Antisocial media and algorithmic deviancy amplification: Analysing the id of Facebook's technological unconscious

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Abstract
Fight pages are user-generated Facebook pages dedicated to hosting footage of street fights and other forms of bare-knuckle violence. In this article, I argue that these pages exemplify an emergent and under-researched online phenomenon that may be termed antisocial media: participatory webpages that aggregate, publically host, and sympathetically curate footage of criminalized acts. To properly apprehend the implications of antisocial media for the mediation, distribution, and consumption of footage of criminalized acts, we must be attentive to the specificities of their architecture, their affordances and, increasingly, their personalization algorithms, which tailor the content a user receives to reflect their inferred preferences. This article therefore analyses the 'technological unconscious' of Facebook to demonstrate how the interactivity and personalization of the site's information landscapes have the potential to reinforce or amplify fight page users' often-harmful attitudes towards violence.

Keywords
Antisocial media, Facebook, filter bubbles, media criminology, new media, violence

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Introduction

> First rule of fight club: you do not talk about fight club. Second rule of fight club: you do not talk about fight club. (Palahniuk, 1996: 12)

As Facebook's popularity has grown, so too have concerns over the increasing presence of violent content on the social networking site (Kelion, 2015; Winter, 2013). One of the most reported on sources of these concerns is the phenomenon of fight pages: user-generated pages dedicated to hosting footage of caught-on-camera street fights and other forms of bare-knuckle violence (Channel 9 News, 2013; Entwistle, 2014; Uhr, 2014). Entertaining fears of rising youth violence and antisociality fuelled by social media use, in several media reports fight pages dedicated specifically to footage of schoolyard scraps have been attributed to organized fight clubs (Dean, 2015; Bennett, 2014; MacNiven, 2014). Facebook, it appeared, had reversed the first two rules of Palahniuk's (1996) fictional fight club: participants now not only talk about fight clubs, they also upload the proceedings of their fights to social media in line with Facebook's (2015a) self-proclaimed ethos of connecting and sharing. However, though frequently used, the fight club label is often inadequate for these pages: it accounts neither for recordings of fights that are not staged for the camera nor for staged fights that are not undertaken by members of an organized group as a subcultural practice. Yet while erring in labelling these pages the product of organized fight clubs, such reports do make one correct observation: Facebook and other social media sites have profoundly altered the terrain for distributing and viewing footage of public transgression.[1]

Since coming online in 2004, Facebook has been the subject of a large amount of scholarship, much of which has concerned issues of direct relevance to criminology. Yet whilst a growing subset of research has recently addressed topics such as the use of social media by gangs and criminal networks (Décary-Hétu and Morselli, 2011) and the circulation of footage of police misconduct on social media (Goldsmith, 2010), almost entirely absent from the large body of criminologically-relevant scholarship concerning Facebook is any discussion of the mediation of everyday forms of public violence on the platform. Though criminologists have recently taken social media as a serious object of analysis, few have directly addressed the implications of Facebook's features, affordances and architecture for distributing and engaging with footage of illicit acts. Understanding how images of transgression are mediated on Facebook is, however, crucial to understanding the impact they have on shaping perceptions of, and attitudes towards, crime.[2] In this article I attempt to redress these gaps in our understanding of the online mediation of images of crime through analysing Facebook as a new platform for encountering and responding to footage of street fights, affrays and other public acts of violence.[3]

In undertaking this analysis, I argue that fight pages exemplify an emergent but under-researched Web 2.0 phenomenon that can be termed antisocial media: participatory web-pages/domains that aggregate, publicly host, and sympathetically curate footage of transgressions. Antisocial media are, in short, transgression aggregators: sites dedicated to hosting (1) footage of illicit acts, (2) discourses that condone or legitimize these acts, and (3) forums for individuals to discuss these acts. To properly investigate antisocial media, I argue, we must be attentive to both their content and form. In the case of Facebook embedded antisocial media such as fight pages, this requires us to attend to

what Lash (2007; see also Beer, 2009; Bucher, 2012) has termed the 'power of the algorithm', through examining how the platform's Top Stories algorithm, which determines what content is narrowcast into a user's News Feed, has the potential to increase users' encounters with transgression.

It is this potential of the Top Stories algorithm and other web personalization algorithms to alter how frequently antisocial media users engage with images of transgression that leads me to propose the concept of algorithmic deviancy amplification: the process whereby an individual increasingly encounters content that promotes or condones illicit acts as a result of the interaction between their online activity and a site's personalization algorithms.

