Dark design patterns and simulated gambling in videogames: Embracing a broader context-sensitivity in an environment of expected use

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Keywords and Phrases: dark design patterns, simulated gambling, information ethics, walkthrough method

1 INTRODUCTION

> There is no question that videogames manipulate players, rather the question is whether this manipulation is detrimental to players. Are videogames exploiting our brain limitations for the sole purpose of making benefits at the expense of players' well-being? [1]

Throughout the last decade, research on ethical design has started to focus on intentionally deceptive elements - somewhat ominously coined dark design patterns within games [2]. According to [3], dark design patterns are "easily, if subjectively defined, but less easy to spot" (p. 101). This may hamper its usability among HCI and game researchers looking to make a theoretically-driven and empirical claim, designers, developers and publishers (hereafter referred to as creators) looking to articulate industry-wide norms and values, and players looking to make sense of design mechanics and aesthetics.

In this abstract, we aim to contribute to the debate on dark design by doing two things. First, we argue that simulated gambling can be a manifestation of dark design. Simulated gambling is "structurally similar" [4] and "psychologically akin" [5] to gambling, potentially exploiting the same biases and eliciting the same behavior via variable ratio rewards that are used to *hook* players and increase revenue. Due to the interplay of structural design and player behavior [6], both research and public debate is centered around so-called loot boxes [7] and social casino games [8].

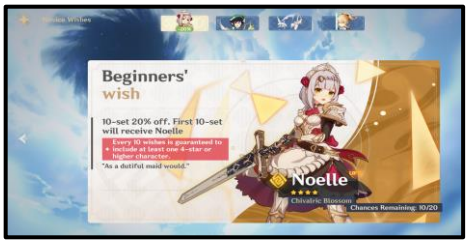

Figure 1. Screenshot from the free-to-play game *Genshin Impact* where players perform "wishes" to obtain items of different rarities. Players are very likely to have to perform multiple wishes in order to obtain specific items.

Figure 2. Promotional image from the social casino game *Zynga Poker*. Heavily reliant on social networking services, the game allows players to simulate traditional games of chance using (purchasable) virtual currencies.

We should be careful in our classification of *dark* or *manipulative* design, though. Where do we draw the line in distinguishing what is dark, and what is not? In distinguishing what is manipulative to the detriment of players, and what is plain old - if unpredictable - play? Therefore, our second goal is to propose a principled approach to determine *when* and *why* gameplay patterns are dark. To our knowledge, scientific approaches that gauge *darkness* are either non-systematic in nature, lacking clear conceptualized handhelds, or focus on micro-usability, failing to account for a broader socio-technical context of e.g., revenue sources and user regulation.

2 SIMULATED GAMBLING AS AN EMERGING DARK PATTERN

Gaming and gambling - as "a set of social and cultural practices that have grown up around a technology" [9] (p. 13-14) - have always been structurally similar [10] and equally revolve around play [11]. Why the worry, then? Why is randomness or chance in games suddenly a *dark* thing?

> A dark game design pattern is a pattern used intentionally by a game creator to cause negative experiences for players which are against their best interests and likely to happen without their consent. [12]

We expand upon the work of [12] by encapsulating videogame understanding - or lack thereof - on behalf of the player, and informationally unbalanced design on behalf of the creator. Our reasoning for this is twofold and can be approached from multiple levels - or perspectives - of analysis. First and from a micro-perspective, referring to [13], we argue that simulated gambling marks a renegotiation of player agency and system rules wherein parameters for success may no longer be clear to players. Second and from a macro-perspective, we argue that simulated gambling marks a remediation - or "unstable refashioning and appropriation" - of traditional gambling practices [14] through technological innovations.

2.1 From a micro-perspective

While simulated gambling is still "ergodic" (i.e., requiring non-trivial effort in order to progress) in nature [13], its outcome is indeterminate, relies on a (pseudo-)random procedure and negates qualities otherwise valued such as raw skill, strategic insight and experience. Additionally, videogames have experienced wide-ranging developments that have drastically changed their nature, with chance events staged through random number generation and victory conditions obscured by algorithmic complexity. As such, players - youth especially [15, 7] - may be susceptible to erroneous heuristics and biases [16] when trying to make sense of unpredictable events. Conversely,

videogame understanding [17] may help diminish the impact of dark design patterns, serving as a means of cognitive containment through awareness of risks, knowledge of hidden costs and critical thinking [6].

2.2 From a macro-perspective

It is equally instructive to understand the integration of game mechanics and aesthetics from the perspective of business models and monetization practices that rely on prolonged player retention [18] and are strengthened by the use of player data to increase play duration or spending behavior [19]. Creators, for instance, may seek to engage with (potential) players, create revenue, and obtain player data including game preferences and play patterns [8]. In short, this view emphasizes the importance of a broader context of industry practices, necessary to make an ethical judgment of dark design.

> Game designers are ethically responsible for the ways they have created the formal system of rules; that is, according to the behaviors they want to encourage in players. [20] (p.46)

Previous research has tried analyzing design and business practices within the gaming industry through Kantian business ethics [21], Aristotelian virtue ethics [22], Moor's ethics of just consequences [23] and Ayn Rand's philosophy of Objectivism [24]. In accordance with [20], we consider information ethics [25] a useful starting point for the ethical analysis of videogames. In the context of dark design, then, *negative experiences* stem from an informational unbalance between all stakeholders within the ecological environment that is a game - ranging from players and their communities to designers, developers and publishers. Informational unbalance as a conceptualization of dark design, we argue, offers two advantages. First, it accounts for the digital nature of contemporary media, its tools (i.e., algorithms) and its resources (i.e., player data). Second, it places a great deal of responsibility on the creators of the system.

