

From Clear to Dark: The Social Media Platform Anonymity Continuum

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Abstract—Darknet technologies are a transformative technology, particularly in the context of online social media. This paper explores social media platforms where user anonymity artificially constrains self-disclosure. It proposes a social media platform anonymity continuum that recognises how the emergence and growth of darknet social platforms - and the affordances of darknet technologies - have exposed conceptual limitations in our understanding of self-disclosure and technical and social anonymity on social media platforms.

Keywords— social media; anonymity; dark social; grey social; clear social

I. INTRODUCTION

Social media are "Internet-based channels that allow users to opportunistically interact and selectively self-present, either in real-time or asynchronously, with both broad and narrow audiences who derive value from user-generated content and the perception of interaction with others" [1]. Social media platforms have been categorised and classified across two dimensions - social presence/media richness (i.e., range of media and content), and self-presentation/self-disclosure [2]. Self-disclosure refers to the conscious and unconscious sharing of personal information, such as "thoughts, feelings, likes and dislikes" [2] [3]. It also includes "identity-based" data such as one's real name, birth date, and image, as well as contact information such as address, phone number and email address [4] [5]. Self-disclosure is pervasive on social media [6] and tightly coupled to the success and vibrancy of social media platforms [5]. The degree to which users engage in it is, in turn, coupled with user anonymity [2] [3] [7] [8]. This paper explores social media platforms where self-disclosure is artificially constrained by user anonymity. These constraints may be imposed by the platform vis-à-vis its technical architecture, its design choices and affordances, its culture or community, and by an individual user's choice. We recognise the fluidity of online anonymity across technical and social dimensions [9] and propose a continuum for the purpose of categorising social media platforms based on these dimensions (see Figure 1). The continuum recognises the emergence and growth of darknet-enabled, "anonymity-granting technologies" [10] [11] and how they influence both technical anonymity and social anonymity of users [12] [13] [14]. The remainder of the paper is structured as follows. In Section 2, we present this paper's main idea: a continuum of social media anonymity. To provide context and background for this, we discuss three categories of social media, and introduce the concepts of dark, grey and clear social. This is followed by a discussion about anonymity in the context of social platforms. In Section 3, the paper concludes with a summary of its achievements and presents preliminary implications and avenues for future research.

II. CONTINUUM OF SOCIAL MEDIA ANONYMITY

Social media platforms are categorised as mainstream, alternative, or "dark". Mainstream social media - comprising chiefly of the "social media giants" such as Facebook, Twitter and Instagram [12] - is also referred to as corporate social media (CSM) [13] [15] [16]. CSM operational and business models comprise content moderation, surveillance, commercialising user data, advertising, and lack of user privacy [13] [15] [16]. Alternative social media (ASM) typically operates on the fundamental principle of egalitarianism and caters to smaller communities of niche interests and those who ideologically reject the operational practices of CSM [12] [15] [18] [19] [24]. Current scholarship suggests that social media activity also takes place on "dark platforms", on "dark social networks", and on "hidden social spaces" [14] [28] [21]. We refer to this category as dark social - social media that takes place on the darknet. Accordingly, alternative and dark social users turn to decentralised social platforms hosted on privacy-attuned and anonymity-granting technologies such as the darknet (e.g. Tor) [13], and the blockchain [24]. CSM sites primarily exist on the clearnet, although this boundary is beginning to blur as Facebook and Twitter both operate Tor onion services [25] [26] [27]. Further, some clearnet social platforms such as Parler and Gab are built upon ASM-like foundations of anonymity, freedom of expression, and privacy; and are culturally more akin to the dark web. A pure-play darknet social platform provides a combination of technical affordances and ASM-like foundations to support user anonymity and pseudonymity [13]. Anonymity is known to increase self-disclosure [22]. However, we propose that the level of self-disclosure on social platforms is determined by a combination of the technical architecture of the platform (e.g. clearnet versus darknet or blockchain), the culture or community of the platform (CSM versus ASM versus dark - which serves as a proxy for the risk of self-disclosure), and the individual user's inclination towards online anonymity. This is where the spectrum emerges: from clear to grey to dark. In the context of computer-mediated communication, anonymity is defined as "the condition in which a message source is absent" where "an anonymous source is one with no known name or acknowledged identity" [17] [23]. Self-disclosure is an outcome of both anonymity and other affordances of social platforms [23]. The emergence and growth of anonymous social media [7], alternative social media [15], dark social media [12] [13] [16] [18] [19], and the increasingly privacy-attuned design choices of clearnet social platforms [5] [20] is congruent with the Communication Model of Anonymous Interaction in that social platform user anonymity is best viewed as a continuum from fully anonymous to fully identified [15]. This is also reflected in our proposed continuum (Figure 1) which comprises two dimensions: Platform Disclosure Risk (PDR) and Individual Disclosure Practice (IDP). Here, social platforms can be plotted as dark social (pure-play darknet - both technically and culturally); grey social (has some combination of the technical

and cultural affordances of ASM/dark/clear social); and clear social (pure-play CSM/clear - technically and culturally). PDR represents the affordances of a platform used to prevent or mitigate against the risk of self-disclosure. IDP represents the individual users' behaviour on a platform. The continuum comprises four quadrants:

