A Progressive Web3: From Social Coproduction to Digital Polycentric Governance

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Abstract

This essay critically evaluates the political economy of Web3 and offers a neo-institutional model to explain qualitative observations of contemporary digital social movements. By starting to develop a sociological model of Web3 rooted in micro-organizational practices, including trust mediation and social coproduction, this essay re-evaluates assumptions of scarcity, economic value, and social belonging. It concludes by introducing a novel research programme to study digital polycentric governance that focuses on community self-governance of digital common pool resources (DCPRs) and looks forward to empirical research using on-chain datasets from Decentralized Autonomous Organizations (DAOs).

> Now, should we trust these people, no matter how well-intentioned they might be, to guide society into the future… I'd say "no." ~ Evgeny Morozov, "Web3: A Map in Search of a Territory"

In a recent essay, Evgeny Morozov (2022) offers a critical biography of Web3 by tracing its popular rhetoric through Tim O'Reilly and Marc Andreessen. Inhabiting the spirit of arche-critic David Golumbia, he discovers vast "linguistic and analytical pollution" in Web3, underpinned by opportunistic hustlers. He accuses Web3 advocates of self-referentiality and performativity, questioning whether Web3 is even a meaningful analytical concept. The issue, Morozov emphasizes, is not that "Web3" or "metaverse" are poorly defined words (though they might be), nor that some "academic, intellectuals, and policy experts… [will] accept cash for lending their names and reputations" (they have; see DuPont, 2020), rather, the value of even "well-intentioned" Web3 projects is pretty much nothing ("it's spin all the way down," Morozov chides). Worse still, these well-intentioned rubes act like capitalism's yeomen and are basically responsible for "left-washing" the Web3 brand.

Intuitively supported by a decade's worth of careful observation and scientific research on cryptocurrencies and blockchains, I agree with many of Morozov's criticisms. I consider critics like

Morozov, Golumbia, Gerard, and more recently, White astute in their analyses and much needed voices in a conversation that tends towards credulity. But, I've also found that critics sometimes paint with too broad of a brush, lumping their Bitcoiners and frens into the same lazy category. And over the years I've also witnessed dramatic social evolution in "the scene," of which Web3 is but one frenetic little corner. Specificity matters.

So, I committed to explore Web3 and to live as close to the code as my lifestyle permits (no degen for me, thanks). I have been out on the DeFi farms in search of yield, I joined a chorus of Discord servers incessantly pinging with new notifications, I cruised the metaverse, bought some virtual art and property, and turned my digital wallet into a multitool for any situation. During my travels, I maintained a virtual open-door policy that led to dozens of conversations with dreamers, enthusiasts, hustlers, builders, and money-makers (I rounded out the haphazard selection by strategically interviewing Web3 developers and community members). Continuing my search for the holy grail of decentralized autonomous organizations (DAOs; DuPont, 2018), I also dug into the latest cryptoeconomics, blockchain-based organizational designs, and novel forms of distributed governance. I return from my Web3 sojourn with measured optimism, for I found a progressive Web3 rich with innovative ideas, designs, and technologies.

Progressive Design Beyond the Nation State

In this essay, I'm ultimately describing progressive *design goals*, but Morozov says we need to address the lack of "engagement with the political economy of global capitalism." So let's do that.

We can start by problematizing the role of the nation state.

Now a decade since the invention of Bitcoin, I'm surprised daily at how a faddish 1990s-era cypherpunk ideology has managed to reify into technologies that offer nascent social infrastructures—platforms—for life "without" a nation state. Cypherpunk, Solarpunk, or not, it is possible, perhaps likely, for Web3 to exist *independently* of the state—to make a land with no government. This does not mean Web3 will be independent of the nation state, even Bitcoin isn't, but the technological trajectory is pretty clear. However, this life isn't for everyone: for some people, living in a land where "code is law" sounds both unrealistic and risky, borderline scary. One Web3 champion, Tracheopteryx, describes this new progressive vista as "confronting" to those still steeped in traditional culture and neoclassical economics (Layer Zero, 2022). Indeed, this is the ultimate gambit of a progressive Web3: that through novel technology, culture, and economic innovation we have powerful new tools to design the future of progressive social movements.

