Relationships between the consumption of gamblified media and associated gambling activities in a sample of esports fans

Joseph Macey[a,b], Juho Hamari[a,b], Max Sjöblom[a3], Maria Törhönen[b]

[a] *Centre of Excellence in Game Culture Studies, University of Turku, Finland.*
[b] *Gamification Group, Tampere University, Finland.*

Abstract

Recent years have seen increasing academic attention to the ways in which the convergence of video gaming and gambling creates novel activities, relationships, and business practices. The scale and pace of this convergence has been such that observers have referenced not only the gamification of gambling but, additionally, the gamblification of gaming. The phenomenon of esports, or competitive video game play, is the environment which is most obviously characterised by this process, combining as it does both novel forms of gamblified content and established gambling activities from the world of traditional sports. Given the concerns about the normalisation of gambling in young people there is a pressing need to investigate the ways in which the consumption of esports, as a gamblified media product, is associated with participation in gambling activities. The findings of this study highlight the importance of spectating esports as a predictor of involvement in gambling associated with esports, while also providing empirical evidence of under-age participation in gambling. Finally, it offers a snapshot of gamblified media consumption during a period of rapid change, serving both as a historical record and as a basis for comparison with subsequent developments in the field.

Keywords 1 Esports, Video Games, Gamblification, Gambling, Loot Boxes, Betting, Skins

1. Introduction

Recent work in the fields of gambling studies and game studies has begun to address the phenomenon of convergence, a situation in which the two activities are becoming progressively closer to one another[5,22,26,17]. A notable outcome has been to highlight the increasing use of gambling mechanics in games as a means of driving user engagement and, more controversially, monetisation. This has been dubbed "the gambling turn", or more commonly, "gamblification"[25,13].

This ongoing process of convergence is one which produces not only new hybrid activities and media products, but new ways in which media is consumed; new relationships and channels of interaction between media, producers and consumers are emerging[12]. The gamblification of video games has potentially served to make gambling both more attractive and more easily accessible.

Neither convergence nor gamblification are restricted to the medium of video games, however, the impact of these phenomena on the both the consumption of contemporary games and their financial success is particularly strong[44]. Combined with the huge appeal of video games globally, these issues make video games a valuable and productive context in which to study convergence in general, and gamblification in particular.

Contemporary video games, however, are not a homogeneous entity, with many diverse genres, business models, player communities, and modes of consumption present in the ecosystem. In order to effectively study the consumption of gamblified media products further specificity is required. It is in the environment of esports where this trend for

gamblification is most heavily present, combining as it does both new forms of gamblified content associated with virtual items, but also the translation of established activities from the world of traditional sports. For example, gambling activities related to video games include both esports betting and fantasy esports, alongside the paid opening of loot boxes and the use of decorative items as stakes in activities ranging from roulette to lotteries[22,24]. Furthermore, the gambling industry has established a significant presence in both online and physical spaces, with many companies sponsoring teams and tournaments while also advertising heavily in esports focused websites. Consequently, this research is governed by the following question:

RQ: *How is the consumption of esports associated with participation in gambling activities directly connected to esports?*

This study provides a detailed examination of the associations between spectating esports, playing video games, and gambling behaviours. It provides information regarding the behaviour of consumers during the early period of gamblified media consumption, thereby allowing comparison with later, contemporary, behaviours and practices. Establishing a historical record of a dynamic and ever-changing environment is valuable as it provides important context to later developments and provides a snapshot of behaviours such as skins lotteries which were popular at the time but have since all but disappeared. Finally, this is one of the few empirical investigations in the field of gamblification which includes minors, addressing a gap in existing knowledge.

The ongoing convergence between gaming and gambling has given rise to environments which have been theorised as normalising participation in gambling[5,15]; furthermore, the practice of utilising traditional sports as a vehicle for the promotion of gambling[28] has been theorised as also being present within the more recently established field of esports[20]. Previous work has shown that as engagement with online esports grows, so too does participation in a range of gambling activities[22], it is expected that this relationship will also be present in those who attend live esports events.

