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The Microsoft Litigation's Lessons for United States v. Google

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The United States Department of Justice ("DOJ") and three overlapping groups of states have filed federal antitrust cases alleging Google has monopolized internet search, search advertising, internet advertising technologies, and app distribution on Android phones. In this Article, we focus on the DOJ's claims that Google has used contracts with tech firms that distribute Google's search services in order to exclude rival search providers and thus to monopolize the markets for search and search advertising—the two sides of Google's search platform. The primary mechanisms of exclusion, according to the DOJ, are the many contracts Google has used to secure its status as the default search engine at all major search access points. The complaint echoes the DOJ's claims two decades ago that Microsoft illegally maintained its monopoly in personal computer operating systems by forming exclusionary contracts with distributors of web browsers, and by tying its Internet Explorer browser to Windows. The gist of the case was that Microsoft had used exclusionary tactics to thwart the competitive threat Netscape's Navigator browser and Sun Microsystems' Java programming technologies—both forms of "middleware"—posed to the Windows monopoly. In this Article, we argue that the treatment of market definition, exclusion-

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ary contracting, causation, and remedies in the D.C. Circuit's Microsoft decision has important lessons for the Google litigation.

INTRODUCTION

The United States Department of Justice ("DOJ") and most states have filed federal antitrust cases alleging Google has monopolized internet search, search advertising, internet advertising technologies, and app distribution on Android phones.[1] The DOJ's case—the focus of the present Article—claims Google has used restrictive contracts with Apple and other distributors of its search services to monopolize online markets for search and search advertising.[2] Filed after a lengthy investigation and review of documents submitted in response to the DOJ's civil investigative demands,[3] the case (at this writing) has completed discovery and is beginning briefing with respect to Google's motion for summary judgment.[4] Trial is scheduled for September 2023.

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[1] *See* Complaint at 2, 17–18, United States v. Google LLC, No.1:20-cv-03010 (D.D.C. filed Oct. 20, 2020).

[2] *See id.* at 3–4. This Article does not address the later complaint filed by the United States and eight states alleging Google has monopolized ad technology markets. *See* Complaint, United States v. Google LLC, No. 1:23-cv-00108 (E.D. Va. filed Jan. 24, 2023). In 2013, the FTC closed an investigation of Google for preferring its own products, such as Google Maps, over competitors in presenting its search results, evidently concluding antitrust law and economics failed to support any antitrust duty to provide unbiased search results. *See* Michael A. Salinger & Robert J. Levinson, *Economics and the FTC's Google Investigation*, 46 REV. INDUS. ORG. 25, 25–28 (2015).

[3] *See* Tony Romm, *Google Receives Demand for Documents from Justice Dept., Acknowledging Federal Antitrust Scrutiny*, WASH. POST (Sept. 6, 2019, 6:05 PM), https://www.washingtonpost.com/technology/2019/09/06/google-receives-demand-documents-doj-acknowledging-federal-antitrust-scrutiny/.

[4] *See* Defendant's Memorandum of Points and Authorities in Support of Its Motion for Summary Judgment, United States v. Google LLC, No. 1:20-cv-03010 (D.D.C. filed Jan. 11, 2023) [hereinafter Google Summary Judgment Memorandum]; Mike Scarella*, Google Fights Renewed Bid to Depose Execs in U.S. Antitrust Case*, REUTERS (July 13, 2022, 3:02 PM EDT), https://www.reuters.com/legal/litigation/google-fights-renewed-bid-depose-execs-us-antitrust-case-2022-07-13/.

Colorado's case, which the district judge has consolidated with the DOJ case, alleges much of the same conduct, with some additions.[5] The Texas case alleges Google has monopolized the technologies of internet display advertising: publisher advertising, the buying tools for large and small advertisers, and advertising exchanges.[6] The Utah case alleges Google has monopolized mobile app distribution on Android phones by contracts limiting distribution of apps other than through Google's Play Store, and processing of in-app purchases other than through Google Play Billing.[7] The cases have triggered a host of follow-on suits by private plaintiffs claiming individual harm from Google's actions.[8] Indeed, attacks on Google

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[5] *See generally* Complaint, Colorado v. Google LLC, No. 1:20-cv-03715 (D.D.C. filed Dec. 17, 2020). Colorado is joined by 38 other states. *Id.* ¶ 1, at 4–5. The complaint includes, for example, additional allegations that Google's use of its SA360 advertising tool is exclusionary, *id.* ¶¶ 144-67, at 49–57, and that Google unlawfully limits traffic to specialized search providers, *id.* ¶¶ 168–99, at 57–70. Google has filed a parallel summary judgment motion in that case. *See* Defendant's Memorandum of Points and Authorities in Support of Its Motion for Summary Judgment, State of Colorado v. Google LLC, No. 1:20-cv-03715-APM (D.D.C. filed Jan. 11, 2023).

[6] *See generally* Complaint, Texas v. Google LLC, No. 4:22-cv-00636 (S.D. Tex. filed Feb 25, 2022). Google has moved to dismiss the case for failure to state a claim. *See* Motion to Dismiss at 5, Texas v. Google LLC, No. 4:22-cv-00636, (S.D. Tex. filed Mar. 22, 2022), ECF No. 10; Amended Motion to Dismiss at 4–5, Texas v. Google LLC, No. 4:22-cv-00636 (S.D. Tex. filed June 6, 2022), ECF No. 33.

[7] Complaint ¶¶ 4–5, at 9–10, State of Utah v. Google LLC, No. 3:21-cv-05227 (N.D. Cal. filed July 7, 2021).

[8] *See In re* Google Digit. Publisher Antitrust Litig., No. 1:21-cv-07034 (S.D.N.Y. Aug. 20, 2021) (originated as Sweepstakes Today, LLC v Google LLC, No. 4:20-cv-8984 (N.D. Cal. Dec. 15, 2020), originally transferred to No. 1:21-md-03010-PKC (S.D.N.Y. Aug. 12, 2021), before being transferred to No. 1:21-cv-07034). The cases have been consolidated in MDLs before Judge Castel in the Southern District of New York and Judge Donato in the Northern District of California. *See id.*; *In re* Google Play Store Antitrust Litig., No. 3:21-md-02981 (N.D. Cal. Feb. 05, 2021). The New York cases focus on issues of digital advertising. *In re* Google Digit. Advert. Antitrust Litig., No. 1:21-md-03010 (S.D.N.Y. Aug. 12, 2021) (transferred from 13 other districts). The California cases deal with issues related to the Google Play Store. *See In re* Google Play Dev. Antitrust Litig., No. 3:20-cv-05792, at 2 (N.D. Cal. Aug. 17, 2020); *In re* Google Play Consumer Antitrust Litig., No. 3:20-cv-05761, at 2–3 (N.D. Cal. Aug. 16, 2020); *In re* Google Play Store Antitrust Litig., No. 3:21-md-02981 (N.D. Cal. Feb. 5, 2021).

have not been limited to the United States.[9] The General Court of the European Union confirmed a decision by the European Commission that Google illegally maintained its dominant position in search engines by imposing anticompetitive restrictions on Android device manufacturers and mobile network operators.[10]

The cases against Google in this country and other recent cases challenging dominant high-technology companies reflect the influence of the recent neo-Brandeisian antitrust movement,[11] but they also echo the claims the DOJ and a group of states brought two decades ago against another tech giant: Microsoft.[12] When that case was brought, Microsoft was the leading producer of personal computer

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[9] *See* Case T-604/18, Google LLC v. Comm'n, ECLI:EU:T:2022:541, at 2 (Sep. 14, 2022), https://curia.europa.eu/juris/document/document.jsf?text=&docid=265421&pageIndex=0&doclang=en&mode=req&dir=&occ=first&part=1&cid=162401.

[10] *See id.* The General Court did reduce the fine from 4.343 billion euros imposed by the Commission to 4.125 billion euros. *Id.* at 3, 105.

[11] *See* Herbert J. Hovenkamp, *Is Antitrust's Consumer Welfare Principle Imperiled?*, 45 J. CORP. L. 101, 118, 128–29 (2019) (arguing neo-Brandeisians display "antipathies toward cost-savings," typified by "large networks such as Amazon, Google, and Facebook," and complain that companies like Amazon and Google are "too big," without explaining who their victims are and what the appropriate remedy would be); Joshua Wright & Aurellen Portuese, *Antitrust Populism: Towards a Taxonomy*, 25 STAN. J.L. BUS. & FIN. 131, 149 (2020) ("Neo-Brandeisians specifically target companies such as Amazon, Google, and Facebook mainly because of their bigness–the view is that the size of these tech companies jeopardizes democracy and economy, as the historical argument goes."). The movement has gained special prominence with the appointment of Lina Khan, one of the movement's leading scholarly proponents, as the chair of the Federal Trade Commission. *See* Phil Gramm & Christine Wilson, *The New Progressives Fight Against Consumer Welfare*, WALL ST. J. (Apr. 3, 2022, 5:05 PM), https://www.wsj.com/articles/the-new-progressives-fight-against-consumer-welfare-deregulating-antitrust-enforcement-economy-bipartisan-11649017074 ("The modern progressives who dominate the Biden administration have labeled themselves Neo-Brandeisians after Justice Louis Brandeis, who claimed that 'the evils of excessive bigness are something distinct from and additional to the evils of monopoly.'"); *see also* Robinson Meyer, *What Steve Bannon Wants to Do to Google*, THE ATL. (Aug. 1, 2017), https://www.theatlantic.com/technology/archive/2017/08/steve-bannon-google-facebook/535473/ ("Steve Bannon, the chief strategist to President Donald Trump, believes Facebook and Google should be regulated as public utilities . . . .").

[12] *See* United States v. Microsoft Corp., 253 F.3d 34, 47 (D.C. Cir. 2001) (en banc).

operating systems ("OS")—and it still is.[13] The governments claimed Microsoft illegally maintained its monopoly in personal computer operating systems by attempting to monopolize the market for internet browsers, illegally tying its browser to its operating system, and entering into illegal exclusive dealing arrangements with browser distributors.[14]

The gist of the case was that Microsoft had used its illegal tactics to thwart the competitive threat posed by Netscape's Navigator web browser and Sun Microsystems' Java programming technologies.[15] Both products were forms of "middleware": software with both applications and platform capabilities.[16] Microsoft saw Navigator and Java, correctly or not, as competitive threats, because they might one day allow application developers to "write once, run anywhere"—to write programs to run on a cross-platform browser, which could then run on any computer, not just Windows machines.[17] That prospect threatened to undermine the continued dominance of Windows as the leading OS by weakening the network effects protecting it—the mutually reinforcing preferences of users for the OS with the most applications, and of application developers for the OS with the most users.[18] Responding to the perceived threat, Microsoft not only developed and improved its competing products, it also reconfigured Windows and contracted with computer manufacturers (called original equipment manufacturers, or "OEMs") and internet firms in

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[13] *See Desktop Operating System Market Share Worldwide*, STATCOUNTER GLOBALSTATS, https://gs.statcounter.com/os-market-share/desktop/worldwide/#monthly-202101-202211 (last visited Nov. 20, 2022). Microsoft's share of the desktop OS market is just under 80 percent, with Apple's MacOS holding 16 percent. *Id.* If tablet and cellphone operating platforms are included, the share drops to just over 30 percent, with Google's Android OS holding 40 percent. *See Operating System Market Share Worldwide*, STATCOUNTER GLOBALSTATS, https://gs.statcounter.com/os-market-share#monthly-202201-202211 (last visited Nov. 20, 2022).

[14] United States v. Microsoft Corp., 87 F. Supp. 2d 30, 35 (D.D.C. 2000), *aff'd in part, rev'd in part*, 253 F.3d 34 (D.C. Cir. 2001).

[15] *See id.* at 38–39.

[16] *See Microsoft*, 253 F.3d at 53.

[17] *See* WILLIAM H. PAGE & JOHN E. LOPATKA, THE MICROSOFT CASE: ANTITRUST, HIGH TECHNOLOGY, AND CONSUMER WELFARE 87–88 (2007).

[18] *See id.* at 88–89.

ways that disadvantaged its rivals without obviously benefiting users.[19]

The district court found Microsoft liable for all of the alleged illegal acts, except exclusive dealing,[20] and entered an order restricting Microsoft's conduct and dividing it into two vertically-related firms.[21] The governments did not appeal the dismissal of their exclusive dealing claim, but Microsoft appealed the rest of the decision.[22] The District of Columbia Circuit Court of Appeals, acting en banc, affirmed liability for most of the acts of monopolization, reversed liability on the attempted monopolization claim, and remanded for reconsideration of the tying claim under a less rigid standard.[23] The appeals court also vacated and remanded the remedial order, both because the court had reversed some of the district court's substantive decisions, and because of the district court's serious procedural errors.[24]

The D.C. Circuit's 2001 en banc decision, which we call simply *Microsoft* to convey its significance, is now (we submit) the most influential Section 2 decision ever decided by a court of appeals, and it will undoubtedly guide resolutions of new challenges to dominant high-technology companies.[25] *Microsoft* is especially significant for the DOJ's *Google* case. The heart of *Microsoft* is the court's analysis of the governments' Section 2 monopolization claim,[26] and the DOJ

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[19] *See Microsoft Corp.*, 87 F. Supp. 2d at 39.

[20] *See id.* at 35.

[21] *See* United States v. Microsoft Corp., 97 F. Supp. 2d 59, 64–65 (D.D.C. 2000).

[22] *See* United States v. Microsoft Corp., 253 F.3d 34, 45 (D.C. Cir. 2001) (en banc).

[23] *See id.* at 46, 48, 94.

[24] *See id*. at 98. We consider the court's decision on remedies in Section IV.

[25] Contenders for that title might include United States v. Aluminum Co. of Am., 148 F.2d 416 (2d Cir. 1945) and Berkey Photo, Inc. v. Eastman Kodak Co. 603 F.2d 263 (2nd Cir. 1979).

[26] *See* Rebecca H. Allensworth, *Antitrust's High-Tech Exceptionalism*, 130 YALE L.J.F. 588, 598–99 (2021) (describing *Microsoft* as a "hawkish" monopolization precedent with a carve-out for tying); Alan J. Meese, *Monopolization, Exclusion, and the Theory of the Firm*, 89 MINN. L. REV. 743, 770 (2005) (discussing how *Microsoft* did not require a showing of harm to consumers, only impairment of "competition on the merits."); *see also* Leon B. Greenfield, *Afterword:* Lorain Journal *and the Antitrust Legacy of Robert Bork*, 79 ANTITRUST L.J. 1047, 1064

in *Google* alleges analogous acts of monopolization.[27] The DOJ's complaint even accuses Google of following Microsoft's "playbook" in its contracting practices.[28]

In the pages that follow, we mine *Microsoft* for lessons that might inform the decisions in *Google*. We argue, most generally, that *Microsoft* demonstrates the importance of judicial humility in assessing novel commercial practices in industry settings not yet well understood. Hubris in antitrust courts and enforcers has been a chronic problem when industries characterized by rapid technological progress are under scrutiny.[29] When *Microsoft* was litigated, the economics of multi-sided industries was in its infancy.[30] The risk that aggressive antitrust intervention, especially various forms of structural relief, would do more harm than good was high. The appellate court generally recognized its institutional limitations.[31] Its

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(2014) (describing Bork's advocacy for Netscape and how *Microsoft* went beyond *Lorain Journal*).

[27] Amended Complaint ¶ 11, at 6, United States v. Google LLC, No. 1:20-cv-03010 (D.D.C. Jan. 15, 2021).

[28] *Id.* Google cites *Microsoft* twenty-eight times in its summary judgment brief. *See* Google Summary Judgment Memorandum, *supra* note 4, at 1–3, 23, 24, 26, 27, 29, 34, 38, 40, 42, 44, 45, 48, 49.

[29] *See* John E. Lopatka, *United States v. IBM: A Monument to Arrogance*, 68 ANTITRUST L.J. 145, 162 (2000). The United States sued IBM, the tech colossus of its day, in 1969. After a trial spread over nearly seven years, during which time the case had become obsolete, it dropped the case. *See id.* at 145. "[A]bove all, the case reflected an arrogance toward the market, a conviction that antitrust institutions are fully capable of improving on market outcomes wherever imperfections can be alleged. An appropriate respect for the market, or equivalently a healthy distrust of the capacity of antitrust, has proven elusive." *Id.* at 146.

[30] Indeed, the rigorous economic study of two-sided businesses began in earnest in 2000, with the pre-publication circulation of Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. EUR. ECON. ASS'N 990, 990 (2003). S*ee also* Richard Schmalensee, *An Instant Classic: Rochet & Tirole, Platform Competition in Two-Sided Markets*, 10 COMPETITION POL'Y INT'L 175, 175 (2014).

[31] *See* United States v. Microsoft Corp., 253 F.3d 34, 49 (D.C. Cir. 2001) (en banc) (explaining why there are "enormous practical difficulties for courts considering the appropriate measure of relief in equitable enforcement actions . . . ."). The original district judge, Thomas Penfield Jackson, was less cognizant of the limits of judicial competence. *See id*. ("[W]e find the District Court's refusal in the present case to hold an evidentiary hearing on remedies—to update and flesh out the available information before seriously entertaining the possibility of dramatic structural relief—. . . problematic."). Judge Jackson showed hubris not only

approach—and the litigation experience following the decision—can teach the *Google* courts and parties important lessons.

