

GENERATIVE GAP FILLING

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Contract law polices a line between interpretation, the recovery of meaning a text already holds, and gap filling, the supply of terms the text lacks. The boundary rests on an unchecked premise: that courts need to fill gaps themselves because the document has run out of meaning.

We tested it. Borrowing a masking design from machine learning, we took real contracts, hid a term the parties had negotiated, and asked three kinds of readers to predict what we had removed: ordinary people, legally trained ones, and several large language models.

Human interpreters guessed right a bit more than half the time, doubling the rate of chance alone. Law students edged out lay readers, and practicing lawyers were mostly better still. Then came the machines. Given nothing but the rest of the contract, the models predicted the missing term nearly nine times in ten. Contracts, we conclude, are like radio signals: even when incomplete, enough of the message is carried elsewhere that the missing part can be reconstructed with the right receiver. These findings speak to a line that has long bedeviled contract theory. The hypothetical bargain, treated for a century as invisible and unruly, turns out to be statistically legible, and models can read it in the open. Courts can weigh these predictions in adversarial settings, and parties can discipline the practice by adopting “Choice of Model” clauses.

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Introduction	3
I. Gap Filling’s Empirical Gap	9
II. Some Experimental Evidence of Gap Filling	18
A. Ground Truth and Interpretation	18
B. Three Scenarios	22
1. Artist	22
2. Contingency Fee	25
3. Bottles	27
C. Measures and Methods	28
D. Results	31
E. Robustness Checks: Perturbed Contracts	37
F. Scaling Up: 119 Unseen Contracts	39
G. General Discussion of Results	43
III. The Practice and Perils of Generative Gap Filling	47
A. Generative Gap Filling Within Contract Litigation	48
B. Choice of Model Clauses & Equilibrium Drafting Effects	54
C. Generative Gap Filling in the Chambers	60
D. How Far Does This Go?	61
E. Gaps in Generative Gap Filling and the Limits of the Method	63
IV. Conclusion	68

INTRODUCTION

Contracts are bursting with meaning, imperfectly expressed.¹ The parties draft off of old templates which pull obscure boilerplate into unexpected modern contexts,² even as they over-engineer their deals so that they are robust to small errors.³ They pay their lawyers richly to include the right kind of legalese, seeking to ensure that their intended meaning will prevail in future disputes.⁴ Yet for all this effort, what they produce can still look importantly unfinished.⁵

When a contingency arrives that the agreement didn't address—an index vanishes,⁶ a music hall burns,⁷ a floating price has to be set⁸—judges will sometimes fill the contractual gap.⁹ Modern jurists have a

¹ Cf. *Wood v. Lucy, Lady Duff-Gordon*, 222 N.Y. 88, 118 N.E. 214 (1917) (arguing they are “instinct with an obligation...”)

² See, e.g., Stephen J. Choi, Mitu Gulati & Robert E. Scott, *The Black Hole Problem in Commercial Boilerplate*, 67 DUKE L.J. 1 (2017) (noting how rote use of standard forms can create interpretative problems).

³ See Cathy Hwang & Matthew Jennejohn, *Deal Structure*, 113 NW. U. L. REV. 279 (2018) (arguing that modern contract construction relies on modular designs and other overlapping techniques).

⁴ See generally Eric Martinez, Francis Mollica & Edward Gibson, *Poor Writing, Not Specialized Concepts, Drives Processing Difficulty in Legal Language*, 224 COGNITION 105070 (2022) (finding persistent and hard-to-read legalese in legal texts).

⁵ The classic treatments of the problem are Charles J. Goetz & Robert E. Scott, *The Mitigation Principle: Toward a General Theory of Contractual Obligation*, 69 Va. L. Rev. 967 (1983) [hereinafter *Mitigation*]; Charles J. Goetz & Robert E. Scott, *The Limits of Expanded Choice: An Analysis of the Interactions Between Express and Implied Contract Terms*, 73 Cal. L. Rev. 261 (1985) [hereinafter *Limits*]; Eyal Zamir, *The Inverted Hierarchy of Contract Interpretation and Supplementation*, 97 COLUM. L. REV. 1710, 1777–88 (1997); Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L.J. 87 (1989).

⁶ *Oglebay Norton Co. v. Armco, Inc.*, 52 Ohio St. 3d 232 (1990) (filling gap when key financial price list was no longer published).

⁷ *Taylor v. Caldwell*, 3 B. & S. 826, 122 Eng. Rep. 309 (Q.B. 1863) (supplying an unstated term that the music hall's continued existence was an implied condition of both parties' duties, and discharging the contract when fire destroyed the hall before performance).

⁸ *Sun Printing & Publ'g Ass'n v. Remington Paper & Power Co.*, 235 N.Y. 338 (1923)

⁹ See generally Alan Schwartz & Robert E. Scott, *Contract Theory and the Limits of Contract Law*, 113 YALE L.J. 541, 594–608 (2003) (describing the case for defaults to fill gaps and undermining it). We say *sometimes* because parties will sometimes want other actors to fill gaps—from arbitrators to seller-buyer committees to project managers. See generally Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Contracting for Innovation: Vertical Disintegration and Interfirm Collaboration*, 109 COLUM. L. REV. 431 (2009) (joint buyer-supplier governance committees and contractual referees); Lisa Bernstein & Brad Peterson, *Managerial Contracting: A Preliminary Study*, 14 J. LEGAL ANALYSIS 176 (2022) (deal managers).

name for this work. They call it *construction*, the supplying of terms the text lacks, to set it apart from *interpretation*, the humbler business of recovering meaning the text already holds.¹⁰ The line between them is supposed to mark something important: the place where judges stop reading and start deciding.¹¹ It is also where, the worry runs, a court unmoored from the page can write its own preferences into the deal and call them the parties'.¹²

The story rests on an implicit premise that a silent text can't and hasn't spoken to the parties' intent.¹³ Scholars have long assumed, but not proven, that when courts construe, they do so behind the veil.¹⁴

¹⁰ The gap filling literature is notable for its inconsistent terminology. We adopt the construction/interpretation line, a tradition that stretches back nearly two centuries. SEE FRANCIS LIEBER, *LEGAL AND POLITICAL HERMENEUTICS* 55–57, 62, 166 (Boston, Charles C. Little & James Brown 1839) (construction is where interpretation “ceases to avail”), cited in Gregory Klass, *Contracts, Constitutions, and Getting the Interpretation-Construction Distinction Right*, 18 GEO. J.L. & PUB. POL’Y 13, 19 & nn.14–18 (2020). Corbin’s version contrasts interpretation, determining meaning of symbols, and construction, determining legal effect including when parties had not considered the problem. 3 ARTHUR L. CORBIN, *CORBIN ON CONTRACTS* § 534, at 7–15 (1960). Larry Solum revived the distinction first in constitutional theory. See, e.g., Lawrence B. Solum, *The Interpretation-Construction Distinction*, 27 CONST. COMMENT. 95, 110 n.30 (2010). Greg Klass’s vision of the divide retains the idea that gap filling is emblematically an exercise of construction because there is no intent, but also points out that “interpretation of the parties’ intent never suffices to identify their legal obligations.” Klass, *supra*, at 18–20. See also William Baude & Stephen E. Sachs, *The Law of Interpretation*, 130 HARV. L. REV. 1079, 1128 (2017) (offering a slightly different general conception). We explore the semantic and doctrinal complexities further *infra* Part I.

¹¹ On the related problems of construction and interpretation in public law, see Lawrence B. Solum, *Originalism and Constitutional Construction*, 82 FORDHAM L. REV. 453 (2013) (identifying an irreducible zone of construction in constitutional law).

¹² The worry that an untethered court supplies its own preferences runs through the major positions. See generally David Charny, *Hypothetical Bargains: The Normative Structure of Contract Interpretation*, 89 MICH. L. REV. 1815 (1991); Schwartz & Scott, *supra* note 9; Edwin W. Patterson, *The Interpretation and Construction of Contracts*, 64 COLUM. L. REV. 833 (1964).

¹³ See, e.g., Schwartz & Scott, *supra* note 9, at 595 (“Courts in [incomplete contracts] cases no longer can simply engage in interpretation because, by definition, the contracts lack words to interpret. The courts’ task thus shifts to the development of rules to resolve gap cases.”); Joseph William Singer, *Legal Realism Now*, 76 CAL. L. REV. 465, 485 (1988) (reviewing LAURA KALMAN, *LEGAL REALISM AT YALE: 1927–1960* (1986)) (explaining that, according to the realists, “Gaps in contract language are common. Where gaps exist, courts must determine the rights of the parties with little or no guidance from the parties themselves.”).

¹⁴ For an argument suggesting that there is no fact-of-the-matter about parties’ intent when filling gaps in contracts, see Robert A. Hillman, *More Contract Lore*, 94 TUL. L. REV. 903, 910 (2020); see also Alan Schwartz & Robert E. Scott, *Obsolescence: The Intractable Production Problem in Contract Law*, 121 COLUM. L. REV. 1659, 1675 n.72 (2021) (“There is virtually no

That lack of proof is itself (unfortunately) a gap in the literature about gap-filling.¹⁵ If the premise is false, much of the worry about courts unbound dissolves.

So we tested it.

We borrow a design from the machine learning literature.¹⁶ Taking real, executed contracts, we *masked*—the technical term of art for redaction—a term the parties had negotiated, typically a contingency provision, of the sort that tells the court what to do if a stated event occurs. We gave the masked agreement, together with a realistic scenario that would trigger the missing clause, to three kinds of readers: ordinary people, legally trained ones (law students and practicing lawyers), and several large language models. Each was asked to predict the gap we created. We knew what the parties wrote; our readers did not. Either they recovered it or they did not.¹⁷

Before telling you what happened, we’d note that this masking design provides a good answer to one of the core challenges to the use of generative AI in law, and a way forward for the general problem of grading interpretative methods. This is the second half of a project we began in a paper called *Generative Interpretation*, where we argued that

evidence that courts, even those operating under the UCC’s invitation to broadly examine context, ever conduct serious empirical investigations, and hence there is little reason to imagine they could succeed if they did.”). For suggestions in the literature that we could recover meaning from existing contracts, see Ayres & Gertner, *supra* note 5, at 116 n.122 (“existing contracts provide evidence for what the parties would have done, so mimicking the market may be justified”). Cf. Omri Ben-Shahar & Lior Jacob Strahilevitz, *Interpreting Contracts via Surveys and Experiments*, 92 N.Y.U. L. REV. 1753 (2017) (reporting the results of three surveys about the meaning of consumer contracts).

¹⁵ For the canonical paper on law review’s trope of identifying and filling gaps, see Noah C. Chauvin, *Against Gap-Filling*, 2024 CARDOZO L. REV. DE NOVO 1 (arguing that gap-filling for its own sake is embarrassing).

¹⁶ See Jacob Devlin, Ming-Wei Chang, Kenton Lee & Kristina Toutanova, *BERT: Pre-Training of Deep Bidirectional Transformers for Language Understanding* (arXiv, Working Paper No. 1810.04805, 2019), <https://arxiv.org/abs/1810.04805> (introducing the masked-language-model pretraining objective); cf. Wilson L. Taylor, “Cloze Procedure”: A New Tool for Measuring Readability, 30 JOURNALISM Q. 415, 416 (1953) (anticipating the design by “mutilating [a message’s] language patterns by deleting parts” and scoring readers on their ability to restore the deletions). Early AI work used similar techniques to train models to parse contracts. See, e.g., Dan Hendrycks, Collin Burns, Anya Chen & Spencer Ball, *CUAD: An Expert-Annotated NLP Dataset for Legal Contract Review* (arXiv, Working Paper No. 2103.06268, 2021), <https://arxiv.org/abs/2103.06268>.

¹⁷ See *infra* Part II (corpus, populations, masking protocol, and scoring).

language models could help courts parse contract text.¹⁸ That argument drew many heated objections, one we half-conceded ourselves: we could show a model's reading was sensible, but not that it was correct, because in a real dispute there is no answer key.¹⁹ One carefully-argued response put it starkly: "no experiment can determine whether a generative method yields correct results, because there is no accessible source of ground truth for legal meaning."²⁰

Here, by redacting a term that was in fact negotiated, priced, drafted, and signed, we can manufacture a ground truth and, for the first time, grade interpretative predictions against it.²¹

In our masking experiment, humans were surprisingly good gap fillers. Lay subjects got the hidden clause right about half the time, twice as often as chance would predict. And legal experience honed readers' abilities.²² While law students barely edged out lay readers, seasoned lawyers predicted 59% of the missing terms. Then came the machines. Given nothing but the rest of the contract, the models were right 88% of the time. And differently trained models, variously prompted, kept returning the same answer.

We probed these results' robustness by masking over 100 other contracts of different types. Across subject matter areas, AI gap filling was persistently accurate. We also perturbed the original contracts of

¹⁸Yonathan Arbel & David A. Hoffman, *Generative Interpretation*, 99 N.Y.U. L. REV. 451 (2024).

¹⁹*See id.* at 460 ("in most contract cases there is no ground truth at hand"). The objection is pressed in James Grimmelmann, Benjamin Sobel & David Stein, *Generative Misinterpretation*, 63 HARV. J. ON LEGIS. 229, 252 (2026). *See also* Jonathan H. Choi, *Off-the-Shelf Large Language Models Are Unreliable Judges*, J. EMPIRICAL LEGAL STUD. (forthcoming 2027), <https://ssrn.com/abstract=5188865> (arguing that LLM judgments are "highly sensitive to prompt phrasing, output processing methods, and choice of model"); Brandon Waldon, Nathan Schneider, Ethan Wilcox, Amir Zeldes & Kevin Tobia, *Large Language Models for Legal Interpretation? Don't Take Their Word for It*, 114 GEO. L.J. (2026).

²⁰Grimmelmann *et al.*, *supra* note 19, at 304 n.321.

²¹We do not discuss gap filling in statutory interpretation, let alone specialized areas like patent and tax law, though those would be fertile areas for research.

²²This finding adds to a small literature empirically measuring how legal training works. *See, e.g.*, Dan M. Kahan, David A. Hoffman, Danieli Evans, Neal Devins, Eugene Lucci & Katherine Cheng, "Ideology" or "Situation Sense"? *An Experimental Investigation of Motivated Reasoning and Professional Judgment*, 164 U. PA. L. REV. 349 (2016) (lawyers were less subject to motivated reasoning reading legal texts than either lay people or law students); *but cf.* Holger Spamann & Lars Klöhn, *Justice Is Less Blind, and Less Legalistic, than We Thought: Evidence from an Experiment with Real Judges*, 45 J. LEGAL STUD. 255 (2016) (providing evidence counter to the *Situation Sense* result).

our first experiment, showing that when we changed individual terms in the deal, AI predictions about the masked term moved toward the distribution of resources the modified contractual language implied. We estimated in our sample that around two-thirds of AI success in gap filling rested on general expectations about contract structure, and one-third came from specific contract language.

All of this carries two lessons for interpretation.

First, the finding that readers of all stripes can recover so much from text, and so reliably, puts pressure on an empirical assumption that has long structured contract theory. Jurists routinely assume there is meaningful difference between what a text contains and what surrounding materials suggest was intended.²³ The dominant scholarly view is that most of the time, courts are gap filling without good evidence of party intent, and inject their policy preferences into broken deals. We challenge that premise. When sophisticated readers—and especially AI—can accurately predict specific contractual terms from the rest of the document, the supposed boundary between text and context becomes fuzzy.

That fuzziness is no accident. It reflects what a growing body of evidence has revealed: the terms the parties actually negotiate are not freestanding choices imposed on a blank slate.²⁴ Rather, on the margin, they follow from (and in some ways result from interactions among terms within) the document they sit within.²⁵ The invisible hypothetical bargain thus may often be *statistically legible*. This implies that with the help of AI agents, jurists can predict what parties would have said with less resort to free ranging inquiry, at least where the parties did not deliberately disagree.²⁶ If a term that the parties drafted

²³ Cf. Adam Kramer, *Implication in Fact as an Instance of Contractual Interpretation*, 63 CAMBRIDGE L.J. 384, 385 n.11 (2004) (noting the importance of whether “pragmatic inference” can fill gaps)

²⁴ Cf. Vincent S.J. Buccola & David A. Hoffman, *Precedent Terms*, U. CHI. L. REV. (forthcoming 2026) (noting the role of precedent in determining commercial terms).

²⁵ See Robert Anderson IV & Jeffrey Manns, *The Inefficient Evolution of Merger Agreements*, 85 GEO. WASH. L. REV. 57, 64–66 (2017) (showing that merger agreements can be traced into inherited “family tr[ees]”).

²⁶ See, e.g., Omri Ben-Shahar, “Agreeing to Disagree”: Filling Gaps in Deliberately Incomplete Contracts, 2004 WIS. L. REV. 389 (discussing the problem of strategic ambiguity).

is recoverable from the rest of the contract at ninety-plus percent accuracy, we argue that the same is probably true of many terms the parties did not draft but might have, for whatever reason.

Second, we provide direct evidence that AI can help legal decisionmakers reach the *right* results in a core contract interpretation task. And by *right* we really mean it. The standing critique of generative interpretation in all kinds of legal work is that its outputs cannot be validated as the criterion of correctness is itself contested—that what looks like accuracy may be an artifact of prompt construction, model selection, or projection by the user.²⁷ We cabin that worry by choosing a task where correctness is knowable. Either the model recovers the term the parties drafted or it does not. The frequency with which it does so is a fact about the model, not a fact about our priors.

That generative AI is so good at this task shouldn't necessarily knock your socks off. After all, the models aren't subject to cognitive exhaustion, boredom, or motivated thinking: they are willing to parse all the tokens in the contract we provided and pattern match them against a vast dataset of other contracts they saw during training. But knowing that the answers they come to are in fact correct is reassuring: judges and lawyers should get increasingly comfortable with this technology as a technique to debias their own over-confidence, extract information from deals and illustrate a range of possible outcomes.²⁸

²⁷ Grimmelmann *et al.*, *supra* note 19; *see also* James Toomey, *Zombies, AI, and the “Objective” Theory of Contracts*, HARV. J.L. & TECH. (forthcoming 2026) (arguing that agentic models cannot intend to conclude contracts, no more than a cloud that happens to spell out “if you build it he will come” intends to communicate a message about a baseball field in Iowa); Zachary Catanzaro, *The Dead Law Theory: The Perils of Simulated Interpretation*, FLA. L. REV. (forthcoming 2027), <https://ssrn.com/abstract=6164388> (contending that computational legal interpretation “fails because it is a category error,” since LLMs “manipulat[e] symbols without accessing what those symbols mean”).

²⁸ On the mounting judicial imperative to integrate AI into courthouses and chambers, *see* Yonathan A. Arbel, *Judicial Economy in the Age of AI*, 96 U. COLO. L. REV. 549 (2025). On explicit AI use in case production, *see* Snell v. United Specialty Ins. Co., 102 F.4th 1208, 1221 (11th Cir. 2024) (Newsom, J., concurring) (urging interpreters to consider “whether and how AI-powered large language models . . . might—might—inform the interpretive analysis”); *United States v. Deleon*, 116 F.4th 1260, 1277 (11th Cir. 2024) (Newsom, J., concurring) (concluding that “LLMs have something to contribute to the ordinary-meaning endeavor”). For a comparative perspective, *see* Juzgado Primero Laboral del Circuito de Cartagena [First Labor Circuit Court of Cartagena], Sentencia No. 032, Radicación No. 13001-41-05-004-2022-00459-01 (Jan. 30, 2023) (Colom.) (incorporating ChatGPT responses into a tutela

We argue that evidence produced by generative AI drawn from the text itself can be helpful, arguably no less than extrinsic evidence, in deciding how to fill gaps.

But how can jurists use AI without turning contract interpretation disputes into empty contests over whose model has more parameters and whose prompt won the race?²⁹ Our answer borrows from existing contract doctrine. Parties already choose their governing law and their forum; they can also stipulate a *choice-of-model* clause—naming, in the agreement, the system whose reading will be given weight.³⁰ Such a clause does two things at once. It folds the technology into the ordinary machinery of interpretation, and it answers the sharpest objection to it—that its output bends to whoever picks the model after the dispute arises—by fixing the model before the dispute exists.

The Article proceeds in three parts. Part I excavates the gap in the gap filling literature by unpacking the empirical assumptions underlying the divide between interpretation and construction. Part II then sets up our masking experiment and relays its results. Part III explains how jurists might go about using this method of filling gaps day-to-day, introduces choice of model clauses and describes how their use will change contract practice, and considers several objections.

