

THE SOCIALITY OF THE BLOCKCHAIN AND THE APPIFICATION OF MONEY

Affordances of a New Paradigm for Crowds



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Introduction

There is currently a significant rise of interest in the ‘payment space’ from researchers, industry and more recently governing institutions alike – or, as Maurer puts it, ‘in that new body forms, adaptations of existing structures, and novel relationships in a variegating ecology of retail payment are coming into being all at once’ (Maurer 2017: 215).

Readers with an interest in the payment space are familiar with some of these ways to pay, from cryptocurrency to credit cards, Paypal and, more recently, as payment systems morph into platforms such as WeChat and Ali-Pay (Plantin and De Seta 2019). While not all rely on the bundle of technologies that culminated in the generically known ‘smartphone’, it is certain that such a significant rise in this practice of digital payments was facilitated by the wider adoption of software and computers.

The digital payment space is characterized by a process of substitution. The mobile phone and the distributed ledger technology displace traditional artefacts as the bank

card and cash. This ongoing process is anything but clear. Bratton (2015) tried to theorize this process of computing as global megastructure or, as he calls it, 'The Stack'. Furthermore, money becomes increasingly encoded in computational layers, for instance, through applications and the subsequent practices of digitized transactions.

In this context of computational layering, payment platforms enable the transition of physical crowds into this computational layer, thereby becoming digital crowds. Crowding effects in the crypto space have so far received little attention in terms of conceptualization. This chapter attempts to present a novel conceptualization of crowding effects with regard to the crypto space and distributed ledger technologies. In this space a new notion of value is cast into new configurations of quasi-'invisible crypto crowds'. The chapter will explore the mechanisms of how crowding dynamics on blockchain platforms manifest itself into a new digital crowd paradigm.

Money as Abstraction: The Application of Money

Money is the primary medium of value transfer in society and is increasingly following the notion of 'economic media' (Beller 2021). As such, it becomes clear that blockchain technologies and their application in the computational and financial domain manifest in an 'embeddedness' of monetary media in the social. In a broader sense, monetary media not only creates information but also manages and assembles it into tradable objects or 'data commodities' (Aaltonen et al. 2021).

Through 'adaptations of existing infrastructures' facilitated via software (see also Maurer 2017), the payment space has expanded beyond simple transactions. Participants in this space are entangled in new practices of scanning, verifying, connecting and interacting – in short,

money is becoming ‘appified’. The ‘appification’ of money is visible in the rapid growth of money-related applications across different platforms. Internet banking applications, online payment services such as PayPal, AliPay and WeChat Pay, and platform payment systems such as Apple Pay and Google Pay all encode the payment process in software. In addition, some applications become platform-apps, such as ‘digital wallets’ (Kenney and Zysman 2016). They will form the connective link to other applications and, as such, will become a central part in the formation of crowds. For instance tickets, reward cards, entrance passes and, more recently, health passes are some of the examples where appification is expanding beyond simple transactions.

With regard to appification, it is easy to see that money and transactions are no longer simply exchanges. The transaction of value becomes a ‘mediated interaction’ and thus payment configurations become appified. The functionality of money becomes coded in different ways and money moves from a private, local space to a quasi-public global space (Zelizer 2010; Maurer 2017: 48). In this new space the individual essentially becomes part of this computational realm (one could say crowd or community) by executing these novel adaptations of money through streaming, updating, capturing, uploading, linking, saving and scrolling (Chun 2016). Lessig (2006) has argued that computer code configures social relations in comparable ways to law. In what follows, I want to suggest that this new specificity of appification follows the logic of narrativity. In other words, the blockchain can be interpreted as narrative technology.

The Sociality of Distributed Ledger Technologies

The making, structuring and functioning of distributed ledger technologies (blockchains) is best understood through

the lens of the concept of ‘informating’, which is ‘the process that translates descriptions and measurements of activities, events and objects into information’ (Zuboff 1988: 9). In the age of computation, this implies a reprogrammability of our cultural logics and therefore also of crowds. The very existence of blockchain and DLT technology in a wider sense can be critiqued with particular reference to technological solutionism (Morozov 2013) as the technology of distributed ledgers (blockchains) in popular discourse is viewed through a techno-utopian lens of technology with futuristic imaginaries (Dickel and Schrape 2017).