We examine the two cases within the framework of the elements of the monopolization offense, each of which raises the issue of the court's institutional limitations. First, the defendant must possess monopoly power, a condition that presupposes the definition of a relevant market—an especially challenging undertaking in high-tech platform markets.[32] Second, the defendant must have engaged in exclusionary conduct, or conduct that excludes rivals on some basis other than efficiency.[33] Third, the defendant's monopoly power and the exclusionary conduct must be causally linked.[34] Stated otherwise, the defendant must possess monopoly power that it would not have had but for the exclusionary conduct.[35] Once liability is established, a panoply of remedies is possible.[36] The appropriate relief should be neither inadequate to restore competition and prevent future harm, nor excessive in light of the monopolist's efficiencies it might preclude, and it should accomplish the remedial objective at a justifiable administrative cost.

I. MARKET DEFINITION AND MONOPOLY POWER

A firm can raise prices and restrict output if it has monopoly power,[37] a condition that usually requires controlling a dominant

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in ordering a dramatic restructuring of a successful firm, but also in predicting the future course of a rapidly evolving market. *See id.* at 45 (explaining the district court's findings); United States v. Microsoft Corp., 87 F. Supp. 2d 30, 46 (D.D.C. 2000) ("Internet Explorer's share of browser usage has already risen above fifty percent, will exceed sixty percent by January 2001, and the trend continues unabated."). He anticipated that Internet Explorer would dominate the browser market. *See id.* at 46.

[32] *See Microsoft*, 253 F.3d at 51.

[33] *Id*. at 58.

[34] *Id*. at 79.

[35] *See id.*

[36] *See* Deborah Platt Majoras, *Antitrust Remedies in the United States: Adhering to Sound Principles in a Multi-faceted Scheme*, U.S. DEP'T OF JUST. (Oct. 4, 2022), https://www.justice.gov/atr/speech/antitrust-remedies-united-states-adhering-sound-principles-multi-faceted-scheme ("[P]articularly in today's economy, . . . the Division must be flexible and creative in devising remedies.").

[37] *See* Ball Mem'l Hosp., Inc. v. Mut. Hosp. Ins., Inc., 784 F.2d 1325, 1335 (7th Cir. 1986) (defining market power as ''the ability to cut back the market's

share of a relevant market—the goods or services that are reasonably substitutable either in consumption or production, and sheltered by entry barriers.[38] Under American antitrust law, neither the possession nor the exercise of monopoly power is unlawful in itself,[39] because firms often achieve and maintain a degree of monopoly power by innovation and other conduct that benefits consumers, especially in platform markets.[40] Consequently, a firm can pursue monopoly power by lawful means and benefit from any monopoly profits it gains in the process—even if the resulting market structure looks allocatively inefficient by comparison to a hypothetical perfectly competitive market.[41]

In this Part, we describe *Microsoft*'s approach to the most important issues of market definition the case raised, then describe the DOJ's allegations on the corresponding issues in *Google*. We then

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total output and so raise price"). A monopolist can also injure consumers by reducing quality. *See* Michael Mussa & Sherwin Rosen, *Monopoly and Product Quality*, 18 J. ECON. THEORY 301, 301 (1978) (demonstrating that, under reasonable assumptions, "the monopolist almost always reduces the quality sold to any customer compared with what would be purchased under competition"). Conceivably, a monopolist could have reduced incentives to innovate, which might result in eventual consumer injury. *See* U.S. DEP'T OF JUST. & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES 2 (2010). But in the short run, the principal effects of an exercise of monopoly power are likely to be higher prices and lower output, and the analysis of monopoly power can best be conducted by focusing on them.

[38] *See Microsoft*, 253 F.3d at 51 ("[M]onopoly power may be inferred from a firm's possession of a dominant share of a relevant market that is protected by entry barriers.").

[39] *See, e.g.*, Pac. Bell Tel. Co. v. LinkLine Commc'ns, Inc. 555 U.S. 438, 447–48 (2009) ("Simply possessing monopoly power and charging monopoly prices does not violate § 2 . . . ."); *Microsoft*, 253 F.3d at 51 (noting that "merely possessing monopoly power is not itself an antitrust violation" and reviewing the district court's conclusion that Microsoft "maintain[ed] its monopoly" through exclusionary conduct) (citation omitted).

[40] *See* Copperweld Corp. v. Indep. Tube Corp., 467 U.S. 752, 767 (1984) (explaining that "an efficient firm may capture unsatisfied customers from an inefficient rival," and that this "is precisely the sort of competition that promotes the consumer interests that the Sherman Act aims to foster").

[41] *See* Verizon Commc'ns, Inc. v. Law Offices 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.").

analyze potential resolution of *Google* in light of the experience in *Microsoft*.

A. Microsoft

1. Operating Systems and Middleware

The D.C. Circuit found Microsoft had gained control of nearly all of a market defined as "the licensing of all Intel-compatible computer operating systems," a market that included versions of Windows and little else.[42] The definition excluded, for example, operating systems for "information appliances" like the handheld devices of that era, and Apple's operating system, the Mac OS.[43] It also, paradoxically, excluded "middleware," the category that included Netscape's browser and Sun's Java technologies, the very targets of Microsoft's monopolistic conduct.[44]

Excluding operating systems for information appliances made sense back then, because the devices—like the Nokia cell phone or 128-bit game consoles—had such limited functionality that they had little effect on demand for PCs and thus for Windows.[45] Excluding the Mac OS made less sense.[46] The district court took the government's suggestion of defining the market by reference to the hardware on which operating systems, which were hardware-specific, ran: if a single firm controlled the licensing of all operating systems that ran on particular hardware, that firm could set the price of a license at a supra-competitive level.[47] That meant nearly all computers with Intel processors—descendants of the IBM PC, for which Microsoft had developed Windows and its predecessor, MS-DOS—

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[42] *Microsoft*, 253 F.3d at 51–52.

[43] *Id.* at 52.

[44] *Id.* at 53–54 (rejecting Microsoft's argument that it is "'contradict[ory]' to define the relevant market to exclude the 'very competitive threats that gave rise' to the action").

[45] *See* Page & Lopatka, *supra* note 17, at 100 ("One could imagine defining a relevant antitrust market narrowly to include only Windows, on the ground that its substantial advantage in the number of applications supported renders every other operating system incapable of constraining Microsoft's power.").

[46] *See id.* at 102 (explaining "[s]omething [was] missing from the court's analysis" in gauging the quality of operating systems).

[47] *See* United States v. Microsoft Corp., 84 F. Supp. 2d 9, 14 (D.D.C. 1999).

held a license from Microsoft.[48] The court found the few non-Windows operating systems, free or not, that could run on Intel machines had only a trivial share of the market.[49]

But the fact that Apple computers at that time used a Motorola instead of an Intel microprocessor (the dividing line between "Intel-compatible" and other systems) probably did not impair the Mac's competition with the Windows PC for consumers' dollars.[50] The district court emphasized that Apple computers were more expensive than comparable Intel-compatible PCs and ran relatively fewer applications,[51] but differences like these are not usually enough to place products in separate markets.[52] Perhaps still uncomfortable with its classification, the court hedged by finding that Microsoft would have had monopoly power even if the market included Apple's operating system.[53] Although Microsoft argued that Mac OS should have been included in the market, it did not challenge the

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[48] *See id*; *see also* Michael J. Miller, *The Rise of DOS: How Microsoft Got the IBM PC OS Contract*, PCMAG (Aug. 12, 2021), https://www.pcmag.com/news/the-rise-of-dos-how-microsoft-got-the-ibm-pc-os-contract.

[49] *See Microsoft Corp.*, 87 F. Supp. 2d at 36 ("Microsoft's share of the worldwide market for Intel-compatible PC operating systems currently exceeds ninety-five percent. . . .").

[50] Mehak, *A Brief History of Mac Processors: Motorola 68K to ARM*, IGEEKSBLOG (Apr. 13, 2022), https://www.igeeksblog.com/mac-processors-history/.

[51] *See Microsoft Corp.*, 84 F. Supp. 2d at 15 (Finding of Fact ¶ 21); *see also* United States v. Microsoft Corp., 253 F.3d 34, 52 (D.C. Cir. 2001) (en banc) (noting "[t]he District Court found that consumers would not switch from Windows to Mac OS in response to a substantial price increase because of the costs of acquiring the new hardware needed to run Mac OS (an Apple computer and peripherals) and compatible software applications, as well as because of the effort involved in learning the new system and transferring files to its format")).

[52] *See, e.g.*, Murrow Furniture Galleries, Inc. v. Thomasville Furniture Indus., Inc., 889 F.2d 524, 528 (4th Cir. 1989) (finding the market included higher and lower quality furniture; "consumers are willing to make tradeoffs on some of the very factors the [plaintiffs] attempt to use to define their market").

[53] *Microsoft Corp.*, 84 F. Supp 2d at 19 ("Even if Apple's Mac OS were included in the relevant market, Microsoft's share would still stand well above eighty percent.").

district court's findings of fact on these issues, and the court of appeals, therefore, did not disturb the lower court's conclusions on market definition.[54]

The D.C. Circuit also affirmed the finding that middleware was not yet in the same market as Windows, because, by exposing far fewer Application Programming Interfaces ("APIs"), it did not then, and would not in the near future, have functionality comparable to a platform.[55] The court did find, however, that Navigator and Java were "nascent" threats, so exclusionary conduct aimed at them could violate Section 2.[56] Bill Gates himself had said in 1995, in his famous "Internet Tidal Wave" memorandum, that he feared Navigator had the potential to challenge the Windows monopoly.[57] Interestingly, as we explain below, the court of appeals also found the government had failed to define a browser market, so Microsoft could not have attempted to monopolize it.[58] That holding apparently did not undermine the finding that middleware was a nascent threat to Windows in the OS market.[59]

2. NETWORK EFFECTS AND ECONOMIES OF SCALE IN SUPPLY

Microsoft attributed the company's monopoly power primarily to network effects, or what the court called "the applications barrier to entry."[60] Consumers prefer to buy computers with "operating systems for which a large number of applications have already been

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[54] *See Microsoft Corp.*, 253 F.3d at 52 (noting Microsoft's argument that "MacOS should have been included in the relevant market" but dismissing it because "the company fails to challenge the District Court's factual findings, or to argue that these findings do not support the court's conclusions").

[55] *Id.* at 54.

[56] *Id*.

[57] *See Microsoft Corp*., 84 F. Supp. 2d at 29, 43; Letter from Bill Gates, Founder, Microsoft Corp., to Executive Staff (May 26, 1995), https://www.justice.gov/sites/default/files/atr/legacy/2006/03/03/20.pdf ("A new competitor 'born' on the Internet is Netscape. Their browser is dominant, with 70% usage share, allowing them to determine which network extensions will catch on. They are pursuing a multi-platform strategy where they move the key API into the client to commoditize the underlying operating system.").

[58] *See Microsoft*, 253 F.3d at 81–82.

[59] *Id.* at 54.

[60] *Id.* at 55.

written," and developers prefer to write programs to run on "operating systems that already have a substantial consumer base."[61] This "'chicken and egg' situation," the court said, "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."[62] Established platform rivals like Apple and nascent ones like middleware, the court reasoned, must offer users distinctive benefits that overcome these preferences in order to challenge Windows' dominance.[63]

Indirect network effects are economies of scale in demand.[64] But maintaining intellectual property with the scale and complexity of the source code for Windows also involves economies of scale in production.[65] Developing Windows and its successive versions requires Microsoft to incur high fixed costs, but nearly zero marginal costs of production and distribution at high levels of output.[66] New competitors must also incur those costs. Whether these kinds of

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[61] *Id.* at 55. *See also Microsoft Corp.*, 84 F. Supp. 2d at 18.

[62] *Microsoft*, 253 F.3d at 55.

[63] *Id.* at 55–56.

[64] *See* David S. Evans, *The Antitrust Economics of Multi-Sided Platform Markets*, 20 YALE J. ON REG. 325, 354 (2003). In *Microsoft* the effects are indirect because each side of the OS platform benefits by increasing participants on the other side. *See* Herbert Hovenkamp, *Antitrust and Platform Monopoly*, 130 YALE L.J. 1952, 1993 (2021) ("A direct network effect occurs when a network becomes more valuable as the number of users or volume of usage on a single side increases, as in the example of the telephone. By contrast, an 'indirect' network effect refers to the added value on one side of the platform from increased participation or usage on the *other* side of the platform.").

[65] *See Microsoft Corp.*, 84 F. Supp. 2d at 20. *See generally* Evans, *supra* note 64, at 362–63.

[66] *See Microsoft Corp.*, 84 F. Supp. 2d at 20.

scale economies are true entry barriers is the subject of an old debate.[67] Although the district court in *Microsoft* found scale economies for Windows gave Microsoft a competitive advantage,[68] it did not rely on the finding in the conclusions of law,[69] and the court of appeals did not mention it.[70]

3. ZERO-PRICE MARKETS

If a firm gives a product or service away instead of selling it, the point of market definition becomes more elusive.[71] With a price of zero, a monopolist cannot profit by restricting output and raising prices.[72] The fact that Microsoft gave its browser away both before and after the alleged restraint also made the government's task of defining a browser market more complex. Economists usually define a market by examining the cross-elasticity of demand between the defendant's product and the next best substitute.[73] When cross-elasticity of demand for two goods is low, an increase in price of one of the products will not increase demand for the other good very much, so the goods would likely be in separate markets; in that case,

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[67] *See* Herbert Hovenkamp & Fiona Scott Morton, *Framing the Chicago School of Antirust Analysis*, 168 U. PA. L. REV. 1843, 1861–63 (2020); John J. Siegfried & Laurie Beth Evans, *Empirical Studies of Entry and Exit: A Survey of the Evidence*, 9 REV. INDUS. ORG. 121, 130, 134–135 (1994); Gregory J. Werden, *Network Effects and Conditions of Entry: Lessons from the* Microsoft *Case*, 69 ANTITRUST L.J. 87, 100–102 (2001); Harold Demsetz, *Barriers to Entry*, 72 AM. ECON. REV. 47, 47–48 (1982) (finding that economies of scale are an entry barrier for Bain, but not for Stigler "so long as entrants have access to the same cost function"); Richard Schmalensee, *Economies of Scale and Barriers to Entry*, 89 J. POL. ECON. 1228, 1228–29 (1981).

[68] *See Microsoft Corp.*, 84 F. Supp. 2d at 20.

[69] *See* United States v. Microsoft Corp., 87 F. Supp. 2d 30, 54–55 (D.D.C. 2000).

[70] *See generally* United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001) (en banc).

[71] John M. Newman, *Antitrust in Zero-Price Markets: Foundations*, 164 U. PA. L. REV. 149, 197 (2015) [hereinafter *Antitrust in Zero-Price Markets*] (discussing how the "touchstone" of modern market definition is whether a company can profitably increase price, but that such standard "is (at least in part) facially inapplicable to a market featuring zero prices").

[72] *See id.*

[73] *See* CFI Team, *Cross-Price Elasticity*, CORP. FIN. INST. (Dec. 1, 2022), https://corporatefinanceinstitute.com/resources/economics/cross-price-elasticity/.

the defendant would be able to profitably charge a price above marginal cost.[74] But when a product is free, the ordinary product-definition methodology does not apply.[75] And, perhaps in part for this reason, the DOJ never tried to prove the existence of a browser market,[76] despite middleware's centrality to its theory of liability.[77] The government had not, for example, proven the precise functions browsers perform, the lack of available substitutes, or the existence of entry barriers.[78]

Microsoft's free distribution of its browser was also significant in the evaluation of competitive effects.[79] The appellate court held reinforcing the applications barrier to entry by giving products away was not illegally exclusionary, because the benefit to consumers trumped any harm to rivals.[80]

B. Google

The DOJ alleges Google has monopolies in markets for search services, search advertising, and general search text advertising in the United States.[81] The markets are closely related, because com-

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[74] *See id.*

[75] *See id.* (showing that defining a market by examining the cross-elasticity of demand equation requires the products to have prices).

[76] *See* United States v. Microsoft Corp., 253 F.3d 34, 81 (D.C. Cir. 2001) (en banc).

[77] *See id.* at 53.

[78] *Id*. at 81–82.

[79] *See id.* at 67–68 (discussing whether Microsoft's licensing of Internet Explorer ("IE") to Internet Access Providers ("IAPS") for free violated the Sherman Act).

[80] *See id.* at 68 ("[T]he antitrust laws do not condemn even a monopolist for offering its product at an attractive price, and we therefore have no warrant to condemn Microsoft for offering either IE or the IEAK free of charge or even at a negative price."). The appellate court held providing Independent Software Vendors ("ISVs") with free technical support and other offerings as an inducement to use the Windows-specific version of Java was lawful, as was proving promotional materials, rebates, and a useful software package (the IE Access Kit) to IAPs free to persuade them to use Internet Explorer. *Id*. at 75, 67–68. *See also* Atlantic Richfield Co. v. USA Petroleum Co., 495 U.S. 328, 340 (1990) ("Low prices benefit consumers regardless of how those prices are set, and so long as they are above predatory levels, they do not threaten competition.").

