MONOPOLY CAUSATION

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VANDERBILT LAW REVIEW (forthcoming)

ABSTRACT—Antitrust's monopolization offense includes a novel causation element: there must be a "causal link" between a defendant's anticompetitive acts and its monopoly power. This *monopoly causation* requirement both shapes liability and governs what remedies are available. The influential *Microsoft* decision adopted a "toothless" standard for monopoly causation at the liability stage. But the doctrine and its economic foundations are undeveloped and controversial.

These causation debates are beset by a conceptual problem. The heart of all antitrust violations—harm to competition—already subsumes a causation requirement: the conduct must diminish competition. That is a causal effect. Thus, monopoly causation is just one of two subtly distinct causal inquiries underpinning the monopolization offense. But most discussions overlook this, conflating the two issues and obscuring their distinct legal and economic roles. This Article addresses this problem, explaining where the harm question ends and monopoly causation begins. The harm element asks whether the challenged conduct lessens or enhances competition overall. Monopoly causation then asks whether the *magnitude* of the harm was sufficiently large to "monopolize," although under *Microsoft* this need not be proven rigorously at the liability stage.

The Article then applies these conclusions to address modern debates over monopoly causation and their implications for ongoing enforcement actions against Google and Meta. Some authorities suggest that *Microsoft*'s toothless standard relaxes the burden to prove harm, while others argue it should not even apply to monopoly causation in most cases. I argue that both groups are wrong. The best policy involves a divided approach: at the liability stage, courts should apply a weak standard to monopoly causation, while maintaining the usual high bar for showing harm to competition. But, as *Microsoft* suggested, breakups and other severe remedies should require a stronger causal contribution to monopoly.

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† Professor, Cornell Law School. For helpful feedback, I am grateful to Doug Melamed, Jon Nuechterlein, Steve Salop, and Danny Sokol. I have not received any outside funding in connection with this research, nor do I have any other conflicts of interest.

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INTRODUCTION

Monopolization requires an origin story. Under Section 2 of the Sherman Act,[1] liability turns on how a monopolist acquired or maintained its dominant position.[2] This leads to a peculiar and largely undeveloped "causation" requirement: the plaintiff must show not only anticompetitive conduct and monopoly power, but also a "causal link" between the two.[3] In other words, the defendant's dominance must be sufficiently attributable to its anticompetitive acts. To distinguish this requirement from other causation issues discussed below, I will call it *monopoly causation*.

This causation question is often fraught with uncertainty. A defendant's monopoly is typically a product of many independent causes, not all of them malicious. For example, in the recent Google Search decision, the court found that Google acted anticompetitively;[4] but it also noted that Google's monopoly was attributable in large part to innovation and a superior product.[5] Moreover, in many cases, monopoly causation depends on whether young rivals or entrants would have grown into major competitors if not for the defendant's exclusionary conduct—a counterfactual that is rarely susceptible to proof.[6] For these reasons, it is often impossible to say how much of a defendant's present dominance is attributable to its misconduct.

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[1] Section 2 condemns "Every person who shall monopolize, or attempt to monopolize … any part of the trade or commerce among the several states." 15 U.S.C. § 2.

[2] Part II, *infra*.

[3] United States v. Microsoft Corp., 253 F.3d 34, 78-80 (D.C. Cir. 2001) (discussing this "causation" issue).

[4] United States v. Google LLC, 747 F. Supp. 3d 1 (D.D.C. 2024) (finding Google liable for monopolization).

[5] *Id.* at 31-33.

[6] *Microsoft*, 253 F.3d at 79 ("[N]either plaintiffs nor the court can confidently reconstruct a product's hypothetical technological development in a world absent the defendant's exclusionary conduct.").

In *Microsoft*, the D.C. Circuit recognized these challenges, leading it to adopt an "edentulous" (toothless) causation standard.[7] This makes it easy to establish monopoly causation at the liability stage.[8] But the requirement regains its bite at the remedy stage, as breakups and other severe remedies will be denied absent a strong causal contribution to monopoly power.[9]

Microsoft has been influential across circuits, but the case law is remarkably thin, leaving many questions unanswered.[10] And the Supreme Court has yet to weigh in. Meanwhile, *Microsoft* toothless standard is highly controversial, with some experts arguing that a more onerous test should apply in most monopolization cases.[11] Ongoing Section 2 cases against Google and Facebook have amplified these causation debates.[12]

Whatever legal standard the courts ultimately settle on, it will govern all monopolization cases that follow—deciding not only which firms are liable, but also what remedies can be used to redress their misconduct.

* * *

These causation debates suffer from a conceptual problem. There is not yet a shared understanding of what monopoly causation is or how it differs from other elements of the monopolization offense. Some academic accounts rely on tort law analogies.[13] In torts, "causation" is the obligation to show a sufficient causal connection between the defendant's misconduct and a harm suffered by the plaintiff. This is traditionally assessed with a "but-for" test, which requires that the harm would not have occurred but for the misconduct.

But the analogy misleads. First, while "causation" normally asks whether a defendant's misconduct is responsible for the harm at the center of the case, monopoly causation asks about its responsibility for the defendant's *monopoly power*. This is counterintuitive, as antitrust does not regard monopoly power

[7] *Id.*

[8] Part II.C, *infra.*

[9] *Microsoft*, 253 F.3d at 106.

[10] Part II, *infra.*

[11] *See, e.g.,* Jonathan E. Nuechterlein & Howard A. Shelanski, *Who's Afraid of the But-For World? Microsoft, Google Search, and Probabilistic Theories of Antitrust Liability*, ANTITRUST L.J. (forthcoming); Douglas H. Ginsburg & Koren W. Wong-Ervin, *Challenging Consummated Mergers Under Section 2*, COMPETITION POLICY INTERNATIONAL, at 2-3 (May 2020).

[12] Parts VI.A-B, *infra* (discussing causation debates surrounding these cases).

[13] *See, e.g.,* Michael A. Carrier, *A Tort-Based Causation Framework for Antitrust Analysis*, 77 ANTITRUST L.J. 991 (2011).

as an actionable "harm," but merely a structural requirement of Section 2.[14] This has no analogue in tort litigation. Second, the relevant harm in antitrust—harm to competition—*already subsumes a causation requirement*: it requires that the defendant's conduct is likely to leave the market less competitive than it would have been otherwise.[15] That is a causal effect, although it can manifest in many different ways and is often established through inference rather than direct measurement.

Thus, both harm to competition and monopoly causation address the causal effects of the defendant's conduct. As such, they are both assessed by reference to the counterfactual "but-for world" in which the defendant had refrained from the challenged conduct. For these reasons, the two inquiries are routinely conflated, with courts and commentators often using the same "causation" label to describe both issues interchangeably.[16] But clearly they cannot be the same thing: all antitrust violations require that the challenged conduct causes harm, but monopoly causation is unique to Section 2.

This conflation undermines the surrounding policy debates, as the harm and monopoly causation inquiries serve distinct policy functions and require different legal standards. This Article highlights this conceptual problem and offers a resolution, clarifying where the harm question ends and monopoly causation begins. The rest of the Article then applies these conclusions to address modern causation debates and ongoing Big Tech cases.

Although harm and monopoly causation both ask causal questions about the defendant's conduct, they are independent in the sense that neither one implies the other. A practice that harms competition will not necessarily create (or even "contribute significantly" to) monopoly power, nor vice versa.[17] I emphasize that monopoly causation is the direct analogue to the (much more developed) "dangerous probability" element in claims of *attempt* to monopolize.[18] Both inquiries require that the challenged conduct is sufficiently capable of bridging the gap between anticompetitive conduct generally and

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[14] That might seem like an empty distinction, as we often think of monopolies as harmful. However, antitrust does not outlaw monopoly power itself, because it can be achieved through desirable activity (e.g., innovation) as well as harmful activity. *See* Verizon Commc'ns Inc. v. L. Offs. of Curtis V. Trinko, LLP, 540 U.S. 398, 407 (2004) ("The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system … To safeguard the incentive to innovate, the possession of monopoly power will not be found unlawful unless it is accompanied by an element of anticompetitive conduct.").

[15] Part I, *infra*.

[16] Part III.A, *infra*.

[17] Part II.A, *infra*.

[18] *Id*. This element requires a dangerous probability that the defendant will succeed in its attempt to acquire or maintain monopoly power through anticompetitive means. *See* Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 456 (1993).

monopolization. The difference is that the dangerous probability element is predictive, while monopoly causation is attributive.[19]

The distinction between harm and monopoly causation is captured by a simple economic heuristic.[20] The harm element is largely *directional* in the sense that it asks whether the conduct lessens or enhances competition overall.[21] With harm proven, monopoly causation requires that the *magnitude* of the harm is sufficiently large to generate the required causal improvement in the defendant's market position. In other words, the latter inquiry asks whether the anticompetitive fallout from the challenged conduct is sufficiently powerful to create or maintain a monopoly. Proving harm does not require that.

Importantly, this magnitude question is often not susceptible to proof, particularly when a monopolist's exclusionary conduct is targeted at young rivals with uncertain growth prospects. *Microsoft* addressed precisely this problem by applying a toothless legal standard to monopoly causation at the liability stage.[22] This makes it unnecessary to prove how much competition has actually been lost.

There is significant disagreement over the *Microsoft* standard. One group believes it relaxes the burden to prove harm to competition.[23] That view often reflects a mistaken belief that harm and monopoly causation are the same thing. An opposing group believes that *Microsoft*'s toothless standard should not apply at all in most cases, and that a strict but-for test should be the default rule for monopoly causation.[24] This view is often predicated on a mistaken belief that the D.C. Circuit adopted a more onerous standard for monopoly causation in *Rambus*, which it decided a few years after *Microsoft*.[25]

I argue that both groups are wrong, both as a policy matter and as a matter of existing law. The best policy takes a divided approach. In deciding liability, courts should apply a relaxed legal standard to monopoly causation (in all cases) while maintaining the usual high bar for showing harm to competition.[26] Moreover, as *Microsoft* suggested, stronger remedies should

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[19] That is, the dangerous probability element asks whether a defendant's anticompetitive conduct will plausibly create a monopoly in the future, while monopoly causation asks whether an existing monopoly is sufficiently attributable to anticompetitive conduct.

[20] Parts II.B, II.D, *infra*.

[21] *See, e.g.,* Ohio v. Am. Express Co., 585 U.S. 529, 541 (2018) ("The goal is to distinguish between restraints with anticompetitive effects that are harmful to the consumer and restraints stimulating competition that are in the consumer's best interest") (internal quotations omitted).

[22] Part II.D.2, *infra*.

[23] Parts III.A-B, *infra*.

[24] *See* Parts IV.A-B, *infra*.

[25] Part IV.C, *infra*.

[26] Part IV.D, *infra*.

require a greater causal contribution to monopoly power.[27] Under this policy, detailed evidence about the magnitude of the harm is generally unnecessary to establish liability and obtain an injunction, but breakups and other severe remedies would require evidence of a substantial loss of competition.

This yields the best allocation of rigor. The core problem of antitrust is to determine whether a challenged practice is harmful or reasonable. Nothing in antitrust policy—or in *Microsoft*—suggests that we should subvert that central inquiry by making it toothless. However, once harm is sufficiently proven, the remaining causation question merely concerns the magnitude of the harm. That is an important consideration at the remedy stage, but much less so when deciding liability. Moreover, evaluating monopoly causation with a "but-for" test would produce absurd results, such as making some highly dominant firms effectively immune from Section 2 liability.

I. CAUSATION OF HARM

All antitrust violations require harm to competition.[28] This requires a brief note on terminology. Harm to competition is also described variously as "anticompetitive effects"[29] or simply "anticompetitive conduct."[30] While some authors attach slightly different meanings to these different labels, I will treat them as equivalent; and I will refer to the tangible *consequences* of harm to competition (e.g., effects on prices or output) as effects on market "outcomes."[31]

Under the rule of reason,[32] harm to competition is established through a multi-stage burden-shifting framework that considers both anticompetitive

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[27] Part V, *infra*.

[28] A private plaintiff must also show a private antitrust injury to itself, and that injury must be causally connected to the (separately proven) antitrust violation. *See, e.g.,* Zenith Radio Corp. v. Hazeltine Research, Inc., 395 U.S. 100, 114 n.9 (1969) (the antitrust violation must be "a material cause of the injury" to the plaintiff). I will not discuss that private causation requirement, which is comparatively well understood.

[29] *See, e.g., Microsoft,* 253 F.3d at 58 (D.C. Cir. 2001) ("[T]o be condemned … a monopolist's act must have an 'anticompetitive effect.' That is, it must harm the competitive process and thereby harm consumers.")

[30] Verizon Commc'ns Inc. v. L. Offs. of Curtis V. Trinko, LLP, 540 U.S. 398, 407 (2004). It is also sometimes described as "conduct inconsistent with competition on the merits." *See, e.g.,* Taylor Pub. Co. v. Jostens, Inc., 216 F.3d 465, 476 (5th Cir. 2000).

[31] Proving harm does not require direct proof of actual effects on outcomes, although plaintiffs do sometimes prove harm that way. *See, e.g.,* FTC v. Meta Platforms, Inc., 775 F. Supp. 3d 16, 53 (D.D.C. 2024) (showing "anticompetitive effects" does not require a plaintiff "to demonstrate an impact on consumer welfare via measurable … price or output changes."). I discuss the different ways plaintiffs prove harm in Part I.B, *infra*.

[32] This is the framework that applies to all practices other than nakedly anticompetitive conspiracies like price fixing (which are illegal per se). *See* Ohio v. Am. Express Co., 585 U.S. 529, 541 (2018). Merger enforcement follows essentially the same multi-step procedure as the rule of reason. *See* United States v. Baker Hughes Inc., 908 F.2d 981, 982-83 (D.C. Cir. 1990).

and procompetitive effects.[33] Throughout this Article, I assume that a plaintiff must navigate this multi-step process to prove harm.[34] Thus, "harm" implicitly means *unrebutted* harm, after considering potential procompetitive effects.

Harm to competition is not a painful experience; it is a causal effect. As such, it carries a causation requirement. But, for two reasons, this is often overlooked. First, antitrust defines harm to competition in such a way that the causation requirement is already baked in. Second, because the outcome effects of anticompetitive conduct are often not observed directly, plaintiffs usually employ forms of causal inference that differ from tort-like "causation" analysis.

A. The Harm Element is Causal

Any "harm" is necessarily established relative to some counterfactual benchmark. In torts, a plaintiff shows some adverse personal *outcome*—say, a broken leg—and this is accepted as proof of harm. Implicitly, the plaintiff is measuring her harm relative to a counterfactual *better-outcome world* in which her leg had not been broken. The problem with this counterfactual benchmark is that it is acausal: it sheds no light on the cause of the plaintiff's injury. It simply assumes away all possible causes. Tort law thus requires a separate "causation" element to establish the defendant's causal responsibility. This requires the plaintiff to reckon with a different counterfactual: the *but-for world* in which the defendant had not misbehaved.

Harm to competition is different, because it is measured against the but-for world.[35] That is, the question is not whether the market is less competitive today than it was in the past, but whether it is less competitive than it *would have been* but for the challenged restraint. As a result, causation is built in from the start.

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[33] Nat'l Collegiate Athletic Ass'n v. Alston, 594 U.S. 69, 96-97 (2021). First, the plaintiff makes a prima facie case by showing evidence of an anticompetitive effect. Second, the defendant has an opportunity to rebut that with evidence of a countervailing procompetitive justification. Third, the plaintiff can try to show that the procompetitive effect could be obtained by less restrictive means. *Id.* Courts sometimes describe a fourth stage to "balance" pro- and anticompetitive effects. *See, e.g.,* Epic Games, Inc. v. Apple, Inc., 67 F.4th 946, 993-94 (9th Cir. 2023) (discussing the ambiguity over the existence of a balancing step).

[34] As a result, I largely ignore per se violations, which are usually challenged under Section 1 and do not require affirmative proof of harm. *See, e.g.,* Nat'l Soc. of Pro. Engineers v. United States, 435 U.S. 679, 692 (1978) (recognizing some agreements "whose nature and necessary effect are so plainly anticompetitive that no elaborate study of the industry is needed to establish their illegality—they are illegal *per se*.").

[35] *See, e.g.,* Nat'l Collegiate Athletic Ass'n v. Alston, 594 U.S. 69, 82 (2021) (citing "a market without the challenged restraints" as the benchmark for establishing "anticompetitive effects"); F.T.C. v. Indiana Fed'n of Dentists, 476 U.S. 447, 452 (1986) (finding "anticompetitive effects" from a restraint because the market would have been more competitive "absent such a restraint"); Rambus Inc. v. F.T.C., 522 F.3d 456, 466 (D.C. Cir. 2008) (anticompetitive effects must be established relative to "the world that would have existed but for [Defendant's misconduct]."); United States v. JetBlue Airways Corp., 712 F. Supp. 3d 109, 158 (D. Mass. 2024) ("merger analysis considers the future world with and without the merger.").

"But-for causation" requires that the harm likely would not have occurred but for the challenged conduct.[36] In torts, proving an injury does not establish this; the injury might have some extraneous cause, implying it would persist in the but-for world. But, with harm to competition, this is logically impossible: a reduction in competition relative to the but-for world could not persist in the but-for world. Whatever our uncertainties about that world, it cannot be less competitive than itself.