Of course, the critics know the history of crypto as well as I do. We all know that crypto shook awake national governments because it threatened taxation and economic sovereignty.i The neoliberal state responded as best it could by opening vast regulatory mechanisms (while subjugating democracy), which in turn accelerated private and public investment in—well, not exactly the radical technology promised by Bitcoin, but a sanitized, rentier version with well monitored on and off ramps (an intelligence agent once joked to me that crypto is just "prosecution futures"). And so, in the subsequent years the radical spirit of crypto has been all but smothered by the warm embrace of the state. In its place a booming Silicon Valley brogrammer culture emerged and infected everything good and holy in the critic's imagination of an open Internet—incidentally, not the Internet that was *actually* developed by the US state and military for intelligence, surveillance, and the global spread of American values.ii

From the perspective of the 'closed' Internet of 2022, largely comprised of rent-seeking platforms with supranational influence, Graeber and Wengrow's recent book (2021) is a helpful reminder to think beyond the inevitability of Hobbesian and Rousseauian political theory and its claim to Westphalian sovereignty. They invite progressives to dream of new organizational forms capable of supporting flourishing across human scales so that people meaningfully self-organize, in ways where good governance becomes essential.

Thus, one history of Web3 starts with the opportunistic labelling of a technological evolution of computer networking towards a regulated (state monitored) infrastructure for the exchange of value. This technological evolution implies that the political economy of Web3 is defined by money that is exchanged on a programmable network at a supranational scale (Swartz, 2020). But importantly Web3 is a *programmable* money (Caliskan, 2020), having the characteristics of an "immutable mobile" because it enables "both mobilization and immutability… at the same time" (Latour, 1986, p.10). Like the Internet and dozens of other (notational) technologies before it, blockchain technology is *mobile* because it supports the circulation of value (an economy)[iii] and is *immutable* because transaction records are accepted as authoritative.

Immutable mobiles are not just academic curiosities—they are important because they serve to *convince*, exhibiting the same influence as maps and books did for earlier media. An important consequence of blockchain technology is that it makes things visible (DuPont and Maurer, 2015)—so that, as Latour (1986) offers, "no matter how inaccurate these traces might be at first, they will all become accurate just as a consequence of more mobilization and more immutability" (p.12). Moreover, Latour's insight shows why any reasonable account of the political economy of Web3 must accept that materialist explanations cannot "kneel before one specific science, that of economics" (Latour, 1986, p.3).

Prefiguration: A map for a progressive Web3

In this essay I offer a map—my map—to a progressive Web3, an evolution of social form from social coproduction to digital polycentric governance. Over the last year I've been humbled by a groundswell of progressive Web3 efforts that have emerged—e.g., Gitcoin's quadratic cryptoeconomics, Common Stack's bonding curves, Gnosis' explorations of polycentric governance, Tribute Lab's open legal framework, and Colony's DAO tooling, to name a few. While inspired by these wild experiments, I depart from other theorizations of Web3 insofar as I situate it in the discourse of non-state governance and apply lessons from social movements with the design goal of evolving social coproduction.[iv]

A progressive Web3 must exist beyond the nation state to address the power vacuum in global governance that emerged with neoliberalism in the late twentieth century. Due to the inefficiencies and epistemological limitations of centralized planning and failures of regulatory and representative democratic politics, neoliberal nation states have been unable to address "local" and collective action contexts. As a decentralized social infrastructure, Web3 offers the possibility of cultivating social belonging and community self-governance by aggregating intelligence from the edges of the network (through consensus, voting, and markets).

The trouble with crypto

Some critics still think crypto is a scam. Aside from being woefully uninformed about the preceding decade's history of crypto successes, challenges, and disasters, this view fails to register the meaningful and real issues and instead focuses on outdated criticisms of technology, regulation, and culture.

The history of crypto's first decade demonstrates that technological, regulatory, and cultural challenges are surmountable but require effective social embedding. For example, the heart-breaking environmental impact of Bitcoin could be fixed if it was more thoroughly embedded in a dynamic

organizational structure capable of leadership and effective change management. Indeed, many modern blockchains have moved on from energy-intensive proof of work consensus mechanisms, adopting proof of stake or truly next-gen PBFT protocols that use robust sub-sampling and sortition techniques for leaderless consensus in permissionless networks (e.g., Algorand, Avalanche, Cardano, EOSIO, Stellar, and Tron). Likewise, while the regulatory and legal landscape continues to evolve, crypto is no longer the state's bogeyman. Between novel uses by traditional financial institutions, e-government, and blue chip sectors, crypto has become an inextricable part of dominant capital and therefore inherits regulatory "protection" (indeed, crypto's recent move from periphery to core seems to be fuelling another set of reappraisals by the Left, like Morozov's). And finally, for better or worse, crypto is no longer characterized by a monolithic culture of white, libertarian men—now everyone is in crypto (Perrin, 2021), although obviously not equally.

