# Unstructured Simplicity

## The Peer-to-Peer Collective and Concurrent Formations of Cryptocommunities

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### Introduction

Prior to the early 2000s, the most common computing model was the client/server model. Simply put, the client/server model is where 'an application residing on a client computer invokes commands at a server' (Singh 2001: 4), revealing a dyadic relational, or hierarchical, structure throughout its network. The server plays host to the client's commands, setting up two distinct operations. On the one hand, the client demands a certain response from the server. On the other hand, the server is necessary, even vital, for the client's functionality. A common problem for this type of computing model is that the centralization of information 'makes for performance bottlenecks and for overall system susceptibility to single-point failure' (Singh 2001: 4). For cyberattacks to be successful, all that needs to be targeted is the centralized server. If the server fails, this affects each clients' ability to operate. Hence, power over the flow of information rests with the centralized server. Moreover, the client/server model is inefficient when it comes to information processing, bandwidth and computing resources. With the amount of information on

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the internet constantly increasing, single search engines and data centres cannot locate and catalogue the information efficiently. Additionally, whilst new fibre cables are installed and provide additional bandwidth, 'hot spots just get hotter and cold pipes remain unused' (Gong 2002: 37).

Immense pressure is put on space and power consumption (Gong 2002). With the generation of new developments in computing, there needed to be a better way to organize the efficiency of the relied-upon computing model. Moreover, the client/server model's faults needed to be mitigated to account for improvements in cyberattack methods and in response to growing concerns around centralized control (Hughes 1993). Thus, to better utilize internet and computing resources, a more distributed type of computing model was introduced, namely that of a *peer-to-peer* computing network.

Peer-to-peer (P2P) networks are commonly associated with file-sharing programs, such as Napster, which enabled the sharing of mp3 compressed audio files (Schollmeier 2001). In its most basic form, a P2P network is where two or more devices are linked to each other 'without requiring a separate server computer or server software' (Cope 2002). Schollmeier (2001) defines P2P networks based on what he calls a *servent*, which is derived from the first syllable of the term 'server' and the second syllable of the term 'client'. Hence, for Schollmeier (2001), the term *servent* represents the capability of the nodes within a P2P network to simultaneously act as both client and server. This ability means that the network's space and power consumption, in terms of information processing and storage, bandwidth, and computing resources, is distributed throughout the network and thus better utilized.

As a more efficient way of organizing network operations, P2P structures have a direct impact on power dy-

namics and hierarchical relations. This is what concerns the present discussion. The offered material derives mostly from research that amounted to approximately ten months of observation of online forums and other accessible resources from the public domain. Rather than conducting what can be described as a 'traditional' ethnography involving long-term exposure to 'real-life' people and events, I instead focused on the presence of the cryptocurrency emergence within middle-class circles across the world that supersede the Global North/South divisions and aimed to gain a critical understanding of the mechanics of the blockchain. Thus, this chapter methodologically concentrates on the broader Bitcoin/crypto philosophy and the mechanical and practical structures that underpin it. Out of this, I broadly aim to elaborate on what cryptocurrency and its associated ideals can do for our understanding of human beings and the way we organize ourselves within the context of a changing world order – in this case, with a particular focus on the tensions between crypto crowds and coin communities.

More specifically, this chapter aims, first, to further the critical idea of 'blockchain dehierarchicalization'[1] (Berg et al. 2019) by developing an understanding of the blockchain network in terms of *transindividuation*. Second, it aims to utilize this understanding as a means to explore and articulate the tensions between the crypto crowd (expressed as the P2P network) and concentrated cryptocommunities. Through a critical analysis of the original Bitcoin white paper and an example of a practical blockchain transaction, I aim to address the idea that the blockchain 'flattens' hierarchy and introduces a kind of horizontality to market and social relations. This will lead to the question of 'what reconceptions of market and social organization does the blockchain reveal?'. It is at this point that *transindividuation* will be introduced to extend the idea of

'dehierarchicalization' and cover any gaps that horizontality may leave.