However, it should be noted that with the tokenization of money, distributed ledger technologies essentially remove politics from money. In other words, money is separated from the governing state and banks, and pushed into the wider domain of the ‘crowd’ and the ‘machine’. More broadly, blockchain technology becomes the new digital utopianism of cyberspace. As specified by the elusive Satoshi Nakamoto in a white paper (Nakamoto 2008), the blockchain was developed as the basis for a peer-to-peer electronic cash system, but is now adopted for a variety of application scenarios beyond cryptocurrency and financial transactions (DuPont 2017). The blockchain thus supports the transaction of value through cryptocurrency as an application. As such, distributed ledger technology contributes to the ‘appification’ of decentralised digital currencies.

The Blockchain as Narrative Technology

The proposed framework to conceptualize blockchain technologies and thereby the byproduct of crypto crowds is ‘narrative technologies’. Narrative theory can be used to construct a theoretical framework for understanding technological mediation. Ricoeur believes that if human action

can be read and interpreted like written works, then the methods and practices of textual interpretation can function as a paradigm for the interpretation of action for the social sciences. Texts and actions have underlying structures to be explained as well as social meanings to be understood. The core aspect of Ricoeur's works is a narrative theory. Ricoeur's thesis in *Time and Narrative* is that a (hermeneutic) circle exists between human experience and narration: experience has a prenarrative quality that is meaningfully and coherently organized into a story by means of a plot. Time becomes human time to the extent that it is organized in the manner of a narrative; in turn, narrative is meaningful to the extent that it portrays the features of temporal experience (Ricoeur 1980).

The basic feature of a narrative is a plot. The plot picks out, orders and assigns significance to otherwise random and disparate elements by arranging them into an intelligible whole. This structuring activity is what gives the story a meaning and what allows it make its point. Self-understanding is instead mediated by signs, symbols and language, and therefore requires an indirect method of interpretation. A technology on this model is like a text: it is readable, with a meaning that is independent of the intentions of the original creators and users. There is a sizeable class of artifacts that we might call 'identity technologies' – mobile phones, cameras, computers, surveillance equipment and the entire technological network. This implies that the organization of events is made intelligible or, rather, 'followable' (referring to the human ability to 'follow' a story). This makes it possible to interpret the way in which humans 'read' technology (Kaplan 2006: 49). Moreover, Ricoeur (2002: 4) points out that there are certain ways in which humans can construct plots to understand technology – for example, by outlining the motivations for designing a technology.

In other words, I will argue that humans do not read technologies, but that conversely technologies ‘read’ the human. If we then take Ricoeur’s narrative theory seriously, we need to see the ‘reading’ as a reciprocal process. Therefore, the term ‘configuration’ is used. In order to defend the claim that technologies configure the narrative understanding, we need to show that – just as with texts – they are involved in the organization of events. I not only want to show that designers use narrative approaches to understand the technologies they create; I also want to go further by showing that technologies themselves configure a plot. According to Ricoeur, we can convincingly support the claim that technologies have the capacity to configure plots, understood as organizations of events. This means that technology closes in on the paradigm of a text. It is therefore also argued that narrative structures mediate all human interactions with technologies.

As a consequence of these methodological assumptions, the narrative capacity of technologies increases whenever technologies get more textual. By analysing technologies according to the way in which they configure a narrative plot or, more specifically, how they organize characters and events in a meaningful whole, it is possible to understand the way in which they inform the social payment space and how this is shaping the notion of value. This framework is concerned with narrative technologies that actively configure our narrative time and instantiate a technological mediation that abstracts from the world of action. Here I will discuss electronic monetary technology as a paradigmatic example:

- Algorithmic trading technologies actively configure narrative time because they ‘co-author’ the trade narrative.

- Although narrative technologies mediate events (such as trades and transactions), they configure narrative time on a calculative, mathematical level.
- Phenomenologically and hermeneutically speaking, the transaction is about numbers that represent quasi-characters (e.g. blockchain hash function, blocks).