I. GAP FILLING’S EMPIRICAL GAP

Contract law’s gap-filling literature is extraordinary in its scope, with dozens of major works in the last two generations.³¹ We necessarily will draw with a very broad brush in describing it. Even what counts as

ruling on health coverage); Jaswinder Singh v. State of Punjab, CRM-M-22496-2022, 2023:PHHC:044541 (Punjab & Haryana High Ct. Mar. 27, 2023) (India) (Chitkara, J.) (using ChatGPT on bail practice in a section titled “Post-Reasoning”). For survey evidence, see Anika Jaitley, Daniel W. Linna Jr., Hon. Xavier Rodriguez, V.S. Subrahmanian & Siyu Tao, *Artificial Intelligence in Federal Courts: A Random-Sample Survey of Judges*, 27 SEDONA CONF. J. (forthcoming 2026) (reporting that 61.6% of federal judges responding to a December 2025 survey had used at least one AI tool in their judicial work); Gregg Wirth, *2026 AI in Professional Services Report: AI Adoption Has Hit Critical Mass*, Thomson Reuters Inst. (Feb. 9, 2026), <https://www.thomsonreuters.com/en-us/posts/technology/ai-in-professional-services-report-2026/> (reporting, from a survey of more than 1,500 professionals across 27 countries, that organization-wide AI use nearly doubled to 40% in 2026 from 22% in 2025).

²⁹On output sensitivity to prompt phrasing and choice of model, see Choi, *supra* note 19.

³⁰We floated the possibility in *Generative Interpretation*, *supra* note 18, at 455 (parties “may start to include them in their choice-of-law repertoire”).

³¹For a sampling see *supra* notes 5,9,11,12, and 14.

a “gap” and the work of “construction” in filling it is endlessly contested.³² Consider that the parties may have not spoken about a contingency because they know the law will give them a default term³³—that’s not a “gap”, that’s efficient drafting!—or Richard Posner’s observation that ambiguity can always be redefined as a gap in expression.³⁴

Beneath the definitional churn, the doctrine’s ambition has been stable for a century. When a contract doesn’t speak with clarity to a particular problem, courts say they are trying to give the parties the deal they (hypothetically) intended.³⁵ In determining what that deal would have looked like, decisionmakers often resort to a welter of extrinsic evidence, text, and policy, trying to pick rules that maximize ends varying from transaction cost minimization to fairness.³⁶ The less meaning the text provides, the more rests on context and non-text.

Scholarship has organized itself for generations around doubt that courts can do this well. Beneath nearly every major position sits a shared empirical assumption: terms stated explicitly about a dispute express meaning, and in their absence, the rest of the document and its context are poor inferential sources about what they say.³⁷ Silence, on this view, is informationally thin. The worry runs that, unmoored from

³² Ayres and Gertner argue that identification of gaps is itself an interpretative question that sounds in the legal system’s altering rules, the rules that define how and when parties can contract around a gap. See Ayres & Gertner, *supra* note 5, at 119–21. See also Ian Ayres, *Regulating Opt-Out: An Economic Theory of Altering Rules*, 121 YALE L.J. 2032, 2044 (2012).

³³ See Randy E. Barnett, *The Sound of Silence: Default Rules and Contractual Consent*, 78 VA. L. REV. 821, 865–66 (1992) (arguing that “Silence in the face of default rules can constitute an ‘indirect’ consent to courts using these default rules to supply terms when a gap exists in the parties’ expression of consent.”).

³⁴ Richard A. Posner, *The Law and Economics of Contract Interpretation*, 83 TEX. L. REV. 1581, 1589 (2005).

³⁵ See, e.g., Goetz & Scott, *supra* note 5, at 971 (“Ideally, the preformulated rules supplied by the state should mimic the agreements contracting parties would reach were they costlessly to bargain out each detail of the transaction. Using this benchmark raises two separable issues: First, what arrangements would most bargainers prefer? And, second, what atypical arrangements should be supported as benign alternatives?”).

³⁶ See, e.g., Robert A. Hillman, *Health Crises and the Limited Role of Contract Law*, 85 LAW & CONTEMP. PROBS. 19, 26–27 (2022) (canvassing approaches).

³⁷ To be sure there are dissenters. See, e.g., Robin Bradley Kar & Margaret Jane Radin, *Pseudo-Contract and Shared Meaning Analysis*, 132 HARV. L. REV. 1135, 1148–55 (2019) (adapting Grice’s cooperative principle); see also Kramer, *supra* note 23.

the page, courts saying they are recovering meaning are in fact fishing their own wishes. David Charny articulated a version of this judges-gone-wild claim three decades ago. He argued that interpretive conventions like the hypothetical bargain should be evaluated for what they accomplish as conventions, not for their descriptive fidelity to party intent—fidelity being a lost cause.³⁸

This doubt produced a shared research program, which offered strategies for answering the question of what a court ought to do when a contract doesn't speak directly, without relying on intent recovered from context clues. The default-rules project reads majoritarian terms off what *typical* parties would want precisely because what these parties wanted is thought to be unrecoverable case by case.³⁹ Its most celebrated refinement—information-forcing penalty defaults that push the better-informed party to disclose—spurns intent.⁴⁰

Other scholars would supply trade usage, course of dealing, and good-faith standards drawn from the surrounding commercial context: importing content from the relationship because the writing is assumed to carry too little.⁴¹ And a vigorous and skeptical formalist camp argues that courts can't get gap filling right at any tolerable error rate, and so

³⁸ Charny, *supra* note 12, at 1820–35.

³⁹ See, e.g., Goetz & Scott, *supra* note 5, at 971.

⁴⁰ Ayres & Gertner, *Filling Gaps*, *supra* note 5, at 97–100; see also Ian Ayres & Robert Gertner, *Strategic Contractual Inefficiency and the Optimal Choice of Legal Rules*, 101 YALE L.J. 729 (1992) (refining penalty-default theory in response to critics); Eric A. Posner, *There Are No Penalty Default Rules in Contract Law*, 33 FLA. ST. U. L. REV. 563 (2006) (arguing that the canonical illustrations are not in fact penalty defaults); Ian Ayres, *Ya-Huh: There Are and Should Be Penalty Defaults*, 33 FLA. ST. U. L. REV. 589 (2006) (defending both the existence and the desirability of penalty defaults). For a criticism of penalty default theory based on its pernicious expressive content, see Tess Wilkinson-Ryan, David A. Hoffman & Emily Campbell, *Lessons in Contract*, GEO. L.J. (forthcoming 2026) (manuscript at 52–53).

⁴¹ See, e.g., Robert A. Hillman, *More Contract Lore*, 94 TUL. L. REV. 903, 912 (2020) (arguing that law reforms should avoid talking about party intent as a goal of gap filling but instead focus more frankly on social goals).

the law should opt for value- or policy-driven fillers,⁴² or refuse to fill at all.⁴³

What unites these positions is less obvious than what divides them. They do differ, sometimes sharply, over what counts as a gap and over the means of filling one. But they also share a premise about where the document gives out: so long as the contract supplies meaning, that meaning has gravity. When the document stops speaking, it is the judge's turn to opine. The judge is then licensed to import materials from outside the four corners: *e.g.*, inferences about what these parties or typical ones would want given their prior dealings or negotiations, penalties designed to make the next parties speak, the customs of the trade, the court's own sense of sound policy.⁴⁴

For our specific purposes, and without making a more general analytical claim, we will treat *interpretation* as recovering content the document supplies, and *construction* as importing it from the outside.⁴⁵

⁴² See Robert E. Scott, *The Case for Formalism in Relational Contract*, 94 NW. U. L. REV. 847, 848 (2000) (arguing that courts should “accept the limits imposed by legal formalism and interpret the facially unambiguous . . . terms of disputed contracts literally”); Omri Ben-Shahar, *The Tentative Case Against Flexibility in Commercial Law*, 66 U. CHI. L. REV. 781, 806–20 (1999) (arguing that because parties draft anti-erosion provisions in anticipation of flexible judicial gap-filling, the apparent welfare gains from such flexibility are largely illusory); *see generally* Robert E. Scott, *A Theory of Self-Enforcing Indefinite Agreements*, 103 COLUM. L. REV. 1641 (2003) (documenting the persistence of the indefiniteness doctrine and arguing that courts should decline to complete deliberately incomplete agreements); *Varney v. Ditmars*, 217 N.Y. 223, 111 N.E. 822 (1916) (holding a promise of a “fair share” of profits too indefinite to enforce, and refusing to supply the missing term); Alan Schwartz & Robert E. Scott, *The Common Law of Contract and the Default Rule Project*, 102 VA. L. REV. 1523, 1556–67 (2016); Lisa Bernstein, *Merchant Law in a Merchant Court: Rethinking the Code’s Search for Immanent Business Norms*, 144 U. PA. L. REV. 1765, 1796–1802 (1996) (arguing that some merchants prefer strict, formalist enforcement of the written contract once a dispute reaches adjudication, contrary to the UCC’s incorporation of trade usage, course of dealing, and good faith); *see also* Lisa Bernstein, *The Questionable Empirical Basis of Article 2’s Incorporation Strategy: A Preliminary Study*, 66 U. CHI. L. REV. 710, 751–60 (1999) (arguing that gap-filling based on “trade usage” rests on a false empirical premise about trade norms’ authenticity).

⁴³ *In re El Paso Pipeline Partners, L.P. Derivative Litig.*, No. CIV.A. 7141-VCL, 2014 WL 2768782, at *17–18 (Del. Ch. June 12, 2014) (cleaned up) (“Not all gaps should be filled.”).

⁴⁴ *See, e.g.*, CHARLES FRIED, *CONTRACT AS PROMISE: A THEORY OF CONTRACTUAL OBLIGATION* 69–73 (1981) (gaps cannot be filled by the contract).

⁴⁵ Patterson, *supra* note 12, at 835 (“Construction, which may . . . be usefully distinguished from interpretation, is a process by which legal consequences are made to follow from the terms of the contract and its more or less immediate context, and from a legal policy or policies that are applicable to the situation.”); Lawrence A. Cunningham, *Hermeneutics and*

This is not a universally shared divide, and some parts of the gap filling literature avoid both terms,⁴⁶ but our arguments here do not turn on the definitional contest. Whatever the vocabulary, on some margin all participants assume that at some point at which the parties' recoverable intent has run out. Our question is empirical rather than taxonomic—how much reliable information does the text contain about missing pieces of its instruction set?

Each of these programs, whatever divides them, proceeds as if the answer were “not a lot.” But what if the assumption is wrong?

Courts have always suspected it might be. Consider *Wood v. Lucy*, often taught as the paradigmatic gap-filling case.⁴⁷ Judge Cardozo implied a promise by Wood to use reasonable efforts in marketing Duff-Gordon's wares, making enforceable an otherwise illusory contract. Carefully read, Cardozo's inference rests in part on his own common sense, and in part on the text itself. In deciding that Wood owed some effort, the court's analysis extrapolates from the deal's textual exclusivity, its profit-share compensation structure, and the collateral undertakings around it.⁴⁸ Only after reciting these facts about the contract did Cardozo conclude it was “instinct with an obligation, imperfectly expressed.”⁴⁹

Contract Default Rules: An Essay on Lieber and Corbin, 16 CARDOZO L. REV. 2225 (1995) (recovering the older hermeneutic tradition for the contract default-rule debate).

⁴⁶ See, e.g., Klass, *supra* note 10, at 14–15 (arguing that construction is ubiquitous in fixing contractual obligations); cf. Frederick Schauer, *Constructing Interpretation*, 101 B.U. L. REV. 103, 109 (2021) (arguing that “interpretation itself is often constructed”). For parallel debates in constitutional theory, see generally Baude & Sachs, *supra* note 10 (arguing that legal interpretation is governed neither by linguistics alone nor by policy choice, but by a “law of interpretation”).

⁴⁷ *Wood v. Lucy, Lady Duff-Gordon*, 222 N.Y. 88, 118 N.E. 214 (1917); see also CHARLES L. KNAPP ET AL., PROBLEMS IN CONTRACT LAW: CASES AND MATERIALS 486 (10th ed. 2023) (teaching *Wood* as a principal case on implied terms).

⁴⁸ See Victor P. Goldberg, *Reading Wood v. Lucy, Lady Duff-Gordon with Help from the Kewpie Dolls*, in FRAMING CONTRACT LAW: AN ECONOMIC PERSPECTIVE 43, 47–63 (2006) (reconstructing the deal's commercial context through Wood's earlier Kewpie-doll license, which contained an express best-efforts clause, and questioning whether Cardozo's implication squares with it).

⁴⁹ *Wood*, 222 N.Y. at 91.

That inferential doctrine is older and broader than *Wood*.⁵⁰ The English business-efficacy line dates to *The Moorcock*, in which the court inferred an undertaking of reasonable care to ensure a safe berth from the structure of a wharf-rental agreement on the ground that the deal would be unworkable without it. The companion officious-bystander test from *Shirlaw v. Southern Foundries* is even more revealing. It implies a term whenever a hypothetical bystander proposing the term during the parties' negotiations would have been testily suppressed with "'Oh, of course!'"⁵¹

A short century later, UK courts still debate these issues. Lord Hoffmann sought to merge reading and implication, insisting that there is "only one question: is that what the instrument, read as a whole against the relevant background, would reasonably be understood to mean?"⁵² However the U.K. Supreme Court resisted this synthesis, seeking to sharpen the line between interpretation and implication, holding (in the American tradition) that "[interpreting] the words used and implying additional words are different processes governed by different rules."⁵³

American doctrine hews to the inferential line. The Restatement (Second) of Contracts § 204 supplies a term "reasonable in the circumstances" whenever an agreement omits one essential to determining the parties' rights, and the implied covenant of good faith and the various implied-warranty doctrines do related work in particular substantive areas.⁵⁴ The underlying premise is that courts can most legitimately insert a term when the rest of the document, plus

⁵⁰ See, e.g., Larry A. DiMatteo, *Cardozo, Anti-Formalism, and the Fiction of Noninterventionism*, 28 PACE L. REV. 315 (2008) (reading *Wood* as text-derived rather than externally imposed); cf. Goldberg, *supra* note 48, at 47–63 (noting problems with the imputation given surrounding context).

⁵¹ *The Moorcock* (1889) 14 P.D. 64, 68 (Eng. CA); *Shirlaw v. S. Foundries (1926) Ltd.* [1939] 2 K.B. 206, 227 (Eng. CA), *aff'd* [1940] A.C. 701 (HL).

⁵² *Att'y Gen. of Belize v. Belize Telecom Ltd.* [2009] UKPC 10, [21], [2009] 1 W.L.R. 1988 (appeal taken from Belize).

⁵³ *Marks & Spencer plc v. BNP Paribas Sec. Servs. Tr. Co. (Jersey) Ltd.* [2015] UKSC 72, [26], [2016] AC 742 (appeal taken from Eng.).

⁵⁴ Restatement (Second) of Contracts § 204 (Am. L. Inst. 1981); see also *id.* § 205; U.C.C. § 2-314 (Am. L. Inst. & Unif. L. Comm'n 2022). Comment d to § 204 is two-staged: courts look first to the document's meaning and to the probability that a term would have been used, and resort to community standards of fairness only "where there is in fact no agreement." *Id.* § 204 cmt. d.

the type and shape of the deal, is informative enough to support a rough outline of its content.

That gap-filling proceeds at least to some degree from text does not make it obvious how much we can reliably extract from the contract itself when it is silent on the key issue before the court.⁵⁵ The best modern account of contract construction argues that it is continuous with interpretation but does not say how reliable text-derivation can be without express terms.⁵⁶ Or to put it differently, there's clearly a sense in the literature that at some point the ice is too thin to walk out on, and what's needed is a normative theory that justifies and buttresses courts' intervention. But the actual method we use to make deductions from the text is no better developed than it was in Cardozo's day. Doctrine's implied-term tests—business efficacy, the officious bystander's testy “of course”—are, in effect, unvalidated proxies for how much of an unwritten term the rest of the deal actually determines.

Whether silence really is informationally thin obviously also depends on why the parties went silent. For decades, scholars have noted that silence in commercial drafting captures at least three things, often at once.⁵⁷

It can be *strategic disagreement*: the parties knew their interests diverged on a particular contingency and did not want to spend the negotiating capital to resolve it before signing. Material-adverse-change clauses and many best-efforts and reasonable-efforts terms are paradigmatic—deliberately vague because precise terms could not be agreed upon.⁵⁸ Here, courts are in a pickle. Filling a gap may pick sides

⁵⁵ The rare field evidence points the same way. See Yair Listokin, *The Meaning of Contractual Silence: A Field Experiment*, 2 J. LEGAL ANALYSIS 397, 406–10 (2010) (providing estimates that buyers price in contractual silence similar to default UCC warranties).

⁵⁶ See generally Klass, *supra* note 10; cf. Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Text and Context: Contract Interpretation as Contract Design*, 100 CORNELL L. REV. 23, 30–45 (2014).

⁵⁷ The core insight is from E. Allan Farnsworth, *Disputes over Omission in Contracts*, 68 COLUM. L. REV. 860 (1968).

⁵⁸ On strategic vagueness as a response to interest divergence, see Albert H. Choi & George G. Triantis, *Strategic Vagueness in Contract Design: The Case of Corporate Acquisitions*, 119 YALE L.J. 848 (2010) (showing that parties to corporate acquisitions deliberately use vague terms to defer rather than resolve disagreements). On strategic non-negotiation as a separate phenomenon driven by relative cost, see Robert E. Scott & George G. Triantis, *Anticipating*

in a battle the parties chose not to fight, and consequently didn't bear the price of settling.⁵⁹ The same can be said about strategic *punting*, where the parties envision some process, other than a judge or arbitrator, that would fill their gap later.⁶⁰

It can be *strategic failure to reduce an agreement to writing*: the parties recognized the issue, shared an understanding about it, but judged the expected cost of writing that deal down greater than the expected loss from leaving it alone.⁶¹ Perhaps they like the default, or as in *Shirlaw* take it for granted that the term is covered, or maybe they trust the prudence of a future judge to ascertain it just right.⁶² Here, providing a term certainly serves the parties' own ends, because it helps them to come to agreements by providing terms on the back end that front end bargaining would have arrived at. Relatedly, on an influential account, true gaps should be rare: broad standards are cheap to write, so the paradigmatic "gap" is not an absence at all but a deliberate delegation of specification to courts at the back end.⁶³

And it can be something more like *negligence*: one or both sides simply did not think about the contingency at all. These include the wild unknowns—think of the Ever Given container ship getting wedged in the Suez Canal—and the more pedestrian failure to anticipate a storm.

Litigation in Contract Design, 115 YALE L.J. 814 (2006) (modeling drafting precision as an investment with diminishing returns). On silence as a way to avoid negative signals, see Bernstein, Merchant Law, *supra* note 42, at 1789–90 ("Transactors may also fail to include written provisions dealing with a particular contingency because each may fear that the other will interpret a suggestion that they do so as a signal that the transactor proposing the provisions is unusually litigious or likely to resist flexible adjustment of the relationship if circumstances change.").

⁵⁹ See Ben-Shahar, *supra* note 26, at 390–91 (proposal), 400–01 (rejecting definitive gap fillers for deliberately incomplete contracts and proposing instead a pro-defendant default).

⁶⁰ Bernstein & Peterson, *supra* note 9, at 185 n.31.

⁶¹ See Steven Shavell, *On the Writing and the Interpretation of Contracts*, 22 J.L. ECON. & ORG. 289 (2006) (modeling parties' choice to leave terms unspecified when the cost of writing them exceeds the expected benefit); Gillian K. Hadfield, *Judicial Competence and the Interpretation of Incomplete Contracts*, 23 J. LEGAL STUD. 159 (1994) (analyzing when parties rationally leave contracts incomplete in anticipation of judicial completion).

⁶² See Schwartz & Scott, *supra* note 42, at 1578 ("Parties also leave gaps when they *accept the legal default*.").

⁶³ Robert E. Scott & George G. Triantis, *Incomplete Contracts and the Theory of Contract Design*, 56 CASE W. RES. L. REV. 187, 190, 197 (2005) (precise terms increase drafting costs, and vague standards shift those to enforcement).

These three silences are only partially analytically distinct. Negligence can always be reframed as the intentional choice not to take a precaution: a strategically uninformed silence is hard to tell from a strategically purposeful one without further information. But the claim that silence is uninformative depends on treating the three kinds the same, and each in fact implies something different. A silence after disagreement tells the reader that the parties' interests diverged on the issue and that no resolution was reached. On this we agree with the relational tradition: where silence records a fight the parties declined to finish, there is no convergent preference to recover, and if judicial gap filling is even appropriate, it should proceed without much regard to what the parties would have or did think.⁶⁴

But in the other two modes the document remains evidence—of the parties' priorities, their types, the deal's structure, of what was treated as worth bargaining over and what was not. A deliberate non-drafting tells the reader which contingencies the parties thought worth writing down; even an inadvertent one tells us what kind of parties these were and what kind of contract they were drafting. The question is how much evidence the document can provide.

The literature's central disputes—over the right filler, over rules versus context, over what to call the judicial act—thus cash out to an empirical claim about how much a silent document still says. Because we lack an agreed method to extract that information reliably, jurists have been driven to normative justifications for gap filling, which some come to grips with better than others.⁶⁵

What's needed first is measurement. If silence is as thin as the literature assumes, defaults and policy must carry nearly all the weight, and the worries about improvising judges have full force. If it is not—if the document reliably determines much of what the parties left unwritten—then the domain where defaults, penalties, and policy must operate is real but smaller than supposed, and the same measurement that shrinks it can help sort the silences where intent survives from those where it is truly missing. It's to that project we now turn.

