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Hans-Joachim Backe

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# A Future Already Past?

## The Promises and Pitfalls of Cryptogames, Blockchain, and Speculative Play

HANS-JOACHIM BACKE

### Abstract

The article argues that blockchain-based games should be conceptualized as an emerging social practice that attracts financial speculators under the guise of online games. The article first outlines the blockchain-gaming discourse, which promises ownership and benefits to players, while it encourages financiers and publishers to exploit players. The article presents the performative discourse of blockchain advocates as well as the counterarguments presented by journalist, players, and developers, in order to demonstrate that arguments against cryptogaming are not anticapitalist and politicized, but mostly based on common sense. Then, the article investigates game studies concepts for their capacity to further explicate cryptogames and finds that neither gamification nor playbor are completely fitting. Instead, the article turns to the game research fundamentals of Huizinga and Caillois to cast blockchain gaming in a new light. From this perspective, games like *CryptoKitties* and *Axie Infinity* emerge as nested activities that can be approached as play of financial speculation, with the latter approach being significantly privileged in existing games.

### Keywords

Cryptogames; Play-to-Earn; Huizinga; Caillois; gambling; speculation

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**In 2021, the use of blockchain technology in games** and related areas gained widespread media attention. Until that point, cryptocurrency had been the only well-known application of blockchain, yet even then, that key term often went unmentioned. That changed when Facebook, the world's largest social media company, changed its name to Meta in October of 2021, and emphasized not only a reorientation toward game-like interaction in VR, but also towards blockchain technology. At around the same time, mainstream news outlets reported broadly on videogame players earning a living wage by playing blockchain-based games (Nunley, 2021), and the NFT-craze of early 2022 further popularized the concept.

The following months saw a tumultuous discussion about the adoption of blockchain in the games industry. Ubisoft, one of the largest games publishers, announced that they would integrate blockchain into all their future games and started using NFTs within the company (Gach, 2022a), with several other companies following suit. A number of developers refused their distributors' demands (Gach, 2022b), and over 70% of the attendants of the 2022 Game Developers Conference expressed no interest in blockchain technology, with only 1% using it (GDC/Informatech, 2022, p. 10). The independent game distribution service itch.io accused major publishers of short-sighted profiteering, denouncing NFTs as a scam (itch.io, 2022), and even Steam, the largest digital distribution service, expressed skepticism about adopting blockchain technologies in the future (Fenlon, 2022), citing their catastrophic experience with Bitcoin in the past. Since then, the Play-to-Earn concept, promising a living wage from simply playing digital games, has been shown to be exploitative (Ongweso, 2022), and has been characterized by developers who experimented with it as "not sustainable at all", "zero-sum", and "Ponzi schemes" (Pereira, 2023).

The controversial nature of these discussions is not unprecedented. Robb, Deane and Tranter's (2021) review of the discourses surrounding blockchain finds it generally extremely polemicized, with positions either being unqualifiedly pro-blockchain or critical of it. Egliston and Carter's (2023) overview of the blockchain gaming discourse comes to very similar findings, highlighting that the discussion has focused less on facts and more on potentials: "While blockchains have existed for over a decade, they have largely been characterized by visions and promises of what the technology might do someday" (p. 4). The environmental impact of blockchain technology with its high consumption of energy, water, and electronics (Badea and Mungiu-Pupăzan, 2021) is a further complicating factor (yet one that neither the reviewed literature nor this article engages with in detail).

This article aims to go beyond this polemic by adding to the theoretical understanding of blockchain-based games. Detailed analyses are still quite rare, with *CryptoKitties* (Dapper Labs, 2017), one of the early adopters, having received the most attention (Serada, 2022). The existing studies have identified basic principles of blockchain-based games, their marketing, and their design (Harviainen, Serada, & Sihvonen, 2022), and have demonstrated their dependence on the volatile crypto-financial markets (Serada, Sihvonen, & Harviainen, 2021). Analyses of blockchain-based games from a traditional play-theory perspective are rather non-existent.

The argument presented here is that blockchain-based games in their currently most common form, often identified as cryptogames, present a new paradigm that can be profitably studied through existing game studies theories. To that end, I will first give a brief introduction into blockchain technology and cryptogames, before discussing them through the lenses of concepts such as playbor, gamification, gambling, or gambification. These concepts capture aspects of cryptogames, but their essential peculiarities only emerge clearly through an ontological analysis with the fundamental theories of Huizinga and Caillois, which will round out the presented

discussion. I will show that cryptogames are a paradigm of social interaction that entails both play and financial speculation, intertwined in a novel, yet not completely unprecedented way. Huizinga and Caillois provide a framework within which cryptogames can be explained as a nesting of activities of different character—some of them playful, others not—which allows critical assessment of the contribution of play to finance and vice versa found in these games.

