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Research Paper

Online gambling venues as relational actors in addiction: Applying the actor-network approach to life stories of online gamblers

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ABSTRACT

Background: With the emerging technologies of the Internet and smartphones during the last decades, the gambling environment has undergone a massive transformation. In Sweden, and Europe in general, online gambling has more than doubled since 2007.
Method: The paper studies online gambling venues (OGVs) as relational actors of addiction. By drawing on the actor-network theory (ANT) and assemblage thinking, we examine how OGVs, as actors in specific networks of attachment, enable the development of gambling addiction and facilitate its continuation. The data consists of life story interviews with 34 online gamblers.
Results: Online gambling venues extend the *scope* of gambling opportunities through *space*, providing an easy portable 24-hours-a-day access to gambling online and on smartphones. This increases the *spatial mobility* of gambling to diverse contexts. By linking gambling to more unpredictably evolving patterns of relations, online gambling venues also increase gambling's *temporal mobility* to intrude in the habitual trajectories of everyday life. By enhancing the gambling mobility through space and time, OGVs simultaneously extend the *scope* of situations in which gambling may transform from a controlled activity into an addiction. It is then that the actor-networks of gambling infiltrate in the actor-networks of work, domestic life and leisure, and start to feed processes where they are translated to serve the interests of gambling.
Conclusion: By giving us tools to challenge simplistic and taken-for-granted explanations of gambling addiction and by allowing us to grasp the flux and changing nature of addiction as a relational pattern of heterogeneous contextual attachments, the actor-network theory can help us to understand the complexity and multiplicity of gambling problems. The knowledge on what kinds of contextual attachments in diverse actor-networks enable harmful gambling and sustain unhealthy relations helps practitioners to focus treatment interventions especially on these contextual linkages and their configurations.

Introduction

With the emerging technologies of the Internet and smartphones during the last decades, the gambling environment has undergone a massive transformation. In Sweden and Europe, online gambling has more than doubled since 2007 (The Swedish Gambling Authority, 2018). In Sweden, where online gambling has grown especially drastically, 60% of the gambling turnover in the regulated market currently comes from commercial online casinos and betting (The Swedish Gambling Authority, 2019).

Previous studies show that online gambling has made the gambling environment riskier. For example, according to an Australian study (Hing, Russell & Browne, 2017), online gambling represents a risk by providing easy and private access to gambling at any time of the day, also facilitating gambling under the influence of alcohol and drugs. A Spanish study (Lobez-Gonzales, Estévez & Griffiths, 2019), in turn, demonstrates that mobile betting is particularly frequent amongst problem gamblers. In online contexts, gambling can be more easily done secretly without the knowledge and censure of significant others (Cotte & Latour, 2008). When gambling is integrated as a part of everyday life routines and consumption patterns, the opportunities of mindless risk-taking in gambling multiply (Cotte & Latour, 2008). Studies also show that as younger generations have integrated social media as a natural and intensive part of their lifestyle, they have become more vulnerable to online gambling (Oksanen, Sirola, Savolainen & Kaakinen, 2019). Online gambling seems to particularly attract female gamblers, for it facilitates a private, secret and anonymous relationship with gambling in contrast to public and visible gambling

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venues, where women may feel being judged by other gamblers for their gambling behaviour (McCarthy, Thomas, Bellringer & Cassidy, 2019).

In this paper, by drawing on actor-network theory (ANT: Latour, 2005) and assemblage thinking (Moore, Pienaar, Dilkes-Frayne & Fraser, 2017), we examine how online gambling venues, as actors in specific networks of attachment, may enable the development of gambling addiction and facilitate its continuation. Online gambling venues here refer to various online platforms where gambling such as poker, casino, sports betting, bingo and lottery can be accessed through the internet.

The dominant theories of addiction tend to locate dependency within the body or brain of an individual, and thereby handle addiction as a static 'disordered' state, as a symptom of a primary inner disorder (Keane, 2002). From this perspective, in line with the most widespread systems of classifying mental disorders (ICD-11 and DSM-5), 'gambling disorder' is described as an addictive behaviour characterised by loss of control, increased priority to gambling over other life activities and continuation or escalation of gambling despite negative consequences (World Health Organization, 2019). The 'disordered' gambler is classified as having a need to gamble with increasing amounts of money to achieve the same excitement (tolerance), to gamble excessively, to chase losses and to lie to conceal the scope of the gambling (American Psychiatric Association, 2013).

The dominant theories usually emphasise one factor over the others in the development of addiction by explaining addiction with genetic causes (Hyytiä, 2003), neurobiological mechanisms (West, 2005), self-medication (West, 2005) or defective personality traits (Granström & Kuoppasalmi, 2003). This is the case with the majority of studies on gambling addiction as well. Gambling disorders have been analysed, for instance, as resulting from neurobiological factors (e.g., Miller & Currie, 2008) or personality traits (e.g., Nordin & Nylander, 2007). There are, however, also studies that approach gambling disorders from a social environmental perspective by emphasising accessibility and availability of gambling opportunities (e.g., Welte, Barnes, Wiecrozek & Hoffman, 2007) or from an overarching theoretical perspective which examines pathological gambling by integrating genetic, biological, psychosocial, economic, social, societal and cultural factors (Abbott, Clark, Hodgins & Williams, 2018; Turner, Zangeneh & Littman-Sharp, 2006).

