

Weathering winner-take-all. How rankings constitute competition on webcam sex platforms, and what performers can do about it

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Forthcoming in: David Stark (ed.), *The Performance Complex: Competitions and Valuations in Social Life*, Oxford: Oxford University Press

Keywords: platformization, global sex industry, webcams, rankings, algorithms, economic sociology, competition

Abstract

Over the last decade, the global sex industry has been radically transformed by the rise of webcam sex platforms. In this essay we show how rankings are constitutive of competition in this new, emerging part of the sex industry. The ranking algorithms are highly contested among performers, in particular because of their opaque nature and the strong winner-take-all dynamics which they propel. Creating deep uncertainty and anxiety among performers, the algorithms are widely seen as unfair. However, the wider assemblage of market devices constituted by webcam sex platforms, enable performers to circumvent the rankings at least to some degree. Moreover, on discussion forums where performers negotiate strategies to make a living, they actively share experiences of algorithms on competing platforms, discuss which algorithm suits their interests best, and consider vacating to rival platforms. Indeed, how market competition is organized *within* platforms, is constrained by competition *between* them.

1. Introduction

Over the last decade, the global sex industry has been radically transformed by digitization and platformization. One of the most striking developments is the rise of webcam sex platforms. On these platforms, every day thousands of women and men around the world perform erotic shows in front of a webcam, which are livestreamed to millions of viewers. These viewers are able to interact with performers and can, against payment, can exercise control over these shows. As such, webcam sex performances constitute a hybrid of pornography and striptease, albeit highly interactive, emotive and relational.

Academic studies of this emerging sex industry are still scarce. Those that exist typically focus on the experience of workers. They show how webcamming has disrupted the traditional pornography industry while dramatically reshaping sex-work. On the positive side, scholars have argued that webcamming provides new forms of empowerment (Stuart 2016): it eliminates the need for direct physical contact with clients or fellow sex workers and the concomitant risk of sexual diseases; allows for flexible working hours; guarantees the safety of the private home; and promises high financial rewards. This leads one scholar to the claim ‘sexual pleasure’ as one of the benefits of webcamming (Jones 2016).

But unfortunately these benefits are distributed highly unequally across webcam sex workers depending on race, nationality, and class background. For instance, the webcam marketplace is highly racialized and brutally privileges white over black performers (Jones 2015a). Moreover, webcamming comes with new demands, risks, and uncertainties. It has blurred the boundary between amateur and professional sex workers, and generated a large influx of newcomers. In order to succeed in this highly competitive marketplace, new forms of platform-specific ‘sexual capital’ are required (Nayar, 2017). Concretely, this means that performers need to be at once tech-savvy (e.g. have the ability to select the right hardware or collect and interpret data to better monetize their work) and have the capacity to construct an authentic, intimate online sexual persona which potential clients believe is ‘real’ (Nayar 2017, Bernstein 2007). Moreover, they need to be able to engage in entertaining conversations with their clients (a skill rarely requested of pornography actors) and be highly sociable, given that durable relations with loyal clients are necessary for earning a stable income (Brasseur, Finez Forthcoming). To cultivate these different skills requires hard work and – pace Bourdieu – the appropriate, middle class disposition (Nayar 2017).

While some of these anxieties of webcam sex work are specific to the industry, they should also be seen as part of a wider transformation of the nature of work in contemporary societies, culminating in what is widely referred to as the “gig economy”: the platformization of particular industries and the attendant rise of the independent contractor model, has rendered service work increasingly precarious. In order to survive on these platforms, gig workers – from Uber drivers to webcam sex performers – need to be entrepreneurial, flexible, and willing to engage in forms of competition whose rules are opaque and volatile (van Doorn, Velthuis 2018).

Picking up on the latter study, in this essay we scrutinize how competition unfolds in this new, emerging part of the sex industry. In order to do so, we bridge three strands of literature: recent studies on the organization of competition and the role of rankings, ratings and reviews therein (Esposito, Stark Forthcoming, Espeland, Sauder 2016, Orlikowski, Scott 2013); actor-network inspired strands in economic sociology, which point at the variety of devices and different forms of economization which are at stake in the orchestration of competition (Muniesa, Millo et al. 2007, Çalışkan, Callon 2010); and, finally, platform studies which point at the specificities of competition in platform-based settings (Dijck, Poell et al. 2016, Nieborg, Poell 2018, Helmond, Nieborg et al. 2019).

