UNIVERSITY OF CALIFORNIA, LOS ANGELES

# UNDERGRADUATE BUSINESS LAW REVIEW

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## ARTICLES



## COMMENT

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The UCLA Undergraduate Business Law Review (UBLR) is dedicated to fostering thoughtful, accessible dialogue at the intersection of business, law, and policy. We provide students with a platform to explore pressing legal and economic issues, share underrepresented perspectives and contribute to the broader conversation on how our institutions shape our business landscape and general society. UBLR is published semiannually (in the fall and the spring) entirely by students with hopes to empower the next generation of legal and business thinkers through research and collaboration. Inquiries into UBLR can be sent to uclaublr@gmail.com and copies of the editions are available on the Undergraduate Business Law Association (UBLA) website: uclaubla.com.

# Foreword

On behalf of the Editorial Board, I am excited to present the Fall 2025 edition of the *Undergraduate Business Law Review* at UCLA. The *Review* serves as a forum for rigorous legal analysis, examining how legal frameworks shape markets, institutions, and economic conditions. The selected pieces in this edition reflect that commitment, offering original legal scholarship that engages with questions at the intersection of business, regulation, and the broader economy.

The opportunity to spearhead the inaugural edition of the *Review* has been an incredible honor. From its inception, the *Review* has been guided by the diverse academic and professional interests of its editorial community, including backgrounds in banking, corporate finance, public service, and corporate law.

Founded at the end of the winter quarter in 2025 by members of the Undergraduate Business Law Association, the *Review* developed its editorial standards and practices throughout the spring quarter before opening its first submission cycle. We were grateful to receive a wide range of scholarly work, allowing us to curate a collection of articles that reflects both analytical depth and intellectual breadth.

The articles featured in this issue reflect the *Review's* commitment to examining legal questions that shape economic activity and institutional design. In *Shadow Libraries as Unregulated Infrastructure: Winners and Losers of the Open Access Movement*, Sean Rosskopf explores the legal and distributional consequences of informal knowledge systems. In *Classification Issues in Regulating Stablecoins*, Ellin Manoukian analyzes the regulatory challenges posed by emerging financial instruments. Finally, in *The "Significant Causal Connection" Standard and the Future of Structural Relief in Antitrust*, Henry Houser examines the evolution of antitrust enforcement and its implications for market structure.

I want to thank all of our contributors who began working on this edition in the summer and continued throughout the fall quarter, balancing the demands of the *Review* with their other academic and extracurricular commitments. Their dedication made this inaugural issue possible. We hope you enjoy these pieces and we want to thank you for your continued readership of the *Review*.

Sincerely,
Matthew Cherfane
Editor-in-Chief

# Shadow Libraries as Unregulated Infrastructure: Winners and Losers of the Open Access Movement

Written by Sean Rosskopf

*Article*

Edited by Campbell Willat and Gary Voigt

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## I. INTRODUCTION

The question of how society should treat knowledge, and more specifically who should control access to it, has persisted since the earliest days of American copyright law. At stake are not only the profits of publishers and the rights of authors, but also the public's ability to build upon existing works and contribute to the ongoing progress of science and the useful arts. Shadow libraries, generative artificial intelligence tools, and publishers are the latest actors to enter center-stage. The current moment is distinct because of the technologies involved: decentralized repositories of copyrighted works that cannot be eradicated through traditional enforcement efforts, and language models capable of generating human-like outputs that rival original works in form and function. These developments have forced a reexamination of the balance that copyright law has long sought between access and protection, progress and profit, the advancement of knowledge and the preservation of existing markets.

The purpose of this article is to situate these emerging conflicts within the broader history of copyright law, trace how the courts have handled questions of infringement in the context of shadow libraries and large language models, and consider what avenues remain available for authors and publishers seeking to protect their works. The stakes are substantial. If shadow libraries continue to proliferate, the publishing industry risks losing its ability to recoup the costs of producing, curating, and distributing knowledge. If large language models remain free to draw from the vast corpora of copyrighted works without limitation, the authors of those works may lose meaningful economic incentives. Yet it is also true that both shadow libraries and large language models represent significant shifts toward a greater democratization of knowledge. The question is not whether the law will adapt, but how; whether it can preserve a system that continues to reward authors while simultaneously ensuring the "progress of science and useful arts"[1] remains protected.

## II. HISTORY OF COPYRIGHT LAW IN THE UNITED STATES

The history of national copyright law in the United States stretches back to the Constitution. Though all states except Delaware had copyright statutes of their own prior to the Constitution's ratification, Article I Section 8 granted the federal

[1] *See* U.S. Const. art. I, § 8, cl. 8.

government the power to govern intellectual property. Article I Section 8 states, in pertinent part, "The Congress shall have power…To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." Known as the Intellectual Property Clause, this clause vested Congress with the power to govern copyrights and patents. It is unique in that the authors enumerated limitations on its protections within the clause, namely, on time and purpose.[2]

The first copyright law passed in the United States, the Copyright Act of 1790, qualified Article I Section 8 by limiting copyright protections to books, maps, and charts, and extending these protections for a limited term of fourteen years.[3] Early copyright law sought to balance two competing ideas: the right for producers of novel written material to exercise sole control over the sale and distribution of their work, and protections for those who unintentionally reproduced or redistributed novel written materials produced by others. Thus, a key factor in discerning whether an individual could be held liable for infringement was a defendant's mental state; whether a defendant knowingly reproduced copyrighted material was a determinative element when establishing culpability.[4]

Intent remained a factor in determining liability from 1790 until the passage of the Copyright Act of 1909.[5] The Copyright Act of 1909 was the first to omit this knowledge requirement,[6] and infringement became a matter of strict liability. The Act also broadened the scope of copyright protection by expanding protected works to "all writings of an author" and extending the duration of copyright to twenty-eight years with the possibility of an additional twenty-eight year renewal.[7] In 1931, the Supreme Court of the United States upheld the omission of the knowledge requirement when it ruled in *Buck v. Jewell-LaSalle Realty Co.* that "[i]ntention to infringe is not essential under the [1909] Act."[8]

The modern chapter of copyright law in the United States began with the passage of the Copyright Act of 1976. The Act marked a significant shift in

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[2] Intellectual Property Clause, Cornell Law School Legal Information Institute, https://www.law.cornell.edu/wex/intellectual_property_clause, (last visited Dec. 5, 2025).
[3] *See* Act of May 31, 1790, ch. 15, 1 Stat. 124 (Copyright Act of 1790).
[4] *See* R. Anthony Reese, Innocent Infringement in U.S. Copyright Law: A History, 30 Colum. J.L. & Arts 133 (2007).
[5] *Id*.
[6] Michael A. Foster, Mens Rea: An Overview of State-of-Mind Requirements for Federal Criminal Offenses, CRS Report R46836 (Cong. Research Serv. July 7, 2021).
[7] Copyright Act of 1909, Pub. L. No. 60-349, 35 Stat. 1075 (Mar. 4, 1909).
[8] *Buck v. Jewell-LaSalle Realty Co.*, 283 U.S. 191, 198 (1931).

copyright jurisprudence as the passage of time and the proliferation of mass media technologies, such as radio and television, exposed the need to reconsider existing copyright laws. Among the most consequential changes was the elimination of common law copyright under state law, which had retained significance due to the classification of certain works as falling outside the scope of federal copyright protection.[9] Prior to the Act, a dual system of copyright protection existed, with "publication" serving as the critical delineator—before general publication, works remained protected solely by state law, whereas federal copyright protection attached only upon publication.[10] The Act eliminated "publication" as a trigger for federal copyright protection:

> From the moment that the author's pen imprints words on foolscap, or the composer's pen makes musical markings on blank notation paper, or the artist puts brush and oil to canvas, the work has become in the constitutional sense a 'Writing' and is, pursuant to the 1976 Act, covered by federal copyright-with federal court jurisdiction, federal substantive rules and federal remedies-and state law equivalent to copyright is completely ousted from operation.[11]

In addition to establishing broad federal preemption of state copyright laws, the Copyright Act of 1976 explicitly referenced the concept of "fair use" for the first time in the history of federal copyright legislation.[12] Instances in which fair use applied were to be determined using the four factors outlined in the United States Supreme Court's ruling in *Folsom v. Marsh* (1841), which were codified in the Copyright Act of 1976:[13]

> (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
>
> (2) the nature of the copyrighted work;
>
> (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
>
> (4) the effect of the use upon the potential market for or value of the copyrighted work.[14]

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[9] Robert A. Gorman, Overview of the Copyright Act of 1976, 126 U. Pa. L. Rev. 856, 859–63 (1978).
[10] *See Caliga v. Inter Ocean Newspaper Co.*, 215 U.S. 182, 188 (1909) (explaining that unpublished works were protected under state common law prior to federal statutory copyright).
[11] Gorman, Overview of the Copyright Act of 1976, at 873.
[12] Pierre N. Leval, Toward a Fair Use Standard, 103 Harv. L. Rev. 1105 (1990).
[13] *Folsom v. Marsh*, 9 F. Cas. 342 (C.C.D. Mass. 1841) (No. 4,901).
[14] 17 U.S.C. § 107 (2011).