To undertake this analysis, I conceptualize Facebook's user interfaces as information landscapes or infoscapes: environments where textual, visual, and auditory information is placed, processed, ordered and filtered in specific and significant ways (Iaconesi and Persico, 2014). In analysing Facebook fight pages as infoscapes, I attend to how the content of fight pages is spatially and temporally arranged, accessed, filtered and, consequently, subjected to hierarchies or regimes of visibility (see Brighenti, 2010). These infoscapes, in short, constitute the architecture of spectatorship that shapes what Facebook users see, how frequently they see it, and how they engage with it. This article, therefore, takes an approach consonant with that advocated by software studies (see Fuller, 2008; Manovich, 1999, 2013) as it maps the 'technological unconscious' of Facebook: the often taken-for-granted data structures and invisible algorithms that actively shape human praxis on the platform (see Kitchin and Dodge, 2011). Or, to malappropriate Freud (1961), as my analysis is concerned primarily with the criminogenic effects of antisocial media on Facebook, it might be said that it maps the identity of the site's technological unconscious: the unintended, unrestrained, and often harmful forms of gratification-seeking behaviour that the site's architecture promotes in its users. Specifically, my analysis of the id of Facebook's technological unconscious focuses on three characteristics of Facebook's infoscapes and their implications for the mediation of footage of transgression on the platform: (1) their interactivity, (2) their fostering of hyperconnectivity and (3) their personalization of content.

'We host the best and craziest fights ever'

Before turning to Facebook's technological unconscious, a further word needs to be said on the content and prevalence of fight pages. As stated in the introduction of this paper, fight pages primarily host footage of street fights and other forms of public hand-to-hand violence. Many promote their content as featuring particularly 'crazy', 'brutal' or 'bloody' public no-holds-barred fights between amateur participants (as per the title of this section, a quote taken from the popular page *Crazy Street Fights*, 2014). In actuality, however, most fight pages post recordings of a range of violent events of a varying nature and severity, from recordings of organized bare-knuckle fights between willing participants to clips of barroom honour contests and footage of violent unprovoked attacks. Further, many fight pages supplement this amateur footage with professional footage of martial arts matches, including Ultimate Fighting Championship (UFC) matches. In doing this, fight pages destabilize the licit/illicit, amateur/professional binaries that

distinguish combat sports violence from acts of public violence. What most of the violent events posted on fight pages do have in common though is their unrestricted 'no-holds-barred' nature. This fixation with real no-holds-barred contests, both on the street and in the cage, may be read as a symptom of what Bowman (2015, p. 104) has termed the 'Fight-Club-ization' of martial arts: the preoccupation of many new martial arts schools on the primal and chaotic nature of combat, and the need to develop techniques 'for the street'.[4]

Given the varied nature of acts of bare-knuckle violence hosted on these pages, their legal status varies. Indeed, categorizing many of the recorded fights hosted on fight pages as illicit is often made problematic by the remote locations of the fights, their apparently consensual nature, and the existence of mutual combat laws in certain jurisdictions. Significantly, fight page users' comment responses to the content hosted on these pages overwhelmingly indicate that street fighting and regulated combat sports matches are not experienced or read by these individuals as fundamentally distinct phenomena. Indeed, many viewers' comments indicated that they viewed street fighting not as a transgressive activity but rather as an unofficial sport. Yet whilst viewed as a normative behaviour by page users, it is nonetheless important to acknowledge that street fighting is tantamount to affray, and carries legal consequences.

Though fight pages are a relatively minor phenomenon on Facebook, there is nonetheless a considerable demand for footage of authentic public violence among users of the site. This demand for footage of bare-knuckle fights among Facebook users has led to the establishment of, at the least, hundreds of fight pages on the platform. During eight months of observation, this study located 104 English language fight pages located on Facebook. Of these, 56 had over one hundred thousand likes, 11 had over five hundred thousand likes, and four had over one million likes. The majority of these pages had been established between 2013 and 2014. In addition to these more popular pages, numerous smaller fight pages with between a few hundred and several thousand likes were encountered. Unlike their more popular counterparts, which generally hosted footage recorded in any location, several of these less popular pages were specifically dedicated to hosting footage of fights in a particular country, city, area, or school, such as the N.T Fights page dedicated to footage of fights in the Northern Territory, Australia. Further, some fight pages feature participants of a particular social, gender, age, or racial demographic. One example of this is the numerous fight pages dedicated to footage of public violence featuring African-American participants (often titled 'hood' or 'ghetto' fight pages), which frequently propagate racist stereotypes and provide forums for their users to engage in racist hate speech.