Our starting point in this paper is that the dominant theories that reduce gambling addiction to a single cause tend to sidestep many unexpected factors that contribute to its development (Latour, 2005). The dominant theories are also weak in addressing the fluidity and dynamism of gambling dependencies (Dilkes-Frayne, Fraser, Pienaar & Kokanovic, 2017). In what follows, by defining gambling addiction as a relational and an unstable phenomenon that develops through a heterogeneous and unpredictable mix of human and non-human linkages, we aim to overcome these shortcomings. More specifically, by drawing on qualitative life story data on gamblers with experiences of online gambling, we examine what kind of gambling-related relations and patterns online gambling venues facilitate, and how these relations and patterns are able to infiltrate into everyday life spaces and trajectories, making them serve the interest of gambling.

ANT and its applications to different forms of addiction

ANT as a theoretical approach to addiction

In actor-network theory, action such as online gambling is studied 'as a conglomerate of many surprising sets of agencies that have to be slowly disentangled' (Latour, 2005, p. 44). The ontology of ANT is based on 'a semiotics of materiality' (Law, 1999, p. 4). While social science has traditionally assumed that action is based on 'actors' such as laws, social norms and cultural beliefs (Latour, 2005, p. 67), ANT also considers material elements as equally important mediators of action. In ANT, all kinds of actors, including technological devices, online platforms, material objects, money, emotions, partner, children, debt, and so on, may take the role of an actor and participate in action. Actors can be abstract or concrete, large-scale or small-scale, structural or individual, artificial or natural, anything that leaves traceable tracks in the accounts and thereby provides us material to follow their agencies and linkages (Latour, 2005). By affording agency to all kinds of actors, ANT studies human and non-human elements as actors who can equally mediate, steer and transform action (Latour, 2005).

Actors participate in relational action either as *intermediaries* or *mediators*, as routinised and ready-made actors (intermediaries) or as active and transformative actors (mediators; Latour, 2005). Intermediaries are 'black boxes' with a given and apparent meaning, counting as one entity, even if they are made of many parts. Especially technological artefacts, such as the platforms, designs and technical functions of online gambling venues, are expected to do their job unobtrusively as 'black boxes' (Latour, 1992), allowing the attention to be fully focused on gambling. While intermediaries transport meaning or force faithfully without translation, mediators translate actors into new kinds of coexistence and connections by transforming, distorting and modifying the meaning of the elements they are supposed to carry (Latour, 2005). In this way, intermediaries enable the transformative action of mediators as unnoticed or invisible forces (De Vries, 2016; Latour, 2005).

During action actors undergo '*chains of translations*', in which their identities are shifting, redefined through the translations they themselves carry out and through the translations other actors enact on them (De Vries, 2016). The actors' subjectivities are thus temporary, under constant relational movement (Law, 1999). Since none of the actors can have full control over a situation and steer freely the flow of events, networks of translations cannot be predicted (Latour, 2005). Rather than transporting causality, they induce actors into more or less surprising coexistence.

As actors are relational in ANT, they do not possess an independent power. Instead, as the slogan goes: 'Attachments are first, actors are second' (Latour, 2005, p. 217; see also Law, 1999). Actors' ability to move action comes from their heterogeneous attachments, or networkness (Michael, 2017). They can influence action and move it further only as part of a network of attachments, which we here call '*assemblages*' or *actor networks* (Latour, 2005). An actor network or assemblage is composed of heterogeneous distributed attachments, such as an online gambling venue, a computer, a mobile phone, desire to gambling, SMS loans and invisibility.

ANT's earlier applications to addiction

Actor-network theory has previously been applied in studies on substance use (Demant, 2009; Duff, 2012; Gomart & Hennion, 1999), loss of control in addiction (Weinberg, 2013) and the treatment of drug problems (Gomart, 2004). Some studies have also applied such ANT concepts as 'assemblage' (e.g., Duff, 2013; Fraser, Moore & Keane, 2014; Moore et al., 2017) to study the multiple realities of addiction; some realities may be related to controlled and enjoyable substance use, while others rather pertain to harmful realities. These studies demonstrate that addiction is a complex assemblage constructed of many mutually constitutive phenomena, including substance, patterns of use, social relations, social conduct, resources, gender, geography, occupation, age, family obligations, health, well-being and state intervention (Moore et al., 2017).

Moreover, addiction has been conceptualised as a 'complex object' that can take and hold shape as an 'immutable mobile', 'fluid' or as a 'bush fire' (Law & Singleton, 2005). As an immutable mobile, addiction is able to hold its relational shape intact in the course of events without losing its relatively stable relations (Latour, 1999). When taking a shape of fluid, the attachments of addiction gradually shift, adapt and change rather than hold their form (Law & Singleton, 2005). And in the form of

bush fire, the attachments of addiction undergo quick changes and discontinuities, being abruptly translated or replaced by new mediators that are antagonistic to the earlier ones or make them absent (Law & Singleton, 2005). In all three versions, addiction acts as a complex object whose existence requires constant relational work of one kind or another (Law & Singleton, 2005; Törrönen & Tigerstedt, 2018).

In the ANT-influenced applications the focus has typically been on current relations of addiction. How addiction endures and changes from one event to another has remained understudied (Dilkes-Frayne & Duff, 2017). The study by Törrönen and Tigerstedt (2018) is an exception, making use of the ANT approach to analyse addiction-related attachments of alcohol consumption over time. Next, by taking influences from this study and by supplementing our ANT approach with the concepts of 'tendency' and 'trajectory' developed in post-humanist and post-phenomenological approaches (Dilkes-Frayne & Duff, 2017), we address this lack of research and pay attention to how gambling-related addictive attachments endure, change or break off over a long period of time. 'Tendencies' consist of preferences, plans and practices that gradually accrue and settle into the actor, and develop into trajectories to gamble. They affect how the actors habitually encounter future gambling possibilities. However, because gambling is a relational activity in which many kinds of unexpected and competing things can happen, tendencies and trajectories are open to changes and counter-actualisations (Dilkes-Frayne & Duff, 2017).