Though the courts have consistently held that a "bright-line" standard cannot exist, they have adopted an operative standard based "on whether, and to what extent, the challenged use is transformative."[15] There has been a particular emphasis on the fourth factor, which has been identified as the most important element for courts to
consider in findings of fair use.[16] Due to the nature of copyright as a body of law that seeks to encourage the development of new ideas while also protecting the free exchange of ideas and information, the courts have maintained that preserving the primary incentive for authorship—the resulting work's market value—is of the utmost importance when considering the applicability of fair use. However, there are instances in which it is permissible to use copyrighted works while reaping economic benefits. For example, in cases where new works do not substantially diminish the original work's value in the markets it occupies, fair use may be established. "[W]hen…the second use is transformative, market substitution is at least less certain, and market harm may not be so readily inferred. …[T]he parody and the original usually serve different market functions."[17]

Roughly two decades after the Copyright Act of 1976 was passed, the Digital Millennium Copyright Act of 1998 ("DMCA") again adapted copyright law to new technologies. In light of the development of the internet, the legislature saw a need to both expand upon existing copyright laws and ground copyright law in the age of digitization. The DMCA's significance is threefold; it shields online service providers from liability when users engage in infringement, protects digital works by deeming unauthorized access of these works illegal, and outlaws misrepresenting copyright information and removing this information in certain instances.[18] The DMCA's provisions surrounding access become particularly significant when investigating the legality of shadow libraries and their acquisition of copyrighted materials, as will be discussed further.

For the purposes of this article, it is also critical to note the role that *Authors Guild, Inc. v. Google, Inc.* (2015) played in clarifying the bounds of "transformative use" as it pertains to digital content. The suit was brought by the plaintiffs to challenge Google's creation of a digital library database using copyrighted books, which allows users to employ "search" and "snippet view" functions. The plaintiffs

[15] Leval, Toward a Fair Use Standard.
[16] *See Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 566 (1985).
[17] *See Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 591 (1994).
[18] Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860 (1998); *see also* U.S. Copyright Office, The Digital Millennium Copyright Act, https://www.copyright.gov/dmca/.

claimed that Google's digital copying of their works to develop a system which allowed users to reproduce portions of copyrighted material through the "search" and "snippet view" functions constituted infringement, and also believed they had "a derivative right in the application of search and snippet view functions to their works, and that Google has usurped their exclusive market for such derivatives."[19] The Court of Appeals for the Second Circuit found that Google's use of copyrighted works to create these functions was lawful, ruling that the digital library was transformative in nature and that its existence provided "otherwise unavailable information about the originals."[20] The court's discussion of the fourth factor was particularly notable. The court found that Google's digital library does not pose any significant threat to the authors' market share as a result of steps taken by Google to ensure no substantial portions of a book could be reproduced using the "search" and "snippet view" functions.[21] They also found that even in limited instances where the snippet function allowed users to glean pieces of information from books, this information was likely to be factual in nature – meaning users would not be copying authors' original and creative expression but would instead be copying facts, which are not protected by copyright.[22] This analysis of the fourth factor has become critical in later cases involving large language models ("LLMs") trained using copyrighted works.

## III. HISTORY OF SHADOW LIBRARIES

Shadow libraries are file-sharing systems built to host copyrighted materials, which can be accessed and downloaded by anyone.[23] The world's largest shadow libraries, which include Library Genesis ("LibGen") and Sci-Hub, were built primarily to host scholarly works and "represent a 'bottom-up' approach to open access: a physical approximation of the Platonic ideal of knowledge sharing in academia that would exist if there were no legal, economic, or institutional barriers to the circulation of scholarly knowledge."[24] These libraries have grown to include

[19] *Authors Guild, Inc. v. Google, Inc.*, 804 F.3d 202, 223–24 (2d Cir. 2015).
[20] *Id*. at 217.
[21] *Id*. at 223–25.
[22] *Id*. at 225–26.
[23] *See* Balázs Bodó, Dániel Antal & Zoltán Puha, Open Access Is Not a Panacea, Even If It's Radical—An Empirical Study on the Role of Shadow Libraries in Closing the Inequality of Knowledge Access, SSRN Scholarly Paper No. 3628326 (2020), https://ssrn.com/abstract=3628326.
[24] *Id*. at 3.

millions of books and articles. Works are added to shadow libraries through user uploads, web scraping efforts,[25] and peer library mirroring.[26]

Shadow libraries operate using a master collection of files hosted across multiple servers. Volunteers may copy the master collection, as well as its underlying metadata and code, to create a "mirror." Each mirror may then be deployed to a new domain (.is, .ru, .ls, etc.), creating multiple "points of entry" to the collection and shielding the collection from takedown efforts. Proxies are also used by shadow libraries. Proxies maintain user and host anonymity, and allow users to access domains from countries which have blocked or restricted access to libraries. In addition to supporting mirroring and proxying efforts, volunteers can choose to archive portions of shadow libraries' collections locally and then "seed" them elsewhere, meaning that users who have downloaded files redistribute them to others through peer-to-peer file-sharing networks. This complex web is designed to maintain anonymity, and makes both direct takedown efforts of shadow libraries and legal action against library operators practically impossible.

Digital libraries have existed online for decades. Project Gutenberg, widely considered the first digital library, used the Arpanet—a predecessor of the Internet—to make public domain works accessible in 1971.[27] The development of digital media repositories continued throughout the remainder of the 20th century, and a number of shadow libraries began to materialize. Many started cataloguing their works using a system still employed by shadow libraries today; these libraries "maintained a bifurcated structure, in which the catalog serves as a platform for searching, organizing, and community engagement, while the actual texts are hosted elsewhere."[28] However, as the size of shadow library collections grew through the early 2000s publishers began to take note. Several of the largest publishing houses obtained an injunction from a German court against the largest of these libraries, Gigapedia/Library.nu, for copyright infringement in 2012.[29]

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[25] *See* Columbia Univ. Mailman Sch. of Pub. Health, Web Scraping, https://www.publichealth.columbia.edu/research/population-health-methods/web-scraping (defining "web scraping").
[26] *See* SNIA, What Is Mirroring?, https://www.snia.org/education/what-is-mirroring (defining "mirroring").
[27] *See* Joe Karaganis ed., *Shadow Libraries: Access to Knowledge in Global Higher Education*, 3–4 (MIT Press 2018).
[28] *Id*. at 53.
[29] Ernesto Van der Sar, Book Publishers 'Shut Down' Library.nu and iFile-it, TorrentFreak (Feb. 15, 2012), https://torrentfreak.com/book-publishers-shut-down-library-nu-and-ifile-it-120215/ (last visited Dec. 5, 2025).

Though the Library.nu site was shut down, its text archive was maintained through the Library Genesis ("LibGen") shadow library.[30] However, LibGen was not just a repository for Library.nu's collection; it developed as its own free-standing shadow library with a commitment to open access which set it apart from other large libraries at the time. LibGen's focus was "the distribution of its own library infrastructure, including its source code, catalog, and terabyte-sized collection to anyone who wants to start his or her own library."[31] Unlike many other libraries at the time, LibGen's content was not placed behind a paywall and access was not restricted; in fact, users were encouraged to contribute to the library's collection and share its contents with others. This commitment to open access echoed sentiments enumerated in Aaron Swartz's "Guerrilla Open Access Manifesto,"[32] a seminal figure in the open access movement who called upon those with access to content paywalled by large publishing companies to practice civil disobedience by sharing this content with others.

As LibGen grew to include many terabytes of data, its large database and its status as an entirely open access library made it an attractive base upon which other shadow libraries could be constructed. Z-Library was among these; the site rapidly grew due to its ease of use, and what began as a mirror of LibGen quickly became recognized as a force in the world of shadow libraries.[33] Another shadow library which grew in popularity following the rise of LibGen was Sci-Hub, a site created in 2011 by a graduate student from Kazakhstan named Alexandra Elbakyan. Sci-Hub's use of a novel data collection framework is evidence of the black open access movement's continued willingness to evolve; instead of relying on users to upload works to their databases, Sci-Hub "uses donated library credentials of contributors to circumvent publishers' paywalls and thus downloads large parts of their collections."[34] The site is also unique because its operator has made herself known to the public; by doing so, Elbakyan has made herself uniquely vulnerable to legal action. This became evident when Elsevier, a large publishing company, filed a

[30] *See* Karaganis ed., *Shadow Libraries*.
[31] *Id.* at 27.
[32] *See* Aaron Swartz, *Guerrilla Open Access Manifesto* (July 2008), https://ia800101.us.archive.org/1/items/GuerillaOpenAccessManifesto/Goamjuly2008.pdf (last visited Dec. 5, 2025).
[33] Callum Booth, The Pirate Library Mirror Wants to Preserve Human Knowledge…Illegally, The Next Web (Jul. 4, 2022), https://thenextweb.com/news/pirate-library-mirror-wants-to-preserve-human-knowledge-illegally (last visited Dec. 5, 2025).
[34] Bastian Greshake, Looking into Pandora's Box: The Content of Sci-Hub and Its Usage, 6 F1000Research 541, 542 (2017), https://pmc.ncbi.nlm.nih.gov/articles/PMC5428489/pdf/f1000research-6-12270.pdf.

lawsuit on June 3, 2015 in the Southern District of New York which named Sci-Hub and Elbakyan as defendants.[35]

As "flagship" shadow libraries like LibGen, Sci-Hub, Z-Library, and Anna's Archive grew both in size and popularity, publishing companies redoubled their efforts to prevent infringement. However, while early legal actions against shadow libraries initially appeared to be effective[36] it quickly became clear that publishers were locked in a perpetual game of whack-a-mole. As will be discussed further, actions against both site operators and shadow libraries themselves have proven to be ineffective methods of enforcement. Site operators are able to maintain their anonymity and shadow libraries themselves can continue to operate even after domain takedowns due to the decentralized file-sharing techniques employed by these libraries.[37] Copyright holders have recognized this, and as a result they have turned their attention to an ever-growing class they view as secondary infringers: developers of generative AI tools.