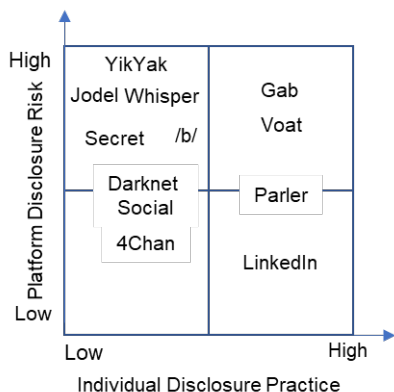


Figure 1: The Social Media Platform Anonymity Continuum

HighPDR-LowIDP: These are social media platforms where there is high risk associated with self-disclosure, particularly of identity. Consequently there are low levels of individual disclosure practice. These dark social platforms effectively discourage or prevent disclosure of individual identity.

LowPDR-LowIDP: In these dark/grey social media platforms, individuals are not prevented from self-disclosing identity. However, the risk of self-disclosure on these platform ranges from low to high. Platforms such as 4Chan/8Chan, and some dark web social networks may straddle this quadrant.

HighPDR-HighIDP: Here, users disclose identity regardless of the risk presented by these grey/clear social platforms. For example, Gab and Voat became so associated with alt-right, they attracted the attention of hackers [29], and were monitored by US government agencies [30]. Accordingly, these platforms carried reputational risk for participating users (and organisations). Parler sits on the boundaries.

LowPDR-HighIDP: This quadrant comprises mainstream / CSM (clearnet) social platforms. Accordingly, in characteristics of these featuring high disclosure practice and low platform disclosure risk.

III. CONCLUSION, IMPLICATIONS AND AVENUES FOR FUTURE RESEARCH

This paper critically evaluated the three categories of social media in extant scholarship - mainstream, alternative and dark social - based on their technical and cultural affordances. Consequently, we introduced and defined the concepts of dark social and grey social as part of a proposed spectrum that plots social media as clear, grey or dark. To aid our understanding of these categories, this paper proposed a social media anonymity continuum. This continuum should provide a basis to guide future research efforts to systematically examine, deconstruct, analyse and categorise social platforms along the clear-grey-dark spectrum in the context of the fluidity of two evolving dimensions in online social media: technical anonymity and social anonymity.

REFERENCES

- [1] C. T. Carr and R. Hayes, "Social media: Defining, developing, and divining". In: Atlantic journal of communication 23.1 2015, pp. 46–65.
- [2] A. M. Kaplan and M. Haenlein, "Users of the world, unite! The challenges and opportunities of Social Media". In: Business horizons 53.1 2010, pp. 59–68.

