

No. 24-3576

**In the United States Court of Appeals
for the Ninth Circuit**

RICHARD GIBSON, et al.,

Plaintiffs-Appellants,

v.

CENDYN GROUP, LLC, et al.,

Defendants-Appellees.

On Appeal from the
United States District Court for the District of Nevada
No. 2:23-cv-00140 (Hon. Miranda M. Du)

**BRIEF FOR THE UNITED STATES AS AMICUS CURIAE IN
SUPPORT OF PLAINTIFFS-APPELLANTS**

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INTEREST OF THE UNITED STATES

The United States enforces Section 1 of the Sherman Act, 15 U.S.C. § 1, and has a strong interest in its correct application. The joint use of pricing algorithms by competitors presents new dangers to the free market and, in some circumstances, violates Section 1.

Pricing algorithms can process more information more rapidly than humans aided by prior communications technologies. For this reason, such algorithms can increase the means and opportunities for collusion among competitors. The judicial application of Section 1 to claims of algorithmic price fixing is therefore of significant importance. Because this case is the first of its kind to reach a U.S. Court of Appeals, it will establish precedent that will affect similar cases going forward.

The United States has criminally prosecuted e-commerce sellers who conspired to adopt specific pricing algorithms. *See* Plea Agreement, *United States v. Topkins*, No. 3:15-cr-00201 (N.D. Cal. Apr. 30, 2015), <https://www.justice.gov/atr/case-document/file/628891/dl>. It also has brought civil claims challenging a conspiracy among landlords and a software company, RealPage, to share competitively sensitive

information through joint use of RealPage's pricing software; and associated vertical agreements between landlords and RealPage to align prices in rental housing markets. *See* Complaint, *United States v. RealPage, Inc.*, No. 1:24-cv-00710 (M.D.N.C. Aug. 23, 2024).

The United States has filed multiple statements of interest addressing the proper legal framework for algorithmic price-fixing claims. *See, e.g.*, Statement of Interest of the United States and Memorandum of Law in Support, *In re RealPage, Inc., Rental Software Antitrust Litig. (No. II)*, 709 F. Supp. 3d 478 (M.D. Tenn. 2023) (No. 3:23-md-3071); Statement of Interest of the United States, *Duffy v. Yardi Sys., Inc.*, No. 2:23-cv-1391 (W.D. Wash. Mar. 1, 2024); Statement of Interest of the United States, *Cornish-Adebiyi v. Caesar's Ent., Inc.* No. 1:23-cv-2536 (D.N.J. Mar. 28, 2024). It files this amicus brief under Federal Rule of Appellate Procedure 29(a).

QUESTIONS PRESENTED

The plaintiffs allege that hotels in Las Vegas followed a common plan to use the same computer algorithm in setting room prices. The questions presented are:

1. Whether a vertical agreement can be a “restraint of trade” if it does not eliminate pricing discretion.
2. Whether a horizontal conspiracy regarding starting-point prices can be plausibly pleaded if conspirators may deviate from the starting points in determining final prices.

STATEMENT

Millions of Americans rent hotel rooms each year. Whether for a family on vacation, a sports team on the road, or an employee on a work trip, hotel service is vital to our modern way of life. But a lack of competition among hotel operators can result in higher prices, depriving Americans of access to affordable hotel service. This case is a class action by hotel customers against various hotels on the Las Vegas strip¹ and a software company, Cendyn Group, LLC (“Cendyn”), alleging that the hotels’ agreements to use Cendyn’s pricing algorithms raised hotel-room prices in violation of Section 1 of the Sherman Act. 5-ER-684, -695-97.

1. Plaintiffs pleaded two Section 1 violations: (1) a per se illegal hub-and-spoke conspiracy among Cendyn and the hotels “to use pricing algorithms provided by [Cendyn],” 5-ER-895; and (2) a set of vertical agreements between Cendyn and the hotels to use Cendyn’s pricing algorithms, “result[ing] in anticompetitive effects in the form of

¹ Defendants’ hotels include Caesars Palace, Treasure Island, Wynn Las Vegas, The Cosmopolitan, Virgin Hotels, and others. 5-ER-695-97. The facts in this Statement are drawn from the factual allegations in the amended complaint, which are accepted as true on a motion to dismiss. *Skilstaf, Inc. v. CVS Caremark Corp.*, 669 F.3d 1005, 1014 (9th Cir. 2012).

artificially inflated prices . . . of hotel rooms in the Las Vegas Strip market,” 5-ER-897.

Cendyn sells two revenue-management tools, “GuestRev” and “GroupRev.”² GuestRev “is an algorithm specifically tailored for the casino hotel market” that “provides room-specific pricing recommendations on a daily basis.” 5-ER-715. GroupRev is an analogous tool for group bookings. 5-ER-749-51.

While hotels on the Vegas strip previously focused on maximizing occupancy (*i.e.*, output), in part to drive traffic to casinos, 5-ER-685, Cendyn’s new tools allegedly help hotels maximize revenue by charging higher room prices instead of competing on price to fill rooms, 5-ER-700-04. This shift to “revenue management discipline” has been a “core” part of Cendyn’s “pitch[] to clients.” 5-ER-702-07, -710. Indeed, Cendyn is alleged to “specifically promote[] collective adherence to the platform’s pricing recommendations and ‘discipline’ in revenue management” at industry conferences and other events. 5-ER-693.