Similarly, many of the "old" arguments against Bitcoin no longer meaningfully apply to Web3. David Golumbia's trenchant analysis of Bitcoin comes up short today because his critique focuses on Bitcoin's anti-inflation economics, early enthusiast's weird banking conspiracy theories, and the difficulty of fitting Bitcoin into the standard tripartite model of money (Golumbia, 2016). Web3 inherits none of these issues: novel and sophisticated token engineering in DeFi is the norm, depressingly few of the people adopting crypto today are even aware of Bitcoin's unsavoury political past, and I think it is obvious that crypto doesn't fit in the standard definition of money because it is an evolution of the very idea of money. David Gerard is another vocal critic and expands Golumbia's critique by focusing on technical and usability issues. Some of these issues remain (e.g., usability is still wanting), but next-generation blockchain platforms have largely resolved the issues that Gerard focused on or have engineering roadmaps for their solution. With software, technological criticisms are usually addressed in version upgrades.

While some of these challenges remain, they are also, I believe, an opportunity for a progressive Web3. But a progressive Web3 must also address three, much more difficult criticisms: 1) financialization, assetization, and quantification, 2) commodity fetishism, and 3) digital inequality. Financialization, assetization, and quantification This assemblage of critique is intimately related to modern economics and the impact of computing—which is obviously not unique to Web3—but is often callously celebrated within its culture. Zook and Grote (2020) describe crypto financialization as an endogenous change to financial institutions that results in the increasing prevalence of monetary and financial considerations by way of the "cultural process through which individuals are reimagined as investors." More generically, Birch and Muniesa (2020) describe assetization as the dominant form of technoscientific capitalism, marking a movement away from commodities formerly grounded in a material reality. In both descriptions, the technosocial processes of financialization and assetization result from the circulation of value which requires a prefigured quantification of things (i.e., blocks of meaning indexed to code) (DuPont, 2017). These are, of course, not new issues. They are foundational to computer history more generally and, arguably, some of these processes arose out of organizational rationalization that complemented bureaucratization (Beniger, 1986).

In an already fair and just society, financialization, assetization, and quantification don't pose any really troubling ethical issues, but when these institutional "logics" are embedded into real systems they have the power to dramatically shape social relations. For instance, failed efforts to depoliticize money with crypto illustrate the ways that algorithmic control (still) cannot autonomously control macroeconomic forces.[v] Moreover, these issues are not exclusively "economic" and may also apply beyond cryptocurrencies to social relations in Web3. In an astute analysis, the artist Geraldine Juárez echoes Morozov's worries that even well-intentioned "[Decentralized Autonomous Organizations] DAOs are text-book [examples of] assetization as they manifest the imperative of investment as a social relation" (Juárez, 2022). The blurring of work by

technologies like DAOs extends the issues of financialization, assetization, and quantification to all social realities. Ultimately, the worry is that, like King Midas, everything a DAO touches turns into a digital asset.

Commodity fetishism is an old Marxist concern emerging out of a labour theory of value. The concern with commodity fetishism is that when people come to believe an economic abstraction (value) is to be found in an object they often but mistakenly come to think the object has intrinsic value. Marxists are troubled by commodity fetishism in crypto because it contradicts their belief that value originates in labour, as part of use-value in exchange. According to John Holloway's (2010) reading of commodity fetishism—"the core of Marx's discussion of power"—social relations of labour are presented as fungible commodities measured by price (Holloway, 2010). Extending this argument, these commodities are hostile and antagonistic, "devourers of living labour" according to Marx, and simultaneously illusory and efficacious. When commodities devour labour they alienate workers, but they also obfuscate the social character of the origin of objects and in turn separate the subject from the object, such that those who have ownership of objects have power over subjects. Web3 cannot escape the obfuscated power of commodities, but it does complicate the relationship between subjects and objects. As I describe below, work in Web3 is intimately tied to leisure (a social origin of value) and can be represented by tokens.

Nick Szabo's (1997) pioneering work on smart contracts offered an idea of "vending machine" fairness with low transaction costs, high "observability," and automatic execution. A smart contract, Szabo imagined, is like a vending machine—all interactions are secure, automatic, and fair. He then went on to imagine how contractual clauses "can be embedded in the hardware and software" to make breach of contract nearly impossible. When Szabo's dreams were later realized in Bitcoin, it became immediately obvious that "fair" does not automatically produce equality or justice.

Today, the economic inequalities in crypto networks are profound and a poor basis for social cohesion.

Nonetheless, vending machine fairness has proven useful for a small—but important—set of human relations; for example, DeFi is built on this promise and has successfully mitigated online counterparty risk. But Web3 is much bigger than DeFi; it promises hypergovernance, virtual social relations, and new kinds of work and play. For these richer experiences, often embedded in DAOs today, critics rightly argue that social relations built on market-like "vending machines" may actually exacerbate inequality and stymie the development of a just Web3 society.