Besides needing studies on how addiction-related actor networks and subjectivities endure and change over a long period of time, there is a lack of ANT-based research on gambling-related addictions. We have come across only one study about machine gambling in Las Vegas that is ANT-informed (Schüll, 2012). According to this study, gambling addiction is a condition that develops out of sustained interaction between a gambler and a gambling venue. When gambling becomes addictive, the relation between the gambler and the machine (screen) becomes translated from interaction into immersion, from autonomy into automaticity and from control into compulsion (ibid.). Persons who develop addiction to machine gambling describe their dependency on gambling as a coercive and repetitive need to enter into a zone in which they feel freed from the demands and choices, the economic constraints and the time frames of their chaotic and messy everyday lives (ibid.).

Data

In this paper, we draw on life story interview data gathered for a larger study. From this larger study, we have selected 34 life story interviews of gamblers with experience of online gambling for the purpose of clarifying how online gambling venues may act as relational actors of addiction. The interviewees were recruited through self-help groups, treatment centres and Internet ads from various rural and urban parts of Sweden. They were interviewed on the telephone ($N = 29$) or, if they so preferred, face-to-face ($N = 5$). The data includes 7 women and 27 men between 24 and 60 years of age (median 38; see Table 1).

The interviews lasted an hour on average (38–111 min, median 62 min) and took place during 2018 and 2019. In the interviews, the participants shared their gambling story: how it started, developed and changed over time, including gambling forms, settings, motives and consequences. The interviews were conducted and recorded by the second author and then transcribed verbatim.

Analysis

In our analysis we do not approach the life stories as transparent windows to the 'facts' of life but as mediators that perform addiction to online gambling as 'an unstable phenomenon, multiple in its ontologies, and continually made and changed' (Pienaar & Dilkes-Frayne, 2017, pp. 146–147; see also Keane, 2001). In the analysis our focus is on the agency of the online gambling venues (OGVs). As is the case with other actors, OGVs can influence action only as part of a network of attachments. Thereby, OGVs identities are temporary and under constant relational movement (Law, 1999).

While tracing how OGVs act in our interviewees' life stories on addiction as part of diverse actor networks and what kinds of 'chains of translations' they undergo, we ask to what kinds of associations, tendencies and trajectories OGVs are related, and follow how actor networks of OGVs are circulated from one actor network to another as heterogeneous relations that become stabilised or change. The more attachments OGVs are able to make and keep durable from one event to another, the stronger their influence becomes. As Latour (2005, p. 217) puts it, the more attachments the actor has, the more the actor exists and produces effects. Similarly, the fewer attachments OVGs are able to keep in their various translations, the weaker their effect on a gambler's life is.

When we below analyse how OGVs act in our interviewees' life stories and how they participate in translating gambling into an addiction, we 'go slow' (Latour, 2005, p. 190). We do not try to explain our interviewees' attachments, tendencies and trajectories to OGVs with the influence of macro-level structures, institutional systems, global forces, etc. (Latour, 2005). From the perspective of ANT, there are no such causes or factors that are able to act above or behind actors. The power of elements to mediate action comes from how they are locally attached to heterogeneous actor networks and how, through these relational attachments, they make other mediators do things (ibid.). Depending on the relations between heterogeneous elements, 'big things' can become tiny or irrelevant actors and 'small things' can become important large-scale mediators, as the global crisis with COVID-19 virus exemplifies.

Such analysis contradicts several traditional ways of examining life stories, which are typically analysed by applying methods that treat the data in a hierarchical way by giving emphasis to some of its elements such as narrative categories (Labov & Waletsky, 1967), turning points (Hänninen & Koski-Jännes, 1999), typologies of life trajectories (Frank, 1995) or narrators' voices as transparent windows to suffering persons' authentic experiences (Good, 1994). When these kinds of elements become the focus of analyses, the addiction runs the risk of becoming detached from its concrete, unique and manifold mediators, as well as divided and explained with hierarchical categories such as agent/structure, subject/object, body/world and self/other (Duff, 2014a). To avoid this, ANT has enabled us to pay attention to contextual attachments of action and to keep our distance from hierarchical categories (Törrönen & Tigerstedt, 2018; Törrönen et al., 2020).

In what follows, by drawing on the concepts of 'actor network/assemblage', 'mediator', 'tendency', 'translation', 'trajectory', 'immutable mobile', 'fluid' and 'bush fire', we trace how the interviewees themselves relate their gambling to different kinds of human and non-human attachments and actor networks. We also track how gambling-related actor networks and subjectivities move from one context to another as immutable mobiles, fluids or bush fires, and how they in this process acquire, modify and/or lose elements (Duff, 2014b). We pay particular attention to how OGVs as part of diverse actor networks enable the emergence of addictive tendencies and subjectivities which circulate and change from a context to another as trajectories (Dilkes-Frayne & Duff, 2017).

With these concepts and through the theoretical lens they provide, we translate peoples' diverse lived experiences of addictive online gambling to make them comparable and open them up for new ways of thinking. We demonstrate the variety of the addictive tendencies, trajectories and subjectivities in our data with three life stories. Then we map and investigate how OGVs facilitate the circulation of gambling to everyday life routines through space and time and thereby extend the scope and severity of gambling problems.