We show that within the world of webcam sex, rankings are constitutive of competition: algorithmic rankings of performances are not merely engines of competition on the platforms, without them there would be no competition to begin with. The rankings operate as ordering rather than judgment devices: they have little to do with judging quality, but are designed to make sure that popular performers are automatically rendered more visible. Rankings create strong winner-take-all dynamics,

positioning those who are already earning well to earn even more. It is no surprise therefore, that the algorithms are highly contested among performers. They produce inequality among performers, create deep uncertainty, generate anxiety and are widely seen as unfair. In that respect, our findings are in line with many previous studies which have focused on the downside of rankings (see e.g. Espeland, Sauder 2016, Esposito, Stark Forthcoming, Orlikowski, Scott 2013).

At the same time, however, we argue that rankings should always be studied as part of a wider assemblage. More specifically, platforms create affordances which enable performers to work around the most brutal dimensions of the rankings. Moreover, given that competition among platforms is fierce, performers always have the option to switch to a rival platform. It is therefore important to acknowledge that organized competition *within* platforms is nested within market competition *between* platforms (Stark 2017). For platforms to succeed, they should design algorithms which not only favors the current winners, but also enable them to accumulate valuable portfolio's in the future.

This essay is part of a wider, ongoing research project into the world of webcam sex, and draws in particular on an inductive, iterative content analysis of textual exchanges on the popular web forum Ambercutie. This webforum has close to 30,000 members and was created in 2010 'to provide a helpful community for cam girls to interact with one another, as well as discuss anything and everything with their fans and members.' On Ambercutie adult webcam performers and their clients discuss the platform-orchestrated markets they inhabit, develop an understanding of their operational logics, and exchange strategies to master them in the face of structural information scarcity.

Given that the forum features an abundance of threads whose content wildly exceeds the scope of our research, our analysis used a purposive sampling technique that focused on the main threads dedicated to competition. We used Google's intra-website search function to look for these threads by using search terms like ranking, algorithm, freemium, premium, filters, camscore or cam placement. Moreover, we analyzed the main affordances of the most popular platforms (in particular: Chaturbate, MyFreeCams, BongaCams, Streamate, Cam4, LiveJasmin) which are frequently mentioned by performers on the forum.

With regard to research ethics, all posts used in this study were collected from the public sections of the forum and were authored by performers using pseudonyms. We have further anonymized the quotations from these posts by slightly altering the structure of the quotations in a way that does not change their meaning or character, in order to prohibit or at least limit their online searchability.

2. The rise of adult webcam performances

Webcam sex is about as old as the internet itself. Jennifer Ringley, who in 1996 was among the first persons in the world to stream her entire life on the web, did not stop at sexual encounters (Senft 2008). Dedicated websites for streaming sexual performances online date back to the early 2000s.¹ Their rise should be seen in the light of the disruption of the traditional pornography industry. Starting with the usenet-groups of the internet's early days, pornographic content on the web has been widely pirated and distributed for free. Moreover, analogous to the rise of user-generated content and platforms such as YouTube in the mainstream media industries, the internet has lowered barriers of entry for amateur pornographers and has enabled them to find an audience directly, circumventing traditional intermediaries (Stuart 2016; Richtel 2013). As a result of these developments, the pornography industry is in sharp decline. Few customers still want to pay for pornographic content, apart from market niches for e.g. 'female-friendly' pornography (Forrester 2016). According to a recent article in *The New Yorker*, the 'applications for porn-shoot permits in Los Angeles County [which is where the traditional industry is heavily concentrated] reportedly fell by ninety-five per cent between 2012 and 2015' (Forrester 2016).

Adult webcam streaming is one of the two new business models to emerge out of the disruption of the traditional industry. The other model comprises the so-called porn tube sites (Mazieres, Trachman et

¹ Interview with founder György Gattyán on the Hungarian talk show Friderikusz, see <https://www.youtube.com/watch?v=yqKHAgzoiQY>. Last accessed in April 2019.

al. 2014) which distribute pornographic content for free (Darling 2013). The business model of these websites, whose ownership is highly concentrated, is not based on selling content but on selling traffic and advertising, usually to other companies in the pornography industry online dating sites or indeed webcam platforms.²

While the origins of adult webcam performance can be traced back to the pornography industry, its rapid growth has benefited from another development: various kinds of sex workers – from escorts to strippers and pornworkers – have over the last two decades intensified their use of networked digital technologies to market their services, in an effort to maximize their earnings and reduce their risk exposure (Jones 2015b). For instance, porn workers who are trying to survive in an increasingly precarious industry hit by the proliferation of online piracy and amateur porn have had to look for other gigs to supplement their income, using social media and webcam platforms to promote their self-produced content and facilitate various ‘direct-to-consumer’ exchanges (Berg 2016).