And Cendyn has publicly stated that it brought “revenue management

² GuestRev and GroupRev were previously marketed by Rainmaker Group Unlimited, Inc. (“Rainmaker”). 5-ER-695. Cendyn acquired Rainmaker in 2019. 5-ER-685. For simplicity, this brief uses “Cendyn” throughout.

discipline to hoteliers” in emphasizing the shift away from occupancy. 5-ER-710.

Each hotel defendant uses GuestRev or GroupRev. 5-ER-763-85. Plaintiffs allege that the tools’ interfaces are designed to make it easy to implement Cendyn’s prices—as Cendyn itself put it, “with little need for human judgment.” 5-ER-723-24; *see* 5-ER-720-23. The software can “automatically upload recommended rates.” 5-ER-725. For example, hotels can upload Cendyn’s prices all at once directly to their property management system, 5-ER-726-28, or even put pricing decisions on “autopilot,” 5-ER-740-41, making Cendyn’s prices the default prices for rooms. Cendyn “has repeatedly touted on its website and in marketing materials that GuestRev’s pricing recommendations are accepted 90% of the time.” 5-ER-687. And Cendyn employees work to persuade users “not to override” its prices. *Ibid.*

GuestRev has included a feature called “RevCaster,” which—like its successor, OTA Insight’s “Rate Insight” tool—“automatically incorporate[s] competitor pricing data into GuestRev’s pricing recommendations.” 5-ER-714; *see* 5-ER-753-63. Plaintiffs allege that, while RevCaster initially “collected competitor pricing information” only

from “publicly available sources,” 5-ER-688, today “each casino-hotel client provides its current, non-public room pricing and occupancy data to the platform on a continuous basis,” 5-ER-829, and the platform uses “machine learning that continually trains itself on the data collectively provided by the hotel operators,” 5-ER-830. Ultimately, the algorithm “uses this information to generate ‘optimal’ room rates.” *Ibid.*

In support of plaintiffs’ per se claim, they further allege parallel conduct and “plus factors” as circumstantial evidence of a tacit agreement among hotel operators “to use pricing algorithms provided by [Cendyn].” 5-ER-895. The parallel conduct consists of hotel defendants’ “parallel, simultaneous usage of [Cendyn’s] products” and “parallel pricing patterns.” 5-ER-822, -824. The plus factors consist of alleged motives to conspire, 5-ER-825-28; market structure conducive to coordination, 5-ER-828-29; use of competitively sensitive information, 5-ER-829-36; action against individual self-interest, 5-ER-836-37; and opportunities to collude, including Cendyn-sponsored meetings, 5-ER-838-85.

Finally, plaintiffs allege that the challenged agreements artificially raised the prices of hotel rooms on the Las Vegas strip.

5-ER-690-91, -810-16. When Cendyn integrated RevCaster into GuestRev, prices increased for rooms on the strip compared with rooms elsewhere in Las Vegas. 5-ER-810-11. And Las Vegas strip hotels using Cendyn’s products had faster price growth than The Venetian, which uses a different software. 5-ER-811-12.

2. The U.S. District Court for the District of Nevada dismissed the complaint for failure to state a claim. The court held that “Plaintiffs have not plausibly alleged a tacit agreement between Defendants or a restraint on trade in part because Hotel Defendants are not required to and often do not accept the pricing recommendations generated by Cendyn’s products.” 1-ER-3.

a. The district court first addressed plaintiffs’ claim of an unlawful hub-and-spoke conspiracy between Cendyn (the hub) and the hotel defendants (the spokes). 1-ER-4-17. The court concluded that plaintiffs had not adequately alleged an agreement among the hotels, for three reasons:

First, the district court thought the timing of when the hotels began to use Cendyn’s products—at different points over a 10-year period—made “a tacit agreement among them implausible.” 1-ER-6.

The court acknowledged that simultaneity is not required under *Interstate Circuit v. United States*, 306 U.S. 208, 227 (1930), and *United States v. Masonite Corp.*, 316 U.S. 265, 275 (1942), but distinguished those cases on the basis that, there, “competitors all agreed to charge the same prices.” 1-ER-7. Here, “Plaintiffs do not allege that all Defendants agreed to be bound by GuestRev or GroupRev’s pricing recommendations, much less that they all agreed to charge the same prices.” *Ibid.*

Second, the district court cited plaintiffs’ failure to allege that the hotels exchanged any non-public information with each other by using Cendyn’s products. 1-ER-10. While Cendyn’s machine-learning models might have trained on confidential data provided by each hotel,³ the court noted that these data were not shared with other hotels. 1-ER-11-12. Plaintiffs argued that direct information exchange was unnecessary for concerted action because the hotels effectively delegated pricing decisions to Cendyn. 1-ER-13. But the court held that delegation had

³ The district court believed plaintiffs did not directly allege that Cendyn’s machine-learning models combine confidential or proprietary information, and thus distinguished this case from another private action that involved allegations of a “melting pot of confidential competitor information,” 1-ER-12 (quoting *RealPage*, 709 F. Supp. 3d at 512).

not occurred because, again, the hotels never “agreed to be bound by GuestRev or GroupRev’s pricing recommendations.” *Ibid.*

Third, “Plaintiffs do not allege that Hotel Defendants are required to accept the pricing recommendations provided by GuestRev or GroupRev.” 1-ER-15. “This matters,” said the district court, “because an agreement to accept pricing recommendations from GuestRev or GroupRev could more plausibly give rise to an inference of an agreement between Hotel Defendants.” *Ibid.* “If they all agreed to outsource their pricing decisions to a third party, and all agreed to price according to the recommendations provided by that third party, it would be plausible to infer the existence of a collusive agreement to fix prices.” *Ibid.*

b. The district court next addressed plaintiffs’ separate claim of an unlawful set of vertical agreements between Cendyn and the hotels. 1-ER-17-18. At first, the court indicated this claim should be analyzed under the rule of reason. *Ibid.* The court said plaintiffs’ “initial burden” was to show “that the challenged restraint has a substantial anticompetitive effect that harms consumers in the relevant market.” 1-ER-17 (quoting *Ohio v. Am. Express Co.*, 585 U.S. 529, 541 (2018)).