It is important to additionally note that Facebook fight pages far from represent the only avenue for spectating street fights on the Internet. Similar pages exist within other mainstream social media sites, such as YouTube, where dedicated fight channels host footage of 'caught on camera' street fights or organized bouts between paid but non-professional fighters such as the Felony Fights series (see Salter and Tomsen, 2012). Further, the demand for footage of authentic street fights has given rise to discrete websites that may be termed fight-tubes: video-sharing websites dedicated solely to hosting amateur footage of street fights. It is highly probable that many individuals who regularly view footage of street fights online will access such footage from not one but

several of these sources. We must, therefore, situate individuals' practices of consuming such footage within both individual infoscapes, and the overall mediascape of a given time (see Appadurai, 1990). Over the past three years, however, the rise of fight pages has signalled a decline in the use of fight-tubes – a decline that can be attributed, in part, to media convergence: the process whereby different media forms and their respective uses amalgamate as a result of digitization. In a convergence culture characterized by the movement of content across multiple platforms (see Jenkins, 2006), footage of violence is every bit as subject to convergence as other subject matter, and mainstream social media sites featuring such content quickly win out over their niche standalone counterparts.

Consequently, whilst fight-tubes represent an under-researched and criminologically significant phenomenon that warrants further attention, the location of fight pages within the world's most popular social media site makes them arguably even more significant for criminologists. Notably, their location on Facebook means that their presence is felt not only by active users but also members of their users' social networks, who encounter videos that have been 'liked', shared or commented on by friends in their News Feeds. This marks a key difference between Facebook fight pages and these other pages, where viewing and responding to violence is almost invariably anonymous or pseudonymous, and separated from other online activities of social media surfing, interpersonal communication and networking. YouTube hosted channels, fight-tubes, and Facebook fight pages, therefore, differ not only in their size and number of users but fundamentally in their affordances and intended uses, rendering generalizations about social media difficult and undesirable. As I will now argue, however, such generalizations about the technological form of social media have been a mainstay of much criminological theory that has directly addressed criminal activity on such domains.

Criminology and social media: A critical review

As sites where individuals encounter, discuss, commit, and are victimized by crime, social media have increasingly featured within criminological inquiry. Recent criminological literature on new media has investigated the transformation of individual media users from consumers to 'prosumers': individuals who produce and consume media content (Yar, 2012b). As Yar (2012a) has illustrated, this shift has implications for criminological analyses of the media/crime nexus as it requires us to investigate not only whether media content elicits law-breaking behaviour but also whether the ability to broadcast oneself online itself induces individuals to engage in illicit acts. In addition, Hayward's (2012) work has revived an interest in the spatiality of online environments through exploring the concepts of virtuality, telepresence and convergence. Hayward's call to investigate the effects of the spatial dimensions of online environments on transgression can be situated within the broader cultural criminological project to address the experience of engaging in/with crime online (Ferrell et al., 2012).

Yet, as noted before, whilst social media have recently received attention within criminology, the mediation of violence on social media remains a relatively untouched topic within academia (see Tait, 2008), with few articles addressing mainstream platforms such as Facebook and YouTube. The closest set of research within criminology has

instead concerned what Ferrell et al. (2012) term the 'netherworld' of underground web pages trafficking footage of often-commodified illicit violence. Examples include websites selling and/or hosting footage of 'hooligan' football supporter violence (Zaitch and De Leeuw, 2010), happy slapping and schoolyard fight compilations (Ferrell et al., 2012), dog fighting (Presdee 2000), and child pornography (Taylor and Quayle, 2003; Goldsmith and Brewer, 2015). Unlike these domains, however, fight pages are not situated within the netherworld of the Internet but rather the world's most prevalent mainstream social networking site – a platform that, as of April 2014, has over 1.4 billion users (Facebook, 2015b).