Adult webcam platforms do not only offer a unique customer experience that is both live and interactive, they also reduce transaction costs by efficiently matching supply and demand for sexual services, while lowering market entry barriers: with a webcam attached to a computer, a valid ID and a (fast) internet connection, performers can register themselves and start performing on a platform within minutes. Yet, these very advantages to entrepreneurial sex workers also entail a potential drawback, which brings us to the second development. As barriers to market entry are lowered and commercial sex has been culturally and economically mainstreamed (Brents, Sanders 2010), a rapidly increasing number of newcomers are taking up webcam performing as an opportunity to supplement their income by tapping into today’s platform-mediated gig economy.⁴

Similar to the ‘explosion of amateur content’ in pornography, this has resulted in a ‘flooded labour pool’ and intensified market competition for established webcam performers whose income at least partly depends on this work (Berg 2016, p. 164). Moreover, given that webcam performances transcend physical boundaries, this market is global and performers from Western Europe and North America have to compete with performers from relatively low-income countries such as Romania, Colombia, and the Philippines, which have become central hubs in the adult webcam industry. These performers are more likely to work under contract of specialized studios that provide the needed infrastructure in exchange for a substantial fee, and they are frequently subjected to exploitative working conditions (Davies 2013).

Systematic, reliable data on these numbers of performers, the average income they earn, or, for that matter, the profitability, turnover, and numbers of viewers are unavailable (no platforms are, as far as we could tell, part of publicly traded companies which are legally obliged to report such numbers), but industry experts see adult webcam sites as one of the few commercially viable business models in an era of free digital pornography. Worldwide several hundreds of webcam sex platforms are active.⁵ According to Laszlo Cero, the CEO of one of the main platforms, profits of webcam platforms are between 2 and 3 billion USD (Stuart, 2016). In media reports, turnover of adult webcam sites is estimated at over 1 billion USD annually (Richtel 2013). LiveJasmin, one of the industry’s earliest players which continues to be one of the most popular platforms, has over 50 million registered members and 1,5 million registered performers, of which over 400 thousand are active. At any moment, more than 12,500 performers and 240,000 viewers are estimated to be online (Richtel 2013; Jacobs 2015; Rabouin 2016). Attesting to the platform’s profitability, its founder, the Hungarian

² The Luxembourg-based company MindGeek is owner and operator of a number of the most popular porntubes, including pornhub.com, youporn.com and redtube.com. For a description of the rise and functioning of these porntubes, see e.g. Salomon (2015), Wallace (2011), Auerbach (2014).

³ This section has been adapted from Van Doorn and Velthuis (2018).

⁴ Most platforms enable performers to ‘geoblock’ viewers from specific countries, in order to minimize the risk of being recognized by friends, family members, acquaintances or colleagues, allowing these performers to address a potential moral entry barrier.

⁵ See overview of webcam sites on www.wecamgirls.com. Last accessed: April 2019.

entrepreneur György Gattyán, was his home country's richest man according to Forbes (Daily News Hungary, 2014).

One of its main competitors is Chaturbate, a relative newcomer to the webcam industry. It was founded in 2011, and is currently ranked among the 100-200 most trafficked sites globally, as either the most popular or the second most popular webcam site. Most of the platform's viewers are based in the US (21,6 %), followed by Germany (8,1 %), China (6,3 percent), the UK (5,7 %) and Japan (4,6 %).⁶ Other popular webcam platforms such as Cam4.com and MyFreeCams.com attract 3.7 million and 2 million unique monthly visitors, respectively (Rabouin 2016).

The main source of revenue of webcam platforms is the commission they take for every dollar spent by viewers. On top of that, platforms earn money through advertising, yet the advertisers rarely include mainstream companies, which do not want to be associated with the sex industry because of its social stigma. We assume that these platforms, like their equivalents in other industries, also engage in datafication, i.e. tracing viewer behavior on and beyond the platform, converting this behavior into data points, aggregating these data into profiles, and ultimately selling these profiles to e.g. data brokers (Nieborg, Poell 2018, Zuboff 2015, Fourcade, Healy 2016). We were however not able to verify this, given that direct questions to platform operators were not responded to, and indirect, roundabout inquiries among performers only generated ambivalent responses.

Within the industry, two different business models exist: either platforms function as a sort of virtual brothel where viewers select a performer by clicking on her thumbnail and then 'take her private'. In this case viewers need to pay a number of tokens (i.e. platform-specific currencies which viewers can buy with a credit card) per minute while watching the performance. These platforms – examples are LiveJasmin or Cams.com are referred to as 'premium' or 'private sites'. Or platforms allow viewers to watch shows for free and compensate the performers voluntarily by 'tipping' them, again using tokens. These platforms are known as 'freemium' or 'token sites' (Hamilton 2018; Aella 2018). While the advantage of the freemium model is that these platforms usually attract much more traffic, some performers are wary of them because this traffic predominantly consists of free riders who watch shows without tipping.⁷ Indeed, in a rare interview on *Reddit*, Chaturbate's creator and owner estimates that only one out of two hundred platform visitors actually tip.