For example, in evaluating a proposed merger, a plaintiff can prove harm to competition with evidence suggesting that prices will likely be higher if the firms merge than if they remain independent. That evidence implies that the harmful price increase likely would not occur but for the merger, which is precisely what but-for causation requires. Thus, proof of harm to competition simultaneously establishes but-for causation with respect to that harm. And it does so at the same level of probability.[37]

One implication of these points is that, once a plaintiff has proven harm to competition, there is no need for a separate inquiry to determine what caused the harm. However, courts sometimes suggest otherwise.[38] Such statements usually arise in connection with monopoly causation, which is often misinterpreted as an inquiry into the cause of anticompetitive harm. But this is not only incorrect; it also creates needless confusion, as it suggests the plaintiff might have to prove the same thing twice.

Plaintiffs are not obliged to give a precise description of the but-for world. That is usually impossible. Indeed, the "fundamental problem of causal inference" is that we cannot observe the but-for world.[39] As the next section explains, plaintiffs show harm using various forms of evidence, and these proof strategies reckon with the but-for world in different ways.

B. Drawing the Causal Link

The injuries addressed by tort law are often easy to observe and verify. As a result, tort cases employ a specific kind of causal inference—causal attribution of an observed outcome (the injury). Antitrust plaintiffs sometimes establish causation that way, but more often they do not. The problem is that the harmful outcome effects of an anticompetitive practice (e.g., reductions in

[36] The "likely" qualifier reflects the preponderance-of-the-evidence standard of proof.

[37] Therefore, if harm is established by a preponderance of evidence, then so is but-for causation of that harm.

[38] *See, e.g.,* United States v. Google LLC, 747 F. Supp. 3d 1, 215-16 (D.D.C. 2024) ("To be condemned, a monopolist's act must have an 'anticompetitive effect'" and additionally "[t]he exclusionary conduct must cause the anticompetitive harm"); In re Microsoft Corp. Antitrust Litig., 699 F. Supp. 2d 730, 748 (D. Md. 2010) (plaintiff "must prove not only that the defendant's conduct was anticompetitive, but also that it caused anticompetitive harm in the relevant market.").

[39] Paul W. Holland, *Statistics and Causal Inference*, 81 J. AM. STAT. ASSOC. 945, 947 (1986).

output) are usually not observed directly.[40] In such cases, plaintiffs must rely on different forms of causal inference. These different approaches to causality correspond to the different types of evidence that plaintiffs use to prove harm.

Courts often say that plaintiffs can prove harm to competition in two ways: directly or indirectly.[41] As courts describe it, direct proof involves evidence that the conduct has "actually" resulted in worse market outcomes, such as higher prices or lower output.[42] By contrast, indirect proof of harm requires showing that the defendant has market power, along with "some evidence that the challenged restraint harms competition."[43] More specifically, indirect evidence generally relies on proxies or evidence that the conduct significantly undermines the competitive process in some way.

However, courts do not always apply these labels consistently. A problem area involves what I will call "forecasting"—evidence predicting likely adverse effects on price, output, or other market outcomes. For example, when challenging proposed mergers, government enforcers sometimes use simulations to predict price effects.[44] Courts often classify such evidence as "direct."[45] But that obviously cannot be right, as a proposed merger has not yet had *any* "actual" effects on competition. To avoid any possible confusion, I will simply treat forecasts as a distinct third type of evidence. It differs from direct evidence in that the latter relies upon *actual, observed* changes in market outcomes, not *predicted* changes.

1. Indirect Evidence and Forecasts

At a high level, indirect evidence and forecasts take a similar approach: they predict that the conduct will likely leave the market less competitive in

[40] There are two reasons for this. First, we often face a measurement problem: market outcomes like price levels are constantly evolving due to natural market forces, and it is hard to make out the causal effects of a practice against that dynamic background. Second, antitrust enforcement is often prophylactic, so the harm has not yet had a chance to occur. For example, merger enforcement almost always challenges mergers before they occur.

[41] Ohio v. Am. Express Co., 585 U.S. 529, 542 (2018).

[42] Ohio v. Am. Express Co., 585 U.S. 529, 542 (2018). *See also, e.g.,* Epic Games, Inc. v. Apple, Inc., 67 F.4th 946, 983 (9th Cir. 2023) (discussing the distinction between direct and indirect proof of harm).

[43] *Id.*

[44] *See, e.g.,* Jonathan B. Baker, *Merger Simulation in an Administrative Context*, 77 ANTITRUST L.J. 451 (2011).

[45] *See, e.g.,* United States v. JetBlue Airways Corp., 712 F. Supp. 3d 109, 151 (D. Mass. 2024) (finding "direct evidence of anticompetitive effects" based on unilateral effects analysis suggesting that the proposed merger is likely to raise prices); F.T.C. v. Staples, Inc., 970 F. Supp. 1066, 1082 (D.D.C. 1997) (similar). More generally, some courts associate "direct" evidence with quantitative evidence, and "indirect" evidence with qualitative evidence. *See, e.g.,* United States v. Oracle Corp., 331 F. Supp. 2d 1098, 1122 (N.D. Cal. 2004) ("direct" evidence is "highly quantitative," while indirect evidence is "highly qualitative").

light of how it affects economic activity by market participants.[46] However, unlike forecasting, indirect evidence does not make specific or quantitative predictions about how the conduct will affect market outcomes.

One example of indirect evidence is the "foreclosure shares" used in cases involving exclusive dealing, tying, and similar restraints.[47] This involves showing that the defendant's restraints foreclose rivals from a large share of important trading partners or distribution channels. For example, if rivals are largely cut off from an essential input without justification, the rationale for predicting harm to competition is obvious: in the but-for world, rivals would have much greater access to the essential input, allowing them to produce more units. That would likely raise output. Another prominent example of indirect evidence is the "structural presumption" in merger enforcement, which uses a merger's impact on market concentration as a proxy for harm.[48]

The logic of indirect evidence is that conduct that seriously obstructs or discourages competition without justification can be presumed to result in worse market outcomes, even if we cannot say exactly what they will be.[49] An obvious practical benefit of indirect evidence is that it avoids the need to make detailed statements about the but-for world. The tradeoff is that it does not make quantitative findings about outcome effects. Consequently, it reveals little about magnitude—it does not tell us *how much* less competitive the market is than it would have been in the but-for world.

Forecasting is most common in merger cases. It uses economic models and data to predict how the merger will affect outcomes (usually prices).

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[46] This "prediction" need not be aimed at future competition. It could be used to predict that the conduct is already causing harm, meaning that the market is less competitive now than it would have been but for the conduct.

[47] *See, e.g.,* McWane, Inc. v. F.T.C., 783 F.3d 814, 835-36 (11th Cir. 2015) (discussing foreclosure analysis in exclusive dealing cases and distinguishing it from direct evidence of harm). *See also, e.g.,* Nuechterlein & Shelanski, *supra* note 11, at 16 (foreclosure shares are a "classic example" of indirect evidence).

[48] A merger is deemed presumptively anticompetitive if it would sufficiently increase concentration in an already-concentrated market. *See* U.S. DEP'T OF JUST. & FED. TRADE COMM'N, MERGER GUIDELINES (2023). This presumption is grounded in economics. *See, e.g.,* Volker Nocke & Michael D. Whinston, *Concentration Thresholds for Horizontal Mergers*, 112 AM. ECON. REV. 1915 (2022).

[49] This follows from the fact that energetic competition generally produces better market outcomes, which is why we care about "harm to competition" in the first place. *See, e.g.,* Northern Pacific R. Co. v. United States, 356 U.S. 1 (1958) ("The Sherman Act … rests on the premise that the unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress…")

Examples include merger simulations[50] and unilateral effects analysis.[51] Because mergers are generally challenged before they occur, these methods use data on present market conditions to represent the but-for world,[52] and then they predict how the merger will cause competitive behavior to deviate from that baseline, assuming all else remains unchanged.

How is causation established? To predict the causal economic effects of a practice, we consider how it affects competitive activity *ceteris paribus*. This is the heart of causal inference.[53] By holding all other things fixed, we isolate the causal effects of the conduct in question. This excludes alternative possible causes from the outset.[54] Thus, to appraise a plaintiff's indirect evidence or forecasts, the relevant question is whether the prediction of harm is grounded in sound economic reasoning and methods, not whether there are alternative possible causes for the predicted harm.

2. Direct Evidence

Direct proof of harm requires the plaintiff to show that the challenged conduct has in fact resulted in worse market outcomes, such as higher prices, lower output, or diminished quality.[55] As a starting point, this requires evidence of an actual, observed change in market outcomes—for example, an observed increase in price levels. However, that is not enough. Market outcomes are constantly changing for reasons that have nothing to do with competition. Thus, courts are clear that a bad market outcome, without more,

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[50] *See, e.g.,* Fed. Trade Comm'n v. Sysco Corp., 113 F. Supp. 3d 1, 66 (D.D.C. 2015) (considering merger simulations that "predict the merger's effect").

[51] Unilateral effects analysis considers how the merger affects pricing incentives of the merging firms. *See, e.g.,* Nathan H. Miller & Gloria Sheu, *Quantitative Methods for Evaluating the Unilateral Effects of Mergers,* 58 REV. INDUSTRIAL ORGANIZATION 143 (2019).

[52] This is an assumption—it assumes that, aside from the challenged practice or transaction, future market conditions will remain similar to what they are now, or at least that they will not differ in ways that bear on the competitive effects at issue. Indirect evidence implicitly makes the same assumption. While normally reasonable, in some cases that assumption is badly violated, in which case the plaintiff's evidence may be rejected. *See, e.g.,* United States v. General Dynamics Corp., 415 U.S. 486 (1974) (rejecting the structural presumption because current market shares were a poor proxy for a defendant's future production).

[53] *See* James J. Heckman, *Econometric Causality*, 76 INT'L STAT. REV. 1, 2 (2008) ("The problem of causal inference is to assess whether manipulation of the treatment, *holding all other factors constant*, affects outcomes") (emphasis added).

[54] For example, when we forecast the price effects of a merger, we assume the firms' demand functions are unchanged. If demand increases for some exogenous reason, then prices could rise for reasons unrelated to the merger. We want to exclude that possibility from our forecast. Similarly, when using indirect evidence, we ask how competitive activity is likely to change when the restraint is implemented, assuming all other things remain unchanged.

[55] *See, e.g.,* Nat'l Collegiate Athletic Ass'n v. Bd. of Regents of Univ. of Oklahoma, 468 U.S. 85, 107 (1984) (finding that a restraint had "anticompetitive consequences" because "price is higher and output is lower than they would otherwise be").

cannot establish harm to competition.[56] Rather, the plaintiff must further show that the adverse outcome effect was caused by the challenged conduct.[57] The latter step is not separate from the proof of harm—it *is* the proof of harm. Any adverse market outcome feels harmful, but it is not harm *to competition* unless it flows from an interference with the competitive process.[58]

In easy cases, the causal link is simply obvious. For example, if two firms agree to raise their prices by $20 and the next day they both raise their prices by precisely that amount, then we can be confident that the price hike was caused by the agreement.

In hard cases, the causal link must be drawn econometrically. For example, in *Evanston*, the FTC challenged a consummated hospital merger.[59] Prices had increased after the merger.[60] The FTC established that the merger was anticompetitive by showing that the observed price increases were causally attributable to the merger. It introduced econometric evidence (a difference-in-differences study) showing that the defendant's price increases were significantly larger than those in a control group composed of comparable hospitals.[61] That control group was used to estimate the merging firms' pricing in the but-for world where they remained independent. But note that, in many cases, limitations of the available data will preclude empirical causal inference methods like this.[62] Thus, direct proof is not always a viable option.

As this shows, direct proof follows the same approach used in tort cases: the plaintiff shows an adverse outcome, and then further shows that it is causally attributable to the defendant's conduct. The only difference is that

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[56] *See, e.g.,* Gibson v. Cendyn Group, LLC, 148 F.4th 1069, 1087-88 (9th Cir. 2025) (showing that price levels increased "does not sufficiently allege an injury to competition because raising prices can be fully consistent with a free, competitive market"; "higher prices can be a possible *result* of anticompetitive behavior, but charging a higher price by itself is not anticompetitive.")

[57] *See, e.g.,* Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 232 (1993) ("Only if those higher prices *are a product of nonmarket forces* has competition suffered. If prices rise in response to an excess of demand over supply … the market is functioning in a competitive manner. Consumers are not injured from the perspective of the antitrust laws by the price increases") (emphasis added).

[58] *Id.*

[59] In the Matter of Evanston Nw. Healthcare Corp., No. 9315, 2007 WL 2286195 (F.T.C. Aug. 6, 2007).

[60] *Id.* at *2.

[61] *Id.* (this econometric analysis "ruled out the most likely competitively-benign explanations for [the price increases]").

[62] Any strategy for identifying causal effects requires certain assumptions about the underlying data-generating process. But the data actually available in a given case could easily be too limited to satisfy those assumptions. For example, a difference-in-differences study (as in *Evanston*) is not possible unless there are comparator firms that can plausibly serve as a control group. More generally, *see, e.g.,* Susan Athey & Guido W. Imbens, *The State of Applied Econometrics: Causality and Policy Evaluation*, 31 J. ECON. PERSP. 3 (2017).

tort law treats these two showings as separate legal elements, whereas in antitrust the harm element subsumes both steps.

3. Effects of Causes and Causes of Effects

The different proof strategies discussed above correspond to different approaches to causality. In the causal inference literature, the distinction is described in terms of "causes of effects" (CoE) versus "effects of causes" (EoC).[63] EoC analysis addresses the uncertain effects of a known cause, while CoE analysis addresses the uncertain cause of a known outcome. Direct proof takes the CoE approach, while indirect evidence and forecasts take the EoC approach. Both approaches address causal relationships, but in different ways. Intuitively, CoE is backward-looking: it starts with an actual, observed outcome and asks whether it is attributable to some intervention in the past. By contrast, EoC is generally forward-looking: it starts with a specific intervention and tries to determine its causal effects.

This methodological distinction offers a more concrete way to understand the different ways of proving harm, in contrast to the imprecise direct-versus-indirect dichotomy described by courts. Plaintiffs' proof strategies differ not merely in whether or not they quantify outcome effects, but more fundamentally in how they attempt to establish the causal impact of the challenged conduct. To that end, indirect evidence and forecasts are *predictive*, while direct evidence is *attributive*.

II. CAUSATION OF MONOPOLY POWER

Section 2 of the Sherman Act is curiously vague.[64] What exactly does it mean to "monopolize" a market? In *Grinnell*, the Supreme Court articulated what it described as a two-element test for monopolization liability.[65] First, the defendant must possess monopoly power. Second, it must have willfully acquired or maintained that power through anticompetitive conduct, as opposed to lawful competition on the merits.[66]

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[63] *See, e.g.,* Judea Pearl, *Causes of Effects and Effects of Causes*, 44 SOC. METHODS & RSCH. 149 (2015); A. Philip Dawid & Monica Musio, *Effects of Causes and Causes of Effects*, 9 ANN. REV. STAT. & ITS APPLICATION 261 (2022); A. Philip Dawid, David L. Faigman & Stephen E. Fienberg, *Fitting Science into Legal Contexts: Assessing Effects of Causes or Causes of Effects?*, 43 SOC. METHODS & RSCH. 359 (2014).

[64] 15 U.S.C. § 2 (condemning "[e]very person who shall monopolize, or attempt to monopolize … any part of the trade or commerce among the several states.")

[65] United States v. Grinnell Corp., 384 U.S. 563, 570-71 (1966) ("The offense of monopoly under § 2 of the Sherman Act has two elements: (1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident.").

[66] I am glossing over some historical confusion about the second element. *Grinnell*'s original formulation spoke of "willful acquisition or maintenance" of monopoly and distinguished it from competition on the merits, but it did not explicitly say that this entailed anticompetitive conduct.

However, notice that the second element seems to require two different things. The plaintiff must show not only that the defendant engaged in anticompetitive conduct, but also that that conduct is responsible to some extent for the firm's acquisition or maintenance of monopoly power.[67] Indeed, when applying the second element, the *Grinnell* Court emphasized that the defendant's monopoly "was achieved in large part by unlawful and exclusionary practices."[68] Even before *Microsoft*, many antitrust experts viewed *Grinnell* as creating a kind of causation requirement.[69]

Liability thus requires *monopoly causation*: the defendant's acquisition or maintenance of monopoly power must be sufficiently attributable to its anticompetitive conduct.[70] This requirement is unique to Section 2. Monopolization is the only antitrust violation that requires proof of monopoly power. While other violations often demand ordinary market power, that entails only *possession* of power; and this showing is merely supplementary to the proof of harm.[71] Once harm is proven, other violations do not further require *attribution* of the defendant's market power to its harmful conduct.

Note that monopoly causation does not ask whether the defendant is a monopolist or whether it behaved anticompetitively. Those things are proven separately. Monopoly causation takes those two facts as given and asks if they are sufficiently causally related.[72]

A. Independence of Harm and Monopoly Causation

See id. It would be strange if it did not require that, because even firms who compete on the merits are often "willfully" trying to achieve a dominant position (e.g., through innovation). The Supreme Court has subsequently confirmed that liability requires anticompetitive conduct. Verizon Commc'ns Inc. v. L. Offs. of Curtis V. Trinko, LLP, 540 U.S. 398, 407 (2004) ("the possession of monopoly power will not be found unlawful unless it is accompanied by an element of anticompetitive conduct.")

[67] *See, e.g.,* United States v. Microsoft Corp., 253 F.3d 34, 51 (D.C. Cir. 2001) (in a monopoly maintenance case, Section 2 liability requires that the defendant "possesses monopoly power" and that it "maintained this power *through anticompetitive means*") (emphasis added).

[68] *Grinnell,* 384 U.S. at 576.

[69] *See, e.g.,* Timothy J. Muris, *The FTC and the Law of Monopolization*, 67 ANTITRUST L.J. 693 (2000) (under *Grinnell*, "the anticompetitive—that is, exclusionary—conduct must be linked to the monopoly.")