Kaplan argues that narrative theory can be used to interpret the way in which humans ‘read’ technology (Kaplan 2006: 49). Moreover, he points out that there are certain ways in which humans can construct plots to understand technology – for example, by discussing the motivations for designing a technology (Kaplan 2009: 4). These plots are ‘constructed’ or, to follow the terminology of Ricoeur, ‘configured’. A good example of this configuration process is the emergence of the ‘appification’ of the payment space through software. Software applications establish a verbal interaction with the system. The system thereby starts to interact with the user. The narrative capacity of technologies increases, whenever technologies get more textual. This is clearly the case with ‘software’ and ‘applications’. Narrative technologies that actively configure our narrative time and instantiate a technological mediation that abstracts from the world of action are the paradigmatic example of this – namely, digital payment systems.

Digital payment systems mediate actual events and actual characters, the narrative they configure, operate on a calculative, mathematical level. In the case of blockchain and digital payment systems, this means a representation of quasi-characters (hash functions and blocks) and quasi-events (payment, exchange and cryptographic order) configured in a quasi-plot (e.g. a blockchain transaction or Apple Pay function). Moreover, the narrative time of electronic monetary technologies is rigorously subjected to chronological time dimensions. Chronological timing of

trades is the essence of modern digital payment machines, and the sequence of the operations for the execution of transactions is critical to the functioning of the system.

Consequently, transactions become a matter of calculations, removed from reality, real events and related material realities, or, as Baudrillard has put it: Signs and modes of representation come to constitute 'reality'. A new type of social order in which it is signs and codes that constitute the *real emerges* (Kellner 1989), generated 'by models of a real without origin or reality: a *hyperreal*' (Baudrillard 1994). Blockchain transactions can therefore create data, tokens and a ledger. The ledger preserves all historical transaction information while also producing and circulating the resulting data and tokens. By creating, expressing and recording network activities, transactions enact the ruleset of the blockchain's protocol, determining which data, tokens and histories are configured.

In addition to creating, distributing and recording data transmitted across a network, blockchain transactions involve the creation of currency, the transfer of funds and the circulation of value, with digital tokens functioning as a speculative financial asset and medium of exchange. These digital tokens, in turn, circulate as cryptocurrencies (e.g. Bitcoin) or nonfungible tokens (NFTs) with the capacity to become economic in different ways. Cryptocurrencies and NFTs, for instance, are used as collectibles, financial assets, stores of value, digital money and property. Meanwhile, a diversity of private and permissioned blockchain implementations, often categorized as distributed ledger technologies (DLTs), leverage the functionality of an auditable and distributed log of network events without any tokenizing features to increase and streamline datafication, optimize the production, management, supposed privacy and transparency of big data through encryption, and facilitate the digitized economization of

data via extractive measures (Calvão and Archer 2021). The economization of a blockchain transaction vis-à-vis tokenization and the subsequent ‘appification’ of the payment space warrants further consideration, as it is closely linked to new developing forms of sociality, monetization and crowd theory.

Crowds and Crowding in the ‘Narrative’ Blockchain

The emergence of digital tokenized payment systems and, in particular, blockchain and its application of cryptocurrencies has similar thematic concepts in common with crowds and crowd theory. Borch and Knudsen (2013) proposed three categories of crowds: the consumer crowd, political crowd and the digital crowd. Within this categorization, digital media acts as a connective thread or as I will call the ‘medium’ or ‘platform’ of the crowds. Interestingly, all these three categories of crowds are represented in one way or another within the wider domain of distributed ledger technologies and digital payment systems. First of all, blockchain cryptography was the ideological basis of adopting the application of cryptocurrency and, as such, a political ideological consequence of the cypherpunk ideology. The cypherpunks were 1990s digital activists who challenged government policies aiming to prevent the emergence of unregulated digital cryptography, an online privacy technology capable of escaping government surveillance (Jarvis 2022). Second, digital crowds are the result of the intertwining of digital media with social life. Digital crowds are enveloped in technospheres of data-rich devices or data-rich environments such as blockchains (Ziada 2020). Third, the consumer crowd has become a growing category of networked publics by the rise of digital media (Boyd 2010) and is char-

acterized by the idea of the ‘prosumer’ blurring the lines between production and consumption. This leads to the conceptualization of the ‘homo economicus’ according to Borch (2007) a machine-like rational subject that hints at an interaction between humans and objects as proposed by Latour in Actor-Network-Theory (Latour 2007).