3. Organizing webcam competition

The most conspicuous way in which competition is organized in the world of webcam sex, is by ranking the performers. In contrast with other fields like restaurants or higher education, where rankings were introduced when the field had long been established, in the webcam industry rankings have been dominant from the field's very rise. Rankings may have the effect of inserting or propelling competition in other fields, in the world of webcam sex competition and ranking are inseparable: the rankings are constitutive of the market.

In order to produce these rankings, platforms first commodify vastly diverse performers and performances using a standardized and commensurated format. They do so by formatting these performers and their performances in thumbnails, which either present a static, usually objectifying and sexualizing portrait of the performer, or a dynamic (i.e. regularly updated) snapshot of the performance the sex worker is engaged in. Once performers log-in to the platform and start their show, this thumbnail appears on the platform. The thumbnails are further commensurated through the

⁶ See <http://www.alex.com/siteinfo/Chaturbate.com>. Last accessed: May 2019.

⁷ See

https://web.archive.org/web/20130822190555/http://www.reddit.com/r/IAmA/comments/1kubja/iama_ownercreator_of_Chaturbate_ama_nsfw/. The only way to avoid such free-riding behavior is for paying viewers to 'take a performer private', for which either a fixed amount is paid (a 'password show') or a rate per minute.

inclusion of e.g. the age of the performers, the time they have been online or the number of viewers who are currently attending their show.⁸

< Image 1 here >

Transformed into this commodified format, webcam performers are ranked on the platform's pages in rows of up to ten thumbnails. Each page may in turn contain as many as 30 rows. On highly popular platforms such as Chaturbate, where, based on our own counting and calculations, more than 3000 performers are usually active simultaneously, dozens of pages with as many as 100 thumbnails per page, can be browsed through (see image 1). Once platform viewers click on one of them, a live video stream of the performance appears as well as a chat box where the performer and viewers can exchange text- and image-based messages (see image 2).

An analysis of the content of these performances goes beyond the scope of this essay, but their variety is remarkable. They include performances which predominantly consist of mellow conversations between the performer and her audience without the first even getting naked, traditional striptease performances, highly explicit sexual acts including masturbation or, in case of a couple of performers, sexual intercourse, or various forms of sexually oriented entertainment, such as tombola's determining the sex act which the performer will engage in next. The variety in shows, which suggests that their respective audiences use multiple criteria to judge a good performance, stands in stark contrast to their commensuration and commodification into thumbnails.

< Image 2 here >

Competition among performers essentially is over the platform's top thumbnail spots on the main page. Akin to Google's ranking of search results, being positioned there is crucial to succeed since these spots are most likely to be seen by viewers. So how are these spots allocated? Algorithmically, that much is certain. We did not come across a single platform which displays thumbnails in a random fashion, in alphabetical order of the performer's names or by rotating performers so that everyone gets her moment to be on top of the rankings – in a long thread named *An ideal ranking system* on discussion forum Ambercutie, those *were* mentioned by performers as alternative, fair ways to construct the ranking.

It is also worth pointing out that performers cannot be ranked on the basis of price, i.e. the number of tokens which the performer charges per minute or the number of tokens that need to be paid for the performer to engage in a specific sexual act. On most platforms, any price information is presented in a rather roundabout way, suggesting that platforms are not seeking to stimulate price competition among performers. Neither do reviews, ratings or expert judgments enter in the rankings. In that respect, webcam sex performer's rankings are decidedly different from rankings in e.g. the tourism industry (e.g. Tripadvisor or Booking.com), higher education (e.g. Academic Ranking of World Universities) or medical sector (e.g. Ratemds.com). Some platforms do enable viewers to leave comments about a performer or to give a zero-five star or binary, thumb up/down rating, but again, these ratings are rarely displayed in prominent ways.⁹ One reason why such ratings are no building blocks for rankings in the webcam industry is that they are generally shallow, hardly meaningful ('great', 'an awesome show', 'just woah', 'amazing') and relatively easy to game.

⁸ On most platforms performers can also create their own profile page where basic information (such as their age and place of residence), a range of sexual services which the performer is willing to offer is listed, and items such as underwear, pornographic pictures and video's featuring the performer are offered for sale.

