individual persons from social relations is also visible in the techno-social imaginary in which Jonathan describes his ideal of future life. Jonathan, the 20-

something programmer who refused to test his DNA for privacy reasons, describes Bitcoin as a "teleport of value". In an interview, he speculates about "technologies that would be totally brutal in resisting the power of the state":

> Another technology is a teleportation device. Even if it would teleport you only to one place. Imagine that you cross the street on red, and a cop wants to write you a ticket, and you just push a button and disappear. Or it can also be used in the case of a robbery! […] In such a world, the state and its institutions would become pointless! […] But if it were a normal teleport that can transfer you wherever you want, then there is no reason why you should not get citizenship in Panama [with lack of regulation], and when you want to smoke a joint, you just jump to Amsterdam, and when you want to make some free-trade, you jump to Singapour. […] Teleportation would've been way more radical technology than Bitcoin. I believe if Satoshi Nakamoto developed Teleportation instead of Bitcoin, maybe we would have lived in anarchy already today. And after all, Bitcoin is basically functioning as a teleport of value.

Jonathan here speculates about indifference to society, a constant possibility of withdrawal from unpleasant social interactions, whether with individuals or institutions.

He also further elaborates on other disruptive technologies that would strengthen human independence:

> First is the perfect recycler; that is a machine into which you throw anything you want, and it separates the particular elements, for example, hydrogen, oxygen and so on. Even better would be a nuclear recycler that would separate mere protons and neutrons for better storage. This technology would be connected with a perfect 3D scanner, a scanner that would map all the atoms in an object. And the third technology is a perfect 3D printer that can take the elements from the recycler and print anything you want based on the data from the scanner. If this were to become a reality, all trade restrictions would be out of the picture. You could make guns, or drugs, all the things the states don't want us to have.

In this speculation, Jonathan proposes a society without minimal division of labour because all the subjects equipped with these technologies would be almost entirely independent units, capable of manufacturing almost anything in the world. With such technologies, the organic

solidarity and the subsequent division of labour would inevitably fall apart as members of society would not be depending on anyone to meet their needs.

The tendency to maintain a relatively low division of labour is what lineage societies and the Bitcoin community have in common. As Meyer Fortes puts it: "Where these groups [lineage societies] are most in evidence is in the middle range of relatively homogeneous, pre-capitalistic economies in which there is some degree of technological sophistication and value is attached to rights in durable property" (Fortes 1953, 24). The same can be said about the Bitcoin blockchain. In its design, it is a relatively simple and robust mechanism to distribute ownership rights without any significant ability to scale or to do anything else. As Antonopoulos claims, Bitcoin is a *dumb network*:

> It really is a dumb network. It is a dumb transaction-processing network. It's a dumb network for verifying a very simple scripting language. It doesn't offer a complete range of financial services and products. It doesn't have automation and incredible features built in. Bitcoin is simply a dumb network, and that is one of its strongest and most important features. (Antonopoulos 2015)

Bitcoin's simplicity is here celebrated as its biggest strength. Any attempts to scale up or add new functionalities are usually met with criticism – either from the Bitcoin maximalists or from others – that the new feature would endanger the decentralized character of the system.

Conclusion

The analogy between Bitcoin and kinship unfolds in multiple ways. The blockchain as DNA, Bitcoin as primitive money, and the unilineal descent of blocks and their Merkle trees all reveal Bitcoin as a technology that aims to separate persons from their social relations and delegate these relations onto objects.

The separation is not new; it has been at the heart of modernity all along. In fact, Georg Simmel saw such separation as one of the leading social innovations of modern money. The traditional "interdependence of personality and material relationships, […] is dissolved by the

money economy [because] it interposes the perfectly objective and inherently qualityless presence of money and monetary value between the person and the particular object […] *both as a connecting and a separating factor*" (Simmel 1991, 17-18, emphasis added).

Marx also addressed this modern separation and called it *commodity fetishism*: "a definite social relation between men, that assumes, in their eyes, the fantastic form of a relation between things" (2010, 83). However, in the case of Bitcoin, the relation among things does not assume a *fantastic* relation but objective relation. While commodity fetishism was a reification of social relations so they would appear to have agency on their own (Lukacs 1971, 86-87), blockchain offers an objectification of these personless relations. The commodity form as an organisational principle of society thus gains its material extension in the blockchain.

According to Nigel Dodd, Bitcoin creates "a system that simply replaces human agency, and therefore human autonomy, with machine code [and thus resembles] robot money circulating in robot society" (2018, 44-45). Dodd nevertheless does not specify what kind of robot society. Coming back to Jonathan, we can see that he implicitly acknowledges the relations among persons; however, he refuses to manifest them since he perceives them as a private matter. On the other hand, relations without persons do not collide with his ideals of privacy; thus, he promotes them vividly. Consequentially his ideal "society" is a society of complete independence, where there is no need for any division of labour since everybody can produce their means of subsistence and other goods for consumption within their private sphere.

All the analogies of Bitcoin and kinship also follow the analogical return. Thus, blockchain has become a new way to understand DNA and model artificial life. Primitive stateless societies are turned into projections of modern society and its rationality which gains a new standing ground in Bitcoin and its functioning. The capitalist rationality thus becomes naturalized because it functions outside as well as – or maybe even better than – within the

state. Societal structures with low division of labour are no longer seen as unsophisticated and prescribing but have become the ideal of individual liberty.

Bitcoin, therefore, does not merely reinforce the modern imaginary of persons separated from their relations, but it also enforces the imaginary of persons and relations being separable, existing entirely outside each other.

Intermezzo: *Layers upon layers*

The Bitcoin community consists of very intriguing groups of people. The way they present themselves oscillates on a scale. On one end is the stereotypical hacker in the black hoodie as seen on various tv shows, and on the other is a start-up entrepreneur in an orange polo shirt. Most of the people are somewhere in-between.

Many of the people who meet in the Bitcoin cafés regularly work as freelancers, and thus it is pretty common to see them sitting in the café with a laptop and working remotely. They engage in conversation with each other or with the staff and volunteers on numerous topics, making fun of the current political representation, discussing the current Bitcoin price movement or some new technological implementation. Sometimes jokes are told and widely shared in smaller or bigger eruptions of laughter – usually, the jokes currently trending on various internet forums such as Reddit or 4chan (see Coleman 2014). Thus, the café serves as a meeting place, a public area where ideas and arguments are exchanged, new technologies are discussed, and collaborations are launched.

When I asked the founder of one of the cafés what their mission was, he told me they originally wanted to be primarily confrontational. By using only Bitcoin and prohibiting any other currency on the premises, they wanted to provoke the state authorities and question their legitimacy. He thought that the whole project would be temporary and that the state authorities would shut them down for not cooperating with the mandatory regulatory policies such as EET (electronic registration of sales). But, to his own surprise, the state did not care. The people from the ministry of finance came and were shocked, but then they never came again. And thus, this café became a long-term project, which brought new problems with it – the objectives of planning differ when one initially expects to be shut down the next month, and suddenly they have to make a long-term sustainable plan.

The mission thus shifted from confrontation to education. The goal became to allow people to gain experience with cryptocurrencies in a safe environment. In 2017 when the Bitcoin price was rising, almost two hundred people visited the meet-ups introducing Bitcoin to the general public. When the craze dropped a bit, ten people were coming. After a while, I started recognizing faces; most visitors were regulars. They used to come around and hang around weekly. In this particular café, the bar was an enormous rectangle in the middle of the room. Therefore, nobody could be perceived as being "behind the bar". Everybody was around the bar; customers, staff, and volunteers; all the people were moving around, getting what they wanted and paying by the terminal placed in one of the corners of the rectangle. For newcomers, it was a confusing setup, but for regulars very comfortable.

The situation was different when a big event was held at the café. Especially at global events such as the Hackers Congress in Prague, one could see an international crowd of people in black hoodies, covering their faces in various ways, ranging from simple surgical face masks to the notorious Guy Fawkes mask designed by Allan Moore in his *V for Vendetta* comic book and later adopted by Anonymous. Most speakers at the congress were usually crypto-anarchists, using cryptography to secure their privacy online and anarchocapitalists, promoting free markets as the best organizational principles. Therefore there was not much of a discussion at these events; people were rather mutually patting their backs in joyful confirmation of their worldviews.

When I told one of the visitors that I am a sociologist, he asked me: "And are you also indoctrinated by Marxism?" I laughed and answered that I had read some Marx, but I do not feel indoctrinated. And that in school, I had been taught more Foucault than Marx. "Ew! Ew! Ew! Foucault, he was a terrible neo-Marxist!" he answered with a grimace of disgust. At that moment, I realized that his only knowledge about Marx or Foucault was most probably from Jordan B. Peterson and other self-proclaimed fighters again "cultural neo-Marxism". I tried to

explain to him that Foucault was, first of all, no Marxist and that he was also critical of state surveillance and other governing practices, just as many of the congress's visitors and speakers. However, my interlocutor did not seem much interested in further discussion.

It was not the first nor the last time I experienced such a categorical refusal to acknowledge social theory. Many of my interlocutors often expressed disagreement with sociological or anthropological theories based on anecdotal knowledge. Only after a couple of beers was I sometimes able to convince them to consider social theory worthy of further examination. But usually, they got by with the economizing theories of rational choice. These theories were gaining almost a cosmological dimension; everything followed a simple formula of self-interest and self-preservation.

Hence I was quite surprised when in 2021, the founder of the café invited me to record a series of video essays about Bitcoin from my perspective. He even made a logo for me combining the soviet hammer and sickle with Bitcoin. Apparently, he grew a bit tired of the anarchocapitalist monologue, and since the state was not paying attention, he found a new crowd to antagonize. He wanted to antagonize the part of the Bitcoin community he originally helped to create but was now displeased with because of its ideological orthodoxy.

I was thus approached to create content that would dilute the anarchocapitalist narrative and introduce Bitcoin from another ideological and analytical standpoint. When the series ended, I think he was a bit disappointed because it once again did not spark the discussion he was hoping for.

It seems that, at least for the time being, the strong connection between Bitcoin and anarcho-capitalism has been solidified. The imaginaries of Bitcoin as a communication network, which were more open to other ideological interpretations, were moved to other cryptocurrencies such as Ethereum. It has proven almost impossible to pierce this bubble. The layers of cultural meanings and practices associated with Bitcoin turned it into an avatar of

right-wing libertarianism. Even though libertarians have been around more than a hundred years longer than Bitcoin, it seems that in Bitcoin, they have found the ideal use-case for their ideology. The hard money, that cannot be printed out by any central government and thus also cannot be used as subsidies in the form of social welfare. The market should work perfectly left to its own devices and Bitcoin serves as a perfect proof of this self-evident truth.

3. Ideology: *Immaterial production of Bitcoin culture*

> *The state is therefore by no means a power imposed on society from without […] Rather, it is a product of society at a particular stage of development; it is the admission that this society has involved itself in insoluble self-contradiction and is cleft into irreconcilable antagonisms which it is powerless to exorcise. […] a power, apparently standing above society, has become necessary to moderate the conflict and keep it within the bounds of "order"; and this power, arisen out of society, but placing itself above it and increasingly alienating itself from it, is the state.*
>
> (Friedrich Engels: *The Origin of the Family, Private Property and the State*)

In the winter of 2018, I travelled by train from Pilsen to Prague when I met Petr in the coupé. When the conductor came in, Jaroslav wanted to buy a train ticket, but he had only a large bill, and the conductor did not have the right amount of change to give back. Jaroslav was missing a few pennies to pay the ticket with coins, so I volunteered to provide the missing change. In his gratitude, Jaroslav engaged a conversation on various topics ranging from popular music to finance. Once he learned that I study cryptocurrencies, he enthusiastically explained that he also verges into the crypto business: "nothin much theoretical, we are rather trying to help people save a little here and there, so they'll have some money for the retirement." He invited me to a meeting in Pilsen, where all the projects will be explained. Back then, I did not expect any foul play, so I agreed, and in two weeks, we met in a hotel lobby.

What followed can be described only as a series of shocks and surprises. First, I was surprised by the turnout. There must have been at least one hundred people, which was quite big, especially since Bitcoin started falling earlier that year and Pilsen is a much smaller city than Prague. Another thing that surprised me was the entrance fee of 500 Czech crowns (around 20 euros). Usually, the meetups in Prague were free or with a voluntary entrance fee. After buying the ticket, I found Jaroslav, who seemed worse than the first time. He was wearing a cervical collar around his neck, walking with crutches, while his face was painted blue with bruises. When I asked what happened, he smirked, "eh, it's nothing. At this point, I would

survive everything, even AIDS," and laughed. We never had a chance to get back to this. People started taking seats in a big conference hall, and little did I know that I was going to experience a display of multilevel marketing projects.

At the very beginning came an enthusiastic older male asking people if they wanted to be financially independent? Only then I learned that the whole happening was called "financial independence". Then followed a series of critical claims about the current socio-economic system, such as "for your employer, you are merely waged labour power" or "Don't love your job, it'll never love you back either." Then the speaker explained that the Czech people were very thrifty, one of the thriftiest nations in Europe. "But we, the Czech people, lack one crucial thing! We lack *financial literacy*." He then continued: "and I am here to teach you the financial literacy, to provide you with the opportunity to have passive income and experience financial liberty! So you do not have to be in the rat race anymore!"