With the exception of Hayward's and Ferrell et al.'s work, what these and many other criminological studies investigating social media have in common is their almost exclusive focus on, and prioritization of, the socio-cultural practices and content on these sites, over the technological anatomy of the sites themselves. Though this content-centric approach has produced valuable research, it has a key limitation. Namely, such a focus on the socialities, behaviours and content that occur on new media platforms is unable to trace how the specificities of a platform's interface shape the social praxis and behaviour of its users. In these studies, the data structures and algorithms of the social media platforms they investigate represent what software studies and media theorists term a 'technological unconscious' (Kitchin and Dodge, 2011): unacknowledged technological materialities that contribute to shaping social, cultural, economic, and political realities. Proponents of actor-network theory have similarly criticized the proclivity of many social scientists to 'black box' the technological and material dimensions that underpin social practice. Indeed, for Latour (2007), and proponents of actor-network theory within criminology (see Brown, 2006; Van der Wagen and Pieters, 2015), such a neglect or black boxing of the technological is flawed insofar as it fails to recognize social action as socio-technical: as comprised of inextricably intertwined social and technological dimensions. Though this article does not explicitly employ actor-network theory, the software studies inspired approach taken here is consonant with it, as it treats the agency of non-human actors in shaping human praxis seriously in analysing online behaviour.

Additionally, when criminologists have examined the form of social media, they have tended to take a broader approach by either investigating their implications as a class of media (Moule et al., 2014), or by theorizing the contours of cybercrime and cyber-deviance more generally (see Yar, 2013; Goldsmith and Brewer, 2015). This broader focus is not unjustified as there are several compelling reasons for investigating social media sites as a class of media. As Rains and Brunner (2015) and Faraj and Azad (2012) note, focusing on a single platform and adopting a 'feature-centric approach' limits the generalizability of a study's findings, which has the potential to ignore the shared uses and implications of social media platforms. However, in investigating the uses, effects and mediation of transgressive material on social media sites, there are equally compelling reasons to take an idiographic approach and focus exclusively upon a single site. Most notably, such an approach avoids treating social media reductively, through recognizing their heterogeneity in form, function, features, and regulation. As Carrabine (2008: 10) rightly observes, 'referring to "the media" in the singular obscures the diversity of media forms (film, television, magazines, newspapers, the Internet, books and so on) that surround us'. The logic underpinning this statement must, however, be taken one step further, for in

referring to 'the Internet' or 'social media' in the singular – as criminologists frequently do – we obscure the multitude of different forms the online domains take.

Radical media, alternative media, citizen media … antisocial media?

In his specific brand of medium theory, Meyrowitz (1985) asserts that the social power of a new medium lies in its provision of access to previously restricted information. If we accept Meyrowitz's underlying premise, we must acknowledge that part of the crimino-genic potential of Facebook and other social media is that they provide platforms for transmitting content that promotes and/or teaches the techniques for undertaking crimi-nalized acts. Just as the Web 2.0 Internet has assisted the growth of alternative, radical and citizen media (see Harrison and Barthel, 2009), so too has it provided a platform for what may be termed antisocial media: repurposed social media forms used to aggregate, host, distribute and sympathetically curate footage of illicit acts. Like radical and alterna-tive media, fight pages and other forms of antisocial media distribute content that is rarely, if ever, published by mainstream media outlets. Yet while radical and alternative media are politically motivated and have intended transformative aims (see Downing, 2001), antisocial media are not. Unlike these forms of media that are concerned with overtly political action, antisocial media aggregate footage of transgression primarily for the purposes of entertainment and/or educating their audience in how to effectively undertake a criminalized act. They must therefore be distinguished from blogs, YouTube channels and Facebook pages that, whilst promoting the commissioning of illicit acts, do so in the service of a political goal, which may include the act in question's decriminalization.

Ultimately, antisocial media mark a new stage in the media/crime nexus by shifting (1) what content can be distributed to large audiences, (2) who is able to distribute it, and (3) how it is mediated. Specifically, they allow any and all forms of uncensored footage of transgression to be aggregated, hosted, consumed and responded to by any individual who has access to the Internet. Thus, in speaking of antisocial media, I use the term antisocial to refer not to unsociability but rather to acts that contravene the laws and customs of society. Indeed, as they remain at their heart social media, antisocial media are intensely social domains, and criminologists must be attentive to the new contexts for viewing and responding to transgression that these platforms provide. Notably however, whilst antisocial media provide counterpublics for their users to engage in one-to-many communications, they are also frequently underpinned by a one-to-many distributor-audience structure, with an administrator distributing material to the page's users.

Importantly, antisocial media must be distinguished from other criminologically sig-nificant social media phenomena, the most notable being antisocial behaviour *on* social media. Though social media provide platforms for individuals to engage in antisocial acts such as cyber bullying, such acts are not what I intend the term to refer to. Nor do I intend the term to refer to online social networks that intermittently engage in antisocial acts online (see Moule et al., 2014). Rather, I reserve the term solely for participatory content aggregators such as fight pages to avoid it morphing into a nebulous catch-all for

any antisocial content or behaviour on social media sites. This moves the term away from its former status as a play on words headline invoked by many a journalist reporting on illicit or unsociable behaviour on social media,[6] and into a meaningful contribution to the theoretical lexicon on new media criminologists are developing, which includes Atkinson and Rodgers' (2015) concept of the 'murder box' and Goldsmith and Brewer's (2015) concept of 'digital drift'.