For Simondon (via Combes 2012) and Stiegler (Stiegler and Rogoff 2010), 'transindividuation' is the co-construction of the individual and the collective through one another. The blockchain, through its purported mechanistic decentralization and P2P network dynamics, initiates a construction of human–human relations between crypto supporters that go beyond an existing spatial and temporal understanding. Out of this, a call to rethink conceptions of blockchain crowd formations can be made. In addition, this particular form of collective dynamics can be linked back to the developing utopian ideal and also conflated in the organization of (typically offline) communities and events, such as 'Bitcoin Halving Day' and the annual Bitcoin Conference. This connection between blockchain utopian ideals, the P2P dynamic and the forming of communities expresses a certain idea of crowd-community production dynamics, of which the understanding can be enhanced, I suggest, via the concept of *transindividuation*.

## P2P Horizontality: Structure and Practice

P2P computing alters the dynamic of the client/server model to distribute power throughout the network. In the same article cited earlier, Gong (2002: 37) writes that P2P computing models 'adopt a network-based computing style that neither excludes nor inherently depends on centralized control points'. This style of computing generates a more heterogenous dynamic and a distribution of power relations between nodes. It is this decentralization and distribution of computing power that led to Satoshi Nakamoto, the founder of Bitcoin, adopting the P2P model for the structure of Bitcoin's operating mechanism, the blockchain (Nakamoto 2008). The Bitcoin network uses cryp-

tography and network computing to accomplish what has traditionally been achieved by third parties. Transaction data and blocks do not pass through any central authority; instead, consensus is determined by the entire network, as every working node validates a block (and its transaction data) by using that block's hash to find the next block in the sequence. The longest chain of sequential blocks is taken as the correct chain as it possesses the 'greatest proof-of-work effort invested in it' (ibid.: 3), representing the majority decision.

Paired with new encryption methods arising from developments in cryptography, this particular structuring of the blockchain forms the basis for the promotion of initial cryptocurrencies as 'horizontal markets' (Bousfield 2019). The cryptoanarchist and cypherpunk visions underpinning Bitcoin's emergence were both founded on a strong distrust for centralized governance, particularly of financial markets (Hughes 1993; May 1988). Today, these visions are still very much alive, with many crypto enthusiasts believing in utopian ideals that render the blockchain as the disruptive technology that will 'create a society with horizontal structures and distributed authority' (Atzori 2017: 27).

Some are calling the horizontality of the blockchain's governing and organizing dynamic a 'dehierarchicalization' (Berg et al. 2019). The idea of a dehierarchicalized 'horizontal' structure of social and political order implies the conception of ordinary (nonblockchain) society in terms of verticality. In other words, the power relations and governing dynamics of nonblockchain hierarchical structures are seen as a top-down organization of society. The idea is that the blockchain flattens this hierarchical verticality to create a more heterogeneous social organization. There are two components to this: horizontality happens (1) via the network's structure (the blockchain's operation), and

(2) in practice (how users interact with blockchain). First, what exactly within the blockchain's structure entertains the utopian vision of horizontally distributed authority and a heterogeneous society? Let us turn to the Bitcoin white paper and Nakamoto's own description of the blockchain network to answer these questions.

Blocks are made up of cryptographically encoded transaction data. The cryptography used to encode the transaction of coins from one party to another essentially allows the receiving party to validate the originality of the coin (see Nakamoto 2008: 2). However, there remains the need to check for what Nakamoto (2008) calls the 'double spend problem' – there needs to be a way to check that the previous owner of the coin did not duplicate it. Traditionally, this is done by the mint or the bank, meaning that a third-party intermediary would hold the power to process transactions. To displace this location of power, Nakamoto turned to a P2P network structure based on the proof-of-work cryptography mechanism, whereby transaction inputs are at once private and secure whilst also being public and transparent.

Nakamoto (2008: 8) describes the blockchain's security as deriving from the network's 'unstructured simplicity'. Loosely, 'unstructured simplicity' refers to the P2P network and proof-of-work mechanism. The unstructured simplicity of the network is as follows: nodes work simultaneously, all at once, with little coordination. New transactions are broadcast to all nodes, whilst each node collates them into a block. When a node successfully finds the right proof-of-work for its block – that is, when it finds a nonce value that satisfies the target value – it broadcasts that block directly to the rest of the network. Other nodes express confirmation and acceptance by using that block to find the proof-of-work for the next block. Hence, the proof-of-work mechanism takes the place that is traditionally held

by third parties. New nodes can join the network at any time while other nodes leave. They can even leave and rejoin, taking the proof-of-work of the chain as proof of what happened whilst they were offline (Nakamoto 2008). The network structure is thus a fluid, dynamic and constant redisbursement of power relations. Moreover, the network exists in a dynamic of potential. The map of power never looks the same, but the same result is always achieved: a nonce is found and a block is broadcast to the network. The node that finds the nonce and broadcasts the block is almost always never the same as the previous block.