Table 1
Alias, gender, age category, initial and main problematic gambling form of participants in the study. $N = 34$.

Alias	Gender	Age	Initial gambling form(s)	Main problematic gambling form(s)
Alexander	Man	40–50	Offline casino, EGMs and horse betting	Offline and online casino
Amir	Man	40–50	Online casino card games and sports betting	Online casino card games and online sports betting
Anna	Woman	50–60	Offline lotteries	Online casino
Axel	Man	30–40	Offline sports betting, poker	Online casino and online sports betting
Bengt	Man	50–60	Offline casino and EGMs	Offline and online casino
David	Man	20–30	Offline sports betting, casino and online poker	Online casino
Emil	Man	40–50	Offline horse and sports betting	Online casino and online sports betting
Erik	Man	20–30	Online skins gambling	Online skins gambling
Fredrik	Man	30–40	Offline horse betting	Offline and online horse and sports betting
Gustav	Man	20–30	Offline sports and horse betting, EGMs	Online casino and online sports betting
Hans	Man	30–40	Offline sports betting, EGMs	Online casino and online sports betting
Jan	Man	40–50	Offline sports betting	Online casino and online sports betting
Jemal	Man	40–50	Offline sports betting and casino	Online casino and online sports betting
John	Man	30–40	Online poker and online sports betting	Online casino and online sports betting
Karin	Woman	50–60	Online casino	Online casino
Karl	Man	20–30	Offline sports betting	Online sports betting
Katarina	Woman	40–50	Offline casino and EGMs	Online casino
Kristina	Woman	30–40	Online casino	Online casino
Lars	Man	50–60	Offline lotteries and horse betting	Online casino
Lena	Woman	40–50	Online casino	Online casino
Magnus	Man	40–50	Offline lotteries and sports betting	Online poker and online sports betting
Nils	Man	30–40	Offline lotteries and sports betting	Online casino, online poker
Olof	Man	30–40	Offline lotteries, casino, EGMs and poker	Online poker and casino
Omar	Man	30–40	Offline EGMs	Offline and online casino, EGMs
Oskar	Man	30–40	Offline sports betting, poker and EGMs	Online poker and online sports betting
Per	Man	30–40	Offline sports and horse betting, EGMs	Online poker and online casino
Rickard	Man	50–60	Offline sports betting	Online poker, online casino and online lotteries
Robert	Man	30–40	Offline sports and horse betting, EGMs	Online sports and horse betting
Robin	Man	30–40	Offline sports betting, poker and EGMs	Online casino
Sara	Woman	30–40	Offline casino, horse betting and lotteries	Online casino
Sofia	Woman	20–30	Offline casino and lotteries	Online casino
Stefan	Man	20–30	Online casino	Online casino and offline EGMs
Thomas	Man	60–70	Offline lotteries	Online casino
Viktor	Man	30–40	Offline sports betting	Online sports betting

Note: EGMs = Electronic gambling machines.

Results

OGVs as mediators in diverse addictive trajectories: three examples

Nils

Nils started to gamble around the age of 16. He started with football betting and then electronic gambling machines (EGMs) every now and then, but gambling was not associated with anything harmful. When he moved abroad for some years, he did not gamble at all. After returning to Sweden, he felt lonely and started to gamble poker in physical casinos. At this stage, his gambling still remained a regulated and pleasurable side activity, interacting as an 'immutable mobile' without intruding into other spaces in his life. Later Nils met a partner and they started a family. Everything went well until he found online poker.

Nils's gambling was now translated onto a bigger scale, its attachments were modified into a shape of a 'fluid' and he quickly lost large sums he was not able to pay back. He was forced to ask for the lost money from his partner, who by giving it to him became a mediator that enabled the continuation of his gambling.

> *When I started to play online casino, I first felt that I could quickly win with a little money quite big sums of money. I started to gamble more and the amounts I spent on the gambling increased (…). In a short time, I lost 2000–3000 EUR (…). My partner helped me with that sum that time, but she didn't see how big the problem really was. I just said 'I've lost this sum' and 'I'll put an end to this.'*

After this incident Nils's gambling stayed in control – in a shape of 'immutable mobile' – for 18 months. When his family bought a house, he resigned from his job and while he searched for a more rewarding work, he stayed at home. These attachments in association with the lack of social circles translated his online gambling linkages again into fluid-like patterns in which online gambling became a mediator against loneliness. This actor-network trajectory made his gambling more harmful:

> Then another year and a half went by and we bought a house. At the same time, I resigned from my job and before I started a new one, I was completely free at home all by myself for two months. There somewhere, when I didn't have my social circles and I missed my colleagues, I felt disappointed that things were not going in the direction I wanted. I started gambling more instead, and this time it went really fast.

His returning to work added to his assemblage of gambling elements that enhanced his ability to take different forms of bank and SMS loans. This translated his trajectory of gambling into something more destructive. As his losses increased, his assemblage of gambling was converted into a struggle in which he tried to win back the lost money and salvage his family. In this actor network, the mobile phone, the invisibility of online casinos and the kitchen counter, amongst others, facilitated the continuation and intensification of his gambling problem.

> After going back to work, I even gambled with bigger amounts. I also took all these bank loans I could, SMS loans and everything (…) when I got home from work, I cooked and had my mobile phone lying on the kitchen counter and gambled while cooking. Nobody could see what I was doing (…). I really tried to salvage the house and prevent the kids from ending up on the street but it all came to an end when I was no longer able to pay my share of the house and bills.