## IV. LARGE LANGUAGE MODEL TRAINING

To understand why tech companies have entered the crosshairs of publishers' legal departments, it's important to first understand the significance of large language models (LLMs) and how they operate.[38] LLMs function by recognizing and replicating patterns found in training data, enabling them to learn "grammar, facts, context, and even some degree of reasoning."[39] This method of language acquisition is known as "distributional semantics"; it is based upon the distributional hypothesis as described by Zellig S. Harris in 1954, wherein words are defined by their relationship to other words in a corpus.[40] Academics applied the concept of distributional semantics to language model training, and discovered that it served

[35] *See Elsevier Inc. v. Sci-Hub*, No. 1:15-cv-04282 (S.D.N.Y. filed June 3, 2015), https://www.courtlistener.com/docket/4355308/1/elsevier-inc-v-sci-hub/.
[36] Ernesto Van der Sar, Book Publishers 'Shut Down' Library.nu and iFile-it, TorrentFreak.
[37] *See* Stewart Manley, On the Limitations of Recent Lawsuits Against Sci-Hub, OMICS, ResearchGate, and Georgia State University, 32 *Learned Publ'g* 375 (2019).
[38] *See* Sean Rosskopf & Olivia Nguyen, Digital Age of Democracy: A Sentiment Analysis of 2020 U.S. Presidential Election Posts on X (Dec. 12, 2024) (unpublished final paper, COMM 188C: Natural Language Processing for Social Science, Univ. of Cal., Los Angeles)
[39] *See* Stanford Univ. Univ. IT, AI Demystified: Introduction to Large Language Models, https://uit.stanford.edu/service/techtraining/ai-demystified/llm (last visited Dec. 5, 2025).
[40] Zellig S. Harris, Distributional Structure, 10 *Word* 146 (1954).

as an effective language acquisition technique.[41] Though modern language models employ more complex transformer model architectures and token embedding systems, the fundamental system of language acquisition remains the same—the meaning of a given token[42] is defined by the context in which it appears.

For language models to learn in what context different tokens appear, they must be provided with training corpora. Datasets used to train LLMs are incredibly large and continue to grow; ChatGPT 3.5 was trained using 45 terabytes of data, while ChatGPT 4 was trained using over twenty times that amount, or roughly 1 petabyte in total.[43] It's important to note that the *quality* of this training data can have a noticeable impact on model performance. As a result, researchers have sought to collect as much high-quality training data as possible. Some have even turned to LLMs, using existing models to generate synthetic data which mimics high-quality data when original high-quality data is unavailable or difficult to acquire.[44] Meta and Anthropic turned to shadow libraries,[45] and it is quite possible that other generative artificial intelligence companies have done the same.

## V. DEVELOPERS' LIABILITY

It comes as no surprise that lawsuits against shadow libraries are somewhat common. It is also unsurprising that courts have repeatedly ruled against shadow libraries in infringement cases.[46] When granting a motion for preliminary injunctions against Sci-Hub and its co-defendants, the court found that Elsevier was

[41] Scott Deerwester, Susan T. Dumais, George W. Furnas, Thomas K. Landauer & Richard Harshman, Indexing by Latent Semantic Analysis, 41 *J. Am. Soc'y for Info. Sci.* 391 (1990).
[42] *See* Microsoft, Understanding Tokens, Microsoft Learn, https://learn.microsoft.com/en-us/dotnet/ai/conceptual/understanding-tokens (last visited Dec. 5, 2025) (defining tokens as "words, character sets, or combinations of words and punctuation that are generated by large language models (LLMs) when they decompose text").
[43] S. Casey Laizure, Caution: ChatGPT Doesn't Know What You Are Asking and Doesn't Know What It Is Saying, 29 *J. Pediatr. Pharmacol. Ther*. 558 (2024)
[44] Elliot Dauber & Sahit Dendekuri, Data Generation for NLP Classification Dataset Augmentation: Using Existing LLMs to Improve Dataset Quality (Stanford Univ. CS224N Custom Project, unpublished manuscript).
[45] *See* Alex Reisner, The Unbelievable Scale of AI's Pirated-Books Problem, Atlantic (Mar. 2025), https://www.theatlantic.com/technology/archive/2025/03/libgen-meta-openai/682093/ (last visited Dec. 5, 2025); *see also Bartz v. Anthropic*, PBC, No. 3:23-cv-06087 (N.D. Cal. filed Nov. 20, 2023).
[46] *See* Quirin Schiermeier, U.S. court grants Elsevier millions in damages from Sci-Hub, *Nature* (June 22, 2017), https://doi.org/10.1038/nature.2017.22196; Andrea Widener, ACS Prevails Over Sci-Hub in Copyright Suit, *Chem. & Eng'g News* (Nov. 7, 2017), https://cen.acs.org/articles/95/i45/ACS-prevails-over-Sci-Hub.html; *Cengage Learning, Inc. v. Library Genesis*, No. 23-cv-08136 (CM), Default Judgment, Permanent Injunction, and Post-Judgment Relief Order (S.D.N.Y. Sept. 24, 2024)

"likely to succeed on the merits, and that it continues to suffer irreparable harm due to the Defendants' making its copyrighted material available for free."[47] The court also found that "Defendants cannot be legally harmed by the fact that they cannot continue to steal the Plaintiff's content, even if they tried to do so for public-spirited reasons."[48] While Elbakyan claimed that the public good brought by black open access publishing outweighed any harm done to copyright holders, the court disagreed. The court found that Elbakyan's solution to the access issues she identified was unjustified, and that publishing is indeed a "delicate ecosystem" which is jeopardized by continued black open access.[49] The court also explained that the idea/expression dichotomy and the fair use doctrine would serve the public interest while not infringing upon the rights of copyright holders, and that the existence of these exceptions in conjunction with the damage to the publishing ecosystem led the court to find the public interest favored an injunction.[50] Ultimately, the court did not hesitate to find that shadow libraries infringe upon the rights of copyright holders when the public interest is not taken into consideration; and, even when the public interest *is* considered, traditional arguments made by shadow library operators in favor of the merits of shadow libraries do not hold up when weighed against the arguments for maintaining the *status quo* of the publishing ecosystem.

While plaintiffs have faced little difficulty in achieving favorable rulings in cases against shadow libraries, enforcement efforts are unlikely to succeed.[51] Aside from the immediate difficulty of collecting damages from defendants, plaintiffs also face the threat of "viral infringement"—wherein copyrighted content shared by shadow libraries is "transmitted and retransmitted by third parties" even after takedown efforts.[52] There is certainly reason for concern; shadow libraries facing legal action have repeatedly been absorbed by other libraries, as was the case when Library.nu was shut down in 2012 and its collection was absorbed by LibGen[53] and when Anna's Archive partnered with Z-Library following the U.S. government's

[47] *Cengage Learning*, No. 23-cv-08136 (CM), at 11.
[48] *Id*. at 12.
[49] *Id*. at 13–14.
[50] *Id*. at 15.
[51] *See* Schiermeier, U.S. Court Grants Elsevier Millions; Widener, ACS Prevails Over Sci-Hub; Ernesto Van der Sar, U.S. Court Orders LibGen to Pay $30m to Publishers, Issues Broad Injunction, TorrentFreak (Sept. 25, 2024), https://torrentfreak.com/u-s-court-orders-libgen-to-pay-30m-to-publishers-issues-broad-injunction-240925/ (last visited Dec. 5, 2025).
[52] *Elsevier Inc. v. Sci-Hub*, 15 Civ. 4282 (RWS), 2015 WL 4529476, at 10 (S.D.N.Y. Oct. 30, 2015).
[53] *See* Karaganis ed., Shadow Libraries.

takedown of the site.[54] The web of shadow libraries appears to be growing continuously, and it seems unlikely that current enforcement efforts will have any noticeable effect on the proliferation of the black open access movement.

As a result, plaintiffs have pursued actions against generative AI companies that employ shadow library corpora to train their model. However, only one plaintiff has been successful thus far in "the primary district court decisions on whether Large Language Model (LLM) training is fair use"[55] and the ruling is yet to be finalized as the defendant has made an interlocutory appeal.[56]

The transformativeness of the end product and the end product's capacity to compete with the original works of plaintiffs seem to be the focus of the courts' decisions. In all three primary decisions noted by White & Case, fair use factors one and four were decided in favor of the prevailing party. In *Thomson Reuters Enterprise Centre GMBH v. Ross Intelligence Inc.*, the court ruled in favor of the plaintiff, Thomson Reuters, on factor one after finding that Ross' use of WestLaw's copyrighted headnotes to train its non-generative AI model was not transformative because "Ross took the headnotes to make it easier to develop a competing legal research tool"—*not* to create something novel.[57] Unsurprisingly, the court also ruled in favor of the plaintiff on factor four, the "single most important element of fair use,"[58] after finding that Ross was designed to compete directly with WestLaw. Additionally, the issue of derivative markets was relevant since the court ruled that Ross' use of the plaintiff's copyrighted material was not transformative – on this issue, the court ruled that Ross had not put forth facts showing that derivative markets for WestLaw's copyrighted material "do not exist and would not be affected."[59] The court in *Bartz v. Anthropic* distinguished between Anthropic's use of copyrighted material to train LLMs and its use of copies of copyrighted material to build a central library. Here I will focus on the use of copyrighted material to train

[54] Ernesto Van der Sar, "Anna's Archive" Opens the Door to Z-Library and Other Pirate Libraries, TorrentFreak (Nov. 19, 2022), https://torrentfreak.com/annas-archive-opens-the-door-to-z-library-and-other-pirate-libraries-221118/ (last visited Dec. 5, 2025).
[55] *See* Mark Davies & Henry Y. Huang, Two California District Judges Rule That Using Books to Train AI Is Fair Use, White & Case (July 9, 2025), https://www.whitecase.com/insight-alert/two-california-district-judges-rule-using-books-train-ai-fair-use (last visited Dec. 5, 2025).
[56] *Thomson Reuters Ctr. GmbH v. Ross Intelligence Inc.*, No. 25-8018, slip op. at 1 (3d Cir. June 17, 2025) (order granting petition for permission to appeal under 28 U.S.C. § 1292(b)).
[57] *Thomson Reuters Enter. Ctr. GmbH v. Ross Intel. Inc.*, No. 1:20-cv-613-SB, Mem. Op. at 19 (D. Del. Feb. 11, 2025).
[58] *Harper & Row*, 471 U.S. at 566.
[59] *Thomson Reuters*, Mem. Op. at 22.