H1: *That increased participation in gambling connected to esports will be associated with increased consumption of esports.*

In the same way that the practices surrounding traditional sports betting have been found to exist in esports betting (see H1), it is reasonable to expect that the betting habits and characteristics of esports bettors will reflect those of traditional sports bettors. For example, games of skill, such as betting, have been found to be more strongly associated with males than with females[36,29]. Indeed, previous work has shown that engaged esports fans are more likely to be male[22], and that those who consume online esports favour games of skill over games of chance[24,21]; it is likely that this preference will also be observed in live esports attendees.

H2: *Participation in both a) esports betting and b) fantasy esports will be positively correlated with: i) increased consumption of esports; and ii) younger males.*

The presence of both loot boxes and cosmetic items known as skins in the esports gambling ecosystem has been theorised as facilitating under-age gambling as they enable access gambling activities without the need to employ traditional payment systems[10,27,24]. These virtual items are obtained through either playing video games, or through online marketplaces associated with specific games and digital distribution platforms. In addition, the increased visibility afforded to cosmetic items by esports has been thought to increase their desirability, for example as a signifier of in-game status[6,40].

H3: *Participation in a) skins lotteries, and b) loot box opening, will be positively correlated with: i) increased consumption of video games; and ii) increased consumption of esports. Furthermore, iii) they will be negatively correlated with age.*

Given the ubiquity of both gamblified content and consumption practices in the esports ecosystem, there is a pressing need for detailed investigation of ways in which the consumption of esports, as a gamblified media product, is associated with participation in gambling activities. Investigating these associations allows specific features or practices to be identified which increase the likelihood of participating in gambling. Such knowledge can help guide efforts to mitigate potential harms by providing empirical evidence to a range of stakeholders: developers and publishers will be able to understand the results of their business approach; consumers

will be informed about the potential ramifications of their choices; legislators and regulators will be empowered to make informed judgements; and clinicians and therapists will be aided by the identification of specific relationships between behaviours.

By studying the relationships between the consumption of gamblified media products and participation in gambling activities in the specific context of esports, this work will produce knowledge which can be applied to both the wider field of video games and other forms of gamblified products and services.

2. Background

Increasing attention has been paid to the ways in which the activities of video gaming and gambling are converging with one another, creating not only new hybrid activities, but also new methods of interaction between games, players, and companies. The scale and pace of this convergence has been such that observers have referenced not only the gamification of gambling[3,19] but, more significantly, the gamblification of gaming[1,44].

The term "gamblification" emerged, and subsequently evolved, in parallel to that of gamification. It was first used to describe the practice of utilising sports, and other cultural products, as a vehicle for distributing and promoting gambling in wider society[28]. Subsequently, gamblification has been used to describe a range of practices that have evolved as a result of the convergence of digital media. Notable examples include: social media networks and social casino games[30]; online video games[44,25]; esports[20,24]; mobile gaming[11]; and video streaming services[1]. Gamblification, therefore, is not just limited to video games, nor even consumption practices associated with games. However, it is in relation to games that the techniques and practices of gamblification are most widespread, and where the consequences are most keenly observed[45,6]. Gamblification, therefore, is not simply the addition of gambling activities to existing services or products, instead it incorporates a range of practices centred around the principles of uncertainty and reward; core components of gambling, but not, necessarily, of gaming.

Gamblified video games share many characteristics of online gambling which reduce barriers to participation: it has a significant and notable digital presence where availability is unrestricted by time of day or geographical location, while the ecosystem is served by many specialist sites and third-party operators. A factor which further increases ease of access, and which serves to obscure the cost of participation in gambling, is the use of virtual items as stakes and prizes.

Virtual items often take the form of cosmetic upgrades, or skins, which can be applied to players' in-game characters or equipment, and which have varying degrees of rarity: the rarer an item is, the more desirable it is and, therefore, the more it is worth. Acquiring sought after skins confers social rewards to the player, in the same way that other forms of gambling have been found to do[34,4], increasing the attraction of gamblified content in which they are available as prizes. Indeed, in addition to the chance of winning something, be it in-game rewards or financial rewards, games and gaming culture has been used to brand gambling activities in order to appeal to players, for example by using imagery from games such as *CounterStrike: Global Offensive* (*CS:GO*) in simulated coin-flipping games[24]. Finally, gambling mechanics have been incorporated into a range of game-based content and products which, although not directly constituting gambling per se, drives player engagement with titles, resulting in increased profitability for publishers[16].

