SoK: Towards Collaborative Evidence Collection in Dark Patterns Enforcement

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Abstract— Dark patterns are manipulative, deceptive design practices deployed in online services aimed at influencing the decisions of users about their purchases, use of time, and disclosure of personal data. Further efforts are needed in both scholarship and enforcement to more effectively prevent the use of dark patterns with deeper sharing of expertise across both fields, but operationalizing such collaborations requires resolving interdisciplinary differences. In this project, we examine case-law and scholarly CS articles on dark patterns to directly compare the investigatory and evidentiary methods used by courts and scholars towards the purpose of improving collaboration across both fields.

Keywords—dark patterns, evidence, methods, interdisciplinary

I. MOTIVATION

Dark patterns are manipulative, deceptive design practices deployed in online services aimed at influencing the decisions of users about their purchases, use of time, and disclosure of personal data. Dark patterns hold a unique potential for influencing user behavior, undermining user agency [1], and disparately impacting vulnerable or disempowered communities [2, 3], among myriad other harms, across contexts. Dark patterns receive ample regulatory and otherwise legal attention from both existing and new laws (like the European Digital Services Act, Data Act, AI Act, and American CCPA) that attempt to prevent dark patterns, and an increasing body of agency and court cases [4-12] sanction the actors of such practices. Enforcement actions and penalties consists of a strong approach for dark patterns deterrence.

Some regulators actively use scientific evidence in their cases, like the French Data Protection Authority (CNIL) citing Nouwens et al. [13] in a case against Facebook or an industry study used to support sanctions against Google [5]. However, it is otherwise unclear to what extent scholarly methods and results can be factored into or more directly inform case law writ large. Increasing interactions between researchers and regulators in the effort to curb dark patterns online indicate deep interest in a collaborative exchange between disciplines [18]. Strengthening and operationalizing such collaborations – or identifying optimal or new avenues for collaboration -- requires a deeper understanding of how each field collects dark patterns evidence.

In this project, we examine investigatory methods and evidence used across CS (and related fields') scholarship and enforcement actions as presented in published research articles and decision documents, towards understanding the unique needs of both disciplines (academia and regulatory law), comparing and contrasting their methodologies, and identifying opportunities for greater collaboration and direct impact for both. We particularly focus on the types of evidence collected in scholarship and cases, using the definition of evidence from the Better Regulation Toolbox, 2023: 'evidence' refers to multiple sources of data, information and knowledge, including quantitative data such as statistics and measurements, qualitative data such as opinions, stakeholder input, conclusions of evaluations, as well as scientific and expert advice [14].

We are motivated by the following open questions in academic-regulatory collaboration against dark patterns:

1. To what extent do scholarship and law share investigatory methods for dark patterns? To what extent do they differ?
2. What investigatory methods can scholarship contribute to dark pattern enforcement and vice versa?
3. What are the operation constraints and incentives that potentially impact each field's investigatory approaches, and how might these be overcome for closer collaboration?

II. INTERDISCIPLINARY SYSTEMATIZATION OF KNOWLEDGE

To begin answering these questions, we seek to understand the state of dark patterns investigations across both fields. We thus turn to each field's body of knowledge on dark patterns. First, we use a centralized repository of several dozen dark patterns case decisions from *deceptive.design/cases* [15], spanning 27 unique jurisdictions worldwide, (e.g. EU Data Protection Authorities (DPAs), the US FTC, and consumer and competition

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authorities). Second, we begin with the CS scholarship document dataset compiled by Gray et al. [16] of 79 dark patterns-related studies from 2013 to 2022, then append recent work (2022-onward) to this list.

Our interdisciplinary team of human-computer interaction and legal scholars annotates these documents with open-coding methods [17] to enumerate different types of evidence and analysis techniques used in both datasets for identifying dark patterns. Specifically, we first code each document set separately. We categorize extant methods in dark patterns scholarship, and characterize the types of evidence obtained through these investigatory methods (for example, whether evidence was collected from real users or directly by researchers, on live platforms or simulated experiments, etc.). We simultaneously inspect enforcement case decisions from the EU and US in a similar fashion, articulating and characterizing to the best of our ability the types of evidence collected in these cases (as described by the final decision documents) and potential investigatory methods. Next, we iteratively code both datasets towards a unified taxonomy or mapping of investigatory methods, revealing overlap and where they deviate.

Early results reveal immediate differences and similarities that allude to operational quirks from each field.

References

[1] Arunesh Mathur, Mihir Kshirsagar, and Jonathan Mayer. 2021. What Makes a Dark Pattern... Dark? Design Attributes, Normative Considerations, and Measurement Methods. In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems. Association for Computing Machinery, New York, NY, USA, 1–18. https://dl.acm.org/doi/10.1145/3411764.3445610

[2] Federal Trade Commission. Bringing Dark Patterns to Light Staff Report. Technical Report. September 2022.