LLMs, and in this case the court also ruled in favor of the prevailing party on factors one and four. In deciding the first factor, the court ruled in favor of Anthropic and found "the 'purpose and character' of using works to train LLMs was transformative—spectacularly so."[60] The court also ruled in favor of Anthropic when deciding the fourth factor, stating "[t]he copies used to train specific LLMs did not and will not displace demand for copies of Authors' works, or not in the way that counts under the Copyright Act."[61] It is important to note the parties agreed that Anthropic's Claude models do not reproduce exact or infringing copies of the plaintiffs' works; had this been at issue, "this would be a different case."[62] The plaintiffs did attempt to argue that training LLMs would result in the production of competing works; however, this argument was dismissed by the court ("Authors' complaint is no different than it would be if they complained that training schoolchildren to write well would result in an explosion of competing works. This is not the kind of competitive or creative displacement that concerns the Copyright Act"[63]). Since the court deemed Anthropic's LLMs transformative, arguments the plaintiffs made related to derivative markets for LLM training material also failed.

The fact pattern of the most recent case mirrors that of *Bartz v. Anthropic*. In *Kadrey v. Meta*, authors sued Meta for downloading their works and using them to train their Llama models.[64]

However, arguments made by the plaintiffs in *Kadrey* differed from those made by the plaintiffs in *Bartz*. While both claimed loss in derivative markets, the plaintiffs in *Kadrey* did not settle the reproduction issue and focused on the potential for Meta's models to reproduce copyrighted material from their works. Both arguments failed spectacularly, particularly the argument related to reproduction ("Llama will not produce more than 50 words of any of the plaintiffs' books"[65]). The court acknowledged that the plaintiffs' arguments were misplaced in its order ("these plaintiffs made the wrong arguments and failed to develop a record in support of the right one"[66]) and that the defendant's conduct will likely be found to be infringing in

[60] *Bartz v. Anthropic, PBC*, No. 3:24-cv-05417-WHA, Order on Fair Use, Doc. No. 231 at 11 (N.D. Cal. June 23, 2025).
[61] *Id*. at 28.
[62] *Id*. at 28.
[63] *Id*. at 28.
[64] *See Kadrey v. Meta Platforms, Inc.*, No. 23-cv-03417-VC, Order Denying Plaintiffs' Motion for Partial Summary Judgment and Granting Defendant's Cross-Motion for Partial Summary Judgment (N.D. Cal. June 25, 2025).
[65] *Id*. at 18.
[66] *Id*. at 5.

other instances ("This case presents the question whether such conduct is illegal. Although the devil is in the details, in most cases the answer will likely be yes"[67]).

The court ruled in favor of the defendant on factor one, affirming the *Bartz* court's interpretation of LLM development as "highly transformative" and standing by its decision even after considering Meta's substantial financial interest in the development of its Llama models.[68] The finding that LLM development is highly transformative is unlikely to change. The consideration of Meta's financial interest in this court's ruling further bolsters arguments in favor of the highly transformative nature of LLMs. Thus, it is likely that courts will continue to rule in favor of defendants on this issue. However, as the court notes there exists " no rule that when your use of a protected work is 'transformative,' this automatically inoculates you from a claim of copyright infringement."[69]

The fourth factor continues to be the most important in determining infringement; the *Kadrey* court even criticized the *Bartz* court's dismissal of concerns related to market harm ("using books to teach children to write is not remotely like using books to create a product that a single individual could employ to generate countless competing works with a miniscule fraction of the time and creativity it would otherwise take"[70]). In its preamble, the court leaves open the possibility that substantial market harm could be found depending on what type of work is used to train LLMs. For example, the market for biographies and magazines may be highly impacted, while the market for autobiographies may not be substantially affected because these works generally rely on the notoriety of their authors for market success.[71] The plaintiffs' failure to present evidence in support of this argument is likely what torpedoed their case ("the plaintiffs' presentation is so weak that it does not move the needle, or even raise a dispute of fact sufficient to defeat summary judgment"[72]). Instead, their focus on direct reproduction and potential derivative market harm failed to be effective arguments in opposition to Meta's fair use claim and the court ruled in favor of Meta on factor four. So, while arguments based on market competition and dilution could be effective in future cases the court was forced to rule in favor of Meta based on the record of the case presented before it.

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[67] *Id*. at 1.
[68] *Id*. at 16.
[69] *Id*. at 3.
[70] *Id*. at 3.
[71] *Id*. at 2.
[72] *Id*. at 26.

## VI. POTENTIAL FUTURE ARGUMENTS IN FAVOR OF PLAINTIFFS

Several arguments are available to copyright holders in infringement claims against LLM developers. For this analysis, potentially infringing activities will be broken down into three categories: acquisition, model input, and model output.

### A. Acquisition

The way in which defendants have acquired plaintiffs' copyrighted works will likely be increasingly relevant in future fair use analyses, as the courts have left open the possibility of ruling in favor of plaintiffs if they are able to show that a defendant's acquisition of copyrighted material from an illegal provider materially benefitted the illegal provider. Plaintiffs have attempted to argue broadly that, because their works were downloaded from illegal shadow library sites, defendants must be held liable for copyright infringement. The plaintiffs in *Kadrey* made this argument, claiming that Meta's downloading of their books and use of their books to train their models must be considered separately and that since Meta downloaded their books from shadow libraries the court must rule in their favor. While the *Kadrey* court dismissed this argument on the basis that these issues cannot be considered separately and that "[b]ecause Meta's ultimate use of the plaintiffs' books was transformative, so too was Meta's downloading of those books,"[73] the court also noted that if an LLM developer's downloading of copyrighted works from shadow libraries "benefited those libraries or their other users" this would be "relevant to the fourth factor."[74] Therefore, if plaintiffs can show that either (1) a defendant knowingly enabled end users to generate infringing content through their acquisition and use of copyrighted material to train a model or (2) a defendant's "downloading materially contributed to the shadow libraries' own infringement," then the defendant "could potentially be liable as a contributory infringer."[75]. Plaintiffs' claims that Microsoft and OpenAI acted as contributory infringers under a theory of material contribution survived a motion to dismiss, indicating that this is one possible argument authors could make against defendants' fair use claims.[76]

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[73] *Id*. at 21.
[74] *Id*. at 36.
[75] *Id*. at 21 n.8.
[76] *See The New York Times Co. v. Microsoft Corp.*, Nos. 23-cv-11195 (SHS), 24-cv-3285 (SHS), 24-cv-4872 (SHS), slip op. (S.D.N.Y. Apr. 4, 2025).

Returning to the issue of Anthropic's creation of a "central library" using books acquired from shadow libraries as discussed briefly in a previous section, the court ruled that "Anthropic had no entitlement to use pirated copies for its central library"[77] and subsequently ruled against a finding of fair use for this purpose. Thus, determining that developers have acquired copyrighted material from a shadow library for a non-transformative purpose is another argument copyright holders can use to combat fair use claims. Furthermore, copyright holders may be successful in arguing developers have committed contributory infringement under a theory of material contribution if they are able to show that developers' acquisition of copyrighted material substantially benefitted a primary infringer in some material way, *even if* the use was transformative.

B. Model Input

So far, the courts have been quite clear that using copyrighted works as input material for generative AI model training is permissible since the creation of a generative AI model is transformative. Copyright holders in Bartz made three arguments against the transformativeness of model inputs: (1)model training is akin to teaching a human using their works, so copyright holders should be able to control who (or what) is "taught" with them; (2) Anthropic's model memorized the "creative elements" of their works and therefore, regardless of whether the model reproduces those creative elements as outputs, should be considered in violation of their rights; and (3) "computers nonetheless should not be allowed to do what people do."[78] The court dismissed all of these claims.

The *Kadrey* court's findings were nearly identical. The court agreed that expression is the only copyrightable element of a work, and that "Meta's use of the plaintiffs' books had a 'further purpose' and 'different character' than the books…it was highly transformative."[79] Though the court dismissed the *Bartz* court's notion that model training is synonymous with teaching people, this ultimately led to a stronger argument in favor of the defendant ("Meta's copying has the potential to exponentially multiply creative expression in a way that teaching individual people does not"[80]).

[77] *Bartz*, at 9.
[78] *Id*. at 12–13.
[79] *Kadrey*, at 16.
[80] *Id*. at 17.