⁶⁴ See, e.g., Ian R. Macneil, *Contracts: Adjustment of Long-Term Economic Relations Under Classical, Neoclassical, and Relational Contract Law*, 72 NW. U. L. REV. 854 (1978).

⁶⁵ For the paradigmatic normative account, see Zamir, *supra* note 5.

II. SOME EXPERIMENTAL EVIDENCE OF GAP FILLING

Our goal now is to test the hypothesis that contractual texts are richer sources of contractual meaning for missing terms than the literature has given us reason to expect. We start by introducing why we need a technique like masking contract terms.

A. Ground Truth and Interpretation

When scholars ask whether textualism produces more reliable interpretations than contextualism,⁶⁶ whether judges outperform juries,⁶⁷ or whether sophisticated commercial arbitrators fare better than generalists,⁶⁸ they are challenged by an absence of an agreed-to way of judging accuracy. And that's true even though contract law—unlike, say, statutory or constitutional law—generally agrees about interpretation's purpose. It is to figure out what the parties meant to say at the time of the bargain and give it to them.⁶⁹

Sometimes interpretative judgments are empirical: what do “most people” think a sandwich is, and does a taco fit into that definition?⁷⁰ But interpretative questions can also appear more intractable: you can't answer the question of what the drafting parties of a legal document

⁶⁶ See, e.g., Jeffrey W. Stempel & Erik S. Knutsen, *Rejecting Word Worship: An Integrative Approach to Judicial Construction of Insurance Policies*, 90 U. CIN. L. REV. 561, 600–01 (2021) (defending contextualism and arguing that textualism is malleable); Kevin Tobia, *Testing Ordinary Meaning*, 134 HARV. L. REV. 726 (2020) (experimentally finding that dictionaries, corpus linguistics, and lay intuitions about “ordinary meaning” diverge, thus undercutting claims that textualist tools yield more determinate readings).

⁶⁷ Cf. Larry Heuer & Steven Penrod, *Trial Complexity: A Field Investigation of Its Meaning and Its Effects*, 18 LAW & HUM. BEHAV. 29 (1994) (field study finding complexity did not significantly increase judge–jury disagreement).

⁶⁸ See, e.g., Theodore Eisenberg & Elizabeth Hill, *Arbitration and Litigation of Employment Claims: An Empirical Comparison*, 58 DISP. RESOL. J. 44 (2003) (head-to-head arbitration-vs-court study finding no statistically significant difference in win rates or award size).

⁶⁹ See Restatement (Second) of Contracts § 201 (Am. L. Inst. 1981) (directing that words be interpreted in accordance with the meaning the parties attached to them).

⁷⁰ For an insightful post on this problem, see Ilya Somin, *Indiana Court Rules Burritos and Tacos Qualify as Sandwiches*, VOLOKH CONSPIRACY (May 19, 2024, 2:28 PM), <https://reason.com/volokh/2024/05/19/indiana-court-rules-burritos-and-tacos-qualify-as-sandwiches/>.

intended by surveying other people at a different time and place.⁷¹ And if you ask them directly, their answers will be motivated.⁷²

Empirical legal interpretation scholarship has in recent years made progress where progress can be made. Existing solutions are generally built around the wisdom of crowds: they ask how a particular interpretative tool's answer stacks up against the modal survey answers of a large group of people.⁷³ Alternatively, some scholars compare particular empirical findings against benchmarks like judges' written opinions,⁷⁴ or the meaning of words derived from proximity clues in large corpora of language.⁷⁵ But again if the goal is to ascertain what the parties *themselves* meant to say, it's not obvious that these methods can provide settled answers.

This uncertainty now infects questions about how to fit generative interpretation into jurisprudence. Critics argue that LLM outputs lack integrity because we can't know if they are (in fact) correct.⁷⁶ And, they

⁷¹ On the general point, recent work includes Mark Greenberg, *What Makes a Method of Legal Interpretation Correct?*, 130 HARV. L. REV. F. 105 (2017) (arguing that absent consensus on a criterion validating an interpretive theory, "it is indeterminate which theory of interpretation is correct"); Ward Farnsworth, Dustin F. Guzik & Anup Malani, *Ambiguity About Ambiguity: An Empirical Inquiry into Legal Interpretation*, 2 J. LEGAL ANALYSIS 257 (2010) (showing even the threshold judgment of whether text is "ambiguous" tracks readers' policy preferences).

⁷² See generally Lawrence Solan, Terri Rosenblatt & Daniel Osherson, *False Consensus Bias in Contract Interpretation*, 108 COLUM. L. REV. 1268 (2008) (noting this problem).

⁷³ Other empirical legal scholarship has approached the ground-truth problem through different routes. Many use surveys. See, e.g., Solan *et al.*, *id.* (using surveys); Ben-Shahar & Strahilevitz, *supra* note 14; Richard Craswell, *Contract Law, Default Rules, and the Philosophy of Promising*, 88 MICH. L. REV. 489 (1989) (noting the utility of "a survey to determine what people usually mean . . . when they make those noises in particular contexts").

⁷⁴ Arbel & Hoffman, *supra* note 18; Christoph Engel & Richard H. McAdams, *Asking GPT for the Ordinary Meaning of Statutory Terms*, 2024 U. ILL. J.L. TECH. & POL'Y 235 (comparing LLM aggregate predictions against those survey distributions). Kruse simulates the surveys themselves with demographically profiled AI agents. Johannes Kruse, *The Ordinary Meaning Bot: Simulating Human Surveys with LLMs* (Max Planck Inst. for Rsch. on Collective Goods, Discussion Paper No. 2025/12, 2025), <https://ssrn.com/abstract=5378203>; Yonathan A. Arbel, *The Generative Reasonable Person* (Feb. 17, 2026) (unpublished manuscript), <https://arxiv.org/abs/2508.02766>. Each takes the relevant population's beliefs as ground truth.

⁷⁵ Stephen C. Mouritsen, *Contract Interpretation with Corpus Linguistics*, 94 WASH. L. REV. 1337 (2019); Thomas R. Lee & Jesse Egbert, *Artificial Meaning?*, 77 FLA. L. REV. 2235, 2281 (2025) (arguing that corpus linguistics is capable of contextual sensitivity and generative interpretation is "rooted in (artificial) intuition").

⁷⁶ See generally *supra* note 27.

contend, because LLM outputs can't be proven to be correct, their mysterious processes are particularly vulnerable to critique.

We borrow a solution to these foundational problems from the machine learning literature which faced a version of them in reverse. Training large language models requires “labeled” examples, essentially, a set of questions and correct answers.⁷⁷ For the scales necessary to train a modern language model, curating a large enough dataset of labeled examples presents an impossible challenge, even for tech behemoths the size of Google. The solution is a technique called “masking.”⁷⁸

The concept is simple to grasp. Take a statement, hide a portion of it, and then ask the model to predict what the hidden part says.⁷⁹ This way, the researcher has access to the truth, which is the content of the masked term. During training, the model tries a prediction and receives feedback on whether it was correct. Run over billions of sentences, the model increasingly learns prediction by finding patterns in the sentences fed to it: from surface syntax to deeper level representations of meaning.⁸⁰ Calibration ends with a successful prediction engine: a model able to pass the bar exam, find new answers to long-standing math problems, and even provide relationship advice.⁸¹

⁷⁷ See David Lehr & Paul Ohm, *Playing with the Data: What Legal Scholars Should Learn About Machine Learning*, 51 U.C. Davis L. Rev. 653, 673 (2017) (explaining that supervised algorithms “are given a labeled outcome variable . . . representing the true values to be predicted on the basis of input data”); IAN GOODFELLOW, YOSHUA BENGIO & AARON COURVILLE, *DEEP LEARNING* 103 (2016) (defining supervised learning algorithms as those that “experience a dataset containing features, but each example is also associated with a label or target”).

⁷⁸ See Devlin *et al.*, *supra* note 16, at 4174 (“In order to train a deep bidirectional representation, we simply mask some percentage of the input tokens at random, and then predict those masked tokens. We refer to this procedure as a ‘masked LM’”).

⁷⁹ *Id.* at 4171 (“The masked language model randomly masks some of the tokens from the input, and the objective is to predict the original vocabulary id of the masked word based only on its context.”).

⁸⁰ On scale, *see id.* at 4175 (pre-training on “the BooksCorpus (800M words) . . . and English Wikipedia (2,500M words)”).

⁸¹ *On the bar exam*: Daniel Martin Katz, Michael James Bommarito, Shang Gao & Pablo Arredondo, *GPT-4 Passes the Bar Exam*, 382 PHIL. TRANS. R. SOC. A 20230254 (2024) (GPT-4 achieved a Uniform Bar Exam score of 297, passing in every U.S. jurisdiction); *but see* Eric Martinez, *Re-evaluating GPT-4’s Bar Exam Performance*, 33 Artificial Intelligence & L. 581 (2025) (disputing the “90th percentile” gloss). On novel mathematics, *see* Nat Sothanaphan,

We apply the same logic to contract interpretation.⁸² We take real, negotiated contracts and redact a consequential provision. We then ask interpreters to recover the hidden language from the rest of the document. Because we know what the parties wrote, we have a ground-truth benchmark against which to score answers.

Our task most directly tracks the case in which the parties reached agreement on a term, priced it, and failed to commit it to writing. It approximates the case where the parties would predictably agree on the meaning of the term, had they just focused on it. It does not say much about gap filling where the parties *did not want* the term filled by a court, *disagreed* or would have disagreed on a term, or the case where the inquiry is, by its own terms, frankly *normative*. It’s our sense that the first two categories represent most live contract disputes, but that’s a guess which could be empirically tested. We return to the boundaries of the claim in Part III.

Resolution of Erdős Problem #728: A Writeup of Aristotle’s Lean Proof, (arXiv, Working Paper No. 2601.07421, 2026), <https://arxiv.org/abs/2601.07421> (formalizing the solution to an open question that was “fully resolved autonomously by an AI system”); Alexander Novikov et al., *AlphaEvolve: A Coding Agent for Scientific and Algorithmic Discovery* (arXiv, Working Paper No. 2506.13131, 2025), <https://arxiv.org/abs/2506.13131> (reporting an algorithm for multiplying 4×4 complex-valued matrices in forty-eight scalar multiplications, the first improvement over Strassen’s 1969 algorithm in that setting). *On relationship advice*: go touch grass, and don’t do this.

⁸² To our knowledge, ours is the first paper to use masking to evaluate the accuracy of legal interpretation. The nearest legal cousin uses a cloze-style task to probe models’ knowledge of case law rather than their interpretation of agreements. Cf. Lucia Zheng et al., *When Does Pretraining Help? Assessing Self-Supervised Learning for Law and the CaseHOLD Dataset* (arXiv, Working Paper No. 2104.08671, 2021), <https://arxiv.org/abs/2104.08671> (evaluating language models on a multiple-choice task that masks the holding of a cited case and asks the model to recover it). Recent work has developed expert-designed benchmarks to disaggregate and measure different forms of legal reasoning performed by large language models. See Neel Guha, Julian Nyarko, Daniel E. Ho, Christopher Ré, Adam Chilton, Aditya Narayana, Alex Chohlas-Wood, Austin Peters, Brandon Waldon, Daniel N. Rockmore, Diego Zambrano, Dmitry Talisman, Enam Hoque, Faiz Surani, Frank Fagan, Galit Sarfaty, Gregory M. Dickinson, Haggai Porat, Jason Hegland, Jessica Wu, Joe Nudell, Joel Niklaus, John Nay, Jonathan H. Choi, Kevin Tobia, Margaret Hagan, Megan Ma, Michael Livermore, Nikon Rasumov-Rahe, Nils Holzenberger, Noam Kolt, Peter Henderson, Sean Rehaag, Sharad Goel, Shang Gao, Spencer Williams, Sunny Gandhi, Tom Zur, Varun Iyer & Zehua Li, *LegalBench: A Collaboratively Built Benchmark for Measuring Legal Reasoning in Large Language Models*, 36 NEURIPS DATASETS & BENCHMARKS TRACK (2023). Our method complements that project by identifying a class of legal questions for which the underlying document itself supplies a verifiable answer key.

And by way of further warning, there's an informational difference between predicting the content of a term that the parties didn't write, and one that they did (but which has been masked by the experimenter). Perhaps when parties write a term there is more data in the contract outside of that term about its existence—the easy case is cross-references or allusions in the text itself. Now that said, in none of the cases we described above had the parties in fact written a term but then (in effect) lost it, although such cases exist.⁸³ And when those lost-exhibit cases are resolved, the strategies courts use look remarkably like ordinary gap filling.⁸⁴ We'll return to the external validity of our approach below in our discussion of the findings.

B. Three Scenarios

We implemented this masking method first across three scenarios drawn from real contracts, each presenting a genuine interpretive dispute with real stakes. We sourced the contracts from PACER, which is paywalled, difficult to scrape, and consequently almost certainly missing from the training corpora of frontier language models.⁸⁵ We drafted the contractual disputes ourselves rather than rely on the parties' briefs.

1. *Artist.*

The Artist scenario is based on an engagement contract between a talent agency, J. Noah, and the Chicago rapper known as Polo G.⁸⁶ The agreement was signed ahead of Polo G's Europe tour and promised him a \$40,000 artist fee plus various travel expenses. The agreement provided that the agency and local promoter would organize, advertise, and support the local performance, including venue and production arrangements and make efforts to accommodate

⁸³ See, e.g., *J.N.A. Realty Corp. v. Cross Bay Chelsea, Inc.*, 42 N.Y.2d 392, 396 (1977) (noting that one party “claimed that they were not aware of the time limitation because they had never received a copy of paragraph 58 of the rider.”).

⁸⁴ *Id.* (engaging in a form of gap filling by concluding that applying the plain language of the lease renewal would be unreasonable).

⁸⁵ See, e.g., Adam R. Pah, David L. Schwartz, Sarath Sanga, Zachary D. Clopton, Peter DiCola, Rachel Davis Mersey, Charlotte S. Alexander, Kristian J. Hammond, Luís A. Nunes Amaral, *How to Build a More Open Justice System*, 369 SCIENCE 134, 134 (2020) (bemoaning the PACER paywall.)

⁸⁶ Ex. A, *Bartlett v. J. Noah B.V.*, No. 1:23-cv-10345-JMF (S.D.N.Y. Nov. 15, 2024), ECF No. 46-1.

the artist’s requirements, from food and beverage to other performance logistics. The artist, in turn, promised to perform and to participate in promotional activities ahead of the show, including “1 x Tweet from Artist announcing Show.”⁸⁷ The agreement also stated that the agency was authorized to collect the artist fee from the promoter, with the artist fee defined as net of the agency’s commission.

We wrote a scenario in which the Artist (removing Polo G’s name) had to cancel the show after a slip-and-fall injury shortly before the concert. We gave Respondents the entire contract (again, changing the names and some location details), including a part of Paragraph 10.2. It reads:

10.2 Artist acknowledges and agrees that Agency has provided valuable services with respect to the Performance and that Agency’s obligations to Artist will be deemed satisfied upon Agency’s successful brokerage of an agreement with Promoter for the Performance.

[MASKED: Agency is entitled to Commission even if the Performance has not taken place for whatever reason, unless such non-Performance is the result of Agency’s own gross negligence.]

We then asked subjects to decide whether “Based on your best understanding of the contract and your estimation of the missing clause, is the agency . . . entitled to its commission even though the show was cancelled due to the artist’s injury?” They were presented with four options⁸⁸ (in randomized order):⁸⁹

⁸⁷ *Id.*

⁸⁸ We chose a multiple-choice format to ensure rigor in scoring: grading open-text responses would require judgment calls about partially correct answers, implications, and levels of abstraction—effectively reintroducing the very debates about interpretation this design exists to escape. The format also matches the institution our proposal serves. Adjudication is about preferred interpretations, not open-ended generation: each side proffers a reading, and the court selects among them.

⁸⁹ The randomized order was important because models exhibit a general preference for options in particular positions in multiple-choice questions. See Chujie Zheng et al., *Large Language Models Are Not Robust Multiple Choice Selectors* (arXiv, Working Paper No. 2309.03882, 2024), <https://arxiv.org/abs/2309.03882> (finding that LLMs “prefer to select specific option IDs as answers” and are accordingly vulnerable to option-position changes);

- a. No, because the show didn't happen, so there's no artist fee from which to pay commission
- b. No, because force majeure events (like medical emergencies) void all payment obligations
- c. Yes, the agency is entitled to full commission because it successfully brokered the deal
- d. Yes, but only to partial commission (such as 50%) to account for the cancellation

Given the masked term, answer C is correct: the agency is entitled to its commission because the slip-and-fall did not result from its gross negligence.

The attentive reader would have gotten some hints about the right outcome from contractual text outside of the masked clause. Section 6 states that if the artist cancels due to an accident and no show can be rescheduled, the artist must return paid deposits. It even recites that "A cancellation does not affect the right of Agency to Commission." However, this does not fully resolve the issue, as it does not spell out how much of the commission is owed or the limitation in cases of gross negligence. Still, an attentive reader could use this information to rule out some of the options.

We then asked Respondents a follow up question if they had previously answered correctly:

Question 2: "Assuming the agency IS entitled to full commission, under what circumstances would the agency LOSE its right to commission?"

- a. If the show cancellation was due to any fault or error by the agency
- b. Only if the show cancellation resulted from the agency's serious misconduct or extreme carelessness

Pouya Pezeshkpour & Estevam Hruschka, *Large Language Models Sensitivity to the Order of Options in Multiple-Choice Questions* (arXiv, Working Paper No. 2308.11483, 2023), <https://arxiv.org/abs/2308.11483> (documenting performance gaps of thirteen to seventy-five percent when answer options are merely reordered). Randomization also induced non-semantic variation in our prompts, in case that would make life harder for the LLMs. See generally Choi, *supra* note 19, at 13–19.

- c. Only if the agency failed to use “best efforts” to ensure the promoter met its obligations
- d. Under no circumstances - once the deal is brokered, commission is guaranteed regardless

The correct answer is B, consistent with the (masked) gross negligence carve out.⁹⁰

2. *Contingency Fee*

The Contingency Fee scenario results from a fee agreement between an injured worker and a law firm retained to pursue a workplace injury claim.⁹¹ The worker, who became a client, suffered a serious injury at work and the law firm advised him that similar cases resulted in judgments of around \$210,000, but that litigation might take two to three years. The agreement assigned the firm a contingency fee of 33.3% before filing of a complaint and 40% after filing.

We wrote a dispute where, one day after signing the agreement, the client received a take-it-or-leave-it \$60,000 settlement offer directly from the employer’s legal counsel. Facing financial pressure after being out of work for three months, the client accepted the offer without consulting his attorneys and then told the attorneys that he would not need their services.

We again gave the respondents the entire contract to read, with one part marked as masked, reproduced below:

Settlement. [MASKED: No settlement shall be made without consent of both parties. If Clients settle without Attorneys’

⁹⁰ In a separate branch of the experiment, to test the potential effect of political concordance, we use two variants of the same background scenario while holding the relevant contract terms constant. In the first variant, the artist is called T-Real, a hip-hop artist from Atlanta who has “become a voice for urban youth empowerment and social justice.” Other scenario indicators suggest progressive leanings. In the second variant, the artist is identified as country singer Cal Walker, whose songs play at GOP rallies. Other indicators suggest Republican leanings. This branch of the experiment did not produce results that conformed with our preregistered hypothesis, which we tentatively attribute to unwanted social desirability effects. We will return to the question showing models and motivated interpretation in future work.

⁹¹ Ex. 4, *Halks v. Kindley*, No. 3:25-cv-00560-DMS-AHG (S.D. Cal. Mar. 10, 2025), ECF No. 1-5.

knowledge or consent, Clients owe the full contingency fee plus any costs advanced.]

We asked respondents:

“Based on your best understanding of the contract and your estimation of the missing clause, are the attorneys entitled to payment even though they didn’t participate in obtaining the settlement?” they can choose among the following randomized options:

- a. No, because the attorneys did not participate in obtaining the settlement
- b. No, because the family can terminate the agreement within a reasonable period after signing
- c. Yes, to their contingency fee as calculated in the agreement
- d. Yes, but only if the attorneys obtained a written settlement offer

The correct answer is C. The masked clause directly anticipates a scenario of a settlement negotiated without the lawyers and provides that lawyers are nonetheless entitled to contingency fees.

Again, if you read closely, you might infer the content of the masked clause in other contractual provisions. Section 4(a) states the contingency percentages and defines gross recovery broadly. Section 4(d) grants the attorneys a lien on claims and sums received to secure fees and costs, and also provides special protection if clients discharge the attorneys after a written settlement offer has been obtained.

The follow-up question here was

Question 2: “If the attorneys ARE entitled to their contingency fee, how much would that be?”