[81] Amended Complaint, *supra* note 27, ¶¶ 92, 107–109, at 29, 34–35. In its brief in support of summary judgment, Google does not address market definition.

petition in the search market is not driven by a typical price mechanism, but instead by gathering consumer information that, in turn, generates profit when the search firm sells advertising space on the search results page.[82] One might plausibly describe search and advertising with search as part of the same two-sided platform market; that would be closer to *Microsoft*'s characterization of the OS as a single market. But the DOJ has chosen to isolate each side (or submarket) of that market for analysis of its claims.[83]

1. SEARCH SERVICES

The DOJ alleges that general search is a product with no good substitutes, and that Google has a monopoly of the market.[84] But Google does not extract the familiar monopoly overcharge from search users, because it sets the price (in dollars) of search services at zero.[85] Nevertheless, the DOJ alleges, consumers still pay a price

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Instead, it asserts that the court need not define a market and decide whether Google possesses monopoly power in it to award summary judgment "because the challenged contracts do not comprise 'exclusionary conduct' and did not cause 'the requisite anticompetitive effect,'" citing *Microsoft*. Google Summary Judgment Memorandum, *supra* note 4, at 1.

[82] *See* Amended Complaint, *supra* note 27, ¶¶ 92–110, at 29–35.

[83] *See id.* ¶¶ 92–106, at 29–34; *cf.* Kinderstart.com LLC v. Google, Inc., No. 06-2057, 2006 WL 3246596, at *9 (N.D. Cal. July 3, 2006) ("Kinderstart alleges monopolization of three markets: the Website Ranking Market, the Search Ad Market, and the Search Engine Market.").

[84] *See* Amended Complaint, *supra* note 27, ¶¶ 89–96, at 28–31.

[85] *Id.* ¶ 25, at 10 (discussing how Google, like most general search engines, does not "charge a cash price to consumers").

by providing "personal information[86] and attention[87] in exchange for search results," which Google "monetizes" by "selling ads."[88] The personal information Google gathers from its search users has value to advertisers, because it can suggest possible interest in purchasing products or services.[89] Even the DuckDuckGo engine, which does

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[86] *Id.* The DOJ here echoes John Newman:

> [I]nformation can also be surrendered (i.e., paid) by customers in exchange for the object sought. What the antitrust enterprise has failed to recognize is that information costs may be *market-signaling*. Along with attention costs, discussed below, information costs are one of the primary media of exchange that underlie sustainable business models featuring products offered at zero prices.
>
> Customers frequently surrender information as payment in exchange for access to zero-price products like webmail, search, social networking, and creative-content services. This personal information serves as a form of currency, taking the place of money. As FTC Chairwoman Edith Ramirez observed, "Today's currency is data." As do exchanged monetary costs in positive-price markets, information costs represent a cost to customers and also to the media of exchange allowing the transaction to occur.
>
> Firms facilitate voluntary information disclosure by providing incentives to customers. Where the benefits offered exceed the total costs to the customer–including the costs of surrendering the information sought—a rational customer will surrender the requested information. A majority of respondents to a 2014 survey stated that they were "willing to share some information about themselves with companies in order to use online services for free." Marketplace behavior bears out this survey research: "[M]ost consumers have shown that they are willing to release personal information if they can profit by doing so."

Antitrust in Zero-Price Markets, *supra* note 71, at 166–67.

[87] Amended Complaint, *supra* note 27, ¶ 25, at 10. The reference to "attention" to search results refers to users' eyeballs that justify sale of ads with the search results. *See Antitrust in Zero-Price Markets*, *supra* note 71, at 170–72 (describing "attention costs" paid by users who give up their time to avoid paying a price for services).

[88] Amended Complaint, *supra* note 27, ¶ 25, at 10.

[89] *Antitrust in Zero-Price Markets*, *supra* note 71, at 166.

not track or store personal search information or sell it to third parties,[90] makes its profit by selling advertising space related to a user's specific search query.[91]

Search engines thus provide results users want in order to get users' attention; when users "pay" attention to organic search results returned by its search engine, Google can make money by selling related advertising space above and below the organic search results to internet businesses who want to market their products to Google's search users.[92] Google also pays independent search engine distributors, like Apple, to use Google as the default search provider in their "access points" at which users can enter search queries.[93] Distributors in effect pay a (very) negative price for Google's search engine; in return, Google gets wider distribution of its product and the consequent increase in search user's information it can harvest and sell.[94]

Advertisers are willing to pay Google for space in ranked search results to the extent their ads predictably lead users to buy their products.[95] Google determines which advertisers' ads appear by auctions of keywords in which algorithms choose winners based on both each advertiser's bid and a variety of factors that point to the likelihood users will click on the link and later buy from that advertiser.[96] The maximum an advertiser is willing to pay for an ad based on a keyword depends on the advertiser's estimate of the number of users searching the relevant keyword who would click on its ad (the action

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[90] *See* DUCKDUCKGO, https://duckduckgo.com (last visited Nov. 14, 2022) ("Our privacy policy is simple: we don't collect or share any of your personal information.").

[91] *See id*. ("We make our money from private ads on our search engine. On other search engines, ads are based on profiles compiled about you using your personal information like search, browsing, and purchase history. Since we don't collect that information, search ads on DuckDuckGo are based on the search results page you are viewing, not on you as a person. For example, if you search for cars, we'll show you ads about cars.").

[92] Amended Complaint, *supra* note 27, ¶ 31, at 12–13 (showing how Google can make money by selling specialized search ads above organic search results).

[93] *Id.* ¶ 45, at 17.

[94] *See id.*

[95] *See id.* ¶ 34, at 13.

[96] *Id.* ¶¶ 21, 27, at 9, 10.

that determines the advertiser's obligation to pay) and the probability those same users would then buy its products (the action that determines the advertiser's revenue).[97]

The DOJ proposes to measure consumer injury using the same methods.[98] It alleges "Google's conduct has harmed consumers by reducing the quality of general search services (including dimensions such as privacy, data protection, and use of consumer data), lessening choice in general search services, and impeding innovation."[99] Thus, the DOJ claims that Google's conduct imposes higher attention and privacy costs on users, not that it results in a lower quality of organic search results.[100] Google has every incentive to improve its search results in order to attract search users and thus to increase advertising revenue.[101] The loss of privacy is the information Google Search collects from users of its search service.[102] Part of the price of using Google Search, in other words, is to lose privacy to Google in its collection of personal data, which in turn informs its sale of search advertising, one of the two other markets the DOJ alleges.[103] Google is able to do this, the DOJ explains, because it pays distributors to make Google the default search engine in their search access points.[104]

Users appear to vary in how much they subjectively pay for their loss of privacy.[105] Some may not care about the information Google

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[97] *See Choose a Bid Amount that Works for You,* GOOGLE ADS HELP, https://support.google.com/google-ads/answer/2471184?hl=en (last visited Nov. 15, 2022) (asking users to "[c]hoose a bid amount that works for you").

[98] Amended Complaint, *supra* note 27, ¶ 167, at 53.

[99] *Id.*

[100] *See id.*

[101] *See* Megan Graham & Jennifer Elias, *How Google's $150 Billion Advertising Business Works*, CNBC (Oct. 13, 2021, 12:52 PM), https://www.cnbc.com/2021/05/18/how-does-google-make-money-advertising-business-breakdown-.html (noting that although Google accounts for the majority of U.S. search ad revenue, Amazon is steadily eroding Google's market share).

[102] *See Antitrust in Zero-Price Markets*, *supra* note 71, at 167 (characterizing surrendered personal information as payment for using online search).

[103] *Id.* at 166–67.

[104] Amended Complaint, *supra* note 27, ¶ 45, at 17.

[105] *See* Lee Rainie & Maeve Duggan, *Privacy and Information Sharing*, PEW RSCH. CTR. (Jan. 14, 2016), https://www.pewresearch.org/internet/2016/01/14/privacy-and-information-sharing/.

collects about them; some might even want Google to collect information to help advertisers target their interests.[106] Advertising can benefit consumers in several ways, and targeted online advertising can do them all more cheaply.[107] Most users do not take the few simple steps to limit Google's tracking, indicating they have at most only a weak preference for privacy. Nevertheless, the success of DuckDuckGo, which markets itself as a search engine that does not track its users, suggests at least some marginal search consumers (roughly two percent) are willing to give up the arguably superior quality of Google's search results in order to protect their online privacy more fully.[108]

2. SEARCH ADVERTISING AND SEARCH TEXT ADVERTISING

The DOJ alleges—and Google, of course, denies—there are markets for general search advertising and for general search *text* advertising, both of which appear in search results of general search engines.[109] The larger search advertising market contains the smaller text advertising market as well as specialized (or "vertical") search

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[106] *See* Derek Rodenhausen, *Consumers Want Privacy. Marketers Can Deliver*, BCG (Jan. 21, 2022), https://mkt-bcg-com-public-pdfs.s3.amazonaws.com/prod/consumers-want-data-privacy-and-marketers-can-deliver.pdf (showing survey that found that two thirds of consumers want personalized ads and one quarter are neutral about sharing personal data).

[107] *See* Avi Goldfarb, *What is Different About Online Advertising?*, 44 REV. INDUS. ORG. 115, 115–16 (2014) (arguing online advertising, like other forms, "can be informative, reducing the cost of information acquisition by consumers" or "it can be complementary to the advertised product, increasing the consumption value of the product without altering underlying preferences" but differs from offline advertising in that the online context greatly reduces the costs of targeting the ads).

[108] *See Search Engine Market Share United States of America*, STATCOUNTER https://gs.statcounter.com/search-engine-market-share/all/united-states-of-america (last visited Nov. 15, 2022).

[109] *See* Amended Complaint, *supra* note 27, ¶¶ 97, 101, at 31, 32–33; Defendant Google's Answer & Affirmative Defenses to Plaintiff's Amended Complaint ¶¶ 97, 101, at 25, 26, United States v. Google LLC, No. 1:20-cv-03010 (D.D.C. Jan. 29, 2021), ECF No. 103 [hereinafter Answer and Affirmative Defenses]. Recall that Google does not address market definition in its summary judgment brief, arguing the court need not consider the issue in granting summary judgment. *See* Google Summary Judgment Memorandum, *supra* note 4, at 1.

advertising in search results returned by specialized search providers like Amazon and Yelp, which focus on limited domains.[110] These providers are sometimes called vertical search engines.[111] An electric bicycle producer, for example, might buy advertising on Google Search, Amazon, or Yelp, finding them largely interchangeable. The complaint alleges search advertising's distinctive ability to target consumers with a revealed interest in products and services justifies treating that subset of all advertising as a separate market over which Google has a seventy percent market share, and attendant market power.[112]

The DOJ alleges advertisers "typically refer" to a "purchase funnel" that purports to show search advertising is extraordinarily effective because of the search user's state of mind.[113] A purchase, or buying, funnel is a well-known marketing model, though some scholars doubt it accurately represents the online purchase process.[114] Even within the purchase funnel paradigm, search advertising may have good substitutes.[115] The market reality might be, for example, that advertisers are willing to substitute between search advertising and targeted display advertising on some other platforms, such as social media, or in other modes entirely.[116]

DOJ quotes a Google economist as suggesting "'search ads help satisfy demand' while 'brand advertising helps to create demand,' and '[d]isplay and search advertising are complementary tools, not

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[110] *See* Amended Complaint, *supra* note 27, ¶ 97, at 31. In general, plaintiffs in monopolization cases want to define a market as narrowly as possible, which results in the defendant possessing the largest market share. If the broader market were found insufficiently defined or if Google lacked monopoly power in that market, the DOJ might still succeed in defining the narrower general search text advertising market.

[111] *See* Andrew Bocskocsky, *The Rise of Vertical Search Engines*, SEARCH ENGINE WATCH (Nov. 13, 2020), https://www.searchenginewatch.com/2020/11/13/the-rise-of-vertical-search-engines/.

[112] Amended Complaint, *supra* note 27, ¶ 108, at 35.

[113] *Id.* ¶ 28, at 11.

[114] *See* Bernard J. Jansen & Simone Schuster, *Bidding on the Buying Funnel for Sponsored Search and Keyword Advertising*, 12 J. ELEC. COM. RSCH. 1, 1–3, 12–14 (2011).

[115] *See* Geoffrey A. Manne & Joshua D. Wright, *Google and the Limits of Antitrust: The Case Against the Case Against Google*, 34 HARV. J. L. & PUB. POL'Y 171, 196 (2011).

[116] *See id.* at 196–97.

competing ones.'"[117] But all advertising—especially all targeted advertising—can both create and satisfy demand.[118] A consumer may, for example, be dissatisfied with her old phone and rely on magazine, television, social media, and search advertising both to decide she needs a new phone and to make her choice. Nevertheless, it may well be search advertising more often satisfies demand, because it provides information related to questions the user is asking, including questions about goods or services the user is interested in or already wants.[119] In any event, search advertising cannot be defined as an antitrust market without econometric proof.[120]

C. Microsoft's *Lessons on Market Definition*

As a starting point for evaluating the likely competitive effects of the defendant's actions, market definition identifies the competitors that constrain them.[121] In two-sided industries, those competitors may be existing two-sided platforms that operate in the same sides as the defendant, but also other two-sided, one-sided, and incipient platforms.[122] In *Microsoft*, the courts defined the relevant market narrowly as the licensing of operating systems for Intel-compatible computers.[123] Although the court did not use the term "two-sided market," its analysis, in substance, treated the OS market as

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[117] Amended Complaint, *supra* note 27, ¶ 99, at 32.

[118] *See* Daniel Wade, *Does Marketing Create or Satisfy Needs?*, SPARROWBOOST (Jul. 28, 2022), https://www.sparrowboost.com/article/does-marketing-create-or-satisfy-needs.

[119] *See* Jansen & Schuster, *supra* note 114, at 7 (explaining that a research type of search contains product specifics and that it is one of the more common type of queries).

[120] *See* United States v. Microsoft Corp., 253 F.3d 34, 51–52 (D.C. Cir. 2001) (en banc) (discussing how evidence must indicate that a firm has monopoly power in a relevant market). Under the federal enforcement agencies' search guidelines, that would involve either a SSNIP test or direct proof, based on Google's ability to charge a price above its cost . *See* U.S. DEP'T OF JUST. & FED. TRADE COMM'N, *supra* note 37, at 10.

[121] *See* David S. Evans & Michael Noel, *Defining Antitrust Markets When Firms Operate Two-Sided Platforms*, 2005 COLUM. BUS. L. REV. 667, 696–97 (2005) ("[C]ommon approaches to market definition label a product as either *in* the market (and therefore a constraint) or *outside* the market (and therefore not a constraint).").

[122] *See id.* at 697.

[123] *Microsoft*, 253 F.3d at 54.

two-sided, selling licenses to OEMs to install the Windows software on one side of the market, and providing the APIs and other support to applications developers on the other side.[124]

The key point is the court conceived of the OS platform market as a whole, with related competitive effects and strong network effects on both sides.[125] Partly for that reason, the court excluded middleware from the market because it exposed too few APIs to be an effective competitor on the applications side.[126] In *Google*, however, the DOJ alleges separate markets on the opposite sides of the search platform, one for search services and two for search advertising.[127]

Google pays "distributors," like Apple, to list Google as the default search engine through all of the distributor's access points.[128] Google uses the information gathered from users to drive its sales of advertising space in its search results.[129] The implication of the government's allegation is that Google is not (or is not alleged to be) a platform in a two-sided market, but a technological intermediary functioning in multiple one-sided markets, selling search services to one group of customers and advertising space to another group of customers.[130] Is the difference from *Microsoft* justified? We consider features of the markets in the two cases as possible explanations for the differences: the presence of zero pricing, network effects, and the alleged acts of monopolization.

1. ZERO PRICING

Google and nearly all other search providers charge their users a dollar price of zero for search services.[131] If that meant search services were "free" in the usual sense, then *Microsoft*'s recognition that free distribution of IE was procompetitive (and its holding that the DOJ had failed to prove a browser market) would undercut the

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124 *See id.* at 60.

125 *See id.*

126 *See id.* at 53–54.

127 Amended Complaint, *supra* note 27, ¶ 1, at 3 ("Google has used anticompetitive tactics to maintain and extend its monopolies in the markets for general search services, search advertising, and general search text advertising.").

128 *See id.* ¶ 4, at 4.

129 *See id.* ¶ 25, at 10.

130 *See id.* ¶ 104–05, at 33–34.

131 *Id.* ¶ 25, at 10.

DOJ's allegation that search services is a relevant market.[132] But the DOJ alleges search users do pay in the form of the attention to search results and the personal information they disclose by their search queries.[133] If these are real costs and Google has monopoly power, Google could charge search users a supra-competitive "price" by imposing higher attention and privacy costs.[134]

But imposing these costs on search users only generates revenue by allowing search providers to sell advertising in a different market at a price that is a function of the information gathered from users' search patterns.[135] On the search side of the platform, viewed separately, attention and privacy costs are simply costs to users, not revenue to Google; the only price, in the usual sense of average revenue, is on the advertising side, for ads that appear in the search results on the search side.[136] The DOJ alleges all of Google's significant competitors are other advertising-supported search services, which are also two-sided search platforms.[137]

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[132] *See id.* ¶ 88, at 28.

[133] *Id.* ¶ 25, at 10.

[134] *See* John M. Newman, *Antitrust in Digital Markets*, 72 VAND. L. REV. 1497, 1545 (2019), who observes:

> Consumers do incur costs to acquire "free" products. There is no principled reason to believe these costs are uniformly lower than analogous costs in other markets. Why would zero-price transactions—the result of bilateral agreements whereby both parties surrender something of value—necessarily create any more consumer surplus than transactions involving positive prices? The bare fact that many digital-product suppliers employ business strategies that involve extracting data and attention instead of fiat currency does not represent an obvious benefit to consumer welfare. And the ability to offer a zero-price product does not necessarily represent an efficiency.

[135] *See id.*

[136] Amended Complaint, *supra* note 27, ¶¶ 7, 13, at 5, 7.