[70] What counts as "sufficiently attributable" depends on the applicable legal standard. Note that, as *Microsoft* suggested, courts might apply a relaxed standard at the liability phase and a more onerous one at the remedy phase. *See* Part V, *infra.*

[71] When plaintiffs prove harm indirectly, courts require proof of market power to help support an inference of lessened competition. *See, e.g.,* Ohio v. Am. Express Co., 585 U.S. 529, 541 (2018).

[72] *See* United States v. Microsoft Corp., 253 F.3d 34, 106 (D.C. Cir. 2001) (describing monopoly causation as "a sufficient causal connection between [Defendant's] anticompetitive conduct and its dominant position.") This takes as given that the defendant possesses a monopoly and that its conduct was anticompetitive.

Harm to competition and monopoly causation are independent; neither one implies the other. To understand the distinct role of monopoly causation, it is helpful to start by observing that it is the analogue to a much more developed legal requirement arising in claims of *attempt* to monopolize.[73] There are three elements of Section 2 attempt: (1) anticompetitive conduct; (2) a specific intent to monopolize; and (3) a "dangerous probability" of success in acquiring or maintaining monopoly power.[74]

Monopoly causation and the dangerous probability requirement perform the same function within their respective Section 2 claims. They ensure that the challenged conduct bridges the gap between anticompetitive behavior generally and (actual or threatened) *monopolization*. The Supreme Court is clear that such a gap exists. It notes that Section 2 of the Sherman Act is "narrower" than Section 1, because it condemns anticompetitive activity "only if [it] monopolizes … or threatens actual monopolization."[75] That is, even if a practice harms competition—and thus potentially violates other antitrust statutes—it is not necessarily capable of creating or maintaining monopoly.[76]

This gap also has a clear economic basis. Monopoly is a market structure reflecting an extreme paucity of competition. But not all anticompetitive practices will generate such extreme results. For example, if a cartel's members account for just a third of sales in the relevant market, they cannot hope to acquire collective monopoly power, as their conspiracy leaves substantial competition intact. More generally, even if a practice harms competition, the magnitude of the harm could be too limited to have a significant impact on the market's competitive structure, or, by extension, the defendant's monopoly power.

Both monopoly causation and the dangerous probability requirement address the causal impact of anticompetitive conduct on monopoly power, but they do so from different vantages. In an attempt case, the dangerous probability inquiry is forward-looking (i.e., *predictive*): the defendant has not yet acquired or maintained a monopoly, and the question is whether its

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[73] Section 2 prohibits not only monopolization but also attempts to monopolize. 15 U.S.C. § 2 (condemning "[e]very person who shall monopolize, or attempt to monopolize....")

[74] Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 456 (1993). While attempt claims usually allege an attempt to *acquire* monopoly, Section 2 also prohibits attempts to *maintain* an existing monopoly. *See, e.g.,* Multiflex, Inc. v. Samuel Moore & Co., 709 F.2d 980, 991 (5th Cir. 1983) (finding Section 2 liability for an attempt to maintain a monopoly through exclusion).

[75] Am. Needle, Inc. v. Nat'l Football League, 560 U.S. 183, 190 (2010). As a result, some "harmful methods of competition go unpunished." Colorado Interstate Gas Co. v. Natural Gas Pipeline Co. of America, 885 F.2d 683, 695 (10th Cir. 1989).

[76] *See, e.g.,* Spanish Broad. Sys. of Fla., Inc. v. Clear Channel Commc'ns, Inc., 376 F.3d 1065, 1075 (11th Cir. 2004) ("Regardless of the defendant's power or intent, its conduct may be incapable of producing monopoly…")

anticompetitive conduct is sufficiently likely to cause that result.[77] By contrast, monopoly causation is backward-looking (i.e., *attributive*): the defendant is already dominant, and the question is whether this is sufficiently attributable to its anticompetitive conduct. These different vantages reflect the EoC-versus-CoE distinction discussed earlier.[78]

In attempt cases, courts recognize that the dangerous probability requirement is independent of the obligation to show anticompetitive conduct (i.e., harm to competition).[79] Thus, courts sometimes find that a challenged practice is not unlawful—even if anticompetitive—because its adverse impact on competition is too limited to monopolize the market.[80] The same logic applies in an ordinary monopolization case, where the defendant is already a monopolist. The defendant's anticompetitive conduct might not have had a significant impact on the market's competitive structure. As such, it did not necessarily play a significant causal role in the defendant's acquisition or maintenance of monopoly power.

In this way, harm to competition does not imply monopoly causation. Nor does monopoly causation imply harm to competition.[81] However, the independence of the two issues is easy to overlook if courts apply a weak legal standard to monopoly causation, as *Microsoft* did at the liability stage.[82] Under a more onerous standard, the independence is easy to see, as the next section illustrates.

B. Illustrations

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[77] Taylor Pub. Co. v. Jostens, Inc., 216 F.3d 465, 476 (5th Cir. 2000) (to establish attempt liability, "[c]onduct must not only be inconsistent with competition on the merits, it must also have the potential for making a significant contribution to monopoly power."); Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 459 (1993) (the dangerous probability element requires a "realistic probability" of actual monopolization).

[78] Part I.B.3, *supra*. In particular, monopoly causation asks a CoE question, while the dangerous probability requirement asks an EoC question.

[79] As noted above, courts recognize these as separate elements. Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 456 (1993).

[80] *See, e.g., Jostens*, 216 F.3d at 477 n.5, 482 (finding that the challenged behavior "constituted exclusionary conduct," but withholding Section 2 liability in part because "[Defendant] could never obtain a monopoly through this conduct."); Abraham v. Intermountain Health Care Inc., 461 F.3d 1249, 1268 n.12 (10th Cir. 2006) (there was "no evidence to suggest that even complete success of [defendant's plan] … would result in monopoly power.").

[81] That a practice has a strong causal impact on a defendant's monopoly power does not imply that the practice harms competition. For example, developing better technology can increase a firm's market power, as can various other practices that do not harm competition. *See, e.g.,* Jonathan Baker, *Conduct That Increases Market Power Without Lessening Competition: A Challenge for Antitrust Law*, ANTITRUST L.J. (forthcoming).

[82] When courts apply a weak standard to monopoly causation, most plaintiffs who can prove harm can also prove monopoly causation. This can obscure the distinction between the two issues.

This section provides some examples to illustrate the foregoing points. The analysis here will ignore the "proof problem" surrounding monopoly causation and simply assume that we know exactly how the defendant's conduct affected competition relative to the but-for world. This will allow us to temporarily set aside the question of what evidence is sufficient to establish monopoly causation and focus instead on the *object* of proof—the underlying causal connection required. The next section then turns to the proof problem.

I assume throughout these examples that the defendant's conduct lessens competition without justification. This is sufficient to establish anticompetitive harm. The remaining question is whether the defendant's misconduct is sufficiently powerful to "monopolize." These examples will use market share as a proxy for market power, as courts usually do. To find monopoly power, courts generally require a market share of at least 70-80%.[83] For simplicity, assume the threshold is exactly 70%.

As a benchmark, start by considering a claim of attempt to monopolize. The defendant's current market share is below the monopoly threshold.[84] The court considers whether there is "a dangerous probability that the defendant's conduct [will] propel it from a non-monopolistic share of the market to a share that would be large enough to constitute a monopoly for purposes of the monopolization offense."[85] This requires that the magnitude of the anticompetitive effects is sufficiently large to raise the defendant's market share above the 70% threshold.[86] But it also depends on how *close* to dominant the defendant already is. For example, if the defendant's current share is 40%, then achieving monopoly will require a 30-point increase. That would require that the harmful effects of the conduct are quite powerful. But if the defendant's current share is 65%, then a modest amount of anticompetitive harm could suffice.

In an ordinary monopolization case, the defendant is already dominant. Monopoly causation asks whether its existing monopoly power is sufficiently causally attributable to its anticompetitive acts. Here, too, we can formulate the inquiry in terms of market shares: the anticompetitive conduct must be causally responsible for a sufficiently large chunk of the defendant's dominant

[83] *See, e.g.,* Colorado Interstate Gas Co. v. Nat. Gas Pipeline Co. of Am., 885 F.2d 683, 694 n.18 (10th Cir. 1989).

[84] For simplicity, I will assume that the defendant's market share would remain at its current level in the absence of its anticompetitive conduct. Most courts appear to make this assumption implicitly. *See, e.g., id.* at 694.

[85] *Id.*

[86] Because we are focusing on the causal effect of the anticompetitive conduct, all other factors that affect the defendant's market share are being held fixed. Thus, a larger causal increase in share will require that the anticompetitive conduct generates a larger reduction in competitive constraints.

market share. This is just the backward-looking counterpart to the dangerous probability inquiry in the previous paragraph.

As for the degree of causal responsibility required, there are two candidates.[87] The first, adopted in *Microsoft*[88] and favored in many academic discussions,[89] is that the anticompetitive conduct must have made a "significant contribution" to the defendant's monopoly power.[90] But some experts argue that "but-for causation" is the appropriate causal criterion.[91]

The significant contribution criterion requires a sufficiently large incremental improvement in the defendant's power relative to the but-for world. To my knowledge, no court has articulated how big this "significant contribution" must be. For illustrative purposes, let us suppose that the anticompetitive conduct must be responsible for at least 10 percentage points of the defendant's dominant market share. For example, if the defendant's actual market share is 90%, then the significant contribution test would require that its counterfactual share in the but-for world would be at most 80%. Notice that this test does not necessarily require that the defendant would have been nondominant in the but-for world.

By contrast, a but-for test for monopoly causation would demand exactly that. It requires that the defendant would not have acquired or maintained monopoly power but for its anticompetitive conduct.[92] Regardless of whether the case centers on acquisition or maintenance of monopoly, this means that the defendant's anticompetitive conduct must have improved the defendant's market share from a nondominant level (in the but-for world) to a dominant level (in the real world).[93]

Thus, under both tests, monopoly causation requires that the magnitude of the anticompetitive effects is sufficiently large to achieve the necessary increase in market share relative to the but-for world. Under the significant contribution test, the minimal required change in share could be uniform

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[87] Note that the causal connection required is separate from the evidentiary standard that determines the quality of evidence required. As explained later, the "toothless" aspect of *Microsoft*'s causation doctrine stems from a weak evidentiary standard. *See* Part II.C.2.ii, *infra*.

[88] *See, e.g.,* United States v. Microsoft Corp., 253 F.3d 34, 79 (D.C. Cir. 2001).

[89] *See, e.g.,* Daniel Francis, *Making Sense of Monopolization,* 84 ANTITRUST L.J. 779, 807 (2022).

[90] This amounts to a "material causation" requirement (also called a "substantial factor" test), which is the most common legal alternative to but-for causation. *See, e.g.,* J. Shahar Dillbary, *Causation Actually*, 51 GA. L. REV. 1, 48–49 (2016).

[91] *See* Part IV.A, *infra*.

[92] I discuss the implications of a but-for test in more detail in Part IV.A, *infra*.

[93] But-for causation of monopoly maintenance requires that the defendant would not have been able to retain a dominant position (because rivals would have eroded it) but for its anticompetitive conduct. But-for causation of monopoly acquisition means the defendant would not have obtained a monopoly in the first place but for its anticompetitive conduct. Thus, either way, the defendant must be nondominant in the but-for world.

across cases. But under a but-for test, the minimal required change in market share necessarily varies across cases, much as it does under the dangerous probability element.

For example, suppose the defendant's actual market share is 95%. Under a but-for test, its counterfactual market share would have to be under 70% in the but-for world. That would imply that the anticompetitive conduct increased the defendant's market share by more than 25 points, which would require a major reduction in competitive constraints. By contrast, if the defendant's actual market share is only 75%, then a much more modest amount of harm could suffice—just enough to improve the defendant's share by over 5 points.

Of course, these stylized examples are totally foreign, because courts have never required these kinds of showings to establish monopolization liability. As discussed below, the earliest traces of monopoly causation in the case law (circa 1980) subjected the inquiry to essentially the same "toothless" evidentiary standard that *Microsoft* adopted.[94] That weak standard makes it unnecessary to make these kinds of showings. The point of the examples is to illustrate what monopoly causation would logically entail if courts demanded more rigorous evidence. This is relevant for two reasons. First, some experts argue that the toothless test should be replaced with a more demanding standard in most cases, which would sometimes require showings like those in the examples.[95] Second, strong remedies already require a more demanding causation standard, but that standard remains largely undeveloped.[96]

These points also illustrate the direction-vs-magnitude distinction. As the examples show, monopoly causation requires that the magnitude of the anticompetitive effects is sufficiently large to achieve the required causal impact on the defendant's power. But there is no such rule for proving harm. To establish that a practice is anticompetitive, a plaintiff need not show, for example, that it increased the defendant's share by at least 10 points, or by any other specific threshold. More generally, in the harm inquiry, courts focus mainly on *whether or not* the conduct lessens competition; they generally do not require detailed evidence about *how much* less competitive it is. In that sense, the harm inquiry is largely directional, while monopoly causation is concerned with magnitude.

C. *Microsoft*'s "Edentulous" Standard

Monopoly causation raises a practical problem. Both procompetitive and anticompetitive behavior can contribute to a firm's dominance. And they are

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[94] *See* Part II.C, *infra*.

[95] *See* Part IV.A, *infra*.

[96] This is reflected in the recent *Google Search* case. The district court noted that it was not entirely clear what monopoly causation standard should apply at the remedy phase, and it considered a number of options before settling on one. *See* United States v. Google LLC, 803 F. Supp. 3d 18 (D.D.C. 2025).

not mutually exclusive.[97] More generally, a defendant's monopoly position is typically not the result of one discrete decision; it is the product of many decisions spanning years, along with market conditions and events outside the firm's control. The upshot is that a typical monopoly has not one cause, but many. And this thicket of causal factors makes it incredibly difficult to say how much of a defendant's dominance is attributable to its anticompetitive acts.

This is magnified by the fact that the anticompetitive fallout of a harmful practice is often difficult or impossible to assess, particularly in monopoly maintenance cases.[98] In *Microsoft*, the D.C. Circuit recognized this "proof problem" and its potential to undermine antitrust enforcement.[99] Microsoft had engaged in exclusionary conduct aimed at "nascent" competitive threats to its Windows operating system monopoly.[100] But it was impossible to say whether those threats would otherwise have ignited a significant increase in competition.[101] This, in turn, made it impossible to say how much of Microsoft's present dominance was attributable to its exclusionary conduct.

Importantly, however, the court was satisfied that Microsoft's conduct was harmful to competition.[102] It was only the significance of its causal role in maintaining Microsoft's monopoly that was highly uncertain. The court refused to let this uncertainty stand in the way of liability. It held that monopoly causation should be assessed under a relaxed legal standard: an "edentulous test for causation."[103]

Under this standard, a plaintiff need not show "that a defendant's continued monopoly power is precisely attributable to its anticompetitive conduct."[104] Instead, adopting language from the Antitrust Law treatise, the court held that we can "infer" causation when the relevant conduct "reasonably appears capable of making a significant contribution to monopoly power."[105]

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[97] *See, e.g.,* United States v. Google LLC, 803 F. Supp. 3d 18, 77 (D.D.C. 2025) ("Only rarely will anticompetitive conduct be the sole or primary explanation for the maintenance of monopoly").

[98] *See* Part II.D.1, *infra*.

[99] United States v. Microsoft Corp., 253 F.3d 34, 79 (D.C. Cir. 2001).

[100] *Id.*

[101] *Id.* at 78. The court noted that "neither plaintiffs nor the court can confidently reconstruct a product's hypothetical technological development in a world absent the defendant's exclusionary conduct." *Id.*

[102] *Id.* at 58-78. *See* also Part III.A, *infra*.

[103] *Id.* at 78-79.

[104] *Id.*

[105] *Id.* (quoting 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 650c, at 69 (1996)).

This causation standard is now widely associated with *Microsoft.*[106] But that is somewhat curious, given that *Microsoft* was not the first decision to endorse this "reasonably appears capable" language. A number of other circuits had done so years or even decades earlier.[107]

In retrospect, two things made *Microsoft* stand out. First, it was the first circuit court to describe this attribution-of-power issue as a "causation" requirement, separating it from the obligations to prove harm to competition and possession of monopoly power.[108] By contrast, earlier decisions had somewhat awkwardly characterized the requisite "contribution to monopoly power" as part of the definition of exclusionary conduct.[109]

Second, *Microsoft* emphasized that monopoly causation should regain its bite at the remedy stage.[110] In particular, more severe remedies (particularly breakups) require "a clearer indication of a significant causal connection between the conduct and creation or maintenance of the market power."[111] As a result, *Microsoft*'s toothless test does not make monopoly causation legally irrelevant; it just shifts most of its legal impact from the liability phase to the remedy phase.

1. The ~~Two~~ Three Elements of Monopolization

In the years after *Microsoft,* numerous other circuits endorsed the same monopoly causation language.[112] To my knowledge, no other circuit to consider the issue has adopted a different standard.[113] However, even the circuits that have adopted this language have spent only a few sentences discussing it.

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[106] *See, e.g.,* Daniel Francis, *Making Sense of Monopolization,* 84 ANTITRUST L.J. 779, 807 (2022) (noting that this standard is "most famously described in … *Microsoft*.")

[107] Barry Wright Corp. v. ITT Grinnell Corp., 724 F.2d 227, 230 (1st Cir. 1983); S. Pac. Commc'ns Co. v. Am. Tel. & Tel. Co., 740 F.2d 980, 999 n.19 (D.C. Cir. 1984); Instructional Sys. Dev. Corp. v. Aetna Cas. & Sur. Co., No. 82-2105, 1986 WL 30775, at *7 (10th Cir. Mar. 31, 1986); Morgan v. Ponder, 892 F.2d 1355, 1363 (8th Cir. 1989); Taylor Pub. Co. v. Jostens, Inc., 216 F.3d 465, 475 (5th Cir. 2000).