## **Blockchain and cryptogames**

Blockchain is, simply put, a digital bookkeeping technology. It operates with a virtual ledger of transactions, usually to certify the ownership of goods. This ledger is kept in a decentralized fashion, meaning that it is not stored in a single location, but spread out over a peer-to-peer network of computers. This decentralized structure is considered a major reliability- and safety-feature, protecting the ledger against data loss and tampering. While blockchain is in principle agnostic toward the type of data kept in the ledger—the Ethereum blockchain can theoretically contain executable programs—its use is currently dominated by two types of data (Nofer et al., 2017). The first are cryptocurrencies, the original application of blockchain technology, a digital form of money where the units are non-unique, and where amounts of ownership of identical tokens are tracked. The second are non-fungible tokens, or NFTs, which are unique and non-divisible, i.e., virtual objects that can only be owned and traded wholly. The gapless records kept on the blockchain are meant to ensure that copying and counterfeiting are all but impossible. Both cryptocurrencies and NFTs are traded on the blockchain, but within different economic paradigms: With cryptocurrencies, the currency as a whole undergoes fluctuations of value, yet two coins will always have identical value, while two NFTs of the same issuer can have completely decorrelated values. In terms of property logic, cryptocurrencies function like money, where the individual coin or bill is categorically interchangeable with any other coin or bill, while NFTs are considered individual objects of value. In both cases, “their value is often largely speculative, hinged upon a belief in a future in which a particular chain or token is widely adopted” (Egliston & Carter, 2023, p. 2).

Decentralized finance (DeFi) has been the main application of blockchain in recent years, but other use cases have been proposed, like keeping a gapless record of provenance and storage of valuable perishables (Robb, Deane & Tranter, 2021), or the administration of national healthcare data on the blockchain. These applications are still mostly in early stages, also conceptually, as evidenced by a meta review finding that existing “papers do not handle blockchain’s ethical impact on the healthcare industry either very widely or deeply” (Hyrynsalmi, Hyrynsalmi, & Kimppa, 2021). Critics even go so far as to characterize blockchain not as a flexible or universal technology, but rather as an intentionally undefined discourse, which “allows it to appeal to a range of different blockchain constituencies and their interests, something that provides it an alibi for extending into disparate areas of life (real estate, finance, corporate governance, cultural production, and so on)” (Egliston & Carter, 2023, p.

5). This goes hand in hand with blockchain, NFTs, and cryptocurrency usually being presented in very complicated and technical terms, lending them an aura of the “technological sublime” (Hoyng, 2023). That they are difficult to understand is portrayed as proof of their power and allows for doubt or criticism to be deflected as a lack of expertise. Like in other “techno-solutionist and innovationist ideologies” (Herian, 2019, p. 6), the intransparency of the basic concepts allows their proponents to promise widely divergent and even mutually exclusive benefits, while sidestepping critique.

These observations about blockchain in general hold especially true when it comes to its application to games. While there are implementation scenarios that would use distributed ledgers for non-financial purposes, the most widespread form of blockchain-game is the so-called cryptogame. In this format, popularized by *CryptoKitties* and *Axie Infinity* (Sky Mavis, 2018), one or several cryptocurrencies are being used, and owning game assets in order to eventually trade them for fiat currency is part of the core game design. Given that cryptogames are the most prevalent, and that the existing research has focused on them almost exclusively, the following argument will be limited to this type of game.

Unsurprisingly, the discourse surrounding cryptogaming resembles closely the general blockchain discourse. Egliston and Carter (2023) found that cryptogames are advertised to players with three promises:

- (1) cryptogames will provide a mechanism for resisting asymmetrical power in production contexts;
- (2) cryptogaming will allow players to ‘earn’ and ‘retain value’ and
- (3) cryptogames will afford a high degree of openness, of convergence and composability between games and the blockchains on which they operate. (p. 2)

When addressing publishers, cryptogame proponents emphasize that while players may own assets as NFTs, game companies can exert control over the trading of assets by levying fees (Blockchain Game Alliance, 2020). In the overwhelming majority of cases, games do not use one of the established blockchain solutions (like Ethereum), but a so-called sidechain, “a blockchain connected to (yet operating separately from) another blockchain network (generally to Ethereum)” (Egliston & Carter, 2023, p. 3). Tying game objects to the localized blockchain of a game or a game company subverts in practice all promises made to players, and negates some of the security benefits of blockchain, as evidenced by the successful theft of \$617 million from the *Axie Infinity* sidechain (Chalk, 2022).

Game designers are, as already mentioned, largely skeptical about cryptogames, even when they have experience with them. In an interview, Chase Freo, CEO of blockchain game development platform OP Games, is quoted saying that cryptogame developers are struggling to create “a really good core loop that enables these

players to put back whatever they earn into the game” (Pereira, 2023). In part, this is certainly due to novelty of blockchain that developers still need to explore further.

I argue here, though, that to a great extent, the challenge of designing successful cryptogames stems from a lack of understanding of the ontology of these games and the unusual role they put their players into. In the following, I discuss cryptogames through several game studies models, to arrive at an understanding of how cryptogames differ structurally from other games, and what that means for the play they afford.

To that end, I focus methodically on strict, axiomatic game ontologies to establish abstract, categorical distinctions. Especially the role of the player would ultimately need to be analyzed with ethnographic methods, to determine how empirical players actually behave and feel. Using, e.g., Hjorth’s concepts of ambient play and soft play would allow to explore the blurry boundaries between play and non-play, and the digital and the physical (Hjorth, 2018). Yet before focusing on these gray areas, it seems to me necessary to first establish some theoretical categories, which will, among other things, provide hypotheses for empirical work.

## **Gaming, gambling, and work**

The first categorical question that needs to be asked is whether cryptogames should be considered games in the first place, or not rather a game-adjacent phenomenon better explained as gamification. For over a decade now, the use of game(like) elements in non-game contexts has been identified with this term, generally describing practices “aiming to ‘transplant’ some of the motivational qualities of games into contexts that are not inherently leisure-focused or motivating in themselves” (Raczowski, 2014, p. 141). Just like cryptogaming, gamification “frustrates the practice of game design and reduces playing to a stimulus-response experience; whereas, games, and video games in particular, have been trying to differentiate and complicate the meanings of play in a digital culture” (Fuchs et al., 2014, p. 10).