The gamblification of games is, therefore, evident at two distinct levels: first in specific forms of gamblified content or activities originating within the games themselves; and, second, within the wider gaming culture in which games themselves are the object of gambling, in this case the explicit act of gambling is not an intended design feature present within the game.

It is the phenomenon of esports which most succinctly encapsulates both the gamblification of contemporary video games, and of gaming culture[7,17]. Esports is most easily understood as competitive video game play structured around leagues and tournaments[9]. The organisation of video game play along formal lines echoes that of traditional sporting competition, as such the emergence of sportsbook-style betting and, to a lesser degree fantasy esports, is a predictable and obvious development. Not only are established industry operators offering esports markets, they are a significant and visible presence in the esports ecosystem, sponsoring

teams and tournaments. Furthermore, a notable majority of online sites offering news and discussion forums for esports fans display significant amounts of material advertising gambling operators and cross-promotion of other gambling activities[20,2]. In addition, the streaming of gambling activities associated with video games and esports is a notable presence on streaming services[20,23].

Perhaps the most (in)famous example of gamblified content is the loot box, a catch-all term denoting an in-game item which uses random number generation (RNG) to distribute rewards to players[24]. Loot boxes, and other gamblified content have been closely associated with esports due to their presence in popular esports titles, notably *CS:GO*[24]. Indeed, the popular esports team Ninjas in Pyjamas launched the 2013 update in which loot boxes were first added to *CS:GO*[41]. Loot boxes have been linked to consumption patterns which mirror problematic gambling behaviour and have been the subject of numerous investigations by regulatory bodies, with some ruling that they constitute a form of gambling[24].

Although loot boxes are not the only example of gamblificaiton present in contemporary video games, and gaming culture, they serve to highlight the growing unease around the convergence of gaming and gambling. First, the scale of gamblified content and consumption practices has led to concern that gambling-like behaviours are being normalised among those who play and watch video games[5]. The comparative youth of this group, in regard to general society, is a potential risk factor given the proven link between early exposure to gambling and the subsequent development of disordered gambling behaviours later in life[35,18]. In addition, the use of gambling, and gambling-like interactions, as a means of increasing the monetisation of players has been termed exploitative as consumers' abilities to make informed decisions about purchases are negatively impacted[16]. These issues are further compounded by the fact that these gamblified interactions are taking place within environments which are predominantly unregulated, and which are not subject to independent scrutiny[24].

3. Method

Data was collected at the large-scale LAN-event Assembly Summer 2016, between the dates 4th and 7th of August 2016. The event originally focused on the demoscene computer art subculture but has since expanded to include gaming and eSports as a core component. Survey participants were approached by the researchers and asked to fill in a survey related to eSports, with the added incentive of being entered into a raffle for six gift certificates for the Steam webstore, each worth 50 euros. Respondents that chose to complete the survey did so immediately at a table set up for this purpose. Information regarding the nature of the research was provided in English and Finnish, both verbally and in written form, and researchers were present to provide any further information on demand.

The survey included items measuring a range of items related to both their behaviour at the event itself and more general consumption practices related to video games and esports. In addition, it included items measuring participation in a range of gambling activities and motivations for watching esports. The four individual gambling activities included in the survey were not an exhaustive list, but reflected those directly associated with esports, betting and fantasy esports, and with virtual items strongly associated with esports games, loot boxes and skins. Questions recording average weekly hours spent on an individual activity allowed free-form responses, while possible responses for frequency of participation ranged from "never" to "daily". Participation in individual gambling activities were recorded via "yes/no" options.

In total, approximately 550 individuals were approached, of those approached an estimated 50% agreed to complete the survey. Of the 281 returned surveys, 26 were found to be incomplete or to contain otherwise invalid responses giving a final dataset of 255 valid responses.

Both the frequency of gambling associated with esports games (a) and participation in specific gambling activities (b) were cross-tabulated with measures of: demographic characteristics, the consumption of esports, and game play. Several cells had counts below 5, as such, Fisher's exact test is reported in preference to Pearson's chi-squared[14]. Somers' D and Kendall's Tau tests were conducted in order to determine predictive power and direction of association, respectively. Somers'

D is an asymmetric test, accordingly, frequency of gambling associated with esports (a) and individual gambling activities (b) were selected as the dependent variables for each cross-tabulation. Only one table was square (frequency of participation in gambling by frequency of watching esports online), in this case Kendall's tau-b is reported, for all other tables Kendall's tau-c is reported: $\tau < 0.1$ shows a weak relationship; $0.1 < \tau < 0.2$ a moderate relationship; $0.2 < \tau < 0.3$ a moderately strong relationship; and $0.3 < \tau < 1$ a strong relationship[33]. Finally, Cramer's V shows effect size, in this analysis Cohen's thresholds have been adjusted for use with Cramer's V[42]. All analysis was performed using SPSS version 24.