[137] *See id.* ¶ 97, at 31–32. The DOJ does allege one rival only sells search services to subscribers. *See id.* ¶ 9, at 5. The reference is apparently to Neeva, which is a search engine launched in June 2021 that offers a free basic membership and a premium membership for about five dollars per month or fifty dollars per year. *See* NEEVA, https://neeva.com/ (last visited Nov. 5, 2022); *see also* Jason Cipriani, *Private, Ad-Free Search*, TIME (Nov. 10, 2021, 6:11 AM), https://time.com/collection/best-inventions-2021/6112593/neeva/. Neeva's market share, however, is trivial. *See Search Engine Market Share in 2022*, OBERLO, https://www.oberlo.com/statistics/search-engine-market-share (last visited Nov. 5, 2022) (failing to attribute any search engine market share in the U.S. to Neeva).

If search services and search advertising are interdependent in this way, why treat them as separate markets?[138] In *Microsoft*, the courts defined a two-sided OS market, even though Microsoft only generated revenue on the OEM side of the market. Microsoft licensed Windows at a positive price to OEMs, but provided the Windows APIs essentially free (or at a negative price) to app developers.[139] Microsoft had reason to provide the APIs to developers for free because the value of Windows to OEMs and to end users depended largely on the number and quality of the applications that

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[138] In *Ohio v. Am. Express Co.*, the Court wrote that two-sided *transaction* platforms:

> [F]acilitate a single, simultaneous transaction between participants. For credit cards, the network can sell its services only if a merchant and cardholder both simultaneously choose to use the network. Thus, whenever a credit-card network sells one transaction's worth of card-acceptance services to a merchant it also must sell one transaction's worth of card-payment services to a cardholder. It cannot sell transaction services to either cardholders or merchants individually . . . . To optimize sales, the network must find the balance of pricing that encourages the greatest number of matches between cardholders and merchants.
>
> Because they cannot make a sale unless both sides of the platform simultaneously agree to use their services, two-sided transaction platforms exhibit more pronounced indirect network effects and interconnected pricing and demand. Transaction platforms are thus better understood as "suppl[ying] only one product"—transactions . . . . In the credit-card market, these transactions "are jointly consumed by a cardholder, who uses the payment card to make a transaction, and a merchant, who accepts the payment card as a method of payment . . . ." Tellingly, credit cards determine their market share by measuring the volume of transactions they have sold.

138 S. Ct. 2274, 2286 (2018) (citation omitted). Search and search advertising are not transaction platforms, because there is not a one-to-one correspondence between searches and sales of search advertising. *See* Giacomo Luchetta, *Is the Google Platform a Two-Sided Market*, 10 J. COMP. L. & ECON. 185, 185 (2014). But the two platforms are similar, because advertising provides the revenue to search providers for searches on their platform. *See id.* (arguing that the two sides of the Google platform are vertically related because Google retails personal information gathered from search users to advertisers).

[139] *See* United States v. Microsoft Corp., 253 F.3d 34, 67–68 (D.C. Cir. 2001) (en banc).

ran on Windows, as the existence of network effects, or the "applications barrier to entry," indicates.[140] Google similarly competes with other search providers/advertising media providers, but it derives revenue only from the advertisers.[141] Moreover, for both platforms, the price the group producing revenue pays, in both cases, is determined by the value that group derives from users on the other side of the search platform.[142] So why did the DOJ not allege Google competes in a two-sided market? One answer may be that the network effects in the two cases are different.

2. NETWORK EFFECTS AND SCALE ECONOMIES

The Windows OS and Google's search engine both rose to dominance in part because of indirect network effects.[143] The "virtuous cycle" of users seeking applications and developers seeking users formed the applications barrier to entry that sheltered Windows and helped it grow to dominate the OS market.[144] In this dynamic, both users and developers benefit from network effects.[145] But the same virtuous cycle of reciprocal benefits is not present in search engines.

Search engines are two-sided platforms,[146] in which the larger the number of search users, the greater the value that search engine

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[140] *See id.* at 55.

[141] *See* Luchetta, *supra* note 138, at 194.

[142] *See id.*

[143] *See Antitrust in Zero-Price Markets*, *supra* note 71, at 166 ("In zero-price markets, customer information . . . can be the source of indirect network externalities, which in turn can cause a market to tip in favor of a dominant firm.").

[144] *See Microsoft*, 253 F.3d at 55 ("[T]he '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.").

[145] *See* United States v. Microsoft Corp., 84 F. Supp. 2d 9, 20 (D.D.C. 1999).

[146] Evans & Noel, *supra* note 121, at 668. A search engine provides services to a third group of users: the internet content providers whose sites are returned to the search user in response to a search. *See id.* at 683. These content providers derive immense value from the search engine—they may depend for their existence on being identified in searches—but search engines do not charge them for the search services. *See id.* (explaining Google's search process and how *advertisers* purchase space for targeted search advertisements).

(and the information it generates) is to advertisers.[147] Thus, network effects, by benefitting advertisers,[148] tend to limit the number of platforms available in equilibrium and may result in a single dominant platform.[149] But consumers generally do not benefit (or benefit little) as the number of advertisers increases,[150] even if some consumers value some advertising.[151]

One could argue that a platform operates in a two-sided market only when the indirect network effects are reciprocal, and the platform could not sell its services to either group unless the other group used it as well.[152] On a transaction platform, such as a credit card, both consumers and merchants benefit as the card becomes more widely used and accepted.[153] Moreover, a credit card company could not sell its services to consumers unless merchants participated in the transactions, and vice versa.[154] Under this conception, Google is

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147 *See* Luchetta, *supra* note 138, at 194–95.

148 *See* Answer and Affirmative Defenses, *supra* note 109, ¶ 37, at 10 ("Google admits that a search product or service employed by more users can, depending on the circumstances, provide advertisers with access to more users than advertising on a single search product or service provided by fewer users.").

149 *See Antitrust in Zero-Price Markets*, *supra* note 71, at 166. Network effects do not imply that a single platform will always emerge if users' preferences differ. Hovenkamp, *supra* note 64, at 1997. When networks are not wholly interoperable, product differentiation checks the tendency of a two-sided market to result in a single provider. *See id.* at 1978. In the OS market, the MacOS is the most significant example. *See id.* at 1973. In the search market, Microsoft's Bing and the privacy-oriented DuckDuckGo suggest rival engines may persist as well. *See* Amended Complaint, *supra* note 27, ¶ 92, at 29–30.

150 *See* Luchetta, *supra* note 138, at 195. They might even be injured as consumers surely differ in the value, positive or negative, they place on exposure to advertising. *See* Evans & Noel, *supra* note 121, at 676. If all consumers placed a positive value on receiving increasing information about products to buy, indirect network effects would exist on both sides of the platform, though even then the effects would likely be stronger on the selling side. *See id.*

151 *See id.* ("The extent to which viewers value advertisers remains a subject of debate, but we suspect that viewers value advertisers more than they might admit.").

152 *See* Luchetta, *supra* note 138, at 191–92 ("As a consequence of the single interaction approach, in two-sided markets, there are always reciprocal inter-side positive externalities.").

153 *See* Luchetta, *supra* note 138; *see also* Benjamin Klein, et al., *Competition in Two–Sided Markets: The Antitrust Economics of Payment Card Interchange Fees*, 73 ANTITRUST L.J. 571, 580, 580 (2006).

154 *See id.* at 571–72.

not a platform in a two-sided market.[155] Advertisers benefit as the number of search users increases, but search users do not benefit nearly as much from an increase in the number of advertisers.[156] Google theoretically could sell search services to search users and not sell search advertising space; indeed, one new search engine does just that.[157] The value of the platform to search users, in other words, does not depend directly on the participation of more advertisers.[158] Under the usual business model, some advertisers would have to participate, or the platform would not exist, but adding more advertisers does not benefit users. Nevertheless, these factual differences do not compel a conclusion that a platform must exhibit these characteristics to qualify as a two-sided market.

Further, it is unclear how characterizing Google as operating in two one-sided markets or in a single two-sided market affects the economic and legal outcomes. Both characterizations require market definition, a process that should take account of the chosen characterization in searching for the relevant competitive constraints.[159] The DOJ alleges that Google sells search services, charging users a price in privacy and attention.[160] That seems the most natural characterization, because search services have few good substitutes and drive the transactions on both sides of the market. But another characterization is that Google buys personal information and attention from search users, and it sells advertising space that makes use of that information and attention to advertisers.[161] In this conception, the markets are vertically related: Google buys personal information and attention, then uses them as inputs in producing the search ads it sells to advertisers.[162]

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155 Luchetta, *supra* note 138, at 193.

156 *See id.* at 195.

157 *See* NEEVA, *supra* note 137.

158 *See* Luchetta, *supra* note 138, at 195 ("In most cases, search ads do not deliver additional benefits to users, as they are not consistent with the aim of the search.").

159 *See* Florence Thépot, *Market Power in Online Search and Social-Networking: A Matter of Two-Sided Markets* 36 WORLD COMPETITION 195, 205 (2013).

160 Amended Complaint, *supra* note 27, ¶ 25, at 10.

161 *See id.*

162 *See* Luchetta, *supra* note 138, at 199–200 (discussing the relevant market of Google as a vertical chain for collection and processing of personal information).

The transaction is economically identical, whether we see Google as buying consumer information or selling search services. But the framing might matter in the legal analysis. If Google is considered a buyer, the legal paradigm is monopsonization; if it is considered a seller, the paradigm is monopolization.[163] If it is monopsonization, Google is buying only personal information related to particular searches, which particular kinds of buyers find relevant in their purchases of particular advertising space within the search results.[164] But even in that case, others, like social media companies, might gather the same information, so Google's monopsony power would be limited.[165] Again, the DOJ's characterization seems the more natural of the two. But these difficulties suggest that defining a one-sided market, whether from the perspective of the seller or the buyer, when revenue is earned only in an adjacent market, is problematic.

We have been considering the role of network effects on demand in defining markets in *Google*. Economies of scale are supply-side efficiencies that also played a role in *Microsoft* and make an appearance in *Google*, but the roles are different.[166] In *Google*, the DOJ alleges that, as the number of end users grows, the intrinsic quality of the search engine increases, because the search provider can use the user data to improve its search results.[167] In *Microsoft*, by contrast, the benefits to users and developers from the growth of Win-

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[163] *See* Scott Sherman & Sofia Arguello, *Antitrust 101: The Book Publishers Lawsuit and Monopsony Power*, WINSTON & STRAWN LLP (Dec. 6, 2021), https://www.winston.com/en/competition-corner/antitrust-101-the-book-publishers-lawsuit-and-monopsony-power.html.

[164] Of course, Google also saves the information, so its algorithm might find it cumulatively relevant in the sale of ads in other spaces, but the DOJ does not pursue this point in its complaint. *See generally* Amended Complaint, *supra* note 27.

[165] S*ee* Thépot, *supra* note 159, at 195 (discussing how online search and social networking websites compete in the same relevant market for users' information).

[166] *See* Amended Complaint, *supra* note 27, ¶¶ 35–36, at 14; United States v. Microsoft, 253 F.3d 34, 55 (D.C. Cir. 2011) (en banc).

[167] Amended Complaint, *supra* note 27, ¶¶ 35–36, at 14. Google admits that users' "data, depending on the circumstances, can be used to improve search results." Answer and Affirmative Defenses, *supra* note 109, ¶ 36, at 10.

dows were a function of increasing revenue, which paid for maintaining and improving successive versions of Windows code.[168] As the number of users grew, the number of apps written to Windows increased, and end users benefitted by having access to an ever-larger set of apps (the network benefit), but also successive—presumably improved—versions of Windows (the scale benefit).[169] As we noted earlier, however, although the district court found scale economies sheltered Windows, it did not rely on the finding in its conclusions, and the DOJ did not pursue the issue on appeal.[170] In *Google*, because of the weaker network benefits, the importance of scale economies as a barrier may be greater.[171]

3. DEFINING MARKETS TO PROVE SPECIFIC CONDUCT

Neither of the distinctions we have just made in the role of network effects appears to fully justify defining a two-sided platform market in *Microsoft* and three one-sided markets in *Google*. Do the differences in the alleged acts of monopolization and their consequences in the two cases explain the difference?[172] In *Google*, all of the alleged acts of monopolization relate to distribution of search; Google's monopoly power in search advertising only figures in the DOJ's case as the motivation for the exclusionary conduct in the search services market.[173] According to the DOJ, increased monopoly power in search allows Google to extract greater noncompetitive returns from search advertising:

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[168] *Microsoft*, 253 F.3d at 55.

[169] *See id.*

[170] *See id.* at 83–84.

[171] *See* Amended Complaint, *supra* note 27, ¶¶ 35–38, at 14.

[172] For an argument along these lines, see Sean P. Sullivan, *Modular Market Definition*, 55 U.C. DAVIS. L. REV. 1091, 1141 (2021):

> Modular market definition selects the test of market definition by looking to the analytical needs of the substantive law. And monopolization currently encompasses a sprawling and under-theorized collection of different concerns. If market definition is to be reliably helpful in evaluating these concerns, then it must start from first principles in every case—asking what the underlying concern is and what needs to be addressed to evaluate that concern.

C*f.* Times-Picayune Publ'g Co. v. United States, 345 U.S. 594, 610 (1953) (focusing only on the advertising side of the newspaper market).

[173] *See* Amended Complaint, *supra* note 27, ¶ 168, at 53.

> By suppressing competition, Google has more power to manipulate the quantity of ad inventory and auction dynamics in ways that allow it to charge advertisers more than it could in a competitive market. Google can also reduce the quality of the services it provides to advertisers, including by restricting the information it offers to advertisers about their marketing campaigns.[174]

The parallel anticompetitive effects in the search and search advertising markets occur because, with few exceptions, all the firms that compete in one also compete in the other.[175] Moreover, the market positions of search providers correspond directly to the same firms' market positions in search advertising services, so an injury to a search provider will also weaken its position in search services.[176]

These allegations, which Google simply denies,[177] suggest one reason why the DOJ alleges search advertising is a market in which Google has monopoly power.[178] The competitive constraints on the advertising side of Google's platform may include advertisers operating in a one-sided market or, more likely, multi-sided platforms that overlap to varying degrees with search advertising platforms.[179] But if advertising in other media is a close substitute for search advertising, and if search advertising accounts for only a small share of the larger market, Google would not be able to increase prices of

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174 *Id.*

175 *See id.* ¶ 166–68, at 52–53.

176 *See id.* ¶ 92, 100, 103, at 29–30, 32, 33.

177 Answer and Affirmative Defenses, *supra* note 109, ¶ 168, at 40 ("Google denies the allegations in Paragraph 168 of the Amended Complaint.").

178 Amended Complaint, *supra* note 27, ¶ 1, at 3.

179 *See* Evans & Noel, *supra* note 121, at 697. For example, Facebook and Twitter are two-sided platforms that sell advertising but do not provide general search services. *See* Thépot, *supra* note 159, at 201, 203. The DOJ implicitly acknowledges that some forms of online advertising may be good substitutes for each other by alleging a search text advertising market and a search advertising market. *See* Amended Complaint, *supra* note 27, ¶ 97, 101, at 31–32, 32–33. The latter market would mean that advertising on specialized vertical search platforms, such as Amazon, is a good substitute for advertising on general search platforms. *See id.* ¶ 97, at 31–32.

its advertising services or reduce their quality by gathering more information about its search users; advertisers could too easily shift their marketing budgets to other media.[180] Consequently, the DOJ must prove search advertising services are a distinct market because their linkage to users' keyword searches gives them unique benefits.[181] The DOJ might have been able to prove the same competitive constraints if it had alleged search and search advertising were a two-sided platform market, but the DOJ may have decided that alleging two related, one-sided markets was clearer.[182] In other words, the DOJ may have recognized search is a two-sided market, but chose to allege only the submarkets that correspond to Google's alleged anticompetitive actions.

Microsoft provides a useful comparison. The court defined the market as licensing of Intel-compatible operating systems but determined the market's boundaries by analyzing its two sides, application developers and OEMs.[183] Microsoft's acts of monopolization sought to limit rivals on the applications side by exclusionary actions on the distribution side.[184] Its application rivals were Netscape and Sun's cross-platform Java, which ran on Windows and competed with Microsoft's own applications, Internet Explorer ("IE"), and the Windows-specific version of Java.[185] But both Netscape and Sun's cross-platform Java were also nascent *platform* competitors of Windows, and by its exclusionary contracts with distributors, such as OEMs, aimed at these nascent threats, according to the court,

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[180] *See id.* ¶ 99–100, at 32.

[181] *See id.* ¶ 98, at 32. (alleging, for example, that "[t]he ability of search ads to respond to consumer inquiries, at the moment the consumer is investigating a subject relevant to an advertiser's product or service, makes these ads highly valuable to advertisers and distinguishes them from other types of advertising that cannot be similarly targeted, whether online or offline"). It might also rely on Google's profits in search advertising as direct evidence of its monopoly power. *See id.* ¶ 170, at 53 (arguing "Google's monopoly in general search services also has given the company extraordinary power as the gateway to the internet, which it uses to promote its own web content and increase its profits.").

[182] *See id.* ¶ 100, 106, at 32, 34.

[183] United States v. Microsoft Corp., 253 F.3d 34, 52, 59–60 (D.C. Cir. 2001) (en banc).

[184] *Id.* at 72.

[185] *Id.* at 74–75.