This was followed by a series of speakers introducing various cryptocurrency-related projects. Some projects allowed investors to invest in mining operations; some others introduced their own cryptocurrencies. All of them were described very vaguely and promised questionably high returns. The PowerPoint presentations were full of graphs showing the rise of the Bitcoin price in 2017 while omitting its fall in early 2018; pictures of luxury goods such as sports cars, motorbikes, or jet skis prescribed aspirational goals. All the projects also promised a referral bonus for bringing more people in and the wholesale revenue stream from the line of recruited members, which is typical for many pyramid schemes.

The time between each presentation was filled with the main speaker who made the introductory talk. He asked individuals in the audience guiding questions, encouraging them to invest. "Do you agree that cryptocurrencies are a good investment? We showed you the data. Do you think this project has potential? It will be the next Bitcoin. Do you think it is good to make money? So why don't you invest?"

With each round of questions, I was growing more anxious that I would be the next victim of this interrogation. Luckily the speaker never picked me. However, sometimes he asked the whole audience about making money, and to my discomfort, the whole audience enthusiastically nodded and positively responded to every set of questions. People were more and more excited as he promised ridiculously high "guaranteed returns" on their investment. However, every time it seemed that the speaker would explain how cryptocurrencies work, the technology or the design, he just stressed the user-friendly digital environment. In other words, whenever he promised to talk about the specifics of Bitcoin, he just showed people how easy it is to send money via the interface.

I left during the lunch break. Jaroslav wanted me to sign up for some free benefits program, which would probably get him some kind of bonus via the referral system, but I did not do it, and I never contacted him again. I must admit that after this experience, I was quite shaken. The persistent pressure of the main speaker, the fact that I did not expect such a gathering, and Jaroslav's apparent aim to recruit me all stunned me. It also made me question how was it possible that I came to this only after two years of research? I knew these scams existed in crypto-space, but I had never experienced one before. Only when I asked around, did I find out that the communities I did my research in were securing their boundaries to keep similar schemes out.

Although, pyramid schemes were not the only thing held at arm's length. The spaces were also symbolically purified from the presence of the State. This was done on multiple levels, ranging from avoidance of payments in fiat currencies on the premises to using urinal cakes looking like the symbol of the Euro. When asked about the urinal cakes, one of the members chuckled and told me that they had it installed when a member of the ministry of finance was coming to visit. They "wanted to show him, how they felt about the curcualting fiat currency in Slovakia".

Excluding the state

In June 2018, one of the Czech Bitcoin-friendly spaces hosted a DIY crypto-bazaar. The general idea was to provide visitors with the authentic experience of using Bitcoin in economic, material (non-virtual) transactions. The document distributed among the event's organizers read: "the marketplace symbolizes […] an organic exchange (of goods and money, but also opinions, ideas, experiences and technological procedures). A marketplace is a natural foundation-space of community […]." However, despite perceiving the market exchange as a naturally self-organizing process, the concrete non-public instructions for the organizers further reminded to maintain "a gentle control, so people do not hustle in fiat [currencies]."

These somewhat inconsistent instructions expose the contradictory nature of free-market capitalism, which, on one side, promotes the unchecked flows of goods and services, but on the other, it depends on quite strict institutional framing. "One sometimes has the impression that the flows of capital would willingly dispatch themselves to the moon if the capitalist State were not there to bring them back to earth" (Deleuze and Guattari 1977, 258). The flow of individual economic self-interests needs some institutional rails to keep its course; otherwise, the whole order constantly threatens to dissolve itself.

The omission of infrastructural setting within capitalism stems from the myth of "the individual producer" imagined as "the elementary subject of production" (Althusser 2005, 196). However, "this economic' cogito' only appeared […], in developed capitalist society" (Ibid); thus, the idea of *free exchange* and *property* as simple and basic categories is mistaken:

> [S]implicity is not original; on the contrary, it is the structured whole which gives its meaning to the simple category, or which may produce the economic existence of certain simple categories as the result of a long process and under exceptional conditions […]. [T]he simple only ever exists within a complex structure; the universal existence of a simple category is never original, it only appears as the end-result of a long historical process, as the product of a highly differentiated social

> structure; so, where reality is concerned, we are never dealing with the pure existence of simplicity, be it essence or category, but with the existence of 'concretes' of complex and structured beings and processes. (2005, 196-197)

Therefore, although settings such as the marketplace appear natural and straightforward, they have to be underwritten by a more or less complex mechanism of control and justification. Usually, in modern societies these mechanisms are provided by the State and its control- and ideological apparatuses. However, the Bitcoin community is highly critical of the State and therefore needs some other inner limit to the expansive and anarchic nature of capital, which would help maintain the illusion of simplicity. This limit is sought on multiple fronts, both positive and negative: on the strict exclusion of the State, thus maintaining the border between Market and State; on the positive establishment of human nature as a profit-seeking subjectivity; and the question of care and maintenance. This chapter elaborates and analyses these three strategies through the prism of immaterial labour as it was proposed by the (post-)autonomist movement of Italian scholars.

Immaterial labour

Labour spent on the "material" production of Bitcoin is already described in the chapter on mining. However, in (late) capitalism, material production is also accompanied by the semiotic production that introduces the commodity to users. This is what Maurizio Lazzarrato (1996, 133) calls *immaterial labour*: "the labor that produces the informational and *cultural* content of the commodity […] the kinds of activities involved in defining and fixing cultural and artistic standards, fashions, tastes, consumer norms, and, more strategically, public opinion." The immaterial labour is what produces Bitcoin as a libertarian phenomenon. Without the stories, myths, and interpretations, Bitcoin would be "merely" a distributed database. To make Bitcoin a "libertarian technology" vast amounts of work has to be spent on differentiation, education

and maintenance. In other words, together with the technology, there is also specific culture to be produced.

Immaterial labour develops from the *general intellect* of users. According to Paolo Virno (1996; 2004), general intellect is the common intellectual activity and shared social knowledge of people in the productive process. The importance of the general intellect increases with the informatization of production when the whole "society becomes a factory" (Hardt & Negri 2001, 284). "There converge in the productive power of the general intellect artificial languages, theorems of formal logic, theories of information and systems, epistemological paradigms, certain segments of the metaphysical tradition, 'linguistic games', and images of the world. In contemporary labor processes, there are entire conceptual constellations that function by themselves as productive 'machines', without ever having to adopt either a mechanical body or an electronic brain" (Virno 1996a, 22). General intellect is thus understood as "a *real abstraction*, equipped with a material operability" (1996a, 23, emphasis in original).

The general intellect within the Bitcoin community is reproduced and put to work through various books, articles, youtube videos and public lectures. During my research, I volunteered in spaces that were considered "the holly ground of Bitcoin" in the Czech Republic and Slovakia, and thus these spaces served to valorize and distribute the general intellect generated within the community. The immaterial labour put into the production of general intellect was seen as an emancipatory activity of "decreasing the power differential by education". As one of the community members put it: "if we don't educate our peers, if we don't decrease the knowledge differential, then we are exploiting them".

The general intellect informs the appropriate uses of Bitcoin, its meaning, and the community's future developments. Given the dynamic nature of the phenomenon, it also shifts and changes with the developments of the whole cryptocurrency scene. Thus, general intellect is historically produced knowledge of the community, which plays a crucial role in the

valorization of Bitcoin. Bitcoin can be turned into a valuable asset only as long as the general community of users understands it as such. In order to achieve a certain level of understanding, the immaterial labour must be carried out so the new adopters see value in the technological design of Bitcoin.

Negative freedom

The immaterial labour is already ideologically informed, similarly to the cryptocurrency design, by the libertarian economics and critique of the centralized State. However, the critique goes also against the neoliberal order of credit-driven money and the consumer society. According to my interlocutors, the State – by emitting fiat money via central- and private-bank credit – creates a *Cantillon effect*. The Cantillon effect describes a process of increasing inflation when the actors, who get to newly issued money first, use it at a higher level of purchasing power than actors who get the money later in the exchange chain. In the eyes of the Bitcoin community, the actors profiting from the Cantillon effect are usually companies working for the government.

The Cantillon effect is why many community members speak about inflation as *theft*. In their view, the State increases the money supply and thus decreases the value of money. However, the companies that get the money first directly from the State still use it prior to the effect of inflation and thus at a higher exchange value. Issuing new money is thus seen as stealing value from the private savings of citizens. According to Mark, one member of the community, this phenomenon is what supports consumer culture:

> This incentivizes you to short term thinking, which means that you have to destroy capital and not have it [the capital] built up in the future. […] We are no longer prepared for future problems. […] This also means we no longer take good care of scarce resources. […] We use too much, so we invest too much, and we consume too much. And this overconsumption and this malinvestment is a very, very dangerous combination because we produce a lot of shit that nobody needs, and we

> consume way too much of the shit that actually nobody needs. This just means that you burn capital, burn everything to the ground as fast as possible. (Interview, March 2019)

When I asked Mark if this acceleration of consumption and production is not a necessary condition of capitalism, he replied:

> Well, that is what planned obsolescence is for, right? That the entrepreneurs make their products weak, so they break sooner. I think this is not a phenomenon of capitalism in general but especially of the excessive money supply. If you have a weak money supply, you lose in savings. So, these entrepreneurs all of a sudden see their savings to windle, and they see a decrease in their capital stock. And this means they need to add to the cash flow because no one has capital. And if you don't have savings, you need to get a recurrent income in order to cover your expenses. In an inflationary environment, the cash flow is better than capital because you can do what they did in Weimar Germany, meaning you can adjust your prices to the devaluation of the fiat currency. And that is the problem here. It's not the problem of savings; it is the opposite, only when you take away the capability of saving; then this leads to the problem when the entrepreneurs built shit. It's malinvestment. (Ibid.)

Mark thus sees the problem of the accelerating overconsuming capitalism in its weak and flexible money supply. Bitcoin is then interpreted as a response to this weakness of fiat currencies. For its deflationary design, Bitcoin is resistant to the Cantillon effect because no actor can emit new units into circulation at will.

The critique of the State as the cause of the Cantillon effect also translates into the praxis of the community members. Many of them refuse to work for the State, and even though they often work as self-employed entrepreneurs, they refuse to accept state contracts.

The Bitcoin economy then represents a space for *an exodus* consisting of "*an engaged withdrawal*" (Virno 1996b, 197, emphasis in original). In the case of Bitcoin, it is an active exit from the sphere of the State into the sphere of the market. According to Virno, such exodus "is not a negative gesture, exempt from action and responsibility. On the contrary, because defection modifies the conditions within which conflict takes place, rather than submit to them,

it demands a particularly high level of initiative – it demands an affirmative 'doing'" (1996a, 33).

The Bitcoin communities I visited developed various strategies how to purify themselves from the state. When I started visiting the Bitcoin-friendly spaces, what struck me was the amount of energy put into this purification.

This aim to be free from any state influences, among other things, results in the complete exclusion of fiat money from the premises. Any goods or services a visitor wants to buy must be obtained using cryptocurrencies. The only things that can be bought for fiat money are cryptocurrencies themselves in specialized ATMs (the user engagements with the ATMs are described in the next chapter). This fiat-free policy goes so far that even when some other party rents the venue aiming to organize its own event and wants to collect an entrance fee, the community asks the other party to collect the entrance fee either in cryptocurrencies or in fiat but in that case to collect it in advance and somewhere else. The goal is that no exchange in fiat currencies occurs at the premises.

Simultaneously, all the other parties renting the venue are run through a background check to secure that the venue is not rented with money from State, European, or other similar institutional funding. The general aim is not to contaminate the space with state-related capital.

This Bitcoin-only policy serves two purposes: 1st as enforcing the pragmatico-political statement, creating the state-independent structure for action; 2nd as a pedagogical tool, encouraging non-users to adopt Bitcoin, or at least to gain some first-hand experience.

When volunteering in the Bitcoin community, I got partial access to the daily backstage operations. I did some of the background checks on the other parties renting the venue, helping with some manual repairs and installations and also provided basic support for the other parties renting the venue (instructing how to operate the Bitcoin ATMs; help with paying for drinks with the digital payment terminals; cleaning the venue afterwards etc.).

One day in May 2018, I was also volunteering, and I came in quite late, around 5 p.m. Therefore, the visitors had already exchanged fiat for Bitcoin in the ATM. Some of them were using e-wallets in their mobile phones, some of them were using paper wallets issued by the coffee place. The paper wallets are small paper cards with a QR code on both sides; the QR code on the front is the wallet's public address for receiving Bitcoin, and the code on the backside is a private key for spending Bitcoin. If a visitor wants to buy Bitcoins in the ATM, she scans the front side with the public address, and if she wants to spend the Bitcoins, she scans the backside with the private key at the payment terminal.