[108] United States v. Microsoft Corp., 253 F.3d 34, 78 (D.C. Cir. 2001) (describing the requirement as "a causal link between Microsoft's anticompetitive conduct . . . and the maintenance of Microsoft's operating system monopoly.")

[109] *See, e.g.,* Barry Wright Corp. v. ITT Grinnell Corp., 724 F.2d 227, 230 (1st Cir. 1983); S. Pac. Commc'ns Co. v. Am. Tel. & Tel. Co., 740 F.2d 980, 999 n.19 (D.C. Cir. 1984).

[110] *Microsoft,* 253 F.3d at 80 (D.C. Cir. 2001).

[111] *Id.* at 106 (quoting 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 650a, at 67 (1996)).

[112] *See, e.g.,* United States v. Dentsply Int'l, Inc., 399 F.3d 181, 187 (3d Cir. 2005); Realcomp II, Ltd. v. F.T.C., 635 F.3d 815, 830 (6th Cir. 2011); McWane, Inc. v. F.T.C., 783 F.3d 814, 833 (11th Cir. 2015); Viamedia, Inc. v. Comcast Corp., 951 F.3d 429, 485 (7th Cir. 2020).

[113] However, as discussed later, the D.C. Circuit's *Rambus* decision (published several years after its *Microsoft* decision) is argued by some to have adopted a more exacting standard for monopoly causation. I argue this is not true, however. *See* Part IV.C, *infra.*

Overall, monopoly causation remains largely undeveloped outside of the two pages that *Microsoft* devoted to it.

Still, the consensus seems to be that monopolization does require some causal connection between the defendant's anticompetitive conduct and its monopoly power. The result is that monopolization liability effectively has three elements, not two:[114]

> **1. Monopoly power.** The defendant possesses monopoly power in the relevant market.
>
> **2. Harm to competition.** The challenged conduct causes harm to competition in the relevant market.[115]
>
> **3. Monopoly causation.** There is a sufficient causal nexus between the defendant's anticompetitive conduct and its monopoly power.

The second and third elements together form the second prong in *Grinnell's* two-part test of monopolization liability.[116] Recognizing harm and monopoly causation as separate elements is important, not only because they are distinct issues, but also because it allows courts to apply a relaxed legal standard to causation while maintaining a high bar for establishing harm to competition.

2. Distinctive Features of the Microsoft Standard

The *Microsoft* causation standard is relaxed in two ways that distinguish it from a traditional causation test. Both are the subject of heated debate.[117]

i. Significant Contribution, Not But-For Causation

First, *Microsoft* does not require a but-for test for monopoly causation at the liability stage.[118] Instead, the plaintiff need only show that the defendant's anticompetitive conduct made a "significant contribution" to the defendant's acquisition or maintenance of monopoly power.[119] This is important because, as emphasized above, a typical monopoly is a product of many distinct causes. And "but-for" tests tend to become unwieldy when there are multiple

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[114] This discussion centers on ordinary monopolization claims, not claims of "attempt to monopolize," which involve slightly different elements. *See* Part VI.C, *infra*.

[115] Recall that I focus on *unrebutted* harm, after accounting for possible procompetitive effects. *See* notes 32-34, *supra*, and accompanying text.

[116] United States v. Grinnell Corp., 384 U.S. 563, 570-71 (1966).

[117] *See* Part IV, *infra* (discussing these debates).

[118] *Microsoft,* 253 F.3d at 79 (D.C. Cir. 2001) ("as to § 2 *liability*," plaintiffs need not "present direct proof that the defendant's continued monopoly power is precisely attributable to its anticompetitive conduct") (emphasis original).

[119] *Id.* at 79.

independent causes driving a result.[120] It is thus not surprising that *Microsoft*'s "significant contribution" test is extremely similar to the relaxed causation test often applied in tort cases where multiple causes contribute to an injury.[121]

Note that if this were the only sense in which the monopoly causation standard were relaxed, the inquiry would not be toothless. Proving that an anticompetitive practice "contributed significantly" to a defendant's monopoly would still be quite difficult in many cases, because this magnitude question is often not susceptible to proof.[122]

ii. Reasonable Capability, Not Actual Contribution

The *Microsoft* standard is relaxed in a second sense: it carries a very weak evidentiary standard at the liability stage. It does not require the plaintiff to show that the defendant's conduct *actually* contributed significantly to the defendant's monopoly power.[123] The court required only that "as a general matter" the defendant's anticompetitive conduct "is the type of conduct that is reasonably capable of contributing significantly to a defendant's continued monopoly power."[124] This transforms monopoly causation from a question of actual impact into a question of general capability. This is what makes the *Microsoft* standard toothless at the liability stage.

Still, this does not make monopoly causation a total freebie, as not all anticompetitive practices are "reasonably capable" of having a significant impact on the market's competitive structure. One can imagine that, for any anticompetitive practice, there is a floor and a ceiling on the extent to which competitive constraints in the market are potentially diminished. The "reasonably appears capable" test requires only that the ceiling is relatively high. If the facts of a case indicate that even the ceiling-level of harm would be paltry, then the toothless test cannot save the plaintiff's case.

D. Monopoly Causation as a Magnitude Inquiry

As explained earlier, if monopoly causation demanded rigorous proof, it would require evidence that the magnitude of the adverse effects on competition is sufficiently large to generate the required causal improvement

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[120] *See, e.g.,* David W. Robertson, *Causation in the Restatement (Third) of Torts: Three Arguable Mistakes*, 44 WAKE FOREST L. REV. 1007, 1018-19 (2009).

[121] In such cases, courts often drop the "but-for" test and require only that the defendant's misconduct was a "substantial factor" in causing the injury. *See, e.g.,* Mitchell v. Gonzales, 54 Cal. 3d 1041, 1049 (1991) ("It has generally been recognized that the 'but for' test … should not be used when two causes occur to bring about an event and either one of them operating alone could have been sufficient to cause the result. … The proper rule for such situations is that the defendant's conduct is … a material element and a substantial factor in bringing it about.")

[122] *See* Part II.D.1, *infra*.

[123] *Microsoft*, 253 F.3d at 79 ("the question in this case is not whether Java or Navigator would actually have developed into viable platform substitutes").

[124] *Id.*

in the defendant's market power.[125] The harm inquiry does not include that kind of magnitude requirement.[126] It is largely directional in that it focuses on whether the conduct lessens or promotes competition overall.[127]

A serious practical difficulty is that the magnitude is much harder to assess than the direction. This section begins by explaining this problem. It then highlights how it manifested in *Microsoft*, and how it motivated the court's toothless causation test.

1. Magnitude Is More Uncertain Than Direction

The question of *whether or not* a practice lessens competition is generally more susceptible to proof than the question of *how much* competition has actually been lost. This is true regardless of whether the evidence is econometric or theoretical. Econometrically, it is generally harder to precisely determine the magnitude of a causal effect than to identify its sign (direction).[128] And, while we often rely on economic theory to conclude that harm is likely, theory generally does not tell us about magnitudes.[129]

To establish a large reduction in market competitiveness, one must show large adverse changes in present or future market outcomes, such as price, output, quality, or other factors. In a market with significant entry barriers, the elimination of significant rivals could be sufficient to infer a large magnitude of harm.[130]

As this reflects, there are many different ways anticompetitive harm can manifest. But it is not typically possible to predict precisely which adverse effects will occur and how severe they will be.[131] Moreover, all of these outcome effects could potentially occur for natural reasons, potentially making causal

[125] *See* Part II.B, *supra*.

[126] This does not mean that harm analysis never considers magnitudes of certain economic effects or variables—it does so routinely. For example, in exclusive dealing cases, litigants calculate the magnitude of foreclosure. But, as explained below, that magnitude generally does not support detailed findings about how much less competitive the market actually is, nor how much the defendant's power actually increased. *See* Part II.D.1, *infra*.

[127] *See, e.g.,* Ohio v. Am. Express Co., 585 U.S. 529, 541 (2018) ("The goal is to distinguish between restraints with anticompetitive effect that are harmful to the consumer and restraints stimulating competition that are in the consumer's best interest") (internal quotations omitted).

[128] *See, e.g.,* Cecilia Machado, Azeem M. Shaikh & Edward J. Vytlacil, *Instrumental Variables and the Sign of the Average Treatment Effect*, 212 J. ECONOMETRICS 522, 523 (2019).

[129] For example, as a matter of theory, it is obvious that naked price fixing will likely reduce output and consumer welfare; but theory cannot tell us the magnitudes of those effects.

[130] The market share of the eliminated rivals could serve as a proxy for the magnitude of the harm. All else being equal, eliminating a rival that has (or would eventually have had) a large market share will tend to cause more harm than eliminating a less significant rival.

[131] For example, direct evidence and forecasting almost always focus on prices, which is just one dimension of competition.

attribution of observed effects difficult.[132] These points create significant uncertainty over the magnitude of the harm, but not necessarily the direction.

By analogy, suppose a worker is exposed to a large amount of radiation. The harmful effects of radiation can manifest in many ways, ranging from subtle to extreme. That makes it hard to predict ex ante how much harm the worker will suffer. And even if he later experiences a serious adverse outcome (e.g., cancer), it may be impossible to determine whether this is attributable to the radiation or just bad luck. But none of this uncertainty undermines our confidence that a significant radiation exposure is likely to have an adverse *directional* effect on health.

The difficulty is most acute when plaintiffs use indirect evidence, because it does not make any detailed findings about effects on market outcomes.[133] For example, as noted earlier,[134] in cases involving exclusive dealing, plaintiffs often prove harm using foreclosure shares. The amount of foreclosure is a "magnitude" of sorts, but it measures a harm *to rivals*, not harm to competition itself. However, if rivals are sufficiently impaired without justification, we can infer that competition itself will suffer. To support that inference, courts require that the foreclosure is "substantial."[135] But this merely "serves a useful screening function" by excluding cases where the adverse effects on rivals are too limited to infer harm to competition itself.[136]

Substantial foreclosure (and an absence of procompetitive justifications) help to establish an adverse directional effect on competition. But it typically leaves significant uncertainty over the magnitude. The magnitude of the harm depends on many variables other than the amount of foreclosure.[137] And all cases involving exclusion of young rivals or entrants raise the same difficulty confronted in *Microsoft*: the magnitude of the harm depends in part on how strongly those rivals might have stimulated future competition if they had been able to grow and compete on an even playing field. Additionally, foreclosure shares tend to overstate the causal effect on rivals to some extent.[138] For all of these reasons, the amount of foreclosure generally cannot

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[132] As discussed earlier, in some cases we can draw that causal link empirically, but this is not always possible, depending on what kinds of data are available. *See* notes 59-62, *supra*, and accompanying text.

[133] *See* Part I.B.1, *supra*.

[134] *See* notes 47-48, *supra*, and accompanying text.

[135] They also generally require additional case-specific evidence reinforcing the inference. *See, e.g.,* McWane, Inc. v. F.T.C., 783 F.3d 814, 835 (11th Cir. 2015).

[136] United States v. Microsoft Corp., 253 F.3d 34, 69 (D.C. Cir. 2001).

[137] For example, it depends on the competitive significance of the trading opportunities from which rivals are foreclosed; the availability of workarounds; and the number of rivals that are actually impaired, among other things.

[138] This is because not all of the transactions covered by an exclusive deal would otherwise have been made by rivals. For example, if a defendant enters into an exclusive deal with a large buyer accounting for 60% of all purchases, that corresponds to a 60% foreclosure share, but this does

support detailed findings about how much less competitive the market is relative to the but-for world.

To reinforce the point, consider the disparity between *Microsoft* and a follow-on private damages action challenging the same conduct. The government prevailed in *Microsoft*—and thus it succeeded in proving harm—but the private case failed in part because the harmful effects were "so diffuse that they could not possibly be adequately measured."[139] This is because private plaintiffs cannot just show harm to competition in the abstract; they must give more detailed evidence about how the harm actually manifested in tangible outcome effects.[140] That is a much harder thing to do.

2. Harm and Monopoly Causation in Microsoft

Microsoft centered mainly on the Windows operating system monopoly, which was protected by the "applications barrier to entry."[141] A major reason for that entry barrier was the fact that it was costly for software developers to "port" their apps to a second operating system.[142] But "middleware" products—such as Java and the Netscape Navigator web browser—promised to reduce those costs significantly.[143] If a software app is written using middleware application programming interfaces (APIs), then it will be available on any operating system that the middleware product interoperates with.[144] If developers could easily make their apps available on competing operating systems, this would make it much easier for those competitors to attract consumers as well.

The court found that Microsoft had engaged in numerous anticompetitive practices aimed at foreclosing middleware products from important

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not imply that all of the covered purchases would otherwise have been made from the defendant's rivals. Even absent the exclusivity requirement, the large buyer might have elected to buy most of its needs from the defendant.

[139] Kloth v. Microsoft Corp., 444 F.3d 312, 324 (4th Cir. 2006).

[140] *See, e.g.*, Earl E. Pollock, *The "Injury" and "Causation" Elements of a Treble-Damage Antitrust Action*, 57 NW. U. L. REV. 691 (1962–1963).

[141] United States v. Microsoft Corp., 253 F.3d 34, 55 (D.C. Cir. 2001) ("the applications barrier to entry stems from two characteristics of the software market: (1) most consumers prefer operating systems for which a large number of applications have already been written; and (2) most developers prefer to write for operating systems that already have a substantial consumer base. This 'chicken-and-egg' situation ensures that applications will continue to be written for the already dominant Windows, which in turn ensures that consumers will continue to prefer it over other operating systems.")

[142] *Id.* at 53 ("a developer who writes an application for one operating system and wishes to sell the application to users of another must modify, or 'port,' the application to the second operating system. This process is both time consuming and expensive.")

[143] *Id.* at 53-55.

[144] *Id.* at 53.

distribution channels and artificially stifling their adoption.[145] This protected its Windows monopoly by preventing the middleware threat from eroding the applications barrier to entry. The court also found that the large majority of Microsoft's challenged conduct lacked any procompetitive justification.[146]

However, middleware was not yet a major competitive threat. It did not yet possess enough APIs to support all the functionalities of sophisticated software apps.[147] Consequently, the D.C. Circuit concluded that middleware represented only a "nascent" threat to the Windows monopoly.[148] And it emphasized that the evidence did not prove that Microsoft would have lost its dominant position but for its exclusionary conduct.[149] Middleware was still a young technology with an uncertain future growth trajectory. There was simply no way to say how much more competitive the operating system market might have become absent Microsoft's exclusionary conduct.

However, the question of whether Microsoft's conduct was detrimental to competition *at all* was not nearly so speculative. The middleware threat was not merely theoretical. Some developers were already using middleware to make their apps available on multiple platforms.[150] And even when middleware could not support all of an app's functionalities, it would still lower the cost of porting the app to other operating systems.[151]

These developments were chipping away at the applications barrier to entry. To that end, it is important to note that a reduction in entry barriers need not result in actual entry in order to stimulate competition. As both economists and courts recognize, the *prospect* of entry will itself create competitive pressure, inducing incumbents to behave more competitively.[152]

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[145] *Id.* at 54-78.

[146] *Microsoft*, 253 F.3d at 66-67, 71-72, 74, 76-77 (D.C. Cir. 2001).

[147] United States v. Microsoft Corp., 84 F. Supp. 2d 9, 30 (D.D.C. 1999) (district court findings of fact).

[148] *Microsoft*, 253 F.3d at 53-54.

[149] *Id.* at 107 (crediting the district court's finding that "there is insufficient evidence to find that, absent Microsoft's actions, Navigator and Java already would have ignited genuine competition in the market for intel-compatible operating systems.")

[150] *Microsoft*, 253 F.3d at 76 (noting that some developers "who preferred portability over performance" were already using Java to write their apps).

[151] United States v. Microsoft Corp., 84 F. Supp. 2d 9, 29 (D.D.C. 1999).

[152] *See, e.g.,* United States v. Baker Hughes Inc., 908 F.2d 981, 988 (D.C. Cir. 1990) ("the threat of entry can stimulate competition in a concentrated market, regardless of whether entry ever occurs."); S. Pac. Commc'ns Co. v. Am. Tel. & Tel. Co., 740 F.2d 980, 1001 (D.C. Cir. 1984) (recognizing "the effectiveness of potential competition as a constraint on the pricing behavior of the dominant firm"). *See also, e.g.,* William J. Baumol, *Contestable Markets: An Uprising in the Theory of Industry Structure*, 72 AM. ECON. REV. 1 (1982) (explaining how potential entry affects a market's competitiveness).

Thus, by eroding barriers to entry, middleware was already a real—albeit minor—source of competitive pressure.

If nothing else, Microsoft's conduct extinguished that spark of competitive pressure. The court found substantial evidence that Microsoft's conduct served no purpose other than to exclude middleware firms and thereby keep entry barriers higher than they would have been otherwise.[153] And, as just explained, conduct that raises entry barriers need not prevent actual entry in order to lessen competition. As such, when a dominant firm increases entry barriers for purely anticompetitive reasons, this should be presumed to harm competition, even if we cannot say how acute the harm will be or how it will manifest. The court thus found harm to competition in the operating system market.[154]

As such, the uncertainty was largely limited to the magnitude of the harm, not the direction. The court viewed this as an inappropriate basis for withholding liability, leading it to adopt an "edentulous" test to monopoly causation. This made it unnecessary to determine how much competition was actually lost.