However, two arguments speak against reading cryptogames through the lens of gamification. For one thing, they are marketed, conceived, and discussed as games. For another, gamification stands in a tradition of behavioral modification that operates with standardized, intentionally cheap or inherently valueless tokens (Raczowski, 2014, p. 141), which is almost the polar opposite of the emphasis of value and uniqueness in the discourse of blockchain, NFTs, and cryptogames.

Preliminarily accepting cryptogames as games, it might seem productive to think about cryptogames as playbor, the hybridization of work and play (Kücklich, 2005). In its original and strict sense, playbor is the creation of value for game companies through monetizing the free labor of their players, e.g., when modders add longevity to a game through their work, or when a company has the right to outright sell their

work to other players. Again, this concept does not fit completely with cryptogames. In playbor, players create products in an act of productive leisure:

While there have always been forms of productive leisure—crafts such as knitting and woodworking as well as hunting, gardening and fishing come to mind—the products of these activities may have never made a significant appearance in the marketplace in capitalist societies. (Kücklich, 2005)

Modders, Kücklich's central paradigm for playbor, are hobbyists whose work is exploited as that of freelance game- or level designers. They usually work not in the game itself, but in a level-editor. In the terminology of Carter, Gibbs, and Harrop (2012), they do not play the orthogame, i.e., "game proper", but engage in a paragamic activity, using distinct and separate tools to create products for use in the game.

In cryptogames, value is not created through the production of an object in an act of game-adjacent labor. Instead, players act in the game itself, drawing extensively on the strategic considerations and community-created knowledge of the metagame (Boluk & LeMieux, 2017; Carter, Gibbs, & Harrop, 2012). In cryptogames, the distinction between orthogame and metagame is, however, tenuous, if not impossible. The use of money-equivalent game tokens is central to cryptogames (and their monetization) and increasing the value of one's game assets involves studying the value fluctuations of the in-game currencies—as well as eventually those of the tethered general-purpose cryptocurrency once a player wants to convert their in-game winnings to crypto- or fiat currency.

Engaging in the metagame of the in-game market and its fluctuations is so central because in the so-far most successful cryptogames, the core game loop is extremely randomized. In *CryptoKitties*, "unpredictability is in the core logic of the game, which challenges luck rather than skills, of its players" (Serada, 2022, p. 64). Players have so little influence on the 'breeding' of their virtual creatures, that this 'production' in the game amounts to little more than a lootbox mechanic (Xiao, 2021): Players know that their activities will produce some new token, but the quality (and value) of it is randomly determined. In other words: the activity that produces value is decoupled from player skill, work, and the metagame of strategy formulation, while a second-order metagame (studying the in-game market) is crucially important for the player to actualize the value of their in-game tokens.

This can be illustrated in more detail through an example like *Axie Infinity*. This *Pokémon*-like game uses its own blockchain implementation, a sidechain, to track players' ownership of game elements. This sidechain is separate from its parent, Ethereum, yet not independent from it. The value of elements in the sidechain is therefore dependent on other, higher-level blockchains. *Axie Infinity* uses in direct gameplay application the resource Smooth Love Potion (SLP) to "breed axies". This creation of a

new virtual creature by using up some SLP is the core gameplay loop. The value of SLP is expressed in and convertible to *Axie Infinity Shards*, stylized as \$AXS to signify their quasi-monetary character. The value of \$AXS is, in turn, connected to and dependent on Ethereum. In practice, this means that during play in *Axie Infinity*, players primarily rely on SLPs, whose value can be converted to \$AXS, which has equal value in other games of developer Sky Mavis. \$AXS is listed by cryptocurrency brokers and can thus be traded for Ethereum, and the Ethereum can finally be traded for fiat currency. This makes the cost of breeding an Axie regularly change exponentially, because players need to buy SLP with \$AXS, the price of which changes dependent on both its own course fluctuations and those of Ethereum.

There are numerous implications of this system, but the main points are that the value of all cryptocurrencies fluctuates continuously and strongly, based on demand and supply, and that, in addition, the trading of cryptocurrencies is subject to cost and fees. These two factors create a system in which the value of game elements is conceptualized as monetary, yet within a highly volatile system that makes game balancing in the traditional sense impossible. The resulting complexity has appeal both as a game design principle and as a generator of value in a marketplace, yet not independently of each other. This system creates “synergies between gaming, digital asset trading and online gambling” (Delfabbro & King, 2023, p. 2).

Unsurprisingly, the online gambling industry has embraced blockchain and the Metaverse, apparently with little effort and great success (Tan, 2022). The base principles of cryptogames have long been the operating principles of casinos: exchange fiat currency for house currency, win or lose house currency by playing, convert remaining sum back into fiat currency, with the house taking a significant fee for conversions and setting gambling odds in its own favor.<sup>1</sup> Beyond connecting their internal currency to the blockchain, many online casinos sell players nominal shares in the casino as a part of their buy-in, guaranteeing them small, but reliable payments in return, and allowing them to have other players use their account for a portion of their winnings. These design principles have been adopted in cryptogames, with the difference that these are usually not conceptualized as gambling, and customers are portrayed as players, not gamblers.