During the coffee breaks, the visitors used to go to the café and buy drinks. The café is basically a self-service; I was merely sitting down there to be ready-to-hand if someone needed assistance with paying. There started to be some problems with the online terminal at a certain point, and the customers could not pay for a while. With my lack of knowledge of how to solve the problem, I was just trying some general "techno-magic" to fix the terminal, but after all, I think that the only thing that helped was patience; after a while, it started working again.

Unfortunately, one of the visitors was still unable to pay for his drinks; no matter how long we waited, the money from the paper wallet would not be transferred. I apologized several times for such inconvenience, yet he was upset that he "uploaded quite some money" onto the paper wallet and wanted them back. I proposed that he could download a mobile wallet and transfer the Bitcoins from the paper wallet into the mobile one and then spend them somewhere else or some other time. He refused, implying that he did not plan to return to the place and that he could not imagine where else Bitcoins could be spent. I offered to buy his paper wallet from him for fiat money. I ran across the street to the nearby fiat ATM, and then I gave him 300 CZK (circa 12€), which was approximately the amount in Bitcoin he had in the paper wallet. For me, this was not a big problem; I sent the Bitcoins from the paper wallet into my mobile wallet without any considerable trouble.

This example shows that using cryptocurrencies in some spaces is sometimes counterproductive. The technical difficulties threaten to discourage potential customers from spending money. However, this exclusion of the State is essential for the self-presentation of the space as an oasis of liberty. The liberty expressed in using Bitcoin and visiting Bitcoin-only space can be described as *negative liberty* (see Berlin 2017), the liberty *from* State. One of the spaces also uses the slogan "Enter the outside" (Vejdi ven), symbolizing that this space is outside the State's sphere of control.

However, the attempted exodus from the state organization fails because the only way how to preserve itself, the community is destined to reproduce similar techniques of control. As was seen in the example of crypto-bazaar, when the members had to keep an eye on the customers or the example of the broken wallet, the active withdrawal hit a limit in the convenience of already existing fiat payments. To suppress this convenience, the community has to adopt similarly exclusionary techniques as the state does when it enforces fiat money as a legal tender.

Nevertheless, the purification strategies are expressed not only on the spatial level but also on the level of the individual body. Some of the Bitcoin community members use RFID implants to store their keys, thus serving as wallets. According to Bitcoin advocate Martin Wismeijer, everybody thusly equipped can be considered an *offshore* for herself.[23] On one occasion, my informants talked about a person who assembled their private keys in a DNA code with CRISPR-kit and injected it into their leg. This specific example was presented with a certain sense of irony and perceived rather as a joke; nevertheless, it shows the imaginary of incorporating Bitcoin into the body in practice.

Another future-inspired use of Bitcoin-in-the-body was introduced at the Hackers Congress, where one of the participants was developing a theory about how memorizing private

[23] https://www.youtube.com/watch?v=8sQV3rT6pLU (retrieved 26.11.2018)

keys to Bitcoin funds could serve as an incentive to wake up people from cryogenic sleep. The problem with having one's body frozen – according to this participant – is that people in the future would have no reason for unfreezing the cryogenic sleepers. However, if the cryogenic sleeper had access to information of value, they would be willing to spend time and resources on unfreezing that person. This valuable information could be the private key to a crypto wallet. In this regard, Bitcoin not only merges with the corporeal body, but it also merges with the *living conscious body*.

On a more serious note, my informants repeatedly stressed the possibility of crossing the state borders "basically naked" and then recollecting their Bitcoins via their private keys they either remembered or had inscribed into their flesh. The advantage of this feature was justified mainly by reminding the Czechoslovak history of ruthless collectivization during the socialist era: "If the people in Czechoslovakia had had this technology in 1968 [when the Soviet occupation started], it would have been way easier to flee the country without having to sacrifice their personal property."

The absorption of money into a human body is only symbolic. The Bitcoin owners do not "inject" their bodies with actual Bitcoins (that would not be possible) but with the private keys to their wallets. However, since most of the community follows a simple security protocol, "Not your keys? Not your Bitcoin!" the private keys and the digital coins become interchangeable in the community's understanding of ownership.

The overlapping of the body and the community boundaries resonates with the classical work of Mary Douglas:

> For symbols of society, any human experience of structures, margins or boundaries is ready to hand. […] The body is a model which can stand for any bounded system. Its boundaries can represent any boundaries which are threatened or precarious. The body is a complex structure. The functions of its different parts and their relation afford a source of symbols for other complex structures. (2002, 141-142)

The confined space of the human body in the case of (not only) the Bitcoin community becomes a symbol of individuality. The capability to enclose money within these boundaries becomes an expression of personal self-sovereignty.

Andreas Antonopoulos also addresses the topic of money and sovereignty:

> For millennia, until the year 2008, sovereignty defined currency. Sovereignty was the basis upon which currency could be created, and that currency allowed that sovereignty to be expressed. The monopolistic control of currency is the basis of sovereignty. Now, the internet has a currency. The internet is going to use that currency to create sovereignty.
>
> After 2008, currency creates sovereignty. The internet has its own currency, which means that the internet has purchasing power. Which means the internet has economic freedom. Which means the internet can exert that economic freedom in a post-nationalist way, in a way that ignores borders and makes the nation-state not obsolete, but simply less relevant. When an Egyptian blogger can not only blog about the revolution but also fund that revolution in Bitcoin, and they can connect with people from all around the world who share their ideas for self-determination and freedom, they are expressing their own sovereignty as an individual, and they are expressing the sovereignty of their community through the use of that currency. (Antonopoulos 2014b)

The modern idea of sovereignty was articulated in the existence of the People, the unified power to which the sovereign gave expression. However, the new idea of individual sovereignty of the internet is better understood through the idea of the *multitude* (Virno 2004, 43). Virno describes that the multitude

> which is the polar opposite of the people, takes on the slightly ghostly and mortifying features of the so-called *private.* […] "Private" signifies not only something personal, not only something which concerns the inner life of this person or that; private signifies, above all, deprived of: deprived of a voice, deprived of a public presence. In liberal thought, the multitude survives as a private dimension. The many are aphasic and far removed from the sphere of common affairs. (2004, 23-24)

Thus, the modern State serves as the "absolute"; an expression of transcendent unifying power, objectified in the sovereign agent. The Bitcoin community aims to escape the public sphere of the State into the private realm of personal freedom. The rejection of the absolute is expressed by Pavol Lupták, a member of the community, in his short essay/meditation "A life without the absolute" (Život bez absolútna)[24]:

> Faith in God, in the State, in traditional values, in a partner who will be here for me forever. The Absolutes. Foundations of our lives. Institutionalized blocks of the absolute. As synthesized derivatives of our culture. Otherwise, we would go insane.
>
> The dissolution of the Ego by strong disassociations, meditation, awakening "here and now" all weaken the absolute. Eventually, they eradicate the absolute completely.
>
> To be tossed around into the vacuum. Swimming in the universe. Without the anchor of the absolute. The loss is suffocating. And liberating.
>
> Just free-floating in space. With the possibilities that liberty brings.

Lupták here expresses the desire to escape the unifying sphere of the absolute and enter the liberated space of the multitude. As Hardt and Negi put it:

> Whereas being-against in modernity often meant a direct and/or dialectical opposition of forces, in postmodernity being-against might well be most effective in an oblique or diagonal stance. Battles […] might be won through subtraction and defection. This desertion does not have a place; it is the evacuation of the places of power. (2000, 212)

The Bitcoin withdrawal from the state thus replicates the post-anarchist sentiment of "indifference to power" (Newman 2017). However, the problems ascribed to the negative externalities of Bitcoin described in the first chapter on its production (i.e. the centralization of mining, environmental exploitation, class conflict etc.) show that this indifference was somewhat illusory. As Paolo Virno (2004, 40-41) explains, even though the general intellect is

[24] https://wilderko.medium.com/%C5%BEivot-bez-absol%C3%BAtna-c3101d586b45 (retrieved 21.1.2022).

public, when left unchecked to the privatization by the multitude, it leads to the proliferation of hierarchies and oppressive forms.

> [I]f the publicness of the intellect does not yield to the realm of a public sphere, of a political space in which the many can tend to common affairs, then it produces terrifying effects. […] The general intellect, or public intellect, if it does not become a republic, a public sphere, a political community, drastically increases forms of submission. […] The publicness of the intellect, when it does not take place in a public sphere, translates into an unchecked proliferation of hierarchies as groundless as they are thriving. (2004, 40-41)

In other words, the escape from the State as a transcendent power does not secure freedom. Even though the community members would not explicitly admit this, they also need a positive limit to the deteriorating tendencies of the multitude. This limit is found in the sphere of the *real*, namely in nature. However, even this natural order has to be carefully constructed and protected.

Positive laws of nature

Without the transcendent power of the State, which would put down the expanding tendencies of capital, there emerges a particular vacuum. The community aims to fill this vacuum with specific construction of human nature – the *homo economicus*. As was already mentioned in the chapter on mining, the assumption of profit-maximizing subjectivity is directly inscribed into the technological design of Bitcoin.

The idea of profit-maximizing individuals is perceived as ahistorical human nature, and the free Market is its ultimate expression. There is a sense of enchantment with the principle, where some of my interlocutors perceive it as beautiful: “Free Market is when I have something, and you want it. We exchange it. And, consequentially, the whole world gets richer by this exchange” (Braňo). “The most beautiful thing about the market is that you do not need to control it. It regulates itself” (Jozef).

The self-regulating order of the Market is contrasted with the imposed order of the State. A slogan for the 2018 Hackers Congress in Prague expressed the assumption that the *new order* coming with cryptocurrencies was going to be natural and self-motivated:

> The massive adoption of free crypto markets will not be the result of people's need for freedom or privacy. It will be the result of their natural individual preferences. Collectivism is new slavery. Crypto-anarchists are new abolitionists. Crypto technologies are new arms. The natural order is the new order.[25]

The State is perceived as a "mere construction", artificially brought up and reproduced by habit. Petr, one of my interlocutors, describes the State as follows:

> The State does not exist. The State is a hoax; it is a construct. What is it? The buildings? The people? It is something abstract. Basically, the State is just a legitimized mafia. Only because we are born into this system, we perceive its existence as something self-evident. I'm not saying the State is literally the mafia, but it functions on a very similar principle: it takes ransom from you and provides certain services for this ransom, but you are trapped within this system. […] I don't like the idea that the State is the best ultimate system that we need to have for society to work. I see it as a liminal stage on our way from feudalism, through democracy, to some better liberty. […] I see the State as a part of the social evolution. People have to learn responsibility because some of the things the State does are unavoidable, so people have to replace them with the Market if we want to exist without the State.

When I confronted Petr with the argument that even the Market is a "mere construction", he put a decisive stop to this increasing relativization of concepts:

> Although I've used it previously, I don't like the word "construct". Especially when some anthropologists claim that "everything is a construct" because then you lose the solid ground to stand on.

Petr, on one side, relativizes the State, claiming it is an oppressive structure limiting the economic freedom of its subjects; however, he has to find another firm ground on which the

[25] https://neworder.hcpp.cz/ (Retrieved: 21.4.2021)

institution of the market can stand. Petr put this foundation into the market itself, declaring it a *natural entity*:

> The Market is natural. I think Hayek wrote about this (or maybe it was Smith), that capitalism or the market is not something that we have made up. It is something we have discovered because we were lucky. And it is something that simply naturally works. If you look at the societies that function according to this principle, you see that these societies are the most effective with the fastest growth. […] It is the idea of the spontaneous order. […] Hayek claims that intelligence embodied into a system is always better than any individual intelligence. Hence the order that the society develops unconsciously is better than any other consciously constructed system. The central planning would be the construct, whereas the Market is a decentralized naturally emerging order.

In Petr's account, the State is a historical entity – a part of social "evolution" – whereas the market is outside of history – an immutable force of nature. The market represents a principle from which there is no escape. Bitcoin thus serves as a tool of an exodus from the State into the natural state of the market.

Furthermore, the natural order shall also be responsible for the expected unification of the dispersed cryptocurrencies under one name – ideally Bitcoin. Many of my interlocutors were the aforementioned Bitcoin maximalists, meaning that they do not support other cryptocurrencies but Bitcoin. The proclaimed Bitcoin's superior position is usually supported by its age (the oldest cryptocurrency) and robustness (the highest market share). At one of the lectures, the lecturer Daniel Steigerwald even claimed that "the universe wants only one money" (fieldnotes 10.4.2018). Steigerwald's claim aims to establish universal money as an outcome of "a natural evolutionary process." This is quite a common claim among the Bitcoin maximalists; they often say that either the features of other cryptocurrencies are desirable and thus will inevitably be adopted by the Bitcoin algorithm, or these features are not desirable and thus useless. The general idea is that all the cryptocurrencies develop through this "natural selection"; however, in the maximalists' view, the final outcome is always known to be Bitcoin.

Nevertheless, the creed in this technological evolution as a self-regulating process was severely shaken in the wake of the 2017 ICO bubble. As a result, the maximalist became more vocal and militant than before. Their certainty was replaced by the need for maintenance of their own narrative.