Geospatially, the blockchain imagines a world without national and state borders, compass points and datelines. The blockchain encompasses the globe; the P2P network operates transnationally, transitioning the globe into the digital realm. By virtue of the P2P set-up, for example, physical store vendors on the beaches in Costa Rica (Grudgings 2022) are part of a network that spans the globe, connecting with both large industrial Bitcoin mining rigs in Iceland (Mallonee 2019) and smaller 'wildcat' Bitcoin miners in homes and offices (DuPont 2019; Zimmer 2017). Whilst the geospatial conditions that confronted many groups of humans in the past are now conjoined with the digital, the blockchain is the ordering principle that provides a geometry for the operation of transactions, exchange and relations in cyberspace. Larger-scale computer nodes co-construct the network with smaller 'wildcat' miners. It is a global imagination, navigating the contours of cyberspace with a logic that organizes, orients and directs. In other words, it instils an idealistic and utopian geospatial planetary and social order – one without the existence of borders, the limiting properties of distance and the dominating effects of hegemony.

Let us look at an example of a transaction in practice. The first known transaction of Bitcoins for 'real-world'

goods took place on 22 May 2010, when Laszlo Hanyecz traded 10,000 Bitcoins for two large pizzas (George 2022). Initially, Hanyecz posted to a forum, writing: 'I'll pay 10,000 bitcoins for a couple of pizzas' (Laszlo 2010). Soon after, a student by the name of Jeremy Sturdivant took him up on his offer. Sturdivant purchased the pizzas from Papa Johns and delivered them to Hanyecz, for which he was transferred 10,000 Bitcoins for his services. To transfer the Bitcoins, Hanyecz used Sturdivant's wallet address to input the transaction to the Bitcoin program that broadcast it to all other nodes. The operation of the P2P blockchain took care of the rest. 'I just want to report that I successfully traded 10,000 bitcoins for pizza' remarked Hanyecz in a follow-up forum post (Laszlo 2010). Resulting from the utilization of the blockchain and its P2P structure, the interaction and resulting transaction between Hanyecz and Sturdivant was direct, personal and secure. Thus, this process differs significantly from 'traditional' modes of exchange. Moreover, so do the kinds of ontological positions and relational interactions between humans that this process engenders, as is evident in the Bitcoin-for-pizza transaction.

Relations in the 'traditional' financial system are typically defined relative to the centre (banks, the mint, the state, etc. are seen as centralized points of control). As the locus of power, with the capacity to affect, direct, inhibit, restrict and delay, these intermediaries construct an apparatus of determination. Financial exchange of this nature, always watched over by the eye of Big Brother, limits the contingencies and potency of human individuals in their capacity to affect one another. In contrast, the blockchain heuristically disrupts the status quo that conventional systems have imposed upon the world. It embraces an open character, altering the point of exchange and the forces in relations.

The centre/periphery, internal/external relations (recall the client/server model) are no longer useful or applicable

when there is no single centre of power, as is the case with the blockchain. Rather, there is a multiplicity of 'centres' (i.e. locations) that exist in the network, making it difficult to define ontosocial positions without an anchor to a sole centre point. This means that, ontologically speaking, the P2P network places the one in relation to the many rather than in relation to the mass (that is, the mass of power). In the case of Laszlo Hanyecz and Jeremy Sturdivant's Bitcoin-for-pizza exchange, the transaction was made without corresponding with centralized points of control. Rather, Hanyecz let the proof-of-work mechanism verify his coins and the transaction of these coins. Both Hanyecz and Sturdivant were subjecting themselves in relation to the many nodes across the network and the corresponding proof-of-work cycle, as opposed to the mass of power that a third-party intermediary would hold. They were also placing themselves in a more direct relation to each other.

## Problematizing Conceptions of Blockchain Hierarchy

Here, I wish to problematize the idea of horizontality, but also to expand on the idea of 'dehierarchicalization' put forward by Berg et al. (2019). Although horizontality captures something of the blockchain's effects on organizational structures, in my estimations this conceptual understanding can be extended upon to further encapsulate a more accurate depiction of the blockchain's hierarchical conceptions. Using a vertical/horizontal axis to describe the blockchain network's hierarchy is problematic for multiple reasons.