The court also acknowledged plaintiffs' factual allegations that the hotel defendants' joint use of Cendyn's products raised prices in the relevant market. 1-ER-18.

But instead of assessing whether the complaint plausibly alleged that the vertical agreements had an anticompetitive effect, the district court then reasoned: "Plaintiffs do not allege that Hotel Defendants are required to accept the prices that GuestRev and GroupRev (the products offered by the other side of the challenged vertical agreements, Cendyn) recommend to them." 1-ER-18. This must mean, the court continued, that the hotels "have not agreed to restrain their ability to price their hotel rooms in any way." *Ibid.* And, the court believed, "[i]t accordingly cannot be that the vertical agreements between Cendyn and Hotel Defendants to license GuestRev and GroupRev restrain trade." *Ibid.*

ARGUMENT

When Congress enacted the Sherman Act in 1890, a typical “contract, combination . . . or conspiracy in restraint of trade,” 15 U.S.C. § 1, might have taken the form of a corporate trust, or perhaps an agreement to fix prices that occurred in a smoke-filled room and concluded with a handshake. Over time, however, the means available to competitors to restrict competition evolved. In-person meetings gave way to telephone calls, faxes, emails, and online chats.

Pricing algorithms⁴ are but the latest tool in this long series of technological changes. Modern algorithms can process far more information than humans can—and at much greater speed. Businesses today deploy algorithms in a range of settings to automate decisions, from how to vary pricing over the course of a day to determinations of who gets access to credit. When competitors use the same algorithms to guide decisions of competitive significance, their doing so can raise antitrust concerns. Specifically, this technology has the potential to

⁴ This brief uses the term “pricing algorithm” to refer broadly to computerized pricing tools, revenue management software, and similar technologies—whether obtained commercially, as here, or developed by the conspirators themselves, as in *Topkins*. See Information at ¶ 8(d), *Topkins*, No. 3:15-cr-00201 (N.D. Cal. Apr. 6, 2015), <https://www.justice.gov/atr/case-document/file/513586/dl>.

allow competitors to coordinate more effectively, including through monitoring deviations from anticompetitive agreements and minimizing incentives to cheat on them. Rapidly evolving artificial intelligence (AI) tools could likewise threaten the “independen[ce] . . . of economic control that competition assumes.” *Am. Needle, Inc. v. NFL*, 560 U.S. 183, 188 (2010).

The existing antitrust laws address these threats. The Sherman Act “embraces all forms of combination, *old and new*.” *United States v. Union Pac. R. Co.*, 226 U.S. 61, 85-86 (1912) (emphasis added). And because the precise “machinery employed by a combination for price-fixing is immaterial,” *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 223 (1940), the per se rule applies to horizontal price-fixing arrangements involving pricing algorithms. For anticompetitive threats that fall outside the per se rule, the rule of reason requires “a careful examination of market realities.” *NCAA v. Alston*, 594 U.S. 69, 93 (2021). Section 1 thus accounts for technological change in the methods used to harm competition.

Yet the district court here rejected plaintiffs' claims at the pleading stage in part based on an incorrect view of the law.⁵ In dismissing plaintiffs' second cause of action challenging the set of agreements between Cendyn and each hotel, the court held that the agreements could not be "in restraint of trade" because Cendyn's prices were mere starting points. 1-ER-18. That holding contravenes settled antitrust principles, *infra* pp. 29-33, and, if affirmed, could stymie meritorious antitrust claims involving pricing algorithms by taking well-established legal theories off the table.

The district court's reasoning dismissing plaintiffs' first cause of action challenging an alleged agreement among the hotels is more ambiguous but, to the extent it also turns on a lack of commitment to final prices, likewise rests on legal error. Although the district court identified several reasons for finding such an agreement implausible, the court mentioned numerous times that the hotels were not required

⁵ Although this brief focuses on other legal issues, the appropriate application of pleading standards at the motion-to-dismiss stage, including around reasonable inferences from plaintiffs' allegations, *see Skilstaf*, 669 F.3d at 1014, is particularly important in situations like this. Much of the relevant information about how a pricing algorithm works (*e.g.*, how it combines and uses competitively sensitive information and how and the degree to which users adhere to its prices) will be in defendants' possession and unavailable prior to discovery.

to follow Cendyn’s prices. That condition is not necessary for illegality, as an agreement among competitors to use certain pricing algorithms to generate default or starting-point prices is per se illegal even if there is no further agreement on final prices.

I. Concerted Action To Use Pricing Algorithms Can Violate Section 1 of the Sherman Act.

Section 1 of the Sherman Act forbids “[e]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade.” 15 U.S.C. § 1. This language comprises two primary elements: (1) “a contract, combination, or conspiracy”—*i.e.*, “concerted action”— (2) that “unreasonably restrains trade.” *Am. Needle*, 560 U.S. at 186.