A sociological model for Web3

Web3 is a petri dish for our future online lives. In it, decentralized autonomous organizations (DAOs) have emerged as challengers to traditional forms of organizational design. Due to their unusual architecture and strategic goals, DAOs have been at the forefront of digital governance and a small research community has emerged to support them. Yet, while most DAOs claim sophisticated governance, in reality they tend to use simple forms of coin voting (Buterin, 2021), organize and discuss on chaotic Discord and Telegram channels, and use quasi-statist apparatuses for issue resolution (e.g., Aragon's 'court' or Kleros' 'justice protocol'). Despite these shortcomings, collectively and imperfectly DAOs offer examples of digital, decentralized, polycentric governance in the wild.

Good governance

Elinor Ostrom's ground-breaking work on polycentric governance showed how tough collective action problems with resource constraints can be solved without state or market solutions. In *Governing the Commons* (1990), Ostrom discussed how a potential tragedy of the commons can often be avoided "by voluntary organizations rather than by a coercive state." Ostrom was keen to

find alternatives to rational egoism that, it was presumed, necessarily devolved into over-utilization of scarce resources (the so-called tragedy of the commons). She challenged those who, failing to see past the examples outlined by Hobbes and Rousseau, thought that only a government "using whatever force may be required" could save the commons. Others felt that, if state violence was to be avoided, it would require privatizing the commons by erecting surveillance and security features to partition resources. Ostrom pointed out that both approaches assumed institutional change must come from the outside and be imposed on the individuals affected. Ostrom's approach to polycentric governance rejects this assumption and trades state and market solutions for "difficult, time-consuming, conflict-invoking" processes (p. 14). Later, Dietz, Ostrom, and Stern (2003) proposed a list of criteria for polycentric governance that includes: dialogue between resource users (analytic deliberation); complex, redundant, layered institutions (nesting); mixed institutional types (e.g., market- and state-based); and institutional designs that facilitate experimentation, learning, and change (see also Chaffin, Gosnell, and Cosens, 2014). Moreover, these processes rely on negotiated, self-enforcing contracts, which ultimately require communication and trust. Remarkably, Ostrom demonstrated that when all these pieces are in place, at least according to a natural resource management model (Frey, Frafft, and Keegan, 2019), self-organized collective action is often more effective than state and market alternatives, potentially making way for a still unrealized 'new institutionalism.'

While Ostrom et al.'s model of polycentric governance demonstrates the possibility of efficient, self-organized collective action, the contexts and empirical situations they analyze are quite remote to virtual Web3 goods (see also Dylan-Ennis, this volume). This is because the tragedy of the commons is limited to material constraints—situations where over-extraction of fish, water, or grazing have deleterious effects (Chaffin, Gosnell, and Cosens, 2014). But Web3 has only artificial constraints, as represented by secure token ownership. So, we need to absorb the lessons of

polycentric governance—negotiated governance is possible—but look beyond a political economy of material constraints to the community management of *de novo* Digital Common Pool Resources (DCPRs). In Web3, resource constraints are reconfigured by the environment that is *already and automatically secure* and *value laden* with token economics. Indeed, many newer environments of virtual life, such as metaverses, are rich expressions of this digital 'security environment.' Unavoidably, we must also acknowledge that Web3 is also a platform for producing narrow forms of private property with non-fungible tokens (NFTs), the exchange of cryptoassets, and participation in game-like social interactions (Kreutler, 2021).

By using these artificial security constraints to create unique configurations of private property, DAOs offer sophisticated opportunities for robust social infrastructure. In recent years, theories of dynamic games have been developed to model bounded and artificially constrained environments, which, I suggest below, may prove helpful to understand the continuum of property rights in these digital environments. This approach builds on a long history of game theory and microeconomic modelling but, as complex systems with emergent properties, new models must also consider a variable security parameter (k). These fields of research collide to produce cryptoeconomics, the importance of which I return to later.

On the other hand, nascent theories of blockchain governance have focused on how technological consensus protocols support voting and economic staking to represent the views of relevant stakeholders (De Filippi, Mannan, and Reijers, 2020; Rozas, Tenorio-Fornés, and Hassan, 2020). Theorists of blockchain governance often argue that legitimate representation occurs by giving "voice" to individual interests with an opportunity for "exit" (Frey and Schneider, 2020; Mannan and Schneider, 2021; and Hirschman, 1970). In the same vein, some authors have focused on the quasi-legal nature of blockchain smart contracts, even suggesting that they represent a new social contract (Schneider, 2021). In any case, these theories of governance and responsibility must ultimately

portray a new set of values: negotiation and commitment, incentives, democratic discourse, and consensus are ultimately reconstituted by the very real "algorithmic authority" of automated systems (Pasquale, 2011). But, when algorithmic authority is reified in organizational technologies, an obvious worry is that techno-social infrastructures may nurture problematic forms of power, as Kavanagh and Dylan-Ennis describe in in their Weberian account of "blockocracy" (2019).