In my view, two concepts in particular can be helpful to further theorize the role of different crowds, crowds play in the domain of blockchain technology/crypto. Deleuze’s conceptualization of the machine, including his concept of the social machine (Deleuze 2009). Deleuze rightly suggests that specific forms of human collectivities can be interpreted as machines. Simondon’s description of machine space (Simondon et al. 1980), which was also conceptualized as code space by Dodge and Kitchin (2004) where technology actually organizes and configures space for the crowds, thereby leading to the emergence of ‘data publics’. Analysing this through the lens of the blockchain domain leads to the realization that within the new machine space of the blockchain, a new manifestation of data publics forms that some also call ‘crypto crowds’.

This idea of new data publics or ‘crypto crowds’ can be further perpetuated and expanded through Baudrillard. Baudrillard posits that the social becomes obsessed with itself through a process called ‘auto-information’ (Baudrillard and Maclean, 1985), which means we are constantly confronted with the anticipated numerical verification of our behaviour. This heavily automated production of information in the computer age devoid of human involvement works in the background. More recently, this phenomenon was also described as ‘datafication’ (Lycett 2013) or as O’Dwyer (2019) details the evolution of money’s mnemonic function and its historical relationship to record-keeping. From ancient tokens to electronic payment systems, she observes that ‘money has always been

contiguous and at times indistinguishable from its data' (O'Dwyer 2019: 8).

In a similar fashion, Baudrillard asserts that there is an apparatus of recording/capturing data. In a wider sense this apparatus of recording and capturing is the blockchain's perpetual creation of blocks for each transaction executed on the blockchain. Baudrillard extends his theorization, suggesting that we live in an era of simulation where the masses are simulated and where signs and modes of representation have come to constitute reality – a new type of social order in which it is signs and codes that constitute 'the real' (Kellner 1989: 63) generated 'by models of a real without origin or reality: a hyperreal'.

Indeed, the blockchain imposes a new type of social order where signs and modes of representation (blocks and hash functions) constitute a new reality (verification of a block). These new blocks are generated by the automated system of the blockchain, constituting what Baudrillard describes as new reality: the hyperreal. NFTs in particular are a good example of the formation of a new hyperreal. Castells described a new notion of the real as 'real virtuality'. Baudrillard expands on this: through this apparatus of recording and capturing data, the masses disappear, thereby creating an invisible mass that paradoxically is deeply embedded in the capturing and recording of a cryptographic apparatus of the blockchain, where the mass is invisible, but parts of the data block are open to read for the participating crowds. In other words, exchange value is codified by sign-value; reality fades away in favour of copies or, as Baudrillard asserts, simulation. These copies are represented by the continuous creation of the hash function and the simulation is the 'minting' of new blocks by integrating copies of old information into new realities. Baudrillard describes this process as retransmission of all our facts through a process of automatic writing (Baudril-

lard 1995). The question here is: *are narrative technologies contributing to this formation of the invisible mass?*

Baudrillard speaks of a world where ‘human beings have disappeared’ (Baudrillard 2008: 31). However, he is clear that the emphasis is on disappearance, not complete extinction or exhaustion of the subject. According to him, this constitutes a specific form of disappearance (Baudrillard 2008). A possible answer to this question must be that the technology of the blockchain and its various applications or, as Baudrillard terms it, the ‘apparatus of recording and capturing’ is perpetuating a decoupling process of the individual and the masses and re-arranging the individual through the masses and through the cryptographic process of the blockchain in an invisible fashion.

The Ethnography/Empirical Material

This chapter analyses specific characteristics of the monetization of the social created through a reinterpretation of the notion of value in the blockchain as underlying technology. The object of study is to demonstrate what the affordances of these new forms of digital payment systems are and how the socialization of money is informing the crypto/blockchain start-up space. Combining theoretical blockchain studies and applying the concept of narrative technologies together with ethnographic practices enables a grounded discussion on blockchain-based monetization of the social. The particular ethnographic case example I like to highlight in the context of crowding effects in the blockchain is that of a start-up I interviewed for my research, which allows individuals to take control of their data while monetizing it as a cryptographic asset. This start-up aims to make digital certificates in the form of NFTs using the blockchain. These certificates shall tokenize consumer data as data assets. Effectively, this leads

to the creation of social tokens or altered forms of money. In this scenario, we see the formation of data as cultural artefact through the demarcation of the individual and the wider crowd. This resembles what Lana Swartz calls transactional communities (Swartz 2020) and what through the lens of Ricoeur we call narrative identities (Ricoeur 1988).