III. CONFLATING HARM AND MONOPOLY CAUSATION

Monopoly causation is often conflated with harm to competition. This manifests in several ways.

A. Misapplying the "Edentulous" Test to the Harm Element

Many authorities appear to believe monopoly causation supplants or subsumes the harm element, applying the term "causation" to both issues interchangeably. For example, near the end of the first Trump administration, an official FTC statement suggested that monopolization liability requires just two things: possession of monopoly power and "a somewhat relaxed causation requirement."[155] This would seem to reflect an implicit view that harm and monopoly causation are the same thing.

This conflation inevitably leads to a misapplication of *Microsoft's* causation test. For example, an FTC official highlighted the significance of that test in distinguishing Section 2 of the Sherman Act from Section 1:

> Under Section 1 a plaintiff has to affirmatively show anticompetitive effects … *in that specific case*. Under Section 2, the threshold is lower: the general tendency of the conduct must be to

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[153] *Microsoft*, 253 F.3d at 58-78.

[154] *Id.* at 67 ("Plaintiffs plainly made out a prima facie case of harm to competition in the operating system market … and, for its part, Microsoft failed to meet its burden of showing that its conduct serves a purpose other than protecting its operating system monopoly.")

[155] Prepared Statement of the Federal Trade Commission, *Competition in Digital Technology Markets: Examining Acquisitions of Nascent or Potential Competitors by Digital Platforms,* Before the Subcomm. on Antitrust, Competition Policy & Consumer Rights of the S. Comm. on the Judiciary, 116th Cong. 1, 15 (Sept. 24, 2019).

> make a significant contribution to monopoly in the ordinary run of cases.[156]

This suggests that *Microsoft*'s "edentulous" test relaxes the plaintiff's obligation to prove harm to competition (i.e., "anticompetitive effects"). On that view, proving harm under Section 2 requires only that the type of conduct at issue is reasonably capable of causing harm, not that it is actually likely to do so in the specific case at hand. This view has become increasingly common in recent years.[157] But it is mistaken.

Microsoft did not apply a relaxed legal standard to the anticompetitive harm element. The court did not even mention "causation" until it had already concluded that the conduct had anticompetitive effects and lacked a procompetitive justification.[158] It established harm through the usual rule-of-reason framework, emphasizing that this harm inquiry was largely the same under both Sections 1 and 2 of the Sherman Act.[159] That undermines any claim that *Microsoft* makes it easier to prove harm under Section 2 than under Section 1. Only after finding harm under the rule of reason did the court turn to the "causation" question, and it was only to that issue that its "edentulous" standard applied.[160]

Several factors likely contribute to this confusion. The first is a failure to recognize that anticompetitive harm and monopoly causation are different things. Monopoly causation does not ask whether the challenged conduct is anticompetitive. It *presupposes* that it is,[161] and it asks what causal role it played in the defendant's acquisition or maintenance of monopoly power. It would thus be circular to use a monopoly causation test to determine whether the conduct is anticompetitive in the first place.[162] Given that harm and monopoly causation are independent issues, applying a relaxed standard to one of them does not make it easier to prove the other.

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[156] D. Bruce Hoffman, Dir., Bureau of Competition, FTC, Remarks at GCR Live Antitrust in the Digital Economy—Antitrust in the Digital Economy: A Snapshot of FTC Issues 9–11 (May 22, 2019), https://www.ftc.gov/system/files/documents/public_statements/1522327/hoffman_-_gcr_live_san_francisco_2019_speech_5-22-19.pdf (emphasis original).

[157] *See* Nuechterlein & Shelanski, *supra* note 11, at 4 (noting that "[s]ome commentators misinterpret *Microsoft* to relax proof burdens even when the plaintiff has made no case-specific showing that the defendant's conduct unjustifiably caused anticompetitive effects in any market.")

[158] United States v. Microsoft Corp., 253 F.3d 34, 58-78 (D.C. Cir. 2001).

[159] *Id.* at 59.

[160] *Id.* at 79 (describing the edentulous standard as a "test for causation"). *See* also Ginsburg & Wong-Ervin, *supra* note 11, at 2-3 ("Of critical importance is that the court's causation standard was conditioned on its having found anticompetitive effects."); Nuechterlein & Shelanski, *supra* note 11, at 27 (similar).

[161] *See* note 72, *supra*.

[162] *See* Nuechterlein & Shelanski, *supra* note 11, at 27 (making this point).

Second, *Microsoft* emphasized the impossibility of "reconstructing" the but-for world as a justification for its relaxed causation standard.[163] Because the but-for world matters not only to monopoly causation but also to the harm element, some observers misinterpret these comments to mean that the toothless test applies to the latter. But as just explained, *Microsoft* did not apply it that way. And the court's comments about reconstructing the but-for world were highlighting uncertainty over the *magnitude* of the harm, not over whether Microsoft's conduct was anticompetitive.[164]

Third, discussions of monopoly causation sometimes appear to conflate indirect evidence of harm—which relies in part on a practice's "general tendencies"—with the kind of weak "reasonably capable" evidence needed to satisfy the toothless causation test. I discuss that distinction below.[165]

B. Conflating Monopoly Causation with Harm Causation

Monopoly causation is about the cause of monopoly power. But it is often misinterpreted as a tort-like inquiry into the cause of *harm*.[166] For example, in the recent *Google Search* decision, the district court described the causation issue in *Microsoft* as requiring that "the exclusionary conduct must cause the anticompetitive harm."[167] Similarly, some commentators suggest that the harm element requires only that the type of conduct at issue has the *capacity* to generate anticompetitive effects, while monopoly causation then asks whether it actually did cause such an effect in the case at hand.[168]

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[163] *Microsoft*, 253 F.3d at 79 ("neither plaintiffs nor the court can confidently reconstruct a product's hypothetical technological development in a world absent the defendant's exclusionary conduct.")

[164] The court adopted its edentulous test in rejecting a requirement to prove that the excluded nascent rivals would otherwise have become "*serious enough* cross-platform threats" to erode the Windows monopoly. *Id.* (emphasis added). That is a question about how much competition was actually lost.

[165] Part III.D, *infra*.

[166] *See, e.g.,* James Keyte, Frédéric Jenny & Eleanor Fox, *Buckle Up: The Global Future of Antitrust Enforcement and Regulation*, 35 ANTITRUST 32 (Spring 2021) (interpreting *Microsoft's* causation requirement as "causation of anticompetitive effects"); Kai-Uwe Kühn & Miroslava Marinova, *The Battle for Search: United States v. Google LLC and Its Implications for Antitrust Law*, CONCURRENCES REVIEW (Jan. 2025) (causation under Section 2 "requires the plaintiff to demonstrate that, but for the defendant's conduct, the alleged harm to competition would not have occurred."); Comment, *Recent Case, United States v. Google, LLC*, 138 HARV. L. REV. 891 (2025) (monopolization requires an additional inquiry into "causation of anticompetitive harm").

[167] United States v. Google LLC, 747 F. Supp. 3d 1, 215 (D.D.C. 2024).

[168] *See, e.g.,* Daniel S. Graulich, *Modeling Monopolization: Reconciling* Rambus *and* Microsoft, 29 U. PA. J. BUS. L. at 31, 41 n.267 (forthcoming) (proving harm requires "identifying adverse economic effects the conduct is *capable* of producing"; and monopoly causation "asks whether the asserted exclusionary mechanism operated in practice") (emphasis added).

Misinterpreting monopoly causation as a question of whether the conduct caused harm is understandable, given that "causation" is usually concerned with the causes of harm. Still, it is problematic, for several reasons.

First, as emphasized earlier, harm to competition is already causal—it requires that the challenged conduct likely has an adverse causal effect on competition. Thus, the causal link between the conduct and its adverse effects is already subsumed by the harm element. If monopoly causation centered on that same causal link, it would be redundant. Thus, by misstating the causation requirement in this way, a court effectively tells the plaintiff to prove the same thing a second time. That is a recipe for confusion and mistakes.

Second, even if one believes proof of harm requires only a capacity to generate anticompetitive effects, one cannot reasonably interpret monopoly causation as asking only whether an anticompetitive effect actually occurred. On that interpretation, it would not address the causal link *Microsoft* emphasized: the link between the defendant's anticompetitive conduct and its *monopoly power*. As discussed earlier, the fact that a practice has anticompetitive effects does not imply that it played a significant causal role in the defendant's acquisition or maintenance of monopoly. It is the latter causal role that monopoly causation addresses. Of course, *Microsoft*'s toothless standard makes it unnecessary to prove this rigorously. But the point is that the *object* of proof is indeed the causal contribution to monopoly power.

Third, it would be wrong to equate monopoly power with "harm." Antitrust does not regard monopoly power as inherently harmful.[169] Both procompetitive and anticompetitive activity can create monopoly power, but only the latter is illegal. Additionally, if one mischaracterizes monopoly causation as a test of anticompetitive harm, then one loses sight of the policy rationale for maintaining a relaxed legal standard on the causation issue. That rationale hinges critically on the fact that harm is proven separately under a more demanding legal standard.[170]

C. Comparing Causation Requirements Across Statutes

Recently there has been some debate as to whether *Microsoft* implies that plaintiffs face a weaker causation standard under Section 2 than under other antitrust statutes. In comparing enforcement under Section 2 with enforcement of other antitrust statutes, the same FTC official quoted above asserted that Section 2 challenges carry a "lower bar" for establishing "the causal relationship between exclusionary conduct and the acquisition or maintenance of monopoly power."[171] A number of commentators responded

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[169] *See, e.g.,* Verizon Commc'ns Inc. v. L. Offs. of Curtis V. Trinko, LLP, 540 U.S. 398, 407 (2004) ("The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system.")

[170] *See* Part IV.D, *infra*.

[171] Hoffman, *supra* note 155, at 9-11.

critically, arguing that causation under Section 2 is no easier than under other antitrust statutes.[172]

The debate conflates harm and causation. It compares monopoly causation to the causation-of-harm requirement (i.e. the harm element) arising under other statutes. But that is pointless, as those are different kinds of causation questions. All antitrust violations require that the challenged conduct causes harm, but only Section 2 requires an additional inquiry into the cause of monopoly power. As such, monopoly causation can only make Section 2 enforcement harder relative to other statutes. Any suggestion that *Microsoft* might make Section 2 the easier *overall* path to liability stems from a misapplication of its toothless standard to the harm element.

D. Indirect Evidence versus Reasonable Capability

Superficially, indirect proof of harm may appear similar to the kind of evidence needed to satisfy the "toothless" causation test—namely, that the conduct "reasonably appears capable" of contributing significantly to monopoly power. After all, indirect evidence of harm relies in large part on the general tendencies of the challenged conduct. However, the two inquiries are distinct.

The toothless test does not require evidence about the actual impact of the challenged practice on the defendant's monopoly power.[173] By contrast, under the rule of reason, a plaintiff must show that the conduct is in fact likely to cause harm in the specific market at issue, not merely that it "appears reasonably capable" of doing so.[174] This is no less true when plaintiffs use indirect evidence.

Despite this difference, a plaintiff can still prove harm by relying in part on a practice's general tendency to cause harm. There is no contradiction here. This just requires that the general tendency is sufficiently robust. If a course of conduct is sufficiently problematic that we would expect it to harm competition in most cases, this can be used to establish that it is likely to cause harm in a particular case. Antitrust's per se rule against price fixing is just an extreme version of this inference. Even under the rule of reason, the more apparent a practice's anticompetitive tendencies, the less additional evidence is required to prove harm.[175]

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[172] *See, e.g.,* Timothy J. Muris & Jonathan E. Nuechterlein, *First Principles for Review of Long-Consummated Mergers,* 5 CRITERION JOURNAL ON INNOVATION 29, 38-39 (2020); Jonathan Jacobson & Christopher Mufarrige, *Acquisitions of "Nascent" Competitors*, ANTITRUST SOURCE (Aug. 2020); Ginsburg & Wong-Ervin, *supra* note 11, at 2-3.

[173] *See* Part II.C.2.ii, *supra.*

[174] *See, e.g.,* Ohio v. Am. Express Co., 585 U.S. 529, 541 (2018) (under the rule of reason, Plaintiff must show harm "in the relevant market").

[175] F.T.C. v. Actavis, Inc., 570 U.S. 136, 159 (2013) ("there is always something of a sliding scale in appraising reasonableness, and as such the quality of proof required should vary with the circumstances") (cleaned up).

Also, particularly in exclusion cases, indirect evidence is typically accompanied by lots of additional case-specific evidence reinforcing the likelihood of harm. For example, in modern exclusive dealing cases, courts want to see more than just raw foreclosure shares.[176] Moreover, even if a plaintiff can give indirect evidence normally sufficient to prove harm, that evidence will fail if other facts in the record suggest that the usual rationale for inferring harm does not apply in the case at hand.[177] These points make it clear that our concern is not merely with a practice's general capabilities, but with its actual impact in the case at hand.

IV. DEBATES OVER MONOPOLY CAUSATION

A number of antitrust commentators argue that monopoly causation should normally be evaluated under a relatively demanding legal standard, as opposed to the "toothless" standard applied in *Microsoft*. This section considers and rejects those arguments. It then discusses policy rationales for applying a relaxed standard to causation while maintaining a high bar for proving harm to competition.

A. Calls for a But-For Test

Some commentators argue that most Section 2 cases require a strict but-for test for monopoly causation. For example, D.C. Circuit Judge Douglas Ginsburg (a member of the *en banc* session that decided *Microsoft*) and attorney Koren Wong-Ervin write that a monopolization plaintiff typically must show that "but for the defendant's alleged conduct, the defendant would not have acquired monopoly power."[178] Such arguments are typically premised on *Rambus*,[179] a D.C. Circuit decision released several years after *Microsoft*

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[176] *See, e.g.,* McWane, Inc. v. F.T.C., 783 F.3d 814, 835 (11th Cir. 2015) ("foreclosure is usually no longer sufficient by itself; rather, it serves … as a proxy for anticompetitive harm. Thus, foreclosure is one of several factors we now examine in determining whether the conduct harmed competition."). Successful plaintiffs typically give additional evidence on a number of relevant points, such as the competitive significance of the trading opportunities from which rivals are foreclosed, the availability of workarounds, the duration of the deals, and evidence that rivals are actually impaired.

[177] *See, e.g.,* United States v. General Dynamics Corp., 415 U.S. 486 (1974) (finding no liability for a merger, notwithstanding structural evidence normally sufficient to presume anticompetitive harm, due to case-specific facts suggesting that the structural evidence was misleading in this case); CDC Techs., Inc. v. IDEXX Lab'ys, Inc., 186 F.3d 74, 75, 80 (2d Cir. 1999) (denying liability, notwithstanding a large foreclosure share, because evidence showed that the distributors from which rivals were foreclosed "had never been critical" to sales, and because the plaintiff-rival "had successfully used other techniques to reach end-users.").

[178] *See, e.g.,* Douglas H. Ginsburg & Koren W. Wong-Ervin, *FTC v. Rambus and the De-Facto Causation Standard Under Sherman Section 2*, CPI COLUMNS, at 1 (Nov. 2024). *See also, e.g.*, Geoffrey A. Manne, *A Critical Analysis of the Google Search Antitrust Decision* at 8-11 (Int'l Ctr. for L. & Econ., ICLE White Paper No. 2024-08-14, Aug. 14, 2024), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4930626 (endorsing the but-for test advocated by Ginsburg and Wong-Ervin).

[179] Rambus Inc. v. FTC, 522 F.3d 456 (D.C. Cir. 2008).

that some observers interpret as setting a higher bar for establishing monopoly causation.[180]

But this cannot be right. A but-for test for monopoly causation would lead to absurd results. First, it would imply that if a firm already possesses a durable monopoly,[181] then it is effectively immune from Section 2 liability. Even if the firm begins engaging in highly anticompetitive behavior, increasing its monopoly power, a plaintiff could not establish monopoly causation under a but-for test, as the firm would likely have been a monopolist even absent its misconduct.[182] A corollary is that if the anticompetitive conduct is unilateral, making it challengeable only under Section 2,[183] then the firm would be effectively untouchable under American antitrust law.

Second, a but-for test would result in nonsensical disparities in case outcomes. This is illustrated in Figure 1 below. In the graph, the y-axis specifies a defendant's actual market power, while the x-axis gives its counterfactual market power in the but-for world. Points above the diagonal 45-degree line thus represent cases where the challenged conduct increased the defendant's market power by some amount.[184] We will restrict focus to those cases, as this discussion assumes that the defendant's conduct lessened competition to some extent. For any such point, its vertical distance above the 45-degree line tells us how much its market power increased, which reflects the magnitude of the harm resulting from its anticompetitive acts.

[180] I address that reading of *Rambus* later. *See* Part IV.C, *infra*.

[181] By "durable" I mean that it is highly dominant and appears likely to remain dominant for the foreseeable future, even if it abstains from anticompetitive conduct.

[182] For example, suppose an anticompetitive practice raises a defendant's market share from 85% to 95%. To find monopoly power, courts generally require a market share of 70-80%. See, e.g., Colorado Interstate Gas Co. v. Nat. Gas Pipeline Co. of Am., 885 F.2d 683, 694 n.18 (10th Cir. 1989). Thus, the defendant's anticompetitive conduct is not a but-for cause of its monopoly, as it would still have been a monopolist in the but-for world.

[183] Copperweld Corp. v. Indep. Tube Corp., 467 U.S. 752, 767 (1984) ("The conduct of a single firm is governed by § 2 alone").

[184] Points on the 45-degree line represent possible cases where the conduct had no effect on the defendant's market power.