Trust and Technology

As we move from DeFi to DAOs—from financial mechanisms to organizational technology (Tan, 2021)—we also need to reconsider the role and impact of trust. Most literature on the role of trust in blockchain technology presupposes that its function is to lower transaction costs within organizations (Werbach, 2018; Coase, 1937), but empirical evidence from traditional organizations to contemporary DAOs does not show strong support for this conclusion.[vi] Rather, together with markets and hierarchy, trust is a key mechanism for managing significant vertical relationships under varying conditions. Evidence from traditional organizations also shows that trust is mostly used in the transaction process rather than during contract constitution or execution (Macaulay, 1963), although trust surely also emerges in new and unexpected ways in DAOs.

One description of the multiple conditions under which trust operates in blockchain environments is offered by Lemieux (2022), who adopts Russell Hardin's tripartite model of trust as "encapsulated interest." According to Hardin (2002), trust is "grounded in the truster's assessment of the intentions of the trusted with respect to some action," which is, typically, based in self-interest, moral commitment, or other idiosyncratic factors. In contrast, Werbach (2018) offers a structuralist account of "trustless trust"—a technology impact model of trust. Adapted from the venture capitalist Reid Hoffman, this notion of "trustless trust" attempts to bootstrap trust from executing code, in effect paraphrasing "code is law" as "code is trust" (see also "lex cryptographia" by Wright and De Filippi, 2015). A commonality among these distinct accounts is that all agree that trust does not

disappear in the midst of blockchain technologies, but rather is transformed. Looking forward, exactly how trust is transformed ought to be a primary research question for DAOs in particular because, as Ostrom et al. argue, trust supports consensus and consensus is necessary for good governance.

Not only is trust foundational for effective polycentric governance but in Web3 it can be systematically manipulated using cryptoeconomic mechanisms. Cryptoeconomics is nascent field of research and development that combines algorithms, techniques, and design patterns from cryptography and information security engineering with (usually token-based) microeconomics to achieve the goal of network-scale behavioural control. As a complex system (Voshmgir and Zargham, 2019), cryptoeconomic mechanisms help structure but do not determine organizational evolution; rather, they enable individual actions to scale across decentralized networks to produce consensus and other emergent, relational social behaviours (like trust and cooperation but also crime; see Baumol, 1996). Cryptoeconomics also supports digital, decentralized polycentric governance because it offers organizational designers a growing menu of technologies to support broader strategic goals, such as circular or regenerative economics (Fritsch, et al., 2021; Borreani, 2021; Owocki, 2022), or as I outline below, forms of social coproduction. For the progressive Web3 designer, cryptoeconomics opens the door to virtual environments that inhibit the formation of poles of power and therein help prevent the violence and injustice that necessarily follow.

Social coproduction

DAOs are organizational technology that, on account of being digital and decentralized, specialize in limited contact with state functions, especially state-controlled monetary functions. They are *post-operaismo* in the parlance of critical theory but emerged out of a complex socio-technical

bundle of practices and people (Schatzki, 2009), not from "the workers," as with progressive movements from the last millennia.

In the utopian version, DAOs are the culmination of two hundred years of post-Marxist technological automation, an evolution of the institutional form towards autonomist social goals, and an organizational technology where people directly make decisions affecting their everyday lives and seek to break free from political structures imposed from the outside, a form of agorism (Dylan-Ennis and Barlowe, 2022). Implicitly, DAOs would return autonomy to the individual with the goal of directly overcoming power relations—not as a revolutionary or vanguard movement wresting control from the state, but (perhaps) as an anti-power (Holloway, 2010).

However, in my experience of nascent Web3, sophisticated organizational designs and behavioural technologies are still rare and remain highly experimental. The technologies supposedly underpinning autonomist social goals may be vital infrastructure (see Nabben, this volume) but still play a limited role in social interactions. Unfortunately, the bulk of extant scholarly work, including my own, has focused too narrowly on the imagined disruption brought about by the integration of immutable records and automatic software execution, at the expense of developing sociologically rich models of human behaviour capable of explaining how Web3 designs, builds, uses, and maintains real socio-technical infrastructure. As a gesture towards thinking beyond the ways code simply replaces complex social behaviours like legal order, social trust, and cooperation, I adopt Hardt and Negri's model (2017) of social coproduction and extend it to Web3. This model reintroduces agency (Jasper, 2006), collective identity (Poletta and Jasper, 2001), and social dynamics associated with collective decision making (Ostrom, 1990) by making contributions to neo-institutional theory (Schneiberg and Lounsbury, 2017).