The founders of this particular application on the blockchain highlighted that for them, monetization begins in the social sphere. Discussing some of the main functions of money – medium of exchange, store of value and unit of account – it soon became clear during this particular interview that the financial part of the blockchain idea is the ‘application’ or, as one of the founders puts it, ‘the NFTs are foundation of the application layer’ (Tsavelis 2023). It becomes apparent here that this particular founders are thinking in terms of a layered blockchain space. The abstraction level with regard to the interpretation of money itself goes even further. During the interview, one of the founders mentioned that ‘for us digital certificates are the money part of the idea, we are functionalising the concept of money’ or, as the co-founder further exemplifies, ‘for us money carries content, almost like an NFT’ (Tsavelis 2023, Findings section).

From this brief excerpt from the interview, it becomes apparent that the founders of this particular start-up tacitly understand money as content and application. This is indeed very close to the theoretical framework set out by Ricoeur. The idea behind this blockchain start-up is to functionalize money; as such, it cast a new configuration of value through the imposition of certificates (in this case NFTs) as tradeable money alternative. Consequently, by framing money as ‘content’ or in the wider sense text, two interesting things happen: first, money becomes readable and through tokenization money becomes appified; and, second, in this newly established appified system,

the application of money is mediated through narrative structures and therefore different configurations of value become possible. As a result of this configuration process, the social is monetized and this is exemplified by creating a data asset. This textual component framework of Ricoeur now allows us to understand that ‘data’ is created out of ‘data’ (see also Zuboff 1988). However, this process is continually perpetuated. The very system of the blockchain and tokenization creates new narrative structures through their now circular configuration in the distributed ledger. This enables not only (as discussed) new notions of value, but also new forms of crypto communities or crypto crowds. At the same time, this process also blurs the lines between what constitutes the public and private appearance of the subject or individual and their eventual mode of disappearance. The result is the formation of a new invisible mass or crowd that also paradoxically is highly visible through the narrative structure of distributed ledger technology and its various applications, especially that of value and money.

Money and Application: An Analysis through Simmel

Software applications in the form of apps have increasingly developed into alternative money systems using a range of media and practices such as peer-to-peer networks to facilitate the exchange of value through ‘technological vehicles’ such as the blockchain. This is something that Dodd (2012) described as ‘perfect money’ or ‘pure token money’ (Simmel 2004: 165). Simmel states that it is token money that is detached from ‘every substantial value’ (Simmel 2004: 167) and this is also what contributes to social synthesis or, in other words, the formation of crowds. As Simmel puts it, ‘every one of its members

were fully relationally integrated, each one dependent on all others and all others on the one, just because each one is individually a part of it' (Simmel 2009: 50).

Following Simmel, it is individuals who reproduce crowds through a process of action and interaction. Communities or crowds are becoming 'a set of interactions' (Simmel 2009: 170). Interaction is also a key feature of digital environments from which new communities can be built. As a consequence, the practice of interaction produces information that then acts as a medium of exchange for an individual (Riva and Galimberti 1997). Simmel has argued that money is shifting from the 'material' into more abstract forms towards a state of pure abstraction. In this evolved state of pure abstraction, the formation of crowds is perpetuated. The proliferation of the functional value instead of the intrinsic value of money has led to an expansion of money into the digital space in forms of online payment systems, and pure digital forms of value in the form of cryptocurrency through blockchain technologies. This very expansion into the digital space has enabled a new notion of crowd, namely crypto crowds. Simmel makes two central assumptions about the individual and society, which is of particular relevance to the formation of crowds in the crypto sphere.

Individuals Are Both within and outside Society

Through the process of appification of the money sphere, the tensions between singularities and pluralities are exacerbated. The very process of appification reflects Simmel's elements of the theorization of money. Appification itself is characterized by a process of action and interaction. Within this dyad of action and interaction, 'appification' establishes a regime of calculability where platforms fa-

cilitate the formation of new digital crowds vis-à-vis the singularity of the individual user. In the philosophy of money, Simmel (2004) suggests that money is increasingly becoming a ‘medium’.