4. Results

4.1. Descriptive statistics

The final data set was predominantly youthful, with approximately 85% of respondents reporting being under the age of 30 (Table 1); the youngest respondent was 12 years of age, while the oldest reported being 47. In addition, 79% of respondents reported identifying as male (Table 2). These figures are unsurprising given the nature of the event at which data was gathered; young males have previously been found to dominate attendance at both LANs and other computer culture events such as live esports competitions[37,38].
Somewhat unsurprisingly, the majority of respondents reported playing video games regularly, with 59% stating that they played 15 hours per week or more. Indeed, only two individuals, under 1% of the total respondents, reported not playing games while 28% reported playing 30 hours per week or more.

Table 1.
Age ranges of participants

Age Range	n	%
10 - 13	3	1
14 - 17	67	26
18 - 21	50	20
22 - 25	53	21
26 - 29	43	17
30 - 33	23	9
34 - 37	10	4
38 - 41	4	1.6
42 - 45	1	0.4
46 - 49	1	0.4
total	255	100

Table 2.
Gender of participants

Gender	n	%
Male	202	79
Female	47	18
Other	4	2
Prefer not to say	2	1
Total	255	100

Approximately 13% of respondents reported that this was the first time they had attended a live esports event, while the majority, 59%, reported having previously attended upto five live esports events. A total of 33% of respondents reported watching esports online once a week or more, with under 10% reporting that they never watch esports online. A minority, 29%, reported watching esports online for an average of five or more hours per week, of these five individuals, 2% of total respondents, reported watching an average of 25 hours or more per week.

In respect to gambling activities associated with video games and esports, a majority of 64% reported never having participated in such activities, while approximately 8% reported participating once a week or more often. Of those who had participated in gambling activities, the most popular individual activity was found to be betting on esports matches or tournaments (31%), followed by loot box opening (22%), using skins lotteries (14%), and playing fantasy esports (3%). These activities are not mutually exclusive, approximately 20% indicated participating in more than one activity, in varying combinations. Finally, of those who reported participating in gambling associated with video games and esports, less than 20% were over the age of 25. Indeed, the more frequent participation was associated with younger respondents: 60% of both monthly and weekly gamblers were under 18, while 50% of daily gamblers were under the age of 18.

4.2. Cross-tabulation

As several tests were performed in each cross-tabulation, results were subject to a family-wise error correction in order to control

for type I errors. The Bonferroni method has been criticised as resulting in increased chance of type II errors due to the fact that it is an overly conservative approach[32,39]. The Benjamini-Hochberg procedure was chosen preference to the Bonferroni method given that it balances power and parsimony[43]. All p-values have been presented at the adjusted level.

The primary area of interest was the potential relationships between participation in gambling associated with esports and the consumption of both esports and video games. Only two items were found to have statistically significant relationships with participation in gambling activities: average weekly hours spent watching esports online, and frequency of watching esports online. Both items were found to have strong effects, with average hours being notably larger than frequency of online watching (Cramer's V = .408, and .218, respectively). Similarly, both were found to have moderately strong predictive power (Somers' D = .223, and .273, respectively). However, frequency of watching esports online was found to have a strong positive association (τ = .327), while average hours spent watching esports online was found to have a moderately strong positive association (τ = .256).

In regard to participation in esports betting, the following items were found to be statistically significant predictors of participation: age, gender, average weekly hours spent watching esports online, and frequency of watching esports online. Of these, both age and frequency of watching online were found to have large effect sizes (Cramer's V = .5, and .343, respectively), while gender was found to have a medium effect size (Cramer's V = .17). Age was found to have moderate predictive power, and to have a strong negative association (Somers' D = - .184, τ = - .349, respectively). Gender was found to have low predictive power, and to have a moderate negative association (Somers' D = - .067, τ = - .113, respectively). Average weekly hours watching esports online was found to have moderate predictive power, and to have a moderately strong positive association (Somers' D = .134, τ = .245, respectively). Finally, frequency of watching esports online was found to have moderately strong predictive power, and to have a strong positive association (Somers' D = .219, τ = 339, respectively).