Nils realised that he 'needed help' even though he was not willing to change. It was his wife who as a mediator helped him to get in touch

with treatment:

> I knew I had a problem, but I was not willing to seek help. But now the consequences had become so terribly big that there was no turning back. My partner said: 'now it's enough.' She found a place (…) and said 'today you and I will go to a meeting' (…). I realised that I couldn't have done this without help.

Nils's life story exemplifies how gambling addiction is a complex relational configuration, which, in the course of events, is under constant fluctuation (Pienaar & Dilkes-Frayne, 2017). His addiction to gambling developed in relation to online casinos, but online casinos did not alone make him gamble more; they moved his action further in association with other actors. Nils describes how his online gambling was encouraged by patterned networks of relations in which his action was driven by heterogeneous actors and attachments that made him gamble more. These included the relationship with his partner, buying a new house (which increased the debt burden), changing jobs, home, loneliness, disappointment, SMS loans, mobile phone, kitchen counter, online casinos, invisibility of the problem, and fear of failing the family. As the fluid-kind relations of OGVs infiltrated into his daily life habits and preferences at home and at work, they were translated into more and more conducive to gambling until they faced resistance they could no longer overcome. This started a recovery process in which Nils's subjectivity became unlinked from the attachments to addictive online gambling and relinked to healthier tendencies and trajectories.

Anna

Anna says that she developed a habit of buying lottery tickets with her co-workers that continued for many years. It was nothing special, she says. It was an actor network amongst many other actor networks in her life and acted as a stabilised 'immutable mobile'.

In her forties Anna wound up in an acute stress situation at work. The anxiety and worries brought back her experiences of abuse in childhood:

> My post-traumatic stress started to arise. I was worried, scared. I felt really bad and had flashbacks of childhood abuse and so on. My good girl syndrome made the situation harder. I thought, 'I need to put aside my thoughts.'

She had read that in this kind of hard situation it is good to find a way to take breaks from the stress and she got an idea:

> 'I could try some online bingo for a while to escape from my thoughts' (…) and what happened to me, all the stress, all the worry, all the thoughts about the abuse just disappeared. I got into a bubble. I felt like being in a trance.

When Anna found the online casino, this relation redistributed her attachments of gambling to an actor network that redirected her normal everyday life practices and, abruptly, like a 'bush fire', translated them to serve the purposes of full-time online gambling. To be able to gamble all the time, she started to steal money.

> I couldn't live without gambling. I was climbing the walls, I panicked. I started to steal money to be able to gamble. For me, it was simply a way to survive. And I didn't tell anyone about this because I didn't understand what was happening to me (…) I turned off all the emotions.

After first interacting as a 'bush fire' that quickly transformed her everyday life trajectories and subjectivities to serve online gambling, the attachments to online gambling were transformed into the shape of a 'fluid'. In this shape, her online gambling continued for three years to gradually weaken her attachments to 'normal' everyday life relations. As a consequence, this led to a mental and bodily breakdown. By first providing for her such a powerful release from her anxiety-ridden life circumstances that she found it hard to understand what happened at that time of her life, this actor network gradually moved her to a point in which her body was no longer able to function and keep life going on. She started to have suicidal thoughts. Her attachments to family, however, prevented her from ending her life, and her theft was also uncovered. These new linkages transformed her relation to gambling and started to reorient her back to 'normal life':

> I was so exhausted mentally I couldn't sleep, I couldn't eat without vomiting and so on, as I started planning to take my life, because it was the only way to get out of the misery (…) But I didn't want to leave my family. So, when I was found out, I felt a giant relief for the first few seconds and then I was struck by 'God, what have I done, what will people say?'

As in Nils's life story, in Anna's life story, too, OGVs became infiltrated into her everyday life tendencies, trajectories and subjectivities at home and work, translating them more and more under the influence of gambling. Where Nils's online gambling generated linkages in which his addiction was moved by mediators such as partner, buying a new house, changing jobs, loneliness, SMS loans, mobile phone, kitchen counter, invisibility of the problem and fear of failing the family, Anna's online gambling was moved by more violent, stress-based and criminal mediators. In addition to the mobile phone and computer, it was facilitated by experiences of childhood abuse, society's norms of performing perfect femininity (which caused her a lot of stress by producing what she described as her 'good girl syndrome'), stealing money and turning off emotions.

David

David started to bet on football games with his friend when he was ten. This actor network of gambling took a controlled shape, connecting him, his friend, parents, betting on a football team on Saturdays and watching the game on Sundays into an assemblage that circulated excitement and made the watching of the football game more entertaining. It was stabilised and acted as an 'immutable mobile' until he turned 18:

> Then I and my best friend used to gamble on football on Saturdays. We got our parents to hand in the coupons. It was obviously for peanuts but it made the watching of the football game more fun.

When David started to earn his own money, a new actor network of gambling emerged and replaced the earlier one. This actor network associated gambling with a weekly routine of playing online poker tournaments with friends on laptops. It circulated social connectedness, shared excitement and status-increasing stories amongst friends:

> For me, it's never really been about money (…) it's rather been about amazing stories you can tell your friends (…) about doing reckless things in the poker and winning a lot of money. My stories came from gambling (…) and in some way, I lived off it. It was a bit of a status thing.