In truth, informational unbalances, or player-game information asymmetries, are commonly found [19]. Hence, what matters not is whether there is even the tiniest element of chance or uncertainty involved, but whether winning conditions are ambiguously presented and behavioral tracking of player data exploits players who may be vulnerable to over-commitment and continuous spending. We do not (yet) feel comfortable making a final theoretical claim of what is a *normal* unbalance, as opposed to an unethical unbalance to the detriment of the player. Rather, we believe applied consumer-oriented principles like transparency, respect for human autonomy and prevention of harm can offer additional guidance in distinguishing harmful design, as demonstrated in previous research [19, 26]. Some examples include displaying probabilities and real-world prices, the disclosure of how random reward algorithms are influenced, and the provision of player data and in-game purchases [27].

3 TOWARDS A BROADER CONTEXT-SENSITIVITY

Our proposed approach accounts for a broader context-sensitivity to *darkness* in two ways. First, if patterns are the inscriptions of gameplay within game components [28], then analyzing dark patterns is as much about the design (i.e., a set of possibilities) within a game, as it is about the player's behavior and interpretation (i.e., experience) of said design. Consequently, a directed [29] content analysis - combined with the immediate reporting of game experiences (similar to a think-aloud protocol) - may account for ludic structures [30] of rule-based and representational categories (e.g., [31]) as well as how these are perceived by the player (see Figure 3). In the context

of simulated gambling, cognitive or behavioral theories such as Prospect Theory [32] or Operant Learning Theory [33] may be used as "Theory Lenses" to understand and predict the consequences of patterns identified [34].

Second, we propose an analysis of informational (un)balance - and subsequently, player agency – by applying [35]'s walkthrough method. The walkthrough method draws upon science and technology studies (STS) and cultural studies. It involves establishing a game's environment of expected use (i.e., vision, operating model and modes of governance) through a close reading of sources such as company blogs, press releases, Terms of Service documents, and so on. Not only does this approach allow for an understanding of game design as situated within a macro-perspective of industry practices, it also shifts the focus of inquiry to the ideal use of a game, as intended by the creator.

It is in the interplay of both levels of analysis (i.e., player experience and creator intention) that this method steers away from previous investigations of dark design in videogames (e.g., [36, 12]). For instance, the ability to purchase quantifiable in-game resources using exclusively a real-world currency may only be dark to a player, insofar as they conflict with the goals and competitive nature of the game (i.e., *pay-to-win*), or insofar as buying the resources elicits a sense of urgency (i.e., artificial scarcity). Contrarily, randomized virtual items that can be gifted to a player through gameplay and serve strictly cosmetic purposes may be dark due to lack of self-regulation and consumer-protection measures provided by the company, or due to the ability to trade both in-game and through third-party websites. The latter bestows said items a *real-world* value which is often the focus of legal examinations of simulated gambling (e.g., [37]).

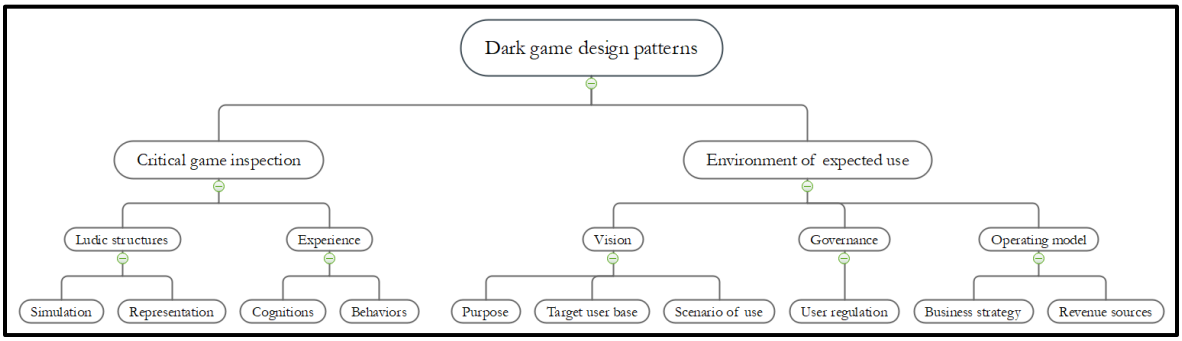

Figure 3. Scheme for analysis and its topics of interest.

4 IMPLICATIONS FOR RESEARCH AND DESIGN

Throughout this abstract, we have tried to briefly develop a theory-driven conceptualization of dark design. Furthermore, we have tried to embrace a broader socio-technical and socio-economical context for its analysis. The goal here was to lay some ground for further discussion on the subject of dark (game) design patterns. To this end, we have suggested a systematic and principled approach for researchers to acquire meta-knowledge of a game and to make an empirical judgment of dark design by incorporating methodologies from outside the field of game studies [38]. Eventually, this may help increase our understanding of dark design as well as inspire *best practices* or a deontological code that could regulate potentially harmful and exploitative game design.

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