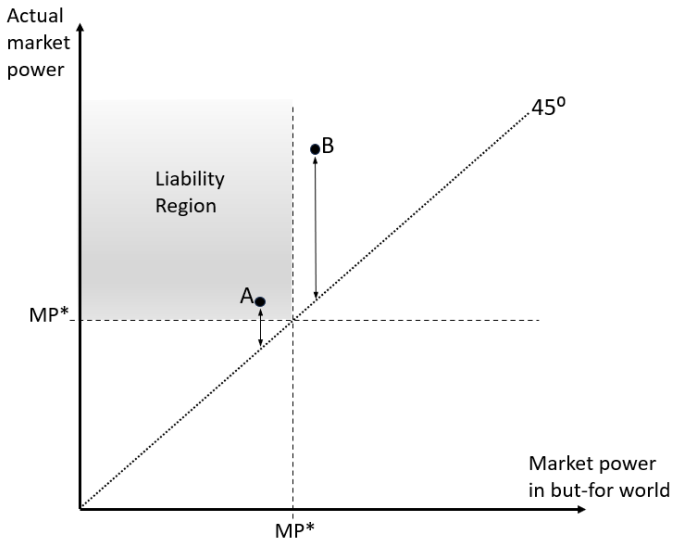


Figure 1: Monopoly Causation Under a But-For Test

In the figure, MP* represents the monopoly power threshold: the minimal level of market power required for a firm to qualify as a "monopolist" under antitrust law. For example, if we use market share as a proxy for market power, courts typically require a share of 70-80% to find monopoly power.[185] Under a but-for test, monopoly causation requires that the conduct caused the defendant to cross this threshold. That is, the defendant must actually possess monopoly power in the real world (the y-axis coordinate is above MP*), but it must not have possessed monopoly power in the but-for world (the x-axis coordinate is to the left of MP*). Thus, only the cases in the shaded region would satisfy the but-for test.

To see the problem, compare the cases A and B. In case B, the defendant is a dominant firm whose anticompetitive behavior caused a huge amount of harm, as captured by the large vertical distance from the 45-degree line. But there is no liability in case B. By contrast, in case A, the defendant's anticompetitive conduct caused only a small amount of harm. And yet there is liability in this case, because the conduct caused the defendant to cross the MP* threshold, taking it from nondominant to dominant.

It might be tempting to suggest that this is just a byproduct of Section 2's narrow focus on monopoly. That limitation inevitably leads to some artificial line-drawing, but it serves the purpose of ensuring that courts err on the side of caution. Section 2 cases tend to focus on exclusionary conduct, but courts worry about confusing zealous competition for anticompetitive exclusion.[186]

[185] *See* note 182, *supra*.

[186] *See, e.g.,* Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 459 (1993) ("this Court and other courts have been careful to avoid constructions of § 2 which might chill competition, rather than foster it. It is sometimes difficult to distinguish robust competition from conduct with long-term

Section 2 mitigates that risk by limiting liability to conduct whose competitive impact is significant enough to create or maintain monopoly power.[187]

This is a reasonable and well-established idea, but it cannot rationalize the kind of inconsistency highlighted above. Both cases A and B involve dominant firms that engaged in anticompetitive conduct. But the defendant in case B is far more dominant and its anticompetitive behavior had a far more significant impact on competition (and on the defendant's market power). Thus, if anything, the Supreme Court's Section 2 jurisprudence suggests that liability is more appropriate in case B than in case A.

B. Purging the "Reasonably Appears Capable" Modifier

Microsoft's "reasonably appears capable" language makes causation significantly easier to prove.[188] But some commentators argue that this aspect of the *Microsoft* standard should not apply to most other Section 2 cases.[189]

These authors' primary argument is that the "reasonably appears capable" modifier is appropriate only if the plaintiff has already proven that the conduct had genuine anticompetitive effects in the relevant market.[190] As I have emphasized, it is true that plaintiffs are not entitled to a relaxed legal standard for establishing anticompetitive harm.[191] However, it is a mistake to suggest that this requires courts to impose a more demanding standard for monopoly causation. The "reasonably appears capable" standard applies only to monopoly causation and thus does not relax the burden to prove harm.

Some authors also argue that the "reasonably appears capable" language applies only under certain special facts of the *Microsoft* case. For example, a few articles argue that it applies only in cases alleging exclusion of nascent competitors as opposed to established rivals.[192] Another argument emphasizes that *Microsoft* involved exclusionary conduct for which the court found no procompetitive justifications and suggests that the general causation standard

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anticompetitive effects; moreover, single-firm activity is unlike concerted activity covered by § 1, which 'inherently is fraught with anticompetitive risk.' For these reasons, § 2 makes the conduct of a single firm unlawful only when it actually monopolizes or dangerously threatens to do so.") (quoting Copperweld Corp. v. Indep. Tube Corp., 467 U.S. 752, 767–769 (1984)).

[187] *Id.*

[188] Part II.C.2.ii, *supra.*

[189] *See, e.g.,* Ginsburg & Wong-Ervin, *supra* note 11, at 3 ("it is important to understand the limited applicability of the 'reasonably appears capable of' standard.").

[190] *See, e.g.,* Nuechterlein & Shelanski, *supra* note 11, at 31 ("the *Microsoft* court did predicate application of the pro-plaintiff 'reasonably capable' standard on a finding that the government had borne its standard burden of proving that the challenged conduct in fact had anticompetitive effects"); Ginsburg & Wong-Ervin, *supra* note 11, at 3 ("the key takeaway is that only when anticompetitive effects are shown … does the 'reasonably capable of' causation standard apply.")

[191] Part III.A, *supra.*

[192] *See, e.g.,* Ginsburg & Wong-Ervin, *supra* note 11, at 4; Manne, *supra* note 178, at 3.

is not appropriate for mixed conduct or mergers with countervailing pro- and anticompetitive effects.[193]

Neither argument is persuasive. After stating that courts can "infer" causation using the "reasonably appears capable" standard,[194] the *Microsoft* court expressly denied that the availability of that inference is limited to cases involving nascent competitors.[195] Nor are there compelling reasons to think that the applicable monopoly causation standard should turn on the presence or absence of procompetitive effects. Although consideration of procompetitive effects is crucial, this is addressed under the anticompetitive harm element, not the causation element.[196] Monopoly causation asks not whether the conduct is good or bad, but whether it is sufficiently causally connected to the defendant's dominance.

C. Did *Rambus* Adopt a Stricter Causation Standard?

Several years after its *Microsoft* decision, the D.C. Circuit decided *Rambus*.[197] Some commentators argue that *Rambus* sets a higher bar for establishing monopoly causation.[198] That view is mistaken, as this section explains. *Rambus* and *Microsoft* do not conflict on monopoly causation, because *Rambus* never even reached that issue. Note that this section focuses on what the *Rambus* court actually said. It does not consider whether the court should have interpreted facts differently or reached a different decision.

1. Key Facts

Rambus is a case about patent licensing in the standard-setting context.[199] Complex technology standards subsume many distinct technologies created by many different firms. A standard-setting organization (SSO) chooses what technologies will go in a standard. Patents covering essential features of the standard are called standard-essential patents (SEPs).[200]

Ex ante (before a standard is chosen), the SSO considers various candidate standards, each comprising different essential technologies, some of

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[193] Muris & Nuechterlein, *supra* note 172, at 39-40.

[194] United States v. Microsoft Corp., 253 F.3d 34, 79 (D.C. Cir. 2001).

[195] *Id.* ("We may infer causation when exclusionary conduct is aimed at producers of nascent competitive technologies as well as when it is aimed at producers of established substitutes.")

[196] As noted earlier, harm is established under the multi-step rule-of-reason framework, which accounts for both anticompetitive and procompetitive effects.

[197] Rambus Inc. v. F.T.C., 522 F.3d 456 (D.C. Cir. 2008).

[198] Ginsburg & Wong-Ervin, *supra* note 11; Nuechterlein & Shelanski, *supra* note 11, at 29; Manne, *supra* note 178, at 6-8.

[199] For an overview of this area, *see, e.g.,* Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889 (2002).

[200] *Id.*

which are patented. At this stage, technology firms compete to have their technologies incorporated in the standard. But, ex post (after a standard is chosen), implementers must commit to the new standard; there is no going back to the alternative technologies that were rejected ex ante. At this point, the owners of relevant SEPs effectively become monopolists: anyone who implements the standard will have to license their patents, and there are no viable substitutes. Thus, by default, ex post royalties would fail to reflect ex ante competition for the standard.[201] To combat this, SSOs typically require SEP owners to commit to license their patents on reasonable and nondiscriminatory (RAND) terms.[202]

Rambus was a technology firm whose patented technologies were incorporated into a certain standard.[203] Once the standard was adopted, Rambus became a pure monopolist over the associated SEP licenses. However, Rambus had allegedly concealed its patents from the SSO, allowing it to avoid making any RAND commitments.[204] An administrative law judge dismissed the case, but the Commission reversed and found Rambus liable.[205] Rambus appealed to the D.C. Circuit.

2. The Court's Decision

In most cases, we cannot say much about how much less dominant the defendant might have been in the but-for world. But, under the D.C. Circuit's interpretation of the facts in *Rambus,* there were just two extreme possibilities.[206] First, if Rambus had not concealed its patents, the SSO might have passed on Rambus's technology in favor of some alternative, in which case Rambus would not have obtained any market power at all. If so, Rambus's misconduct was a but-for cause of its licensing monopoly. The anticompetitive effect of Rambus's deception would also be clear in this case: it excluded a competing technology from the standard.[207] A second possibility is that the SSO still would have put Rambus's technology in the standard, but Rambus would have had to make RAND commitments. If so, the court reasoned, Rambus's deception was not causally responsible for its monopoly position, but only for its ability to charge above-RAND royalties after its technology was adopted.[208]

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[201] *See, e.g.,* Dennis W. Carlton & Allan L. Shampine, *An Economic Interpretation of FRAND*, 9 J. COMPETITION L. & ECON. 531 (2013).

[202] Today, the word "fair" is usually included, resulting in a "FRAND" commitment.

[203] *Rambus*, 522 F.3d at 459-60.

[204] *Id.*

[205] *Id.* at 461.

[206] *Id.* at 462 (Rambus's conduct prevented the SSO "*either* from adopting a nonproprietary standard, *or* from extracting a RAND commitment from Rambus") (emphasis original).

[207] *See also* Francis, *supra* note 89, at 806 (emphasizing this exclusionary aspect of *Rambus*).

[208] *Rambus*, 522 F.3d at 466.

The Commission considered both possible counterfactuals, but it acknowledged that it could not say which was more likely.[209] The D.C. Circuit thus interpreted the FTC as arguing that Rambus would be liable *regardless* of which counterfactual represented the but-for world.[210] The court was willing to assume arguendo that Rambus could be liable if the SSO would not have adopted its technology absent its deception.[211] The harder question, which ultimately proved decisive, was whether Rambus could be liable if its technology would still have been adopted by the SSO in the but-for world.

The court viewed the FTC's case as hinging on an unusually broad definition of "monopolization"—namely, that a firm that will inevitably be a monopolist (even absent misconduct) can nevertheless "monopolize" the market if it uses bad behavior to evade legal constraints on its pricing. If so, Rambus could still be liable even if its deception served only to free it from RAND commitments. There is some logic to this. We normally define market power as the ability to profitably raise prices above the competitive level. Thus, if a monopolist's deception allows it to avoid legal constraints that would otherwise prevent it from setting monopoly prices, then perhaps it makes sense to say that the firm has acquired monopoly power.

The problem is that this increase in market power has nothing to do with harming competition. Indeed, there is no competition to harm. Thus, in *NYNEX,* where a regulated monopolist fraudulently obtained a regulator's authorization to raise its price, the Supreme Court strongly suggested that there could not be antitrust liability for that fraud.[212]

In *Rambus*, the court interpreted *NYNEX* as precluding liability "when a lawful monopolist's deceit has the effect of raising prices (without an effect on competitive structure)."[213] It concluded that the FTC's theory of the case conflicted with that reading of *NYNEX*. The court thus reversed the Commission's decision.[214] This sets a high bar for finding liability: the FTC would have had to establish that, if not for the defendant's deception, the SSO likely would have adopted an alternative technology.

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[209] *Rambus*, 522 F.3d at 463 ("the Commission did not determine that one or the other of these two possible outcomes was the more likely.")

[210] *Id.*

[211] *Id.* at 463.

[212] NYNEX Corp. v. Discon, Inc., 525 U.S. 128, 136 (1998) ("We concede [the plaintiff's] claim that the [defendants'] behavior hurt consumers by raising telephone service rates. But that consumer injury naturally flowed not so much from a less competitive market for removal services, as from the exercise of market power that is lawfully in the hands of a monopoly … combined with a deception worked upon the regulatory agency"). Technically, however, the decision was limited to the applicability of the per se rule against naked boycotts. *Id.* at 140.

[213] Rambus Inc. v. F.T.C., 522 F.3d 456, 466 (D.C. Cir. 2008).

[214] *Id.* at 467.

3. Rambus *Was About Harm, Not Monopoly Causation*

Rambus did not adopt a stricter standard of monopoly causation than *Microsoft*, because *Rambus* did not address monopoly causation at all. The court's decision focused exclusively on harm to competition.[215] While it is true that *Rambus* made it hard to establish liability, it did so by setting a high bar for proving harm. The harm element itself subsumes a causation inquiry, as I have emphasized, but it is distinct from the monopoly causation issue addressed in *Microsoft*.

There are two reasons for thinking this. The simplest reason is that the *Rambus* court said so. The court reversed the Commission's decision because it "failed to demonstrate that Rambus inflicted any harm on competition."[216] More generally, the opinion focuses entirely on harm to competition (or "anticompetitive effects"), never once mentioning "causation." Although the opinion often discusses parts of the *Microsoft* decision, it never mentions or cites *Microsoft*'s causation discussion.[217] Finally, as noted above, the *Rambus* decision was predicated on *NYNEX*, and that case similarly focused on harm to competition, not causation.[218]

Second, the peculiar facts of *Rambus* make it almost uniquely unlikely to set the legal standard for monopoly causation, because no freestanding monopoly causation inquiry is ever necessary in a case like *Rambus*. The deception harmed competition if and only if it had the effect of excluding an alternative technology from the standard.[219] But the very same condition determines whether the deception was causally responsible for Rambus's monopoly. Hence, unlike most Section 2 cases, in *Rambus* harm and monopoly causation were not independent issues: proof that the deception harmed competition would simultaneously establish that it caused the monopoly.[220]

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[215] *See also* Francis, *supra* note 89, at 809-10 (arguing along similar lines that *Rambus* was about exclusion, not the causal contribution to monopoly power); Graulich, supra note 167, at 4 (similar).

[216] *Rambus*, 522 F.3d at 467.

[217] The only allusion to *Microsoft*'s causation standard in *Rambus* is a quote from the Commission's decision, which had asserted that Rambus's deception "significantly contributed to its acquisition of monopoly power." *See id.* at 461. *Rambus* recited this language without comment when summarizing the Commission's rationale for finding Rambus liable.

[218] In *NYNEX*, the decisive issue was the plaintiff's failure to "allege and prove harm, not just to a single competitor, but to the competitive process, i.e., to competition itself." NYNEX Corp. v. Discon, Inc., 525 U.S. 128, 135 (1998). To reinforce the point, note that the Court devoted only a few sentences to the plaintiff's Section 2 claim, rejecting it because it contained the same defect as the plaintiff's Section 1 claim. *Id.* at 139-40. That rules out monopoly causation (which does not apply under Section 1) as the decisive issue.

[219] If the deception did not have that effect, then it served only to evade RAND commitments, in which case *NYNEX* implies there was no harm to competition.

[220] In most Section 2 cases, the two issues are independent because there could be a negative directional effect on competition and yet the magnitude of the harm could be too slight to contribute significantly to the defendant's monopoly power. By contrast, in *Rambus*, if the

This unification of harm and monopoly causation likely explains why courts and commentators often view *Rambus* as a "causation case" despite the fact that it focused entirely on anticompetitive harm. It also explains why some commentators misinterpret the case as establishing a but-for test for monopoly causation.[221] In *Rambus*, proof of harm to competition would automatically establish monopoly causation under a but-for test.[222] But that implication should not be confused with a judicial determination about how monopoly causation should be evaluated in other cases where harm and causation are independent.

Finally, note that although *Rambus* discussed counterfactuals at length,[223] that does not imply that it was concerned with monopoly causation. The but-for world is equally relevant to anticompetitive harm.[224]

D. Policy Rationales for a Divided Approach

The best policy takes a divided approach: courts should apply a relaxed standard to monopoly causation at the liability phase, while maintaining a high bar for showing harm. There are clear policy rationales for this.

1. Harm Matters More Than Causation

Antitrust can fail its mission not only by allowing anticompetitive behavior to go unchecked, but also by mistakenly condemning procompetitive activity. Thus, the core focus of any antitrust case is the directional question of whether the challenged conduct is harmful or reasonable. This is where courts should make their most exacting demands. To apply a "toothless" standard to this central question would defy clear principles of antitrust policy and case law.[225]

By contrast, once harm to competition has been squarely proven, the remaining causation question merely concerns the magnitude of the resulting

misconduct harmed competition (by excluding an alternative technology), then the misconduct was fully responsible for *Rambus*'s acquisition of monopoly power, as it would not have obtained any market power at all if the rival technology had been chosen. On these special facts, harm and monopoly causation effectively become the same thing.

[221] *See* Part IV.A, *supra*.

[222] If the deception harmed competition (by excluding an alternative technology that otherwise would have replaced Rambus's patented technology), it follows that Rambus would not have acquired its monopoly but for its deception.

[223] Rambus Inc. v. F.T.C., 522 F.3d 456, 461-62 (D.C. Cir. 2008).