First, the network's arrangement is not two-dimensional. Conceptually, the vertical/horizontal axis on which hierarchy is often measured is a two-dimensional scale. In a two-dimensional scale, removing (or 'flattening') the tra-

ditional hierarchy of verticality and concentrated control points (i.e. the client/server computing model) would indeed shift the arrangement into what would seem a more horizontal structure. However, the blockchain network is a three-dimensional structure without a top/bottom scale, derived from the fact that the network is arranged relative to *multiple* places of convergent forces – that is, 'centres' of power – as opposed to one centre and its periphery. The totality of the P2P network paradoxically[2] works together to achieve consensus. Again, this demonstrates the absence of a top/bottom scale. Hence, the hierarchy of the blockchain network – its 'sacred order' – evokes a sense of Dumont's (1980) 'encompassing relations' in that each node – each position in the network – has its own role in actualizing potential. Thus, whilst it acknowledges the blockchain network's 'flattening' of vertical hierarchy, thinking of the network in terms of a two-dimensional arrangement does not capture the whole picture. Instead, a consideration of its three-dimensionality would encapsulate the horizontality, but also account for a more holistic understanding of the blockchain network.

Second, the network is not closed and static. Using the vertical/horizontal axis to describe the hierarchical order of the blockchain implies that the order is set, static and unchanging. However, that is clearly not the case with the blockchain network; instead, its 'unstructured simplicity' (its dynamic potential) means that it is an *open* system of dynamic relations. As new nodes come online and as other nodes go offline, as the value of Bitcoin booms and busts, and as the reward for mining decreases, the locations of power move and morph throughout the network. There are no predefined roles that imply a status of power as there are with the client/server computing model. Yet, whilst the network itself is constantly shifting and morphing, in practice – for instance, the Bitcoin-for-pizza trans-

action – the relations between the two transacting parties stay constant and consistent until the exchange is complete, adding another level of complexity that the vertical/horizontal scale does not cover. Analytically, I interpret this dynamism and network fluidity as a totalization of relations – an encompassment of the whole network. Thus, hierarchical conceptions of the blockchain, again, should be closer to those of Dumont (1980) than to that of a reliance on a vertical/horizontal axis.

From this, we can suggest that thinking in terms of horizontal/vertical conceptions to determine the hierarchical structure of the network does not capture the dynamic of the P2P network and the dimensionality of its arrangement, nor does it capture the positionality in which its users find themselves (i.e. the positionality of Hanyecz and Sturdivant in their Bitcoin-for-pizza exchange). Thus, the arrangement of multiple power locations and the dynamic potential of the network's structure requires a reconceptualization of hierarchy. Moreover, the total redisbursement of concentrations of power contributes to the value of trustlessness that is foundational to Bitcoin's network operations, adding yet another layer of complexity that calls for a consideration of the way we conceptualize the blockchain collective arrangement.

Blockchain, computing and cryptography enthusiasts desire the automation of trust (May 1988). The structure of the network as a P2P model renders third-party intermediaries in the act of exchange as obsolete[3] and relies on network consensus to carry out the tasks usually completed by these intermediaries. 'We have proposed a system for electronic transactions without relying on trust' declared Satoshi Nakamoto (2008: 8). Trust in social relations[4] is eliminated and replaced by cryptography and the realm of the machinic. Such social interactions are frictionless, in the sense that no third-party acts as a guardian

for successful transactions. The machinic repetition of the blockchain's proof-of-work cycle breaks down existing notions of trust via the essential step of attaining network consensus. In the case of decentralized cryptocurrency systems, such as the Bitcoin system, it is the P2P network itself that facilitates and regulates exchanges, checking for double-spending and validating transactions and coins, meaning that the whole of the wider network is incorporated into every transaction.

This fact gives us the possibility to consider the concept of transindividuation in articulating the network's dynamic of crowd production and modulation. In other words, we are presented with a possibility to consider what 'dehierarchicalization' might look like. Transindividuation, developed by Bernard Stiegler (Stiegler and Rogoff 2010; Stiegler et al. 2012) and Simondon (via Combes 2012), helps to reconceptualize the blockchain's hierarchical collective by virtue of the network's P2P co-construction of the one and the many. To put it another way, the network's individual nodes work together as a totality to achieve consensus in the facilitation of transactions and to keep relations between users direct and secure, which can be expressed, I suggest, as a process of transindividuation. It is through this concept that I will comment on the crowding and collective dynamics that are associated with blockchain technology and the wider crypto sphere.