On Facebook alone, other examples of antisocial media include pages dedicated to hosting revenge porn (see Henry and Powell, 2015), illicit street racing and football hooliganism. Beyond Facebook mainstream and social media sites, antisocial media include a variety of websites and forums dedicated to hosting revenge porn, footage of street fights, illegal animal fighting, cinematic rape scenes and non-simulated footage of rape and sexual violence, including child pornography. As this cursory survey of examples reveals, though antisocial media all share a similar raison d'être, they differ substantially in not only their content but also in their architecture and visibility. Studying antisocial media therefore requires us to investigate how the content and form of media work in tandem to produce particular modes of encountering, engaging with, responding to, and mediating images and footage of transgression.

Browsing the web of violence

Though antisocial media differ enormously in their content and site design, they all, in their own way, archive images, footage and textual discourses of transgression.[7] On Facebook, embedded antisocial media such as fight pages is primarily archived on each page's Timeline and video album interfaces. Launched in 2011, the Timeline was designed to improve the navigability of Facebook's platform by improving upon the scrollable interface of the site's previous design, and adding sidebar links to particular dates – thus enhancing users' ability to quickly access older content. Taking the principle of accessibility one step further, Facebook's video album collates the videos an individual or page has posted and arranges them as a series of thumbnail hyperlinks that a user may scroll through and select. These infoscapes do more, however, than simply increasing the navigability of the platform. Rather, the affordances of both the Timeline and the video album serve to increase the ability of users to actively select and determine the scenes of transgression they view by lowering the degrees of separation between recordings of everyday violence and transgression.

Viewing transgression on antisocial media is, in other words, characterized by high levels of interactivity between the viewer and the platform. Though the concept of interactivity has a long history within communication studies, it has received little attention from criminologists investigating the media/crime nexus. Acknowledging the role of interactivity in shaping online hypermedia use is, however, pivotal to understanding how individuals engage with, respond to, and are affected by online images of crime. Interactivity, it must be noted, is a notoriously contested concept within communication studies, and numerous often conflicting definitions of the notion have been proposed by scholars working within the discipline (see Kiousis, 2002). Here, I subscribe to Jensen's (1998: 201) definition of interactivity, which understands it as 'a measure of a media's potential ability to let the user exert an influence on the content and/or form of

the mediated communication'. Under this definition, interactivity is understood to be a product of media, and though all communication media are to a degree interactive, some, such as video games and online domains, are more so than others.

Through increasing the selectivity of consuming transgression, the interactivity of antisocial media increases the extent to which users can actively pursue information relating to illicit acts that reinforces their pre-existing views and attitudes towards these acts: a phenomenon that psychologists and communication researchers refer to as selective exposure (see Zillmann and Bryant, 2013). Whilst selective exposure occurs in all media use, the nature of the Internet greatly increases the scope to which individuals can actively avoid information that conflicts with their views, and seek out information that confirms them. By hosting an array of different scenes of street violence that differ greatly in their nature, dynamics, and participants, fight pages enable their viewers to selectively view recordings and other material that affirm their attitudes towards and beliefs about violence, which, as the comments beneath many videos indicate, are frequently informed by discourses of gender, race, class, and sexuality.

Further, the interactivity of antisocial media promotes a more active mode of reading and interpreting images of criminalized acts than that promoted by linear media. This more active mode of reading content is a product specifically of the non-linear presentation and access of content on interactive hypermedia. In giving the user greater control over what they view and the order in which they view it, non-linear hypermedia grant the user greater control over producing the associative links between viewed content (Laurillard et al., 2000). That is, on non-linear hypermedia, meaning, narrative, and associations between content emerge out of the user's control over their viewing trajectory. On Facebook embedded antisocial media this active mode of reading content is even further promoted by the platform's lack of affordances for indexing and categorizing posted content (see Kaun and Stiernstedt, 2014). Owing to this lack of affordances for ordering content, Facebook embedded antisocial media produce archives that their administrators cannot frame into a linear narrative. It is therefore the audience, rather than the author (or in this case the page administrator), who exercises narrative control over the content they view (see Cover, 2006). Or to invoke Barthes (1974), when footage of violence is archived within a hyperlinked network, it becomes more writerly; a greater onus is placed on the viewer to construct meaning out of the event(s) they view. Yet whilst fight page administrators cannot control the sequence fight page users view recordings in, as this article will later show, there is an actor within Facebook's technological unconscious with considerably more potential to structure users' narratives of violence on the site: the algorithm underlying the site's iconic News Feed interface.