The permeation of these design principles to non-gambling contexts is, in general terms, what Macey and Hamari (2022) have termed gamblification: “Gamblification is the (increased) presence of gambling (or gambling-related content) in non-gambling contexts in order to realise desired outcomes. It incorporates two main as-

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<sup>1</sup> The advantages of blockchain for gambling are often subtle: “In many of these contexts, cryptocurrency does not necessarily have to be used, but these new operations provide a way to gamble more anonymously (e.g. by using crypto from a Ledger device) or off a decentralized wallet” (Delfabbro & King, 2023, p. 7).



pects: affective (employing cultural values/signifiers of gambling); and effective, (employing gambling games and activities)" (p. 10). However, cryptogaming goes beyond the two dimensions contained in this definition, i.e., evoking the discourse of gambling and implementing gambling. While online casinos are a logical development in the history of gambling, cryptogames are only one element in the wider tendency towards

the casualization of risk and gamification of finance. This trend is stirred by the arrival of (crypto) fintech trading apps, nonfungible tokens (NFTs) markets, social casino apps and other forms of gamble-play that are often deeply intertwined with social media platforms. (Hoyng, 2023, p. 2)

Cryptogames operate at a nexus of play and finance that cannot be characterized as merely playing for money. The development goes in both directions, and financial activity is discursivized as rather playful than serious, as "speculative investment and decentralized finance. ... This means that people who engage in gaming or gambling involving any sort of blockchain technology may also be exposed to elements of financial speculation" (Delfabbro & King, 2023, p. 7).

## **Speculation and/as play**

The central innovation of cryptogames appears as a seamless convergence between gaming, gambling, and speculative investment, in the sense that they are simultaneously situated as games and as investment (Play-to-Earn), while employing some strategies of gambling. Neither of these components is an optional metagame for players, even if each of them will attract "its own populations and these people will (to varying degrees) be involved with the other categories of activity" (Delfabbro & King, 2023, p. 8). Proponents of cryptogames "imagine players and developers as financialised subjects—adopting attitudes and practices of risk and investment" (Egliston & Carter, 2023, p. 3). While by far not all players or developers conform to this vision, cryptogames, like other forms of crypto-investing, "is likely to attract a particular population; namely, those who are engaged in speculative and higher-risk trading" (Delfabbro & King, 2023, p. 7). One might therefore be tempted to consider all cryptogame players speculators. Serada reports asking the developer of a "successful blockchain-based game" in a private conversation, how they differentiate between honest players and speculators, and he replied: "All players are speculators! This is the essence of the game" (2022, p. 65).

I would, however, propose to distinguish between (at least) three types of participants in cryptogames: (1) Speculators who approach the game as an investment opportunity; (2) players who approach the game *as* a game;<sup>2</sup> (3) gamblers who approach the game as gambling. The Play-to-Earn discourse (with promises of “asset ownership” and “safe trading”) suggests to all of them that the activity carries little risk and promises higher chances of earnings than comparable activities, be it regular crypto-investment, traditional online games or online casinos. However, the system is strongly skewed in favor of speculators, and while it does not force players to employ manipulation or exploitation, it encourages them by characterizing the activity as a game, insinuating lack of consequence and voluntary participation.

The result is the almost inevitable development of Ponzi schemes. The most well-known case, *Axie Infinity*, demonstrates these systemic traits well: Early adopters, predominantly speculators, are able to buy the in-game tokens needed for play at low prices, because the game’s operator needs to attract players. Once the game starts attracting an increasing number of players and gamblers, scarcity drives up prices of in-game tokens. Existing owners of in-game tokens—again, mostly speculators—can rent them out to new players for fees (often 50% of winnings). When newer players re-invest their winnings and buy their own tokens, transitioning to the role of speculators, this is envisioned to diversify and solidify the in-game community. At this point, though, the shrinking profit margins offer first-generation speculators little incentive to stay with the game, and they leave it in droves. This leads the value of in-game tokens to collapse, and newer players have no opportunity to regain their investments or sell their assets without horrendous losses (Chow & Guzman, 2022; Ongweso, 2022).

This privileged position of speculators in cryptogames is an inevitable side effect of its blockchain roots. Hoyng (2023) distinguishes three distinct modes of speculation connected to blockchain: Speculation *about*, the planning of investors, entrepreneurs and revolutionaries based on the potential of blockchain technologies; speculation *through*, the development of blockchain-driven services as an alternative financing model in a competitive marketplace; and speculation *on*, the investment of end-users in blockchain services (p. 5). Investors actively engage in speculation *about* cryptogames, not the least through a performative discourse aimed at promoting blockchain in general; an increasing number of newcomer developers engage in speculation *through* cryptogames by creating software products; and speculative traders and gamblers speculate *on* cryptogames by engaging in the games to make a profit.

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<sup>2</sup> Given the testimony of *Axie Infinity* players who naively accepted the promise that they would earn a living wage by simply playing the game (Ongweso, 2022), it might make sense to consider them their own category of play-workers.

The idea of the speculator-as-player is, of course, not new. Huizinga already observed this conceptual affinity in a passage that bears quoting at length:

The hazy border-line between play and seriousness is illustrated very tellingly by the use of the words 'playing' or 'gambling' for the machinations on the Stock Exchange. The gambler at the roulette table will readily concede that he is playing; the stockjobber will not. He will maintain that buying and selling on the off-chance of prices rising or falling is part of the serious business of life, at least of business life, and that it is an economic function of society. In both cases the operative factor is the hope of gain; but whereas in the former the pure fortuitousness of the thing is generally admitted (all 'systems' notwithstanding), in the latter the player deludes himself with the fancy that he can calculate the future trends of the market. At any rate the difference of mentality is exceedingly small. (1949, p. 52)

Huizinga's observation that 'playing' or 'gambling' at the stock exchange are a matter of philosophy (and self-delusion) is certainly a provocation to investment-economists who have elevated the minimization of chance to a science. Yet for the amateur speculators of the DeFi age, Huizinga's judgement might hold true, particularly in cryptogames with their contradictory promise of Play-to-Earn.