Though it is true that training material acquisition, model input, and model output cannot be considered wholly in isolation from one another, it appears that the courts consider the *act* of training a generative AI model to be highly transformative and in advancement of access to creative expression—making it protected by fair use. Even where the "human learner" analogy fails, the courts recognize that generative AI is not trained to simply regurgitate the works of an author. While an author's style or tone may be replicated by a model, their *expression* (what is actually copyrighted) is not. Therefore, authors are unlikely to be successful in arguing that the process of training a generative AI model is in violation of copyright law.

C. Model Output

A direct reproduction of copyrighted material within a model's output is perhaps the most straightforward path to successful copyright litigation for plaintiffs, should developers' attempts to implement guardrails preventing the generation of copyrighted material fail (or should these guardrails be absent from generative AI models altogether). However, developers are aware of this and have been very careful to avoid creating models that reproduce copyrighted material freely. For example, when tested by expert witnesses using prompt injection[81] Meta's Llama model stood up to rigorous adversarial prompting[82], only reproducing a maximum of 50 words from copyrighted texts.[83]

Yet there is still no way to completely prevent prompt injections, and LLMs remain universally vulnerable to these attacks.[84] The question then becomes whether protection against copyright infringement over the course of normal model use is sufficient; in this instance, assuming any edge-case infringement has a

[81] *See* Matthew Kosinski & Amber Forrest, What Is a Prompt Injection Attack?, IBM Think, https://www.ibm.com/think/topics/prompt-injection (last visited Dec. 5, 2025) (defining "prompt injection" as "a type of cyberattack against large language models (LLMs). Hackers disguise malicious inputs as legitimate prompts, manipulating generative AI systems (GenAI) into leaking sensitive data, spreading misinformation, or worse").
[82] *See* Bryan Clark, Adversarial prompting - Testing and strengthening the security and safety of large language models, IBM Developer, https://developer.ibm.com/tutorials/awb-adversarial-prompting-security-llms/ (last visited Dec. 5, 2025) (defining "adversarial prompting" as "a wide variety of prompt injections made by an adversary. These prompt injections, or injection attacks, target various vulnerabilities within black-box LLMs").
[83] *Kadrey*, at 12.
[84] *See* Jingwei Yi et al., Benchmarking and Defending Against Indirect Prompt Injection Attacks on Large Language Models, in *Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining* 1809 (2025), https://doi.org/10.1145/3690624.3709179

negligible effect on the market for the original works used to train the model, it remains difficult to imagine a situation in which the courts would rule against developers.

Though models are unlikely to directly reproduce copyrighted material, it is quite possible that plaintiffs *will* find some success in arguing that content generated by models will harm the market for originals through a process called "market dilution" (i.e. devaluing the original work via the production of a wealth of similar works).[85] The *Kadrey* court expounded upon this theory of indirect substitution, clarifying that some works would likely be more at risk of harm via indirect substitution than others.[86] While the *Kadrey* plaintiffs failed to develop a favorable record on this argument, the court made it clear that market dilution is not only a viable argument but is one that will likely be successful in future cases.[87]

## VII. CONCLUSION: FUTURE OF SHADOW LIBRARIES, LLMS, KNOWLEDGE ACCESS

When the Framers of the Constitution vested in Congress the power "To promote the Progress of Science and useful Arts" through the protection of intellectual property, they created a scale: on one side, the interests of those who strive to advance knowledge, and on the other, the interests of those who have already contributed to it. Over time, Congress and the courts have adjusted this scale to account for new technologies, from radio and television to the internet and now artificial intelligence. Yet the balance is never perfect. The courts themselves have admitted that no "bright-line" standard is possible in copyright law because the fundamental task is one of weighing competing interests in the face of ever-shifting technological realities.

Today, that scale tilts between two sides. On one side are developers of large language models, whose technologies contribute to the corpus of human knowledge by making information more accessible, more analyzable, and in many cases more useful. Properly deployed, these tools can improve educational outcomes, expand the capacity for creative expression, and accelerate scientific advancement. On the other side are publishers and authors, whose works constitute the very raw material upon which these technologies depend, and whose economic incentives

[85] *Kadrey*, at 32–33.
[86] *Id*. at 31–33.
[87] *Id*. at 40.

remain the backbone of the system envisioned by the Constitution. Shadow libraries disrupt this relationship entirely, undermining both the market for published works and the legitimacy of copyright law by erasing barriers to access intended to incentivize the creation of knowledge while circumventing repercussions resulting from illicit distribution.

Neither shadow libraries nor large language models can simply be eradicated. Shadow libraries are too decentralized, too adaptive, and too deeply embedded in global networks of file-sharing. Large language models are too transformative and too valuable to be halted by judicial rulings; this was even acknowledged by the court in *Kadrey*. That leaves publishers at the center of the problem, and it becomes clear that the publishing industry must adapt. In a world where access, affordability, and preservation are the driving forces behind shadow library use, publishers must learn to compete by providing legitimate alternatives. Works produced with public funding should be made freely available. International researchers should not be forced to choose between paying prohibitive subscription fees and violating the law; targeted subsidies, discounts, or reciprocal open-access agreements could ease barriers to legitimate access. Even profit-sharing arrangements, wherein access is granted in exchange for a stake in future developments, could provide a model for sustainable reform.

In a perfect world, shadow libraries would not exist because the legitimate publishing ecosystem would already meet the demands they seek to fill. Courts can continue to refine the balance struck by copyright law, but the future of knowledge access will ultimately be determined by whether publishers can evolve in a way that both preserves their markets and fulfills the promise of the Constitution: to promote progress not by restricting access, but by enabling the widest possible participation in the creation and dissemination of human knowledge.

# Classification Issues in Regulating Stablecoins

Written by Ellin Manoukian

*Article*

Edited by Andrew Ma and Amelia Armstrong

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## I. INTRODUCTION

Stablecoins are a type of cryptocurrency whose value is usually tied to a fiat currency or another asset, such as gold, U.S. dollars, or reserves of other cryptocurrencies, which helps ensure stability.[88] Unlike other cryptocurrencies, stablecoins maintain a consistent value that stays stable relative to their reference asset, enabling multiple uses in finance and business. Stablecoins can support cross-border payments and send money abroad quickly through blockchain technology, while preserving value in ways most non-pegged cryptocurrencies cannot.

In the United States, stablecoins are difficult to regulate due to evolving use cases and uncertainty regarding their legal classification. Despite recent advances, most notably the recently enacted GENIUS Act, debates remain over whether this framework is appropriate for all types of stablecoins and whether it serves as an appropriate starting point for broader cryptocurrency regulation.

This article provides a comparative analysis of legal arguments and government actions concerning whether stablecoins should be classified as:

1. A currency or banking product integrated into the traditional financial system;
2. A security whose value is derived from underlying assets, thereby subjecting issuers to securities regulation; or
3. A commodity regulated similarly to gold, metals, or other goods under the Commodity Exchange Act, along with a comparison to traditional cryptocurrency regulation.

Despite legal debates for and against each classification, the diverse nature of stablecoins and the different assets they rely on require a flexible regulatory framework that accurately reflects these differences.

## II. BACKGROUND

Cryptocurrencies first appeared in the modern financial scene in 2009 with the launch of Bitcoin, marking the debut of the first decentralized digital currency.[89]

[88] *See* Investopedia, Stablecoin Definition (last visited Dec 1, 2025), https://www.investopedia.com/terms/s/stablecoin.asp.
[89] *See* Reserve Bank of Austl., Digital Currencies, (last visited Dec 1, 2025), https://www.rba.gov.au/education/resources/explainers/digital currencies/.

Soon after, cryptocurrency assets grew with the rise of various types of digital instruments, including non-fungible tokens (NFTs), decentralized-finance (DeFi) tokens, utility tokens, asset-backed tokens, and central-bank digital currencies. Among these, stablecoins emerged as a separate asset class designed to address the volatility typical of traditional crypto assets and tokens.[90]

Stablecoins are designed to minimize volatility, allowing them to be used for payments and complex transactions that require a predictable store of value. Stablecoins maintain their price by being pegged to a stable asset. This reference asset may be a fiat currency (such as the U.S. dollar or another national currency), a physical commodity (such as gold), a basket of financial instruments (such as collateralized debt or reserves of other cryptocurrencies), or an algorithmic mechanism embedded in blockchain software.

This peg requires stablecoin issuers to maintain active reserves that support the coin's value. These reserves may include physical currency, demand deposits, U.S. Treasury bills, money market fund shares, repurchase agreements, or precious metals such as gold, depending on the stablecoin's design.[91] For crypto-backed stablecoins, the stablecoin is often "overcollateralized," meaning the value of the reserve exceeds the value of all stablecoins in circulation.[92]

Although all these tokens fall under the broad category of "stablecoins," the significant differences in (1) underlying collateral, (2) governance structure, and (3) mechanisms used to maintain the peg create complex legal and policy issues. Regulators must decide on the right framework to ensure financial stability, protect reserves, provide transparency for consumers, and prevent misuse for money laundering or terrorist financing.