Hyperconnected to transgression

A longstanding element of Facebook's site design, the News Feed provides individuals with a personalized flow of user-generated content recently posted by their network of friends and liked pages. Whereas archived antisocial media content on the Timeline or

video album is deliberately sought out, on the News Feed it is encountered during users' often routine or habitual practices of using the site to pass the time or engage in 'social network surfing' – monitoring one's social network (Giannakos et al., 2013). Further, given the ubiquity of Facebook's smartphone application, these routinized practices are far from limited to set desktop bound locations, as most fight page users are able to instantly connect with such footage in any location that has Internet coverage. For individuals who have liked a fight page, everyday violence therefore becomes increasingly visible and available in multiple spatial contexts.

Put differently, what Facebook embedded antisocial media foster are individuals who are hyperconnected to transgression: who are able to instantly view footage of criminalized acts at any time using numerous platforms, and frequently do so on a regular basis. Conventionally, the term hyperconnectivity refers to the constant connection of people (see Quan-Haase and Wellman, 2005). Here, however, I extend its use to the connection between individuals and particular forms of media content – in this case, footage of public violence. Ultimately, though, hyperconnectedness to footage of violence is frequently a product of Facebook users' hyperconnectedness to one another. That is, it is primarily through the newfound socio-technical imperative to constantly connect with their peers that individuals regularly encounter footage of violence.

One significant implication of this online hyperconnectedness to mediated violence is that it further diminishes the relative influence of an individual's immediate offline social environment on their attitudes towards violence. In a hyperconnected network society, perceptions of distance are increasingly dictated by participation in digital networks such as fight pages. As Mejias (2013: 97) summarizes, 'the notion of the near as what is spatially proximal is being remodelled into the notion of the near as what is socially proximal – what we feel is relevant to us socially, regardless of whether it is spatially near or far'. This displacement of the spatially near by the socially near has not gone unnoticed within criminology. Drawing upon Castells' (1996) concept of 'spaces of flows' and mobilities theory (see Lash and Urry, 1994), Aas (2007) has similarly observed that global networks and flows of information have challenged conceptions of community, culture and society underpinned by geographic locality. However, in order to properly comprehend the nature of News Feed's displacement of the spatial by the social, we must take into account another crucial characteristic of this infoscape: its algorithmic filtering and curatorship of content.

Algorithmic deviancy amplification

> Our goal is to build the perfect personalized newspaper for every person in the world. (Facebook founder and CEO Mark Zuckerberg, cited in Kim, 2014)

Underlying the News Feed's default Top Stories setting is a sophisticated personalization algorithm designed to optimize the user's experiences of the platform. It does so by using data collected on an individual user to determine the content that is narrowcast to their News Feed. Though it has evolved considerably, the original version of this algorithm (then termed Edgerank) considered three factors that remain central to the algorithm currently in use: affinity (how many times the user interacted with the content), weight (the

type of post it is and the action taken on it), and time decay (how long ago the user viewed the content) (Kincaid, 2010). As I will now argue, the Top Stories algorithm's filtering of content effects not only what forms of content antisocial media users encounter in their News Feeds, but also the very process by which attitudes towards criminalized acts and deviant identities themselves are shaped by media use.

Like newsroom cultures that subscribe to an 'if it bleeds it leads' content hierarchy, the Top Stories algorithm privileges images and news of sensationalistic and affecting crimes in its hierarchy of visibility. As a result of its weight criterion, the News Feed algorithm promotes the circulation of content that other users have found particularly affecting (see Gerlitz and Helmond, 2013). In determining a post's weight, three key metrics the News Feed algorithm indexes are the post's like count, share count and, if it contains a video, its view count. Consequently, content with higher like, share and view counts are narrowcast at a higher rate than less popular content. As caught on camera, footage of street violence is often arresting and affecting (and in being so attracts high view and/or like counts), it therefore becomes disproportionately represented in the News Feed. Furthermore, given their especially affecting qualities, particularly graphic, intense, lengthy or technically sophisticated fights are more broadly disseminated, promoting a distorted perception of the average length and nature of such events (which are often fleeting, clumsy, and far from their aestheticized cinematic representations).