According to Hardt and Negri, the political economy of social coproduction faces two challenges: how to create organizations without hierarchy and how to create institutions without

centralization (Hardt and Negri, 2017). Specifically, they call on social movement leaders to "invert the roles," by giving strategic decision making powers to the movement (the "assembly") and tactics to the leadership. This inverted governance relationship destroys the sovereign. Of course, the sovereign must be destroyed so that the people can represent themselves, but as Rousseau (1762/2003) argues, representing oneself is an oxymoron: "sovereignty cannot be represented for the same reason that it cannot be alienated; it consists essentially in the general will, and the will does not admit of being represented: either it is the same or it is different; there is no middle ground." But, when Rousseau celebrates the general will in contrast to the will of all he "underwrites sovereign power," Hardt and Negri admonish (2017, p. 27). They go on to point out that in in these sovereign arrangements, "what belongs to everyone and to no one really belongs to the state" (p.29).

As a sociological model, social coproduction draws attention to the expansive nature of biopolitics. Hardt and Negri emphasize that "all life is subject to threat and exploitation," not just those domains traditionally labelled as work. Indeed, global neoliberal capitalism has made the idea of an autonomous political realm implausible. Most obviously, sovereign nation states have been unable or unwilling to fulfil important environmental and social goals, leaving corporations with Corporate Social Responsibility (CSR) mandates to assume responsibility (Scherer and Palazzo, 2011), a form of neoliberalism. The social coproduction model, rather, suggests an expanded role for economics, wherein cooperation and composition naturally arise in place of political representation. Finally, in-the-streets social movements and new kinds of cooperative work organizations (Mannan, 2018) provide further evidence of the many ways that labour is ultimately cooperative (Hardt and Negri argue that "the *one* never produces"). They conclude that private property fetters social productivity and undermines social relations and that neoliberalism did not restore the freedom of the market, but rather reinvented the state.

Social Movements

Hardt and Negri defend the highly practical nature of social coproduction through many rich examples and case studies of social movements, which they describe as durable social configurations reminiscent of terrorist cells and netwars (Arquilla and Ronfeldt, 2001). While the long-term durability of DAOs remains an open question (stalwarts like MakerDAO only emerged in 2017), the dynamism of their formation and transformation is well captured by social movement theory.

Social movement theory spans sociology and political science to explain contestation and collective mobilization processes (Schneiberg and Lounsbury, 2017). In particular, the sociology of collective identity has been useful to explain the emergence, trajectories, and impacts of social movements. Polletta and Jasper (2001) point out that collective identity serves as an alternative to structuralist accounts by accounting for the ways that people mobilize, why they participate, and the choices they make.

In their review of social movement theory, they ask:

> To what extent are collective identities constructed in and through protest rather than preceding it? Is the identity a group projects publicly the same one that its members experience? Are collective identities imposed on groups or invented by them? Do individuals choose collective identities to maximize their self-interest or do interests flow from identities? How is collective identity different from ideology? From interest? From solidarity? (p.285)

Recent examples of popular DAOs, like Friends with Benefits, emphasize the ways that collective identities can emerge in social movements (Kitts 2000). Friends with Benefits is a kind of VIP lounge or social club with an access token and a treasury worth millions of dollars. In their frothy Discord server, over a million messages have been posted by thousands of members who self-organize and self-promote in a riotous fashion, collectively selling merchandise, artwork, and making group investments (including purchasing brick and mortar assets). Friends with Benefits members organize parties and meetups around the globe, listen to music together in virtual rooms, and

socialize with a distinct Web3 argot. In my ethnography I found feminisms, diversity, and hustle culture abound. Notably, there is little evidence of a scarce resource debate among Friends with Benefits.

Collective identity is especially important for in-group strategic planning and communication, weathering organizational uncertainty, supporting prosocial behaviours, cultivating psychological affect, and setting social norms and limits. Most visibly, collective identities in DAOs are produced and shared through postmodern storytelling, by way of memes (Yogarajah, 2022).

Surplus and social money

In Web3, work is inextricably connected to leisure because the political economy of the Web3 social movement is defined by surplus—not scarcity, as in traditional capitalist models. Why surplus? Because "magic Internet money," of course (if you are unsatisfied with economic relations, just create your own!), but also because in Web3 there are no *natural* constraints. This re-imagination of value is particularly visible in the collective identity associated with Gitcoin, which valourizes reciprocity in opposition to scarcity, to claim that "in a virtual world, the scarcity of goods is just a shared fiction." Gitcoin is hardly alone in cultivating these new norms and values; at ETHDenver 2022 (one of the largest Web3 industry conferences), the organizer John Paller remarked on stage, "It's not about money. We don't care about that;" and a recent Wired article by Gilad Edelman (2022) came to the same conclusion, finding that "Web3 is a realm where coders can feel good about working in tech." But perhaps the most persuasive evidence can be found in the many governance fora of DAOs, where an earlier Free and Open Source model of software production has transformed into small scale digital villages with diverse economic relations, each founded on a private money where "everyone gets paid." However, unlike the traditional Free and Open Source model of software production—that drew in participants looking for fun, technical challenges, and work—participation in DAOs is far more diverse, social, and voluntaristic.