Concerted action is conduct that “joins together separate decisionmakers” and thus “deprives the marketplace of independent centers of decisionmaking.” *Id.* at 195 (internal quotation marks omitted). Such joint action can take a variety of forms, from a written contract, to a trust agreement, to a secret conspiracy, to the joint delegation of decisionmaking power to a common agent. *United States v. Trans-Missouri Freight Ass’n*, 166 U.S. 290, 292-97, 341 (1897); *Standard Oil Co. of New Jersey v. United States*, 221 U.S. 1, 70-76

(1911); *Am. Tobacco Co. v. United States*, 328 U.S. 781, 809-10 (1946); *Am. Needle*, 560 U.S. at 201.

Once concerted action is shown, the question becomes whether it unreasonably restrains trade. *Am. Express*, 585 U.S. at 540. As the Supreme Court has often explained, Section 1 of the Sherman Act uses the phrase, “restraint of trade,” as a legal term of art. *See, e.g., Standard Oil*, 221 U.S. at 50-51, 54-60; *Nat’l Soc’y of Pro. Eng’rs v. United States*, 435 U.S. 679, 687-92 (1978). “[I]n view of the common law and the law in this country when the Sherman Act was passed,” the term, “restraint of trade,” encompasses only “undue” or “*unreasonable*” restraints. *Am. Express*, 585 U.S. at 540 (internal quotation marks omitted). The test thus prescribed by Congress is “whether the challenged contracts or acts [are] unreasonably restrictive of competitive conditions.” *Pro. Eng’rs*, 435 U.S. at 690 (quoting *Standard Oil*, 221 U.S. at 58).

A restraint of trade may be unreasonable in one of two ways. *Am. Express*, 585 U.S. at 540. First, it may be unreasonable per se, without any further inquiry into its competitive effects, because of its inherently anticompetitive “nature and character.” *Standard Oil*, 221 U.S. at 64.

The paradigmatic per se unreasonable restraint is an agreement between competitors to fix prices. *Socony-Vacuum*, 310 U.S. at 218. Second, a restraint may be unreasonable under a standard known as the “rule of reason,” which entails a “fact-specific assessment” of the challenged conduct’s “effect on competition.” *Am. Express*, 585 U.S. at 541 (internal quotation marks omitted).

An agreement among competitors on any way in which they will compete is a “horizontal restraint.” *NCAA v. Bd. of Regents of Univ. of Oklahoma*, 468 U.S. 85, 99 (1984). A vertical restraint, by contrast, refers to when “firms at different levels of distribution” agree on matters over which they do not compete. *Bus. Elecs. Corp. v. Sharp Elecs. Corp.*, 485 U.S. 717, 730 (1988). Because horizontal restraints join together actual or potential competitors, they pose a heightened risk of harm to the competitive process and “are generally less defensible” than vertical restraints. *Arizona v. Maricopa Cnty. Med. Soc’y*, 457 U.S. 332, 346, 348 n.18 (1982). Typically, only horizontal restraints are per se unlawful; most vertical restraints are assessed under the rule of reason. *Am. Express*, 585 U.S. at 541.

A. *Concerted action can take different forms and be shown in multiple ways, including an invitation for collective action followed by conduct showing acceptance.*

1. The concerted-action inquiry is a “functional” analysis focused on “how the parties involved in the alleged anticompetitive conduct actually operate.” *Am. Needle*, 560 U.S. at 191. The “key” consideration is “whether the alleged contract, combination, or conspiracy . . . joins together separate decisionmakers” and thus “deprives the marketplace of independent centers of decisionmaking.” *Id.* at 195 (internal quotation marks and alterations omitted). Section 1’s strict treatment of “[c]oncerted activity” reflects Congress’s recognition that such “activity is fraught with anticompetitive risk”: it “not only reduces the diverse directions in which economic power is aimed but suddenly increases the economic power moving in one particular direction.” *Copperweld Corp. v. Indep. Tube Corp.*, 467 U.S. 752, 768-69 (1984).

Obvious forms of concerted action include contracts and trusts, but there are others. For instance, the Supreme Court has recognized that principals’ joint delegation of competitive decisions to a common agent can constitute concerted action among the principals. In *American Needle*, for example, the Court held that “decisions by [a joint

licensing agent] regarding the [NFL] teams’ separately owned intellectual property constitute concerted action” among the teams. 560 U.S. at 201; *see also Citizen Publ’g Co. v. United States*, 394 U.S. 131, 133-36 (1969) (finding per se unlawful concerted action in the delegation of pricing decisions to common entity).⁶

Even when courts look for “agreement” between separate parties, “no formal agreement is necessary” under Section 1. *Am. Tobacco*, 328 U.S. at 809. “[T]acit” agreements qualify. *Bell Atlantic Corp. v. Twombly*, 550 U.S. 544, 553 (2007). A tacit agreement is “one in which only the conspirators’ actions . . . indicate [its] existence.” *White v. R.M. Packer Co.*, 635 F.3d 571, 576 (1st Cir. 2011).⁷

⁶ The breadth of Section 1 rests in part on the fact that, by its terms, the provision covers “combination[s]” in addition to “contract[s]” and “conspirac[ies].” 15 U.S.C. § 1. The statutory term “combination” has been interpreted to cover actions in concert where the challenged conduct inherently involves cooperative behavior, such as when holding companies join together the operation of previously competing companies. *See United States v. Am. Tobacco Co.*, 221 U.S. 106, 187 (1911); *N. Sec. Co. v. United States*, 193 U.S. 197, 326-27 (1904). And a “combination” exists when there is an implied (or express) “understanding that the participants will jointly give up their trade freedom.” *E.R.R. Presidents Conf. v. Noerr Motor Freight, Inc.*, 365 U.S. 127, 136-37 (1961).