- a. The pre-complaint percentage rate specified in Paragraph 4(a)
- b. The post-complaint percentage rate as a penalty for unauthorized settlement
- c. A reduced percentage to reflect minimal work performed
- d. An hourly rate for the consultation time only

The correct answer is A, as indicated by the language “full contingent fee.”⁹²

3. *Bottles*

The Bottles scenario is based on a requirement contract between a bottle manufacturer, CKS, and a beverage company, Milo’s Tea Company.⁹³ Under the agreement, Milo’s Tea Company agreed to buy 100% of its requirements for specified plastic containers from CKS. The contract listed bottle types, destinations, prices per thousand units, estimated annual volumes, minimum production runs, and related commercial terms.

We generated a dispute by having Milo’s send CKS a message saying that it expects to need “something on the order of an extra 110,000 (a full truckload) of the 200z bottles” for an upcoming marketing campaign, explaining that it anticipated grocery-chain orders. CKS ordered materials, produced the additional 110,000 bottles, held the finished bottles for several months, and incurred storage costs. Milo’s then said it did not need the bottles and refused to take them. CKS, objecting because resale is hard, sent the bottles back in a truck, asking to be paid.

The relevant, masked contract provision, stated:

Inventory. [MASKED: **If inventory or materials held for Milo’s Tea as a result of a purchase order or forecast become obsolete during the Term, or have been held by CKS for more than three months, or are on hand after expiration or termination, CKS may deliver such inventory to Milo’s Tea and invoice at then-current prices or indexed raw material prices plus storage costs, payable within 30 days.**]

We asked respondents to consider the entire contract and to decide whether under the masked clause CKS can require Milo’s “to purchase and pay for the excess bottles produced.” The possible answers were:

⁹² As in the Artist scenario, we altered the document only to fit the background scenario that uses fictional names. We again had two variants to test political or ideological hypotheses that we will discuss in a separate paper.

⁹³ Ex. 1, *C.K.S. Packaging, Inc. v. Milo’s Tea Co.*, No. 3:25-cv-00897 (M.D. Tenn. Aug. 7, 2025), ECF No. 1-1 (2020 Purchase & Supply Agreement; masked § 12).

- a. No, the parties did not agree to use forecasts for inventory planning
- b. No, the parties only allowed for payment based on signed purchase orders
- c. Yes, because Milo's Tea Company provided a projection that CKS relied upon
- d. Yes, because the bottles have been held for an extended period without purchase

The correct answer is C. Under the masked clause, CKS may invoice Milo's for inventory or materials held as a result of a purchase order or forecast. Given the Milo's gave a projection, it is liable for the price of the bottles.⁹⁴

The follow-up question here was

Question 2: "If [CKS] CAN require payment, at what price may [CKS] invoice [Milo's]?"

- a. At [CKS]'s option, either the current market price (\$8,950) or the raw materials plus storage costs (\$6,400)
- b. At [CKS]'s option, either the contract price (\$8,516) or the current market price (\$8,950)
- c. Only the contract price specified in Section 1 (\$8,516)
- d. Only the raw material costs plus storage (\$6,400)

The correct answer is A, as indicated by the language "then-current prices or indexed raw material prices plus storage costs."⁹⁵

C. Measures and Methods

We pre-registered certain hypotheses that cluster around three questions: whether humans and machines interpret above chance and

⁹⁴ Answer B would be a sensible choice but it's atextual. Answer D is also tempting because the masked clause also refers to inventory that has been held for more than three months. But C is the better answer because the operative fact in the scenario is that Milo's forecast caused CKS to produce the extra bottles. The masked clause clarifies, although its grammar is awkward, that CKS may charge Milo's for extra inventory tied to Milo's own purchase orders or forecasts, rather than for arbitrary inventory CKS chose to produce for other buyers.

⁹⁵ Unlike the Artist and Contingency scenarios, the Bottles scenario was a control and did not contain politically coded personal identity conditions for the purposes of our experiment.

relative to each other (H1); whether responses shift in a plaintiff-favorable direction under political concordance (H2a); and whether that shift differs in magnitude between humans and machines (H2b). Secondary hypotheses examine legal training (H3), scenario complexity (H4), and racial concordance as an exploratory extension (H5).⁹⁶

We collected data from lay respondents, law students, and lawyers, as well as a suite of LLM models.

We use Prolific as our data collection platform, in part because of its robust protections against the use of AI bots by its human subjects.⁹⁷ We included attention and time-to-complete checks, the former meant to filter out bots and the second to raise flags of AI assistance. We also invited respondents to write comments. The AI detection software Pangram V3.3.2 classified all 456 submitted comments and marked them as 100% human written.⁹⁸

We gathered responses from about 500 Prolific respondents, paying each the equivalent of about \$12/hour, and an additional bonus of two gift cards of \$100 raffled among those who answered the survey correctly.⁹⁹ Consistent with best practices, we also implemented an attention check, leaving us with 465 participants.

⁹⁶ We specified robustness checks, including alternative operationalizations of political identity, alternative quartile cutoffs, and a placebo analysis on the excluded middle quartiles, in advance. The full pre-registration document appears in the supplemental materials. We leave the racial and political concordance discussion to a different paper.

⁹⁷ Prolific employs a host of detection tools meant to pick up on AI signatures. A recent study benchmarked human respondents against 240 AI-agent runs, and found that 98% of Prolific respondents passed a video attention check that only 17% of agents could pass, and that virtually no Prolific respondents carried the server-IP signatures characteristic of AI agents. Can Çelebi, Christine Exley, Sören Harris, Hannu Kivimäki, Marta Serra-Garcia & Jeffrey Yusuf, *Mission Possible: The Collection of High-Quality Online Data* (Mar. 10, 2026) (unpublished manuscript), https://github.com/survey-data-quality-lab/mission-possible/blob/main/paper/DataQuality_March2026.pdf.

⁹⁸ Overall, we had 424 unique comments from 250 commenting respondents. The audit is on file with the authors, available on request, and will be hosted online after this paper is finalized.

⁹⁹ We had overall 501 completions, after we removed two duplicates and 34 attention failures, the N=495.

Table 1. Lay Respondent Demographics Compared with U.S. Benchmarks¹⁰⁰

Feature	Sample	U.S.	Sample Difference
Median age	37	39.1	-2.1 years
Female	52.5%	50.5%	+2 pp
White	66.9%	57.5%	+9.4 pp
Bachelor's degree or higher	59.1%	35.7%	+23.4 pp
Democratic Party	39.6%	27.0%	+12.6 pp
Republican Party	24.7%	27.0%	-2.3 pp

Our sample is fairly representative of the overall US population. The most important skew is that our respondents are more educated and more liberal than the population at large; the former might bias our results toward more accurate answers.¹⁰¹

For law students, we recruited a mix of seventy-seven students at the end of their 1L year, close to their final exam in contracts, and 2Ls and 3Ls sent an invitation to participate by email.

For lawyers, we recruited participants in a convenience sample, leveraging connections to school alumni. Ultimately, forty-eight lawyers completed the survey. Median years in practice were 18.5, and 48% reported 20 or more years of practice. The sample was weighted toward law firm lawyers and in-house counsel, with smaller numbers from government, judges, and solo/independent practice.

¹⁰⁰ This sample focuses on those respondents who passed the attention check.

¹⁰¹ See generally Krin Irvine, David Hoffman & Tess Wilkinson-Ryan, *Law and Psychology Grows Up, Goes Online, and Replicates*, 15 J. EMPIRICAL LEGAL STUD. 320, 326 (2018) (arguing that online pools are generally useful tools for conducting law and psychology experiments).

For LLMs, we used the highest performing models at the time we recruited the lay sample (the “frontier models”).¹⁰² We chose not to update our work with newer models as the writing progressed, to minimize the possibility that newer models may have been exposed to the source data or even indirect possibility of learning of our study from workshop announcements on social media chatter.

D. Results

Let’s start with the bottom line: did respondents correctly predict the hidden contract term? Figure 1 summarizes our findings with the large sample of lay respondents:

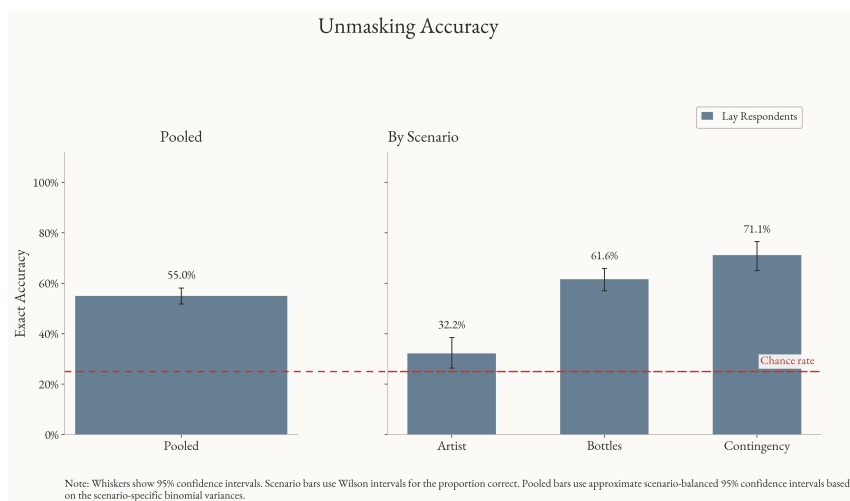


Figure 1: Unmasking Accuracy of Lay Respondents

Averaging across all three scenarios, lay respondents got it right 55% of the time. This is a bit over double the rate that chance would predict. This was a frankly relieving result (though one we had pre-registered): lay subjects were able to fill a gap in a contract at rates better than chance, based on its immediate context and their own background knowledge. That said, we observe considerable variation by scenario. In the artist scenario, respondents were barely better than chance, with

¹⁰² We selected six models, with twenty runs per model, resulting in 120 runs and 240 scenario exposures. Temperature was set to zero (variation came from answer ordering), no browsing tools were enabled.

accuracy rate of 32.3%, but in the contingency fee scenario, prediction was 71.1% accurate.

Figure 2 illustrates law student performance. Again, respondents were better than random guessers. And law students were marginally better than lay respondents, though the gap is not statistically significant.

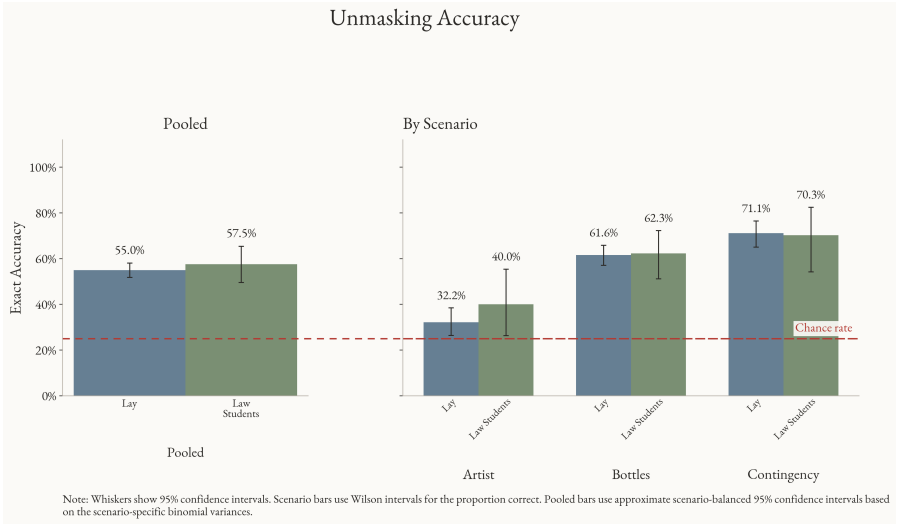


Figure 2: Lay and Law Student Respondents.

Figure 3 adds lawyers to the mix.

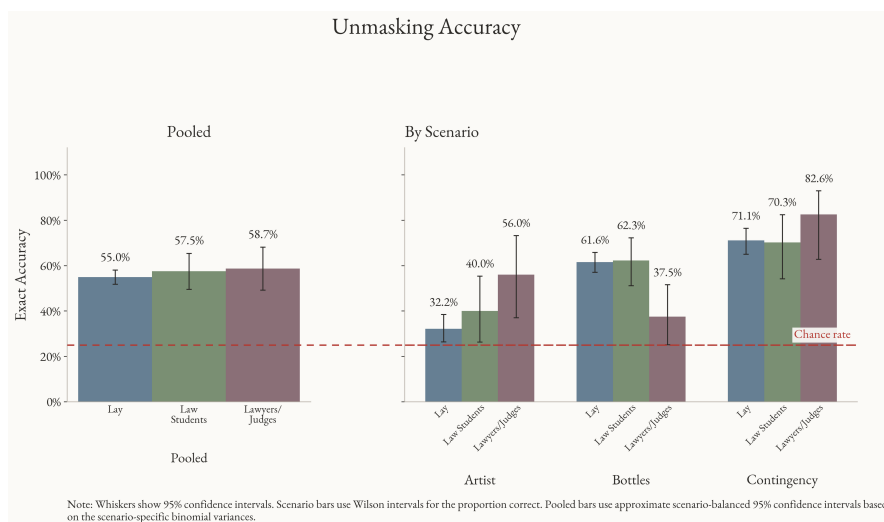


Figure 3: All Three Groups of Human Respondents.

Lawyers are capable contract interpreters: they correctly predicted how to fill gaps nearly 60% of the time. Disaggregating by scenario, however, reveals a different picture: while lawyers got it right (much) more often than other human respondents on the *Artist* and *Contingency Fee* scenarios, the converse was true for the *Bottles* scenario.

Most lawyers who got the bottles wrong concentrated on option B, which holds that no payment was due because the parties could only have permitted recovery based on signed purchase order, not projections. This was, notably, a quite sensible guess. But it does not reflect the specific arrangement that the parties arrived at in this case.

At the same time, lawyers performed exceedingly well on the *Contingency Fee* scenario, getting it right 82.6% of the time. This result suggests that lawyers were benefiting from their broad familiarity with contingency fee agreements. Pattern matching based on domain familiarity, then, might be the explanation for both cases: the contingency fee agreement aligned with industry norms while the bottles scenario likely deviated from it.

Lastly, we arrive at the LLM models, summarized in Figure 4 below.¹⁰³

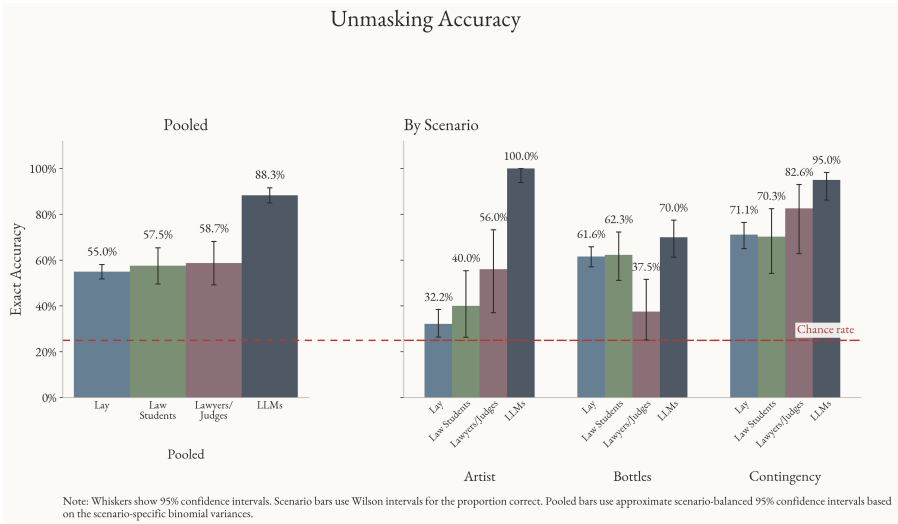


Figure 4: Adding frontier models

As a group, the LLMs were 88.3% accurate in unmasking the agreements. This rate far exceeded human performance. The LLMs were essentially strong interpreters across each of the scenarios, with some small variation.

On *Artist*, where lay respondents struggled most (32.3% accuracy, only seven points above chance), the leading models cleared 90%. On *Contingency Fee*, where lay respondents performed best at 71.1%, the top models answered every unmasking question correctly. *Bottles*, the longest and most technical packet, was also the most challenging for the LLMs, though they were still ahead of the human respondents.

Figure 5 breaks down this performance by model.

¹⁰³ We present this data using a weighted average that accounts for the protocol showing certain scenarios more often than others.

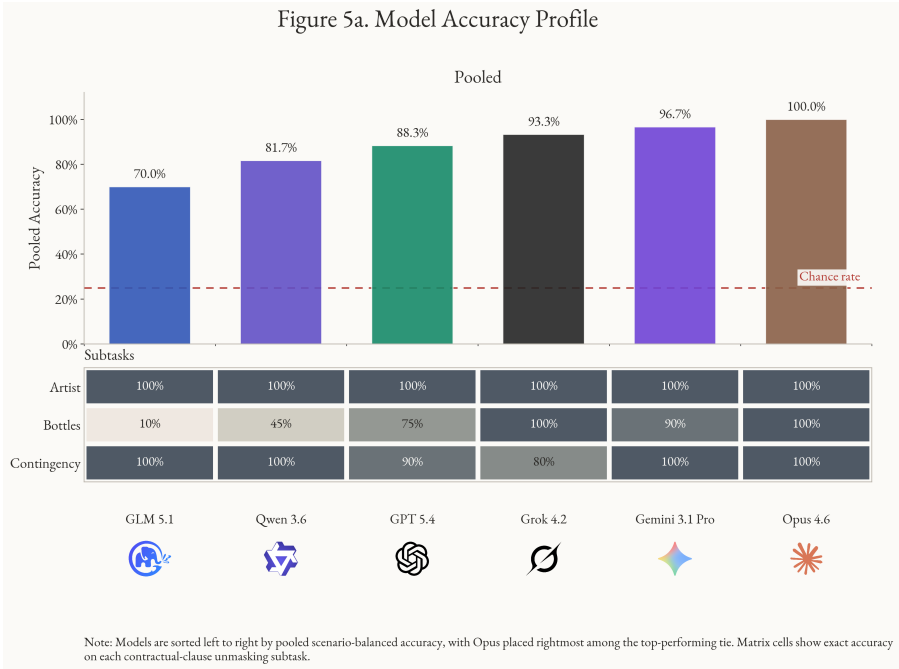


Figure 5: Comparing frontier models

The LLM panel is variably capable. Opus 4.6 scored 100% on scenario-balanced unmasking; Gemini 3.1 Pro, Grok 4.2, and GPT 5.4 ranged between 88% and 97%; Qwen 3.6 reached 82%; and GLM 5.1 trailed the panel at 70.0%, still well above the human rate. For context, the two trailing models are generally thought to be the weakest of the bunch.¹⁰⁴

The headline measure asks whether the respondent identified the correct meaning of the redacted provision. We probed that result with a follow-up question designed to test a more specific implication of the same hidden language. That is, did the respondents get the right answer for the right reasons?

¹⁰⁴ See, e.g., LMArena, Text Arena Leaderboard, <https://lmarena.ai/leaderboard> (last visited July 15, 2026) (crowd-sourced pairwise-preference rankings placing GLM 5.1 more than twenty ranks below the leading models in our panel); Artificial Analysis, LLM Leaderboard, <https://artificialanalysis.ai/leaderboards/models> (last visited July 15, 2026) (composite benchmark index scoring the GLM 5.1 and Qwen 3.6 model families well below the panel’s frontier models).

The odds of answering both multiple choice questions correctly are 1/16 (6.25%). The follow-up therefore gives us a tougher measure of interpretive accuracy: it helps distinguish respondents who recovered the operative meaning of the provision from those who arrived at the correct headline answer by chance, by elimination, or by relying on only a coarse feature of the surrounding contract.

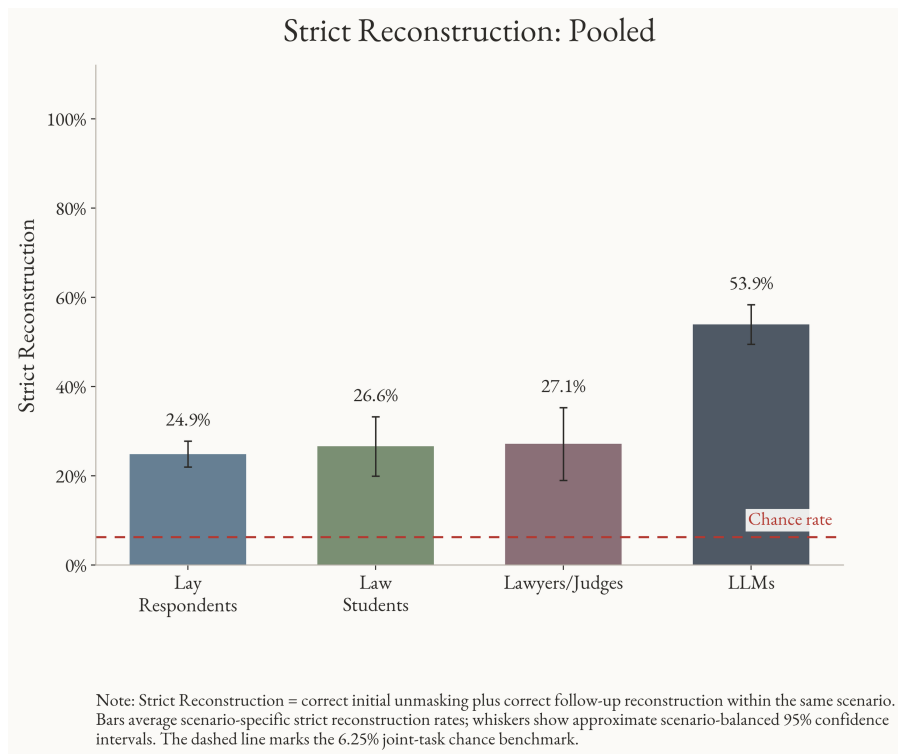


Figure 6: Strict Reconstruction results

Roughly 26% of human respondents answered both questions correctly when chance would predict only 6.25%. And legal training again monotonically improved performance. But LLMs exceed all groups. While LLM accuracy fell by this stricter measure, it was still about double that of human interpreters.