Huizinga and Caillois base their views of games on a strict distinction between play and not-play, often referred to as the magic circle—a concept that has been controversially discussed within game studies (Calleja, 2012; Stenros, 2012). This distinction is, however, not an unquestioned, absolute certainty, as the above quote demonstrates. Their insistence on distinguishing play from not-play rather results from the conceptual and discursive blurriness of the everyday use of the terms play and game: "Upon waking up in the morning, everyone is supposed to find himself winning or losing in a gigantic, ceaseless, gratuitous, and inevitable lottery which will determine his general coefficient of success or failure for the next twenty-four hours" (Caillois, 2001, p. 47). That is why Huizinga specifies play in one of the most contested parts of his definition as "an activity connected with no material interest, and no profit can be gained by it" (1949, p. 13). As even Caillois criticized him for the negation of profit and thus the apparent complete exclusion of gambling from the realm of play, it is important to note that the second edition of the Dutch original (1940) as well as the German translation replace this sentence with the following short passage:

All researchers put emphasis on the disinterested character of games. This Something, which is not the 'common life', *is located outside the processes of immediate satisfaction of needs and desires, it even interrupts this process*. It inserts itself between them as a temporary action. This action is self-contained and is executed for the satisfaction that arises from the

execution itself. (Huizinga, 1987, p. 17, emphasis in original, my translation)<sup>3</sup>

With this, Huizinga defines games as disinterested, as autotelic and therefore, most importantly, as not aimed at subsistence. Continuing in this line of thought, Caillois asks what happens when play “is contaminated by the real world in which every act has inescapable consequences? Corresponding to each of the basic categories there is a specific perversion which results from the absence of both restraint and protection” (2001, p. 44).

The classic play theorists thus provide a categorical delimitation of play and games as a domain of activities in which actions have less severe consequences than otherwise and where one is temporarily free from the satisfaction of base needs. This ideal is, they admit, not always realized. When these conditions are not met, it is “necessary to take precautions against cheats and professional players” (Caillois, 2001, p. 45), because different participants have different goals and motivations. Participants in the same activity might be playing (i.e., part-time engaging in an autotelic activity), while others might be working (i.e., earning their livelihood in a professionalized full-time endeavor). Mixing players and workers, particularly when this is not immediately apparent to all participants, would be unethical in Caillois’ opinion.

In cryptogames, the simple dichotomy of players and workers is generally tenuous, as already discussed. Therefore, I want to apply Caillois’ ontology of play to the distinction between speculators, players, and gamblers proposed above by breaking down the different activities taking place and correlating them to the types of participants.

Caillois observes that types of play (agôn, alea, mimicry, and ilinx) appear in sometimes counter-intuitive combinations. Competitive games will, in their central activities, strive for the fairest possible contest (i.e., pure agôn). Because not all parameters can be controlled, elements of randomization (alea) are used in the service of fairness, e.g., a coin-toss to determine sides of a playing field or starting player. Another way in which types of play are combined is when individual matches are strung together in larger ludic structures with their own rules: The results of a single match of football, chess, or *Counter-Strike* will remain the same, yet have different signifi-

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<sup>3</sup> “Alle Forscher legen den Nachdruck auf den uninteressierten Charakter des Spiels. Dieses Etwas, das nicht das ‚gewöhnliche Leben‘ ist, *steht außerhalb des Prozesses der unmittelbaren Befriedigung von Notwendigkeiten und Begierden, ja es unterbricht diesen Prozeß*. Es schiebt sich zwischen ihn als eine zeitweilige Handlung ein. Diese läuft in sich selbst ab und wird um der Befriedigung willen verrichtet, die in der Verrichtung selbst liegt” (Huizinga, 1987, p. 17, emphasis in original).

cance when they are part of a league (where complex scores accumulate) or a tournament (where only winning might be relevant) (Backe, 2008, pp. 60–61; Caillois, 2001, p. 15).

Continuing this train of thought, one could consider gambling not holistically as games of chance (alea), but as the nesting of two play activities. Broadly speaking, gambling consists of placing a bet on the outcome of an event that is out of the gambler's control. This event can be random, like the toss of a die, but it does not have to be (like in sports betting or horse races, where the outcome is uncertain, not random). Following Caillois' distinction of types of play based on the emotional motivation behind them, the bet appears less as an act of alea than an act of ilinx, i.e., play undertaken to provoke a physical reaction like vertigo, fear, or excitement. Gambling has been shown in clinical tests to be correlated to the excitement of making a wager (e.g., Wulfert et al., 2008), which supports the view that gambling might be better understood as a nested game with an outer activity of ilinx and a nested, yet independent activity that might be pure alea, but does not have to be.

This view explains much of the fascination of classic casino gambling like roulette. The outcome of the nested activity is randomized and completely out of the player's agency, but probabilities are known quantities, and winnings are directly proportional to the likelihood of a player's bet, giving the player significant agency over the intensity of the ilinx of the outer activity of the wager (making more or less risky, bigger or smaller bets).