Only one item, average weekly hours spent playing digital games, was found to be a statistically significant predictor of participation in esports betting. However, the exact nature of the relationship is unclear as, after applying the Benjamini-Hochberg correction, the apparently large effect size (Cramer's V = .647) was just outside the level of statistical significance. Neither of the other tests, Somers D or Kendall's τ, produced statistically significant results.

Gender and frequency of watching esports online were found to be statistically significant predictors of participation in skins lotteries, with the effect size or gender being moderate (Cramer's V = .235). Frequency of watching esports was found to have a large effect size (Cramer's V = .269), furthermore, it was found to have low predictive power (Somers' D = .061) and to demonstrate a weak, positive association (τ = .094).

Alongside participation in betting, paying to open loot boxes was found to have four statistically significant predictors: number of live events attended, average weekly hours spent watching esports online, frequency of watching esports online, and average weekly hours spent playing digital games. All except average weekly hours spent playing digital games were found to have strong effect sizes (Cramer's V = .411, .438 and .265, respectively). Number of live events previously attended was found to have weak predictive power (Somers' D = .066) and displayed a moderate, positive association (τ = .116). The remaining items (average weekly hours spent watching esports online, frequency of watching esports online, and average weekly hours spent playing digital games) all displayed moderate predictive power and moderately strong, positive associations (Somers' D = .148, .154, and .117; τ = .271, .237, and .221, respectively).

5. Discussion

This research uses data collected at a computer culture and esports event in August 2016 in order to examine the consumption of esports and associated gambling activities. Several statistically significant associations, of varying effect sizes, were observed in relation to both general esports/video game-related gambling and specific individual activities. In addition, this research demonstrated that under-age individuals are a notable presence in gambling associated with games and esports,

thereby highlighting the importance of ensuring such populations are not excluded from research, despite being under the legal age.

The expectation that participation in gambling activities directly connected to esports would be positively correlated with increased consumption of esports (H1) was only partially supported as no statistically significant relationship was observed with attendance at live events. This may be due to the data being gathered at Assembly; although the event features esports as a core component, it has features of a LAN event[38], as such the focus is more on participation than spectating. It is possible that if data were gathered at a dedicated esports tournament, different results might be observed.

As with the first hypothesis, H2a was partially supported as all expected associations were present except that of attending live esports events, it is likely that this too is explained by the context in which data was gathered. It is worth noting that the item with the largest individual effect on participation in esports betting, among esports fans is age. While the second largest predictor, watching esports online, is explained by the fact that it is likely to serve as a channel for acquiring information about players and teams, the strong association with age is less easy to explain given that betting can be accessed with real-world currencies in addition to virtual items. Given the potential for disordered gambling behaviours to develop as a result of early exposure[35,18], this association is one which requires closer study.

Investigating the associations between participants' consumption practices and participation in fantasy esports (H2b) yielded especially surprising results, as none of the expected correlations were observed. Indeed, only a single item was found to have a statistically significant relationship: average weekly hours spent playing video games. It was anticipated that esports consumption habits would be meaningful predictors given that individuals can obtain knowledge as a result of watching esports content, as is the case in traditional sports[31]. As this appears not to be the case, it may be that those who play fantasy esports may get their information from other sources, such as dedicated sites featuring news, statistics etc. The association with game play may be due to a situation in which fans of a given game seek to maintain an ongoing connection, one that goes beyond playing. Participating in fantasy esports offers a channel for engagement that can be accessed when playing is not practical, or even possible, such as at work or when travelling.