In the United States, establishing a proper regulatory framework depends on defining the legal status of stablecoins. The debate focuses on whether stablecoins are:

1. securities subject to SEC authority under the Howey and Reves tests;
2. commodities regulated by the Commodity Futures Trading Commission (CFTC); or

[90] *See* Investopedia, Stablecoin Definition (last visited Dec 1, 2025), https://www.investopedia.com/terms/s/stablecoin.asp.
[91] *See* Bd. of Governors of the Fed. Reserve Sys., The "Stable" in Stablecoins, (Dec 1, 2025) https://www.federalreserve.gov/econres/notes/feds-notes/the-stable-in-stablecoins.htm; U.S. Dep't of the Treasury, Report on Digital Money and Payments, (last visited Dec 1, 2025) https://home.treasury.gov/news/press-releases/digital money-report.
[92] *See* Cube Exchange, What Is Overcollateralization?, (last visited Dec 1, 2025), https://www.cube.exchange/learn/what-is-overcollateralization.

3. payment instruments or "digital money" regulated under banking-law frameworks such as the Bank Secrecy Act and the Office of the Comptroller of the Currency (OCC).

The following sections analyze these conflicting legal classifications and show why a single, uniform regulatory approach is inadequate for all types of stablecoins.

## III. SECURITY CLASSIFICATIONS: HOWEY, REVES, AND THE SEC

### A. Applying Howey

Under U.S. securities and financial regulatory law, the classification of novel financial instruments is one of the most essential factors in determining an appropriate regulatory framework. The Howey test, established in *SEC v. W.J. Howey Co.*, determines whether a transaction constitutes an "investment contract," a category of security regulated under the Securities Act of 1933.[93] If a digital asset is classified as a security, it becomes subject to mandatory disclosures, registration requirements, and oversight by the Securities and Exchange Commission (SEC).[94]

The Supreme Court set out a four-part test in *Howey*. A transaction is an investment contract if it involves: (1) an investment of money; (2) in a common enterprise; (3) with a reasonable expectation of profits; (4) to be derived from the efforts of others. If all four prongs are met, the asset is a security.[95]

By applying *Howey* to stablecoins, there is a substantial argument that certain types of stablecoins qualify as securities. When users purchase a stablecoin using fiat currency or another cryptocurrency, they satisfy the "investment of money" requirement. The issuer's maintenance of the reserve pool also satisfies the common-enterprise prong because the financial fortunes of stablecoin purchasers rise and fall together based on the adequacy and performance of the reserve pool.

Stablecoins also raise questions about the expectation-of-profits prong. Although stablecoins are designed to maintain stable value rather than appreciate, *Howey* does not require capital appreciation; profit can include yield, interest, or other financial returns. Many stablecoin issuers, particularly those offering crypto-collateralized or algorithmic stablecoins (often called "endogenously

[93] *See SEC v. W.J. Howey Co.*, 328 U.S. 293, 298–99 (1946); Securities Act of 1933, 15 U.S.C. § 77b(a)(1).
[94] Securities Act of 1933, 15 U.S.C. §§ 77a–77aa.
[95] *See SEC v. W.J. Howey Co.*, 328 U.S. 293, 298–99 (1946).

collateralized payment stablecoins"), provide yield-generating features through lending, staking, or protocols that invest reserve assets.

For example, the DAI stablecoin is collateral-backed and maintains a $1 value through a reserve of other cryptocurrencies, mainly Ether-denominated collateralized debt positions managed by the Maker Protocol. Users can generate DAI by locking ETH in smart-contract vaults.[96] Because these collateralized debt positions fluctuate in value and because users can earn yield or financial returns through protocol-level mechanisms, some holders reasonably expect profit. Even if a stablecoin does not directly distribute yield, holders may still reasonably expect financial gains through participation in the broader DeFi ecosystem or through issuer marketing.

This reasonable expectation is strengthened by the arbitrage opportunities inherent in algorithmic stablecoins. Stablecoins can be traded at values and below their pegged value. If it is traded below its peg, it can be bought for a lower price and sold/redeemed for its fixed or reference value, creating a profit. Algorithmic stablecoins that use a seigniorage model can also create a reasonable expectation of profit, because the underlying algorithm uses "bond tokens" - secondary tokens that represent the system's fluctuations from the pegged value. These bond tokens can be purchased and sold when the stablecoin returns to its peg, creating profit for the holder derived from the creation of new stablecoins to maintain the peg.[97]

Stablecoins also meet the fourth requirement: profits generated through the efforts of others. Stablecoin holders are passive investors. They rely on the issuer to manage reserves, ensure proper collateralization, and uphold the peg. Poor management can lead to de-pegging and financial losses, as demonstrated by several algorithmic stablecoin failures. Thus, based on this application of Howey, certain stablecoins, particularly those offering yield, investing reserves, or relying on complex collateral structures, satisfy all four prongs and may be properly classified as securities.

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[96] *See* Kraken, What Is DAI?, (Dec 1, 2025), https://www.kraken.com/learn/ what-is-dai; Fed. Deposit Ins. Corp., Operations, Controls and Auditing, (last visited Dec 1, 2025), https://www.fdic.gov/ resources/supervision-and-examinations/.

[97] *See* Arnold and Porter, An Introduction to Stablecoins, https://www.arnoldporter.com/en/ perspectives/advisories/2025/05/an-introduction-to-stablecoins#:~:text=If%20the%20stablecoin%20is%20trading,and%20distribute%20them%20to%20participants (last visited Dec. 2, 2025).

B. Applying Reves

The *Reves* test, established in *Reves v. Ernst & Young*, offers an additional framework. Unlike *Howey*, which defines "investment contract," *Reves* determines whether a note is a security by applying a "family resemblance" test based on four factors: (1) motivations of buyer and seller; (2) the plan of distribution; (3) reasonable expectations of the investing public; (4) the existence of risk-reducing factors or alternative regulatory schemes.[98] Applying *Reves* to stablecoins strengthens the argument for securities classification, especially for non-fiat-backed types.

First, the motivations of the parties usually involve commercial or investment purposes: issuers raise capital through token sales, and buyers often seek return or yield, distinguishing stablecoins from regular consumer notes or loans. Second, stablecoins are widely traded on cryptocurrency exchanges and liquidity pools—markets focused on investment rather than consumer finance. Third, the investing public often treats stablecoins as investment products within a risky market. For example, the Tether USD stablecoin temporarily declined to $0.95 during market stress in 2022.[99] Even "low-risk" instruments can still be perceived as securities when volatility risk exists.

Fourth, before the GENIUS Act, there was no comprehensive federal regulatory framework overseeing stablecoin reserves, audits, or disclosures. Even now, the law mainly applies to U.S.-dollar-backed payment stablecoins, leaving algorithmic and commodity-backed stablecoins largely outside a formal regulation system. This lack of risk mitigation oversight supports securities classification under *Reves* for many stablecoins. Thus, under *Reves*, stablecoins do not resemble the categories of instruments excluded from securities regulation and instead share core traits with regulated securities.

C. SEC Statements and Other Considerations

Commissioner Caroline A. Crenshaw has argued that stablecoins resemble securities because they are accessible through largely unregulated secondary markets. These intermediaries cannot guarantee redemption at par; they may only redeem tokens at market value, introducing risk. Crenshaw also contends that reserve holdings do not qualify as "risk-reducing features" under *Reves*, which limits

[98] *See Reves v. Ernst & Young*, 494 U.S. 56, 64–67 (1990).
[99] *See* Crypto Crash: Stablecoin Collapse Sends Tokens Tumbling, BBC News, (last visited Dec 1, 2025), https://www.bbc.com/news/technology.

such features to collateralization, insurance, or federal oversight.[100] Additionally, some stablecoins are pegged to fluctuating assets—such as gold or other cryptocurrencies—introducing volatility characteristic of traditional securities. Holders may therefore require the protections of securities law.

## IV. CURRENCY AND BANKING PRODUCT CLASSIFICATION: MONEY TRANSFERS AND THE GENIUS ACT

### A. Currency

An alternative legal analysis of stablecoin classification concludes that stablecoins should be regarded as currency-like payment instruments rather than investment vehicles. The classification as currency is strongly supported by the recently enacted GENIUS Act, which establishes a comprehensive federal framework governing stablecoins fully backed 1:1 by U.S. dollars.

Under the GENIUS Act, stablecoins are defined as "payment stablecoins," meaning digital assets primarily created for use as a means of payment and redeemable at par for U.S. dollars. This structure reflects the legal characteristics of fiat currency used as a medium of exchange. The Act further strengthens this classification by requiring 1:1 reserve backing for payment stablecoins using liquid assets such as: U.S. dollars, Short-term U.S. Treasury bills, and Federal Reserve balances.[101]

These reserve and redemption requirements effectively codify stablecoins as a digital analogue to traditional money, placing them within the domain of payment regulation rather than securities law.

### B. Banking Product

The GENIUS Act also supports classifying certain stablecoins as banking products, particularly those issued by or in partnership with insured depository institutions.[102] The Act imposes:

1. Strict reserve rules that resemble banking-style liquidity requirements,
2. Regular, independent audits of reserves, and

[100] *See* Caroline A. Crenshaw, "Stable" Coins or Risky Business?, U.S. Sec. & Exch. Comm'n, (last visited Dec 1, 2025), https://www.sec.gov/news/statement/crenshaw-stable-coins.
[101] *See* Guiding and Establishing National Innovation for U.S. Stablecoins (GENIUS) Act, Pub. L. No. 119-27, 139 Stat. 419 (2025).
[102] *Id.*

3. AML, KYC, and sanctions-screening obligations equivalent to those applied to banks under the Bank Secrecy Act.[103]

These requirements align stablecoin issuers with the compliance framework used for money transmitters and traditional banks.