Care and maintenance

Until 2017, a significant part of the Bitcoin community was confident in their ideas of inevitable progress. However, since then, the Bitcoin proponents have started to doubt themselves, as some things did not go as well as predicted, and others simply took a different path. In 2016, to great applause, several respected members of the community described Bitcoin and cryptocurrencies in general as a *tsunami*, i.e. an unstoppable power of nature that would inevitably sweep away the mainstream economic order and establish a new world based on voluntarism and unregulated market competition. Nevertheless, two years later, the community started to worry that some of their ideas and technologies might fall into the wrong hands. Although the community expresses that the market is a natural entity and Bitcoin is thus the best technology because it allows harnessing the natural power of the market, in practice, they also come up to a limit. This limit became particularly visible in 2017 when Bitcoin significantly rose in value, and numerous new altcoins started emerging.

These altcoins were used in the so-called Initial Coin Offerings (ICOs); ICOs served to invest into new enterprises by buying digital coins, similarly as Initial public offerings (IPOs) do with stocks. However, unlike IPOs, the ICOs are not regulated by the stock exchange. Given the lack of regulation and the growing popularity of Bitcoin and other cryptocurrencies, the ICO market exploded in 2017, resulting in the emergence of thousands of new coins. Nevertheless, most of these coins did not serve any other purpose than to attract investors experiencing so-called FOMO (fear of missing out) in the middle of the cryptocurrency fever.

At a certain point, the Bitcoin community started referring to these new coins as “shitcoins”, expressing their perceived inferiority.

At the 2018 Hackers congress Amin Raffie, one of the regular speakers, insisted during his talk that the Bitocin community had to fight the “get-rich-fast” expectations and focus on the advancements in communication and (although very broadly defined) freedom that cryptocurrencies enable. He proposed that the community should be more vocal against people who see cryptocurrencies simply as a way to make a quick fortune and that it should also educate others about the liberating qualities of the crypto market beyond the mere ideas of financial speculation. Here, the excitement of exploration was replaced by the ethics of care and maintenance.

The ethics of care was present even in the purification practices mentioned earlier. The State was not the only entity excluded from the space. During my voluntary work, I was assigned to run background checks on people and companies who would like to rent the space commercially. Because this space was perceived as a “holy ground of Bitcoin” in the Czech Republic, members of this community were afraid that someone might want to rent the space and use it to legitimize a dubious project such as the presentation I witnessed in Pilsen.

The Bitcoin community aims to educate people so they would not be vulnerable to such practices and scams. As one of my interlocutors puts it: “Bitcoin teaches people financial literacy and responsibility.” She further adds that people's irresponsibility is caused by their historical experience with an overprotective socialist State. According to the community members, whereas the social State spoiled its citizens, the newly emerging Bitcoin-enabled self-sovereignty motivates people to embrace individual responsibility. In this sense, the ideology of the Bitcoin community once again reflects the spirit of neoliberalism, claiming that society does not exist; there are only individuals responsible for their own fate.

The educational dimension related to Bitcoin is thus twofold. On the one hand, it is necessary to educate people on how to use Bitcoin to not fall prey to scammers; on the other, Bitcoin itself teaches people how to be responsible for their own well-being. The voluntaristic ethics of care merges with technological determinism.

Paradoxically, the appeal to financial literacy and responsibility was evoked both by the fraudulent MLM schemers in Pilsen as well as by the serious members of the Bitcoin community. It just illustrates how personal responsibility serves as a dominant mode of neoliberal governmentality (Foucault 2008). Both of these groups thus build upon existing discourses of subjectivity and agency.

Modern enchantment

This exploratory desire rests in what may be called an enchantment of modernity (Bennett 2001). Jane Bennett describes enchantment as a "surprising encounter […] with something you did not expect and is not fully prepared to engage […] a mood of fullness, plenitude, or liveliness, a sense of having had one's nerves or circulation or concentration powers tuned up or recharged – a shot in the arm, a fleeting return to childlike excitement about life" (2001, 5).

Bennett's theory of modern dis/enchantment can be read as a complementary story to the notion of purification/hybridization developed by Bruno Latour (1993). Whereas Latour speaks of the proliferation of hybrids which goes hand in hand with the modern narrative of purification, Bennett asks: "But what if despite what Weber [and other proponents of modernity as disenchanted] say, the world is nor disenchanted, that is, not populated by dead matter and fragmented selves?" (2001, 80) She then reconstructs modernity as a process where "variety of enchanting sites continue to make their home" (2001, 14).

The enchantments of modernity within the Bitcoin community are visible in the autobiographical accounts of many of my interlocutors. When asked how did they get into Bitcoin, they often speak about their fascination with science and technology:

> Since I was six years old, I have been fascinated with math. […] So I saw in [Bitcoin] the techno-scientific meaning. (Interview, April 2019)

> I get into [Bitcoin] by reading the [Satoshi's] whitepaper. I liked it from the perspective of informatics; the algorithm is really interesting. (Interview, June 2019)

> I was really fascinated by the technology [of Bitcoin]. I've seen some lectures about decentralization and anti-fragility systems, which fascinated me. (Interview, May 2019)

Even the further justifications of Bitcoin, such as the argument of markets as self-sustainable entities, bear traces of enchantment with its simplicity:

> The market is a decentralized entity that can benefit from its members following their own interests. And that is beautiful about it. (Interview, June 2019)

> What is beautiful about the value of Bitcoin is that the supply and demand determine it. The beauty is that nobody can shape the value, only the market. (Interview, May 2019)

Further enchanting is the possibility to withdraw from the structures of state control. Jiří, a young libertarian member of the community, even projects Bitcoin into existing cultural imaginaries of the Hollywood production:

> Bitcoin is amazing because it allows you to say: Here, I have an open-source technology that is simply better than the state's technology. This is what is cool about it; *you can be like in this action movie*, you can be the hacker because you have something better than what the state has, and [the state] cannot control you in any way. (Interview May 2019)

The enchantment of Bitcoin thus communicates with the existing ideals of the solitary hero, standing against the powers that be, as shown in the cyberpunk culture and movies such as *The Matrix* or TV show *Mr Robot*.

However, the symbolic overlaps of enchantment can go even beyond contemporary popular culture. A Prague based artist called Mfish created between 2017 and 2019 series of

original printed posters depicting the pastiche of the image of God – as depicted by Julius Schnorr von Carolsfeld in one of his famous engravings[26] – reaching towards the logo of Bitcoin, with the words "I am Satoshi Nakamoto" written over the scene.[27] Given that the first-ever mined block is called the *Genesis* block, the Bitcoin community builds on existing "patterns of culture" of Judeo-Christian tradition.

I witnessed this overlapping, especially in Slovakia, where the influence of religion is generally more vital than in the Czech Republic. When I first came into one of the Slovakian Bitcoin cafés where I wanted to volunteer, I met Maťko, an enthusiastic man in his mid-30s. Maťko told me that he wants me to volunteer as a crypto apostle (*krypto apoštol*), meaning that I should initiate the newcomers to using Bitcoin ATM.[28] Coming from the secular and notoriously atheistic Czech republic, I was a bit stunned at first. I thought it was a kind of joke or some initial hazing; only with time I realized that this kind of language was used frequently without any sarcasm or irony. Some significant moments were even honoured by lighting a candle and called a crypto-mass (*krypto omša*).[29]

On the other hand, in the Czech Republic, the language was more secular. One of my interlocutors once told me that the Czech community in Prague tried to coin the term *crypto ambassador* instead of the crypto apostle for the same activity, but nobody was using it. Even the term *Bitcoin evangelist,* used in the international community (e.g. for Andreas Antonopoulos), was not translated in Czech and was used only for the international speakers, referred to as such by foreign media.

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[26] It is taken namely form the picture of God creating heavenly lights: https://commons.wikimedia.org/wiki/File:Schnorr_von_Carolsfeld_Bibel_in_Bildern_1860_004.png#/media/File:Schnorr_von_Carolsfeld_Bibel_in_Bildern_1860_004.png (retrieved: 21.1.2022)

[27] The series of posters can be seen here: https://www.cypherpunknow.com/rare-2/i-am-satoshi-nakamoto--1/ (retrieved 21.1.2022)

[28] The whole process of this initiation is described in detail in the next chapter.

[29] As can be seen from my description of the Slovakian use of religious symbols in their performance of Bitcoin culture, the enchantment is highly symmetrical. Not only are they enchanted with Bitcoin, but I am also enchanted by their enchantment.

The difference between the Czech and Slovak experiences shows how this immaterial labour producing the Bitcoin culture incorporates existing symbols and works like a Levi-Straussian bricolage. The slight difference in the general intellect informing the immaterial labour of the two respective cultures can cause some surprising differences. Since the religious factor is absent in the Czech vernacular, it is not incorporated; however, other cosmological features more common for the Czech audience (such as nature or natural order) are. Unfortunately, as a subject socialized in the Czech society, I cannot fully identify all the specific features of the Czech Bitcoin community as I lack the possibility to see the community from the outside, the way I partially saw my Slovakian interlocutors.

Conclusion

To conclude this chapter, I would like to return to the moments from its beginning, namely the crypto-bazaar and the broken terminal. Both of these moments are examples of rupture in the assumed natural order of things as presented by the Bitcoin community under my investigation. The purification of the natural order of the Market from the political order of the State is full of compromises, or as Latour would put it, *hybrids.* This supports the claim of Nigel Dodd (2018) that even though Bitcoin is supposed to be trustless technology, its success depends precisely on the users' trust in the sociality they produce.

The immaterial labour carried out by the Bitcoin community aims to mobilize the existing general intellect and produce a natural order around Bitocin and its design. Such naturalization is at the same time depoliticization of Bitcoin and free markets in general.

The refuge from the State that the Bitcoin community seeks gives rise to a multitude of liberated private individuals. However, as I argued in the previous chapters, this multitude is far from just (chapter 1) and is underwritten by a neo-traditional form of a post-social commodity fetishism (chapter 2). In the next chapter, I examine how these demands of

individualism and sociality clash and are resolved in a dialectical fashion in the moments of exchange.

4. Money: *Bitcoin and its transactional orders*

> *The capacity of [the landlord's] stomach bears no proportion to the immensity of his desires, and will receive no more than that of the meanest peasant. The rest he is obliged to distribute among those, who prepare, in the nicest manner, that little which he himself makes use of, among those who fit up the palace in which this little is to be consumed, among those who provide and keep in order all the different baubles and trinkets, which are employed in the oeconomy of greatness […].*
>
> (Adam Smith: *Theory of Moral Sentiments*)

As described in the last chapter, using Bitcoin demands a lot of boundary work. It is a practice that must be introduced, learned and taught to others. Throughout my research in Slovakia, I have encountered numerous moments of "training" for new users by other community members; successfully completing the first transaction sometimes even reminded me of an initiation ritual.

For a period of three months, I conducted participant observation — as a volunteer helping with chores and mundane businesses — in a small café that accepted and promoted the exclusive use of cryptocurrencies while avoiding any payments in fiat monies. In order to encourage newcomers to use Bitcoin, there was a Bitcoin ATM in the café, which allowed customers to buy Bitcoin (and a few additional cryptocurrencies) with cash. Because the process was a little counterintuitive and thus may discourage potential customers from purchasing beverages and snacks, there is usually a volunteer called a crypto-apostle (*krypto apoštol*) who helped customers with their first purchase of Bitcoin and with their first payment.

One of the crypto-apostles was Maťko, a crypto-enthusiast in his mid-30s who spent most of his free time in the café, inviting people in from the street and introducing them to Bitcoin. Once people stepped in, Maťko started to explain that this space is a new haven of freedom in the omnipresent sea of the corrupted state.

Over my stay, Maťko and I became friends. His cheerfulness and endless energy were almost contagious. It helped him when he was inviting new guests from the street. We spent numerous hot summer days in the café, doing some repairs, painting furniture, and improving the space in general. After work, in the evening, when the heat cooled off a bit, we used to sit outside in the shade and sip bears while smoking and chatting. Maťko often talked about his plans for the broader development of the café. He was not the owner. He did most of the work on a voluntary basis during the weekends and evenings. During the week, he used to commute to Viena for his paid job.

One of these late afternoons, we were finishing some job in the café, and Maťko came up with an idea to go to the sauna. I immediately responded that I did not have a swimsuit with me and also that I had not been to a sauna for over ten years. However, Maťko insisted and convinced me to go. Under the influence of the latent paranoia present in the community, for a short while, I thought it was another test to see if I were wearing a wire or some other spy-movie strategy. But in the end, it was just an expression of genuine friendship. Maťko was a bit disappointed that the sauna we went to did not accept Bitcoin as a payment. He often talked about opening the first crypto-sauna in Bratislava. It was this dream of his to connect a small portable sauna directly to the café. Unfortunately, the café closed down in 2020 due to covid.

But it was not just crypto-accepting saunas that Maťko promoted. When I first came to Bratislava, he told me about all the crypto-accepting businesses in the sheer vicinity of the café. He "recruited" some of these businesses himself. He told me he had gone to his favourite restaurants and shops and tried to convince the owners to adopt Bitcoin payments. With some of them, he was successful; with some others, less so. When I came to Bratislava, around eighty businesses accepted crypto payments. Maťko said that "if we raised it to one hundred, Bratislava would be in the top ten cities in crypto-adoption globally".