⁷ Concerted action includes “tacit agreement,” *Twombly*, 550 U.S. at 553, but not conscious parallelism (sometimes called “tacit collusion”), which refers to a particular type of interdependent action that may occur in an oligopolistic market, *see Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 227 (1993).

2. Just as concerted action can take a variety of forms, its existence can be established in a variety of ways. Concerted action may be shown directly, or it may be “infer[red]” from “circumstantial evidence.” *Twombly*, 550 U.S. at 553. While this Court has on occasion considered parallel conduct and so-called “plus factors” (*i.e.*, “economic actions and outcomes that are largely inconsistent with unilateral conduct but largely consistent with explicitly coordinated action”) as circumstantial evidence of concerted action, *In re Musical Instruments & Equip. Antitrust Litig.*, 798 F.3d 1186, 1193-98 (9th Cir. 2015),⁸ that is not the only way to infer the element.

In particular, concerted action may be inferred from evidence of an invitation for collective action followed by conduct showing acceptance. *Interstate Cir.*, 306 U.S. at 226-27; *PLS.com v. Nat’l Ass’n of Realtors*, 32 F.4th 824, 843 (9th Cir. 2022). In *Interstate Circuit*, for example, a manager of two movie theater companies sent identical letters to eight film distributors, with each letter naming all the distributors as

⁸ Examples of plus factors include: a common motive to conspire, action against self-interest, government investigation, and participation in trade association meetings. *E.g.*, *Musical Instruments*, 798 F.3d at 1194. Allegations of plus factors are considered individually and cumulatively. *Ibid.*

addressees and asking them to impose certain restrictions on secondary runs of films. The distributors responded by imposing the restrictions. Although the Supreme Court first inferred a horizontal agreement among the distributors based on considerations that today might be considered “plus factors,” the Court went on to clarify that “in the circumstances of this case such agreement . . . was not a prerequisite to an unlawful conspiracy.” 306 U.S. at 226.

Specifically, *Interstate Circuit* held: “It was enough that, knowing that concerted action was contemplated and invited, the distributors gave their adherence to the scheme and participated in it. Each distributor was advised that the others were asked to participate; each knew that cooperation was essential to successful operation of the plan. They knew that the plan, if carried out, would result in a restraint of commerce, . . . and knowing it, all participated in the plan.” *Id.* at 226-27. That is, the Supreme Court inferred concerted action among the distributors from the nature of the manager’s invitation (whether it “contemplated and invited” concerted action) and from the distributors’ conduct that demonstrated acceptance of the invitation. *Ibid.*; see also *United States v. Paramount Pictures, Inc.*, 334 U.S. 131, 142 (1948) (“It

is not necessary to find an express agreement in order to find a conspiracy. It is enough that a concert of action is contemplated and that the defendants conformed to the arrangement.”); *Am. Tobacco*, 328 U.S. at 810 (circumstances showing “a unity of purpose or a common design and understanding” among competitors).

3. These various methods of showing concerted action apply to the joint use of pricing algorithms. To start, there could be evidence of an express agreement, either among competitors—*e.g.*, Plea Agreement at ¶ 4(b), *Topkins*, No. 3:15-cr-00201 (agreement between competitors “to adopt specific pricing algorithms”)—or between an algorithm provider and a user—*e.g.*, 5-ER-763-85 (agreements between Cendyn and each hotel to use Cendyn’s products). Alternatively, an algorithm provider’s “pitch” could constitute an invitation for collective action among competitors—for example, by indicating to users that the same pitch was made to their competitors and that using the algorithm could help them avoid competition—and subsequent joint use of the algorithm could demonstrate acceptance of that invitation. *Interstate Cir.*, 306 U.S. at 226-27. Importantly, this does not require a showing of

simultaneous action or even action that is close in time. *Id.* at 227; *Masonite*, 316 U.S. at 268-69, 275.

B. Per se unlawful horizontal price fixing includes concerted action among competitors to use a common entity’s pricing algorithm to set default or starting-point prices.

1. A horizontal agreement to fix prices is the “archetypal” per se unreasonable restraint of trade. *Catalano, Inc. v. Target Sales, Inc.*, 446 U.S. 643, 647 (1980) (per curiam). “Any [such] combination which tampers with price structures’ . . . tends to provide the same economic rewards to all [market participants] regardless of their skill, their experience, their training, or their willingness to . . . innovat[e].” *Maricopa*, 457 U.S. at 346, 348 (quoting *Socony-Vacuum*, 310 U.S. at 221). This centralization of price setting undermines the competitive process. Under longstanding Supreme Court precedent, horizontal price-fixing arrangements are “all banned” whatever their form. *Socony-Vacuum*, 310 U.S. at 226 n.59.

“Price fixing” is not a singular concept limited to competitors’ agreeing to charge the same price. It is a robust legal category that encompasses a range of conduct designed to interfere with independent price setting. As this Court has observed, “[w]hen the term ‘fix prices’ is

used, that term is used in its larger sense.” *Plymouth Dealers’ Ass’n of N. Cal. v. United States*, 279 F.2d 128, 132 (9th Cir. 1960). “A combination or conspiracy formed for the purpose and with the effect of raising, depressing, fixing, pegging or stabilizing the price of a commodity in interstate commerce is unreasonable per se under the Sherman Act.” *Ibid.* For instance, courts have condemned price fixing that is accomplished via revenue sharing, *Palmer v. BRG of Ga., Inc.*, 498 U.S. 46, 49 (1980), or output restrictions, *Socony-Vacuum*, 310 U.S. at 223-24.