Stablecoins also have run-risk features similar to traditional bank deposits. If confidence in the issuer's solvency drops, holders might try mass redemptions, like a bank run, which could destabilize the coin's peg. Regulation modeled after banking products aims to reduce this specific risk.

The GENIUS Act further integrates stablecoins into the traditional financial system by permitting federally regulated banks to:

1. Hold stablecoin reserves in custody, and
2. Issue tokenized deposits, effectively treating stablecoins as bank liabilities recorded on a blockchain.

Finally, the Act prohibits stablecoin issuers from paying interest.[104] This is important because it directly prevents satisfying part of the *Howey* test's "expectation of profits" criterion, supporting the view that fully backed stablecoins should not be classified as securities.[105]

Together, these features place fully backed payment stablecoins under the purview of entities such as the Federal Reserve and the Office of the Comptroller of the Currency, aligning them with traditional banking-product regulation rather than securities or commodities frameworks.

## V. COMMODITY CLASSIFICATIONS: COMMODITIES FUTURES TRADING COMMISSION

A. Commodity-Backed Stablecoins

The most basic argument for classifying some stablecoins as intangible commodities lies in the fact that certain stablecoins (such as Paxos Gold (PAXG), Tether Gold (XAUT), Kinesis Silver (KAG), or real-estate-backed tokens) base their stable value directly on an underlying commodity. A commodity, under the Commodity Exchange Act (CEA), is defined to include a long list of agricultural goods and "all other goods and articles … and all services, rights, and interests … in

[103] *See* Bank Secrecy Act, 31 U.S.C. §§ 5311–5336 (2022).
[104] *See* GENIUS Act, Pub. L. No. 119-27, 139 Stat. 419.
[105] *See* Off. of the Comptroller of the Currency, Interpretive Letter on Digital Assets (2024), (last visited Dec 1, 2025), https://occ.gov/interpretations.

which contracts for future delivery are presently or in the future dealt in."[106] This definition covers metals like gold and silver and extends to other goods for which futures contracts exist.

Stablecoins backed by commodities fluctuate with the value of those underlying assets, and because the reserves themselves are commodities, there is a strong argument for treating these tokens as commodities subject to the CFTC's authority. To support this view, courts have expanded the CFTC's jurisdiction over virtual currencies in key cases, including *CFTC v. McDonnell*[107] and *CFTC v. My Big Coin Pay*.[108]

B. *CFTC v. McDonnell*—Uniform Quality and Market Trading

In *CFTC v. McDonnell*, the court addressed whether virtual currencies fall within the definition of "commodities" under the CEA. The court held that the CFTC has jurisdiction over virtual currencies as commodities because the CEA's broad definition includes "all other goods and services … in which contracts for future delivery are presently or in the future dealt in."

Stablecoins meet the "uniform quality and value" requirement identified in *McDonnell* because they are intentionally designed to maintain a consistent, uniform price across markets. They also meet the "market trading and fraud" requirement because stablecoins trade on cryptocurrency exchanges where fraud and market manipulation have occurred, such as the FTX collapse.[109]

Finally, *McDonnell* held that although a specific virtual currency may not have its own futures contract, the broader class of virtual currencies does (e.g., Bitcoin futures), which is enough to bring the entire class under CEA commodity jurisdiction.[110] Thus, stablecoins, being part of the virtual-currency class, also fall within the scope of the CEA.

C. *CFTC v. My Big Coin Pay, Inc.*—Fungibility and Standardization

Alternative legal analysis in *CFTC v. My Big Coin Pay, Inc.* also offers evidence supporting the classification of stablecoins as commodities. Using the

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[106] 7 U.S.C. § 1a(9) (defining "commodity").
[107] *See CFTC v. McDonnell*, 287 F. Supp. 3d 213 (E.D.N.Y. 2018).
[108] *See CFTC v. My Big Coin Pay, Inc.*, 334 F. Supp. 3d 492 (D. Mass. 2018).
[109] *See* Associated Press, FTX: A Timeline of the Cryptocurrency Exchange's Collapse, (last visited Dec 2, 2025), https://apnews.com/article/ftx-cryptocurrency-collapse-timeline.
[110] *See* Zach Johnston, Commodity Futures Trading Com'n v. McDonnell 287 F.Supp.3d 213 (E.D.N.Y. 2018), 29 *DePaul J. Art, Tech. & Intell. Prop. L.* 149 (2019)

framework established in this case further advocates for treating stablecoins as commodities regulated under the Commodity Exchange Act (CEA).

In *My Big Coin Pay*, the court relied on the CEA's broad definition of "commodity," which includes traditional agricultural goods as well as "all services, rights, and interests… in which contracts for future delivery are presently or in the future dealt in." The court held that the CFTC can regulate virtual currencies as commodities because the broader asset class of "virtual currency" includes products (such as Bitcoin) with existing futures contracts, even if the specific currency does not have its own futures market. The court also recognized CFTC jurisdiction over fraud in the spot (cash) market for virtual currencies.[111]

Applying this reasoning to stablecoins leads to the same conclusion. First, in *My Big Coin Pay*, the court confirmed that Bitcoin futures establish the jurisdictional basis for the entire category of "virtual currencies." Therefore, stablecoins, as virtual currencies, are included in the same category for CFTC purposes, even if no stablecoin-specific futures contracts are available. Second, the court determined that *My Big Coin Pay* is a commodity because it was marketed as a standardized unit of value.[112] Stablecoins also have this standardized, fully fungible structure. Each token is interchangeable with any other token of the same stablecoin type; the issuer represents the stablecoin as redeemable at a fixed value (often 1:1 to the U.S. dollar); and fungibility and standardization mirror the characteristics of commodities recognized under the CEA.

Finally, the court confirmed the CFTC's authority to pursue charges of fraud in the virtual currency spot market—including false claims about reserves or collateral.[113] Stablecoins depend heavily on transparent disclosure of reserves to keep their peg; any false statement about those reserves clearly falls under the CFTC's anti-fraud enforcement scope. Thus, the reasoning of *My Big Coin Pay* supports classifying stablecoins as commodities and places them under the jurisdiction of the CFTC for enforcement under the Commodity Exchange Act.

## VI. BUILDING A COMPLETE REGULATORY FRAMEWORK

Despite recent developments toward establishing a complete regulatory framework for payment stablecoins in the United States, including the GENIUS

[111] *See My Big Coin Pay*, 334 F. Supp. 3d 492.
[112] *Id*.
[113] *Id*.

Act, which provides a statutory basis for classifying U.S.-dollar-backed payment stablecoins as currency-like instruments regulated under the Bank Secrecy Act, gaps in this regulation remain for alternate forms of stablecoins such as commodity-backed, algorithmically maintained, and crypto-collateralized stablecoins. Considering the valid legal arguments for the classification across all three categories explored above—securities, banking products, and commodities—the need for a diverse and varied regulatory framework emerges becomes clear.

Based on the legal tests articulated in Reves and Howey, the classification of algorithmic and cryptographically backed stablecoins ("endogenously collateralized payment stablecoins") as securities provides the strongest protection for consumers and market stability because of the inherent volatility of the assets that these stablecoins maintain their value. Accordingly, these stablecoins fall most naturally under the jurisdiction of the Securities and Exchange Commission pursuant to the Securities Act of 1933. Based on the guidelines established in the GENIUS Act, payment stablecoins with a strict 1:1 backing to the U.S. dollar should remain classified as a currency or a banking product to ensure consumer protection for users who aim to employ these stablecoins as a means of payment within blockchain-based transaction systems and as a fungible analog to the U.S. dollar.

Finally, under the legal precedents established in *CFTC v. McDonnell* and *CFTC v. My Big Coin Pay, Inc.*, the classification of commodity-backed stablecoins such as Tether Gold (XAUT) or Paxos Gold (PAXG) as commodities governed by the Commodity Futures Trading Commission and regulated under the Commodity Exchange Act is well-supported. This three-fold regulatory classification would provide clarity and consistency across the regulation of stablecoins and prevent gaps that arise when attempting to impose a single monolithic regulatory category on products that differ substantially in structure, collateralization, and risk profile.

## VII. CONCLUSION

The emergence of stablecoins, particularly those designed to maintain stable value, in the United States' financial technology and regulatory landscape has posed new challenges for creating a comprehensive regulatory framework that protects consumers, promotes market stability, and provides clear operational standards for issuers. The aim of stablecoins was originally to offer low-volatility digital assets with a 1:1 backing to a fiat currency, such as the U.S. dollar, through

reserve assets that fully collateralize all outstanding tokens. However, the emergence of alternative stablecoin structures that do not fit this definition creates the need for tailored regulatory treatment.

In this article, this analysis has addressed the classification of stablecoins into three categories, each with its own regulatory implications: a security classification placing certain stablecoins under the authority of the Securities and Exchange Commission; a currency or banking-product classification governed by the Bank Secrecy Act, the Federal Reserve, and the Office of the Comptroller of the Currency; and a commodity classification placing specific asset backed stablecoins under the authority of the Commodity Futures Trading Commission and the Commodity Exchange Act. The existence of strong legal arguments supporting each of these classifications leads to the conclusion that a multi-tiered regulatory framework for stablecoins would be the most effective at mitigating consumer and market risk while ensuring that no regulatory gaps persist as the industry evolves.