The insufficient infrastructure and low adoption are, according to many Bitcoin enthusiasts, the main problems preventing Bitcoin from exploring its potential as trustless money. So far, Bitcoin has struggled to find its place in an expanding industry of payment methods. There are not only technical limitations but also social ones. Since Bitcoin is a deflationary currency, many users are reluctant to spend it, for it may be worth more tomorrow. Vendors, on the other hand, are afraid of the high price volatility. Therefore new consumption strategies emerge, intending to resolve this tension. This chapter aims to explore these strategies and the relationships between them.

Proliferation of payments

In October 1989, merely days before its demise, the Czechoslovak socialist government issued new series of banknotes. These banknotes portrayed Klement Gottwald, the first Czechoslovak socialist president, associated with the terror of communism in the late 1940s and early 1950s. During the period of perestroika, such glorification of a person reminiscing otherwise publicly rejected Stalinism came quite as a shock to the general public. The banknotes were rejected in transactions, and people started to damage them by folding, drawing, and eye poking to ridicule the unpopular statesman (Hertl 2019). The banknote was appropriated by people and used to express dissatisfaction with the political situation of that time.

Thirty years later, one can see in Prague subway advertisements promoting personalized debit cards. Next to a card with the Batman logo, it addresses the reader: “Do you want to be utterly unique? Try one of the designs from our limited edition!”

These are merely two examples of various appropriations of payment methods. They both show how such appropriation shifts together with the social, political and economic contexts in which these payments are carried out. Whereas the alteration of the Gottwald banknote served as a political protest against the already trembling socialist state, the Batman

debit card can express the smallest marginal difference in expressing one's individuality (Baudrillard 1970).

The relatively recent advancement in digital technologies has brought into economic practices all over the world proliferation of methods of payment, from plastic cards and mobile money to digital wallets and cryptocurrencies. Businesses, together with consumers, have started to have a vast number of methods of payment to choose from and a "lot of people [are] suddenly thinking about money, its future and how we pay for things — and how we may do so differently" (Maurer 2015, 4). The emergence of these new means of exchange complicates our understanding of money because "the means of exchange [are] usually assumed to be the medium that facilitates consumption, and not […] a consumable good in itself" (Maurer 2012, 590). The widening possibilities of payment thus challenge the traditional interpretation of money and bring about new questions, such as how we should understand how people choose which money to use?

In such a dynamic environment, the modern idea of universal money is no longer sufficient – new modes of exchange result in novel and imaginative exchange practices, which deserve close attention. Different modes of payment continuously stress the different functions of money and, as such, further structure how these monies are consumed. The *consumption of money* can have considerable sociopolitical consequences because the field of monetary re/production has significantly widened and is no longer the exclusive domain of national states and international institutions. Numerous new players — from individuals to transnational corporations — have started to appropriate money and redesign it for their ideological and economic ends.

This chapter argues that the choice of various forms and functions of monies can be understood from the perspective of the anthropological theory of consumption as a practice of *objectification* and *appropriation* (see Miller 1987). Using the ethnographic example of a

Czech and Slovak Bitcoin community, it describes how Bitcoin — a global decentralized cryptocurrency — can be understood as an alternative form of money consumption by appropriating money as a medium of exchange and storage of value from the sovereign domain of the state and its central regulators.

Such appropriation aims to create new social relations and individual subjectivities. It explores in practice the inner conflict of between the actually existing Bitcoin community and the imaginary of Bitcoin as asocial money. That is because Bitcoin only ceases to be social when it is hoarded, and thus used as a speculative asset rather than a medium exchange.

Spheres of exchange

The proliferation of the *means of exchange* complicates the whole situation even more if we acknowledge that mediating exchange is only one among several discrete economic functions of money, along with the *store of value* and the *unit of account.* The consumption of money then depends on how well particular money-forms fulfil specific desired functions; modern money is believed to perform all these functions at once, which is why it is referred to as *general-purpose money*, whereas monies bearing only one or two of these aforementioned characteristics are usually described as *special-purpose money*, which is then variously exchanged *within* and *across* distinct spheres (Maurer 2006, 20). Roger Dalton reminds us that the general functions of modern money are in place only because the Western society and economy are commercially organized (1965, 45), so general-purpose money makes sense only in culturally specific economic formations. Such a distinctive model of money thus does not comprehend the lived reality in which, according to Zelizer, modern general-purpose money is — via earmarking and other practices — always divided into separate spheres as well. These spheres then determine their use and serve to foster specific social relations (Zelizer 1989; 2012).

The choice of a value transfer medium, or payment, depends on various circumstances. It can be determined by their design: some monies are designed to be spent within a specific timeframe, and in a specific place, for example, gift certificates, and some mediums are designed to hold value over long periods of time, such as gold bars. The choice may also depend on the social setting. For example, while paying for a romantic date with meal vouchers may seem inappropriate or cheap and paying with a smartwatch may seem cool and stylish, under different circumstances, paying with the same vouchers may seem resourceful, and the smartwatch could be perceived as boastful and excessive. In such an economic environment, it becomes necessary to abandon the idea of singular modern money and accept the idea of multiple monies fulfilling different social and economic roles (see Zelizer 1989).

Jonathan Parry and Maurice Bloch, in their work on money, identify two main *transactional orders*: "On the one hand, transactions [are] concerned with the reproduction of the long-term social or cosmic order; on the other, a 'sphere' of short-term transactions [is] concerned with the arena of individual competition" (1989, 24). Such transactional orders might then further correlate (but could not be reduced) to *spheres of exchange* as explained by multiple classical texts in economic anthropology (e.g. Bohannan 1955; 1959; Barth 1967). Many authors identify multiple spheres, but Paul Sillitoe argues that "the common point in all of these sphere arrangements is that they separate the exchange of *subsistence products* from the exchange of *valued objects*" (2006, 6; emphasis added). Such a dichotomy can also be translated as a dichotomy between *gifts* and *commodities*, where the first is understood as the exchange of "*inalienable* objects between *interdependent* transactors; the second an exchange of *alienable* objects between *independent* transactors" (Gregory 1982, 73). Generally, these dichotomies can be summarized to distinguish transactions serving social reproduction and those serving individual gain. This also means that the dichotomy represents merely ideal types

and that most real-life exchanges escape such an exclusive classification. The distinctive spheres serve as an analytical tool, not a representation of reality.

Nevertheless, as Parry and Bloch point out, these two spheres are in a mutually constitutive relationship and thus must allow for mutual conversions of value between them (1989, 25). Their mutual relationship is dialectical "because [it] forms the basis for a symbolic resolution of the problem posed by the fact that transcendental social and symbolic structures must both depend on, and negate, the transient individual" (Ibid.). According to Paul Bohannan, these conversions between two spheres usually bear a moral value (Bohannan 1955, 64-65). Jane Guyer further expands Bohannan's model of spheres and conversions by linking them to local trading networks "to see not barriers but institutions that [facilitate] asymmetrical exchanges across value registers" (Guyer 2004, 28).

Whereas Bohannan's spheres of exchange are concerned with production (Sillitoe 2006, 6) and Frederik Barth's with circulation (Piot 1991, 410), Roderick Stirrat (1989) focuses on separate *spheres of consumption.* I borrow this term, but I use it in a different meaning. Stirrat understands spheres of consumption as two different symbolic expressions of sociality: one signalling the common class identity of the Sinhalese fishing people in Sri Lanka; the other sphere concerns a symbolic competition between Sinhalese households through conspicuous consumption (1989, 108). The first case is represented by certain social constraints on consumption when only particular goods necessary for subsistence are obtained, whereas the other case shows the fishing people consuming luxurious middle-class goods for the very sake of consumption itself (1989, 107). In this case, different commodities are obtained to fulfil their respective goals. I, on the other hand, use spheres of consumption to differentiate between two alternative practices of consuming one object: Bitcoin.

The very notion of "consumption" in anthropology is, according to David Graeber, quite problematic. Graeber argues against its use as an analytical tool and proposes "to start looking

at what we have been calling the 'consumption' sphere rather as the sphere of the production of human beings" (2011, 502). Graeber's critique can be overcome by understanding consumption as *consumptive production* as defined by Chris Gregory, according to whom "the consumption of things is a necessary condition for the production of human beings" (1982, 27). This applies both to an individual and to a collective level of production of the respective social bodies.

By focusing on consumption, I follow Daniel Miller with his argument that consumption represents a constitutive part of modernity through which people understand themselves as social beings: "Consumption is simply a process of objectification — that is, a use of goods and services in which the object or activity becomes simultaneously a practice in the world and a form in which we construct our understandings of ourselves in the world" (1995, 27). Miller argues that consumption enables the emergence of novel ways of appropriation of otherwise alienated goods and their transformation into inalienable culture (1988, 370). A similar point can also be made about the Sinhalese fishing community, who are — by buying television sets and luxurious furniture — appropriating the consumption culture of the Sinhalese middle class (Stirrat 1989, 109). My argument, which I will develop further in the text, is that by consuming Bitcoin in novel ways, Bitcoin users are appropriating the abstracted idea of money from the monopoly of the state and thus aiming to create their own culture. However, some modes of consumption lack social character and thus threaten the socio-economic reproduction of the Bitcoin community.

Consumption of Bitcoin

As well as Parry and Bloch, I identify two modes of Beitcoin's consumption. I aim to demonstrate how multiple money functions create discrete spheres of monetary consumption depending on the individual and collective goals of this consumption. These spheres are particularly visible through the observation of conversion strategies between them.

Hodling: Individual consumption

Over a ten-year period of Bitcoin's existence, its value rose from zero to nearly twenty thousand dollars per bitcoin. Despite its peak in late 2017 being followed by a steep fall in price in early 2018, Bitcoin still shows a rise in value over relatively long periods of time. Many members of the Bitcoin community believe this is because of its deflationary design; therefore, they also assume that the price of Bitcoin must inevitably rise into the future. People of this conviction are usually called *hodlers* — from the word hodl, an anagram for hold. The very term hodling started in 2013 as a typo on the internet Bitcoin forum when a user, appearing under a pseudonym "GameKyuubi", published – while apparently inebriated – a post explaining why he did not trade Bitcoin on a daily basis. In this angry yet hilarious rant, GameKyuubi confesses that he is a "bad trader" and, as such, he would fall prey to the "SMART traders". Therefore, his only chance to avoid this scenario is to "hold" bitcoins because "traders can only take your money if you sell".[30] Hodling thus can be understood as turning bitcoins into a *hoard*: "a hoard is simply liquid economic value that someone or some collective institution projects inwardly and refuses to share" (Peebles 2014, 598).

The hodlers tend to buy large amounts of bitcoins and then securely store them on paper or hardware wallets for long periods of time, suggesting years or even decades. Hodling means understanding the purchase of Bitcoin as a long-term speculative investment, believing that its technological qualities will prove superior over fiat currencies and that in the future, Bitcoin will be adopted more and more, and believing that because of its limited supply, its value will rise significantly.

The hodlers, therefore, tend to be hesitant about spending their bitcoins on goods because it would mean losing their potential value in the future. I remember one afternoon, during my research, I was standing outside a Bitcoin café in Bratislava with some friends from the Bitcoin

[30] https://bitcointalk.org/index.php?topic=375643.0 (retrieved 29.5.2020)

community when a man approached us, asking what was going on inside, that he had seen a sign with a Bitcoin symbol. We explained to him that inside he could buy some beverages and snacks with cryptocurrencies, which resulted in an instant reaction filled with shock: "And spend my bitcoins? No way!" But despite his first categorical refusal to enter the space and spend cryptocurrencies on goods, he remained quite intrigued and stayed on the front porch for several hours, sometimes leaving to buy beers in a nearby supermarket and coming back to discuss various topics further. After four or five hours, he entered the space but did not buy anything.

Such a strategy can be a source of conflict within the community. Once, I heard a co-founder of one of the Bitcoin cafés complain about customers and other members of the community for not spending enough bitcoins, although it was only because of this facility that they had learned about Bitcoin in the first place: "You would think that since you made them millionaires, they would be willing to throw you at least a bone." As gustav Peebles would pit it, he "has reverted more to [hoarding's] colloquial meaning, which has always carried a strong burden of anti-sociality" (2014, 598).

A special case of this sphere of consumption is short-term speculation, where consumers aim to profit from Bitcoin's high volatility by minute-trading. Members of this community do not meet in person; they interact primarily via social networks, such as Facebook, in special groups. Since this mode is perceived to be very risky, one of the main groups is called 'Bitcoin gamblers and speculators' ('*Bitcoinoví gambleři a spekulanti*'). In this group, the speculators share tips and strategies to maximize their gains or just boast in front of each other about their profits. Although speculation and hodling are not usually considered forms of the same activity, I will treat them as such, for they represent the same sphere of consumption-oriented towards individual gain. Or put differently, I will treat speculators as an extreme case of hodling. It is

necessary to say that other members of the community sometimes perceive speculators as irresponsible and potentially damaging to the whole infrastructure of Bitcoin.