This means that money as a medium works inbetween objects and the individual. Money creates distance and detachment from interaction between individuals. The formation of crypto crowds is therefore categorized into separate calculative spheres. In a similar notion to ‘social media’, the distinction of private and public versus individual and crowd became blurred. Payment and exchange of value itself became social media and formed through a regime of appified money (Swartz 2020).

In this highly techno-appified space communities materialize and dematerialize into crowds and individual entities. Lustig and Nardi (2015) speak about a complex process of authority and trust in this space. This shapes the formation of crypto crowds. The central idea behind this reasoning is the assumption of the ‘rational’ individual actor (DuPont 2017) or, in a wider sense, what Golumbia (2009) has termed the cultural logic of computationalism. Golumbia asserts that computationalism perpetuates the idea of ‘individualism’ and ‘singularity’. However, within Golumbia’s (ibid.) idea of computationalism, the ‘individual’ gets integrated into a wider automated system. Consequently, Golumbia talks about essentially two states here. The individual gets displaced as the subject and becomes the object of the crowd. What is important to note here is that the ‘computationalist’ blockchain turns the individual into an extension of the crypto crowd. This notion is close to more recent ethnographically informed research on cryptocurrency communities (DuPont 2019; Swartz 2020). The sociotechnicality of appification creates data-money communities with individuals who engage under the uni-

fied umbrella of the blockchain and some of its central applications (for instance, cryptocurrencies and smart contracts, and NFTs).

Appification creates metastructures that enable routes to interaction as proposed by Simmel's theorization of interaction (2009). These metastructures take the function of infrastructures (Bratton 2015). It is the network that becomes infrastructural to the functioning of the blockchain. In turn, the blockchain becomes infrastructural through providing the architecture for the appification of the payment space. As a consequence, sociotechnicality becomes sociodigitality. It is exactly this sociodigitality that accentuates the embeddedness of monetary media in the social and thus increases the tensions between singularities and pluralities in the techno-appified space. These sociodigital assemblages shape the context in which individuals contribute to the formation of communities through markets in the crypto space (Caliskan 2020). Caliskan makes an important distinction here: private versus public blockchains. An example here is the fintech company Ripple, which is a cryptocurrency controlled by a single entity. Ripple is not a direct competitor to cryptocurrencies per se, but a system for facilitating remittances used by financial institutions. Ripple never expanded beyond this very first group of users. This led to tensions between trader communities and individuals. Traders wanted prices to be volatile in order to achieve higher margins. Platform providers wanted prices to be stable or protect their investments, whereas private cryptocommunity individuals wanted prices to be cheap so they could participate in the community. Thus, individuals drifted towards other blockchain projects (Rella 2020).

Maurer has summarized this as 'blockchain technologies not imposing radically new monetary systems but they rather perform on the level of "plurality" thus highlighting the tensions between embedded and disembedded

money practices between communities and individuals' (2012: 415).

Individuals Are Both Objects and Subjects within Networks of Communicative Interaction

In this context, appification explores new modalities of visibility. Objects (blockchains, cryptocurrencies, digital payment platforms and hash functions) and subjects (users and individuals) are structuring and restructuring visibility through a framework of software and coding processes. As analysed at the beginning of this discussion, this new construction of visibility imposes a new notion of invisibility (Baudrillard 1988). These networks of communicative interaction (blockchains and hash functions) form an all-seeing visibility machine with an important feature of 'disappearance' (Foucault 1977). The medium of the 'blockchain' is governing visibility and invisibility at the same time; the medium becomes the message of this new notion of technocrowds (McLuhan 1964). The individual's 'action' is totally seen by other users of the blockchain (Foucault 1977: 202). However, it is not the singular that counts in this arena of the technocrowds, but the plurality and dynamic structure of the blockchain that circulates the formation of crypto crowds through various applications on the blockchain. Cryptocurrencies, wallets and blockchain exchanges are applications of the blockchain that perpetuate these contradictory dynamics. Within this regime, the visibility of the individual becomes the reward for interaction with the invisible 'crypto crowds' of the blockchain. An example of this is the 'miners' of the blockchain who perform 'interaction' work within the blockchain. They inscribe, register and organize mining operations collectively, thereby enabling the formation of pluralities of crypto miners in the crypto space (Calvão 2019; Caliskan 2020).