⁹ For instance, on Chaturbate performers have a 'satisfaction score' which is an aggregate of a 'satisfaction vote', cast by customers who have tipped a performer at least 25 tokens (the equivalent of 2,50 USD). If the satisfaction score drops below 65 percent (e.g. because performers regularly fail to perform a service when the agreed upon number of tokens has been transferred), new viewers who are about to tip this performer receive a warning message.

4. Winner-take-all algorithms

So if not on price, reviews or ratings, what *are* the rankings based on? The difficulty in answering this question with precision is that webcam platforms, like platforms that profit from the ranked organization of information in other industries, communicate little about their algorithms (Hillis, Petit et al. 2012, cf. Van Doorn 2014). And they may have good reasons to do so: disclosing the ranking's ingredients would be an open invitation for gaming the system through strategic, manipulative behavior (Faraj, Pachidi et al. 2018, Espeland, Sauder 2007). Surely such behavior is not imaginary. As a representative from Chaturbate recounts on discussion forum Ambercutie about a change in algorithm they felt forced to make because performers were gaming the pre-existing one: "When Chaturbate first launched, we used a simple algorithm that counted the number of viewers in a room. Unfortunately, that algorithm was easily cheated by the use of bots." These bots artificially inflated the number of viewers in the room, thereby boosting the performer's ranking.

Some of the platforms do however lift at least part of the veil. Bongacams, a highly popular, Netherlands-based platform which started in 2012, discloses that the internet connection enters: "A model with a poor Internet connection will never be listed at the top of our models list no matter how much tokens she earns or how much time she spends online."¹⁰ On Ambercutie, performers suspect that many other platforms do the same. As one of them writes about Chaturbate: "it looks by default they prioritize camera's that are 720P [i.e. high resolution] or higher on a rather equal basis. But if a performer does not have at least 720P, she will be at a terrible disadvantage." Another comments about rival platform Streamate: "Yes, on Streamate, things like internet speed, the upload rate, the frame per second rate, having sound, being able to stream in HD, etc. all matter a lot. (...)it is about the stream's quality and the equipment that is used to run the stream."

By inscribing the ranking algorithm with an incentive for performers to use up-to-date hardware, these platforms seek to create added value for their viewers; this algorithmic ingredient is in other words a strategic tool in the global competition for viewers (and therefore revenue) which all platforms are engaged in. None of the performers seem to have an issue with this strategy, although some do point out that it puts performers who cannot afford expensive equipment at a disadvantage.

Their opinions about another, intensively and heatedly discussed part of the algorithm are much less favorable: on most platforms, the earnings of the performer enters in some form into the algorithmic equation. On its own wiki-page of the platform, MyFreeCams explains to its performers that the default ranking is based on the so-called CamScore, which is "calculated on based the model's token earnings on the site over some period of time."¹¹ Later in the wiki, its authors hint that this "period of time" equals 60 days. Bongacams also uses the term CamScore, but computes it slightly differently, rewarding the performer's perseverance as well as earning capacity: "The score is calculated based on many factors, the most important being the model's token earnings on the site and the amount of time spent online. The more time you spend working and the more money you make, the better your CamScore will be."

Some platforms anticipate the resistance which such algorithms may give rise to, and explain why they deploy them anyway. MyFreeCams, for instance, writes on its wiki in rather apologetic terms: "When a new visitor arrives at MyFreeCams.com, thousands of online models need to be presented in some kind of default order, until the new visitor has a chance to select their own preference. Unfortunately, finding an order that is satisfactory for everyone is a more difficult task than it may seem."¹² Bongacams frames the problem that the algorithm needs to solve in similar terms: "Hundreds of online models need to be presented in some sort of order in the long model list on our site." And in response to queries about the algorithm posted by a performer on Ambercutie, a representative of Chaturbate explains: "The algorithm that establishes how cams are sorted on Chaturbate is designed to increase user engagement and highlight rooms that are currently fun to watch. (...) Our current

¹⁰ <https://bongamodels.com/model-faq> Last accessed: May 2019.

¹¹ <https://wiki.MyFreeCams.com/wiki/CamScore>. Last accessed: May 2019.

¹² See <https://wiki.MyFreeCams.com/wiki/CamScore>. Last accessed: May 2019.

algorithm is continuously improved and uses many metrics to detect which rooms are currently interesting to a given user. Our goal will always be to increase time-on-site."

In other words, these rankings are not about dealing with the cognitive problems which have so frequently been referred to in recent literature on market devices (see e.g. Karpik 2010, Orlikowski, Scott 2013): they are not about assisting users in making judgements of quality or handling information asymmetries. Instead, they should be seen as ordering devices, which help users in navigating markets characterized by an abundance of heterogenous supply, where it would simply not be feasible to check out all the options before making a choice. The implicit assumption in these rankings' design is that the best way to create signposts for new viewers, is to create a popularity contest where all viewers already present on the platform cast their votes by spending tokens on performances.