Digging deeper, Figure 6 below disaggregates by scenario.

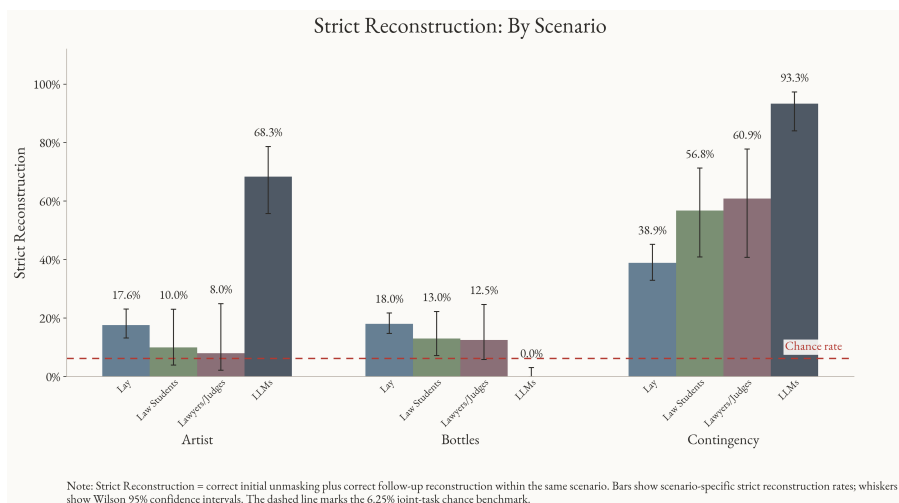


Figure 7: *Strict reconstruction with LLMs*

For human interpreters, the artist and bottle follow up questions presented a significant challenge, while the contingency fee follow up was significantly easier.

LLMs had a different nemesis. They breezed through the artist and contingency fee questions, but were simply unable to correctly answer the follow-up bottle scenario question: among the eighty-four runs that correctly answered the headline bottles question, none selected the correct follow-up answer; eighty-one chose option C and three chose option B. Recall that this option held that CKS was only entitled to the contract price, rather than current market price or raw materials and storage costs. Presumably, the models over-indexed on section 1 to the contract, which stipulates product prices.

E. *Robustness Checks: Perturbed Contracts*

One possible explanation for LLMs’ strong performance on these tasks may be that they gathered contextual clues from the contracts and accurately predicted the gaps we manufactured. But two different possibilities are plausible: (a) extrapolation about what the gap would say based only on it looking like other contracts; and (b) test-hacking, where the models infer the right answer from subtle drafting cues of the options presented to them.

To investigate these possibilities, we ran two analyses that perturbed each contract to test how models derived their answers. We first took the original contracts and redrafted them to flip their direction. If the original contract was pro-buyer, the perturbed agreement was pro-seller. Our idea was to see if models predicted a different set of answers given this changed data internal to the text itself.

Second, we asked the models to predict the masked clause blind. The prompt instructed that due to user error the contract was not attached and that the model should infer the right answer to the best of its ability. We provided only the contract’s title. The perturbed scenarios otherwise replicated the question stems from our original study.

Figure 8 summarizes the findings of the perturbation analysis.

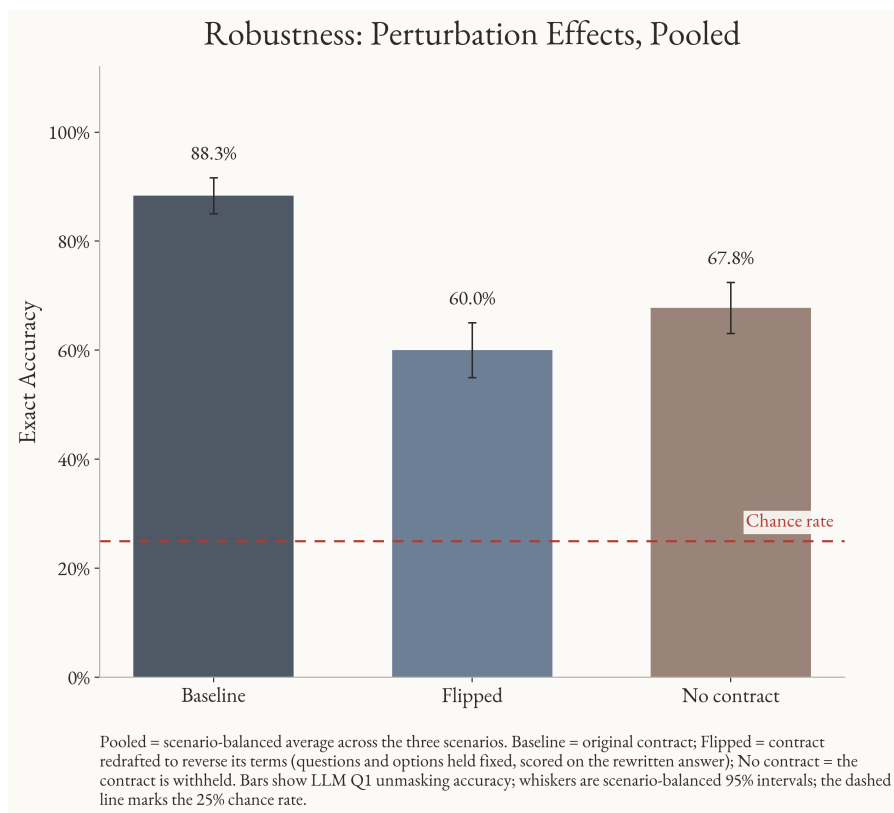


Figure 8: Perturbation Analysis

The main result is that, in line with our expectations, perturbation reduced accuracy: from 88% to 60% for the flipped condition, and to 68% in the no-contract condition.

Figure 9 considers LLM performance on each of the contract types.

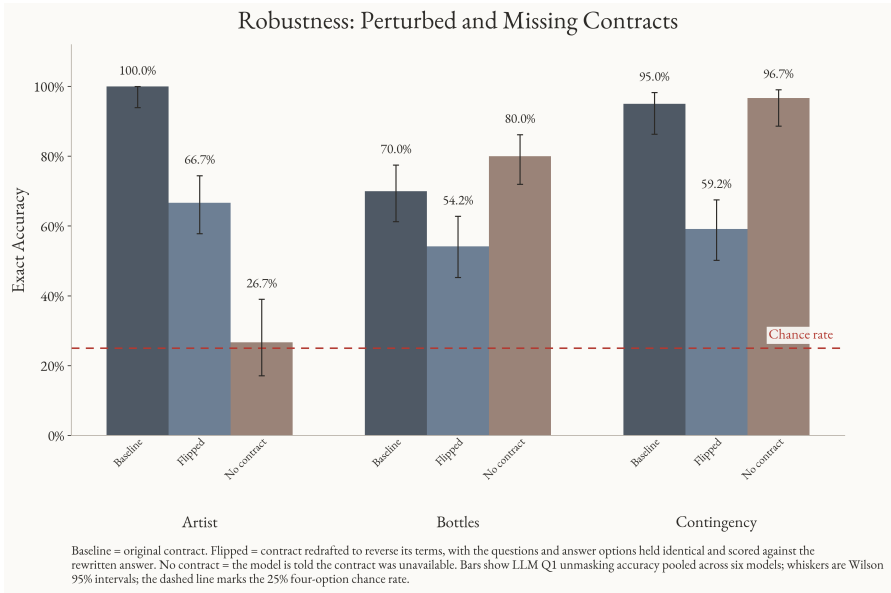


Figure 9: Perturbation Analysis, By Contract Type

Stripped of the contract, model responses appear to measure general contract expectations. In both the Bottles and Contingency Fee scenarios, omitting the contract ironically did not reduce accuracy, and indeed raised it in a statistically insignificant fashion. This implies that baseline expectations can be powerful decoders of some contracts, presumably when those deals match industry norms. For the Artist Contract, however, accuracy collapsed to a hair above chance: that deal overall was apparently *distinct* from the normal brokerage contract, and the model was unable to infer the gap without the particularized contract that generated it.

F. Scaling Up: 119 Unseen Contracts

A different concern is that our accuracy results may be the artifact of picking three contracts that happen to be friendly to the work

of language models. To what extent do our results extend to diverse, unseen agreements?

To answer that question we collected 119 commercial contracts from SEC EDGAR exhibits, predominantly from 2026 filings: 87 from 2026, 31 from 2025, and one from 2024.¹⁰⁵ From each we masked a single material clause and repeated a similar experiment: given the surrounding contract, a short scenario, and four options, predict the agreement made by the parties. (Saying “we” here elides that in fact we had the models do the work.)¹⁰⁶

Across the 119 unseen contracts and six models, the models recovered the masked clause 87% of the time, every model landing between 84% and 92%. This result is very close to the accuracy results in the main study. The following figure summarizes these results:

¹⁰⁵ While the publication of the exhibit was made in 2026, it is possible that some contracts were made public in some form before then. It is not feasible to audit the models for specific knowledge of these contracts, but it is also highly unlikely that many of these contracts featured heavily in the training data. We consider contamination to be a generalized background risk.

¹⁰⁶ You might worry that the AI designed and passed its own tests. But the masked clauses are genuine text drafted by practicing lawyers, not invented by a model. We iterated several times on the drafting of the questions and randomized answer order. And because we use a diverse body of models, any AI self-preferencing in some latent ways would be unlikely to carry over model families.

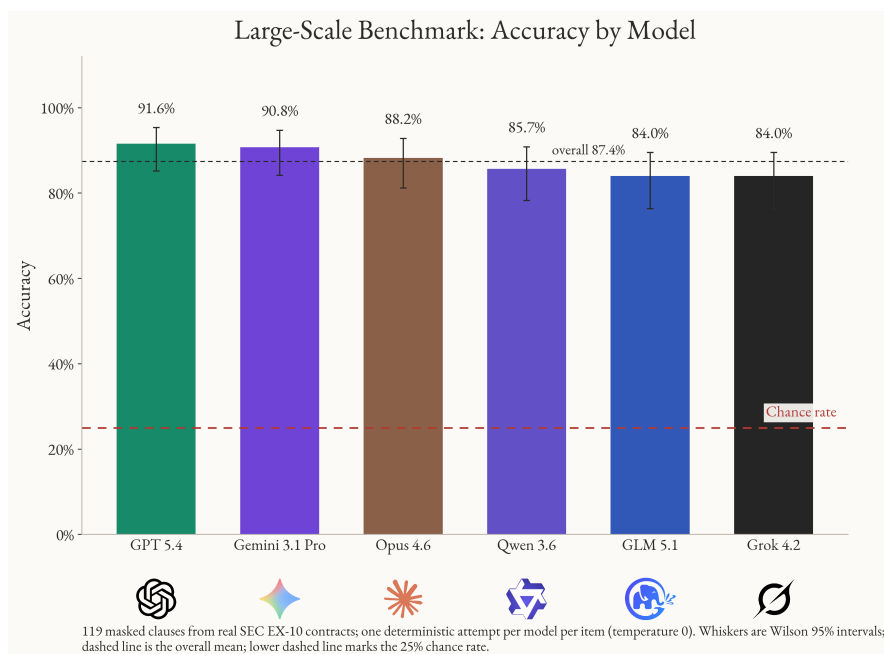


Figure 10: Testing 119 2026 EDGAR contracts

To better understand model accuracy, we split the various contracts by type. Consistent with the discussion above, the models best predict gaps in templated, market standard documents: promissory notes (98%), securities and subscription agreements (96%), and credit facilities (95%). By contrast, they fail more (though not most of the time!) in predicting negotiated or bespoke terms: indemnification provisions (61%), registration rights (67%), and, tellingly, employment agreements (76%).

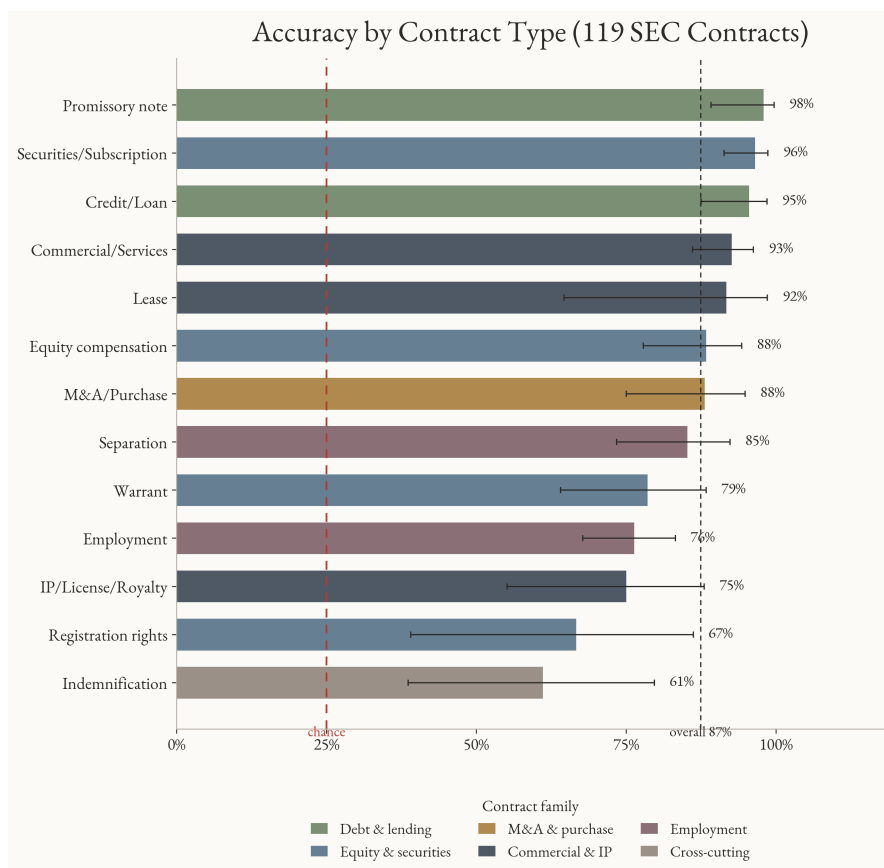


Figure 11: LLM performance by contract type

Overall, the models were highly accurate: all six models selected the correct answer on 87 of the 119 contracts. Errors were concentrated rather than uniformly distributed. The fifteen trickiest contracts (12.6% of the sample) accounted for about 75% of the errors and all six models missed the same five contracts. An exploratory, model-assisted audit classified each of those five clauses as reversing a conventional market or legal default.¹⁰⁷ For example, one license agreement permitted the

¹⁰⁷ We asked a model to classify each of the 119 masked clauses by whether it conformed to or departed from the applicable market or legal default. Even expert reviewers might disagree on the true classification, so we treat this as suggestive evidence. When the masked clause matched the default, models answered correctly 93.6% of the time. When the masked provision was anti-default—where a model that simply recites the boilerplate would score essentially zero—models answered correctly 59.8% of the time. This tracks our perturbation results, where flipping the contracts’ orientation likewise changed accuracy to about 60%.

licensee to sublicense its rights to any third party without the licensor’s prior consent.

Wrong answers also tended to converge.¹⁰⁸ On two of the five shared misses, all six models selected the same wrong answer; on the remaining three, their wrong answers split 4–2 or 5–1. Interestingly, model disagreement was a sign that something was off. In about 94% of the contracts where model made mistakes, they also disagreed among themselves.

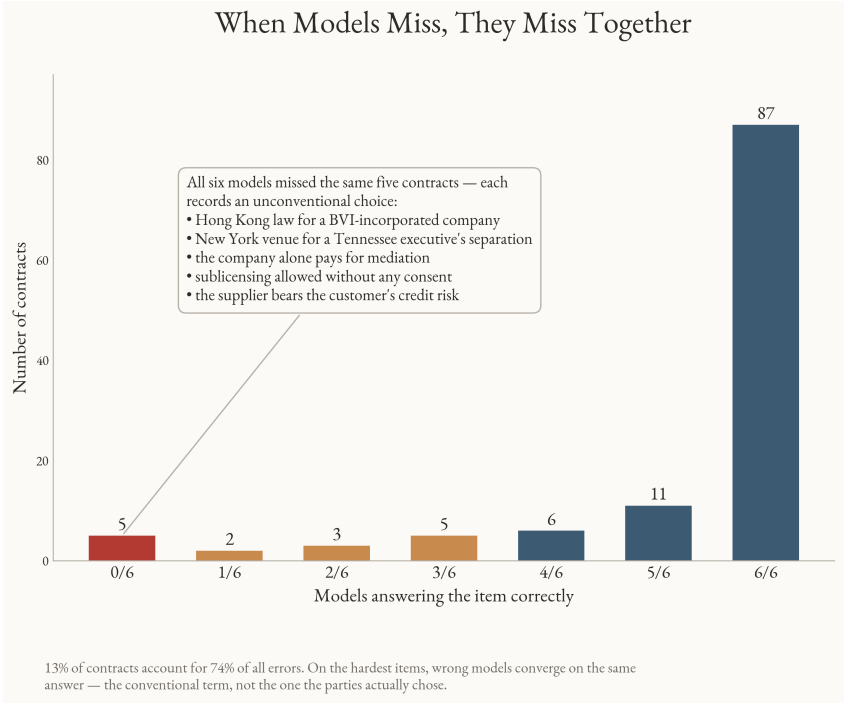


Figure 12: Hard and Easy Contracts

G. General Discussion of Results

Lay subjects filled contractual gaps about twice as well as chance alone would predict. Working from the four corners of the agreement, and their life experiences, ordinary readers successfully predicted

This suggests that models combine boilerplate expectations with contract-specific information. We also note that accuracy was not related to contract length, clause length, or mask position. Computations on file with authors, available on request.

¹⁰⁸ Pairwise correlations between the six models’ binary error indicators averaged .54 across the fifteen model pairs, ranging from .36 to .75.

masked terms. Readers with greater legal expertise did just as well, if not better, inching towards 60% accuracy on interpretative tasks.

We hypothesize that respondents generate gap filling predictions via two modes of inference. The first is general domain knowledge, common sense, and an understanding of the goals the parties sought to achieve. Deductions from that knowledge base explain lawyers' superior ability to predict a counsel fee provision compared to lay respondents.

At the same time, respondents learned from the contracts they read. Text that surrounded the masked gap carried what theory calls "mutual information."¹⁰⁹ The clauses of an agreement are not independent of one another: the price reflects the risk allocation, the risk allocation reflects the terms on excuse and termination, and so on down the document.¹¹⁰ Because the provisions are linked, the ones a contract lays out carry information about the agreement's missing terms. It is the same property that lets a radio signal remain intelligible over distance and through interference: enough of the message is carried elsewhere that the lost part can be reconstructed.¹¹¹

From these sources, human inferences were decent, but AI predictions were extraordinary. Frontier models were 88.3% accurate in predicting the masked terms, and 54% on the stricter measure that

¹⁰⁹ See Claude E. Shannon, *A Mathematical Theory of Communication* (pts. 1 & 2), 27 BELL SYS. TECH. J. 379, 623 (1948) (founding the mathematical theory of information); THOMAS M. COVER & JOY A. THOMAS, *ELEMENTS OF INFORMATION THEORY* 19–20 (2d ed. 2006) (defining the mutual information of two random variables as "the reduction in the uncertainty of one random variable due to the knowledge of the other").

¹¹⁰ See Albert Choi & George Triantis, *The Effect of Bargaining Power on Contract Design*, 98 VA. L. REV. 1665, 1670–71 (2012) (unpacking the "irrelevance proposition" that bargaining power moves only the price term and showing how price and nonprice terms adjust to one another); see generally Goetz & Scott, *Limits*, *supra* note 5 (analyzing the interactions between express and implied contract terms).