# The "Significant Causal Connection Standard" and The Future of Structural Relief in Antitrust

Written by Henry Houser
*Comment*
Edited by Connor Trux and Hong-An Nguyen

## INTRODUCTION

In 2020, the U.S. Department of Justice officially filed suit against Google, LLC, a subsidiary of Alphabet Inc., the company with the world's fourth-highest market capitalization. The suit alleged that Google, LLC illegally maintained a monopoly of the general search services, search advertising, and general search text advertising markets - through the signing of contracts that made its search engine the exclusive or *de facto* exclusive search point on various platforms - in violation of the Sherman Antitrust Act of 1890. Antitrust cases against tech companies have relatively little precedent, so the decision in this case would shape the future of America's most lucrative financial sector. It also represented a seismic shift in the DOJ's antitrust enforcement. After sitting essentially dormant for 40 years since the election of Reagan, the DOJ would file antitrust suits against 4 of the U.S.'s largest tech companies (Google, Amazon, Apple, and Meta) within the next three years. The outcome of the *United States v. Google LLC* threatened to reshape the American economy.

## ANALYSIS

Antitrust law operates on stare decisis, meaning that the decisions of any court will set precedent for future cases. Antitrust trials operate in two sections: First, a liability trial establishes guilt, then a remedies trial determines how the guilty party must fix the damage their monopoly has caused. In his liability verdict in *Google*, Judge Mehta concluded that Google was guilty of maintaining a monopoly.[114] The following remedies trial was centered around "structural remedies" proposed by the Plaintiff: forcing Google to divest from Google Chrome. Judicial precedent states that antitrust relief "must seek" to "unfetter a market from anticompetitive conduct," "deny to the defendant the fruits of its statutory violation, and ensure that there remain no practices likely to result in monopolization in the future."[115] Judicial discretion decides what degree of relief will be effective in meeting these conditions.

Judge Mehta decided not to order the structural divestment of Google Chrome, allowing Google to retain control. Judge Mehta cited four main reasons for doing so: structural relief should only be exercised if the court decides less severe remedies are inadequate to meet the stated goals of remedies (earlier), the splitting of Chrome would be "messy", as Chrome was a homegrown product of Google, and that consumer welfare would likely be impacted.[116] Key to this comment, Mehta's fourth reason for rejecting structural remedies determined that Google's anticompetitive actions were not "significantly causally connected" to its monopoly status to warrant structural relief.[117] The "causal connection" argument has precedent in the previous antitrust trials, but the facts of Google's case required a more stringent definition of this test than ever before.[118] ("In that sense, Microsoft III does not provide an analogous evidentiary template").

Mehta's "other" three reasons, while narrowing paths for structural relief, provide clear opportunities and structure for future antitrust plaintiffs. They must provide evidence that less severe remedies will not achieve the stated goals of remedy proceedings, model how divestiture can occur cleanly, and attempt to mitigate losses to short-term consumer welfare. However, the exact dynamics and

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[114] *See United States v. Google LLC*, 588 F. Supp. 3d 1, 1 (D.D.C. 2022)
[115] *See United States v. Microsoft Corp*, 253 F.3d 34, 107 (D.C. Cir. 2001) (en banc); *Ford Motor Co. v. United States*, 405 U.S. 562, 575 (1972)
[116] *Google*, 588 F. Supp. 3d at 114—115
[117] *Id*. at 115
[118] *Id*. at 75

precedence of Mehta's "causal connection" argument are not explicitly clear. I attempt to codify the criteria of Mehta's causal connection test and diagnose how Mehta reached his conclusion. I also argue that Mehta's emphasis on this test as a key determinant of the viability of structural relief means that such relief should not be foreclosed upon in future antitrust cases.

Mehta takes care to separate his "clearer indication of significant causal connection" test from both Google and the DOJ's preferred causation tests.[5] Mehta declares that his test rests on determining the "proportionality between the strength of the evidence of the causal connection [between the action and the monopoly] and the severity of the remedy."[119] Mehta places all remedy options on a "sliding scale" of severity, naming "structural remedies such as divestiture" as the "most severe" possible remedies. Mehta then turns to the anticompetitive actions themselves to determine how severely they contributed to the defendant's monopoly market position. Mehta finds that while Google's exclusive contracts contributed enough to its monopoly to evoke less severe remedies, such as behavioral, Google's anticompetitive behavior could not be causally connected to its monopoly market share to a degree warranting structural remedies. Many antitrust pundits who believed strongly in the need for market intervention in heavily consolidated tech industries believed this was a death blow to future strong antitrust remedies - such as those sought in the Amazon, Meta, and Google ad-tech trials. However, attention must be paid to the specific criteria Mehta uses to determine the lack of severity of Google's anticompetitive actions, and how these criteria should support a more severe conclusion with different facts.

Based on Mehta's precedent, I identify five key criteria for determining whether anticompetitive conduct could be significantly connected to monopoly status to a degree warranting structural relief. These factors can apply broadly to future tech antitrust cases, and for each factor, I argue that different case facts could lead to more severe relief in future cases.

(1) The anticompetitive conduct was aimed at producers of established substitutes. Mehta specifically distinguishes between anticompetitive actions that harmed "potential" substitutes and established substitutes.[120] Mehta specifically concludes that because Google's actions harmed established substitutes as well as new market entrants, there is stronger certainty of a

[119] *Id*. at 73
[120] *Id*. at 75

correlation between the actions and the monopoly market position.[121] Mehta rejects Google's reasoning that, because they already held a dominant market share when the anticompetitive contracts began, their competitors were already so disadvantaged that they could not be significantly hurt by the contracts.[8]

(2) The defendant's product was of lower quality than other offerings in the market. Mehta found as a point against causality that Google held "the market's highest quality search engine… dispatch[ing] the notion that the distribution agreements were the sole reason Google maintained its monopoly."[122] Mehta further specifies exactly what factors determined his "highest quality" distinction in his Remedy-Specific Conclusions of Law. ("the record contains ample evidence that … best-in-class search quality, consistent innovations, investment in human capital, strategic foresight, and brand recognition… played an important role in Google's maintenance of monopoly") (citation modified).[123] Importantly, this criterion is the only one that Mehta returns to in the RCOL to provide reasoning for his distinction that Google's anticompetitive behavior was not sufficiently causally connected to its monopoly status to require structural relief. I interpret this as evidence that the quality of the product is the most important criterion in determining whether structural relief is necessary, specifically in tech antitrust cases. This criterion offers antitrust plaintiffs seeking a structural remedy a specific course of action. If they can reasonably prove to a judge that the monopolists' product was not the "highest quality" available in the market, this in turn should contribute to their case that the anticompetitive action was clearly connected to monopoly status and requires structural relief.

(3) The level to which the defendant's product quality can be linked to the original anticompetitive action. Even if a monopolist's product is considered to be the best on the market, Mehta questions whether this product quality can also be attributed to the anticompetitive actions. Mehta admits that part of the reason for Google's best-in-class quality can be attributed to the anticompetitive actions, but not to a significant degree.[10] It is not clear from Mehta the exact reasoning why he rejects this connection. However, I believe

[121] *Id*. at 76
[122] *Id*. at 77
[123] *Id*. at 115

this leaves an opening for future antitrust litigation to attack even "best-in-class" monopolists if significant portions of their product quality can be directly linked to the anticompetitive behavior.

(4) Competitors in the monopolized market did not make decisions independent of the monopolizer's actions, which contributed to their lack of market share. Mehta concludes that Google's monopoly-level market share, specifically in mobile search, could be attributed to Microsoft's failure to construct a viable mobile competitor to its engine, Bing.[124] However, this again leaves an opportunity for antitrust plaintiffs to argue that if a court found that competitors' actions were not sufficiently "attributable" to the monopolist's market share, this should contribute to stronger causal relationships. It would likely be at the judicial discretion whether the competitor's actions were "at least in part attributable" to monopoly.[11] Mehta does not offer much specific criteria for determining the attributability of competitors' actions on the monopoly market share, leaving wide future judicial discretion.

(5) The monopolized market must show a stagnation directly attributable to the anticompetitive behavior. Mehta found exclusive contracts "effectively froze" the search engine market, as the lack of public exposure for competitors once the contracts were signed scared off investors.[125] Analysis of market innovation, entrants, VC funding, and general industry thinking post-introduction of the contracts all contributed to the determination. Id. at 80. Mehta determined that the inactivity in the market and lack of investment in competitors was evidence of a stronger causal connection, even though Google's dominant market share began before the anticompetitive behavior.[126] Antitrust litigators likely must connect anticompetitive behavior to a lack of investment or new competitive disruptors in an industry in order to satisfy this criterion.

Upon weighing these five criteria, Mehta found that "Plaintiffs do not satisfy this Circuit's 'clearer indication of a significant causal connection' test for structural remedies."[127] Google's anticompetitive actions could be suitably causally connected to its monopoly to enact behavioral relief, but causality was not sufficient for

[124] *Id*. at 77
[125] *Id*. at 80
[126] *Id*. at 81
[127] *Id*. at 114

structural relief. It is not clear whether all of these criteria must be met to enforce structural relief. The weighting of each criterion, and to what degree each criterion must be met by plaintiffs, is likely up to further judicial interpretation. However, I have identified ways in which each criterion should support a "significant causal connection" determination in a case with specifically different facts.

## CONCLUSION

The case for Google's divestiture of Chrome was not considered overwhelming in the lead-up to Judge Mehta's decision. While the remedies verdict sets a disappointing precedent for a lack of direct government action to combat monopoly market shares in big tech, I do not believe the precedent set by this case should spell the end of structural relief in future tech antitrust cases. If antitrust litigators can understand the precedent for determining causation developed in this Mehta ruling, future courts will have the power to reach different conclusions in cases with different facts.

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