The desired impact of this algorithm is twofold: on the one hand, it organizes intra-platform competition. In particular, it incentivises performers to compete by earning as many tokens as possible for themselves, and thereby also for the platform, since those tokens will move them up the ranks. Indeed, as we have argued elsewhere (van Doorn, Velthuis 2018), this algorithm is highly generative, in the sense that it continually opens up opportunities for action (Stark, 2009) and operates as a Schumpeterian stimulant of innovation (Knudsen, Swedberg 2009). On the other hand, the algorithm is a strategic tool in inter-platform competition given that it is designed to attract as many viewers as possible to the platform. Instead, if thumbnails would be ranked in a randomized way, viewers would have a hard time identifying desirable performers among the thousands who are simultaneously active.¹³

However, for most performers, and in particular for mid-level performers, who are professional, serious, engaged, and eager to earn a living through webcamming, this logic is hard to swallow. It would be hard to think of a competitive situation where Espeland and Sauder's apt characterization of rankings as *engines of anxiety* is more to the point. Unsurprisingly, on Ambercutie many performers see the algorithms as the main reason why their work often is an 'extremely pressured experience', 'an uphill battle', part of 'a disastrous popularity contest', or as one performer phrases it more elaborately: "I am new on Chaturbate and I would like to tell you that the term "buried" is perfect for a streamer who is a newcomer. So. What is the solution? To do more stuff that is kinky and, to get more followers, show more within free chat? I am patient... but now i only get a few followers per day and apparently that is not enough... any advice? Every time I stop streaming I am so sad and depressed..."

The anxiety not only pertains to the performers' overall attitude towards their work, but also permeates their experience of each individual show. As one of them explains: "Camscore is a source of anxiety for many girls, including for myself, often. The longer we do not receive tips while we are online, the lower the camscore gets, and the less busy our room becomes, which means, haha, less tips as well."

Apart from complaining about the feelings of anxiety and pressure which the rankings install, performers find them simply unfair because of the Mathew effect inscribed in them: by ranking them higher, those who already earn well, are enabled to earn even more. The algorithms transform the world of webcamming into a winner-take-all world. This means that the playing field which platforms create is anything but level in many performers' eyes: some get privileged, while others are left behind. While media reports mention performers earning thousands of dollars in a single session or six figure dollar incomes in a year, many performers belong to what one critical commentator has dubbed a 'global proletariat' (Aubert 2011; Rabouin 2016). On Ambercutie many models admit that they have a hard time earning anything at all, face burn-outs, or actively consider dropping out of the industry.

Adding further anxiety to webcam sex work, the ranking are regularly refreshed, in some cases as often as every minute. This means that performers can in principle shift up and down the ranking all

¹³ Platforms such as Chaturbate and MyFreeCams even strengthen this winner-take all effect of their algorithms by awarding monetary prizes to those who are ranked on top.

the time, moving in and out of sight of potential viewers, i.e., sources of income. Many performers also feel uneasy about the instability of the algorithm itself. While it may create order for the viewers, it makes the world unpredictable for the performers. Ambercutie is flush with complaints of those who used to earn a good living on a platform, but out of the blue find their rooms empty and their rank depressed by several pages, which practically means that their shows have become non-existent for most viewers. As one of them writes: “I am fairly used to maintaining a minimum certain number of viewers in my room no matter what and yesterday the viewership was cut in half for several HOURS. Of course this low number will appear often times for perhaps 30 minutes or an hour but for 3+ hours, no matter what I did, I could not have this number go up. I couldn't understand. Then all of a sudden, it skyrocketed by 100-200 in a few minutes (after being online for 3+ hours).”

Akin to algorithms in other industries which generate unknown and unexpected outcomes even the algorithms' designers cannot make good sense of (Faraj, Pachidi et al. 2018), these performers seek to understand what happened, and how to reverse their predicament. When neither they, nor their peers, and not even the platform operators can assist them in doing so, this generates ongoing frustration.

5. Responding to the rankings

So, yes, the winner-take-all rankings do generate strong feelings of anxiety, uncertainty, indignation, even depression among performers. It would be too simple, however, to see performers as the algorithm's defenseless victims. For starters, the platforms are not altogether autonomous in designing the algorithms in ways which they deem fit. They cannot avoid being attentive to the performers' needs, given that the ability to accumulate a portfolio of potentially well-earning performers shapes the platform's competitive power. To put it differently, operators not only need to tie the current generation of winners to the platform, but also have to create ecology out of which the next generation is likely to emerge. An algorithm which only encounters resistance among performers, is hardly conducive in that respect.