Similar to H2b, as described above, analysis of the data revealed results which were substantially different to the expectations of H3a. Participation in skins lotteries was anticipated to be positively correlated with both game play and esports consumption, and negatively correlated with age, however, it was found to positively correlate with hours spent watching esports online and with males. It may be that gender is a stronger predictor than age due to the fact that skins lotteries have been most strongly associated with the game *CS:GO*[24] a game with a predominantly, but not exclusively, male player base. The rationale underlying the hypothesised negative correlation between skins lotteries and age was that younger players could access the game by using virtual items (skins) in place of real-money stakes, unlike other forms of gambling. However, it seems that the use of virtual items as stakes does not influence the age profile of participants. The lack of statistically significant association with hours spent playing video games is likely explained by the fact that, although skins are items which are used within games, they can be obtained outside of the game itself, either via online market places or purchasing and opening loot boxes outside of the game. Finally, the unexpected positive correlation between skins lotteries and watching esports online may be explained by the fact that watching esports competitions exposes spectators to a greater range of skins than simply playing the game. Consequently, spectators may be encouraged to try to obtain desirable, and therefore expensive, skins by gambling rather than direct purchase.

Once again, H3b was only partially supported with the expected positive correlations between loot box opening and both online esports spectating and video game play having been observed, however, expected negative correlation with age not being observed. It is noteworthy that neither of the demographic measures were found to be statistically significant predictors of loot box opening, whereas all measures of media consumption were positively correlated.

The significance of media consumption in influencing participation in gambling

associated with esports and video games is clear, with average hours spent spectating esports online being a statistically significant predictor in all cases except, somewhat paradoxically, fantasy esports.

That spectating esports online is a significant influence on participation in gambling is likely due to the fact that spectating esports exposes viewers not only to the gamblified content present within games, but also to other aspects. These additional influencing factors include exposure to gambling sponsors and references to gambling and odds as part of the event commentary, in addition to video content featuring gambling which is part of the wider esports mediascape[23].

This is particularly significant when considering that gamblified media have the potential to encourage problematic consumption behaviours. Consequently, there are implications for gamers, publishers, and regulators. First, those publishers which seek to further user engagement and drive monetisation through adding gamblified content or promoting an adjacent esports scene must be aware of the potential consequences. Any such approach much be carefully considered, and responsibly enacted.

Second, consumers need to be aware of these gamblified environments and the relationships with increased participation in gambling. Such awareness can assist consumers to make informed decisions, and to seek services which suit their needs and desires.

Third, in order to be effective, any attempts to regulate the increasing gamblification of media should not simply address individual activities but must consider wider consumption practices and surrounding cultures. Requiring service providers to implement programmes akin to responsible gambling initiatives, may be an appropriate approach.

The most significant limitation of this work relates to the fact that data was gathered at an event at which esports is a significant, but not sole, focus; furthermore, Assembly is an event which is centred upon participation, rather than spectating. However, of those attendees who participated in this research, 90% reported spectating esports within the previous 12 months, demonstrating that the sample meets the needs of the research. With these issues in mind, a fruitful avenue for future research would be to gather data from attendees at a dedicated esports event, one in which activity is limited to spectating.

A further limitation is that at the time at which the date was gathered skins lotteries were the most prevalent form of gambling using virtual items, with contemporary estimates valuing the skins lottery market at approximately $7.4bn[8]. However, late 2016 saw a series of scandals and negative publicity related to skins lotteries, including examples of rigged competitions and lawsuits targeting Valve[10]. Consequently, Valve acted to restrict the transfer of skins between player accounts, thereby hindering the effective functioning of many third-party websites which hosted skins lotteries. Participation in skins lotteries has significantly declined, yet skins are still used to access many gambling activities, as such this work can serve as a basis for examining other activities which use virtual items as stakes.

In addition to future research investigating different forms of gambling connected to esports and video games, a further area requiring specific attention is the role of streamed video content which showcases gambling, such as loot box opening, crash betting, or themed casino games. This unregulated content is often used in order to promote online gambling sites which use virtual items, serving to both normalise gambling and advertise gambling to vulnerable populations. Indeed, this research has highlighted the prevalence of gambling among young esports spectators, providing empirical evidence that under-age gambling is an established practice in gaming and esports.

6. Conclusion

This study examines the relationships between the consumption of esports and participation in associated gambling activities in a sample of esports fans, offering insights into a range of context-specific activities: esports betting, fantasy esports, skins lotteries, and loot box opening. The findings of this work offer several contributions. First, it highlights the importance of spectating esports online as a predictor of involvement in gambling associated with esports. Second, it provides empirical evidence of under-age participation in gambling. Finally, it offers a snapshot of gamblified media consumption during a period of rapid change; functioning both as a historical

record and as a basis for comparison with future developments in the field.

7. Acknowledgements

8. References

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