However, when David found the online casino when he was 25, the stability of the linkages around weekly online poker tournaments broke down, and his gambling took a new shape of a 'fluid' that started to modify his everyday life practices. David explains that online poker no longer provided enough excitement for him. He felt that the betting process was too slow and sporadic: In online poker you are very rarely 'involved in big pots (…). Often you sit and have a fairly quiet and low heart rate and more or less fall asleep.' The connection to online casino enabled him to 'get excitement in existence all the time.'

> The online casino is open 24/7. So, it doesn't matter if it's three in the morning or three in the afternoon, you can always sit down and get this extra excitement (…) that's what you're simply looking for.

By connecting to the online casino, David's gambling was distributed to linkages that translated his gambling from a social and open activity to an isolated and secret pursuit. The more his attachments of gambling expanded to diverse everyday life situations, the more he

became isolated from his friends. The assemblage circulated for David momentary escapes from deepening economic problems, shame and loneliness. It pushed him toward a destructive direction until after four years it suddenly – with the help of treatment – lost its connections.

> I became isolated from my friends. I had a pretty destructive relationship during this period. I can say that over the last four years there has been nothing positive. I gambled in secret just to escape from reality (….) when I'd lost all the money, I became even more isolated. I felt like ending up completely alone. Because I didn't dare to tell anyone. I felt fucking stupid and was embarrassed. It was a circle of isolation and shame and finances.

Like in Nils' and Anna's life stories, in David's life story OGVs are also associated with elements that generate addictive tendencies, trajectories and subjectivities by circulating gambling to all times and spaces of his everyday life and by reordering actor networks to serve gambling. David's online gambling trajectories however differ from those of Nils and Anna by starting as an open and respected social hobby, which later became translated to a secret and shameful activity. In contrast to Nils and Anna, who did not connect online gambling to social capital, David's online gambling was linked to a need to get social recognition from others to his subjectivity. As his relations to gambling became later converted into an addictive pattern in relation to online casinos, his need to get admiration from others was translated into a fear of becoming despised. This feeling of shame hindered him from speaking about his problem and deepened his experience of loneliness.

OVGs as mediators of moving gambling into unstable relational shapes that increase the scope of gambling through space and time

These life stories are good examples of how OGVs, in contrast to physical casinos and betting shops, are able to generate heterogeneous patterns of relations that circulate in the diverse spaces of everyday life. These patterns facilitate gambling, for example, while eating breakfast in the morning, attending a work meeting during the day, cooking dinner in the evening or having a lie-down in bed at night.

Below Emil argues that the easy and flexible, 24-hours-a-day access to online gambling venues makes them dangerously mobile:

> EMIL: I think we should be prepared for a crazy explosion. It [gambling] is so easily accessible now. You can gamble wherever you can sit. You can even gamble … while driving a car. And you can gamble around the clock.

Online gambling venues further provide a private and intimate place for gambling, a space that remains invisible and secret for others, and increases their appeal amongst our interviewees. In addition to the above three life stories, this is exemplified by the following quotations from our data:

> ROBIN: I've been able to hide my addiction much better with the online casino than with slot machines. I can sit in a meeting and have my mobile phone under the table, or use my computer at work to gamble. So, it's a completely different world with completely different opportunities to win and lose and destroy your life. And these online gambling companies are so ruthless (…) I get emails from them all the time.

> HANS: On vacation I took out a loan and then another. I sat in the toilet and gambled everything away.

> KRISTINA: Even though I was doing something else, I gambled. Just because it wasn't enough just to watch TV, or …

OGVs also enable gambling when you have lost mobility by being pregnant or sick or by being under the influence of alcohol and narcotics:

> JOHN: I took care of my parents' house over the weekend. I drank some beer and took some sleeping pills (…) and started playing some poker online. Lost quite quickly what I had, then I walked around the house (…) I found my dad's code for his Internet bank (…) my thought then, influenced by the alcohol and sleeping pills, was that he'd be very happy if I won some money for him (…) Instead, I ended up losing all his retirement savings.

Moreover, OGVs facilitate the betting of larger sums of money than do land-based physical places (Alexander) and enable participation in multiple games at the same time (Gustav):

> ALEXANDER: [In online venues] you can gamble with bigger sums. And, unfortunately, at home in the bedroom, for example. On the phone or computer. So, you don't even have to go out. In any case, (…) to sit at home and not have much to do, my thoughts are drawn to gambling.

> GUSTAV: (…) In general, I lost a lot. Partly because I played so many different games at the same time… I sat at home (…) and played online casino and kept track of football, a roulette table, and … So, when I won in one, I lost in another.

In all these ways – being open 24 h a day, providing a private relation, being indifferent to one's mental and bodily state, and enabling multiple concurrent trajectories of gambling – OGVs increase gambling's mobility to circulate to diverse spaces and contexts in everyday life and enhance gambling's power to generate linkages that are able to reorder gamblers' habitual tendencies, preferences, plans and practices in them (Law, 1992).

The above life stories and quotations are also good examples of how the OGVs facilitate a change in the shape of actor networks of gambling from controlled and durable 'immutable mobiles' to more unpredictably evolving forms of a 'fluid' or a 'bush fire'. When the attachments to OGVs reorder gamblers' habitual everyday life trajectories through time (Law, 1992) and make them less predictable, they further complicate gamblers' efforts to maintain ontological security, a sense of orderly continuity in their lives (Giddens, 1991).

Moreover, the above life stories and quotations show that while OGVs enable the generation of relations that increase gambling's mobility through space and time, they also extend the scope of contexts and moments in which gambling may become translated from a controlled activity into an addiction. When gambling takes an addictive pattern of attachments in relation to OGVs, the actor networks of gambling start to intrude in the actor networks of normal life and initiate processes in which the everyday life relations are modified and translated to serve the interest of gambling. Then the linkages of OGVs become transformed into actor networks of othering (Law, 2011) that intrude into the main contexts of everyday life at work, home and leisure, take stronger and stronger presence in their practices and make gambling the main activity in them.