Microsoft might at some point be able to charge OEMs a higher (or at least not a lower) price for licenses of Windows.[186]

Some of the exclusionary contracts aimed at Netscape were in Microsoft's distribution of Windows to OEMs—the other side of the OS market.[187] However, the competitive harm arose from contracts with all the distributors of Netscape and Java.[188] The DOJ never defined either a browser or a middleware market, but still was able to show, at least to the court's satisfaction, that Microsoft's conduct in the operating system market had anticompetitive effects by injuring Netscape and Java as incipient middleware, and thus platform competitors.[189] It is difficult to see how this premise could be true, unless the court also implicitly recognized an incipient (undefined) platform market that included both operating systems and middleware. Unfortunately, the court never explained its resolution.[190]

The DOJ might be trying to avoid some of these ambiguities. According to the DOJ, Google aims its alleged exclusionary conduct at its smaller current rival providers of search services, who are also rival providers of search advertising that produces their revenue.[191] The DOJ's focus on harm to Google's present search rivals and the likely consequences for the search advertising market may make definition of those two markets the clearer approach.

II. EXCLUSIONARY CONDUCT

The Supreme Court has said conduct is "exclusionary," "predatory," or "anticompetitive" if it tends to "exclude rivals on some basis other than efficiency," but not if it benefits consumers or exploits a cost advantage the firm has over competitors. [192] In this Part, we apply *Microsoft*'s treatment of these distinctions to the allegations in *Google*.

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186 *See id.* at 59–60, 79.

187 *See id.* at 74–76.

188 *See id.* at 76.

189 *Id.*

190 *See id.* at 74–78.

191 *See* Amended Complaint, *supra* note 27, ¶ 92, 97, 103, at 29–30, 31–32, 34–35.

192 Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 602–603, 605 (1985) (quoting ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 138 (1978)).

A. Microsoft

Remember, the DOJ and the states did not allege Microsoft acquired its Windows monopoly unlawfully,[193] so Microsoft could have lawfully exploited its monopoly by charging higher prices to OEMs for initial licenses of Windows, and to computer users for subsequent upgrades.[194] It also could have responded to Netscape by improving Internet Explorer and its own version of Java, allowing OEMs and internet firms to choose between its rivals' products and its own. Had it taken this benign, procompetitive path, its price for Windows might have declined over time as expansion of rivals like Apple and mobile devices eroded its monopoly power.[195] But the exercise of lawfully-acquired monopoly power becomes monopolization when it's used for anticompetitive exclusion—using contracts and other means to preserve and extend the firm's monopoly power in ways that harm not only rivals but consumers.[196]

In *Microsoft*, the court recognized exclusionary conduct "must harm the competitive process and thereby harm consumers," but also that it was sometimes hard to tell the difference between exclu-

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[193] *See Microsoft*, 253 F.3d at 51. In litigation that preceded the most prominent case against Microsoft, the D.C. Circuit observed:

> The government did not allege and does not contend—and this is of crucial significance to this case—that Microsoft *obtained* its alleged monopoly position in violation of the antitrust laws. The government believes that Microsoft's initial acquisition of monopoly power in the operating systems market was the somewhat fortuitous result of IBM choosing for its PCs the operating system introduced by Microsoft ("MS-DOS"), which, with Microsoft's successful exploitation of that advantage, led Microsoft to obtain an installed base on millions of IBM, and IBM-compatible, PCs.

United States v. Microsoft Corp., 56 F.3d 1448, 1452 (D.C. Cir. 1995).

[194] *See* Verizon Commc'ns, Inc. v. Law Offices 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.").

[195] *See* Jay Green, *Trustbusters are Bypassing the Biggest Tech Company of Them All*, WASH. POST (Jun. 28, 2019, 9:12 AM), https://www.washingtonpost.com/technology/2019/06/28/trustbusters-are-bypassing-biggest-tech-company-them-all/.

[196] *See Microsoft*, 253 F.3d at 76.

sion and "vigorous competition" that harms rivals but benefits consumers. [197] To frame its analysis, the court announced a list of "principles" that included a three-part, burden-shifting rule-of-reason test of liability in Section 2 cases.[198] Has the plaintiff shown the conduct harms the competitive process and consumers, not just rivals?[199] If so, has the defendant offered a non-pretextual efficiency justification for its conduct?[200] If it has, can the plaintiff show the anticompetitive effect outweighs the efficiency justification?[201] As it turned out, the first inquiry was dispositive for almost all of Microsoft's practices; the second was necessary for only one; and the court never reached the balancing inquiry for any of the practices at issue.[202]

Actions that, like competition itself, harm rivals while benefitting consumers are not monopolistic.[203] Practices can benefit consumers by being either allocatively efficient (lowering prices or expanding output in the market), or productively efficient (reducing the cost or improving the quality of the product).[204] In *Microsoft*, for example, the court found some of Microsoft's actions that harmed Netscape and Sun's Java were nonetheless lawful because they also benefited consumers. It found, for example, Microsoft giving its browser away to internet firms was allocatively efficient, even if doing so made competing for those customers harder for rivals.[205] It also found making the Windows version of Sun's Java technologies

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197 *Id.* at 58.

198 *See id.* at 58–59.

199 *Id.* at 58.

200 *See id.* at 59. The plaintiff's initial showing of an anticompetitive effect need not account for all efficiencies the defendant might allege; the plaintiff does not, in other words, have the burden of demonstrating net anticompetitive effects at the first stage of the analysis.

201 *Id.*

202 *See id.* at 64, 67, 71, 74.

203 *See* Speakers of Sport, Inc. v. ProServ, Inc., 178 F.3d 862, 865 (7th Cir. 1999) (Posner, J.) ("[T]he process known as competition, which though painful, fierce, frequently ruthless, sometimes Darwinian in its pitilessness, is the cornerstone of our highly successful economic system.").

204 Paul Boyce, *What is Allocative Efficiency*, BOYCEWIRE (Jan. 10, 2021), https://boycewire.com/what-is-allocative-efficiency/.

205 *Microsoft*, 253 F.3d at 67–68.

run faster than Sun's cross-platform version was productively efficient, even though the changes also made the Windows version incompatible with other platforms.[206]

The court found most other practices were anticompetitive because they reinforced the applications barrier to entry without benefiting consumers.[207] For example, Microsoft prohibited OEMs from removing Internet Explorer icons or menu items from the desktop.[208] Some OEMs claimed, and the district court found, that installing Navigator but leaving IE visible as an icon on the desktop or as an item on a menu would somehow confuse "novice" users and lead them to make costly calls to the OEMs' customer support lines.[209] Even two of Microsoft's design choices—excluding Internet Explorer from its "Add/Remove Programs" utility and "commingling" browser and other Windows code in the same files—were found anticompetitive, when Microsoft failed to offer any justification for them.[210] Microsoft was, however, able to justify its design of Windows to override the user's choice of a default browser for a small number of means of accessing the internet that only IE supported.[211] For example, when users searched the computer internally using My Computer, IE functionality allowed them also to search the internet using the same browsing window.[212] The DOJ did not attempt to refute that justification.[213]

B. Google

The DOJ alleges Google's contracts with distributors of its search products "lock up" distribution of search engines in mobile devices and in other channels of distribution.[214] According to the complaint, the exclusionary agreements protect both the search and

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206 *Id.* at 74–75.
207 *See, e.g., id.* at 65–66.
208 *See id.*
209 *Id.* at 61.
210 *Id.* at 65–66.
211 *Id.* at 67.
212 *Id.*
213 *Id.*
214 *See* Amended Complaint, *supra* note 27, ¶ 4, at 4.

search advertising monopolies.[215] These agreements allegedly restrict competition in search, with Google using its revenue from advertisements to induce distributors to sign.[216]

The contracts at issue include a multi-year agreement with Apple to make Google search the default search engine on all of Apple's search access points, especially the Safari browser and the Siri voice-controlled personal assistant, in return for a share of the revenue Google receives from its advertisements.[217] Although users can change Safari's settings in a few steps to designate any other search engine as the default, the initial default status has such great inertia Google is willing to pay Apple a share of Google's advertising revenue—a payment that accounts for a substantial proportion of Apple's annual revenue.[218] Indeed, DOJ began its tutorial presentation to Judge Mehta by declaring, "Your honor, this case is about defaults on phones, tablets, and computers, and the billions of dollars Google pays to capture those defaults."[219] The inertia also results in near-complete foreclosure of rival search engines from the default designation, according to the DOJ.[220] The complaint quotes one rival as claiming "'Google essentially [has] locked up ALL DISTRIBUTION' with its Apple deal and restrictive Android licensing terms, leaving the competitor's product with 'no mobile volume.'"[221] Rivals lack the billions necessary to buy default search status on Apple's access points, so they have not developed a base of advertisers, and their products have suffered.[222]

According to the DOJ, Google has agreed with Android mobile device manufacturers and browser producers to make similar default designations.[223] The agreements with Android licensees also require

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215 *Id.* ¶¶ 5–7, at 4–5.

216 *Id.* ¶¶ 6–7, at 5.

217 *Id.* ¶¶ 45, 56, 86, at 17, 19–20, 28.

218 *See id.* ¶ 118, at 37 (alleging public estimates of revenue ranging around $8-12 billion accounting for approximately fifteen to twenty percent of Apple's worldwide net income).

219 Transcript of Tutorial Presentation Proceedings Before the Honorable Amit P. Mehta United States District Judge at 6:13-15, United States v. Google LLC, No. 20-3010 (conducted Sept. 8, 2022).

220 *Id.* ¶¶ 119, 121, at 38.

221 *Id.* ¶ 117, at 37.

222 *See id.* ¶ 122, at 38–39.

223 *See id.* ¶¶ 124, 156, at 39, 49.

the licensees not to deviate from Google's standard version of the Android OS,[224] and to preinstall a suite of Google's popular mobile apps and APIs.[225] Google thus ensures that device manufacturers that adopt its proprietary Android OS will also install its popular apps on Android devices, and designate its search engine as the default in all of the apps' search access points.

Although Android is nominally open source, almost all licensees sign these anti-fragmentation or anti-forking agreements as a condition of installing Google Mobile Services ("GMS").[226] GMS consists of a suite of Google's popular apps, such as Chrome, Gmail, YouTube, Google Maps, and Google Play, "the only commercially significant app store option for Android manufacturers."[227] The suite also includes the APIs in Google Play Services ("GPS"), which allow app developers to access essential functionality.[228]

The DOJ alleges the anti-forking and preinstallation terms amount to an illegal tying arrangement.[229] Distributors "must have" GPS and Google Play, and, if they want even one of the key apps in Google Mobile Services, they must install the entire suite.[230] Together these mutually reinforcing provisions "foreclose[] distribution opportunities to rival general search engines, protecting Google's monopolies."[231]

The DOJ alleges these agreements restrict competition in the search market.[232] For example, developing an Android fork would be much cheaper than developing an entirely new OS,[233] and a phone using a forked Android OS might run apps that designate a search engine other than Google's as the default on their access points.[234] But distributors know that if they violate the anti-forking agreement, Google could banish them from the Android ecosystem,

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224 *See id.* ¶¶ 128–29, at 40.
225 *See id.* ¶ 134, at 42.
226 *See id.* ¶ 124, at 39.
227 *Id.* ¶¶ 73, 134, at 24, 42.
228 *Id.* ¶ 74, at 24–25.
229 *Id.* ¶¶ 128–43, at 40–45.
230 *Id.* ¶ 134, at 42.
231 *Id.* ¶ 135, at 42.
232 *Id.* ¶¶ 159, 166–72, at 50, 52–54.
233 *Id.* ¶ 127, at 40.
234 *Id.* ¶ 126, at 40.

parts of which distributors consider necessary for their survival.[235] Device manufacturers and distributors are unwilling to incur the costs of forking and the loss of access to Google Play, and are also hesitant to forgo the revenue shared only with those who use Google's Android OS.[236] Thus, according to the DOJ, prohibiting forking, with its attendant agreements, excludes competing search engines.[237] The DOJ alleges Amazon's phone failed and its Fire tablets stalled because they were Android forks that did not comply with the anti-forking agreements, and so lacked the benefits of Google's APIs and apps.[238]

The conventional tying claim is that the seller leverages market power in the tying product to obtain an advantage in the sale of the tied product.[239] For example, the DOJ long ago claimed in *International Salt* that the defendant used its power over its patented salt dispensing machines to increase its sales of salt.[240] Similarly, the DOJ claimed Microsoft used its market power in operating systems to increase usage of its Internet Explorer browser.[241] In *Google*, however, the DOJ alleges the defendant has monopolized the search market, but not to use its monopoly to obtain an advantage in the distribution of its apps and other products; instead, the DOJ alleges Google is using its power over Android apps to reinforce its monopoly of search and search advertising.[242] It alleges Google uses its power over Google Play and GPS, for example, to ensure device manufactures also preinstall its other apps and make them undeletable. And, of course, all of those apps, such as Chrome, set Google search as the default in all their internet search access

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235 *Id.* ¶ 128, at 40.

236 *Id.*

237 *Id.* ¶ 126, at 40.

238 *Id.* ¶¶ 130–31, at 41.

239 *See* Eastman Kodak Co. v. Image Tech. Servs., Inc., 504 U.S. 451, 464 n.9 (1992) (quoting Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 446 U.S. 2, 12 (1984)).

240 Int'l Salt Co. v. United States, 332 U.S. 392, 394–96 (1947). *But cf.* Ill. Tool Works Inc. v. Indep. Ink, Inc., 547 U.S. 28, 38–43, 44–45 (2006) (disapproving *International Salt*'s presumption that a patent confers monopoly power).

241 *See* United States v. Microsoft Corp., 253 F.3d 34, 65, 67 (D.C. Cir. 2001) (en banc).

242 Amended Complaint, *supra* note 27, ¶¶ 173–93, at 55–57.

points.[243] The tie thus strengthens the monopoly of search and, indirectly, of search advertising.

As part of the tying arrangement, Google has offered Revenue Sharing Agreements ("RSAs") to device manufactures that are licensees under the Mobile Android Distribution Agreement, and to cellular carriers that provide service to the licensees.[244] More recently, according to the DOJ, Google has offered Mobile Incentive Agreements ("MIAs") that similarly use revenue sharing to induce device manufacturers to "forgo preinstalling rival search services on their Android devices" and to install Google apps in addition to Google Search.[245] Under the MIAs, manufacturers maximize revenue sharing payments only by setting Google as the default for all access points on nearly all their devices.[246]

Beyond mobile devices, Google has also agreed to share revenue with browser developers other than Microsoft, and even with producers of smart connected devices like watches and cars, in return for designating the Google search engine as their default.[247] Google is now designated as the default search engine by all major browser developers except Microsoft, which designates its own Bing search engine as the default in its Edge browser.[248] According to the DOJ, over eighty-five percent of all browser usage in the Unites States occurs on Google's Chrome browser or on one of the other browsers covered by an RSA.[249]

In support of its motion for summary judgment, Google characterizes the DOJ's case as centering on two categories of allegedly exclusionary contracts: those with browser developers (including Apple) to set Google as the default search engine in exchange for revenue sharing; and those with manufacturers and sellers of Android mobile devices to make Google the preinstalled search engine

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243 *Id.* ¶¶ 135, 137, at 42, 43.

244 *Id.* ¶ 78, at 26.

245 *Id.* ¶ 81–83, at 26–27.

246 *Id.* ¶ 82, at 27.

247 *Id.* ¶ 162, at 51.

248 *See Change Your Default Search Engine in Microsoft Edge,* MICROSOFT, https://support.microsoft.com/en-us/microsoft-edge/change-your-default-search-engine-in-microsoft-edge-cccaf51c-a4df-a43e-8036-d4d2c527a791#:~:text=Select%20Settings%20and%20more%20%3E%20Settings,in%20the%20address%20bar%20menu (last visited Nov. 14, 2022).

249 Amended Complaint, *supra* note 27, ¶ 158, at 50.

or to promote Google Search exclusively on various devices in exchange for a share of revenue.[250] In arguing for summary judgment, Google asserts that agreements of the first kind are not legally exclusionary because developers on their own initiative chose designs that require default search engines and selected Google Search because it was superior to competing search engines.[251] The agreements in fact are not "exclusive" or "*de facto* exclusive,"[252] and even if they are, Google engaged in lawful "competition for the contract."[253] As to contracts of the second kind, Google argues they are also not exclusive in an antitrust sense,[254] and in any event, they foreclose an insubstantial share of the market.[255]

C. Microsoft's *Lessons on Exclusionary Conduct*

Microsoft can shed light on many of the key issues the pleadings in *Google* raise. First, the District Court for the District of Columbia, where *Google* is pending, is likely to apply the monopolization methodology the D.C. Circuit, en banc, announced in *Microsoft*. Second, the district court is likely to approach the alleged exclusionary contracts in the same way as the D.C. Circuit. Third, the court is likely to approach the tying and anti-forking agreements in a way consistent with *Microsoft*.

1. ANALYTICAL METHODOLOGY

Microsoft's first lesson on liability for any monopolization case is its burden-shifting, rule-of-reason analysis, which we describe earlier in this Part. The plaintiff must establish that challenged con-

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250 *See* Google Summary Judgment Memorandum, *supra* note 4, at 5.

251 *See id.* at 2, 7–8.

252 *Id*. at 26, 32–35.

253 *See id*. at 27, 35–38, citing Menasha Corp. v. News Am. Mktg. In-Store, Inc., 354 F.3d 661, 663 (7th Cir. 2004).

254 *See id*. at 39.