In general, speculating on the future value of Bitcoin either in the long-term (hodling) or short-term (gambling) is not particularly perceived as a way of supporting the network but merely as a strategy of personal gain. With hodling, sometimes there are voices praising this strategy because of the assumption that the fewer bitcoins there are in circulation, the higher their price. A responsibility of a hodler is a responsibility one has mainly to oneself. An interlocutor of mine compared hodling to setting up a retirement plan and securing his future. Hodling is thus a rational choice to hoard bitcoins, instead of participating in the state-sponsored structure of retirement savings. This argument gains special significance since many Bitcoin proponents believe that the central governments will start issuing negative interest bonds in the near future. Storing value in Bitcoin — which they perceive as apolitical and independent — thus seems more secure than other commodities and financial products regulated by the state.

Exchange: Social consumption

The other way how to consume Bitcoin is via exchange. This may seem like an oxymoron because an exchange is usually understood as an activity that *facilitates* consumption. However, the use of Bitcoin in exchanges can be understood as a ritualized exchange which aims to reinforce the identity of the members or sympathizers of the community and also, quite often, to exclude the state from economic transactions symbolically. The presence of state control in every mundane transaction started to be significantly felt both in the Czech Republic and Slovakia in the second half of the 2010s, especially when the electronic evidence of sales (EET in Czechia and eKasa in Slovakia) came into place. The electronic evidence of sales demands that businesses put their sales online via special terminals to lessen the avoidance of

taxes and other illicit practices. Both these systems raised a discussion in the public discourse concerning the government putting too much pressure, especially on small businesses for whom the costs of being connected to the system were too high. The Ministry of Finance in the Czech Republic was accused of spying on its citizens, and generally, the state was often described as deploying Big Brother-like techniques. In reaction to this situation, some Bitcoin cafés started to openly boycott providing evidence, accusing the state of returning to the era of real socialism and central planning. Using Bitcoin for payments took on a new political dimension. While hoarding Bitcoin is a preparation for the incoming crisis of the state that crumbles under its own weight, exchanging in Bitcoin means active undermining of the state and thus accelerating its crumble.

The social dimension of exchange is already visible just when people come to buy bitcoins in the Bitcoin ATM and stop for a quick chat while waiting for the transaction to be confirmed. Sometimes some of the volunteers act as unofficial brokers. When a person comes and wants to buy some bitcoin, a volunteer can stop them from buying in the ATM and connect them with some other person who is looking to sell. The idea is that it is always better to trade directly peer-to-peer because that is "what Satoshi has wanted." The volunteers do not take any commission from the brokerage. For them, it is just an occasional good deed for the community. As one of the prominent Slovakian Bitcoin influencers explains, it is always good to utilize these small-world networks when exchanging Bitcoin.[31] He even explains how to start your own exchange-group [*vekslovacia skupina*]. "If you are a group of people living in the same city, always prefer personal meetings and trade in cash. Have a little coffee with a short small-talk."

I have heard stories that at the beginning, around 2015, peer-to-peer trading was way more prevalent and that some people were operating outside the barriers of the legal economy.

[31] https://juraj.bednar.io/blog/2022/03/14/ako-si-vytvorit-vlastnu-vekslovaciu-skupinu/ (Retrieved 27.7.2022)

Stories of piles of cash in the back rooms, where people would meet and do business every Sunday. But I have never witnessed such a thing. For me, these are just stories.

However, Bitcoin's rise in price and the boycott of governmental systems have resulted in new interest in Bitcoin technology and a number of newcomers into the community. These newcomers have to overcome the initial difficulties of obtaining their first bitcoins. The crypto apostles, such as Maťko, sometimes help them, especially when there is an event at the café and a big turnout is expected.

Maťko usually asks if people have any experience with cryptocurrencies, and once they say no, he starts to explain, very enthusiastically, how to obtain them. First, people must download a wallet, usually Coinomi, to their phones. When they do so, the wallet generates a *seed*: A string of twenty-four words which can be used to retrieve the wallet on any device should a phone be lost or any other inconvenience. Maťko carefully explains that this seed should not be stored in a digital form because it would be vulnerable to misuse by an untrusted third party, such as hackers. In order to store the seed, Maťko gives the newcomer a small piece of paper with twelve rows divided into two columns, thus creating twenty-four numbered spaces. He asks the visitor to write down the seed and not show it to anyone, nor take a picture with their phone. The phone app then asks the user to enter the seed to check whether it is recorded correctly.

After this process is done, Maťko invites the new customer to the Bitcoin ATM and explains that it is the most anonymous ATM in Bratislava: "The camera is covered, the fingerprint reader is disabled, and the credit card reader is disabled," says Maťko while pointing to the respectful areas on the ATM, "just anonymous cash." Sometimes he adds, "This is the only ATM without KYC."[32] During the purchase, the ATM asks everyone if they are a

[32] Know your customer is an international policy requiring financial institutions to collect and store personal data about their clients in order to prevent money laundering and other illicit activities.

"politically exposed person", and if somebody says yes, it gives them a special warning about the eventual consequences of using Bitcoin.

Once people put their cash into the ATM, it takes a couple of minutes for the transaction to be verified. Usually, at this point, Maťko or other crypto-apostles use this moment to explain the general ideology of Bitcoin as trustless money. While volunteering as a crypto-apostle, I typically explained that Bitcoin could be viewed as a reaction to the 2008 crisis, but others sometimes add a funny conspiracy theory about Bitcoin to the good mood. For example, another crypto-apostle, Bruno, would speak of his favourite conspiracy, that Bitcoin's founder, Satoshi Nakamoto, "is a traveller in time, who brought technology from the future to the past and then went back to his own time and there he's hella rich! [laughing]."

When the transaction is verified, and the new users can see a positive balance in the wallet app, Maťko brings them to the counter where they order a beverage, and then he shows them how to pay. Payment works by scanning a QR code on the register, and a loud beep of the register signals the validity of this transaction. Once this beep comes, Maťko proclaims the success with a loud "Boom! Welcome to the future!" while he shakes hands with the new customer.

The crypto-apostle thus serves as a guide during a rite of passage, and the economic transaction of exchanging money and buying a drink is performed as a transformative experience. The "novice" is introduced to some basics of conduct, there are specific rules and restrictions explained, some stories and/or myths shared, and finally, the novice is introduced to the new world. The atmosphere of ritual initiation was once even strengthened by Maťko lighting a candle with a Bitcoin logo and jokingly referring to the successful transaction as a crypto-mass (*krypto-omša*). The whole feeling of transformation is congealed by the omnipresent slogan of this space: "enter outward" (*vojdi von*), implying that the enclosed space of this café is actually a free, liberated space outside state control and regulation.

As one can see, the activity of exchanging Bitcoin for goods is highly unpractical. It would be way easier to conduct the whole transaction in cash. The costs of human labour (crypto-apostles), equipment (the ATMs, the payment terminals, etc.), and time spent on introducing new members to transactions are too high. Therefore, such a transaction cannot be viewed as an example of trade aiming to maximize profit in the economic sense of the word. The people buying coffee for Bitcoin are not doing so because of the coffee — they can buy coffee elsewhere with less trouble — they do it because of the act of using Bitcoin itself. Consequently, values other than economic interest have to be put into motion in order to understand these transactions as valuable.

Using and teaching others to use cryptocurrencies is important for the community because, from the emic perspective, it helps broaden the adoption of Bitcoin and consequentially also lessens its price volatility:

> In theory, this volatility will decrease as Bitcoin markets and the technology matures. […] Since Bitcoin offers many useful and unique features and properties, many users choose to use Bitcoin. With such solutions and incentives, it is possible that Bitcoin will mature and develop to a degree where price volatility will become limited. (bitcoin.org)

> I've seen shifts of 20 or 30 percent in a day. And yet, if you look at the long-term trend, volume goes up, transactions go up, and the volatility keeps dropping. (Antonopoulos 2016)

Some members of the community like Mat'ko even reach out to their favourite vendors and try to persuade them to start accepting Bitcoin. The agenda is simple – the more people can use these technologies, the less powerful the state becomes. Sometimes this introduction of new people to Bitcoin can be seen as a mission or a spread of awareness, showing people that they can engage in economic transactions without state intervention and surveillance. Alex, one of the community members, described the education of others as this "heroic task that decreases the knowledge differential [among people]."

Alex further continues that since “inflation is theft, Bitcoin is pure anarchy that protects our money from being stolen. It protects money from being stolen by making the theft literally impossible. When you run your own node, you set your own rules and check with others that they have the same rules – I check the rules, I verify them, I enforce them it is individualistic to the highest degree. It‘s pure anarchy, it’s peaceful, don’t steal from others. Let’s make it literally impossible for others to steal from you. It is not just a theory but applied science.” In other words, adopting and actively using Bitcoin creates a new social reality of unmediated anarchy, where “state theft is impossible.” In terms of Parry and Bloch (1989), the exchange of Bitcoin can be interpreted as an activity aiming to reproduce the cosmological and social order.

Conversions: Dialectic of hodling and exchange

The spheres of consumption in the Bitcoin community do not imply a lack of value equivalence between Bitcoin and other goods. The value of Bitcoin is measured in US dollars or euros and, as such, is then compared to other goods. Spheres of consumption imply that there are constant conversions between different transactional orders. The focus on conversions makes the spheres vivid and helps them to be distinguished during the research. As Guyer puts it, “Conversions are the compasses and landmarks on the navigational pathways of currency circulation” (2004, 30).

The two distinct spheres of consumption of Bitcoin are in a dialectical relation. The rise of Bitcoin’s value is due to the speculation of hodlers and gamblers, which provides certain incentives for adoption and further investment, but consuming Bitcoin through an exchange is how the whole community of Bitcoin is being maintained, and the broader adoption is being carried out. Conversions between these two spheres of consumption then allow various members to navigate and negotiate between various experiences with and expectations of Bitcoin and other means of exchange.

A relatively common form of conversion can be seen when Bitcoin enthusiasts pay with Bitcoin. Once they transfer the amount for goods, they tend to buy the same number of bitcoins for fiat in the ATM or over the online exchange immediately or within an hour. The goal is to catch/buy the bitcoins at the same or better exchange rate than they were spent. They then describe this situation as spending fiat money (out of their account) although paying with Bitcoin. One can say that they manage quite literally *to eat their cake and have it too*. As one community member once jokingly put it, "First, you have to spend the weak money, so I first spend fiat. You always spend the meal vouchers [*stravenky*] first". The term stravenky describes a special form of money specific to both countries which can be spent solely on food and usually expires by the end of the calendar year. In this sense, fiat money is understood as money of lesser quality, and thus it has to be spent earlier than "sound money" because its value decreases over time, whereas Bitcoin is believed to rise in price.

Many of the merchants accepting payments in Bitcoin offer an exact mirror image. A large number of them in Prague and Bratislava use the service of crypto-to-fiat intermediaries (e.g. Bitpay, Cryptodiggers, etc.). The transaction then looks like this: The buyer spends Bitcoin, but the seller gets fiat money in their account, and the intermediary gets a small fee from each mediated transaction. Such a scheme begs the question, what are the motivations of sellers to accept Bitcoin if they do not want to operate with it in the first place? Most of my interlocutors agreed that the motives are usually to be "cooler," to show that one is progressive, and to open one's business to a new clientele; to put it simply, they see it as a marketing move. Since some people would like to pay with cryptocurrencies, installing a payment terminal is merely a way to profit from this sphere of consumption.

An additional reason for immediate conversions may be that many vendors could not afford to keep value in Bitcoin because of its volatility. Since they have to cover their costs, pay rent, pay taxes, pay their suppliers, and so on, it is easier and safer for them to operate in a

widely recognized fiat currency rather than in unstable cryptocurrencies. Nevertheless, I have encountered a few venues keeping their earnings in cryptocurrencies and trying to convince their suppliers to accept orders in Bitcoin or some other cryptocurrency. Still, the law imposes that all records for taxation purposes must be kept in fiat currencies, so despite some capital being stored in Bitcoin, the bookkeeping must be done in fiat.

From the emic perspective, a best practice to reconcile the two spheres of consumption is to combine the benefit of both, hence a conversion that allows one to economically profit and support the broader adoption of Bitcoin. An example of such conversions within the value registers of the Bitcoin community is a platform called Purse.io, which apparently allows people to spend cryptocurrencies for goods on Amazon and, at the same time, get up to a 20–30% discount. Purse.io works using a relatively simple conversion between Amazon vouchers and cryptocurrencies. According to one of my interlocutors, the scheme goes as follows: Person A gets an Amazon voucher which she does not need (e.g. as a bonus from the employer), but she wants to get some cryptocurrencies instead. Person B has cryptocurrencies and wants to spend them on Amazon for goods. Purse.io then allows the needs of person A and B "to meet." Person B makes a wish list on Amazon, person A buys the goods with her vouchers and has them delivered to person B, and person B pays person A in bitcoins. Since person A needs to get rid of the vouchers before they expire, person B can ask for up to a 30% discount on their wish list. Apparently, the rule is simple: The higher the discount, the longer person B waits till someone is willing to place the order. Person A is thus trying to convert her money with limited liquidity and expiration date into money, which is quite liquid, mobile, and is interpreted by some people as a proper future-oriented store of value.