Gambling on sports or markets works with categorically different nested activities. Here, the subject of the wager is not a random event with known probabilities, but the comparatively unpredictable competition between often highly skilled actors. When gambling on such ludic-agônial nested activities, Caillois' second dimension of play, the ludus–paidia continuum, becomes crucial. Purely aleatoric forms of gambling (e.g., a spontaneous bet on a coin toss) have a large element of paidia, i.e., free play of “impulsive and easy recreation” (Caillois, 2001, p. 28), while betting on sports or stocks suggests ludus, which “provides an occasion for training and normally leads to the acquisition of a special skill” (Caillois, 2001, p. 29). To what extent players' skill actually figures into this activity, i.e., if this is ludus or only seems like it, is a wholly different question which Huizinga at least, as quoted above, generally discounts as a delusion.

## Speculative play in practice

Applied to cryptogames, I propose that we find several forms of nesting, different agential roles, and obfuscation of the nature of the involved activities:

1. The central nested activity, the orthogame, can lend itself to misunderstandings. In her study of *CryptoKitties*, Serada observes that the game “was not designed as a competitive game—it was envisioned as creative exploration

- of blockchain technologies that everyone could try for themselves” (2022, p. 70). In the final game, however, “unpredictability is in the core logic of the game, which challenges luck rather than skills, of its players” (Serada, 2022, p. 64). Players of the orthogame were thus suggested through initial advertisement and design cues that they were playing a game of paidic mimicry (playful creative exploration), which was later discursivized as a game of ludic agôn (skill-based competition), while actually being paidic alea (skill-less randomization). The activity and the degree of agency it offers are highly unclear.
2. The orthogame produces results that are in themselves unambiguous (e.g., win or loss in a contest, numeric rarity of a game token). However, these results are enmeshed in the blockchain-based economy of the game and undergo often extreme value fluctuations. Healing a creature after a battle might be ruinously expensive because of a sudden price increase in healing items or the currency used to buy them. These price-fluctuations cannot be unproblematically identified as a meta-game or a higher-order activity within which the orthogame is nested, because of the several levels of interdependence of tokens and the largely non-ludic nature of the market they are embedded in. *Axie Infinity's* aforementioned interdependence between Smooth Love Potions, Axie Infinity Shards, and Ethereum means that indeed every player is forced into the role of a speculator to some degree. Here, the need to distinguish between gambler and speculator becomes apparent, because in gambling, the wager would be flexible, the act of betting voluntary, and the likelihood and value of results would be a known quantity—none of which are the case here. Instead, players are forced to either participate in a meta-game (which might appear ludic and agonal, but because of its complexity is rather contingent and thus aleatoric) or accept the aleatoric nature of game outcomes. When approached as a low-stakes game, this is indeed a novel aspect of cryptogames—non-negotiable, but market-dependent outcomes of play.
  3. Cryptogames are, as shown above, framed by developers and interest groups as part of a speculative finance context. They thus attract participants who engage with the game exactly because of the economic entanglements that are a potentially unexpected and negative factor for players with a strict interest in the orthogame. Participating because of the possibility of financial gains means engaging in activities that are agonistic ludus, i.e., focused on the skill of buying or selling at the most opportune moment in a competitive marketplace. Unlike when speculating on the stock market, the speculators of cryptogames are not banned from manipulating the market they speculate on. Quite on the contrary, speculation on Smooth Love Potions or Axie Infinity Shards requires participation in the game, even if only vicariously through the activities of other players. When the activities of those players are framed as work (Play-to-Earn), speculators will have decisive influence on these players' actions. One way or another, speculators influence the value

of the first-order blockchain-based economy of the game yet have increasingly less agency over the additional layers of cryptocurrencies they are entangled with.

These are only the most fundamental dimensions in which the concept of nested activities of players, gamblers, and speculators manifest. Especially the 'salaried players' initially earning living wages (Nunley, 2021) and later losing their life savings (Ongweso, 2022) would deserve an investigation that is beyond the scope of this article. Yet the application of Huizinga's and Caillois's fundamental game ontology supports and nuances the notion that speculators are target and ideal 'players' of cryptogames (Delfabbro & King, 2023; Serada, 2022). By using blockchain in the same fashion as the financial industry, and by linking game economies to cryptocurrencies, cryptogames discursively suggest and practically privilege a speculative finance approach to them.

## **Conclusion: The emperor's new monetization**

In this article, I have shown how blockchain-based games can be conceptualized as an emerging social practice that attracts financial speculators under the guise of online games. The article briefly summarized the discourses surrounding blockchain and cryptogaming, with their clashing promises of ownership to players and exploitation to publishers. It then investigated game studies concepts for their capacity to explicate cryptogames, finding neither gamification nor playbor completely fitting. Instead, the article turned to the game research fundamentals of Huizinga and Caillois to cast cryptogames in a new light. From this perspective, games like *CryptoKitties* and *Axie Infinity* emerge as nested activities that can be approached as play, gambling, or financial speculation, with the latter approach being significantly privileged in existing games.

The article has been solely focused on cryptogames, and thus only on games that use blockchain in the vein of the financial industry: The flow of investments and the processes of changing ownership are obfuscated in unnecessarily complicated systems that are geared toward impeding exiting the economy of the game. This manifests in a variant of what Schüll (2012) calls "addiction by design": Entering the game is easy, while cashing out requires to non-trivial effort, incurs fees, and is fraught with loss aversion (i.e., fear of selling too early), extrapolation bias (unwarranted extrapolation of past trends in forming forecasts), gambler's fallacy (overestimating the probability of an event because it has not recently occurred), and sunk cost fallacy. Maybe most importantly, players might not have enough funds (or time) to play more than one cryptogame concurrently, binding them in a very real sense to a product, leading to absolute customer retention, at least within one platform. From a publisher's perspective, this would be ideal, while for the individual, it might be risky and financially disastrous.