In addition to its bias towards affecting content, the Top Stories algorithm also has the potential to create what Pariser (2011) terms 'filter bubbles': personalized infoscapes where individuals are insulated against views they disagree with and only encounter information that supports their ideology and viewpoints. Consequently, as a result of its affinity and time decay factors, the Top Stories algorithm's filtering of content has the potential to generate positive feedback loops: the more an individual likes, shares, or views content from a fight page, the more they experience it in their News Feed, which in turn increases the probability that they will again like, view or share its content. Crucially, this positive feedback loop serves to either reinforce or amplify individuals' beliefs and attitudes, as it further affirms their existing attitudes whilst reducing their contact with information that conflicts with, or challenges these attitudes. In other words, content personalization algorithms amplify or reinforce attitudes through presenting individuals with content that accords with their preferences, whilst simultaneously filter out content that conflicts with or challenges these preferences.

In this personalized environment, individuals' attitudes towards criminalized acts are every bit as subject to algorithmic filtering as other attitudes. If an individual holds permissive attitudes toward criminalized acts of violence, these attitudes can similarly be amplified through this process of algorithmic content filtering. When coupled with Facebook embedded antisocial media, this tendency of the Top Stories algorithm to simultaneously promote affecting content and filter bubbles may produce what may be dubbed algorithmic deviancy amplification: the process whereby an individual who has 'liked', subscribed to, or otherwise engaged with a form of antisocial media increasingly encounters its content and other material that validates deviant or antisocial behaviour, as a result of a platform's personalization algorithms. Though the term I propose alludes to the deviancy amplification spiral model originally proposed by Wilkins (1964) and later popularized by Cohen (1972), algorithmic deviancy amplification can be seen to

actually invert several of the elements of this original social reaction model of deviance. Indeed, whilst both models deploy cybernetic conceptions of positive feedback, here, the response to an individual's deviance is individualized rather than generalized, amoral rather than intensely moral, and latent rather than manifest.

Having described this process in the abstract, what attitudes and beliefs does the algorithmic filtering of fight page content have the potential to amplify? With their frequent footage of honour contests and individuals citing violent codes of (hyper) masculinity, fight pages may contribute not only to normalizing such forms of violent behaviour but also entrenching beliefs that certain forms of violent interaction offer an effective resource for 'doing gender' (see Messerschmidt, 1993). More specifically, through lauding certain fighters as paragons of masculinity for their violent actions, fight pages may contribute to filter bubbles that legitimate the belief that violence is a signifier of masculinity. Further, the entry of fight page content into the personalized infoscape of the News Feed has the potential to reinforce racist beliefs if recordings featuring fighters of a particular race or ethnicity are rendered especially hyper-visible. In particular, fight pages dedicated solely to footage of violence featuring African Americans have the potential to reinforce racist beliefs asserting that Africans have a propensity for violence, aggression, and indolence; a contention that is lent support by viewing the comments sections of such fight videos, which almost invariably feature comments voicing such beliefs.

Though the example explored in detail here relates to Facebook embedded antisocial media, another source of algorithmic deviancy amplification is Google's personalized search engine, which can return search results and auto-complete recommendations that reflect and subsequently reinforce an individual's deviant and/or harmful attitudes. One infamous example of this is the misogynistic autocomplete responses individuals have documented upon entering the words 'women' and 'feminism' into the search engine, which have included 'feminists must die', 'feminists want to be dominated', and 'women should be slaves' (see Mahdawi, 2013).

It is, however, important not to overstate the role of individual pages in shaping either individuals' attitudes towards interpersonal violence or the process of algorithmic deviancy amplification itself. Algorithmic deviancy amplification does not refer simply to the presence of material such as fight videos legitimating deviant acts within a personalized information environment. Rather it refers holistically to filtered information environments where the overwhelming majority of content an individual encounters supports illicit forms of behaviour and the identities underlying involvement in such criminalized acts. In such personalized information environments, it is not merely the presence of content that legitimizes an illicit act, but also the absence of content that delegitimizes the illicit act.