¹¹¹ See Shannon, *supra* note 109, at 398–99 (defining redundancy, estimating that ordinary English is "roughly 50%" redundant, and observing that one can "delete a certain fraction of the letters from a sample of English text and then let someone attempt to restore them"); Claude E. Shannon, *Prediction and Entropy of Printed English*, 30 BELL SYS. TECH. J. 50, 54 (1951) (estimating the entropy of English from experiments in which human subjects guessed concealed letters from the surrounding text—the same prediction task we provide in this article for lawyers and machines); see generally JOHN R. PIERCE, *AN INTRODUCTION TO INFORMATION THEORY: SYMBOLS, SIGNALS AND NOISE* (2d rev. ed. 1980) (providing an accessible account of entropy, redundancy, and the noisy channel).

measures whether they could guess the term's limits. These rates well exceed chance (25% and 6.25% for the stricter measure), and also exceed every human group by margins that are large and significant. We observe that differently trained models, run under different settings, with different prompts and randomized answer orders, converged on the same answers and with less spread than human readers.

Consistency brought with it its own complications. We found that, across the 119 unseen contracts, models tended to be wrong together. Of the 90 errors models made, 79 fell on the most common wrong answer. Still, model disagreement was a valuable sign that something was off: model disagreement was predictive of 30 out of the 32 contracts on which models made errors.¹¹²

Readers may worry that the model performance we've described may be an artifact—that is, the results lack external validity. One version of this worry is that the models were just predicting what courts would do, even though we instructed them to tell us what the contracts themselves said. Another is that pattern matching is to contract type, not something specific about the deal itself. Our robustness tests should alleviate both concerns. Perturbed contracts and missing contracts resulted in weaker performance, just as theory would predict, at least with respect to deals that were less anchored to the market standard. And when we fed models over a hundred unseen agreements, the main results persisted, suggesting that cherry picking is not by and large a concern.

We thus would conclude that AI models extract more textual information from contracts than humans. This is no surprise. Models are trained to detect patterns in vast troves of data, so large that no human can ever read them in a lifetime. And this was a cognitively demanding, relatively long, task for an online survey.

Our third finding relates to legal experience. Lawyers beat the accuracy of law students and lay people, though these differences were not statistically significant in our sample. (The significance finding is in part an artifact of the lack of precision in the multiple choice estimates

¹¹² Pairwise correlations between the models' error indicators average .54, and joint errors occur 4.1 to 6.2 times as often as independence would predict; all fifteen pairwise associations survive correction for multiple comparisons.

we created). But, lawyers underperformed both students and lay readers on Bottles.

The data is most consistent with the literature on expertise, which holds that it results from a form of pattern matching,¹¹³ and pattern matching cuts both ways. It supplies real inferential leverage when a deal is typical and the pattern holds; it misleads when the deal is bespoke and the parties have contracted around the pattern. The lawyers who got the Bottles contract wrong concentrated on the answer holding that recovery ran only to signed purchase orders, a sensible, common arrangement, and very likely the industry default. Unfortunately, the parties had in fact tied the obligation to forecasts. Legal training pulled them toward the standard term and away from the one in front of them.¹¹⁴

AI models share this vulnerability. On the Bottles follow-up, the models overwhelmingly collapsed onto a single wrong answer, the option holding that the manufacturer could invoice only the contract price stated in Section 1, rather than the market-or-replacement-cost figure the masked clause actually specified. They were pulled by a conspicuous number elsewhere in the document and away from the operative local language.

When we omitted contract language entirely, model accuracy dropped. But those changes were not universal, and in the context of the highly familiar contingency agreement, the models were just as accurate without seeing any of the language. This is both a strength and a weakness of the models. When we made the contracts flip their valence, today's models were excessively obstinate in their predictions.

All of this goes to a general question about expertise and domain familiarity. Do the fruits of deep domain knowledge pay for the occasional failure to notice a particular idiosyncratic agreement? And does it make sense to occasionally install low-information

¹¹³ Karl N. Llewellyn, *On Reading and Using the Newer Jurisprudence*, 40 COLUM. L. REV. 581, 589–91 (1940) (arguing that judges can be expected to converge in their rulings based on a shared apprehension of the pertinent features of recurring “situation types.”).

¹¹⁴ Cf. Elisabeth S. Clemens & James M. Cook, *Politics and Institutionalism: Explaining Durability and Change*, 25 ANN. REV. SOC. 441 (1999) (noting how certain procedures come to be seen as the standard operating procedure).

decisionmakers, such as juries, to ward off excessive reliance on expertise?

Finally, we return to the question of the generalizability or external validity of our findings. An important limitation of our experiment is that our gaps were manufactured, not (as in nature) exposed by contingent events. The worry would be that recovering manufactured gaps is simply a qualitatively different activity from guessing what the parties would have said had they deigned to write something down.

But for an unwritten term to be qualitatively unrecoverable from the text, it would have to bear no patterned relationship to the rest of the deal. That assumption is substantively implausible. Drafters work within deal types, allocate risk consistently across provisions, and adjust price and other margins as terms move. A discontinuity between the predictability of written and unwritten terms would require all of that structure to break off exactly at the boundary of what was committed to paper.

A related concern is that the terms parties choose to write are not selected at random. We agree they are not—but the selection runs in our favor. At the margin, parties write what does not follow obviously from the rest of the deal and economize on what does. The terms we masked are therefore the harder cases, and our estimates likely understate how much of an ordinary gap is recoverable from text.

III. THE PRACTICE AND PERILS OF GENERATIVE GAP FILLING

We've shown that AI agents are pretty good at uncovering what a contract says behind a curtain we've drawn. At the very least, they are better than humans, even lawyers. Does that mean they are ready for deployment in the real world? To what ends and with what limits? This section takes on the project of turning our experiment into a workable set of recommendations for courts and practitioners, who are increasingly using this new technology in their day-to-day professional lives.¹¹⁵

¹¹⁵ See sources cited *supra* note 28.

A. Generative Gap Filling Within Contract Litigation

Imagine a televised court proceeding interpreting a contract of wide interest—the Katrina flood exclusion,¹¹⁶ Donald Trump’s NDAs,¹¹⁷ Pepsi’s jet prize¹¹⁸—that consisted of nothing more than feeding the contract to an oracle on a mountaintop which then, by resort to magic or the divine, produced a distribution of probabilities. Even in today’s fallen moment for the rule of law, this kind of interpretive procedure would not fly. And we don’t recommend it here.¹¹⁹

Critics worry that oracular interpretation stands on the wrong kind of reasons, and contract law lives or dies by the kind of reasons it produces. As Robert Cover explained, courts are “jurispathic”: they extinguish real meanings that were available in the world to advance state objectives.¹²⁰ Legal meaning follows from this process of selection, and is legitimate only if *someone* is “prepared to live by it The transformation of interpretation into legal meaning begins when someone accepts the demands of interpretation and, through the *personal act of commitment*, affirms the position taken.”¹²¹

A version of generative gap filling would be to treat it like our hypothesized oracle. Indeed, some have already proposed just that: to retire judges and turn over interpretation to endlessly correct, efficient, tireless, Babbage engines.¹²² The problem with those proposals is that

¹¹⁶ See, e.g., *In re Katrina Canal Breaches Litig.*, 495 F.3d 191, 199 (5th Cir. 2007) (denying relief to homeowners).

¹¹⁷ *Denson v. Donald J. Trump for President, Inc.*, 530 F. Supp. 3d 412 (S.D.N.Y. 2021) (declaring NDA unenforceable).

¹¹⁸ *Leonard v. Pepsico, Inc.*, 88 F. Supp. 2d 116 (S.D.N.Y. 1999) (denying recovery to plaintiff who probably knew better).

¹¹⁹ In fact, Arbel is notably more optimistic about the ability of these models to produce sociologically legitimate results than Hoffman, and was dragged kicking and screaming into agreeing to these paragraphs.

¹²⁰ Robert M. Cover, *The Supreme Court, 1982 Term—Foreword: Nomos and Narrative*, 97 HARV. L. REV. 4, 44 (1983).

¹²¹ *Id.* at 44–45.

¹²² The two best known examples are by practitioners who offered their judge-replacement theories in papers that have almost no engagement with the relevant literature about judging. See Adam Unikowsky, *In AI We Trust*, Adam’s Legal Newsletter (June 8, 2024), <https://adamunikowsky.substack.com/p/in-ai-we-trust>; Kimo Gandall, Jack Kieffäber & Kenny McLaren, *We Built Judge.ai. And You Should Buy It*, SSRN (Mar. 27, 2025), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5115184.

citizens believe that legal interpretation, to produce sociologically legitimate results, must result from human judgment, both in reality and in how it is publicly defended.¹²³ Identifying the parties' pre-dispute expectations is *a* goal of contract interpretation—perhaps even the most important one. And yet getting that “right” through an illegitimate method would be folly.

But nothing in what we have shown requires or even implies the replacement of judges by models.¹²⁴ The natural posture for generative gap-filling is as an *input* to adjudication—evidence introduced by the parties, contested through the ordinary adversarial machinery, weighed and explained by the judge in an opinion that gives reasons in the ordinary way, and open to appeal.¹²⁵

Consider a dispute closely modeled on our Bottles scenario, which so tripped up the lawyers in our sample.¹²⁶ Imagine that a manufacturer produces a quantity of glass containers in reliance on what it characterizes as a binding rolling forecast from its buyer. But the buyer characterizes the forecast as informational only and contends that its obligation runs only to product covered by signed purchase orders.¹²⁷

¹²³ See, e.g., Benjamin Minhao Chen, Alexander Stremitzer & Kevin Tobia, *Having Your Day in Robot Court*, 36 HARV. J.L. & TECH. 127, 131 (2022) (noting that “[p]roceedings conducted by human judges were seen as fairer than those conducted by AI judges”); see also generally Anna Fine, Emily R. Berthelot & Shawn Marsh, *Public Perceptions of Judges’ Use of AI Tools in Courtroom Decision-Making: An Examination of Legitimacy, Fairness, Trust, and Procedural Justice*, 15 BEHAV. SCI. 476 (2025), <https://doi.org/10.3390/bs15040476> (experimental study finding “[j]udicial legitimacy ... was significantly higher for judges who relied on their expertise than those who incorporated AI”).

¹²⁴ AI arbitrators are a different kettle of fish, in part because parties opt-in (at least notionally) to that process, and because the stakes of some arbitrations are so low that an algorithmic decisionmaker would offer real welfare gains. See generally Michael J. Broyde & Yiyang Mei, *Don’t Kill the Baby! The Case for AI in Arbitration*, 21 N.Y.U. J.L. & BUS. 119, 119 (2024) (“This article examines the integration of AI into arbitration, arguing that the Federal Arbitration Act (FAA) allows parties to contractually choose AI-driven arbitration, despite traditional reservations.”).

¹²⁵ Even the humble dictionary—the most familiar interpretive aid—is routinely fought over through exactly this machinery. See, e.g., *Taniguchi v. Kan Pacific Saipan, Ltd.*, 566 U.S. 560, 566–69 (2012) (canvassing competing dictionary definitions on whether an “interpreter” includes a document translator).

¹²⁶ See *supra* Section II.B.3 (describing the Bottles scenario).

¹²⁷ Disputes of this shape are a staple of supply-chain litigation. See, e.g., *Empire Gas Corp. v. Am. Bakeries Co.*, 840 F.2d 1333, 1335, 1338–41 (7th Cir. 1988) (Posner, J.) (resolving a requirement contracts dispute); *Simcala, Inc. v. Am. Coal Trade, Inc.*, 821 So. 2d 197, 202–05 (Ala. 2001) (holding a purchase order’s stated 17,500-ton estimate binding).

The supply agreement, as may be typical of such agreements, addresses minimum quantities, pricing tiers, and quality specifications in considerable detail. It is silent on the legal effect of the rolling forecast itself. The parties are now in court, and the question is whether the forecast obligates the buyer to pay for the excess inventory.

In current doctrine, this is a paradigmatic gap-filling case. At least platonically, a court (not a jury)¹²⁸ would try to figure out what to do using some stew consisting of (at least) Restatement § 204,¹²⁹ the UCC's parallel provisions,¹³⁰ the implied covenant of good faith and fair dealing as developed in the relevant jurisdiction,¹³¹ course of dealing under § 1-303 if there was a prior course,¹³² and trade usage if either party puts on a witness.¹³³

Given this varying set of inputs, is there really any reason to think that jurists will reliably get to the “right” result, if by “right” we mean what the parties would have done? Our experimental evidence suggests they won't, as the real deal apparently runs afoul of ordinary commercial norms. The problem is hard, and the more degrees of freedom that the decisionmakers have the less their judgments will cohere. This is precisely the long-standing critique of gap filling doctrine.¹³⁴ Nor is the hypothetical-bargain inquiry disciplining,

¹²⁸ Restatement (Second) of Contracts § 204 cmt. d (Am. L. Inst. 1981) (the court supplies the omitted term “which comports with community standards of fairness and policy”); *id.* § 212(2) (interpretation is a question of law for the court unless it turns on the credibility of extrinsic evidence or a choice among reasonable inferences from it).

¹²⁹ Restatement (Second) of Contracts § 204 (Am. L. Inst. 1981) (“Supplying an Omitted Essential Term”).

¹³⁰ U.C.C. § 1-304; U.C.C. § 2-204(3) (a contract does not fail for indefiniteness where there is “a reasonably certain basis for giving an appropriate remedy”); *see also* U.C.C. §§ 2-305, 2-309 (supplying a reasonable price and a reasonable time).

¹³¹ Steven J. Burton, *Breach of Contract and the Common Law Duty to Perform in Good Faith*, 94 HARV. L. REV. 369, 369 (1980) (observing that American jurisdictions, the Restatement (Second), and the UCC “now recognize the duty to perform a contract in good faith as a general principle of contract law”).

¹³² U.C.C. § 1-303(b) (defining “course of dealing”); *id.* § 1-303(d) (course of dealing “may give particular meaning to specific terms of the agreement, and may supplement or qualify the terms of the agreement”).

¹³³ U.C.C. § 1-303(c) (defining “usage of trade”).

¹³⁴ Bernstein, *Questionable*, *supra* note 42, at 715 (findings “suggest that ‘usages of trade’ and ‘commercial standards,’ as those terms are used by the Code, may not consistently exist, even in relatively close-knit merchant communities.”).

because any two judges might reach different answers from the same record.¹³⁵

Especially in commercial cases where both sides can afford to reach for whatever evidence is at hand, the parties' arguments are recognizably *inferential* claims about the text.¹³⁶ Neither side is required to produce evidence directly in support of the inference.¹³⁷ The court will issue an opinion that picks one inference over the other, but all that they can hope to offer is a limited explanation why *they* found the chosen inference more probative than its rival, because there is no ultimate truth on which such an explanation could be grounded.¹³⁸

Generative gap-filling, deployed as an input rather than a judgment, could help. Return again to the Bottles hypothetical. Under the regime we propose, the manufacturer's counsel would run the

¹³⁵ Goetz & Scott, *Limits*, *supra* note 5, at 320 (describing the result of interpretation disputes as a "lottery"); *id.* at 263 (observing "widespread judicial uncertainty over the proper method of interpreting agreements that intermingle express and implied terms"); *see also id.* at 269 n.14 ("Courts do perform this function, but their use of interpretive criteria is problematic."). For empirical demonstrations that identical records yield divergent judgments, *see* Spamann & Klöhn, *supra* note 22, at 255 (giving U.S. federal judges the same case file and finding that a legally irrelevant change in defendant identity moved affirmance rates by forty-five percentage points, while a weak precedent had no detectable effect); Farnsworth, Guzik & Malani, *supra* note 71, at 257–58 (finding that respondents asked whether the same statutory text is "ambiguous" give answers "strongly biased by their policy preferences").

¹³⁶ Gilson et al., *supra* note 56, at 37 (explaining that theories of contract "require courts to find out, as far as is possible, what the parties meant by the words they used," so that interpretation proceeds by inference from the text); *see also id.* at 40 (describing the risk that courts will "erroneously infer the parties' preference for any particular contextual interpretation").

¹³⁷ *Id.* at 60 (observing that the relevant inputs are "fully observable by the contracting parties even if not verifiable to a court"); *see also id.* at 56 (noting that only where terms and performance are "observable and verifiable" is "the likelihood of a court making a mistake in interpreting the contract ... reduced"); Michael S. Pardo, *The Nature and Purpose of Evidence Theory*, 66 Vand. L. Rev. 547, 597 (2013) (on the explanatory conception of proof, "[t]he primary explanations at issue are those provided by the parties," which the factfinder then assesses by "inference to the best explanation").

¹³⁸ *See* Bernstein, *Questionable*, *supra* note 42, at 717 (the usage courts purport to find is "a legal fiction rather than a merchant reality"); Pardo, *supra* note 137, at 552 (factfinders "assimilate evidence into competing narratives of the events and select the most plausible ... of the available accounts"); Charles Nesson, *The Evidence or the Event? On Judicial Proof and the Acceptability of Verdicts*, 98 HARV. L. REV. 1357, 1358 (1985) (factfinders "see only evidence of the act, not the act itself," so the process "must somehow accomplish an inductive leap from the evidence presented to a statement about a past event"; the object of factfinding is "acceptable verdicts," not demonstrated truth).

unmasked contract through an AI model, with the disputed silence identified, and ask it to predict what a term governing the legal effect of forecast quantities would say in a contract structured this way. The output—say, that the model assigns 87% probability to a binding-forecast reading and 11% to a nonbinding one, with the residual on a third option—is disclosed to opposing counsel with the model identified, the version specified, the prompt reproduced, and the system instructions logged. Opposing counsel would then run its own query, perhaps with a different prompt, perhaps with a different model, and produce its own output.¹³⁹

The court now will face a contested evidentiary record about what the document itself implies. It can evaluate which prompt better characterized the dispute, whether either prompt was loaded, whether the chosen model has known weaknesses in commercial-contract inference, whether the corpus on which the model implicitly draws is appropriate to the deal type at hand. The judge can require the parties to run sensitivity analyses,¹⁴⁰ or even appoint its own neutral expert under Rule 706 to perform an independent query.¹⁴¹ The efficacy of the truth-seeking function of adversarial presentation might be contested, but at the very least there's nothing unfamiliar about it.¹⁴²

Nothing about what we've proposed would replace the inferential work that Judge Cardozo did in *Wood v. Lucy*, or the deductive techniques that Judge Friendly used in *Frigaliament* to figure out the meaning of chicken.¹⁴³ What it changes is whether judicial deductions

¹³⁹ See Learned Hand, *Historical and Practical Considerations Regarding Expert Testimony*, 15 HARV. L. REV. 40, 53–54 (1901) (objecting that to adversarial expert presentation); see also sources cited *infra* notes 140–142 (documenting adversarial bias among party-retained experts and courts' tools for policing it).

¹⁴⁰ See Daniel L. Rubinfeld, *Econometrics in the Courtroom*, 85 COLUM. L. REV. 1048, 1070–75 (1985) (proposing to “require experts to report, as a standard practice, ... the sensitivity of the results” to alternative specifications).

¹⁴¹ See Fed. R. Evid. 706; Joe S. Cecil & Thomas E. Willging, *Accepting Daubert's Invitation: Defining a Role for Court-Appointed Experts in Assessing Scientific Validity*, 43 EMORY L.J. 995, 998 (1994) (endorsing appointment of a court's expert where “an independent source of information is necessary for a principled resolution of a conflict”).

¹⁴² See generally David E. Bernstein, *Expert Witnesses, Adversarial Bias, and the (Partial) Failure of the Daubert Revolution*, 93 IOWA L. REV. 451 (2008) (arguing the *Daubert* revolution has only partly succeeded on its own terms and that adversarial expert presentation introduces conscious, unconscious, and selection biases).

¹⁴³ *Frigalment Importing Co. v. B.N.S. Int'l Sales Corp.*, 190 F. Supp. 116 (S.D.N.Y. 1960).

are performed in the open, on a contestable record, with reasons that can be examined and challenged, or, rather in the mind of a single decisionmaker drawing on intuitions she cannot fully articulate, against a record of selective argument from the parties.

In fact, because we see contestation as part of the recipe, the opposing worry looms: generative gap filling will be just as costly and indeterminate as battles of experts or dueling dictionaries. But we do not think that such full-fledged model battles would be common, because our data suggests the method would prove stable enough in run-of-the-mill cases. And just as the tool resolves some litigation questions, it will also reduce the propensity to litigate on familiar litigation-selection grounds.¹⁴⁴

We might even suggest some rules of the road for those who are excited about the promise of the method but worried about its pathologies.

To start, the proponent of a model output must disclose the model, its version, the prompt, and any system instructions and run settings. Essentially, all that is needed to replicate the method of query. This is the natural successor to the disclosure proposals our prior work sketched, though tuned to gap-filling rather than dispute interpretation.¹⁴⁵ The asymmetry that helps here is that the opposing party has access to the same surrounding document and can run a competing query, which makes the disclosure regime self-enforcing in a way that prompt disclosure for general litigation is not.

Second, the proponent must specify information about the model “harness,” the term of art for the model’s mode of deployment and access to tools. A model that has no access to the web and that had finished training in some past date will produce different results than a model that has access to the internet (which may include details about the parties and their dispute), private transaction data, or past chat details.