For the moment, cryptogames seem to have run out of steam, called out by the community of established developers and players as the empty promises of an Emperor's New Clothes scheme, but given the cyclical nature of cryptofinance (Wang et al., 2022), it is only a matter of time before a new generation of players, developers, and investors will be targeted by the aggressive marketing of crypto-interest groups. They will continue to project to players "a perception that everything to do with digital games is a form of play, and therefore a voluntary, non-profit-oriented activity" (Kücklich, 2005), while simultaneously casting all their players as thoroughly financialized subjects. And because of blockchain's aura of the 'technological sublime', players will continue to engage with systems that they don't fully understand and mistake exploitative or fraudulent activities for intricacies of complicated game they might make a living off, if they only played well enough. Yet even if cryptogaming complicates such established heuristics, some basic conceptual confusion could be avoided by a simple rule of thumb based on the magic circle: If you are winning money, you are gambling, if you are earning money, you are working, and in neither case are you playing.

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## References

- Backe, H. -J. (2008). Caillois revisited: Towards a general theory of games and rules. In M. Ghosh-Schellhorn & R. Marti (Eds.), *Playing by the rules of the game* (pp. 53–63). Berlin: Lit Verlag.
- Badea, L., & Mungiu-Pupăzan, M. C. (2021). The economic and environmental impact of bitcoin. *IEEE Access*, 9, 48091–48104. <https://doi.org/10.1109/ACCESS.2021.3068636>
- Blockchain Game Alliance. (2020, April 24). How blockchain collectibles can transform game monetization & promotion. *Medium*. <https://medium.com/blockchain-game-alliance/how-blockchain-collectibles-can-transform-game-monetization-promotion-7e02f9c7ffbe>
- Boluk, S., & LeMieux, P. (2017). *Metagaming: Playing, competing, spectating, cheating, trading, making, and breaking videogames*. Minneapolis: University of Minnesota Press.
- Caillois, R. (2001). *Man, play and games*. Urbana: University of Illinois Press.
- Calleja, G. (2012). Erasing the magic circle. In J. R. Sageng, H. J. Fossheim & T. M. Larsen (Eds.), *The philosophy of computer games* (pp. 77–91). Dordrecht: Springer.



- Carter, M., Gibbs, M., & Harrop, M. (2012). Metagames, paragames and orthogames: A new vocabulary. *Proceedings of the International Conference on the Foundations of Digital Games*, 11–17. <https://doi.org/10.1145/2282338.2282346>
- Chalk, A. (2022, March 29). Crypto thieves rob adorable digital animal game for more than \$617M. *PC Gamer*. <https://www.pcgamer.com/crypto-thieves-rob-adorable-digital-animal-game-for-more-than-dollar617m/>
- Chow, A. R., & de Guzman, C. (2022, July 25). A crypto game promised to lift Filipinos out of poverty. Here's what happened instead. *Time*. <https://time.com/6199385/axie-infinity-crypto-game-philippines-debt/>
- Dapper Labs. (2017). *CryptoKitties* [Browser-based]. Dapper Labs.
- Delfabbro, P., & King, D. (2023). The evolution of young gambling studies: Digital convergence of gaming, gambling and cryptocurrency technologies. *International Gambling Studies*. <https://doi.org/10.1080/14459795.2023.2171469>
- Egliston, B., & Carter, M. (2023). Cryptogames: The promises of blockchain for the future of the videogame industry. *New Media and Society*. <https://doi.org/10.1177/14614448231158614>
- Fenlon, W. (2022, February 26). "50% of transactions were fraudulent" when Steam accepted bitcoin for payments, says Gabe Newell. *PC Gamer*. <https://www.pcgamer.com/50-of-transactions-were-fraudulent-when-steam-accepted-bitcoin-for-payments-says-gabe-newell/>
- Fuchs, M., Fizek, S., Ruffino, P., & Schrape, N. (2014). *Rethinking gamification*. Lüneburg: meson press.
- Gach, E. (2022a, February 4). Ubisoft's latest galaxy-brain move is to gift scammy NFTs to employees. *Kotaku*. <https://kotaku.com/ubisoft-nft-crypto-scam-tom-clancy-ghost-recon-breakpoi-1848484228>
- Gach, E. (2022b, February 10). Report: Gaming CEO pushes NFT scam while devs struggle to buy food. *PC Gamer*. <https://www.pcgamer.com/overcooked-and-going-under-devs-revolt-against-publisher-team17s-nft-plans/>
- GDC/Informatech. (2022). *State of the game industry 2022*. [https://images.reg.techweb.com/Web/UBMTechweb/%7B0e130537-da8b-43da-971d-ccd0104cdb02%7D\\_GDC22\\_Report\\_SOTI.pdf](https://images.reg.techweb.com/Web/UBMTechweb/%7B0e130537-da8b-43da-971d-ccd0104cdb02%7D_GDC22_Report_SOTI.pdf)
- Harviainen, T. J., Serada, A., & Sihvonon, T. (2022). Cryptogames as drivers for blockchain application development. In A. Dingli et al. (Eds.), *Disruptive technologies in media, arts and design* (pp. 55–61). Cham: Springer.