[224] *See* Part I, *supra*.

[225] Courts routinely emphasize the need for caution and robust evidence before concluding that a challenged practice is anticompetitive. *See, e.g.,* Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 458 (1993) ("Thus, this Court and other courts have been careful to avoid constructions of § 2 which might chill competition, rather than foster it.")

harm.[226] That is much less important, at least at the liability phase. Whether the challenged conduct causes a lot of harm or only a little, the world is better off without it.

Notice that the rationale for applying a relaxed causation standard depends critically on the assumption that our analysis of the harm element will be rigorous and reliable. Suppose instead that a court applied a toothless standard to the harm question as well, leading it to misdiagnose procompetitive activity as harmful exclusion. Then the impact of the conduct on the defendant's market power would not capture the magnitude of the harm—there is no harm—but rather the magnitude of its procompetitive benefits. If the court then found a strong causal contribution, this would magnify the court's initial error, potentially leading it to adopt harsher remedies for a practice that is in fact extremely beneficial. Thus, the justification for a relaxed causation standard falls apart if we do not maintain a high bar for proving harm.

2. Administrability and Error Costs

These points are reinforced by administrative challenges. As emphasized earlier, it is inherently harder to determine the magnitude of anticompetitive harm than to determine a practice's directional effect on competition.[227] The difficulty is particularly acute in cases involving exclusion of small rivals or entrants, as is typical of monopoly maintenance cases like *Microsoft*. If the defendant's misconduct prevents even one present or future rival from growing into a significant competitor, then it could have a significant impact on the defendant's monopoly power. But it is almost impossible to prove that any *particular* rival would have accomplished that. It is even harder to speculate about counterfactual rivals that were deterred from entering the market.

The *Microsoft* court recognized that these difficulties militate in favor of a relaxed causation standard:

> To require that § 2 liability turn on a plaintiff's ability or inability to reconstruct the hypothetical marketplace absent a defendant's anticompetitive conduct would only encourage monopolists to take more and earlier anticompetitive action. … [N]either plaintiffs nor the court can confidently reconstruct a product's hypothetical technological development in a world absent the defendant's exclusionary conduct. To some degree, "the defendant is made to suffer the uncertain consequences of its own undesirable conduct."[228]

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[226] *See* Part II.D, *supra*.

[227] *Id.*

[228] United States v. Microsoft Corp., 253 F.3d 34, 79 (D.C. Cir. 2001) (quoting 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 651c, at 78 (1996)).

Notice that the court's rationale hinges on the court's finding that Microsoft's conduct was anticompetitive. This point can be reframed in terms of error costs. To illustrate, suppose the plaintiff has already given rigorous proof of monopoly power and anticompetitive conduct, and consider the social costs of a judicial error on the causation element at the liability stage. A type-1 error (a false positive) would mean that the court imposed liability for an anticompetitive practice that did not play a significant causal role in the defendant's acquisition or maintenance of monopoly power. That "error" is not socially costly. Enjoining the practice benefits the public, if only modestly. By contrast, a type-2 error (a false negative) would permit an anticompetitive practice to persist even though it harms competition significantly. That error imposes immense costs on the public. Thus, conditional on maintaining a high bar for proving harm to competition, the error cost calculus cuts strongly in favor of a relaxed standard on causation at the liability stage.

V. MONOPOLY CAUSATION AT THE REMEDY STAGE

In a public enforcement action,[229] the most basic remedy is an injunction terminating the anticompetitive conduct.[230] But the goal of antitrust remedies is not only to stop misconduct, but also to restore the competition that has been lost.[231] This requires additional equitable remedies, usually classified as either behavioral remedies or structural remedies (breakups or divestitures).[232]

Microsoft indicated that monopoly causation has heightened significance at the remedy phase.[233] In particular, it held that severe remedies like breakups require a stronger causal contribution to monopoly power:

> "Mere existence of an exclusionary act does not itself justify full feasible relief against the monopolist to create maximum competition." Rather, structural relief, which is "designed to eliminate the monopoly altogether ... require[s] a clearer indication of a *significant causal connection* between the conduct and creation or maintenance of the market power." Absent such causation, the

[229] Damages are often the primary remedy sought in private enforcement actions. But I will focus on the equitable remedies sought by public enforcers.

[230] *See, e.g.,* United States v. Google LLC, 803 F. Supp. 3d 18, 68 (D.D.C. 2025) ("The ordinary starting point is an injunction terminating the anticompetitive conduct.").

[231] *See, e.g.,* Nat'l Soc. of Pro. Eng'rs v. United States, 435 U.S. 679, 698 (1978) (remedies should "eliminat[e] the consequences of the illegal conduct"); United States v. International Harvester Co., 274 U.S. 693, 697 (1927) ("restore competitive conditions"); United States v. United States Gypsum Co., 340 U.S. 76, 88 (1950) ("cure the ill effects of the illegal conduct").

[232] *See, e.g.,* United States v. Google LLC, 803 F. Supp. 3d 18, 68-70 (D.D.C. 2025).

[233] *Microsoft*, 253 F.3d at 80 ("Microsoft's concerns over causation have more purchase in connection with the appropriate remedy, i.e., whether the court should impose a structural remedy or merely enjoin the offensive conduct.").

> antitrust defendant's unlawful behavior should be remedied by "an injunction against continuation of that conduct."[234]

On remand,[235] the district court interpreted the above passage as requiring a "proportionality between the strength of the evidence of the causal connection and the severity of the remedy."[236] This standard was also adopted by the district court in the recent *Google Search* case.[237]

Strictly speaking, what matters is the significance of the causal contribution to monopoly power, not merely the strength of the evidence. If there is strong evidence of a small causal contribution, that is not a good basis for awarding strong remedies. Subject to that qualification, this remedial rule serves two important policy functions. First, it helps to ensure that the severity of the remedy is commensurate with the magnitude of the harm caused by the defendant's misconduct. This is consistent with the general principle that remedies should be "tailored to fit the wrong."[238]

Second, to benefit the public, remedies must not only be strong enough to terminate the misconduct and restore competition, but must also avoid causing unnecessary damage to competition.[239] To that end, it is significant that forced divestitures sometimes fail to achieve their objective. It is not uncommon for a divested business entity to become an ineffectual competitor or even go out of business following the divestiture.[240] If the defendant's anticompetitive conduct could have been terminated with an injunction or other nonstructural relief, then the failed divestiture needlessly destroys a productive business that could otherwise have contributed to competition and economic growth.

Making breakups contingent on strong causal contribution helps to mitigate this risk. To illustrate, suppose a defendant engaged in anticompetitive conduct but there is only weak evidence of monopoly causation. Suppose that, as in *Microsoft*, it is clear that the defendant's

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[234] *Id.* at 106 (quoting 3 AREEDA & HOVENKAMP, ANTITRUST LAW ¶ 650a, at 67, ¶ 653b, at 91-92).

[235] The Justice Department settled with Microsoft after the D.C. Circuit's decision, but the state plaintiffs continued the suit. New York v. Microsoft Corp., 224 F. Supp. 2d 76, 102 (D.D.C. 2002), aff'd, 373 F.3d 1199 (D.C. Cir. 2004).

[236] New York v. Microsoft Corp., 224 F. Supp. 2d 76, 102 (D.D.C. 2002), *aff'd*, 373 F.3d 1199 (D.C. Cir. 2004).

[237] United States v. Google LLC, 803 F. Supp. 3d 18, 76 (D.D.C. 2025). The court rejected Google's proposed rule requiring "a showing of but-for causation for any remedy greater than an injunction." *Id.* at 72.

[238] United States v. Microsoft Corp., 253 F.3d 34, 107 (D.C. Cir. 2001).

[239] United States v. Am. Tobacco Co., 221 U.S. 106, 185 (1911) (remedies should cause "as little injury as possible to the interest of the general public.").

[240] *See, e.g.,* Christopher A. Wetzel, *Strict(er) Scrutiny: The Impact of Failed Divestitures on U.S. Merger Remedies*, 64 ANTITRUST BULLETIN 341–386 (2019); Daniel Hosken, Frank Pinter & Devesh Raval, *How Do Consumers Respond to Antitrust Policy? Evidence from Supermarket Divestitures* (unpublished manuscript 2026).

monopoly is explained at least in large part by superior technology and innovation. All else being equal, a divestiture poses a greater risk of collateral damage in such a case, as it could degrade or eliminate an important source of technological innovation, and it could lead to lower quality or higher prices.[241]

To be sure, this does not mean that innovative firms that break the law should suffer only trifling penalties. It just means that our remedies should be constructive rather than destructive. For example, rather than a breakup that could imperil valuable technology or innovation, a court could force the defendant to give rivals access to its technology, at least temporarily.[242] From the defendant's perspective, this could be just as painful as a divestiture. But rather than imperiling the defendant's technology and innovation, it harnesses them to bolster competition. Thus, the fact that a defendant is highly productive or innovative has important implications for what kinds of remedies should be considered; but it does not mean that the firm should be let off with a slap on the wrist.[243]

By contrast, in some cases, it is clear that a defendant's monopoly is attributable almost entirely to its misconduct. For example, suppose a monopoly is achieved entirely through a combination of exclusionary practices and acquisitions of rivals. In this case, a breakup is much easier to justify. The concern highlighted above—that a breakup would eliminate a major source of innovation—no longer applies. The firm became dominant through exclusion and mergers, not innovation. At a minimum, unwinding the mergers would be a fitting remedy for the defendant's monopolization.

Note that the preceding discussion focuses specifically on the relevance of monopoly causation. It does not address the other important factors (e.g., administrability considerations) that also bear on the choice of remedy.

VI. APPLICATIONS

This Part applies the foregoing conclusions to controversial causation issues surrounding recent monopolization cases against Google and Facebook, both of which are currently under appeal. It then addresses what the Article's findings imply for claims of *attempt* to monopolize.

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[241] *See, e.g.,* John B. Kirkwood, *Tech Giant Exclusion*, 74 FLA. L. REV. 63, 63 (2022) (Big Tech firms have behaved anticompetitively but "should not be broken up" because this would "result in higher prices and lower quality.").

[242] This kind of compulsory dealing is a common behavioral remedy. *See, e.g.,* United States v. Google LLC, 803 F. Supp. 3d 18 (D.D.C. 2025) (ordering Google to provide valuable data and other services to rivals for a period of time).

[243] In *Microsoft*, the Justice Department's settlement is often criticized for failing in this respect. *See, e.g.,* Harry First & Andrew I. Gavil, *Re-Framing Windows: The Durable Meaning of the Microsoft Antitrust Litigation*, 2006 UTAH L. REV. 641, 644-45 (2006) ("The ultimate settlement of the case on weak terms … undermined the value of [the government's] victory.").

A. The Google Search Case

In the Google Search case,[244] the district court's causation analysis has provoked some controversy.[245] Below, I give a short summary of the most relevant facts of the case before turning to the causation issues.[246]

1. Key Facts

The case centered on search engine default agreements. Google pays billions annually to have Google Search preselected as the default search engine on third-party web browsers like Safari and Firefox.[247] It also pays Android device makers and cellular carriers to preinstall Chrome (which defaults to Google), with payment terms that discourage preinstallation of competing search products.[248] Google's defaults are very broad, covering a large share of the market: about 70% of all search queries originate on browsers or other search products on which Google is the default, with the large majority of that stemming from Google's contracts.[249] Its default contracts also require exclusivity.[250] Google compensates its contract partners by giving them a share of the advertising revenue it derives from search activity on their products.[251]

Defaults are "sticky"—some portion of users will stick with the default search engine not because they have decided they like it the most, but simply because it is the default.[252] The competitive significance of defaults is magnified by a data-driven scale effect that leads the quality of a search engine to increase when it gains more users and, by extension, more data to train its algorithms. This has a major impact on the competitive effects of search defaults.[253] Defaults are by far the most effective distribution channel for

[244] United States v. Google LLC, 747 F. Supp. 3d 1 (D.D.C. 2024).

[245] *See, e.g.,* Nuechterlein & Shelanski, *supra* note 11; Manne, *supra* note 178.

[246] For a more comprehensive analysis of the case, *see, e.g.,* Erik Hovenkamp & Douglas Melamed, *Antitrust Analysis of Search Engine Defaults,* ANTITRUST L.J. (forthcoming).

[247] *Google*, 747 F. Supp. 3d at 101-134.

[248] *Id.*

[249] *Id.* at 25. About 20% of its default coverage stems from user-downloaded instances of Chrome.

[250] For example, Apple must make Google Search the default on Safari for all users on all versions of the Safari browser.

[251] For example, for making Google the default on Safari, Apple gets about 35% of the search advertising revenue Google earns through Safari-based search activity. This amounted to over $20 billion in 2022 alone. *Google*, 747 F. Supp. 3d at 3.

[252] *Id.* at 29-30.

[253] *See, e.g.,* Erik Hovenkamp, *The Competitive Effects of Search Engine Defaults,* J. L. & ECON. (forthcoming); Germán Bet, Roger D. Blair & Javier D. Donna, *The Economic Rationale of* United States v. Google, 67 ANTITRUST BULL. 23 (2022).

search engines.[254] This is because their stickiness allows a search engine to gain the critical mass of users and data needed to become a viable competitor. However, because Google's defaults are so broad, rivals are largely foreclosed from the default distribution channel.[255]

The court treated the defaults as a form of exclusive dealing.[256] As in *Microsoft*, it was clear that Google had attained success in large part because it had built a first-rate product.[257] But the Justice Department alleged that Google was maintaining its search monopoly by using its broad defaults to forestall any would-be threats to its monopoly.

The district court found separate relevant markets for the consumer-facing and advertiser-facing sides of the search industry.[258] Google had monopoly power in both. And the court ultimately found Google liable for monopolizing both markets.[259]

2. Harm and Monopoly Causation Analysis

The district court found that Google's contracts had the following anticompetitive effects:

- The defaults substantially foreclose rivals, both on the consumer side and the advertiser side.[260]
- They impair rivals and entrants by depriving them of the scale they need to become viable.[261]
- They reduce rivals' incentives to innovate and invest in better technology.[262]
- They lead to higher prices for search text ads.[263]
- They lead to lower quality of search text ads.[264]

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[254] *Google*, 747 F. Supp. 3d at 24 ("The most efficient channel of [search engine] distribution is, by far, placement as the preloaded, out-of-the-box default [search engine]").

[255] The only material exception is Microsoft's Bing search engine, which is the default on Microsoft's own Edge browser. Google is the default on all other significant browsers.

[256] *Google*, 747 F. Supp. 3d at 203-204.

[257] *Id.* at 2 (Google Search "is the industry's highest quality search engine, which has earned Google the trust of hundreds of millions of daily users.")

[258] *Id.* at 140-152, 185-191.

[259] *Id.* at 276.

[260] *Google*, 747 F. Supp. 3d at 216-226, 258-59.

[261] *Id.* at 226-236.

[262] *Id.* at 236-248.

[263] *Id.* at 259-263.

[264] *Id.* at 263-64.

- They impair rivals' ability to earn advertising revenue.[265]

The court also found that there were no procompetitive justifications for maintaining such broad and exclusive defaults.[266] This kind of evidence—substantial foreclosure plus additional evidence of harmful effects—along with an absence of justifications, is the standard template for proving that exclusive dealing is anticompetitive.[267] So long as these anticompetitive effects were sufficiently supported by evidence, they should be sufficient to satisfy the anticompetitive harm element.

However, the court tended to blur together harm and monopoly causation.[268] As noted earlier, at times the court confused monopoly causation for an inquiry into the cause of anticompetitive effects.[269] Ultimately, however, what matters is whether the court applied the law correctly. This requires that it found a likelihood of anticompetitive harm in the specific market at issue, and that it applied *Microsoft*'s toothless test only to monopoly causation.

Did the district court do that? On careful inspection, the answer is mostly yes, but with a clear exception. The exception arose in connection with the anticompetitive chilling effect on rival investment and innovation. The court began by noting that there has been limited investment in the space by anyone other than Google, and it found that the foreclosure of rivals from the default channel "has contributed significantly to the lack of new investment."[270] This is the right kind of determination: it is a statement about what the defaults are actually doing, not what they are "reasonably capable" of doing.

But the court then discussed some specific examples, and in two of them it found only that Google's contracts were "reasonably capable" of having the relevant chilling effect. First, the court found that the contracts "appear reasonably capable of having significantly contributed to disincentivizing Microsoft from enlarging its investment in search."[271] It then found that Google's deal with Apple "reasonably appears capable of significantly contributing to keeping Apple on the sidelines of search."[272] Both of these statements misapply *Microsoft*'s causation test to the harm element.

However, the district court does not appear to have made this mistake in analyzing any of the other anticompetitive effects it found. For example, it

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[265] *Id.* at 264-65.

[266] *Id.* at 248-258.

[267] *See* note 176, *supra*, and accompanying text.

[268] *Google*, 747 F. Supp. 3d at 214-216.

[269] *See* Part III.B, *supra*.

[270] *Google*, 747 F. Supp. 3d at 236-238.

[271] *Id.* at 239.

[272] *Id.* at 242.

found that rivals were in fact foreclosed from a large share of the market due to the broad scope and exclusivity of Google's default contracts.[273] Similarly, the court did not find merely that Google's conduct was "reasonably capable" of excluding rivals by depriving them of scale. It found that it actually did so.[274]

In sum, it appears that the court applied the correct legal standard to almost all of the anticompetitive effects it identified. Its mistake was confined to two examples of one anticompetitive effect. Given the court's voluminous findings of anticompetitive effects, it seems unlikely that those two examples were pivotal to the court's overall decision.