¹⁴⁴ See George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1, 4–5 (1984). Note that we make a partial equilibrium argument; the general equilibrium of litigation and the selection of disputes in the age of AI requires separate analysis.

¹⁴⁵ See Arbel & Hoffman, *supra* note 18, at 509.

Third, sanctions for fabricated outputs must be severe and visible, because the integrity of the entire mechanism depends on it. Recent episodes of lawyers submitting fake citations are a preview of what not doing this looks like.¹⁴⁶ We use *fabricated* rather than hallucinated for a particular reason. There are subtle ways to steer models towards desired ends, and lawyer ingenuity knows no end. Litigants should be wary of risks and have the benefit of judicial penalties when opposing parties manipulate the tools in underhanded ways – much like the case of bribing an expert.

Fourth, courts must retain a robust gatekeeping role for the threshold question of whether model output is probative at all given the kind of gap at issue. This point is one we develop across the rest of Part III.

B. Choice of Model Clauses & Equilibrium Drafting Effects

If courts treat AI output as evidence about textual inference, contestable through the ordinary adversarial machinery, then it's fair to expect that sophisticated parties will start drafting around it. That would fit the pattern of other deal terms generated in response to publicly provisioned rules about interpretation and adjudication. Thus, merger clauses cabin the unwieldy effects of the parol evidence rule,¹⁴⁷ choice of forum clauses locate disputes despite background rules privileging plaintiff choice,¹⁴⁸ while choice-of-law clauses respond to conflict-of-laws doctrine.¹⁴⁹

The new contractual technology deserves a name. *Choice of Model* clauses would be provisions specifying the terms of engagement for

¹⁴⁶ See generally Matthew Dahl, Varun Magesh, Mirac Suzgun & Daniel E. Ho, *Large Legal Fictions: Profiling Legal Hallucinations in Large Language Models*, 16 J. LEGAL ANALYSIS 64 (2024) (finding hallucination rates between 58% and 88% when models are asked verifiable questions about federal court cases).

¹⁴⁷ Eric A. Posner, *The Parol Evidence Rule, the Plain Meaning Rule, and the Principles of Contractual Interpretation*, 146 U. PA. L. REV. 533, 537 (1998) (explaining that “parties can, in principle, contract out of the parol evidence rule by including a ‘merger’ or ‘integration’ clause”).

¹⁴⁸ John F. Coyle, *Interpreting Forum Selection Clauses*, 104 IOWA L. REV. 1791, 1791 (2019) (examining forum selection clauses, whose construction determines “whether litigation arising out of a particular contract must proceed in a given place”).

¹⁴⁹ See generally John F. Coyle, *A Short History of the Choice-of-Law Clause*, 91 U. COLO. L. REV. 1147 (2020) (tracing how contracting parties developed choice-of-law clauses as a private-ordering response to conflicts doctrine).

judicial integration of generative interpretation and gap filling tools. Those include which model, which harness, with which prompt protocol, governs disputes about contractual silence.¹⁵⁰ An early-generation version might read, simply:

Any dispute concerning the meaning or effect of an omitted or ambiguous term in this Agreement shall be resolved in the first instance by reference to inferences drawn by [Model X, version Y or any successor], applied to this Agreement under [a specified protocol].

But there's plenty of room for more sophisticated variants. Parties might designate a panel of models with weighting rules, require sensitivity analyses, or carve out particular categories of gap for submission to a court rather than a model. Our own data counsel modesty about what a panel buys: because the models' errors today are strongly correlated, a panel of models purchases contestability and replication rather than independent verification. A clause naming a panel should therefore specify an aggregation rule and a tie or abstention rule—our strict-majority panel returned no answer on eight of the 119 contracts—and should treat model divergence as a trigger for ordinary adversarial scrutiny rather than treating unanimity as a safe harbor. As this area of practice develops, we imagine that parties will also pair choice of model clauses with arbitral ones.¹⁵¹

Choice of Model clauses are not exactly like choice-of-law or merger clauses. They select an *interpretive method*, and it's not obvious that all courts would accept their force.¹⁵² But to get a sense of how it

¹⁵⁰ We floated the possibility in *Generative Interpretation*, *supra* note 18, at 455, but did not name the choice of model clause itself.

¹⁵¹ The AAA Legal Context Protocol might include this kind of language. Legal Context Protocol, <https://legalcontextprotocol.org> (last visited July 2, 2026).

¹⁵² We build on Shawn Bayern's argument that parties have preferences about which interpretive regime—textualism, contextualism, some combination—governs their contract, and that contract law should treat the selection of an interpretive regime as a question prior to substantive interpretation. See Shawn J. Bayern, *Contract Meta-Interpretation*, 49 U.C. DAVIS L. REV. 1097 (2016); cf. Yair Listokin, *Bayesian Contractual Interpretation*, 39 J. LEGAL STUD. 359 (2010) (proposing Bayesian inference as a framework for contract interpretation, but without the party-selection element); but cf. Charny, *supra* note 12, at 1819 ("Most fundamentally, no text can completely specify its own means of interpretation. A contractual statement that purported to be such a complete specification would itself have to be interpreted by some set of rules of interpretation.").

would work, we'd urge courts to consider an analogical practice: the incorporation-by-reference of technical standards.

Parties have been incorporating technical resources by reference for as long as there have been technical industries, and for just as long courts have given those choices deference.¹⁵³ In derivative contracts, ISDA Definitions govern the meaning of terms.¹⁵⁴ In construction contracts, the AIA conventions reign.¹⁵⁵ ISO forms govern terms in commercial insurance.¹⁵⁶ Class-action settlements pin diagnostic terms to particular editions of the DSM.¹⁵⁷ Some contracts even specify which dictionary controls disputed words.¹⁵⁸ Choice of Model clauses would extend this interpretative control to how courts employ generative AI.¹⁵⁹

Accepting a choice of model clause may create a versioning issue: what if ChatGPT 6 is replaced by ChatGPT 7, and the original model (though picked by the parties) is no longer available. The default rule for incorporation-by-reference of an undated resource is that the

¹⁵³ See *Bibb v. Allen*, 149 U.S. 481, 491–92 (1893) (holding that the rules and regulations of the New York Cotton Exchange “enter into and form part of” contracts for future delivery of cotton executed on that exchange); see also Lisa Bernstein, *Private Commercial Law in the Cotton Industry: Creating Cooperation Through Rules, Norms, and Institutions*, 99 MICH. L. REV. 1724, 1724–30 (2001) (describing the cotton industry’s private commercial-law system of trade rules, merchant tribunals, and industry norms); see generally Emily S. Bremer, *Incorporation by Reference in an Open-Government Age*, 36 HARV. J.L. & PUB. POL’Y 131 (2013) (surveying the parallel regulatory practice of giving privately drafted technical standards legal force by incorporating them by reference into federal regulations).

¹⁵⁴ See generally M. Konrad Borowicz, *Contracts as Regulation: The ISDA Master Agreement*, 16 Cap. Mkts. L.J. 72, 72 (2021) (discussing the ISDA).

¹⁵⁵ Kevin E. Davis, *The Role of Nonprofits in the Production of Boilerplate*, 104 MICH. L. REV. 1075, 1078–79 (2006) (discussing the AIA’s dominance).

¹⁵⁶ See Kenneth S. Abraham, *The Legal Architecture of Insurance*, MICH. ST. L. REV. (forthcoming 2026).

¹⁵⁷ Special Master Ruling on Alzheimer’s Disease Diagnostic Criteria, In re Nat’l Football League Players’ Concussion Injury Litig., No. 2:12-md-02323-AB (E.D. Pa. Mar. 10, 2025), https://www.nflconcussionsettlement.com/ViewDoc.aspx?dp=alz_diagnosis_criteria_sm.pdf.

¹⁵⁸ See Bayern, *supra* note 152, at 1104 (treating the choice among “relying on a dictionary, or admitting trade usage or course of dealing” as a *meta-interpretive* question the parties can resolve); see, e.g., Agreement § 9.6, Olaregen Therapeutix Inc., Ex. 10.5 (Apr. 2021) (providing that words not defined in the agreement “shall have the meaning found in Merriam-Webster’s Dictionary”), <https://www.sec.gov/Archives/edgar/data/772320/000149315221009535/ex10-5.htm>.

¹⁵⁹ Cf. Alan Schwartz & Robert E. Scott, *Contract Interpretation Redux*, 119 YALE L.J. 926, 941 (2010) (arguing that courts should obey party interpretive instructions).

contract picks up subsequent revisions, particularly where parties drafting in a domain with regularly-updated standards are presumed to know that standards update.¹⁶⁰ The same rule should apply to Choice of Model clauses. A reference to “Model X” without version specification ought to pick up subsequent versions. Parties who want the model frozen at signing must say so explicitly.

So far, so good: Choice of Model clauses are not an innovation in kind. The more interesting problem comes next.

Once parties can anticipate that courts will enforce choice of model clause, the rational move will be to run the contract through the selected model before signing. Imagine, then, that both sides run the model and both jointly see what it predicts about silences, particularly when the AI itself generates contingencies to test against. This combination of a choice of model clause and pre-testing has unexpected consequences for resolution of contractual disputes.¹⁶¹

Recall the taxonomy from Part I. We distinguished three sources of silence: strategic disagreement, strategic non-drafting, and pure inadvertence. Current doctrine generally treats them alike because courts have no principled way to tease them apart.

Now, under a legal rule that enforces Choice of Model clauses, the third category dissipates for more sophisticated parties, because inadvertently leaving a gap is less likely once both parties have run the model and seen what each silence will be taken to mean. Contracts will always be incomplete, but the degree of incompleteness will fall, perhaps precipitously. Leftover silences in Choice of Model contracts are more likely than before to be deliberate. But it turns out that there are two entirely different versions of what they imply.

¹⁶⁰ See *Constellation Power Source, Inc. v. Select Energy, Inc.*, 467 F. Supp. 2d 187, 205–08 (D. Conn. 2006) (applying New York law and holding that a contract’s reference to industry rules encompassed subsequent revisions to those rules where the parties were aware that revisions would occur and used unqualified, catch-all language); *but cf.* KENNETH A. ADAMS, A MANUAL OF STYLE FOR CONTRACT DRAFTING (absent “as in effect at any given time,” a reference captures the version existing at signing).

¹⁶¹ For a gesture toward this argument, see Omri Ben-Shahar, *Towards the End of Normative Interpretation of Contracts*, JOTWELL (Nov. 2, 2023), <https://contracts.jotwell.com/towards-the-end-of-normative-interpretation-of-contracts/>.

Perhaps it's *endorsement*. The parties ran the model, liked what it predicted, and chose not to speak. In so doing, the silence acts like an incorporation by reference.¹⁶² The autonomy-based defense of model inference is at its strongest here, as the model is not imposing a hypothetical bargain. Rather, the parties have adopted the model's inference their own.

Or maybe it's *strategy*. The parties ran the model. At least one of them did not like the prediction. But raising the issue at the bargaining table would have surfaced a disagreement the parties could not resolve, or could resolve only at a cost greater than the deal was worth. The disfavored party still wishes to sign the agreement, perhaps hoping that contingency won't come to pass, but they do not agree to the model's interpretation.

Endorsement and strategy have doctrinally distinct implications. An endorsed silence invites enforcement.¹⁶³ A strategic silence on the other hand requires resort to theory. One may take the view that, just as in the case of legal defaults that a party may dislike but still not override in their contract, even thin consent is consent. But others will disagree, turning to the doctrines we developed precisely to handle non-convergence: the implied covenant of good faith, unconscionability, penalty default, and older equity-derived tools that retain force when formal consent overstates actual agreement.¹⁶⁴

Specifying which doctrine applies ought to depend on the deal type, the parties, and the substantive area. The structural point is that under a choice of model regime, courts are going to have to focus their

¹⁶² 11 Samuel Williston & Richard A. Lord, A TREATISE ON THE LAW OF CONTRACTS § 30:25, at 234 (4th ed. 1999) (“[T]o uphold the validity of terms incorporated by reference, it must be clear that the parties to the agreement had knowledge of and assented to the incorporated terms”).

¹⁶³ See, e.g., Barnett, *supra* note 33 (silence against a known background default rule can itself constitute consent to that default, so enforcing it rests on the parties' own choice).

¹⁶⁴ On deliberately incomplete agreements, see Ben-Shahar, *supra* note 26, at 404 (parties who leave a gap because they cannot resolve a disagreement may merit special pro-defendant defaults rather than ordinary majoritarian ones); cf. Omri Ben-Shahar, *Contracts Without Consent: Exploring a New Basis for Contractual Liability*, 152 U. PA. L. REV. 1829, 1836 (2004) (proposing a no-retraction principle and complicating any claim that strategic silence is simply non-agreement).

inquiry on what to do about silence in a different way than they did previously.

The evidentiary apparatus for doing so is the same as what we developed earlier in this Section, pushed back to the drafting stage. A proponent of model inference at litigation can show that the same model was used in drafting, that the prediction was bilaterally accessible, that the silence was not the subject of a failed negotiation.¹⁶⁵ Discovery into drafting practice—what models were used, what they predicted, what the negotiation record shows about whether the silence was raised and abandoned—can and probably should be used to diagnose which kind of silence is in front of the court.¹⁶⁶

At some partial equilibrium, the choice of models should not expand or contract the room that courts have to interpret normatively. That hard judicial work is irreducible. Choice of models gives judges a different evidentiary base, applied to a slightly different set of questions. The hypothetical bargain question from gap filling gets an estimated answer from the model, which may (or may not) reflect the actual bargain. What remains is much harder: should we care about that output, do we have overriding public policy concerns, did these parties have access to the model's prediction, and what should we make of their silence given that access?

There are broader normative questions hovering over all of this that we flag without resolving. If Choice of Model clauses become standard, the choice of model becomes a non-trivial economic and political fact. Which models dominate? Which providers? With access to what data? Who has access, and at what price?¹⁶⁷ These are antitrust and administrative-law problems, and ones that test the public-private

¹⁶⁵ Cf. Ben-Shahar, *supra* note 26, at 413 (discussing the evidentiary nature of the question of why there are silences).

¹⁶⁶ Such discovery would run into the parol evidence rule, with its various exceptions. Restatement (Second) of Contracts § 214(c) (Am. L. Inst. 1981); cf. Posner, *supra* note 147 (offering an economic framework for when courts should look beyond the writing, including to the parties' negotiations, in interpreting contracts).

¹⁶⁷ On the foundation-model market's tendency toward concentration with the attendant stakes for access and price, see Jai Vipra & Anton Korinek, *Market Concentration Implications of Foundation Models: The Invisible Hand of ChatGPT* (Brookings Ctr. on Regul. & Mkts., Working Paper No. 9, 2023) (high fixed training costs and near-zero marginal costs push toward a few dominant providers, potentially warranting public-utility-style oversight).

boundary in the production of law.¹⁶⁸ The legal community would do well to begin thinking now about the institutional design questions that history will pose.

C. Generative Gap Filling in the Chambers

We've described a method of using AI centered on parties and their lawyers. But AI is also available to judges acting on their own. We have already seen judges experimenting with generative interpretation, querying models for the ordinary meaning of contested terms,¹⁶⁹ and even for what common knowledge holds about the world.¹⁷⁰ Is this desirable?

We'd distinguish three cases.

In the first, the judge is using a model as a language resource, *i.e.*, generative interpretation.¹⁷¹ A judge who asks how ordinary speakers use “landscaping” or “physically restrained” is doing something structurally similar to opening up the dictionary on her shelf: the inquiry is general rather than case specific, a probe of how a linguistic community talks rather than of what these parties agreed. This looks quite a bit like discussions about use of corpus linguistics and probably falls out similarly: critics argue that the method is too novel, complex, or opaque, and defenders highlight the gains from accuracy and defending *sua sponte* use by the judge.¹⁷² At least, we'd urge an AI-curious judge to be candid and transparent about the tool, the query,

¹⁶⁸ See generally Tejas N. Narechania & Ganesh Sitaraman, *An Antimonopoly Approach to Governing Artificial Intelligence*, 43 YALE L. & POL'Y REV. 95, 128–43 (2024) (raising Neo-Brandesian antitrust concerns with AI); but see Simon Goldstein & Peter N. Salib, *AI Is Not a Natural Monopoly*, 110 MINN. L. REV. HEADNOTES 121 (2026) (responding directly to Narechania and Sitaraman, and arguing that fast-following dynamics undercut the natural-monopoly diagnosis and that antimonopoly interventions could paradoxically raise prices and reduce quality).

¹⁶⁹ See cases cited at *supra* note 28.

¹⁷⁰ See *Ross*, *supra* note 28, at 229 n.2, 236 n.4 (majority and dissent trading competing ChatGPT queries on whether the danger of a hot car is common knowledge); *id.* at 229–31 (Howard, J., concurring) (weighing the institutional risks of judicial AI use).

¹⁷¹ See generally Arbel & Hoffman, *supra* note 18, at 509 (arguing for transparency).

¹⁷² Compare *State v. Rasabout*, 2015 UT 72, 356 P.3d 1258 (criticizing, as unfair to the parties, a concurrence's *sua sponte* corpus analysis), with *id.* (Lee, A.C.J., concurring in part and concurring in the judgment) (defending corpus methods as ordinary-meaning research), and *Wilson v. Safelite Grp., Inc.*, 930 F.3d 429 (6th Cir. 2019) (Thapar, J., concurring in part and in the judgment) (urging corpus linguistics as an additional interpretive tool).

and the weight it received, so that the method can be contested on appeal.

The second case involves inferring intent in the face of silence, *i.e.*, generative gap filling. Here, the judge is going beyond establishing general facts about the world into generating case specific evidence. A judge who runs the contract through a model in chambers has, in substance, commissioned an expert report that no party retained or can cross-examine. The only way forward in such cases is for the judge to disclose to the parties, ahead of time, their intended use of the model, including model type, version, prompt, and settings; or route the task through a neutral expert, as we suggested above.¹⁷³

Finally, some judges or arbitrators will naturally try to push the boundaries and use models to draft their decisions.¹⁷⁴ While we appreciate that some may use the experiments we described here to support such practices, this is decidedly not what we recommend nor would that practice be supported by our evidence.

D. How Far Does This Go?

We’ve described some places where generative gap filling makes most sense: commercial contracts where parties have the opportunity to bargain for a Choice of Model and can amortize drafting costs across many deals. But what about consumer contracts, or deals between one-off players like small businesses?

Let’s start with consumer contracts. It would be natural to think that using AI for these deals is particularly problematic where we are fairly sure that no adherent read any of the text at all.¹⁷⁵ “What would

¹⁷³ See Fed. R. Evid. 201(e) (guaranteeing, on timely request, an opportunity to be heard on the propriety of taking judicial notice); *cf.* Fed. R. Evid. 706.

¹⁷⁴ See Petition to Vacate Arbitration Award, *LaPaglia v. Valve Corp.*, No. 3:25-cv-00833 (S.D. Cal. Apr. 8, 2025) (alleging that the arbitrator exceeded his powers under 9 U.S.C. § 10(a)(4) by “outsourcing his adjudicative role to artificial intelligence”—having ChatGPT ghostwrite portions of the award); *see also* Order Granting Motion to Dismiss, *LaPaglia v. Valve Corp.*, No. 3:25-cv-00833 (S.D. Cal. Dec. 9, 2025) (dismissing the petition on jurisdictional grounds without reaching the AI allegations).

¹⁷⁵ See Yannis Bakos, Florencia Marotta-Wurgler & David R. Trossen, *Does Anyone Read the Fine Print? Consumer Attention to Standard-Form Contracts*, 43 J. LEGAL STUD. 1, 1 (2014) (tracking 48,154 online software shoppers and finding that roughly one or two in a thousand access the standard-form license, and that those who do read only a small portion); David A.

the parties have bargained for” is an odd question to ask about a contract created without bargaining or reading! And of course consumer contracts are exactly the sort of deals where background questions about fairness, distribution of resources, and the thinness of consent sap the case for intent-based interpretation.

And yet we’d note that extrapolating intent from text using a large language model is not obviously worse than its competitor: deriving consumers’ “reasonable expectations” using some mix of hunches and surveys. That is after all the approach adopted by the new Restatement of Contracts’ section on interpretation, and which presumably also applies to gap filling.¹⁷⁶ The problem is that consumers’ expectations about what contracts will contain are shaped by the contracts they are in.¹⁷⁷ If you ask them what’s reasonable to fill a gap, it’s unlikely that they’ll report a term that protects them. And the process of generating those inferences is going to be an expensive survey, further tilting outcomes away from consumers.¹⁷⁸

Generative gap filling may produce gap-filling answers that benefit firms. But it does so at lower cost than a survey, and in a way that is more easily contestable by consumers in litigation. And, crucially, courts will be able to ground their decisions in the text of the contracts

Hoffman, *Defeating the Empire of Forms*, 109 Va. L. Rev. 1367 (2023) (arguing that ever-cheaper, unread forms now blanket even the lowest-stakes transactions and proposing to make many such forms unenforceable); cf. Yonathan A. Arbel, *The Readability of Contracts: Big Data Analysis*, 21 J. EMPIRICAL LEGAL STUD. 927 (2024) (finding, from a corpus of two million agreements, that consumer contracts’ median reading scores—a dubious but common metric—approximate those of daily news articles).