Discussions on Ambercutie suggest that performers are indeed prepared to switch platforms on these grounds. Many threads on the forum have titles like ‘CB vs MFC which is better?’, ‘CB vs LJ vs SM vs MFC’, ‘MFC or SM’, ‘Streamate vs Chaturbate’, ‘Help me decide about Jasmin’, ‘Chaturbate vs MFC’. Sometimes, the topics are highly performer-specific, such as the one of a performer who considers herself ‘chubby’ and would like to know if she is ‘better off on Streamate or MFC.’

In deciding which platform to perform on, a long list of considerations enters, from highly practical (‘Is it easy to join?’, ‘How is customer support?’, ‘Are payments from the platform reliable, regular and easy’ – take into consideration that most mainstream financial institutions do not want to do business in the industry because of its stigma); to financial (‘What is the platform's payout rate’, i.e. what is the percentage which the performer gets paid for every token it receives; this percentage tends to range between 40 and 60 percent depending on the platform¹⁴) and more strategic (‘How is traffic to the website’; ‘How likely are you to run into loyal, big-spending viewers?’).

The algorithms are part of these latter, strategic considerations. When comparing platforms, discussions on Ambercutie frequently delve into the implications which each algorithmic configuration has. For instance, in a long thread *Is MFC a good site for beginner models?* most performers argue that it is not: given that the ranking on this platform is based on the performer's earnings in the previous 60 days, it is crucial to make a strong start and avoid a steep drop in the rankings right away, since the way back up is hard, if not impossible. Such a strong start is more easily made by an experienced performer who already has a following of loyal viewers, than by a novice who still needs to learn the tricks of the trade.

By contrast, starting on a platform like Streamate, where the quality of the equipment determines the rankings, or Chaturbate “which was designed in a way that every broadcaster, super star or not, starts the broadcast and has to make the way to the top every single day again”, are considered to be easier

¹⁴ See overview on e.g. https://www.camgirlwiki.com/wiki/Current_popular_cam_sites . Last accessed: May 2019.

places to start for novice performers according to their experienced colleagues contributing to the thread. Performers can in other words use the differences in competing platforms' algorithms to their advantage.

Moreover, performers emphasize on Ambercutie that they are prepared to stop working on a platform if the algorithms is perceived as unfair, unduly oppressive or too unpredictable. As one model formulates her threat to Chaturbate: "I lost 80 percent of my income because of their new algorithm which nobody (...) wants to confirm that changed. (..). I worked on chaturbate 4,5 years, earned tons of tokens and now I feel like I am a no needed person because 'new bitch will be replaced by other'. I was on the first page, max the second, but now i am on 8-9. I am not going to login on chaturbate anymore until this fake website will start working and ALL the RULES ARE CLEAR."

Finally, some performers point out that also from the point of view of inter-platform competition for users, it is in the platform's own interest to make sure the algorithms do more than just privileging those who are already successful, given that this may lead to overtly static, and therefore unattractively boring top rankings. As one performer urges the administrators of Chaturbate to rethink their algorithm: "Are you (Chaturbate administrators) sure that users want to still watch the same "favors" girls? You do not give chance for new women, who do not have many followers. They will be tired of Oksana, Hanah, Caylin, Holly, Belka, etc and all the other girls if they will every day be on the same position.... Users will need to scroll down long to see new faces or... will leave the website."

6. Rankings should be studied as part of an assemblage

And in fact, judging from the platforms' design, operators are highly aware that it takes more than a winner-take-all ranking algorithm to create sustainable competition in the world of webcam sex. Although they are doubtlessly its most conspicuous, determining element, rankings are part of a wider assemblage of market devices which create attachments between viewers and performers, simultaneously enabling and restricting competition (Muniesa, Millo et al. 2007, Stark 2017). These other parts of the assemblage tend to cushion the winner-take-all effects of the ranking. Because of the agency it provides either to performers or to users in handling the rankings' impact, this assemblage of market devices constitutes another reason why we prefer not to see performers as the ranking's passive, helpless victims.

For instance, most platforms guarantee new performers during the first week they perform on the platform an artificially inflated ranking or camscore. This provides them with opportunities to become visible and establish a following. On other platforms registered viewers see customized, 'Recommended' thumbnails on the very first row of the first page, based on the viewer's viewing history. This feature is at once a way for lower-ranked performers to gain visibility, without, however, the risk of other viewers loosing interest in the platform.