In particular—and especially important here—the per se prohibition on price fixing applies with full force to concerted action by competitors on any “formula underlying price policies.” *Socony-Vacuum*, 310 U.S. at 222, 226 n.59; *see also id.* at 223 (“an artificial stimulus applied to (or at times a brake on) market prices, a force which distorts those prices, a factor which prevents the determination of those prices by free competition alone”). That includes any formula used to fix benchmark, component, recommended, or “starting point” prices—even if end prices ultimately vary. *Plymouth*, 279 F.2d at 132 (list prices); *see also, e.g., Catalano*, 446 U.S. at 648 (discounts); *Maricopa*,

457 U.S. at 339 (maximum fee schedules); *Gelboim v. Bank of Am. Corp.*, 823 F.3d 759, 765, 771 (2d Cir. 2016) (“benchmark” or “component” used in contracts setting interest rates).

Moreover, black-letter antitrust law prohibits horizontal price-fixing agreements without regard to whether the agreement is carried out at all. The agreement *itself* is the violation. *Socony-Vacuum*, 310 U.S. at 222; *id.* at 225 n.59; *Plymouth*, 279 F.2d at 132 (“[I]t is ‘immaterial whether the agreements were ever actually carried out, whether the purpose of the conspiracy was accomplished in whole or in part, or whether an effort was made to carry the object of the conspiracy into effect.’” (quoting *United States v. Trenton Potteries*, 273 U.S. 392, 402 (1927))); *In re Flat Glass Antitrust Litig.*, 385 F.3d 350, 362-63 (3d Cir. 2004) (similar).

2. Under these principles, competitors’ agreement on a non-binding price is still per se unlawful, as this Court held in *Plymouth*. There, a group of car dealers had agreed on a “fixed uniform list price” for Plymouth cars. 279 F.2d at 130. On appeal, the defendant argued that this agreement could not violate Section 1 unless there was “proof of something more—that [the agreement] was *adhered* to; that it was

utilized to fix prices; or that it did actually fix prices.” *Ibid.* (emphasis added). This Court rejected that argument. It held: “the fact that the dealers used the fixed uniform list price in most instances only as a starting point, is of no consequence.” *Id.* at 132. As the Court reasoned, the agreement “prevent[ed] the determination of [market] prices by free competition alone.” *Id.* at 134 (quoting *Socony-Vacuum*, 310 U.S. at 223).

Other courts of appeals have reached the same conclusion. In *In re High Fructose Corn Syrup Antitrust Litigation*, the Seventh Circuit rejected the argument that there could be no horizontal price-fixing conspiracy if “many of the actual sales” occurred below fixed list prices. 295 F.3d 651, 656 (7th Cir. 2002). Because the defendants agreed to fix “the starting point for the bargaining,” the court explained, their agreement was “a per se violation of the Sherman Act even if *most or for that matter all* transactions occur at lower prices.” *Ibid.* (emphasis added). Similarly, in *Gelboim*, the Second Circuit held that a horizontal conspiracy to fix LIBOR rates (a “component or benchmark” rate used to price other financial instruments) was subject to the per se rule even though “LIBOR is not itself a price” paid by anyone. 823 F.3d at 765,

771. The fact that “none of the appellants’ financial instruments paid interest *at* LIBOR” was “immaterial” because well-established antitrust precedent “allows an antitrust claim based on the influence that a conspiracy exerts on the *starting point* for prices.” *Id.* at 771, 776 (second emphasis added).

Hence, there can be no doubt that if competitors gathered in secret and agreed to use similar algorithms to generate pricing recommendations, they would thereby violate the per se rule against horizontal price fixing. An algorithm is just a “formula[.]” *Socony-Vacuum*, 310 U.S. at 222. And a pricing recommendation is just a “starting point for prices.” *Gelboim*, 823 F.3d at 776. The same logic must apply when concerted action is shown in some other way. As long as a horizontal “contract, combination . . . or conspiracy” is present, 15 U.S.C. § 1, then if the object of that concerted action is to use an algorithm (*i.e.*, formula) for recommended (*i.e.*, starting-point) prices, it is per se illegal.

C. Vertical agreements involving pricing algorithms can be unlawful under the rule of reason.

The rule of reason applies to “nearly every” challenge to vertical agreements, *Am. Express*, 585 U.S. at 541, including vertical

agreements to use pricing algorithms. Where there exists a vertical contract for the sale of the algorithm, the concerted-action element is satisfied. *See Epic Games, Inc. v. Apple, Inc.*, 67 F.4th 946, 982 (9th Cir. 2023).

Under the rule of reason, the “true test of legality” is one of “reasonable[ness]”: “whether the restraint imposed is such as merely regulates and perhaps thereby promotes competition or whether it is such as may suppress or even destroy competition.” *Bd. of Trade of Chicago v. United States*, 246 U.S. 231, 238-39 (1918); *see Alston*, 594 U.S. at 81. Courts frequently use a burden-shifting framework to determine whether a challenged restraint violates the rule of reason. *E.g., Epic Games*, 67 F.4th at 983-94. But the rule of reason is flexible, and it entails an “enquiry meet for the case.” *Cal. Dental Ass’n v. FTC*, 526 U.S. 756, 781 (1999). In some cases, “no elaborate industry analysis is required to demonstrate” a restraint’s “anticompetitive character” under the rule of reason because “an observer with even a rudimentary understanding of economics could conclude that the

arrangements in question would have an anticompetitive effect.” *Id.* at 770.⁹

At the pleading stage, the plaintiffs’ burden is merely to allege enough facts to support a *prima facie* case. Under the rule of reason, this means allegations sufficient plausibly to infer injury to competition resulting from the challenged contracts, combination, or conspiracy.