255 *See id.* at 40–46.

duct excludes rivals by means that do not provide obvious efficiencies that benefit consumers.[256] If it does, the burden shifts to the defendant to establish less obvious efficiencies.[257] If the defendant carries that burden, the plaintiff must show that the practice, on balance, is anticompetitive.[258] The party with the burden of production loses if the evidence winds up evenly balanced at any step of the inquiry.[259]

The court in *Microsoft* considered each alleged exclusionary act or practice separately.[260] In *Google*, the DOJ alleges a web of anticompetitive practices that reinforce one another, but, following *Microsoft*'s lead, the court is likely to isolate Google's alleged exclusionary practices and evaluate them individually.[261] The *Microsoft* court discounted the district court's conclusion that Microsoft, apart from its specific acts, was liable based on "its general 'course of conduct,'"[262] what courts and commentators have termed the "monopoly broth" theory."[263] The DOJ argued a monopolist's unilateral campaign of acts that have an anticompetitive impact can collectively be sufficient for liability;[264] Microsoft argued that the only cases that have imposed liability based on a course of conduct involved inferring conspiracy in Section 1 cases, not identifying monopolization in a Section 2 case,[265]—a very different kind of inquiry. The appellate court found it was unnecessary to resolve the

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256 United States v. Microsoft Corp., 253 F.3d 34, 58–59 (D.C. Cir. 2001) (en banc).

257 *Id.* at 59.

258 *Id.*

259 *Id.*

260 *See id.* at 50–97.

261 *See id. See generally* Amended Complaint, *supra* note 27; Google Summary Judgment Memorandum, *supra* note 4, at 24 ("Where, as here, Plaintiffs purport to challenge a course of conduct, courts individually evaluate whether different types of conduct are exclusionary.").

262 *Microsoft*, 253 F.3d at 78.

263 *See, e.g.,* New York v. Facebook, Inc., 549 F. Supp. 3d 6, 46–47 (D.D.C. 2021) (describing monopoly broth or course of conduct liability in Section 2 cases as "controversial" and inappropriate, at least in refusal-to-deal cases).

264 *Microsoft*, 253 F.3d at 78.

265 *See, e.g., In re* High Fructose Corn Syrup Antitrust Litig., 295 F.3d 651, 662 (7th Cir. 2002) (holding "most [conspiracy] cases are constructed out of a tissue of such [ambiguous] statements and other circumstantial evidence . . . .").

disagreement.[266] Notably, the court suggested that, if a course of conduct could violate Section 2, each act in the series would have to harm competition "slightly," with the series collectively causing harm sufficient to impose liability.[267] Specific acts that are efficient cannot be combined to establish an anticompetitive effect, just as multiple pieces of irrelevant evidence cannot suggest a conspiracy.[268]

In *Microsoft*, the appellate court upheld the claim that Microsoft maintained its monopoly of Intel-compatible personal computer operating systems by certain exclusionary practices aimed at Netscape's browser and Java's virtual machine.[269] Both *Microsoft* and *Google* thus turn on alleged suppression of incipient competitors through exclusionary conduct, although in *Google* they are small competitors in an existing search market, not potential competitors in an unproven future OS/middleware market.[270]

Equally important, both cases are mainly about distribution of the products at issue. *Microsoft* centered on contracts excluding Netscape from important distribution channels like OEMs, Independent Software Vendors ("ISVs," such as app developers), Internet Access Providers ("IAPs"), and Internet Content Providers ("ICPs").[271] *Google* centers on contracts excluding other search engines from key search access points.[272] If there are fewer search access points than there are channels of browser distribution, Google's restrictive agreements deny its rivals a greater proportion of competitive opportunities than Microsoft's agreements. Nevertheless, the legal issues in the cases are comparable.

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266 *Microsoft*, 253 F.3d at 78.

267 *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F. 3d at 662; *see also Microsoft*, 253 F.3d at 78.

268 In this respect, the inquiry does resemble inference of conspiracy in Section 1 cases. *See, e.g., In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d at 655 (recognizing that, although an accumulation of *suggestive* pieces of circumstantial evidence can justify an inference of agreement, "zero plus zero equals zero").

269 *Microsoft*, 253 F.3d at 51.

270 *See id. See generally* Amended Complaint, *supra* note 27.

271 *Microsoft*, 253 F.3d at 58.

272 Amended Complaint, *supra* note 27, ¶ 1, at 3 ("Google has used anticompetitive tactics to maintain and extend its monopolies in the markets for general search services, search advertising, and general search text advertising.").

2. CONTRACTING FOR DEFAULT STATUS

Microsoft contracted with Apple, software producers, and internet access providers for preferential treatment of Internet Explorer, and gave them preferential treatment in return.[273] The courts held these arrangements amounted to unlawful exclusive contracts.[274] The court of appeals, however, held Microsoft, as part of the arrangements, could lawfully give its browser to the counterparties free of charge.[275] In this section, we consider the significance of these holdings for the allegations that Google has contracted with all the significant search distributors for default status (a designation that apparently results in overwhelming use of its search engine), in return for enormous payments in advertising revenue-sharing.

Microsoft held unlawful Microsoft's agreement with Apple for preferential inclusion of IE in the Mac OS, characterizing it as an "exclusive dealing arrangement."[276] The court accepted the finding that "Apple had a not insignificant share of worldwide sales of operating systems," even though the district court had excluded the Mac OS from its definition of the relevant "Intel-compatible" OS market.[277] Under the arrangement, Microsoft continued its support of the Office business productivity suite of applications for the Mac OS,[278] a suite Apple desperately needed, while Apple, in return, agreed to bundle IE with Mac OS as its standard browser, and not to install Navigator on the Mac's hard drive during default installation or to place icons for non-Microsoft browsers on new Macs or Mac

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[273] *Microsoft*, 253 F.3d at 71–72.

[274] *Id.* at 74.

[275] *Id.* at 68.

[276] *Id.* at 74. Apple had installed Navigator as the default browser before its agreement with Microsoft. In 2003, Apple introduced the first version of its Safari browser. *See* Press Release, Apple, Apple Unveils Safari (Jan. 7, 2003), https://www.apple.com/newsroom/2003/01/07Apple-Unveils-Safari/.

[277] *Microsoft*, 253 F.3d at 73.

[278] Bill Gates had foreshadowed this strategy by proposing to "use Office as a club" to persuade Apple to make IE its standard install. *Id.*

OS upgrades.[279] Apple's commitments foreclosed an important distribution channel for Navigator, and Microsoft offered no procompetitive justification for the arrangement.[280]

Microsoft also entered into agreements with important ISVs to use IE rather than Navigator.[281] Microsoft had otherwise sewn up the primary channels of distribution, but foreclosing Navigator from ISVs had a significant incremental effect, particularly because the market for Web-centric applications was rapidly growing.[282] Under its "First Wave" agreements, Microsoft gave ISVs early access to operating system betas and the right to use Microsoft seals of approval.[283] In exchange, ISVs committed to use IE as the default browsing software for any software they developed with a hypertext-based user interface and to use Microsoft's "HTML Help," accessible only with IE, in implementing their applications' help systems.[284] Consequently, many of the most popular Web-centric applications only ran on IE, a limitation that, the court found, had a substantial effect in preserving Microsoft's OS monopoly.[285] Again, Microsoft offered no procompetitive justification for its exclusive contracts.[286]

In addition, Microsoft entered into restrictive distribution agreements with IAPs—a category that includes Internet Service Providers, which provide only internet access, and Online Services like AOL, which provide internet access and proprietary services.[287] Bundling a browser with internet access software provided by IAPs and preinstallation by OEMs were the two most important browser distribution channels.[288] Microsoft's agreements required "fourteen

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279 *Id.* The agreement also prohibited Apple from encouraging users to substitute another browser for IE and required Apple to encourage its employees to use IE. *See id*. This was before Apple developed its own Safari browser. *Cf*. Fiona M. Scott-Morton, *Contracts that Reference Rivals,* 22 ANTITRUST 72 (2013).

280 *See Microsoft*, 253 F.3d at 73–74.

281 *Id.* at 71.

282 *Id.* at 72.

283 *Id.* at 71.

284 *Id.* at 71–72.

285 *Id.* at 73.

286 *See id*. at 74.

287 *Id.* at 68.

288 *See id.* at 60.

of the top fifteen" IAPs in North America, representing a large majority of all internet access subscriptions,[289] to severely limit shipments of Navigator and to promote only IE.[290] In exchange, Microsoft provided easy access to IAPs' services from the Windows desktop.[291] Yet again, Microsoft did not offer a procompetitive justification for these exclusive dealing agreements.[292] The court held the contracts were illegally exclusionary under Section 2, because they reinforced the applications barrier to entry with no benefit to consumers.[293]

The district court had also held Microsoft violated Section 2 by giving IE free to IAPs, and even paying them a bounty to persuade consumers to switch to IE.[294] The court of appeals held, however, that the "rare case of price predation aside, the antitrust laws do not condemn even a monopolist for offering its product at an attractive price, and we therefore have no warrant to condemn Microsoft for offering either IE or the IE Access Kit free of charge or even at a negative price."[295]

The appellate court's treatment of the exclusivity provisions in Microsoft's contracts appears to apply directly to Google's alleged exclusive contracts. Google's contracts allegedly ensure its search engine is designated as the default search engine in the most important settings for internet search.[296] The DOJ claims an initial default setting is, in effect, permanent because consumers rarely change it.[297] This behavioral generalization is apparently true.[298] As the number of Google's users increases, advertisers will pay it more; it also gathers data from more users, which allows it to still sell more valuable advertising. Google thus has an incentive to buy default

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289 *See id.* at 70–71.
290 *See id.* at 68.
291 *Id.*
292 *Id.* at 71.
293 *See id.*
294 *See id.* at 68.
295 *See id.*
296 Amended Complaint, *supra* note 27, ¶ 49, at 18.
297 *Id.* ¶ 47, at 17. Google admits that "attaining a preinstalled search access point can encourage utilization of a service" but not that default status is effectively permanent. *See* Answer and Affirmative Defenses, *supra* note 109, ¶ 47, at 13.
298 *See id.*

status, and, as the most widely used search engine, it can profitably outbid its competitors.[299] The dynamic, as we have explained, is a consequence of network effects, albeit with the benefits on only the advertisers' side of the search platform.

If consumers think search engines are comparable, or if it is costly to evaluate the options, then consumers are unlikely to take the time to switch from the default. But if the perceived quality (or price) disparity between the default and its next best substitute were greater, consumers might well switch. For example, some users who place a premium on privacy have switched to DuckDuckGo because of its commitment not to track or save their searches.[300] If consumer tastes change in the direction of privacy, Google's user share might decline. But for now, the default is likely to be a stable setting for most users.

Google claims that its contracts with browser developers are neither "exclusive" nor "*de facto* exclusive" because developers are free to and in fact do promote other search engines in their browsers, by offering users an easy way to select another search service through drop-down menus.[301] Certainly, when a buyer chooses among competing sellers, the selection of one does not make the resulting purchase "exclusive" in a sense relevant to antitrust even though the buyer purchases from a single seller. But more is involved in the purchase of default status.

Default status for a search engine resembles Microsoft's requirement that OEMs not delete the visible means of access to IE within Windows, such as icons or menu items.[302] Like default status in

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[299] *See* Amended Complaint, *supra* note 27, ¶ 3, at 3–4 (alleging that because consumers rarely change default settings, preset default settings get "*de facto exclusivity*").

[300] Other browsers, including Firefox, now claim similar features. *See, e.g.*, *Firefox Privacy Notice*, FIREFOX, https://www.mozilla.org/en-US/privacy/firefox/ (last visited Dec. 15, 2022).

[301] Google Summary Judgment Memorandum, *supra* note 4, at 28–29.

[302] *See* United States v. Microsoft Corp., 253 F.3d 34, 61 (D.C. Cir. 2001) (en banc). Google distinguishes its agreements with browser developers from the agreements Microsoft had with IAPs, such as America Online, to limit shipments of Netscape and to refrain from promoting any browser other than IE. Google Summary Judgment Memorandum, *supra* note 4, at 29–30. But Microsoft's restrictive distribution agreements with IAPs are not the proper analogue of Google's agreements with browser developers for default status.

Google, this contract term did not explicitly exclude competitors, because OEMs remained free to provide access to multiple browsers.[303] But the court accepted the district court's finding that some OEMs wanted only one browser on the desktop, because they thought the presence of multiple browsers would confuse consumers and increase calls for technical support.[304] Similarly, users were always free to download and install rival browsers and designate them as the default in all but a small number of specialized instances.[305] Google's restrictions, according to the DOJ, similarly exclude non-Google search engines, because default status, as a practical matter, limits the frequency of switching.[306] So, the degree of exclusion, if the evidence supports the allegations, appears to be similar. If so, much will depend on Google's evidence justifying the contracts.

Microsoft's approval of free and negative pricing for Internet Explorer also has implications for *Google*. Google admits that it offers APIs and "proprietary Google apps free of charge to Android device manufacturers that agree to preinstall a suite of Google apps, and that these agreements contain various provisions regarding placement of certain Google apps on devices' system partitions and default home screen for the out-of-the-box settings."[307] These terms may raise issues of tying, as we have already seen, but the provision of the APIs and apps free of charge is, by itself, not problematic. Consumers expect distributors like cell phone producers to include a search engine with their products, so Google provides one. If Google had left it at that, it might still be dominant, but its arrangements would be per se lawful.

The DOJ's allegations that Google used generous revenue sharing to induce distributors to accept the terms of its agreements are

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303 *See Microsoft*, 253 F.3d at 61.

304 *Id.* The district court also found that including a second product in a software category, such as browsers, can increase an OEM's product testing costs and represent "a questionable use of the scarce and valuable space on a computer's hard drive." *See* United States v. Microsoft Corp., 84 F. Supp. 2d 9, 50 (D.D.C. 1999). The appellate court did not rely on these findings. *See generally Microsoft*, 253 F. 3d.

305 *See* Mark Hachman, *Firefox is Now Available on the Microsoft Store and That's a Pretty Big Deal*, PCWORLD (Nov. 9, 2021 9:57 AM) https://www.pcworld.com/article/550946/mozilla-joins-the-microsoft-store.html.

306 Amended Complaint, *supra* note 27, ¶ 47, at 17.

307 Answer and Affirmative Defenses, *supra* note 109, ¶ 55, at 15.

more central to its case, and raise more difficult issues.[308] Google not only provides its search engine free to browser distributors; it pays them billions to install its engine and to designate it as the initial default.[309] Google, for example, is allegedly willing to pay Apple billions every year for the default position on Safari, Apple's browser, and other access points, because, as we've seen, users do not seem to switch from the default.[310]

In arguing for summary judgment, Google insists that browser developers choose its search engine because Google Search is intrinsically better than its competitors, and it scarcely acknowledges the inducement of revenue sharing.[311] But the idea that the payment for default status was unimportant to developers is farfetched. Moreover, if Google Search has a quality advantage over competitors and quality drives selection, Google would predictably offer *less* than other search providers, who would have to compensate developers for the inferior quality of their products, but no such evidence has been identified. And if consumers readily change defaults, inferior search providers would pay little for default status, knowing that consumers would quickly switch to the best search engine, and the best search provider would have to pay little to outbid its competitors for whatever value it would derive from its use for the brief period before consumers opted out of the default. Google does not explain why it pays browser developers the amounts it in fact pays.

The court of appeals in *Microsoft* held it was lawful to provide a product free or "*even* [at] *a negative price*," with the sole exception of predatory pricing.[312] One might interpret the revenue-sharing

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[308] *See* Amended Complaint, *supra* note 27, ¶ 63, at 21.

[309] *Id.* ¶ 156-57, at 49.

[310] *See id.* ¶ 118, at 37.

[311] *See, e.g.*, Google Summary Judgment Memorandum, *supra* note 4, at 2 (asserting Apple and Mozilla have selected Google as the default "based on their independent conclusions that doing so provides the best experience for their customers after evaluating other rival search engines"); *id.* at 4 (acknowledging Google pays browser developers "a share of the search advertising revenue generated from searches on their browsers"); *id.* at 7–8 ("Apple and Mozilla decided to set Google as the default search engine in their browsers because they believe it provides the highest quality experience for their customers"); *id.* at 38 (arguing Google has won competitions for default status "based on considerations of quality and price").

[312] United States v. Microsoft Corp., 253 F.3d 34, 68 (D.C. Cir. 2001) (en banc).

payments as just another negative, non-predatory price. Nevertheless, it is not clear that the massive subsidies in Google's contracts with distributors are comparable to the relatively trivial bounties paid to IAPs in *Microsoft*. Google shares revenue with distributors in return for the distributor designating it as the default search engine, which arguably is a form of exclusivity.[313] The revenue-sharing payments, in other words, are a measure of how much it benefits from the exclusive arrangement. Neither the free provision nor the bounties in *Microsoft* were conditioned on exclusivity.[314] One might argue, then, that Google's revenue sharing is not a very negative price for a search engine, but a very positive price for exclusivity.