The process in which the linkages of online gambling multiply and become attached to the relations of everyday life first intensifies both the pleasures in gambling and the hardships of everyday life. This they do by rubbing up the actor networks of normal life and the actor networks of online gambling against each other (Law, 2007). The more OGVs-related attachments circulate to everyday life spaces and times, and transform their actor networks beneficial for gambling, the more OGVs provide for the gamblers a dreamland-kind-of-space of order and rest in opposition to the disorder and difficulties they face in their everyday lives (Law, 2004). However, as our analysis of the life stories of Nils, Anna and David shows, the addictive relations to OGVs are not able to circulate this effect indefinitely.

Our interviewees describe the struggle between the assemblages of online gambling and normal life as a tension-ridden process. Here, gambling-related attachments appear attractive because they release our interviewees from the escalating chaos of the quotidian into a timeless and narrowly focused activity through which they are able to experience a flow-like trance (Csikszentmihalyi, 1975) or to enter into a

zone (Schüll, 2012). Above, Anna describes this phenomenon as moving into a bubble while David refers to it as a feeling of excitement. Below Gustav explains it as turning off all the emotions, Robin labels it as a trance and Lena portrays it as a state of relaxation.

> GUSTAV: I had a bad upbringing and experienced a lot of negative things. [Online gambling] became a way to turn off all the emotions, which felt very good.
>
> ROBIN: When I gambled, I felt that it's not me (…). I ended up in a kind of trance and disappeared in the world of gambling. That was what I longed for all the time. I used the other drugs to fill the emptiness I felt when I couldn't gamble.
>
> LENA: I had worked extremely hard, 18 h a day on average (…) the only time I was able to relax was when I gambled online (…).

The struggle between the actor networks of normal life and online gambling may continue for some months or many years. It is in no way a deterministic process. While it goes on, the addictive relations, assemblages and trajectories of online gambling may undergo surprising translations passing between the shapes of 'immutable mobiles', 'fluids' and 'bush fires', facing multiple rounds of movements from one shape to another and associate with various kinds of mediators. For example, Nils's initiation to OGVs transformed his gambling addiction by first taking the relational shape of a 'fluid'. Then, facing some resistance, his online gambling relations passed in the form of an 'immutable mobile'. After this they again took the relational pattern of a 'fluid', which was followed by multiple transformations through fluid-like shapes until his addiction-feeding relations faced resistance they were not able to overcome. Because none of our interviewees had succeeded in stabilising their online gambling addiction in a continuous way into the relational shape of a durable 'immutable mobile', their online gambling attachments and trajectories finally delivered a bankruptcy, which put an end to the gambling, at least momentarily. In the final phases of addiction, the assemblages of gambling often lost their competence to circulate an escape, flow or zone and became, instead, distributors of anxiety:

> AXEL: During the last years it wasn't fun at all. Sometimes it was almost more comfortable to lose your monthly salary at once. Then you didn't need to worry about gambling for a while.

Discussion

To test and validate our ANT-based reading of the material used here, we asked Nils, Anna and David to comment on our analysis of their life stories. In their answers, they all emphasized that the analysis captured well the fluctuating relational character in how their addiction to gambling developed.

In concert with earlier studies (e.g., Cotte & Latour, 2008; McCarthy et al., 2019; Oksanen et al., 2019), our analysis demonstrates that online gambling venues are powerful mediators of gambling to diverse situations in everyday life. They extend the *scope* of gambling opportunities through *space* by providing 24-hours-a-day access to it, by guaranteeing its privacy, by being unconcerned of gamblers' mental and bodily states and by facilitating multiple concurrent trajectories of gambling. In all these ways, OGVs increase gambling's *spatial mobility* to circulate to various everyday-life contexts and enhance gambling's tendencies to generate relations that reorder the gamblers' daily tendencies, preferences, plans and practices (Law, 1992).

Furthermore, our analysis demonstrates how OGVs extend the *scope* of gambling through *time* by assisting changes in the shape of actor networks of gambling from controlled and durable 'immutable mobiles' to more unpredictably evolving forms of a 'fluid' or a 'bush fire'. When in the shape of 'immutable mobiles' OGVs' attachments act as stable and predictable mediators, in the forms of a 'fluid' and a 'bush fire' they either drift into the state of constant gradual modification or are abruptly transformed and replaced with new mediators. In this way, the agency and performative power of OGVs vary depending on the shape of the actor networks through which they act.

For most people who have not developed a gambling problem, the attachments of online gambling venues take the shape of an 'immutable mobile' that circulates entertainment and excitement in their everyday life as synchronised in specific places and at certain times. In this form, gambling does not intervene in the main practices of their life nor threaten their continuity. However, when online gambling becomes translated into an actor network of addiction, its relational shape changes into the form of a 'fluid' or a 'bush fire'. Then OGVs start to infiltrate in the main relations, assemblages and practices of everyday life, by gradually or abruptly distributing and fortifying attachments to them, which translates their habitual ways of working to serve the purposes of gambling. Here, OGVs no longer act as 'black boxes' that circulate expected, revitalising entertainment or excitement to life. Instead, when the attachments of OGVs start to act as a 'fluid' or a 'bush fire', they become mediators of othering and juxtapose the actor networks of 'normal life' with gambling (Law, 2011). In the ensuing struggle, the gambling-related assemblages first circulate a zone (Murch et al., 2019; Schüll, 2012) that provides momentary escape, trance or excitement away from the hardships of everyday life. When the difficulties become too big to overcome, they lose their ability to convey this relief, and are translated to distribute the opposite emotion.