Whilst Web 2.0 affordances for tailoring online content to users' preferences have not gone unnoticed by criminologists (see Doyle, 2011), until now, the role that personalization algorithms such as the one underlying Facebook's News Feed have played in shaping this process of content personalization has yet to be acknowledged within the discipline. Facebook's Top Stories algorithm therefore illustrates a trend that has largely eluded criminologists: that personalization algorithms are becoming increasingly implicated in selecting our encounters with transgression, and subtly shaping our attitudes

towards criminalized acts. Under the conditions of content personalization, the Internet does not necessarily amount to a recipe for heterogeneity, whereby a user jumps from page to page and encounters numerous often-conflicting ideological positions as they do so. Rather, on the personalized Internet, our mediated encounters with crime occur less in the infinite hall of mirrors described by Ferrell (1999), where remediated images and discourses of crime, collide, combine and constantly re-emerge in ever-shifting contexts, than in an echo chamber, where one's views on criminalized acts come to reverberate louder and louder the further travelled.

Conclusion: Towards a critical criminology of software

The advent of antisocial media produces several challenges for criminology. High among these is the need to analyse the form, affordances and often-neglected algorithms of specific digital domains where transgression is encountered or undertaken. As browsing, spectating, sharing and responding to recordings of criminalized acts on social media become increasingly prevalent practices, it is important that criminologists analyse the data structures and algorithms of these online domains to ascertain how they shape individuals' experiences of and attitudes towards these illicit acts. Further, as this article has shown, analysing the technological unconscious of online domains can shed light on the potentially criminogenic nature of their software. In concluding this article, what I therefore suggest is the need for a critical criminology of software that combines a concern with online crime and deviance with the insights of computationally-focused disciplines such as software studies, new media studies, human-computer interaction studies, and critical code studies. Crucially, such a critical criminology of software should eschew an instrumental reading of technology in favour of investigating the unforeseen and criminogenic consequences of algorithms and online environments. This article, which has explored several ways in which Facebook's interactive and personalized infoscapes shape fight page subscribers' experiences of understanding of mediated violence, represents just the opening move of such an enterprise. The effects of this new interactive and personalized hyperconnectedness to footage of illicit violence are undoubtedly varied and shaped by an array of social, cultural, environmental and biosocial factors that lie beyond Facebook. For some it may manifest in an increased emotional desensitization to violence, whilst for others it will engender a greater fear or appreciation of the risks of violence. These are issues that require further investigation, and not just within the experimental media effects paradigm. What is certain though is that the architecture, affordances and algorithms of Facebook's infoscapes play an active part in shaping individuals' experiences of mediated transgression on the platform, and must be further considered in future criminological research of the site.

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Notes

1. In this piece, I use the term transgression in the very narrow sense of referring to acts that are legal transgressions, rather than the expanded sense expounded by Young (2003) and Hayward and Young (2004), which also understands transgression as an orientation towards rule-breaking and a source of identity. Indeed, given its normative status on fight pages, within such domains street fighting can hardly be conceived as transgressive in any other sense than legally.

2. For this reason, the subject of this article is of great relevance to not only the field of media criminology (see Greer, 2010) but also the growing field of visual criminology (see Rafter, 2014), which is attentive to both the content of images of crime and also the context in which such images are encountered, viewed, and responded to (see Young, 2014).

3. This research was undertaken in the context of the author's ongoing PhD study, which, in addition to covering the topics discussed in this article, examines fight page users' motivations for viewing fight videos and attitudes towards violence.

4. This association between street fighting and professional mixed martial arts on fight page is further evidenced in the iconography used on these pages, which often feature images showing UFC fighters and other martial artists.

5. Within the context of Facebook, the number of likes a page, post, or other form of content has refers to the number of individuals who have explicitly 'liked' it by pressing its accompanying like button. Described by Facebook (2016) as a way for users to 'give positive feedback and connect with things [they] care about,' the like button is a longstanding feature of the platform and a key example of a social media button: a feature that enables users to quickly express emotional responses to, or affinity with content. Following critical user feedback on its limitations (see Stinson, 2016), in 2016 the feature was redesigned to include a set of five additional 'reactions' buttons conveying different emotional responses to content: 'love,' 'haha,' 'wow,' 'sad,' and 'angry.' Yet though several of these reactions are diametrically opposed, Facebook's Top Stories algorithm weights each of them equally in curating News Feed content (Griffin, 2016).

6. The term antisocial media has long been used (as nothing more than a play on words) by journalists reporting on the potential for social media to promote unsociability (see Dey, 2015; Kirk, 2014).

7. This online and public archiving of scenes of transgression has significant implications for the industries that commodify such footage (see Ferrell et al., 2012, for a discussion of the commodification of transgression). In the same way that music and film piracy has eroded the bottom line of these respective industries, publicly accessible antisocial media archives render the commodification of footage of transgression unprofitable and largely obsolete.

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