< image 3 here >

Moreover, on some platforms rankings are far from fixed but can be customized by users themselves, e.g. by sorting performers randomly, on the basis of the performers' newness to the platform or simply alphabetically. Selecting one of these customized rankings means that the winner-take-all pressure is at least temporarily alleviated. Another way in which the rankings' brutal impact can be cushioned is by filtering the thumbnails. All platforms we studied include such a filtering affordance, e.g. on the basis of the performer's gender ('female' / 'male' / 'trans'), the performer's region, or the type of performer – categorized in highly objectifying ways (see image 3). Performers can also auto-categorize their thumbnails by assigning hashtags to them, which refer to their own bodily characteristics or fetishes. Viewers can use these hashtags in customized searches in order to find a match with their own sexual preferences. Here the trick is for performers to come up with hashtags which are either in high demand or in short supply.

These customized rankings, filters, and hashtags make sure that competition is restricted: performers are still being ranked, but as part of a limited pool of peers. More fundamentally, many platforms allow performers to circumvent the rankings altogether by having viewers become their 'followers',

‘friends’ or ‘favorites’. In these cases, viewers get automatically notified once the performer goes online. This means that even without a high ranking, viewers will be able to find these performers. For the same reason, many performers are active on Twitter (the only dominant social media platform which allows nudity and sexually explicit discourse) to market themselves and send out announcements before going online.

7. Conclusion

In this essay we have considered webcam platforms as valuation ecologies where competition is created by radically commensurating sex work. More than just an engine of competition, rankings are constitutive of competition within the world of webcam sex – the ranking are the main way through which performers are rendered visible and compete. In particular, all performers are represented by thumbnails which tend to be algorithmically ranked on the basis of the performers’ past earnings. This ranking technology creates strong winner-take-all dynamics on the platforms. Probably even more than in other fields, the technology leads to anxiety, uncertainty and moral outrage among the many performers who, in spite of their professionalism and perseverance, fail to make it to the top of the rankings.

While our findings are in line with a plethora of previous studies in other fields which have demonstrated how rankings operate as ‘engines of anxiety’ (Espeland, Sauder 2016), and which have emphasized the disciplining or monitoring effects of evaluation apparatuses (see e.g. Shore, Wright 2015, Jeacle, Carter 2011), we also contribute to recent literature which instead suggests that people and organizations do have agency in engaging with and responding to rankings. For instance, Pollock, D’Adderio, Williams, and Leforestier (2018) point at the fact that many organizations are subjected to multiple rankings rather than a single one, which naturally leads them to engage strongly with those rankings that treat them favorably and disengage from others. Likewise, on the discussion forum Ambercutie, which served as the main empirical source of this essay, performers intensively discuss and scrutinize the platform rankings’ algorithms. They select the platform to work at partially on the basis of these deliberations. We are aware that this presupposes a highly reflexive, flexible, entrepreneurial and critical disposition on the part of performers, which is unlikely to be equally distributed among the platforms’ populations.

In more general terms, to understand the impact of rankings it is important to recognize how competition is nested: the intra-platform competition between performers which platform operators orchestrate, cannot be seen as distinct from the inter-platform competition which operators themselves need to engage in. This nested competition, as well as the fact that platforms are by their very nature two-sided (Nieborg, Poell 2018), shapes the parameters of the algorithms: on the one hand, the algorithm should be designed in such a way that it helps the platform in competing for viewers (and therefore revenue). This means that the algorithm should render the platform’s portfolio of performers visible to viewers in attractive, orderly, and easily navigable ways. On the other hand, the algorithm should assist platforms in competing for potentially revenue-creating performers. We speculate that the nesting of competition serves as a form of checks & balances in the world of webcam sex: platforms cannot orchestrate intra-platform competition between performers in whatever way they like because this would hamper inter-platform competition for those performers.

Finally, we have argued in this essay that rankings should always be studied as part of assemblages, understood in the broader, Foucauldian sense of a “thoroughly heterogeneous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical and moral propositions” (cited in Agamben 2009, p. 2). In the academic field, for instance, the impact of rankings is different in the United States, where large differences in quality and prestige between universities exist and tuition fees are an important source of income, than in e.g. Germany or The Netherlands, where those differences are relatively small and universities are almost entirely state funded. In the world of webcam platforms, we saw that this assemblage includes other market devices, like filters, recommendation features, or follow-buttons which enable performers to circumvent the rankings to some extent.

We were, however, only able to study – the material - part of this assemblage. What was outside of our scope, but needs to be scrutinized urgently, are its wider discursive, economic, moral and institutional parts. Doing so should shed light on the question what makes performers engage in this competition to begin with.

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