Les Shockley Racing, Inc. v. Nat’l Hot Rod Ass’n, 884 F.2d 504, 507-08 (9th Cir. 1989).

II. The District Court Made At Least One Legal Error.

A. *The district court misconstrued the statutory phrase, “in restraint of trade,” by reducing it to whether the challenged agreements eliminated all pricing discretion.*

In holding that plaintiffs failed to state a Section 1 claim based on Cendyn’s vertical agreements with the hotels, the district court reasoned that, because the hotels were not “required to accept the prices

⁹ As with vertical agreements on price, the sharing of competitively sensitive information may be condemned under the rule of reason. *Todd v. Exxon Corp.*, 275 F.3d 191, 199 (2d Cir. 2001) (Sotomayor, J.); *see In re Petroleum Prods. Antitrust Litig.*, 906 F.2d 432, 446-48 (9th Cir. 1990) (agreement “to create market conditions” conducive to tacit coordination permits Section 1 claim even if coordination itself is lawful). Where information sharing supports an inference of horizontal price fixing, however, the per se rule applies. *Am. Column & Lumber Co. v. United States*, 257 U.S. 377, 411-12 (1921); *Flat Glass*, 385 F.3d at 369.

that [Cendyn’s products] recommend to them,” they “have not agreed to restrain their ability to price their hotel rooms in any way,” and so it “cannot be that the vertical agreements . . . restrain trade.” 1-ER-18.

This was error.

There is no dispute that the alleged vertical agreements between Cendyn and the hotels satisfy the concerted-action element of Section 1. *See, e.g., Epic Games*, 67 F.4th at 982. And plaintiffs conceded that the per se rule does not apply to their vertical claim. 5-ER-897. The question, then, is whether the challenged vertical agreements unreasonably restrict competition. *Pro. Eng’rs*, 435 U.S. at 690 (citing *Standard Oil*, 221 U.S. at 58); *supra* pp. 16-17, 28-29. Or, at this juncture, whether the complaint plausibly alleges as much.

Although the district court at one point recited the proper standard, *see* 1-ER-17, it failed to conduct the inquiry the law requires. The court should have analyzed the complaint to determine whether it adequately alleged an “anticompetitive effect,” *Alston*, 594 U.S. at 81 (quoting *Am. Express*, 585 U.S. at 541), or other injury to the competitive process, *see Am. Express*, 585 U.S. at 547 (“otherwise stifle[] competition”); *Les Shockley*, 884 F.2d at 507-08 (“injury to

competition”). The court instead attempted to apply the rule of reason by considering only the terms of the alleged agreements, rather than the agreements’ practical impact on competitive conditions—contrary to more than a century of caselaw, from *Standard Oil*, 221 U.S. at 58-60 (1911) (looking to “surrounding circumstances”), to *Alston*, 594 U.S. at 81 (2021) (a “fact-specific assessment”). *See also, e.g., Am. Express*, 585 U.S. at 542 (recognizing that the under the rule of reason, the first step is “to decide whether the plaintiffs have carried their initial burden of proving that [the challenged agreements] have an anticompetitive effect”).¹⁰

Plymouth forecloses the district court’s conclusion that non-binding prices cannot be “in restraint of trade.” *See* 279 F.2d at 132-34. The Plymouth car dealers were not required to accept the agreed-upon list price, which was “used . . . only as a starting point.” *Id.* at 132. In fact, the dealers deviated from the list price “in most instances.” *Ibid.* Nevertheless, their agreement unreasonably restrained trade because it “prevent[ed] the determination of [market] prices by free competition

¹⁰ Even under the district court’s flawed approach, the court overlooked that “[e]very” contract “concerning trade . . . restrains. To bind, to restrain, is of their very essence.” *Bd. of Trade of Chicago*, 246 U.S. at 238.

alone.” *Id.* at 134 (quoting *Socony-Vacuum*, 310 U.S. at 223); *see also* *Corn Syrup*, 295 F.3d at 654, 656 (acknowledging that concerted action to set starting-point prices may be “in restraint of trade” “even if *most or for that matter all* transactions occur at lower prices” (emphasis added)). This Court therefore rejected the argument that “the lack of adherence” to agreed-upon prices is dispositive of a Section 1 claim. *Plymouth*, 279 F.2d at 133.¹¹

The district court’s error could have significant consequences in today’s economy. Competitors’ joint use of pricing algorithms can have anticompetitive effects even where the algorithms’ prices are not binding. Such prices create a baseline for competitive decisions, and they can distort the competitive process by maximizing price increases, minimizing price decreases, aligning prices among competitors, creating price floors, discouraging discounts, or increasing sellers’ pricing power.

¹¹ Although *Plymouth* was a per se case involving a horizontal agreement, that distinction is immaterial to this argument. The case involved an agreement that did not “require[]” the car dealers to “accept the prices . . . recommend[ed] to them” (and therefore, in the district court’s logic, did not “restrain” their pricing decisions). 1-ER-18. That did not stop this Court from finding concerted action that unreasonably restrained trade. *Plymouth*, 279 F.2d at 132-33.