In this context it is important to point to Simmel's concept of 'sociation'. According to Simmel, 'sociation is the form in which individuals grow together into a unity and within which their interests are realized. And it is on the basis of their interests . . . that individuals form such unities' (Simmel 1971: 24). A good representative example of Simmel's concept of 'sociation' is the practice of splits in the blockchain. Disagreement among communities leads to the formation of new crypto crowds. A particular feature of blockchains is the arrangement and structuring of communities along a chronological chain (Wright and De Filippi 2015). In this sociomaterial dealing with time as the central structuring element, the invisibility of the crowds/groups and the visibility of individuals is not only technologically shaped but also has a social dynamic component (Wajcman 2008).

A useful theoretical construct, to better understand these dynamics of blockchain splits on plurality and singularity, is Actor-Network-Theory (Callon and Latour, 1981). According to Latour (1990), actors can include both social and technical entities (such as individuals, a group of individuals, organizations, ideologies, methodologies and concepts) and artifacts such as hardware and software. This very combination of the social and the technical is what connects Simmel's idea of sociation to how appification and blockchains embed singularities and pluralities through a process of translation where temporality creates alignment within social groups.

Cryptocurrency was one of the first applications of blockchain technology (Nakamoto 2008). The practice of 'splitting' or creating 'forks' of already-existing sociotechnical formations is a prevalent feature of the blockchain. This 'forking' or 'splitting' proposal can be submitted by either individuals or groups. This was also a main theme during the interview with a founder and developer of a so-

called application fork in the crypto space. The following quote illustrates how crypto miners can play a central role within the actor-network of appified money:

miners are like micro-communities, they determine if the blockchain continues . . . (they essentially solve problems for other individuals). This is important, also with regards to the notion of value in the blockchain. Miners remain also a bit opaque . . . they kind of act as background gate-keepers. Somehow miners control the data flows. (Start-up #2: founder and developer) (Tsavelis 2023)

A key finding here is that miners often form groups or pluralities around certain applications as the computing power of an individual is limited in terms of capability. What is even more interesting here is the observation that miners can both be individual actors and also form larger entities (a mining community/pool). This is something that Callon and Latour (1981) described as macro and micro actors:

the communication of the communities a lot of times is organized on a server on Discord. The exchanges act as kind of more formalized meeting places where individuals and the groups formed on Discord appear and make transactions. (Start-up #2: founder and developer) (Tsavelis 2023)

It is the interaction of community and individuals in the digital payment space that continuously produces a multiplicity of digital crowds that Simmel describes in his concept of 'sociation'. This can range from mundane digital payment assemblages such as digital wallets to more complex systems of blockchains and cryptocurrencies. The movement and circulation of appified money is what sets an analogous function to what Baudrillard (1995, 2008) described as a new mode of disappearance. The visibil-

ity of individuals gets augmented, whereas the masses of crypto crowds become invisible.

Summary

By applying the theoretical framework of Simmel's notion of money and analysing the phenomenon of communities/crowds vis-à-vis individuals within the sociotechnical network of digital payment technologies, this chapter has explored the appearance and construction of singularities and pluralities within what Tsavelis (2023) has termed a process of 'appification'. These tensions have been analysed along a two-axis assumption borrowed from Simmel:

- 1) Individuals are both within and outside society.
- 2) Individuals are both objects and subjects within networks of communicative interaction.

The presentation and analysis here has developed a new experimental angle on anthropological manifestations regarding the consequences of digital payment systems through the process of appification of the payment space. What this chapter has tried to explore is how individualism and community are paradoxically linked closely together and coexist in the same space, but within different states of visibility or, as Shapiro has put it in the introduction: The 'curious' analytical point is that these dynamics are contradictory' (Shapiro, introduction in this volume) that almost define a new relevance of crowds and crowding phenomena to the emergent construction of new forms of communities.

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Dimitrios Tsavelis is currently working on his research about dealing with the sociotechnicality and datafication of digital payment systems, with a particular focus on novel, trust less, automated systems of the blockchain.

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