## P2P Transindividuation

To expand on the idea of a 'dehierarchicalization' that the blockchain network engenders and to conceptualize how this may look, we can turn to the crowd theory concept of *transindividuation*. Consider the geospatiality of the blockchain network. Through the distribution and decentralization of power relations across the encompassed

globe (for example, from Costa Rica to Iceland), the potential of the whole system – that of the collective (or the crowd) – is realized/actualized by the whole system itself. This is in contrast with a centralized system, the trajectory of which is mediated by a centralized single entity. For the blockchain, the direction of the system – or the movement of potential to actual – is rather influenced by the whole collective as a relatively free-flowing and generally open crowd of network peers. Recalling my earlier statement, it is the many as opposed to the mass (of power) that directs the movement of potential to actual. The actualization of the state of the network is directly informed by the fact of the network's decentralized and 'dehierarchialized' nature. Here is where, I suggest, *transindividuation* comes in.[5] This accumulative force of the whole network – the collective (crowds and communities included) – that happens through decentralization is the key to this idea.

For Simondon, being part of a group is not defined by a 'sociological belonging', but instead 'comes into existence when the forces of the future harboured within a number of living individuals lead to a collective structuration' (Combes 2012: 43). A collective does not involve a mere assemblage of individuals, but rather a 'movement of self-constitution' (ibid.). Similarly, for Stiegler, 'the concept of "transindividuation" is one that does not rest with the individuated "I" or with the interindividuated "We", but is the process of co-individuation … in which both the "I" and the "We" are transformed through one another' (2010: paragraph 3). It is this transformation of the singular through the multiple, and vice versa, that constitutes the process of transindividuation.

Aligning with Rantala (2019), I envision the blockchain as a medium for transindividuation: the latter is achieved by the former's capacity for decentralization and distribution. In other words, the network's unstructured simplicity

engenders the transindividuation process. Rantala (ibid.: 1) describes the transindividual relation as the 'possibility of a concurrent problem-solving at the collective and individual level'. In the case of the blockchain, it is quite literally a concurrent problem solving, with each peer aiming to solve the cryptographic problem of finding the satisfactory nonce value. Only one peer can 'win', but it is the network's collective force that moves the blockchain forward. Hence, the blockchain collective is constructed via the accumulative force harboured by 'peers'. But the blockchain's social network is not an assemblage of already-individuated 'peers'; rather, the singular 'peer' and the multiple 'peer(s)' are transformed through one another in a movement of collective self-constitution – i.e. 'P2P'. As they race against each other to find the nonce – that is, as they participate in the process of differentiating themselves from each other – network peers are simultaneously co-constructing the network and aligning themselves with other peers to form a totality. It is an accumulation of the force of the collective network to determine the state of the blockchain (which can be taken as the state of the world) and the crowds and communities, as part of this collective, make up this accumulative force.

Desired futures and utopian visions converge on one another to form the accumulative force of the P2P blockchain collective in actualizing potential. The one and the many co-construct each other. If the network was centralized, it would not differentiate the individuals and thus would not provide a 'frame of pre-individual potentiality' (Rantala 2019: 13). The peer is individuated in the process of the blockchain's proof-of-work mechanism; individuation occurs within the process of being differentiated from other peers, but is simultaneously collectivized within the network's accumulative power. Here, the process leads to the concurrent realization of the potentials of both indi-

viduals and the collective (see Combes 2012). This form of transindividuation, derived from the decentralized P2P network, engenders a particular mode of crowd dynamics – the accumulation of collective forces that could not be achieved without the sense of transindividuality harboured by decentralization. In other words, as Rantala (2019: 13, emphasis in original) writes, 'blockchain can be seen as *a crystallisation of the power to create methods and processes of decentralised organisation*, which can lead to further individuations by individuals themselves'.