The only remaining issue is monopoly causation. On this point, the Google Search case raises largely the same "proof problem" that arose in *Microsoft*: the exclusionary conduct was aimed at small and "nascent" rivals, and it is very hard to say to what extent they would have become stronger competitors absent the misconduct.[275] Under the *Microsoft* standard, we do not have to answer that. It is enough that the type of exclusionary conduct at issue is "reasonably capable" of having that effect. That would seem no less true in *Google* than it was in *Microsoft*.

In a thoughtful article, Nuechterlein and Shelanski suggest that the Google Search case mishandled causation, because Google's conduct plausibly served only "to prevent a small but nontrivial chance that it would otherwise lose its monopoly."[276] But they then appear to equate this with a failure to prove *harm*.[277] This conflates the two issues. It is true that proving harm under Section 2 generally requires more than a small chance of diminished competition. But it does not require that the harm is responsible for Google's dominance. The harm element entails only an adverse directional impact on competition. Indeed, the evidence in *Microsoft* was equally incapable of proving that there would have been "robust competition" in the but-for world.

3. Indirect Proof and the But-For World

At one point, the district court suggested that harm to competition need not be established relative to the but-for world.[278] This is incorrect, or at least highly misleading. The point the court was trying to make—that a plaintiff can

[273] *Id.* at 223-226.

[274] E.g., *id.* at 234 ("Google's distribution agreements have constrained the query volumes of its rivals, thereby inoculating Google against any genuine competitive threat").

[275] United States v. Microsoft Corp., 253 F.3d 34, 79 (D.C. Cir. 2001).

[276] Nuechterlein & Shelanski, *supra* note 11, at 37.

[277] *Id.* ("can a defendant be said to have 'caused' competitive harm simply by making an already unlikely event (e.g. robust search competition) even more unlikely?").

[278] United States v. Google LLC, 747 F. Supp. 3d 1, 219 (D.D.C. 2024) ("*Rambus* does not establish a categorical rule that the anticompetitive effects of an exclusive agreement must be measured against a but-for world.")

prove harm without giving a detailed picture of the but-for world—is correct. But that is a statement about how harm is *proven*, not about the conceptual benchmark used to determine whether a restraint harms competition. As explained earlier, all forms of evidence ultimately seek to show that the restraint leaves the market less competitive than it would be otherwise.[279]

The discrepancy arose in connection with the court's foreclosure analysis. The court measured foreclosure in terms of the share of the market covered by the defendant's restraints. As noted earlier, this generally overstates the adverse effect on rivals.[280] But courts nevertheless measure foreclosure this way in most cases, in part because the alternative is usually infeasible.[281] The district court misinterpreted this to mean that it was not establishing harm relative to a world without the restraints. That is wrong. When defined in terms of market coverage, foreclosure does not show the exact causal effect on rivals; but it is still a perfectly sensible proxy. It captures the extent to which the restraint eliminates (or impedes) any *potential* access by rivals to important distribution channels or trading partners.[282] It should be clear that such foreclosure—if sufficiently extensive and unjustified—will tend to undermine competition under most circumstances.

Thus, when the district court suggested that it was not establishing harm relative to the but-for world, it was in fact relying on indirect evidence to do just that. Indeed, in assessing the competitive impact of Google's restraints, it consistently (albeit implicitly) compared to a world without the restraints.[283]

B. The Facebook Case

In 2020, the FTC brought a Section 2 case against Meta, which focused mainly on Facebook's prior acquisitions of Instagram (in 2012) and WhatsApp (in 2014).[284] The causation controversy relates less to the specific facts of the

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[279] Part I.B, *supra*.

[280] *See* note 138, *supra*, and accompanying text.

[281] Ideally we could measure what one might call "net-foreclosure"—the share of transactions covered by the defendant's restraints that would otherwise have been made by rivals. That would be direct evidence of the restraint's impact on rivals' sales. Unfortunately, we cannot usually calculate net-foreclosure, as we cannot observe the but-for world. Instead, courts usually just measure foreclosure as the share of market transactions covered by the restraints. *See, e.g.*, ZF Meritor, LLC v. Eaton Corp., 696 F.3d 254, 286 (3d Cir. 2012).

[282] I am taking as given that the restraints foreclose rivals from a resource that is important for a firm to be able to compete effectively. If the plaintiff cannot show that, then foreclosure shares are not a useful proxy.

[283] *See, e.g., Google*, 747 F. Supp. 3d at 227 (Google's restraints give it "additional search volume beyond what it would otherwise receive").

[284] The FTC recently lost the case on grounds unrelated to the topic of this section's discussion. *Fed. Trade Comm'n v. Meta Platforms, Inc.*, No. CV 20-3590 (JEB), 2025 WL 3211725 (D.D.C. Nov. 18, 2025) (no liability due to the FTC's failure to show possession of monopoly power). The FTC has appealed that decision, however.

case than to the FTC's general arguments about what it had to prove to win. I addressed some of them in earlier sections.[285] A more central question driving the controversy around the case has to do with how antitrust should address uncertainties surrounding the exclusion or acquisition of possible "nascent" competitors by a dominant firm. This section addresses that issue.

1. The Problem of Small Probabilities

To fix ideas, consider an idealized hypo. Suppose a dominant firm eliminates a possible "nascent" competitor—an innovative young startup that was not yet a direct competitor, but which might have entered the dominant firm's market in the future. Assume there are no procompetitive justifications. For example, the dominant firm might have simply acquired the firm and shut it down. However, the probability that the startup would have become a direct competitor is not provably larger than fifty percent. The government alleges monopoly maintenance in the dominant firm's market.

On these facts, the challenged practice is harmful *in expected value*. Depending on whether the startup would have become a competitor, the practice either harmed competition in the relevant market or it had no effect. But the usual standard of proof—"more likely than not"—does not ask about expected value. It asks about probability. And harm is not probable here. Should antitrust liability nevertheless be on the table? This question has become the subject of vigorous scholarly debate, much of it motivated by the Facebook case.[286]

In some antitrust contexts, this small probability problem is no concern at all. Naked horizontal restraints like market division are illegal *per se*. It is conceivable that such an agreement could carry only a small probability of causing actual harm.[287] But that is no defense in a public enforcement action, as it is the conspiracy itself—not its consequences—that triggers per se illegality.[288] However, the per se rule is narrowly confined. It does not apply to mergers, nor to any of the exclusionary practices evaluated under Section 2.

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[285] *See* Parts III.A, III.C, *supra*.

[286] C. Scott Hemphill & Tim Wu, *Nascent Competitors*, 168 U. PA. L. REV. 1879 (2020); A. DOUGLAS MELAMED, ACQUISITIONS OF NASCENT COMPETITORS UNDER SECTION 2 OF THE SHERMAN ACT, *in* JUDGING BIG TECH: INSIGHTS ON APPLYING U.S. ANTITRUST LAWS TO DIGITAL MARKETS 38 (Laura Alexander ed., 2022); Muris & Nuechterlein, *supra* note 172; Ginsburg & Wong-Ervin, *supra* note 11; Nuechterlein & Shelanski, *supra* note 11.

[287] For example, suppose firm A is located in New York, while firm B is in Florida. Firm B is planning to expand into one of 10 other candidate states, one of which is New York. Firm A pays firm B to remove New York from the list of candidates. This agreement is naked market division—it serves no purpose other than to eliminate head-to-head competition between the parties. But on these facts it was probably superfluous (it caused no harm), because firm B probably would not have picked New York anyway.

[288] United States v. Socony-Vacuum Oil Co., 310 U.S. 150, 224 n.59 (1940) (per se liability "is not dependent on any overt act other than the act of conspiring"). Similarly, in *Palmer*, the Supreme Court held that liability for market division requires only that the agreement allows

The question is how this problem should be addressed under Section 2. Should there be liability? If so, on what basis could such an exception be rationalized under existing law?[289] Fully resolving these important questions would go beyond the scope of this Article. I will make a somewhat narrower point about how monopoly causation fits into this discussion—in particular, that *Microsoft*'s toothless standard has limited relevance to the problem described above. Any path to liability must therefore come from elsewhere. I will also argue that, although there seem to be sound policy rationales for such a rule (if properly confined), consummated mergers are unlikely to be a promising candidate for it.

2. Distinguishing the Harm and Causation Problems

Many of the authors who have considered this issue have grounded the discussion in monopoly causation. For example, Hemphill and Wu frame the issue in terms of *Microsoft*'s "reasonably capable" language.[290] On that view, liability for acquiring an innovative potential rival would not require proving that it probably would have entered the dominant firm's market.[291] It is enough that a dominant firm's acquisition of a serious threat is reasonably capable of maintaining its monopoly.[292]

However, this blurs together two distinct uncertainty problems. First, there is the problem emphasized above—the plaintiff might not be able to prove that the nascent startup probably would have entered into direct competition with the dominant firm. Second, even if we accept that the nascent firm would likely have entered the dominant firm's market, there is a question of how significant a competitor it would have become.

The second problem bears on monopoly causation, because it addresses uncertainty over the magnitude of the harm. Even if the plaintiff can prove the merger was anticompetitive, it is difficult or impossible to prove how much competition was actually lost, because we do not know how significant a competitor the acquired firm would have become. *Microsoft* solves this problem at the liability stage, as its toothless standard means we can largely sidestep this magnitude-of-harm question.

By contrast, the first problem bears on the directional question of whether or not the merger harms competition. And proving harm typically

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each firm to "reserve" some geographic market for itself by preventing entry by the other party. Palmer v. BRG of Georgia, Inc., 498 U.S. 46, 49-50 (1990).

[289] *See, e.g.,* Nuechterlein & Shelanski, *supra* note 11 (analogizing such an exception to "lost chance" doctrine in tort law, which allows plaintiffs to recover partial damages in some cases where a defendant's probability of causing harm was less than 50 percent).

[290] Hemphill & Wu, *supra* note 286, at 1881.

[291] *Id.*

[292] *Id.*

requires showing that harm is *likely*, not that it is *possible*. Of course, this does not mean that the harm inquiry reduces to the binary question of whether or not entry was likely.[293] The point is that, in the scenario under consideration, entry is a *necessary condition* for harm. Thus, establishing a likelihood of harm requires, among other things, that entry was likely.

It might be correct that antitrust should provide a solution to this problem of small probabilities. But *Microsoft*'s "edentulous" standard cannot be that solution. It is just a "test for causation."[294] As such, it provides no basis for relaxing the burden of proving harm to competition.

3. The Limits of Possible Solutions

Let us assume the following two premises: (1) the case at hand involves either a traditional exclusionary practice or a not-yet-consummated merger, so that a simple injunction could suffice to resolve the threat; and (2) the challenged conduct has no procompetitive effects at all. Then, in my view, a small probability of harm is not a good reason to withhold liability. If the only two possible outcomes of a challenged practice are that it harms competition or that it has no effect on competition, then the relative probabilities of those possibilities would not seem to matter much, at least for purposes of awarding an injunction. At worst, the injunction would be competitively neutral; at best, it would enhance competition by terminating a harmful practice.

However, the argument is very sensitive to the two assumptions identified above. Thus, while I agree that a small probability of harm should sometimes be sufficient to support liability, this exception should be limited to cases where both assumptions are provably satisfied. But this makes consummated mergers a somewhat unpromising candidate for the exception.

Start with the second assumption. If the defendant can show that its conduct or merger has some plausible procompetitive effects, then a small probability of harm is a real problem.[295] It changes the worst-case scenario from a superfluous injunction to one that deprives the public of procompetitive benefits. And, significantly, mergers can have many procompetitive benefits.[296] If a startup's technology is actively utilized by an incumbent-acquirer,[297] then the incumbent's expertise and resources could help to grow the startup's technology in ways that would have been difficult or impossible otherwise. This

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[293] The fact that two firms compete does not imply that a merger between them is anticompetitive. Many mergers create significant efficiencies.

[294] United States v. Microsoft Corp., 253 F.3d 34, 79 (D.C. Cir. 2001).

[295] Hemphill & Wu agree that proof of merger-specific efficiencies would typically make liability inappropriate. *See* Hemphill & Wu, *supra* note 286, at 1902-03.

[296] *See, e.g.,* Louis Kaplow, *Efficiencies in Merger Analysis*, 83 ANTITRUST L.J. 557 (2021).

[297] By contrast, in a so-called "killer acquisition" where the dominant firm acquires a rival and simply shuts it down, the anticompetitive effect of the acquisition is transparent. *See* Colleen Cunningham, Florian Ederer & Song Ma, *Killer Acquisitions*, 129 J. POL. ECON. 649 (2021).

does not mean harm is impossible if the acquirer helps to grow the startup's technology, but it does mean that the defendant is likely to be able to show a merger-specific efficiency.[298]

The first assumption is also important. If a case involves a consummated merger, then a simple injunction cannot cure the harm. That would require a divestiture.[299] If that is the contemplated form of relief, then a small probability of harm may not be sufficient to justify intervention, even if there were no procompetitive justification for the merger at the time when it occurred. Forced divestitures can cause significant collateral damage, potentially doing more harm than good.[300] For a divestiture to be justified, we should be confident that it is likely to leave the market more competitive. But if there was only ever a small probability of inter-party competition, then presumably we cannot be confident about that.

A better application for the kind of exception contemplated above is a more conventional exclusionary practice where possible procompetitive effects are more easily ruled out. For example, *Lorain Journal* is a good illustration of transparently exclusionary conduct.[301] Such cases do not involve mergers or other plausibly constructive economic activity. They involve only destructive, anticompetitive behavior. Moreover, an injunction is generally sufficient to terminate such misconduct. Under these circumstances, it seems reasonable to enjoin the practice even if the likelihood of harm is below the usual threshold.

C. Attempt to Monopolize

As noted earlier, monopoly causation is highly analogous to the "dangerous probability" element of *attempt* to monopolize.[302] And it is easy to see that the dangerous probability element similarly depends on the magnitude of the harm. To transform a more competitive market into a

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[298] If the defendant can show that the acquiring firm used its resources and expertise to help grow the startup's technology, a court is likely to accept that as a merger-specific efficiency. In principle, the plaintiff could still prove that the harm outweighs that efficiency. But in practice, courts rarely engage in meaningful balancing of countervailing effects under the rule of reason. *See, e.g.*, Epic Games, Inc. v. Apple, Inc., 67 F.4th 946, 993-94 (9th Cir. 2023) (noting this point).

[299] If the merger was consummated long in the past, it might not even be possible to cleanly identify what parts of the defendant's present business should be associated with the startup and divested. But, for present purposes, I will assume that boundary problem is solvable.

[300] *See* notes 239-41, *supra*, and accompanying text.

[301] Lorain Journal Co. v. United States, 342 U.S. 143 (1951). In this case, a local advertising monopolist (a newspaper) excluded a recent entrant (a radio station) by telling local advertisers it would no longer serve them if they ran any ads on the radio station. This served no purpose other than to make it impossible for the radio station to compete.

[302] *See* Part II.A, *supra.*

monopoly, a practice must have a sufficiently acute impact on the market's competitive structure. Not all anticompetitive practices can do that.[303]

Given this similarity, it is tempting to conclude that the dangerous probability element should be assessed under a "toothless" test at the liability stage. The same policy rationale would seem to apply: so long as the plaintiff can prove anticompetitive harm, why demand additional rigorous evidence bearing on the magnitude of the harm? That might suggest that the Supreme Court was mistaken when it held that the dangerous probability element requires stronger evidence showing a "realistic probability" that the defendant will actually acquire a monopoly.[304]

However, this apparent conflict is rationalized by the statutory purpose of the Sherman Act. Whatever its ambiguities, Section 2 is clearly concerned with actual or threatened monopoly, not just anticompetitive conduct in general.[305] Making the dangerous probability element toothless would subvert that focus, as it would permit liability even when there is no chance that the defendant will become dominant. By contrast, in an ordinary monopolization case, the defendant is already a monopolist, so that concern does not apply.

Note, however, that the "dangerous probability" requirement is already a somewhat relaxed standard, even if it is not entirely toothless. It does not require that actual monopolization is more likely than not, but only that there is a "realistic probability" it will happen.[306] This partially addresses the policy interests that motivated *Microsoft*'s toothless causation test while maintaining fidelity to Section 2's focus on actual or threatened monopoly.

VII. CONCLUSION

Section 2 carries a largely undeveloped causation requirement—a "causal link" between the defendant's anticompetitive conduct and its monopoly power. Additionally, the core element of any antitrust violation—harm to competition—is itself a causation requirement: it requires that the conduct has an adverse causal impact on competition. Thus, *both* harm and monopoly causation ask causal questions about the defendant's restraint. As a result, the two issues are constantly conflated, with courts, academics, and enforcers using the term "causation" to refer to both issues interchangeably. One contribution of this Article is to expose and resolve this conceptual problem.

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[303] *Id.*

[304] *Spectrum Sports*, 506 U.S. at 459 (1993) (the dangerous probability element cannot be satisfied "without any proof of the relevant market or of a realistic probability that the defendants could achieve monopoly power in that market").

[305] *Id.* (Section 2 liability requires that the conduct "actually monopolizes or dangerously threatens to do so.")

[306] *Id.*

Microsoft's "toothless" causation test is widely debated. Some claim that it relaxes the burden not only on causation, but also on the harm element. Others argue the opposite—that in most cases, the toothless test should not even apply to the monopoly causation element. As this Article explains, both of these views are mistaken. The best policy takes a divided approach: courts should maintain a high bar for proving harm while applying a weak standard to causation at the liability stage. But severe remedies like breakups demand stronger evidence of monopoly causation. This policy maintains fidelity to antitrust's core concern—determining whether conduct is harmful or reasonable—while ensuring that remedial interventions are commensurate with the magnitude of the harm.