Of course, some people will find this naïve—as if Web3 isn't *really* about getting rich and being an egoist—but as I discussed above, these same people also struggle to understand any sense of value in digital currencies. Most critics simply assume Web3 must be a scam and move on, because *they cannot imagine a world of surplus*. Moreover, modern, neoclassical economics is built on the foundational belief that scarcity is necessary. However, their underlying assumptions about money and economic relations fail to see how crypto tokens can be used for purposes outside of exchange, a unit of account, or a store of value.

What does it mean to have a political economy of surplus? Does this imply that everyone is (equally) rich? This is an unhelpful and unlikely image—a political economy of surplus does not naturally imply equality or freedom. Rather, surplus may even lock its benefactors into a resource curse or trap, as evidenced by resource-abundant national governments like my own Canada or many African nations that founder despite great natural wealth. Unlike rationalized models of narrow "economic" relations of the sort familiar to traditional "scarcity-generating institutions" (Hoeschele, 2010), in Web3 surplus seems to be unevenly distributed through complex practices of 1) earmarking and the social use of money, and 2) the schismogenetic emergence of a subculture that defines itself through refusal and rejection of crypto's dominant culture of greed and hoarding.

1) ***Earmarking and money's social context.***

Viviana Zelizer's (1989) observation that money is often earmarked and used in decidedly social ways suggests that it is not simply a store of value or a means of exchange, but that money is also a way to signal value. According to Zelizer, people engage in different sorts of economic transactions — gifts, taxes, or discretionary funds — to earmark money for specific purposes. This allows them to set aside funds for future use or to allocate resources according to their own priorities; they may choose to save or invest this money, earmark some of these funds for specific purposes, or use it to interact socially.

Modern monetary controls tend to flatten economic exchange, reducing the value of things to a purely numerical, exchangeable form (Nelms and Maurer, 2014). However, when we look at how money tends to be *actually* used in many different cultures — for example, as a ritual offering or as a token of access to exclusive virtual spaces — we see that value is not so straightforwardly reducible to rational economic exchange. According to Zelizer, money often retains some indexical link to its sources and owners, even as it circulates within different spheres of influence.

The Web3 software service Coordinape offers an example of the social embeddedness of money in Web3. With Coordinape, DAOs can "autonomously allocate and reward contributors with funds,… via sybil resistant social graphs." Unlike traditional forms of human resource management that carefully structure work and compensation practices from the top down in a vertical bureaucracy, Coordinape relies on social properties to establish and validate patterns of work. As well, members of DAOs can use Coordinape's tokens to give gifts, reward prosocial behaviours, and incentivize good work. While Coordinape is an admittedly niche example, closer analysis affords an intriguing view of the ongoing and increasingly intense blurring of work. In this case, work seems to exist somewhere on a continuum of leisure—part gift economy and part social co-production.

Looking beyond money and towards forms of plural property, Weyl, Ohlhaver, and Buterin (2022) propose a design for socially embedded tokens that index context-specific human relations. They offer ideas for how a "decentralized society" with indelible trust and identity assets might work, wherein they claim "economic value... is generated by humans and their relationships" by establishing social provenance across communities or clubs. Weyl et al. claim that goods exist on a

continuum between public and private which invites opportunities to think about plural property regimes in place of scarcity-generating private property regimes (see also Posner and Weyl's *Radical Markets*).

2) Schizmogenesis and Web3's subculture

One of the most consistent findings of my digital ethnography of Web3 is opposition to the collective identity of Bitcoin specifically, and crypto more generally. In many cases, I spoke with people who rejected Bitcoin's culture of greed, HODLing, and its programmed designs for generating scarcity; others rejected its bro culture and combative discourse. Importantly, these rejections define Web3's collective identity, and since identity fundamentally determines the status and meaning of revolt, the Web3 collective identity emerges from processes of schizmogenesis.

As first described by the anthropologist Gregory Bateson, schizmogenesis is a theory to explain how inverted or anti-social patterns can compound and grow to form an organic solidarity (Durkheim, 1893/2014). Eventually, anti-social patterns begin to challenge dominant ideology. According to Dick Hebdige (1991), evidence of these anti-social patterns can be found "reflected in the surfaces" of subculture as "expressive forms and rituals" where "objects take on a symbolic dimension" (p.2). These subcultural symbols, he continues, warn the "straight" world of a "sinister presence — the presence of difference" (p.3).