In all these cases, the conversions represent a "set of directional transactions that work stepwise toward the constitution of stores of value that had greater longevity and security than the currencies themselves" (Guyer 2004, 30). The definition of better stores of value is, of

course, situational; thus, for the Bitcoin community, it is Bitcoin, and they transact in order to store as much value as possible in the network, whereas for many of the vendors, it is still the fiat currency — therefore, they use services that help them keep it that way. The last conversion case demonstrates clearly a situational asymmetry, where the people with the Amazon vouchers are in a significantly weaker position because of the vouchers' expiration dates. Purse.io thus enables them to convert a voucher's value into a more stable currency while also mobilizing both moral imperatives of the spheres of consumption: the imperative of personal gain in terms of the discount and also the imperative of reproducing the community by broadening the possibilities of Bitcoin adoption.

Consumption of Bitcoin as an *appropriation of money*

The Czech Republic and Slovakia have experienced dramatic socio-political changes in the past 30 years, which still resonate with the public. Moreover, both experience the decline of trust in democratic governments, which correlates with their declining economic performance (Linek 2016). Bitcoin can thus be understood as a specific socially situated reaction to this disenchantment with democracy (one of my interlocutors even describes current democracy as "participatory fascism"), an alternative to a spread of right-wing populism not only in central Europe but also globally.

Members of the Bitcoin community understand fiat money as a service provided by the state. They perceive this service as insufficient; therefore, they are looking for alternative or parallel infrastructures to help them replace it. Bitcoin is a moderate success for it provides a means of exchange and storage of value, but, in daily interactions, it does not function as a unit of account. My argument is that Bitcoin is a way through which the Czech and Slovak cosmopolitan class appropriates money from the monopoly of the state. Nonetheless, it succeeds only partially because of legal, cultural, and social constraints. For Bitcoin to become a unit of account, there would have to be (among a myriad of other technological and social

changes) much broader adoption and lesser volatility of the currency. Yet, for a currency to be universally recognized and adopted, there is no need for it to be used as a unit of account. Federico Neiburg (2016) shows that a widely adopted national currency in Haiti is the Haitian gourde (HTG); however, the universally recognized unit of account is the Haitian dollar, which does not have any material expression.

The two recognized monetary functions of Bitcoin — as a means of exchange and as a store of value — further result in two discrete spheres of consumption. Each of these spheres correlates with previously recognized transactional orders of social and cosmological reproduction and of personal gain (Parry and Bloch 1989). In this text, consumption is understood as consumptive production when new social entities are being produced through the consumption of Bitcoin. The outcomes of this consumptive production are two ideal types: the Bitcoin community – produced by exchange – and independent affluent individual – produced by hodling. Both of these social bodies appropriate money through Bitcoin and, by respective practices, turn it into means of their cultural reproduction.

Unlike in the account of Parry and Bloch, it is difficult to distinguish these two transactional orders according to their temporal scale. Parry and Bloch argue that the reproduction of the social and cosmological order is constructed in long-term cycles, whereas the personal sphere happens in short-term cycles (1989, 29). However, the clear distinction between the temporary scales does not apply here; quite the opposite, Bitcoin shows that the temporality of such cycles is quite relative and, from a certain perspective, can be turned around. The hodlers, as long-term investors, are motivated by personal profit, while the community is reproduced by transactions of short-term commerce. Another difference is that in the traditional accounts of transactional orders, the enactment of social order is positive. The gift as *total prestation* (Mauss 2016) produces the positions of people within society as social beings. Even though it is arguable whether transactional orders, as described in traditional

anthropological accounts, reproduce an egalitarian social order (cf. Sillitoe 2006), they reproduce political and social bodies, for instance, kinship or gender (see Strathern 1985a). On the other hand, the political sphere of consumption in Bitcoin is mainly negative.[33] It is understood as producing freedom *from* the state by avoiding its control systems, such as electronic evidence of sales or KYC. In this sense, Bitcoin acts like money in Simmel's account, liberating subjects from previous historical obligations (Miller 1987, chapter 5). However as was shown in the previous chapter, the positive function must be carried out by other means such as boundary making practices and hegemonic oversight.

The discrete spheres utilize various conversions. Guyer understands such conversions as vectors resulting not in the creation of a closed circuit but rather in the disappearance of certain currency/goods in other contexts and other statuses through their trans-local movement among various communities. "In conversions, commodities and money move in their own directions rather than circulating within a circumscribed social field" (Guyer 2004, 51). Bitcoin also does not create a closed circuit, but its disappearance is not as much geographical as it is temporal. Bitcoins — via hodling — disappear into the future, where they are believed to have a higher value. This belief in certain moments tends to suck the currency out of circulation, which can slow down the social reproduction of the community. Even though in the future the horded bitcoins might be used to economically reproduce individuals, families, and communities, for now hodling rather complicates the broader adoption of Bitcoin as a medium of exchange. Nevertheless, the conversions help to resolve this tension and to secure the continuity of social reproduction. By allowing community members to spend Bitcoin without losing its promise of future profits, it tends to draw bitcoins from other sources (most probably from miners, gamblers and short-time traders) and supply these into the circuit of the community.

[33] Positive and negative do not stand here for normative judgments, but for descriptive statements. Positive reffers to "formally laid down or imposed, prescribed" mode of existence, whereas negative refers to "marked by absence, withholding, or removal of something positive" in this case the removal of positive power of the state (Merriam-Webster Dictionary).

The examples provided in this text are far from exhaustive and capture only a small portion of the variety of conversions between the spheres of consumption of Bitcoin. This text aimed to show how, through a proliferation of money forms, people can appropriate money from the state and develop novel strategies to profit and produce new social bodies.

Conclusion

Through an ethnographic analysis of the exchange practices in the Czech and Slovak Bitcoin communities, this text examines how various spheres of consumption emerge within the Bitcoin economy. These spheres have different orientations. One aims at reproducing the social order; the other is driven by personal gain. Specific conversions of value allow consumers to navigate and dialectically transcend the gap between these respective spheres. This distinction correlates with other ethnographic accounts of distinct transactional orders, although the case of Bitcoin differs from these accounts at several crucial moments.

As a result, Bitcoin is argued to represent a form of socially situated appropriation of money from the monopoly of the state. Its goal is to exclude the state from economic transactions of spending and hoarding. Consequentially, the social order developed by Bitcoin is mainly negative, meaning that it provides freedom *from* the state's economic control, but it does not provide a new socially organized alternative (at least not yet and/or not at this level of consumption).

Furthermore, hodling seems disruptive to the processes of the community's social reproduction. However, since it is very popular mode of consumption of Bitcoin, new ways how to converse from hodling to exchange are sought to maintain the community. These conversions allow to exchange and hoard bitcoins at the same time.

In the future, we can expect further multiplication of money-forms — the recent trend towards cashless societies or the China's digital yuan serve as just two examples — which will result in further differentiation of spheres of consumption and appropriation of money by

various subjects, be it individuals, states, or corporations. We cannot speak of contemporary Western money and its circulation as a unicentric process anymore, but we must start to pay close attention to its various designs and properties if we are to understand its current condition.

Conclusion: *Capitalism running with scissors*

I stood on a hill, and there I saw the Old approaching, but it came as the New.
(Bertholt Brecht: *Parade of the old New*)

Bitcoin is a dynamic phenomenon. The Bitcoin I encountered in 2016 does not exist anymore; it has changed multiple times over the years. Whereas in 2016, the main question was, "is Bitcoin money?" in 2022, such a question does not concern anyone anymore, and other questions come in its place, such as "is Bitcoin sustainable?" or "is Bitcoin decentralized?" The answers vary, and they will vary in the future, for there is not one Bitcoin. Bitcoin is a large black box full of ideologies, technologies, people, things, and relations. My account of Bitcoin, of course, is also merely partial as the black box constantly changes over time and space. Bitcoin in the Czech Republic in 2016 was completely different from Bitcoin in El Salvador in 2022. Whereas the former could be seen as a form of resistance against the intensifying surveillance of the state, the latter serves as a reminder of right-wing state oppression.

Bitcoin is an expression of human social creativity in late capitalism. It allows the appropriation and proliferation of money and commodity forms in the novel context of digital space. When examining the techno-social imaginaries, one can see how the Bitcoin design and the surrounding community recreate capitalism with all its contradictions while making it faster, smoother and hungrier. Bitcoin as a commodity recreates the class antagonisms of production while solidifying labour as the means of social control. As a relation, it reinforces the separation of persons from relations, obfuscating the relational dimension of social life and allowing commodity fetishism to run rampant. All this while the Bitcoin community ideologically reinvents the hegemonic boundaries of in-group and out-group and recreates the capitalist order as a naturally ruling principle of social life. And as a means of payment, Bitcoin is split into two modes of consumption, both colonized by the speculative logic of financial capital. One mode of consumption aims to reproduce particular stateless sociality, however, it

always seeks help in the realm of ideological practices, while also constantly being undermined by bitcoin-hoarding practices of self-interest individuals.

Many questions still remain to be answered – mostly if, when, and how will it ever overcome the limits of capitalism? So far, Bitcoin seems trapped in the same overheating cycle of boom and bust. Given its resonances of design, ideology and politics, Bitcoin has developed into an ever-hungry moloch that consumes resources and finance alike. Its ability to grow into enormous proportion while still being the "dumb network", as Antonoupulos describes it, is staggering. However, it would be all too easy to dismiss it as "fascism in disguise", as is done by David Golumbia. If the Bitcoin community has some overlays with fascist ideology, it is not because of its specific feature but because of how much fascism is ingrained into the late-modern meritocracy of capitalism.

In its current design and use, Bitocin simply reproduces the history of capitalism ever anew. The primitive accumulation already took place, with more than 90% of all Bitcoins being mined and even 50% mined during the first four years. The current developments are reminiscent of monopoly capitalism, with the concentration of mining into five pools or large whales, such as Elon Musk, being able to influence the price with a single tweet. On the international scale, imperialism comes to mind, especially after China's recent ban on mining; in its wake, many mining operations had to move to other countries like Kazakhstan or Kosovo, causing severe disruptions in the local electrical infrastructures. Africa is the fastest growing adopter of cryptocurrencies, but it remains the weakest part of the world concerning market capitalization. This suggests that people in Africa need and use cryptocurrencies in their daily lives; however, they lack the economic power to keep the price stable and thus fall prey to the whims of the large whales in the state of the global north. In the words of Ruha Benjamin: "one of the things we have to come to grips with is how the nightmares that many people are forced

to endure are the underside of an elite fantasy about efficiency, profit, and social control" (2019).

Bitcoin is thus doing something like a "speed-run of capitalism" (Calvao 2021). This certainly does not mean to say that such a dynamic is somehow ahistorical or inevitable. It develops precisely because Bitcoin's design is based on the ideals of economic development rooted in 19th-century economics. The ideals of gold as deflationary commodity money, laissez-faire, the separation of persons from relations, and private property as *natural law* reproduce the historical dynamics of the late 19th century only now in a virtual space, with less friction and also much faster. As the classical saying goes: "History does not repeat itself, but it often rhymes."

Bitcoin accelerationism

Even though Bitcoin is championed as a revolutionary technology, its use is quite conservative. It is filled with the fantasies of the gilded age of capital with money of gold and a laissez-faire state. Consequentially, the capitalist speed-run threatens Bitcoin to deal with the same problems it was supposed to solve. First signs are already visible; although Bitcoin was supposed to solve the problems of speculative finance that caused the 2008 crisis, in 2022, a fully grown financial system of crypto assets such as Bitcoin-futures starts to emerge. Furthermore, national states have started either adopting Bitcoin or developing their digital currencies as Bitcoin's direct successors.

The return to point zero becomes even more evident when looking at the so-called second layer of Bitcoin and blockchain. This term describes technological solutions that are not implemented directly into the Bitcoin protocol but are operating in addition to it. These technologies are expected to bring the solution to Bitcoin's scaling problem. One of the most commonly referenced second-layer solution is the *lightning network*. The lightning network is an experimental network of payment channels among users that allows conducting Bitcoin

transactions without necessarily being recorded in the blockchain. This would solve the problem of small blocks and the small number of transactions per second. However, if this network were to be employed globally, it would also demand centralized clearing houses to function correctly. In other words, it would need banks with enough capital to clear the transactions in the network among all the users (Fyookball 2017).

Looking at other blockchain-based cryptocurrencies, one can see a similar development. Ethereum is trying to solve the problem of energy-demanding proof-of-work mining with the so-called proof-of-stake model (PoS). The verification of transactions is conducted by members of the network with the biggest "stake in the game", i.e. actor, who could put down a significant amount of money as collateral, would add the new blocks and receive the reward. If they did not add blocks honestly, they would lose the collateral. The Bitcoin community heavily criticizes PoS because such system is far from the imaginary of a decentralized network. Once again, it reminds a bank.