Transindividuation helps to reconceptualize blockchain hierarchies by virtue of the network's co-construction of the one and the many. It captures the blockchain's P2P dynamism and fluidity, as the network nodes co-create both themselves (as nodes) and the blockchain as a total network. In other words, the singular and the multiple co-construct each other, as all nodes work concurrently and paradoxically; each node races all other nodes to secure the next sequential block, but they also work in unison to develop the network and achieve the aim of decentralization. The actualizing of a potential blockchain arrangement at any given point in time is determined by the co-construction of individual nodes acting paradoxically in simultaneous competition and collective unison. Moreover, transacting parties (such as Hanyecz and Sturdivant) are also bonded to each other by this co-constructing process of network transindividuation. In the context of the blockchain as a practical P2P network, transindividuation extends the idea of 'dehierarchicalization' and helps us to understand how it is achieved.

Furthermore, because of its contribution to hierarchical reconceptions, blockchain transindividuation is connected to the formation of blockchain (and other cryptography-related) communities that converge around the potentiality of utopian – 'dehierarchicalized' – worlds. As a more

encompassing depiction of total network organization, transindividuation encapsulates this expressed blockchain utopia. In other words, the blockchain network, by virtue of the collective's accumulative forces in actualizing potential – the network's process of transindividuation – drives the generation of the blockchain utopian ideal.

## Concurrent Formations of Cryptocommunities

We can determine that the P2P blockchain collective can best be thought of as being a process of transindividuation rather than relying on a vertical/horizontal axis to describe the network's hierarchical effects. To conclude, I wish to complete the analysis by holding this particular expression of P2P network dynamics up to the formation of cryptocommunities and events as a way of encouraging further points of discussion. In other words, I wish to comment on the P2P collective's association, as a process of transindividuation, to smaller community phenomena in the crypto space.

In the present analysis, the crowd has been interpreted as the P2P blockchain network, operating as an open, self-regulating (or self-referential) dynamic phenomenon (see Canetti 1984 [1960]), as it continues to expand, contract, shift and morph through both cyberspace and geospace. Contrarily, smaller, more rigid cryptocommunities are typically less fluid in their formation, organization and development, often occurring blockchain-adjacent in other online spaces (such as Reddit) or perhaps with a hybrid geocyberspace presence (as did the *Bitcoin 2022* conference, happening simultaneously in Miami, Florida, and on YouTube). However, they are typically convergent on utopian ideals of decentralization and trustlessness (see Faustino et al. 2021; Swartz 2018). Hence, their formation is driven, at least partly, by the transindividuation of

blockchain peers. In other words, as a process of transindividuation and dehierarchicalization, the P2P network is a modality for the advancement of utopian visions.[6] Here, the tension between the encompassing crypto crowds and localized cryptocommunities manifests as a bridge between the two existences, as the philosophy derived from the dynamics of the crypto crowd (the transindividualized P2P network) is the driving force that generates the perpetuation of (some) popular cryptocommunities. It is hoped that this conclusion ties the present chapter closer to this volume's wider topic.

I have already mentioned Laszlo Hanyecz's purchase of pizza on 22 May 2010. This date is now annually celebrated as 'Bitcoin Pizza Day' in commemoration of the first known 'real-world' transaction using Bitcoins. 'Bitcoin Pizza Day' celebrates the utopian aim of a world predicated on trustlessness – that is, a world predicated on P2P dynamics. The celebration of 'Bitcoin Pizza Day' marks the breaking down of existing formations and the remaking of new potentialities made possible by the dynamics of P2P networks. In some ways, it is a reaffirmation of the utopian ideals that are predicated on the decentralized nature of the blockchain's P2P network. Moreover, it is a kind of mythification of the aspirations of a new sociality. As Faustino et al. (2021: 74) state, 'cyclical celebrations . . . perform an important role in retaining collective memory about [the blockchain's] achievements'. In addition, there are other examples that carry out a similar process.

For instance, 'Bitcoin Halving Day' is another cyclical commemoration, this time marking the point when the mining reward for the Bitcoin network halves in value.[7] This event happens roughly every four years (or, more precisely, every 210,000 blocks) and is met by the cryptocommunity with a 'festive spirit' (Faustino et al. 2021: 74). Communities form around various webpages and online

forums to celebrate the occasion. For the halving that occurred on 12 May 2020, websites hosted live countdowns to the Halving and wished users a 'Happy Bitcoin Halving #3' (Faustino et al. 2021). Again, this celebration is predicated upon a fundamental aspect of the blockchain's decentralizing operation – the halving of the proof-of-work reward – thereby conflating the formation of communities with the utopian thinking emerging out of the P2P network.