[3] Lorena Sánchez Chamorro. 2023. Disentangling Online Manipulation Strategies from the Perspective of Digital Inequalities. In Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (Hamburg, Germany) (CHI EA '23, Article 496). Association for Computing Machinery, New York, NY, USA, 1–4. https://dl.acm.org/doi/10.1145/3544549.3577060

[4] 2020. Délibération n. 2020-092 du 17 septembre 2020 portant adoption d'une recommandation proposant des modalités pratiques de mise en conformité en cas de recours aux « cookies et autres traceurs https://www.cnil.fr/sites/cnil/files/atoms/files/recommandation-cookies-et-autres-traceurs.pdf

[5] 2021. Deliberation of the restricted committee No. SAN-2021-023 of 31 December 2021 concerning GOOGLE LLC and GOOGLE IRELAND LIMITED.https://www.cnil.fr/sites/cnil/files/atoms/files/deliberation_of_the_restricted_committee_no._san-2021-023_of_31_december_2021_concerning_google_llc_and_google_ireland_limited.pdf

[6] 2021. Deliberation of the restricted committee No. SAN-2021-024 of 31 December 2021 concerning FACEBOOK IRELAND LIMITED https://www.cnil.fr/sites/cnil/files/atoms/files/deliberation_of_the_restricted_committee_no._san-2021-024_of_31_december_2021_concerning_facebook_ireland_limited.pdf

[7] 2022. Council of State Decision No 451423, reading of June 27, 2022. https://www.conseil-etat.fr/fr/arianeweb/CE/decision/2022-06-27/451423

[8] 2022. Délibération SAN-2022-025 du 29 décembre 2022. https://www.legifrance.gouv.fr/cnil/id/CNILTEXT000046907077

[9] 2022. Fortnite video game maker Epic Games to pay more than half a billion
dollars over FTC allegations of privacy violations and unwanted charges. https://www.ftc.gov/news-events/news/press-releases/2022/12/fortnite-video-game-maker-epic-games-pay-more-half-billion-dollars-over-ftc-allegations;https://www.ftc.gov/news-events/news/press-releases/2022/12/fortnite-video-game-maker-epic-games-pay-more-half-billion-dollars-over-ftc-allegations

[10] 2022. FTC action against Vonage results in $100 million to customers trapped by illegal dark patterns and junk fees when trying to cancel service. https://www.ftc.gov/news-events/news/press-releases/2022/11/ftc-action-against-vonage-results-100-million-customers-
trapped-illegal-dark-patterns-junk-fees-when-trying-cancel-service. https://www.ftc.gov/news-events/news/press-releases/2022/11/ftc-action-against-vonage-results-100-million-customers-trapped-illegal-dark-patterns-junk-fees-when-trying-cancel-serviceAccessed: 2022-11-4.

[11] 2023. FTC finalizes order requiring credit karma to pay $3 million and halt deceptive 'pre-approved' claims. https://www.ftc.gov/news-events/news/press-releases/2023/01/ftc-finalizes-order-requiring-credit-karma-pay-3-million-halt-deceptive-pre-approved-claims; https://www.ftc.gov/news-events/news/press-releases/2023/01/ftc-finalizes-order-requiring-credit-karma-pay-3-million-halt-deceptive-pre-approved-claims Accessed: 2023-1-24

[12] 023. Provvedimento prescrittivo e sanzionatorio nei confronti di Ediscom S.p.A.- 23 febbraio 2023 [9870014]. https://www.garanteprivacy.it/web/guest/home/docweb/-/docweb-display/docweb/9870014

[13] Midas Nouwens, Ilaria Liccardi, Michael Veale, David Karger, and Lalana Kagal. 2020. Dark Patterns after the GDPR: Scraping Consent Pop-ups and Demonstrat- ing their Influence. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (Honolulu, HI, USA) (CHI '20). Association for Computing Machinery, New York, NY, USA, 1–13. https://dl.acm.org/doi/10.1145/3313831.3376321

[14] European Commission Better regulation' toolbox – July 2023 edition, 2023, https://commission.europa.eu/system/files/2023-09/BR%20toolbox%20-%20Jul%202023%20-%20FINAL.pdf

[15] Deceptive.design. 2023. Cases. https://www.deceptive.design/cases

[16] Colin M Gray, Lorena Sánchez Chamorro, Ike Obi, and Ja-Nae Duane. 2023. Mapping the Landscape of Dark Patterns Scholarship: A Systematic Litera- ture Review. In Designing Interactive Systems Conference (DIS Companion '23) (Pittsburgh, PA, USA), Vol. 1. Association for Computing Machinery. https://dl.acm.org/doi/10.1145/3563703.3596635

[17] Colin M. Gray; Kou, Yubo; Battles, Bryan; Hoggatt, Joseph; Toombs, Austin L. The Dark (Patterns) Side of UX Design. Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (ACM CHI), pp. 534:1–534:14, ACM, Montreal, Canada, 2018.

[18] Federal Trade Commission of the United States. Bringing Dark Patterns to Light Staff Report. https://www.ftc.gov/system/files/ftc_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf. 2022.

[19] California Consumer Privacy Act of 2018 (CCPA), 2018. Available: https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?division=3.%5C&part=4.%5ClawCode=CIV%5C&title=1.81.5