The Future in the Metaverse

The current emerging derivative technologies based on blockchain are usually some new investment or forms of investment management. An example of these newly emerging forms is *NFTs* (non-fungible tokens), which serve to speculate either with digital art or virtual real estate in the *Metaverse*. NFTs are unique digital objects that can be freely traded, and their ownership is usually recorded in the Ethereum blockchain. Anything digital can be turned into an NFT, from a simple JPEG to a tweet or a virtual parcel. NFTs themselves are not stored on the blockchain; only the certificate of ownership is. Practically it means that the certificate includes a link to the digital object. However, the digital object itself exists elsewhere on the internet.

Metaverse, on the other hand, is an idea taken from Neal Stephenson's 1996 book *Snow Crash.* It is supposed to be a decentralized virtual space where everybody has their avatar and

can meet freely. Proto-metaverses such as second life appeared already at the turn of the millennium (see Boellstorff 2015), but these were centralized, meaning that even though they created the idea of absolute virtual freedom, they were developed and run by one central subject.

The newly emerging Meta-verses such as *Decentraland* or *Sandbox* are decentralized; their environment and data are stored on and generated from multiple independent servers. This distinguishes web2.0 (centralized platforms such as Second Life or Facebook) from web3.0 (decentralized platforms such as cryptocurrencies or Metaverse). The decentralized metaverses heavily depend on blockchains, for the possessions of users must be recorded on decentralized ledgers to be incorruptible and accessible from multiple providers generating the content.

The current craze in the Metaverses is real estate. The virtual parcels are in limited number and sold in the form of NFTs recording the parcel coordinates on the blockchain. The prices of these parcels can be thousands of US dollars bought by individuals and corporations.

The all-encompassing logic of capital thus gives no vision of the future outside itself. Quite the opposite, even the ideas and technologies that initially promised an escape from the economic limitations of the material world – such as the virtual cyberspace in the late 1980s and early 1990s – are now reimagined as new sources of scarcity and possible accumulation thanks to the idea of the Metaverse.

The old aesthetic of cyberpunk (including the term Metaverse itself) is merely utilized to harness the power of western collective nostalgia for the *Future.* If web1.0 was the new unoccupied territory and web2.0 was the moment of colonization (see Couldry and Mejias 2019), then web3.0 is the *proletarianization* of cyberspace.

Everybody enters the Metaverse and web3.0 as an independent subject, capable of freely exchanging with everyone else. However, the primitive accumulation of property has already begun, and soon, the average users of the Metaverse will have nothing else to exchange but

their labour power. How this labour-power will be utilized can be already seen in the existing proto-Metaverses such as Roblox.

According to tech-journalist Quintin Smith, the interactive gaming and creative platform Roblox utilizes an exploitative design that harnesses the value created by its users, often engaging in what cannot be described other than as child labour. Smith summarizes that "what makes Roblox money is empowering kids to be workers with unreasonable expectations of what they can achieve with this platform, in a way that would be illegal if it wasn't happening online." [34]

Roblox, so far, is still a centralized company and fits the web2.0-bracket of social media. However, the mechanisms used in Roblox to exploit its users for creative labour can be (and most probably will be) easily transferred to the web3.0 digital spaces of "unmediated" interaction. The users could be incentivized to sell their cognitive labour – in various forms ranging from production and management of content to personal data – in exchange for money. Money that could be spent either in the Metaverse, where it would grant access to certain areas and activities or in the material world for means of bare subsistence.

What the Metaverse promises to create is free labour in the Marxian sense of the term: "free in the double sense, that as a free man he can dispose of his labour power as his own commodity, and that on the other hand he has no other commodity for sale, is short of everything necessary for the realization of his labour power" (Marx 2010, 179). Nevertheless, while in Marx's times, the proletarianization of the masses was determined by the certain material limits of the existing world, now it reproduces this limitation artificially to extract a surplus from the established class division of haves and have-nots. Indeed, "the first time as tragedy, the second time as farce" (Marx 1979, 103).

[34] https://youtu.be/_gXlauRB1EQ (retrieved 28.1.2022).

Future no more?

All in all, one can certainly assume that cryptocurrencies will stay with us for a while. This new way of organizing social relations will probably become more intrusive through the application of web3.0. Furthermore, even though the application of blockchains might shift from commodity money to some other social relation (such as ownership of virtual real estate), the primary mechanism of creating artificial scarcity through delegated non-human social control will still be present.

The most important practical question is how Bitcoin and other proof-of-work blockchains will deal with their energy consumption. Although there are some proposed solutions, such as proof-of-stake these solutions are not yet widely applied and lack the trust of the broader Bitcoin community. However, without any solution to this problem, the competitive nature of Bitcoin mining will continue to reproduce the dynamics of energy exploitation we can see today.

Understandably, many people see Bitcoin as a liberating tool, especially in the age of austerity and the crisis of legitimacy of modern institutions. However, my aim in this dissertation was to show that these promises are, at moments, highly misguided and, instead of liberating tendencies, carry out merely fastened reproduction of the same dynamics that brought our current condition into being. To bring much-needed social change, it is necessary to denaturalize free markets and seek other modes of organizing social relations rather than ossify them in digital objectification and adjacent ideologies.

Epilogue: *Fatcoin and the return of the Vampire castle*

> *Anthropologists have come to understand over the years that every society is haunted by slightly different nightmares, and these differences are significant. Horror stories, whether about vampires, ghouls or flesh eating zombies always seem to reflect some aspect of the teller's own social lives, some terrifying potential in the way they are accustomed to interact with each other that they do not wish to acknowledge or confront but also cannot help but talk about.*
>
> (David Graeber: *Debt: The first 5000 years*)[35]

In May 2019, I helped one of my informants organize a workshop focused on the speculative design of money. The workshop aimed to spark discussion among the participants about the nature of monetary relations. The assignment then was to design a new form of money which could help solve social issues. Due to the lack of participants from the public, as organizers, we also decided to participate in the speculative exercise. Thus, the workshop consisted of one elderly lady from the public, one anthropologist, and six organizers with experience in speculative and critical design.

First, I was asked to give a short explanation of how do cryptocurrencies function and what are their strengths and weaknesses. All of the organizers, me included, got drunk the previous evening, so we were all hungover. Somehow, I managed to give a more or less coherent talk and introduce the theme of the workshop. Everybody was supposed to come up with a design of money that would solve a particular social problem.

We split into groups of two or three people and started discussing ideas. My group sat at a small table and discussed various monetary designs to help lessen the unbalanced distribution of wealth in society. After a while of exchanging ideas, we came up with the idea of *edible money*. The design was supposed to interconnect money as a store of wealth with the limits of the corporeal body. The general idea was that money would be stored in "smart fat cells" in the human body; therefore, the wealthier a person would get, the fatter they would become.

[35] I would like to thank Dr. Martin Fotta for bringing this passage to my attention.

Consequentially, the hoarders would become morbidly obese and incapable of any movement. We called it *Fatcoin*. It was a silly idea and, above anything else, something we could laugh about.

Fatcoin was a parody of Bitcoin. It aimed to stretch Bitcoin's boundaries to absurd conclusions so that it would reveal the problem of commodity money. But Bitcoin itself is a parody of modern money. It takes their alienating, cold, calculative character as a qualitative medium to measure the world of social relations and aims to bring it to the extreme. I realized this during the workshop when almost all of the propositions we presented at the end were concerned with quantifying moral acts. All our ideas about the new, more socially conscious money were – to put it simply – ideas on how to reward people for letting the elderly sit down on a bus or punish hoarders for refusing to share their wealth. Luckily, we did reflect on this during our workshop's closing session. We were a bit disappointed that we all fell prey to this commodifying logic and that none of us came with a design that would somehow question it.

This inability to think outside of the transactional logic of capitalism reoccurred to me a few months later when I was sitting in the Bitcoincastle and listening to our host and his visions of the new world. However, there nobody reflected on this logic – not at the castle, and neither during our ride back home. Both, our host and my companions, seemed to understand this logic perfectly and were not bothered that it would turn every social relation into a market exchange.

Back then, I thought the ideas presented there were merely fantasies that would not see the light of day in decades. A few years later, I am forced to reconsider my assumption, especially when I see the emergence of Web 3.0, NFTs and Metaverse with all the attention these technologies get in the public space. The uncanny feeling I felt back then at the castle suddenly reappears. I once again see a society where everything is reduced to a market commodity by the very design of reality we create.

All the Bitcoin imaginaries discussed in this thesis somehow contain such a society. A society where everything is for sale, where everything is an investment, everything (and everyone) can be alienated, everything is translatable to the language of capital. No matter how much criticism is thrown against it, this is the future we seem to be building.

I might have escaped the Vampire castle, but it still comes back to haunt me.

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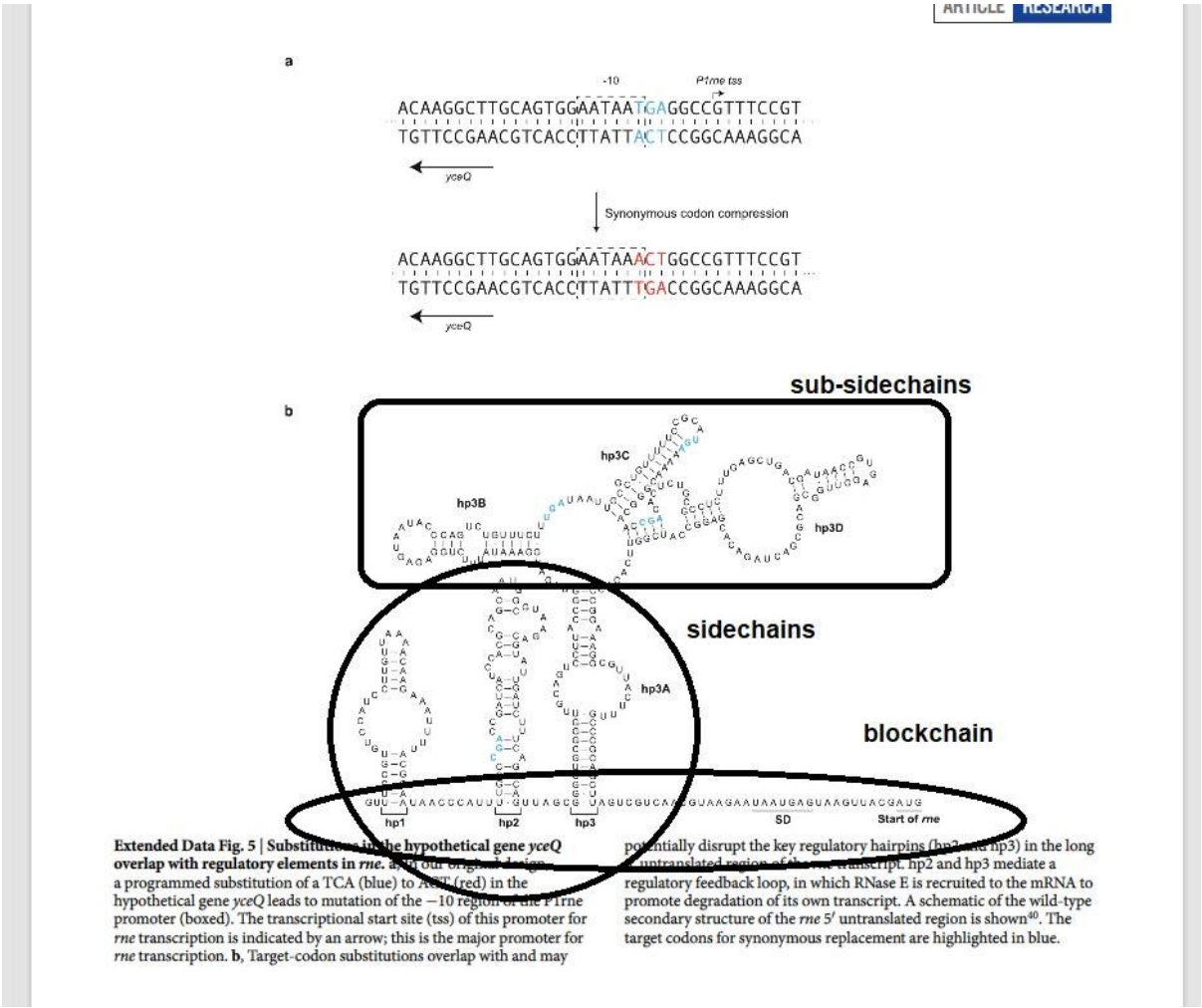
Appendix 1:



Extended Data Fig. 5 | Substitutions in the hypothetical gene *yceQ* overlap with regulatory elements in *rne*. a, In our original design a programmed substitution of a TCA (blue) to AGT (red) in the hypothetical gene *yceQ* leads to mutation of the −10 region of the P1rne promoter (boxed). The transcriptional start site (tss) of this promoter for *rne* transcription is indicated by an arrow; this is the major promoter for *rne* transcription. **b**, Target-codon substitutions overlap with and may potentially disrupt the key regulatory hairpins (hp2 and hp3) in the long untranslated region of the *rne* transcript. hp2 and hp3 mediate a regulatory feedback loop, in which RNase E is recruited to the mRNA to promote degradation of its own transcript. A schematic of the wild-type secondary structure of the *rne* 5′ untranslated region is shown[40]. The target codons for synonymous replacement are highlighted in blue.

Visualisation of blockchain as a genetic structure. Source: Facebook