See, e.g., Complaint at 40-55, *RealPage*, No. 1:24-cv-00710 (M.D.N.C. Aug. 23, 2024).

Indeed, Cendyn’s products go beyond simply “recommending” prices to hotels. As plaintiffs have alleged, GuestRev directly integrates with hotels’ property management systems, such that hotels can upload Cendyn’s prices “with ease,” 5-ER-686, or even set prices on “autopilot” without any further need for human review, 5-ER-740-71. Moreover, only users with specific permissions can override Cendyn’s default prices. 5-ER-737. And Cendyn “cautions” hotels against overriding the prices themselves, 5-ER-687. Consistent with these features, Cendyn touts that hotels use its starting-point prices as final prices “90% of the time,” 5-ER-716, indicating that they are sticky defaults, not mere recommendations.

B. The district court may have failed to consider facts supporting the plausibility of horizontal concerted action because the court perceived a meaningful legal distinction between an agreement on starting-point prices and an agreement on final prices.

The district court’s reasoning on the horizontal claim is somewhat unclear, but it could be interpreted to ignore facts supporting a finding of horizontal agreement solely because defendants were not “required to

accept” Cendyn’s default prices. 1-ER-15. On the one hand, the court may have taken all allegations, as made by plaintiffs in this complaint, into account and concluded that “lawful independent decision” was the only plausible interpretation of the facts pleaded. 1-ER-14 (brackets omitted); 1-ER-5 (“Plaintiffs have not plausibly alleged that the challenged conduct stems from a tacit agreement between Hotel Defendants.”). On the other hand, the court may have believed adherence to starting-point prices is necessary to make concerted action plausible—that would be error.

This ambiguity arises because, while the district court described three reasons for its conclusion that plaintiffs did not adequately allege horizontal concerted action, each reason invoked the fact that Cendyn’s prices were not binding—something the court noted at least 10 times. 1-ER-3, -7, -13-18. *First*, the court explained that the hotels began using Cendyn’s products at different points in time. Simultaneous adoption is not strictly necessary, the court acknowledged, but staggered adoption would have been more suggestive of agreement if the hotels had “agreed to be bound by GuestRev or GroupRev’s pricing recommendations.” 1-ER-7. *Second*, the court asserted that plaintiffs

failed to allege any exchange of confidential information. The court rejected plaintiffs' counterargument that such exchange was unnecessary as the hotels had delegated pricing decisions to Cendyn, reasoning that the hotels had not "agreed to be bound by GuestRev or GroupRev's pricing recommendations." 1-ER-13. *Third*, although "an agreement to accept pricing recommendations from GuestRev or GroupRev could more plausibly give rise to an inference of" a price-fixing agreement, plaintiffs did not allege that the hotel defendants were "required to accept the pricing recommendations." 1-ER-15.

Thus, the court might have repeated the error from its earlier dismissal of plaintiffs' unamended complaint, in which it described the lack of allegations that hotels "are required to accept the recommendations" as "a fatal deficiency" and held that "without an agreement to accept the elevated prices recommended by the algorithm, there is no agreement that could either support Plaintiffs' theory or *otherwise make out a Sherman Act violation.*" *Gibson v. MGM Resorts Int'l*, No. 2:23-cv-00140, 2023 WL 7025996, at *3 (D. Nev. Oct. 24, 2023) (emphasis added).

To the extent the district court’s decision turned on a distinction between starting-point prices and final prices, it was wrong. The per se rule also prohibits a horizontal agreement on default or starting-point prices, even if the competitors retain the freedom to depart from those prices. *Plymouth*, 279 F.2d at 132; *Corn Syrup*, 295 F.3d at 654, 656; *supra* pp. 23-27. And where the object of the alleged conspiracy is to jointly use certain algorithms to set starting-point prices, *see* 5-ER-895, the fact that the prices are only starting points does not prevent a finding of concerted action—but rather changes the nature of the concerted action alleged.

Moreover, several other allegations tend to support the plausibility of a horizontal conspiracy. For example, the complaint alleges that: (a) the software recommends an occupancy-limiting pricing strategy contrary to hotels’ individual interest, 5-ER-836-37; (b) Cendyn’s products go beyond simply “recommending” prices to hotels, *supra* p. 33 and (c) Cendyn combines non-public, competitively sensitive information to generate prices, 5-ER-692 (alleging that hotels provide “current, non-public room pricing and occupancy data” to Cendyn, which “then uses” this information “to generate room rates”).

See In re Domestic Airline Travel Antitrust Litig., 221 F. Supp. 3d 46, 62-63 (D.D.C. 2016) (refusing to dismiss a price-fixing claim because of allegations relating to airline executives’ “public statements about their own commitment to capacity discipline as well as the importance of maintaining the capacity discipline within the industry,” which represented “a deviation from past business practices”). While the United States does not take a position on the sufficiency of the complaint’s allegations of horizontal agreement, it notes that much of the information on how Cendyn’s algorithms work is in defendants’ hands. *Supra* note 5. Therefore, it is important that the court draws all reasonable inferences in plaintiffs’ favor at this stage, *Skilstaf*, 669 F.3d at 1014, and does not treat as determinative the optional nature of starting-point prices.

CONCLUSION

This Court should vacate the decision and remand for further consideration under the correct legal framework.

Respectfully submitted,

October 24, 2024

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