Finally, annual or periodic conferences held online and in the 'real' world, such as *Bitcoin 2022*, are another example of the conflation of blockchain collective dynamics in driving localized communities. At *Bitcoin 2022*, the 'most important aspects' of Bitcoin were celebrated, including decentralization and freedom, with the main focus being 'unlocking human potential' (Russell 2022). Discussions at these conferences and smaller blockchain meet-ups typically focus on the 'good' of the blockchain (Russell 2022) – that is, its usefulness in achieving utopian visions of decentralized social, political and economic organization. At *Bitcoin 2022*, presentations about grand visions of utopian society were followed by lectures on the latest technological developments to blockchain technology and vice versa. The idealistic is merged with the technical at these community meet-ups to substantialize the crowd dynamics of the 'unstructured' P2P network. Thus, it is the fundamentality of the Bitcoin blockchain as a P2P network, demonstrated in Nakamoto's Bitcoin white paper of 2008, and the concurrent processes of transindividuation that I am connecting to the formation of convergent communities and associated events.

The convergent forming of cryptocommunities around events that progress the mythification of the blockchain utopia evoke a sense of concurrent 'flows of desire' (Combes 2012: 52) – a coming together to realize collective

imaginaries. Almost a kind of extension of network transindividuation, the dehierarchicalization of the P2P network – its 'unstructured simplicity' (Nakamoto 2008: 8) – is conflated in the cryptocommunities that emerge out of celebrations surrounding decentralization. However, tensions between crypto crowds and communities arise here – on the one hand, a generalizing and open dynamic (the crowd), and on the other hand, a dynamic that is less fluid (the community) – as the two apparently opposing dynamics demonstrate their connections.

Lana Swartz (2021) says it best: 'Today's cryptocurrency communities are . . . summoning a future.' The futures that many of these localized cryptocommunity formations aim to construct are premised on utopian ideals drawn out of the fundamentals of the transindividuating machine that is the blockchain. In other words, the formation of localized communities carefully constructs collective visions based on loose structuration, trustlessness and subjugation by external (technologic and cryptographic) means, all of which extend from the transindividuated crowd dynamics. Thus, in closing, I wish to highlight an idea alluded to by Matan Shapiro in the Introduction to the present volume and an idea that I believe is central to what has been presented here: the cyclicity of the singular and the multiple or of crowd and community dynamics. In other words, individuals harness the power of the crowd to form communities. These communities in turn enforce the crowd in a cyclical rather than dialectical or antagonistic fashion. Hence, conflated in the localized (offline) communities and the mythification of the blockchain utopia is the accumulation of collective forces in P2P blockchain networks, insofar as the P2P arrangement offers us an opportunity to articulate a framework for understanding the network's collective organization in the context of the blockchain utopia. The convergent communities anchor themselves to the utopian

visions that can be drawn out of the blockchain collective dynamics predicated on transindividuation, that is, on a reconceptualization of collective organization.

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## Notes

1. Or, in other words, 'the flattening of hierarchical structures' via the blockchain.
2. It is paradoxical because while all nodes must work together to achieve consensus, each node is racing against all the others to find the target proof-of-work.
3. The encroachment of external centralizations of power is always immanent. For instance, cryptocurrency exchange platforms are highly centralized third parties that do affect network dynamics. However, these external intermediaries rely on the blockchain's P2P operation to function. Hence, these exchange platforms are just one of the many locations of power, adding yet another level of complexity to the crowd and collective dynamics of the blockchain. Furthermore, in the context of crypto crowds and cryptocommunities, these exchange platforms offer yet another instance of community production as they play host to a con-

glomerate of crypto enthusiasts who converge on such platforms to exercise their support for certain cryptocoins.

4. In this case, social relations are represented in the form of cryptographic transactions.
5. Stiegler (2012: 173) even states that digital networks are 'absolutely and radically new' processes of individuation.
6. Such utopian visions are those heralded by the cypherpunks and cryptoanarchists who became a kind of internet community centred around the benefits and importance of cryptography (see May 1988). These groups of people are another example of community production that converges around principles and philosophies expressed by the transindividuating machine, also known as the blockchain network.
7. On 12 May 2020, the reward for mining bitcoins was halved from 12.5 Bitcoins to 6.25 Bitcoins (Faustino et al. 2021).

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