- [3] J. H. Kietzmann, K. Hermkens, I. P. McCarthy, and B. S. Silvestre, "Social media? Get serious! Understanding the functional building blocks of social media". In: Business horizons, 54.3 2011, pp.241-251.
- [4] G. T. Marx. "What's in a Name? Some Reflections on the Sociology of Anonymity". In: The information society 15.2 1999, pp. 99–112
- [5] F. Stutzman, R. Capra, and J. Thompson, "Factors mediating disclosure in social network sites". Computers in Human Behavior, 27.1 2011, pp.590-598.
- [6] M. Luo, and J. T. Hancock. "Self-disclosure and social media: motivations, mechanisms and psychological well-being". Current Opinion in Psychology, 31 2020, pp.110-115.
- [7] D. Correa, L. A. Silva, M. Mondal, F. Benevenuto, and K. P. Gummadi, "The many shades of anonymity: Characterizing anonymous social media content". In Ninth International AAAI Conference on Web and Social Media. 2015, April
- [8] P. Nowak, K. Jüttner, and K. S. Baran, "Posting content, collecting points, staying anonymous: An evaluation of Jodel". In International Conference on Social Computing and Social Media 2018, July. (pp. 67-86). Springer, Cham.
- [9] T. Sardá, S. Natale, N. Sotirakopoulos, and M. Monaghan, "Understanding online anonymity". Media, Culture Society, 41.4 2019, pp.557-564.
- [10] E. Jardine, "Tor, what is it good for? Political repression and the use of online anonymity-granting technologies". New media society, 20.2 2018, pp.435-452.
- [11] F. Thomaz, C. Salge, E. Karahanna, and J. Hulland, "Learning from the dark web: Leveraging conversational agents in the era of hyper-privacy to enhance marketing". Journal of the Academy of Marketing Science, 48.1 2020, pp.43-63.
- [12] T. Cinque, "The darker turn of intimate machines: dark webs and (post) social media". In: Continuum 35.5 2021, pp. 679–691.
- [13] R. W. Gehl, "Power/freedom on the dark web: A digital ethnography of the Dark Web Social Network". In: new media society 18.7 2016, pp. 1219–1235.
- [14] J. Zeng, and M. S. Schäfer, "Conceptualizing 'dark platforms'. Covid-19-related conspiracy theories on 8kun and Gab". Digital Journalism, 9.9 2021, pp.1321-1343.
- [15] R. W. Gehl, "The case for alternative social media". Social Media+ Society, 1.2 2015, p.2056305115604338.
- [16] J. A. Obar and S. S. Wildman, "Social media definition and the governance challenge-an introduction to the special issue". In: Telecommunications policy 39.9 2015, pp. 745–750.
- [17] Anonymous, "To reveal or not to reveal: A theoretical model of anonymous communication". In: Communication Theory 8.4 1998, pp. 381–407.
- [18] D. Zulli, M. Liu, and R. W. Gehl, "Rethinking the 'social' in 'social media': Insights into topology, abstraction, and scale on the Mastodon social network". New Media Society, 22.7 2020, pp.1188-1205.
- [19] R. Rogers, "Deplatforming: Following extreme Internet celebrities to Telegram and alternative social media". In: European Journal of Communication 35.3 2020, pp. 213–229.
- [20] K. Waltrorp, "Keeping cool, staying virtuous: social media and the composite habitus of young Muslim women in Copenhagen". MedieKultur: Journal of media and communication research, 31.58 2015, pp.49-67.
- [21] R. Wiid, P. Hurley, P. Mora-Avila, and J. Salmon, "Organisation-led engagement with consumers in hidden social spaces". Journal of Digital Social Media Marketing, 7.1 2019, pp.53-67.
- [22] X. Ma, J. Hancock, and M. Naaman, "Anonymity, intimacy and self-disclosure in social media". In Proceedings of the 2016 CHI conference on human factors in computing systems, May 2016, pp. 3857-3869.
- [23] C. V. Clark-Gordon, N. D. Bowman, A. K. Goodboy, and A. Wright, "Anonymity and online self-disclosure: A meta-analysis". Communication Reports, 32.2 2019, pp.98-111.
- [24] B. Guidi, A. Michienzi, and L. Ricci, "A graph-based socioeconomic analysis of steemit". IEEE Transactions on Computational Social Systems, 8.2 2020, pp.365-376.
- [25] Facebook, "Making Connections to Facebook more Secure". 2021 <https://www.facebook.com/notes/2655797467977351/> [retrieved: May, 2022].
- [26] A. Muffet, "This is possibly the most important and long-awaited tweet that I've ever composed. On behalf of @Twitter, I am delighted to announce their new @TorProject onion service" Twitter: <https://twitter.com/AlecMuffet/status/1501282223009542151>, 8 April [retrieved: May, 2022]

- [27] C. Page, "Twitter launches Tor service allowing users in Russia to bypass internet blocks". TechCrunch <https://techcrunch.com/2022/03/09/twitter-tor-bypass-blocks/> [retrieved: May, 2022].
- [28] W. F. Lawless, F. Angjellari-Dajci, D. A. Sofge, J. Grayson, J. L. Sousa, J.L. and L. Rychly, L, "A new approach to organizations: Stability and transformation in dark social networks". *Journal of Enterprise Transformation*, 1.4 2011, pp.290-322.
- [29] A. Greenberg, "Far-Right Platform Gab Has Been Hacked—Including Private Data," *Wired*, February 28, 2021, <https://www.wired.com/story/gab-hack-data-breach-ddosecrets/>. [retrieved: July, 2022]
- [30] C. M. Marcos, "Outcry over US Postal Service reportedly tracking social media posts," *The Guardian*, April 23, 2021, <https://www.theguardian.com/business/2021/apr/23/usps-covert-program-postal-service-social-media>. [retrieved: July, 2022].