- Herian, R. (2019). *Regulating blockchain: Critical perspectives in law and technology*. London: Routledge.
- Hjorth, L. (2018). Ambient and soft play: Play, labour and the digital in everyday life. *European Journal of Cultural Studies*, 21(1), 3–12. <https://doi.org/10.1177/1367549417705606>
- Hoyng, R. (2023). From bitcoin to farm bank: An idiotic inquiry into blockchain speculation. *Convergence: The International Journal of Research into New Media Technologies*, 29(4), 1015–1032. <https://doi.org/10.1177/13548565231154104>
- Huizinga, J. (1949). *Homo ludens: A study of the play-element in culture*. London: Routledge and Kegan Paul.
- Huizinga, J. (1987). *Homo Ludens. Vom Ursprung der Kultur im Spiel* [Homo Ludens: The play-element in culture]. Reinbek: Rowohlt.
- Hyrnsalmi, S., Hyrnsalmi, S. M., & Kimppa, K. K. (2021). The state of the art of the blockchain ethics in healthcare: A systematic literature review. *FinJeHeW*, 13(3), 193–206.
- Itch.io. [@itchio]. (2022, February 6). A few have asked about our stance on NFTs: NFTs are a scam. If you think they are legitimately useful [Quote tweet]. *Twitter*. Retrieved 4 June 2023, from <https://twitter.com/itchio/status/1490141815-294414856>
- Kücklich, J. (2005). Precarious playbour: Modders and the digital games industry. *FibreCulture*, 5(1). <http://five.fibrejournal.org/fcj-025-precarious-playbour-modders-and-the-digital-games-industry/>
- Macey, J., & Hamari, J. (2022). Gamblification: A definition. *New Media and Society*. <https://doi.org/10.1177/14614448221083903>
- Nofer, M., Gomber, P., Hinz, O., & Schiereck, D. (2017). Blockchain. *Business & Information Systems Engineering*, 59, 183–187. <https://doi.org/10.1007/s12599-017-0467-3>
- Nunley, C. (2021, May 14). People in the Philippines are earning cryptocurrency during the pandemic by playing a video game. *CNBC*. <https://www.cnbc.com/2021/05/14/people-in-philippines-earn-cryptocurrency-playing-nft-video-game-axie-infinity.html>
- Ongweso, E. (2022, April 4). The Metaverse has bosses too: Meet the ‘managers’ of Axie Infinity. *Motherboard*. <https://www.vice.com/en/article/88g3ag/the-metaverse-has-bosses-too-meet-the-managers-of-axie-infinity>

- Pereira, A. P. (2023, April 15). NFT.NYC: Play-to-Earn is not dead, but game publishers are looking for alternatives. *CoinTelegraph*. <https://cointelegraph.com/news/nft-nyc-play-to-earn-is-not-dead-but-game-publishers-are-looking-for-alternatives>
- Raczkowski, F. (2014). Making points the point: Towards a history of ideas of gamification. In M. Fuchs, S. Fizek, P. Ruffino, & N. Schrape (Eds.), *Rethinking gamification* (pp. 141–160). Lüneburg: meson press.
- Robb, L., Deane, F., & Tranter, K. (2021). The blockchain conundrum: Humans, community regulation and chains. *Law, Innovation and Technology*, (13)(2), 355–376. <https://doi.org/10.1080/17579961.2021.1977215>
- Schüll, N. D. (2012). *Addiction by design*. Princeton: Princeton University Press.
- Serada, A. (2022). Fairness by design: The fair game and the fair price on a blockchain-based marketplace. In A. Dingli et al. (Eds.), *Disruptive technologies in media, arts and design* (pp. 63–75). Cham: Springer.
- Serada, A., Sihvonen, T., & Harviainen, J. T. (2021). *CryptoKitties* and the new ludic economy: How blockchain introduces value, ownership, and scarcity in digital gaming. *Games and Culture*, 16(4), 457–480. <https://doi.org/10.1177/155541-2019898305>
- Sky Mavis. (2018). *Axie Infinity* [Multiplatform]. Sky Mavis.
- Stenros, J. (2012). In defence of a magic circle: The social and mental boundaries of play. *Proceedings of DiGRA Nordic 2012 Conference: Local and Global—Games in Culture and Society*. Tampere: University of Tampere.
- Tan, E. (2022, February 3). Who's using the Metaverse? Poker players in Decentraland. *CoinDesk*. <https://www.coindesk.com/tech/2022/02/03/whos-using-the-metaverse-poker-players-in-decentraland/>
- Wang, Y., Horky, F., Baals, L. J., Lucey, B. M., & Vigne, S. A. (2022). Bubbles all the way down? Detecting and date-stamping bubble behaviours in NFT and DeFi markets. *Journal of Chinese Economic and Business Studies*, (20)(4), 415–436. <https://doi.org/10.1080/14765284.2022.2138161>
- Wulfert, E., Franco, C., Williams, K., Roland, B., & Maxson, J. H. (2008). The role of money in the excitement of gambling. *Psychology of Addictive Behaviors*, 22(3), 380–390. <https://doi.org/10.1037/0893-164X.22.3.380>
- Xiao, L. Y. (2021). Regulating loot boxes as gambling? Towards a combined legal and self-regulatory consumer protection approach. *Interactive Entertainment Law Review*, 4(1), 27–47. <https://doi.org/10.4337/ielr.2021.01.02>