Using Hebdige's (1991) analysis of subculture as a guide, one approach is to read the dominant ideology by looking for connotative codes (Barthes, 1975), and then find signs of refusal in Web3. We already know many of the connotative codes associated with crypto — 'whales,' 'lambos,' and 'going to the moon,' for example—each marking the subconscious "maps of meaning" that are "traced and re-traced along the lines laid down by the dominant discourses about reality, the dominant ideologies" (Hebdige, 1991, p.15). Importantly, dominant ideologies serve hegemony to create consent (p.16). Building on Gramsci's definition of hegemony as the play of relations of force

comprising a "moving equilibrium," Hebdige notes that hegemony is only ever a provisional alliance between dominant groups to exert "total social authority" over other subordinate groups. Specifically, hegemony does not result from coercion or the direct imposition of ruling ideas, but by "winning and shaping consent so that the power of the dominant classes appears both legitimate and natural." (Hall, 1977 quoted in Hebdige, 1979). What we find is that mass movements emerge in refusal, to disrupt what appears legitimate and natural not by a dialectical overthrowing of the dominant classes, but through collective refusal. As Eric Hoffer (2010) remarked, "mass movements can rise and spread without belief in a god, but never without belief in a devil."

Perhaps Web3 only signals a refusal of crypto's greed and need for scarcity. But even if the practices of refusal are "just the darker side… of regulations, just so much graffiti on a prison wall," they are worth careful study. After all, Hebdige continues, "graffiti can make fascinating reading… they are an expression both of impotence and a kind of power — the power to disfigure" (1991, p.3).

Conclusion: From social coproduction to digital polycentric governance

This essay critically evaluated the political economy of Web3 and offered a neo-institutional model to better explain observations of contemporary digital social movements.

Looking forward to future research, this neo-institutional model also suggests pathways to understanding new organizational forms emerging with Web3. With this lens, rather than assume scarcity, work, and profit maximization, I pointed to some lessons we can learn by studying DAOs in terms of the social coproduction of digital common pool resources (DPCRs). Armed with rich

datasets of on-chain governance proposals, voting, and token economics, in the future we can turn to data science and deep learning techniques to discover “successful” strategies of digital polycentric governance.

By drawing connections to systems modelling and data analysis in the “online communities” literature in the Information Systems field we find complementary methodologies to search DAOs for further signs of digital polycentric governance. For instance, if governance can be meaningfully represented in an analytical model (perhaps as a time-dependent partial differential equation), safety engineering and verification become tractable goals for autonomous systems like DAOs. One approach, drawn from control system theory, recommends methods for computing backwards reachable sets. Mitchell, Bayen, and Tomlin (2005) introduced a differential game formulation that utilizes a viscosity solution to reach safe states, which could be explored in governance contexts. Future research might explore how control engineering could use analytical solutions like this to solve dynamic governance games, opening up new vistas for digital polycentric governance.

Still, many questions emerge out the micro-organizational structure of social movements. In addition to safety engineering, does a differential game model offer the possibility of a Nash equilibrium in governance? Furthermore, what role does revenue management play in governance, given what we now know about scarcity in DCPRs? That is, without relying on foundational theories of economic utility maximization, what are appropriate preference functions for choosing governance rules? What other constraints and limitations must a model consider to gain predictive power?

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[i] Skylar Brooks' Bank of Canada report "Revisiting the Monetary Sovereignty Rationale for CBDCs" offers a rich description of the real economic threats crypto poses to nation states. Alternatively, Manski and Manski (2018) theorize the impact of blockchain technology on various (popular, economic, and state) sovereignties in terms of seven structural elements.

[ii] See Yasha Levine's Surveillance Valley: The Secret Military History of the Internet and DuPont and Fidler's "Edge Cryptography and the Codevelopment of Computer Networks and Cybersecurity."

[iii] Foucault links circulation of value (grain, specie, gold, etc.) to the emergence of the "apparatus of security." Whereas "discipline regulates everything," the apparatus of security

"lets things happen" by discriminating between "details that are not valued as good or evil in themselves, that are taken to be necessary, inevitable processes." See Michel Foucault's 1977-78 lectures at the Collége de France, published as *Security, Territory, Population*.

[iv] Social coproduction is a term used by Hardt and Negri, who are autonomist Marxists. Wikipedia provides a useful summary of autonomist values from Katsiaficas, "In contrast to the centralized decisions and hierarchical authority structures of modern institutions, autonomous social movements involve people directly in decisions affecting their everyday lives, seeking to expand democracy and help individuals break free of political structures and behavior patterns imposed from the outside."

[v] But not all cryptocurrencies aim at depoliticization. For example, according to Varoufakis (2021), CBDCs are an attempt to repoliticize money.

[vi] Transaction Cost Economics (TCE), which predicts the emergence of firms to minimize transaction costs on an open market, is a popular model for understanding DAOs. However, DAOs rarely seek to reduce costs. For example, like most DAOs, MakerDAO contracts (no-bid) work streams externally and pays client-requested, community-approved prices.