On the other hand, the relational power of OGVs to move gamblers towards addiction and keep them addicted, is not only determined by the shape of actor networks in which OGVs function. According to our analysis, OGVs performative power is also increased by the fact that when their attachments take the shape of a fluid or a bush fire, they can then flexibly take advantage of gamblers' past experiences of offline gambling and traumatic memories as well as current substance use problems and adversities, and translate them to serve addiction. This multiplies OGVs' links to and influence in gamblers' actor networks of 'normal life'.

As our analysis points out, the process in which OGVs infiltrate the diverse actor networks of everyday life practices and transform them to serve addiction can be characterized as a paradoxical struggle between the assemblages of addictive gambling and 'normal life'. The more online gambling extends to become a full-time activity at diverse times and in diverse places and actor networks, the more it destroys its own relational foundation. This is because in consumer society gambling can only continue to exist by having well-functioning connections to those kinds of mediators and intermediaries that can guarantee its continuity, such as work, money, credit cards and material resources. As the linkages of addictive gambling are associated with tendencies and trajectories in which economic resources are 'misused' by unpaid loans or by criminal activities, this sooner or later leads to a situation in which the relations and access to economic and material resources are crushed.

Our analysis of the life stories through the lens of ANT further suggests that amongst our interviewees who develop addiction in relation to OGVs, their addictions form unique trajectories in which the addictive relations, tendencies and subjectivities undergo constant, more or less surprising modifications and translations. Thus, their addictive trajectories of gambling cannot be subsumed under one general logic or explanation, as the dominant theories of addiction typically do when they handle addiction as a static 'disordered' or 'diseased' state caused by one overriding factor (e.g., Miller & Currie, 2008; Nordin & Nylander, 2007; West, 2005).

Still, our analysis does identify attachments to gambling that the dominant theories of addiction emphasise. For example, Nils's gambling trajectories are linked to self-medication against loneliness, Anna's gambling trajectories are connected to personality traits and difficulties that date back to her childhood, and David's gambling trajectories show elements from both of these. Moreover, through their attachments to online gambling they had all lost control over their gambling, their

gambling became more and more excessive and they lied about it or hid the scope of it.

However, our ANT analysis shows that these attachments and tendencies are not acting alone in our interviewees' life stories. Instead, as mediators amongst other mediators they derive their meaning from becoming attached to specific contextual actor networks that are based on either human or non-human entities but on both as they interact with each other and are unpredictably intertwining with each other. Thus, in contrast to the dominant theories, in the ANT analysis self-medication and personality traits do not mean static 'disordered' or 'diseased' states that need to be first treated before a person can have a healthy life. Rather, they are approached as elements whose meaning changes from one assemblage to another and which get their power to carry the action further or lose their power to do so by becoming enroled in a specific way to particular actor networks (Törrönen & Tigerstedt, 2018).

In comparison to the social environmental perspective and to the studies emphasizing the role of accessibility and availability of gambling opportunities, the added value of our paper is that it shows how OGVs increase the spatial and temporal power of gambling to infiltrate diverse everyday life practices, multiply the scope of situations and actor networks in which gambling can become translated into an addiction and are able to produce possibilities and attachments for full-time gambling.

Practical value of an ANT-informed approach

By following the technological and non-human elements as actors and tracing their connections with various other actors in gambling addiction, the ANT approach can help us to understand the complexity and multiplicity of gambling problems (Cresswell, Worth & Sheikh, 2010). It gives us tools to challenge simplistic and taken-for-granted explanations of gambling addiction and to grasp the flux and changing nature of addiction as a relational pattern of heterogeneous contextual attachments. It assists us to identify what kinds of contextual attachments and actor networks enable harmful gambling and sustain unhealthy tendencies, trajectories and subjectivities (Duff, 2014b). This knowledge can help practitioners focus their treatment and support interventions especially on these contextual linkages and on how the linkages, as a pattern, produce harms. Rather than providing solely generic psycho-educative treatment programmes, which is commonly the case in the Swedish gambling treatment context (Forsström & Samuelsson, 2020), gamblers seeking treatment might benefit from more comprehensive treatment interventions that are able to deal with the individual gambler's specific gambling-related trajectories, subjectivities and actor networks that produce harm in their everyday life practices (in line with e.g. Community Reinforcement Approach). Since the contextual linkages and actor networks of gambling problems are unique and surprising for each individual, practitioners are challenged to develop flexible techniques and technologies with which they can better map the varying and fluctuating characteristics of their service users' gambling problems. This includes developing questions that are capable of capturing the complex character of gambling problems in practitioner–service user exchanges, as well as providing technology for the service users to inform the practitioners about their distinctive and concrete attachments and patterns to gambling.

To develop ANT-informed interventions to gambling addiction may appear attractive for people who suffer from gambling problems, because they propose that the problem is not located in one's inner attributes as stable qualities but in the attachments to certain practices and to the pattern they take.

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Compliance with ethical standards

The authors declare that they have no conflict of interest. All interviewees in the study gave their informed consent before participation. Ethical approval to conduct the study was obtained from the Regional Ethical Review Board in Stockholm, Sweden (ref. 2017/1260–31/5).

Declarations of Interests

None.

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