3. TYING AND GOOGLE'S ANTI-FORKING PROVISIONS

A critical claim in *Microsoft* was that the company tied its browser to Windows.[315] Microsoft was also accused of tying the Mac version of its popular Office business productivity suite to Internet Explorer, but both the district court and the court of appeals analyzed that issue under Section 2 as an element of Microsoft's larger exclusive contract with Apple.[316] Modern technology platforms, like operating systems and internet search, often provide a constellation of interrelated products, responding to different demands. When a firm offers these products only as a set or offers a substantial discount when the entire set is purchased, rivals may claim the firm has tied the less popular products to the more popular ones.[317] The defense in many of these bundling cases is that the products are technologically integrated, so the cost of providing the products in combination is less than the cost of providing them separately.[318]

The appellate court reversed the district court's holding that Microsoft had illegally tied its products, because the district court, understandably following Supreme Court case law, had applied a per

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313 *See* Amended Complaint, *supra* note 27, ¶ 156–57, at 49.
314 *See Microsoft*, 253 F.3d at 68.
315 *Id.* at 84.
316 *See id.* at 73.
317 *See id.* at 88.
318 *See* David A. Heiner, *Assessing Tying Claims in the Context of Software Integration: A Suggested Framework for Applying the Rule of Reason Analysis*, 72 U. CHI. L. REV. 123, 123–24 (2005).

se rule.[319] The appellate court in *Microsoft* held, however, a rule of reason standard should apply to tying claims against platforms in high-technology markets where physical and technological integration often lowers costs and benefits makers of complementary goods.[320] The Supreme Court's per se rule did not control, because the Court had never confronted ties like those in platform software, that might well have these kinds of benefits.[321] In other words, the court recognized that Microsoft functioned in a multi-sided market, and the design features of the operating system, including the range of functionality it offered, affected both end users and applications developers.[322] Under a rule of reason, combining products would only be condemned if the net effect of the combination reduced economic welfare.[323] The DOJ did not pursue the Section 1 tying claim after remand to a different judge.[324]

The DOJ in *Microsoft* also alleged it was unlawfully exclusionary for Microsoft to design Windows to override, in limited circumstances, users' choice of a default browser other than IE.[325] That conduct was a form of absolute, but narrow, exclusivity. The dispute over this allegation led the court into issues of product design and their justifications.[326] Similar disputes arose in the claim Microsoft had "commingled code" for IE in the same files as Windows shell code.[327] The appellate court concluded that Microsoft had not proven a procompetitive justification for commingling code, which was exclusionary, but had asserted an unrebutted justification for overriding a user's choice of default browser in limited circumstances.[328]

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319 *See Microsoft*, 253 F.3d at 94.

320 *See id.* at 90–91.

321 *See id.*

322 *See id.*

323 *See id.* at 96 ("In order for the District Court [on remand] to conclude these practices also constitute § 1 tying violations, plaintiffs must demonstrate that their benefits—if any . . . are outweighed by the harms in the *tied product* market." (emphasis in original)).

324 *See id.* at 95.

325 *See id.* at 65.

326 *See id.* at 65–66.

327 *Id.*

328 *See id.* at 67.

The DOJ alleged Microsoft's tying violated *both* Section 1 and Section 2 of the Sherman Act.[329] In *Google*, the DOJ does not assert a free-standing claim that Google's tying (or any other contractual provision) violates Section 1,[330] only that Google violates Section 2 by maintaining monopolies in each of the three alleged markets solely through exclusionary conduct in the search market.[331] The DOJ challenges a set of agreements between Google on the one hand and mobile device manufacturers and wireless carriers on the other. A particularly important claim relates to anti-forking agreements. Specifically, the DOJ alleges that Android app developers cannot practically port their applications to Android forks like open-source Android platforms, because the apps need the functionality provided only by GPS, a component of Google's proprietary version of Android.[332]

Anti-forking agreements prohibit device manufacturers from "developing or distributing" versions of Android other than Google's proprietary implementation.[333] Device manufacturers benefit as the number of applications that can run on their devices increases, so they have an incentive to install Google's normative proprietary Android operating system, along with GPS.[334] Moreover, device manufacturers, because of consumer demand, are all but required to install Google Play, which is Google's app store.[335] To obtain the right to install GPS and Google Play, device manufacturers must agree to preinstall a suite of proprietary Google apps, including the search access points consumers most frequently use.[336] And, of course, Google search is the default on all these access points.[337]

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329 *See id.* at 68–69.

330 *See generally* Amended Complaint, *supra* note 27, ¶¶ 173–193, at 55–57.

331 *See id.* ¶¶ 175, 182, 189, at 55, 56, 56–57 (discussing alleged violations in the three markets—search services, search advertising, and search text advertising).

332 *See id.* ¶ 75, at 25.

333 *See id.* ¶ 68, at 23.

334 *See id.* ¶ 76, at 25.

335 *See id.* ¶ 73, at 24.

336 *See id.* ¶ 76, at 25.

337 *See id.*

The DOJ thus alleges that some commercially indispensable features of the Android operating system are available on Google's proprietary OS and not on open-source or forked Android platforms.[338] To obtain these features, device manufacturers must make Google Search the default service for all search access points on the device.[339] Google Search is effectively tied to GPS and Google Play on the only version of the Android platform that is commercially important.[340] The tying arrangement, though not alleged to be a free-standing antitrust violation, excludes competing search engines from the relevant markets.

Google claims that the challenged agreements are neither explicitly nor practically as restrictive as the DOJ alleges. According to Google, one kind of its agreements with device manufacturers maintains a stable platform for app developers.[341] OEMs agree to baseline compatibility, security, and quality requirements. These agreements do not require an OEM to pre-load Google Search and do not restrict an OEM's ability to preinstall a rival search application or a browser with a search engine other than Google Search set as the default.[342] Another kind of agreement provides OEMs with a royalty-free license to a suite of Google apps and APIs in exchange for placement of Google Play and the Google Search widget on a device's default home screen but does not prevent OEMs from preloading any other apps on the home screen or elsewhere.[343]

The DOJ's story of Google's use of tying to exclude rivals is more complicated than the story of Microsoft's tying, but they are both coherent in themselves and consistent with each other. Google argues its restrictions on licensees of the proprietary version of Android benefit app developers by ensuring a stable platform. Microsoft proposed a similar rationale for prohibiting OEMs from deleting the visible means of access to Internet Explorer from Windows. The anomaly in *Google* is that the commercially critical products are not the products at the heart of the monopoly maintenance

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338 *See id.* ¶¶ 74, 75, at 24–25.
339 *See id.* ¶¶ 137–38, at 43–44.
340 *See id.* ¶¶ 74, 75, at 24–25.
341 *See* Google Summary Judgment Memorandum, *supra* note 4, at 19–20.
342 *See id*. 20.
343 *See id*. at 20–21.

claims.[344] Instead, the DOJ alleges Google has used its market power in Android operating systems, GPS, and Google Play to maintain its monopoly over its search engine and the two search advertising markets derived from it.[345] That difference adds another dimension to the factual issues in the case.

III. CAUSATION

Monopolization requires monopoly power, exclusionary conduct, and a causal link between the two.[346] The causation requirement typically means the plaintiff must produce evidence suggesting the market would have been more competitive but for the defendant's unlawful conduct.[347] When a monopolist excludes an actual competitor by inefficient means, the legal question focuses on the competitive significance of the excluded firm.[348] If the excluded firm had little impact on the market, and had no prospects of having such an impact, its exclusion may have had no effect on the monopolist's economic power.[349] The challenge is estimating the excluded firm's prospects.

A. Microsoft

In *Microsoft*, the causation problem was that the excluded firms were not commercially established as software platforms and had even been defined out of the relevant market.[350] It was never clear that either of them would become a competitive platform to rival Windows—and, of course, they never did. How could the exclusion of start-ups not even in the market preserve Microsoft's monopoly power?[351] The court provided this answer:

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344 *See* Amended Complaint, *supra* note 27, ¶¶ 1–7, at 3–5.

345 *See id.* ¶¶ 1–7, 64–65, at 3–5, 21–22.

346 United States v. Microsoft Corp., 253 F.3d 34, 51, 58, 78 (D.C. Cir. 2001) (en banc).

347 *See id.* at 79.

348 *See id.*

349 *See id.*

350 *Id.* at 79–80.

351 *Id.* at 78 ("Microsoft [argues] plaintiffs never established a causal link between Microsoft's . . . foreclosure of Netscape's and Java's distribution channels[] and the maintenance of Microsoft's operating system monopoly.").

> 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 . . . .[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."
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> Given this rather edentulous test for causation, the question in this case is not whether Java or Navigator would actually have developed into viable platform substitutes, but (1) whether as a general matter the exclusion of nascent threats is the type of conduct that is reasonably capable of contributing significantly to a defendant's continued monopoly power and (2) whether Java and Navigator reasonably constituted nascent threats at the time Microsoft engaged in the anticompetitive conduct at issue.[352]

The evidence on liability never proved Microsoft's conduct had anticompetitive consequences, but that did not defeat the government's claim.[353] It was enough that the conduct harmed nascent rivals—those that Microsoft viewed as competitive threats—without any procompetitive justification.[354]

The court added, however, that "Microsoft's concerns over causation have more purchase in connection with the appropriate remedy issue, i.e., whether the court should impose a structural remedy or merely enjoin the offensive conduct at issue."[355] As we will see, the court did reverse the district court's structural remedy, and the eventual Final Judgment included only injunctive relief.[356] Indeed, Microsoft's economic expert in the remedies phase found so little

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352 *Id*. at 79 (citation omitted).

353 *See id.*

354 *Id.*

355 *Id*. at 80.

356 *See generally* United States v. Microsoft Corp., 231 F. Supp. 2d 144, 164 (D.D.C. 2002), *aff'd*, 373 F.3d 1199, 1250 (D.C. Cir. 2004).

evidence of causation as to undercut the finding of liability, according to the judge.[357]

B. Google

It might seem that network effects would enshrine Google as the default search engine even without allegedly exclusive contracts. Indeed, Google claims that the DOJ has pointed to no evidence, including expert testimony, that its agreements with mobile device manufacturers and wireless carriers have had anything more than a trivial foreclosure effect.[358] The search engine market is predisposed to the emergence of a dominant firm because its two-sided nature ensures the presence of network effects, at least on the advertising side of the market. The government alleges that "[i]n a competitive market, rivals could compete to be the preset default general search engine on a browser."[359] But Google would likely win any competition among providers for the default position, because it has the most to gain. If it did win, default status alone would impede rivals and potential entrants.

Most consumers would probably choose Google even if they were provided with a choice screen of search engines when they turned on their computers for the first time. In a similar scenario, when European antitrust enforcers required Microsoft to provide a choice screen for browsers, users overwhelmingly chose Internet Explorer, then the dominant browser.[360] If Google's agreements are

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[357] *See id.* New York v. Microsoft Corp., 224 F. Supp. 2d 76, 151 (D.D.C. 2002) (noting Microsoft's expert's "conclusion that the anticompetitive conduct identified in this case had *no* effect upon Microsoft's monopoly . . . [undercuts] . . . the inference of causation necessary to the appellate court's imposition of liability").

[358] *See* Google Summary Judgment Memorandum, *supra* note 4, at 1, 3, 40–46.

[359] Amended Complaint, *supra* note 27, ¶ 159, at 50.

[360] Case COMP/C-3/39.530 – Microsoft (Tying), https://ec.europa.eu/competition/antitrust/cases/dec_docs/39530/39530_2671_5.pdf. Google's Chrome browser surpassed IE in 2012 and has since become dominant. *Browser Market Share Worldwide*, STATSCOUNTER GLOBALSTATS, https://gs.statcounter.com/browser-market-share/all/worldwide/2012 (last visited Dec. 15, 2022) (search for and select "browser market share," and select "Edit Chart Data" to select range from Jan. to Dec. of 2012). Microsoft stopped supporting IE in 2022 to focus development on its Edge browser. *Internet Explorer 11 Desktop Application Ended Support for Certain Operating Systems*,

characterized as "exclusionary," as opposed to inherently exclusive, it is not clear they increased or preserved Google's monopoly power. It may be that, even absent the agreements, Google would have achieved much the same market share because it provided the most value to both sides of the market.

Google's own actions, however, suggest it is not entirely confident of this outcome. Google paid U.S. wireless carriers $1 billion in advertising revenue sharing last year for default status.[361] Public estimates are that Google pays Apple $8–12 billion annually.[362] If consumers strongly prefer Google search and if switching were easy, Google would presumably pay little for default status, confident that if, say, Microsoft bought default status for Bing on the Safari browser, consumers would switch back to Google. Google's payment of such enormous amounts suggests Google considers the agreements to acquire default status necessary to preempt other search engine providers from buying it. So, Google itself apparently believes its contracts provide an important degree of protection.

C. Microsoft's *Lessons on Causation*

Under the approach to causation in *Microsoft*, the DOJ has a strong argument that Google's contracts, if found illegal, also contributed to its dominance.[363] Recall that the D.C. Circuit, applying its "edentulous test for causation," held a court may find causation "when exclusionary conduct is aimed at producers of nascent competitive technologies as well as when it is aimed at producers of established substitutes."[364] Google's rival search engines, of course, are not nascent in the sense of potential competitors in a future market; they are established (albeit small) substitutes—as is a relative newcomer like DuckDuckGo. And, as we have seen, Google's own

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MICROSOFT (Nov. 3, 2022), https://docs.microsoft.com/en-us/lifecycle/announcements/internet-explorer-11-end-of-support.

361 Amended Complaint, *supra* note 27, ¶ 148, at 47.

362 *See id.* ¶ 118, at 37.

363 *See* United States v. Microsoft Corp., 253 F.3d 34, 49 (D.C. Cir. 2001) (en banc) ("In markets characterized by network effects, one product or standard tends towards dominance, because 'the utility a user derives from consumption of the good increases with the number of other agents consuming the good.'") (citation omitted).

364 *Id.* at 79.

actions suggest its contracts with distributors are effective. The legality of Google's conduct will thus likely turn on whether those contracts tend to exclude them without a procompetitive purpose. At this stage of the litigation, Google has not been required to offer efficiency justifications for its contracts.

IV. REMEDIES

A. Microsoft

The district court in *Microsoft* imposed both structural and conduct remedies, but the court of appeals vacated all of them because the district court failed to conduct a remedies-specific evidentiary hearing or provide adequate reasons for the remedies ordered, and because the appellate court had "drastically altered" the district court's liability holdings.[365] The appellate court remanded to a new judge,[366] to reconsider the remedial issues in light of the new holdings on liability and causation.[367]

1. THE REJECTION OF STRUCTURAL RELIEF

The district court had ordered Microsoft be divided into an applications company and an operating systems company[368]—a form of remedy sometimes called *vertical* divestiture, because it would have severed Microsoft's development of the Windows operating system from its development of products to run on the applications side of the platform, most notably its Office suite.[369] In its remand order, the court of appeals strongly implied a structural remedy would be inappropriate, first, because evidence of causation was

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365 *Id.* at 107.

366 The court of appeals disqualified the district judge "retroactively to the imposition of remedy," because he had talked freely to reporters throughout the litigation process, frequently expressing his distaste for Microsoft and its executives. *Id*. at 117.

367 *Id*. at 105–06.

368 United States v. Microsoft Corp., 97 F. Supp. 2d 59, 64 (D.D.C. 2000).

369 William H. Page, *Mandatory Contracting Remedies in the American and European Microsoft Cases*, 75 ANTITRUST L.J. 787, 788–89 (2009).

weak,[370] and, second, because Microsoft was (according to its own offer of proof) a unitary company, not one formed by a series of mergers with corresponding obvious lines for division.[371]

Vertical divestiture was also inappropriate because it was unlikely to enhance competition and was instead likely to impose significant costs on consumers.[372] Horizontal divestiture makes sense as a remedy for a merger to monopoly or the merger of rivals with substantial market shares, because the remedy creates or restores an additional significant competitor.[373] Vertical divestiture creates no new rivals in the near term.[374] Instead, in Microsoft's case, it would have replaced a single monopoly with two vertically related monopolies, each separately maximizing its profits—a condition called double marginalization, which predictably results in lower output and higher prices than vertical integration of the same firms.[375] With its market position and with thousands of other applications, Windows would almost certainly have remained dominant, but would

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[370] *See Microsoft*, 253 F.3d at 106–07 ("[W]e have found a causal connection between Microsoft's exclusionary conduct and its continuing position in the operating systems market only through inference."). In the subsequent remand to reconsider remedies, the district court observed, "In effect, the appellate court appears to have identified a proportionality between the severity of the remedy and the strength of the evidence of the causal connection . . . .[T]he court crafting a remedy must assess the strength of the causation evidence that established liability and 'tailor' the relief accordingly." United States v. Microsoft Corp., 231 F. Supp. 2d 144, 164 (D.D.C. 2002), *aff'd*, 373 F.3d 1199, 1250 (D.C. Cir. 2004).

[371] *See Microsoft*, 253 F.3d at 105 ("On remand, the District Court must reconsider whether the use of the structural remedy of divestiture is appropriate with respect to Microsoft, which argues that it is a unitary company. By and large, cases upon which plaintiffs rely in arguing for the split of Microsoft have involved the dissolution of entities formed by mergers and acquisitions.").

[372] PAGE & LOPATKA, *supra* note 17, at 209–12.

[373] *See id.* at 206–07.

[374] *See id.* at 206–11.

[375] *See, e.g.*, John Kwoka & Margaret Slade, *Second Thoughts on Double Marginalization*, 34 ANTITRUST 51, 51–52 (2020); JEFFREY CHURCH & ROGER WARE, INDUSTRIAL ORGANIZATION: A STRATEGIC APPROACH 685–86 (2000); U.S. DEP'T OF JUST., VERTICAL MERGER GUIDELINES 11 (2020) ("Due to the elimination of double marginalization, mergers of vertically related firms will often result in the merged firm's incurring lower costs for the upstream input than the downstream firm would have paid absent the merger. This is because the merged firm will have access to the upstream input at cost, whereas often the downstream firm would have paid a price that included a markup.").

have had to engage in costly arm's length negotiations with the Apps Co.

Microsoft's innovative capabilities would also have been impaired by quarantining the development of the OS from immediate contact with applications developers within Microsoft. Similarly, Windows would have been limited in innovations that involved adding new applications functionality. Although structural remedies are commonly thought to require less supervision than conduct remedies, that would hardly have followed in the case of vertical divestiture, which would have required lengthy, continuing supervision of the relationships of the newly created firms.[376]

2. THE CONDUCT REMEDIES AFTER REMAND

After remand, the DOJ, several states, and Microsoft negotiated a consent agreement embodying conduct remedies, which the district court and the court of appeals approved as a Final Judgment.[377] The remedies, for the most part, addressed only the conduct found to be illegal in the court of appeals' decision on liability, which we described in the last Part.[378] For example, the judgments required Microsoft to license Windows under uniform terms, and prohibited Microsoft from threatening or retaliating against firms using competing technologies.[379] It also prohibited Microsoft from contractually requiring internet content providers and other internet firms to use only Microsoft software.[380] Similarly, it required Microsoft to allow its OEM licensees to delete visible means of access to Internet Explorer (and other middleware), to promote rival software in various ways, and to designate rival software as the default in most cases.[381] The Final Judgment permitted Microsoft to launch its own middleware if rivals' products could not perform a specific function,

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376 *See* PAGE & LOPATKA, *supra* note 17, at 205–06.

377 *See* United States v. Microsoft Corp., 231 F. Supp. 2d 144, 149–50 (D.D.C. 2002), *aff'd*, 373 F.3d 1199, 1250 (D.C. Cir. 2004). A group of non-settling states pursued additional relief. That action ended with a separate, but very similar judgment. For a detailed account of the history of implementation of the final judgments, see New York v. Microsoft Corp., 531 F. Supp. 2d 141, 145–65 (D.D.C. 2008).

378 *See Microsoft Corp.*, 231 F. Supp. 2d at 163.

379 *See id.* at 164–71.

380 *See id*. at 171–83.

381 *Id*. at 175–77.

a provision consistent with the court of appeals' approval of Microsoft's default override of rival browsers in a limited circumstance involving functionality only IE provided.[382]

In some instances, the Final Judgment did not impose a remedy for conduct that had been found unlawful.[383] For example, it did not address Microsoft's deceptive claims about the Windows-specific version of the Java programming language; the district court thought the conduct, although illegal when it occurred, was not ongoing.[384] Further, the court did not order Microsoft to stop "commingling" code, another act of monopolization the D.C. Circuit had affirmed.[385]

The court also rejected calls for some broader relief, because the proposed remedies were too disconnected from any illegal conduct.[386] It refused to order Microsoft to support industry standards, because to do so would be inconsistent with the court of appeals' approval of Microsoft's development of a Windows-specific version of Java that was faster than Sun's cross-platform version.[387] Further, the court refused to order Microsoft to refrain from contractually tying its products to licenses of Windows, because the court of appeals had remanded the government's Section 1 tying claim, and the government did not pursue the claim under the rule of reason.[388]

In one important instance, however, the court entered a "forward-looking" fencing-in requirement not directed at any specific liability holding.[389] The court ordered Microsoft to document the protocols it licensed for communications between Windows clients and network servers.[390] This provision, monitored by a Technical

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[382] *Id*. at 177–78.

[383] Massachusetts v. Microsoft Corp., 373 F.3d 1199, 1213–15, 1238–39 (D.C. Cir. 2004).

[384] *Id.* at 1213–15.

[385] *Id.* at 1238–39.

[386] *Id.* at 1214–15.

[387] *Id*. The remedy in the European Microsoft case did order support for industry standards, and Microsoft has done so to a large extent. *See* David A. Heiner, *Microsoft: A Remedial Success?*, 78 ANTITRUST L.J. 329, 344–47 (2012).

[388] *Microsoft Corp.*, 373 F.3d at 1205, 1248.

[389] United States v. Microsoft Corp., 231 F. Supp. 2d 144, 190 (D.D.C. 2002), *aff'd*, 373 F.3d 1199, 1250 (D.C. Cir. 2004)

[390] *Id.* at 189–90.

Committee ("TC"),[391] proved to be extraordinarily difficult to implement because of the sheer complexity of the technical issues it raised and the testing it required.[392] It was, of the Final Judgment's many provisions, the one that most typified the sort of regulatory decrees that have proven impracticable because of the institutional limitations of courts.[393]

B. Google

Unlike Judge Jackson in *Microsoft*,[394] Judge Mehta in *Google* has ordered formal bifurcation of the trial into liability and remedies phases,[395] so the parties will litigate appropriate remedies only as to conduct found illegal in the first phase. This uncertainty about the issues in the remedies phase has already led to conflict between the parties about the scope of discovery.[396] In a status report in early 2022, Google complained the DOJ was refusing to be more specific about the relief it was seeking.[397] The United States argued the request was premature, because the relief would depend on the evidence and liability holdings in the liability phase of the bifurcated proceedings.[398] Google responded that nothing in the bifurcation or-

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391 *See id.* at 196.

392 *See* William H. Page & Seldon J. Childers, *Software Development as an Antitrust Remedy: Lessons from the Enforcement of the Microsoft Communications Protocol Licensing Requirement*, 14 MICH. TELECOMM. & TECH. L. REV. 77, 81 (2007).

393 *See generally id.*

394 Judge Jackson issued his final judgment and remedial order, United States v. Microsoft Corp., 97 F. Supp. 2d 59, 63 (D.D.C. 2000), three months after issuing his conclusions of law, United States v. Microsoft Corp., 87 F. Supp. 2d 30, 35–56 (D.D.C. 2000), based on the government's proposed remedy, without taking new evidence. After the court of appeals reversed the remedial order, it remanded to another judge for new proceedings on remedy. United States v. Microsoft Corp., 253 F.3d 34, 105 (D.C. Cir. 2001) (en banc). After negotiations, the DOJ and some states reached a settlement on a conduct remedy, which the court approved. *Microsoft Corp.*, 231 F. Supp. 2d at 202.

395 Order to Bifurcate Proceedings at 1–2, United States v. Google LLC, No. 1:20-cv-03010-APM (D.D.C. Dec. 6, 2021).

396 Joint Status Report at 1–2, United States v. Google LLC, No. 1:20-cv-03010-AMP (D.D.C. Mar. 8, 2022).

397 *Id.* at 9.

398 *Id.* at 16.

der "requires Google to wait until after the Court enters a final judgment on liability to ask Plaintiffs what exactly they seek to accomplish through this litigation."[399] Moreover, "if enjoining conduct that Plaintiffs claim is anticompetitive will, in fact, harm competition more than promote it, that is relevant evidence for the Court to consider when evaluating whether Google's conduct harms competition and is unlawful in the first place."[400]

The complaint anticipates this uncertainty by asking for unspecified relief that would cover almost any possible remedy for acts of monopolization, including structural and conduct remedies:

> a. Adjudge and decree that Google acted unlawfully to maintain general search services, search advertising, and general search text advertising monopolies in violation of Section 2 of the Sherman Act, 15 U.S.C. § 2;
>
> b. Enter structural relief as needed to cure any anticompetitive harm;
>
> c. Enjoin Google from continuing to engage in the anticompetitive practices described herein and from engaging in any other practices with the same purpose and effect as the challenged practices;
>
> d. Enter any other preliminary or permanent relief necessary and appropriate to restore competitive conditions in the markets affected by Google's unlawful conduct;
>
> e. Enter any additional relief the Court finds just and proper; and
>
> f. Award each Plaintiff an amount equal to its costs incurred in bringing this action on behalf of its citizens.[401]

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399 *Id.* at 16–17.

400 *Id.* at 18.

401 Amended Complaint, *supra* note 27, ¶ 194, at 57–58.

Paragraph (a) requests declaratory relief that embodies, in a final judgment, the court's holdings that Google monopolized the markets for search and search advertising. Paragraph (f) asks for another common form of relief in successful plaintiff's actions, the award of legal costs (not only court fees) to the plaintiffs for undertaking the case.

The most important provisions for purposes of this Article are (b) and (c), which ask for structural relief, such as dissolution and divestiture, and for injunctions against the conduct found unlawful. Paragraph (c) also asks for remedies that prohibit conduct beyond the actions found illegal if necessary to restore competition—a type of relief sometimes called a fencing-in provision.[402] As we suggested in the last section, after remand from *Microsoft*, the district and appellate courts addressed all of these types of relief in detail; their analyses will provide important guides for the courts in *Google* should the DOJ win on any of its claims.[403]

C. Microsoft*'s Lessons for a Possible Future* Google *Remedy*

1. STRUCTURE

In an article in 2019, Lina Khan, current chair of the Federal Trade Commission, proposed a policy of separating dominant tech platforms from the businesses that operate on the platform.[404] So, for example, Amazon might be confined to its role as an online retail platform through which other businesses sell their products, and be separated from its role as a retail competitor of those businesses.[405] Google's search functions might be separated from its vertically related products across a range of markets.[406] The article examines a

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[402] FTC v. Nat'l Lead Co., 352 U.S. 419, 431 (1957) ("[T]hose caught violating the Act must expect some fencing in."). *See also* Zenith Radio Corp. v. Hazeltine Res., Inc., 395 U.S. 100, 132 (1969) (holding a remedy can enjoin both acts "of the same type or class" as those found unlawful and acts the court anticipates, based on the unlawful conduct, may occur in the future (quoting NLRB v. Express Publ'g Co., 312 U.S. 426, 435 (1941))).

[403] *See* United States v. Microsoft Corp., 231 F. Supp. 2d 144, 164–95 (D.D.C. 2002), *aff'd*, 373 F.3d 1199, 1205, 1215–25, 1238–41 (D.C. Cir. 2004).

[404] Lina M. Khan, *The Separation of Platforms and Commerce*, 119 COLUM. L. REV. 973, 973 (2019).

[405] *See id.* at 988, 1091.

[406] *Id.* at 1084.

variety of legal mechanisms for implementing such a policy, including antitrust litigation.[407] Senator Elizabeth Warren has gone further by proposing legislation that would declare platform companies with over $25 billion in annual sales to be "platform utilities," which would be "prohibited from owning both the platform utility and any participants on that platform" and required "to meet a standard of fair, reasonable, and nondiscriminatory dealing with users."[408]

These proposals, if ever seriously considered as public policy, would raise difficult issues. But, even though the DOJ in *Google* asks for "structural relief as needed to cure any anticompetitive harm," its allegations do not justify anything like this sort of vertical divesture, particularly in light of the guidance of the court of appeals in *Microsoft*.[409] As the court emphasized there, the dissolution remedy is almost always limited to undoing mergers and does not extend to dissolving a unitary company: a "corporation, designed to operate effectively as a single entity, cannot readily be dismembered of parts of its various operations without a marked loss of efficiency."[410]

The complaint alleges the restrictive agreements affecting search generate revenue in a separate advertising market—even if the two sides of a platform can be considered vertically related.[411] But at no point does it suggest Google's search is practically separable from its search advertising in a vertical divestiture.[412] Revenue from search advertising is not an ancillary revenue stream to Google's search market in the same way as, for example, revenue to Amazon is from the sale of Amazon Essentials clothing on its plat-

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[407] *Id.* at 973.

[408] Elizabeth Warren, *Here's How to Break Up Big Tech*, MEDIUM: TEAM WARREN (Mar. 8, 2019), https://medium.com/@teamwarren/heres-how-we-can-break-up-big-tech-9ad9e0da324c.

[409] Amended Complaint, *supra* note 27, ¶ 194, at 57.

[410] United States v. Microsoft Corp., 253 F.3d 34, 106 (D.C. Cir. 2001) (en banc) (quoting United States v. ALCOA, 91 F. Supp. 333, 416 (S.D.N.Y. 1950)).

[411] Amended Complaint, *supra* note 27, ¶ 101–02, at 32–33.

[412] The DOJ has also challenged Google's business in other internet advertising markets. *See supra* note 2. Google may have negotiated with the DOJ to divest its display advertising technology businesses as a preemptive, albeit unsuccessful, means of avoiding a challenge to that part of its business by the DOJ. *Cf.* Carrie Mihalcik, *Google Reportedly Offers to Split Ad Tech Business to Fend Off US Antitrust Suit*, CNET (July 8, 2022, 1:31 PM), https://www.cnet.com/news/google-reportedly-offers-to-split-ad-tech-business-to-fend-off-us-antitrust-suit/.

form. Revenue from Amazon's sales of its own products are ancillary to its business as a marketplace for other online retailers. Revenue from search advertising, by contrast, is the only significant source of revenue in the search market, both for Google and for all its significant search competitors.[413]

Conceivably, Google could sell the data it generates in search to independent firms, who could in turn sell the space to advertisers. But the transaction costs of such an arrangement would make it all but impossible to recreate the seamless search and search advertising process of a single firm. The market has not embraced any other business model for a search firm, and implementing one would be exceptionally difficult and costly. More important, the only anticompetitive conduct the DOJ alleges is in the search market, particularly in Google's exclusive contracts with distributors assuring its placement as their default search engine.[414] Winning on every factual allegation with respect to these contracts would not support any version of vertical divestiture for Google's search platform.

Although the economic relationships are different, the allegations concerning Google's proprietary implementation of Android OS, Google Play Services, Google's suite of apps, and search also do not justify vertical divestures. Google acquired earlier versions of some of its popular apps from other developers, but the analysis remains largely the same.[415] At the center of those allegations are the anti-fragmentation agreements that prevent Android device manufactures from distributing Android phones that do not conform to Google's technical standards, and the preinstallation agreements that condition installation of any of its key apps on installation of an entire suite of apps.[416] The DOJ alleges these agreements, as a practical matter, limit the number of Android forks so severely that they assure Google Search is the default engine on all of the apps on all commercially significant Android phones.[417] Given the importance

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413 Amended Complaint, *supra* note 27, ¶ 1, at 3.

414 *Id.* ¶¶ 1, 4, at 3, 4.

415 *See Acquisitions by Google*, TRACXN, https://tracxn.com/d/acquisitions/acquisitionsbyGoogle (last updated July 25, 2022).

416 Amended Complaint, *supra* note 27, ¶ 65–69, at 22–23.

417 *Id.* ¶ 66, at 23 ("By limiting the existence of devices running Android forks, Google limits possible distribution channels available to its search rivals."). According to the DOJ, device manufacturers cannot specialize in Android forks, because they consider at least some of Google's apps to be essential to commercial

of specific contracts to this exclusionary scenario, the natural remedy for a proven violation, assuming there is a determination that efficiencies do not predominate, would be to enjoin enforcement of the contracts to spur the creation of new Android forks.

The DOJ does allege that some of Google's apps are essential, but not the ones that it has acquired from other developers.[418] Google developed its API package, GMS, and its app store, Google Play, internally.[419]

2. CONDUCT AND FENCING-IN

As the last section indicates, the presumptive remedy for any conduct held unlawful—like an exclusive contractual provision—should be a narrow injunction against that same conduct, tailored to avoid destroying proven efficiencies.[420] Again, this prescription assumes the DOJ has proven not only the anticompetitive conduct, but also the element of causation by the appropriate burden of proof. As the district court observed on remand in *Microsoft*, "[i]n effect, the appellate court appears to have identified a proportionality between the severity of the remedy and the strength of the evidence of the causal connection."[421] *Microsoft* also teaches that, in some instances, no remedy may be appropriate, even if the court has held conduct unlawful. If, for example, the conduct has terminated and is unlikely to be repeated, the costs of imposing and supervising a remedy may not be justified.

Finally, *Microsoft* permitted a remedy against some conduct that the court never found unlawful, on the theory that the intervention would be necessary to prevent extension of similar conduct to a new domain, internet servers.[422] But that experience was one that *Google*

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success. The consequent lack of commercially significant Android forks means apps developers cannot port their apps to any significant Android forks. App developers are also dependent on Google Play Services, which exposes APIs they consider essential. And, to install their apps on Android phones with Google's version of its OS, they must designate Google search as the default search engine on all their access points.

418 For a list of all acquisitions by Google, *see Acquisitions by Google*, *supra* note 415.

419 Amended Complaint, *supra* note 27, ¶ 73, at 24.

420 *See* discussion *supra* Section IV.B.

421 United State v. Microsoft Corp., 231 F. Supp. 2d 144, 164 (D.D.C. 2002).

422 *See id.* at 190–92.

should not lightly imitate. Fencing-in remedies, like structural remedies, are only connected to proven anticompetitive conduct by analogy. A proposed remedy may appear to be a reasonable extension of the more conduct-related remedies yet rest on an inaccurate estimate of the benefits and, especially, the costs of any regulatory decree. Based on the experience with the protocol licensing program, any proposed fencing-in remedy should respond to recognized market need, and have a means of continuing evaluation of effectiveness, and a reasonable termination date.

CONCLUSION

The pleadings and the motion for summary judgment in *United States v. Google*, now before the District Court for the District of Columbia, raise issues reminiscent of those the same district court and the D.C. Circuit faced over 20 years ago in *United States v. Microsoft*. These include difficult issues of market definition in platform markets, distinguishing exclusionary conduct from "vigorous competition," causation in markets dominated by network effects, and—should Google be found liable—choices among remedies. The experience in *Microsoft*, down to its fine details of fact and law, and extending into its lengthy remedies phase, should provide useful guidance for the courts and litigants in *Google*.