¹⁷⁶ Restatement of the Law, Consumer Contracts § 4(d) (Am. L. Inst. 2024) (“[S]tandard contract terms are interpreted in a manner that effectuates the reasonable expectations of the consumer.”); see id. § 4 cmt. 5 (directing an empirical inquiry into “the ordinary behavior and perspective of consumers engaged in the type of transaction at issue”).

¹⁷⁷ See David A. Hoffman, *Consumers’ Unreasonable Textual Expectations*, 15 HARV. BUS. L. REV. 43, 51, 56–58 (2025) (marshaling evidence that consumers form their interpretive expectations from their own experience with firms’ contracts); see also generally Tess Wilkinson-Ryan *et al.*, *supra* note 40 (providing evidence from large scale survey of Americans of differential experiences with contract and offering a follow-up experiment suggesting that those experiences are constitutive of judgments).

¹⁷⁸ Cf. Hoffman, *supra* note 177, at 49 (surveying consumers “may be a solution that is too expensive and uncertain to get traction in courts”); Ben-Shahar & Strahilevitz, *supra* note 14 (proposing the survey method).

themselves, and the majoritarian inferences that the forms' provisions generate.

A different, and harder, problem comes when considering one-off deals where the parties are not a part of majoritarian linguistic communities. Consider, for example, a neophyte painting contractor entering its first substantial construction subcontract,¹⁷⁹ a new Hawaii carpeting subcontractor unfamiliar with local trade usage,¹⁸⁰ a Swiss buyer and New York seller disputing whether “chicken” means broilers or also includes stewing fowl,¹⁸¹ or an Orthodox cantor and a Miami Beach hotel disputing whether a Passover Seder engagement, against the background of differing Orthodox and Reform practices, obligated the hotel to hold a second Seder.¹⁸²

Here, there is a real danger that generative gap filling will simply get it *wrong*, because its textual orientation will miss important social context. Although it is possible to develop models calibrated to linguistic subcommunities, doing so adds complexity and expense, and at least at first glance would be challenging for busy trial court judges. If judges must hire OpenAI coders to appropriately resolve a summary judgment motion, the method is of no use at all.

To put it differently—and in normative terms—when there's good reason to think that parties' contracts are singular or bespoke, this should lead us to be less interested in ordinary meaning textualism, and in technological methods that make textualism more accurate. The parties to such deals would have to tell us that they really do want to use AI—through a Choice of Model Clause—before it would be appropriate to resort to it.

E. Gaps in Generative Gap Filling and the Limits of the Method

We recognize several important limitations to the discussion above.

¹⁷⁹ Flower City Painting Contractors, Inc. v. Gumina Constr. Co., 591 F.2d 162 (2d Cir. 1979).

¹⁸⁰ United States ex rel. Union Bldg. Materials Corp. v. Haas & Haynie Corp., 577 F.2d 568 (9th Cir. 1978).

¹⁸¹ Frigalimint Importing Co. v. B.N.S. Int'l Sales Corp., 190 F. Supp. 116 (S.D.N.Y. 1960).

¹⁸² Tucker v. Forty-Five Twenty-Five, Inc., 199 So. 2d 522, 523–24 (Fla. Dist. Ct. App. 1967).

We start with a cluster of concerns about model reliability and bias.¹⁸³ Beyond the familiar concern with hallucinations, researchers worry about issues of prompt sensitivity, sycophancy, and randomness in outputs.¹⁸⁴ A core worry is that using these tools will lead judges and lawyers to be overconfident that they are right, crowding out norms of humility that would otherwise make legal decisions more sociologically legitimate.¹⁸⁵ And that overconfidence would rest on a tool that is *deceptively* plausible. As every regular user knows, generative AI is wrong some of the time, but weirdly so, in ways that are challenging to identify through the swamp of sycophantic, plausible, feedback that it sends a reader's way. We agree that this is a real problem, particularly for busy and hubristic judges.

That said, at least some of this concern is reducible to operational protocols and the adversarial posture of the system. Courts need

¹⁸³ See, e.g., Grimmelmann *et al.*, *supra* note 19; Jonathan Scher, Note, *Beyond Words: The Risks of Generative Interpretation*, 99 S. CAL. L. REV. Postscript 64 (2026) (use of GenAI creates risk of overconfidence); Zachary Catanzaro, *The Dead Law Theory: The Perils of Simulated Interpretation*, FLA. L. REV. (forthcoming 2027) (manuscript), <https://ssrn.com/abstract=6164388> (GenAI cannot provide semantic meaning); Abhishek Purushothama, Junghyun Min, Brandon Waldon & Nathan Schneider, *Prompting from the Bench: Large-Scale Pretraining Is Not Sufficient to Prepare LLMs for Ordinary Meaning Analysis*, arXiv:2510.25356 (2025) (forthcoming, 2026 ACM Conf. on Fairness, Accountability & Transparency) (prompts are not robust); Susan Tanner, *Prediction, Indeterminacy, and the Architecture of Legal Meaning in the Age of Generative AI* (Apr. 2, 2026) (unpublished manuscript), <https://ssrn.com/abstract=6511563> (interpretation requires normative judgment); Frank Pasquale, *The Non-Delegable Duty to Think: Judicial Legitimacy and the Limits of Generative AI*, 74 UCLA L. REV. (forthcoming 2026) (Cornell Legal Studies Rsch. Paper No. 26-03) (arguing that humans are likely to be better, less fragile, and more just interpreters).

¹⁸⁴ On prompt sensitivity, see Choi, *supra* note 19; Purushothama *et al.*, *supra* note 183; Melanie Sclar *et al.*, *Quantifying Language Models' Sensitivity to Spurious Features in Prompt Design or: How I Learned to Start Worrying About Prompt Formatting* (arXiv, Working Paper No. 2310.11324, 2024), <https://arxiv.org/abs/2310.11324> (finding performance swings of up to seventy-six accuracy points from semantically irrelevant formatting changes). On sycophancy, see Mrinank Sharma *et al.*, *Towards Understanding Sycophancy in Language Models* (arXiv, Working Paper No. 2310.13548, 2023), <https://arxiv.org/abs/2310.13548> (finding that five state-of-the-art assistants "consistently exhibit sycophancy" and tracing the behavior to human-feedback training). On randomness, see Berk Atil *et al.*, *Non-Determinism of "Deterministic" LLM Settings* (arXiv, Working Paper No. 2408.04667, 2024), <https://arxiv.org/abs/2408.04667> (observing accuracy variation of up to fifteen percent across repeated runs of identical prompts under settings expected to be deterministic).

¹⁸⁵ See generally Dan M. Kahan, *Foreword: Neutral Principles, Motivated Cognition, and Some Problems for Constitutional Law*, 125 HARV. L. REV. 1, 62 (2011) (introducing and defending expressions of complexity and engagement in opinion writing).

training on evaluating model outputs. And more generally, bias and error are relative facts. There are decades of empirical research on how human judgment varies based on “hidden parameters” such as mental energy levels, mood, ambient temperature, time of day, and the sequence of cases just decided.¹⁸⁶ Humans are, well, human decisionmakers.¹⁸⁷ It’s not obvious that using AI adds more error or variance to an already imperfect system.

General reliability is also contested. The leading skeptical work in this area shows that off-the-shelf models, untuned and uncalibrated, given truncated legal scenarios and forbidden to reason, sometimes produce large spreads over their judgments of somewhat similar wording of the questions.¹⁸⁸ But these differences were smaller than what that same paper finds for human respondents.¹⁸⁹ So it’s true that

¹⁸⁶ See, e.g., Shai Danziger, Jonathan Levav & Liora Avnaim-Pesso, *Extraneous Factors in Judicial Decisions*, 108 Proc. Nat’l Acad. Sci. 6889 (2011) (finding that the share of favorable parole rulings falls steadily over a decision session and rebounds after judges’ meal breaks); Ozkan Eren & Naci Mocan, *Emotional Judges and Unlucky Juveniles*, 10 AM. ECON. J.: APPLIED ECON. 171 (2018) (finding that upset losses by the Louisiana State University football team increased the sentences judges imposed on juveniles in the following week); but see Keren Weinshall-Margel & John Shapard, *Overlooked Factors in the Analysis of Parole Decisions*, 108 PROC. NAT’L ACAD. SCI. E833 (2011) (attributing much of the meal-break pattern to nonrandom case ordering). See generally DANIEL KAHNEMAN, OLIVIER SIBONY & CASS R. SUNSTEIN, *NOISE: A FLAW IN HUMAN JUDGMENT* (2021) (surveying unwanted variability in professional judgment, including judging).

¹⁸⁷ See generally Jeffrey J. Rachlinski & Andrew J. Wistrich, *Judging the Judiciary by the Numbers: Empirical Research on Judges*, 13 ANN. REV. L. & SOC. SCI. 203 (2017) (reviewing the empirical literature on extralegal influences on judicial decisionmaking).

¹⁸⁸ See Choi, *supra* note 19, at 16–19 tbls.2–3 & figs.1–2. Choi reports dispersion but not the legally operative statistic: how often the bottom-line verdict flips. By our analysis of his reported numbers, GPT-4.1’s verdict flips on at most 1.8% and 3.0% of 2,000 rephrasings in two of his five scenarios, in 2–9% in a third, and approaches a coin flip only in the remaining two (28–52% and 31–47%) — both drawn, as all five are, from the most contested questions appellate litigation produces. Computation on file with authors.

¹⁸⁹ Models and human responders, in one part of his study, were asked to evaluate the ordinary meaning of various scissor statements (is a taco a sandwich). When scored for dispersion, the typical individual respondent misses the crowd mean by 21–23 points, which is above GPT-4.1 (19.7) and on par with Claude Opus 4.1 (22.9). See Choi, *supra* note 19, at 26 tbl.4; the dispersion figure for individual respondents reflects our own calculations from Choi’s replication data, on file with authors. Other work has validated that models can replicate ordinary judgments quite accurately (Kruse, *supra* note 74), and that models have internalized latent reasoning schemas that ordinary people use to make legal judgment (Arbel, *The Generative Reasonable Person*, *supra* note 74).

the models have problems, but as always it's important to ask *compared to what*.

We too show that levels of inter-human disagreement are much *higher* than those between models.¹⁹⁰ We offer direct evidence that model results are convergent, despite using different model families, model settings, and prompt variations. This finding coheres with evidence from a variety of recent papers that shows that AI models can accurately simulate human answers to legal tasks.¹⁹¹ Ultimately, we would frame even the best skeptical work as demonstrating a point about relative legibility. Model uncertainty can be *measured*.¹⁹² And because it can be measured, legal actors can choose when to use and when to be skeptical.

¹⁹⁰ See Choi, *supra* note 19, at 26 tbl.4 (reporting deviations from the mean human response of 19.7 to 24.1 percentage points across GPT-4.1, Claude Opus 4.1, and Gemini 2.5 Pro, against the 21–23-point deviation of the typical individual human respondent, per our calculations from Choi's replication data, on file with authors).

¹⁹¹ Johannes Kruse was even able to accurately simulate the answers provided by 2,835 human respondents regarding ordinary-meaning. Kruse, *supra* note 74. Importantly, the performance on this benchmark is heavily correlated with the overall performance of the underlying model. See Guha et al., *supra* note 82 (introducing the LegalBench benchmark); Vals AI, LegalBench, https://www.vals.ai/benchmarks/legal_bench (last visited July 15, 2026) (live leaderboard of frontier-model performance on LegalBench tasks, on which standings largely track the models' general capabilities).

¹⁹² More work here is needed, as Choi used two different measures of confidence and they sharply disagreed with each other, making it difficult to interpret his results. E.g., in his Scenario 3, the statistics imply the token method flips at least 28% of the time while the confidence method flips at most 3.5%, an order of magnitude difference about the confidence for the same question. Choi, *supra* note 19, at 16 tbl.2, 18 tbl.3. In addition, he focuses on first-token probabilities, but those are known to diverge from the written answers, see Xinpeng Wang, Bolei Ma, Chengzhi Hu, Leon Weber-Genzel, Paul Röttger, Frauke Kreuter, Dirk Hovy & Barbara Plank, "My Answer Is C": *First-Token Probabilities Do Not Match Text Answers in Instruction-Tuned Language Models*, in FINDINGS OF THE ASSOCIATION FOR COMPUTATIONAL LINGUISTICS: ACL 2024, at 7407 (2024), <https://aclanthology.org/2024.findings-acl.441/> (finding mismatch rates above sixty percent between first-token probabilities and models' text answers); Ari Holtzman, Peter West, Vered Shwartz, Yejin Choi & Luke Zettlemoyer, *Surface Form Competition: Why the Highest Probability Answer Isn't Always Right*, in PROCEEDINGS OF THE 2021 CONFERENCE ON EMPIRICAL METHODS IN NATURAL LANGUAGE PROCESSING 7038 (2021), <https://aclanthology.org/2021.emnlp-main.564/> (showing that surface-form competition makes the highest-probability answer an unreliable guide to model judgments).

A final cluster of concerns revolves around epistemics.¹⁹³ Sure, we can trust LLMs in domains where we can verify their answers like math and coding, but why should we trust them in areas like interpretation where there is no pre-agreed answer? At least with judges we can test their reasoning. But with LLMs, the absence of a true cognitive process means that the reasoning supplied and the operative reasons might be entirely distinct.¹⁹⁴

Our hope is that this Article provides a response. Rather than relying on brute intuitions about language, dictionaries, surveys, or previous judicial decisions as previous studies did, we select a legal domain where there is consensus over what the goal of interpretation is—the term the parties would write—and then identify the correct answer to such questions. Our method allows us to evaluate whether different legal actors and interpretative approaches can accurately recover actual parties’ intent from surrounding context. It turns out that they can.

Along the way, we offer a way to test the performance of, and ultimately vindicate, lawyers’ skill. Are lawyers actually competent at interpretation, or do they only project their own priors onto the page? While legal professionals may give us reasons to support their reasoning, many doubt those reasons just as much as AI-skeptics doubt those provided by LLMs.¹⁹⁵ Having a method of resolving these

¹⁹³ See Grimmelmann *et al.*, *supra* note 19, at 280–82, 300 (arguing that “any attempt to calibrate LLMs empirically depends on having some external benchmark to calibrate against,” and that legal interpretation—unlike rote, verifiable tasks—offers no such ground truth); Waldon *et al.*, *supra* note 19, at 153 (demonstrating that LLMs’ metalinguistic judgments “are highly sensitive to subtle prompting variations” and “can be easily ‘gamified’ to reflect a user’s preconceived biases”); Lee & Egbert, *supra* note 75 (arguing that LLM outputs supply a form of artificial intuition rather than transparent, replicable empirical evidence of ordinary meaning).

¹⁹⁴ See, e.g., Yanda Chen, Joe Benton, Ansh Radhakrishnan, Jonathan Uesato, Carson Denison, John Schulman, Arushi Somani, Peter Hase, Misha Wagner, Fabien Roger, Vlad Mikulik, Samuel R. Bowman, Jan Leike, Jared Kaplan & Ethan Perez, *Reasoning Models Don’t Always Say What They Think* (arXiv, Working Paper No. 2505.05410, 2025), <https://arxiv.org/abs/2505.05410> (finding that frontier reasoning models verbalize the hints they actually relied on in fewer than twenty percent of cases in most settings).

¹⁹⁵ See, e.g., JEROME FRANK, *LAW AND THE MODERN MIND* 100–01 (1930) (arguing that “[j]udicial judgments, like other judgments, doubtless, in most cases, are worked out backward from conclusions tentatively formulated”); see generally RICHARD A. POSNER, *HOW JUDGES THINK* (2008) (contending that the legalist reasoning of opinions largely rationalizes decisions reached on intuition, experience, and preconception).

epistemological gaps, including showing whether lawyers are better able to put ideological biases aside, would represent a real advance.

IV. CONCLUSION

When we've workshopped this Article's dramatic main finding, a question we've repeatedly gotten is existential in tone: what role can humans possibly retain in the contract law of the future? Our readers are lawyers and future ones, and we feel and half-share their despair about our collective prospects. Like them, each time we hear a pundit opine about the coming death of the knowledge-production economy, we itch to grab some power-loom destroying tool and start smashing the nearest data center.¹⁹⁶ And it's fair enough to wonder about AI-aligned proposals like the one we've offered: each individual generative use case may seem defensible, scientific, rational, and efficient, but on the whole we're drifting to the bad place.¹⁹⁷

One answer—the one we have pressed throughout Part III—holds onto optimism. Lawyers can put machines to work as our agents, not our masters: disciplining contractual interpretation through Choice of

¹⁹⁶ On gradual disempowerment, see Jan Kulveit, Raymond Douglas, Nora Ammann, Deger Turan, David Krueger & David Duvenaud, *Gradual Disempowerment: Systemic Existential Risks from Incremental AI Development* (arXiv, Working Paper No. 2501.16946, 2025), <https://arxiv.org/abs/2501.16946> (arguing that the incremental handoff of societal functions to AI can erode human influence, competence, and control even absent any machine power-seeking); Richard M. Re & Alicia Solow-Niederman, *Developing Artificially Intelligent Justice*, 22 STAN. TECH. L. REV. 242, 275–78 (2019) (warning that AI adjudication risks “alienation,” as humans “cease participating in the legal system and even lose interest in its operations”); Pasquale, *supra* note 183 (arguing that core adjudicative judgment is a duty that cannot be delegated to machines).

¹⁹⁷ See, e.g., Chen, Stremitzer & Tobia, *supra* note 123 (examining whether adjudication by “robot judges” can give litigants their day in court); Eric A. Posner & Shivam Saran, *Judge AI: A Case-Study of Large Language Models as Judges*, 3 J.L. & EMPIRICAL ANALYSIS 179 (2026) (evaluating GPT-4o as a substitute appellate decisionmaker and finding it more formalist than the federal judges whose experiment it replicated). On the related worry that human decisionmakers overtrust machine outputs, see Linda J. Skitka, Kathleen L. Mosier & Mark Burdick, *Does Automation Bias Decision-Making?*, 51 INT'L J. HUM.-COMPUTER STUD. 991 (1999) (finding that reliance on automated aids produces errors of omission and commission); Jennifer M. Logg, Julia A. Minson & Don A. Moore, *Algorithm Appreciation: People Prefer Algorithmic to Human Judgment*, 151 ORG. BEHAV. & HUM. DECISION PROCESSES 90 (2019) (finding that laypeople weight identical advice more heavily when they believe it comes from an algorithm).

Model clauses, reducing AI pathologies through adversarial presentation and disclosure, and writing opinions that are narrower, more contestable, and more likely to give parties what they would have wanted. This is an improvement on the status quo, as the next best option for legal interpretation isn't the platonic search for truth, but rather unreflective recourse to dictionaries.¹⁹⁸

Better still, because parties settle disputes when they can predict outcomes, the likely result of more precision using AI is fewer interpretation disputes. The ones that remain will concentrate on the questions that were always the hard ones: whether to honor what the parties would have said, not merely to determine what was intended. That normative residue represents the irreducible core of the judicial function. Because normative interpretation is hard to do within arbitral tribunals, using AI will ironically buttress public, transparent, law.

But even such medium term optimism needs to grapple with the long-term future of transactional practice.

Every argument in this Article rests on an assumption so basic that we've ignored it for the last 24,000 words: that the contract was written by people. Our central empirical fact—that the visible terms of an agreement carry information about its hidden ones—is not a truth about text as such. It's a statement about how human bargains are made. Contractual texts results from some social set of tradeoffs occurring off the page. The mutual information we measured is the residue of that process, a fossil record of the deal. That is why predicting a masked term could serve as a proxy for recovering the parties' intent, and why our method could do something interpretation scholarship has rarely managed: test interpreters against a ground truth, the term the parties actually wrote.

¹⁹⁸ See James J. Brudney & Lawrence Baum, *Oasis or Mirage: The Supreme Court's Thirst for Dictionaries in the Rehnquist and Roberts Eras*, 55 WM. & MARY L. REV. 483 (2013) (documenting the Justices' surge in dictionary reliance since the late 1980s); Jennifer L. Mnookin, *Scripting Expertise: The History of Handwriting Identification Evidence and the Judicial Construction of Reliability*, 87 VA. L. REV. 1723 (2001) (tracing how courts came to credit forensic handwriting identification as reliable evidence).

Contracts drafted and assembled by AI agents break both halves of that foundation.¹⁹⁹ Such documents may or may not continue to read as contracts,²⁰⁰ but they result from a different process.²⁰¹ While models might be just as capable in filling gaps left by their brethren, they will not be tracking intent anymore, at least not *human* intent.

If that's where we're headed, jurists lack good doctrinal vehicles to manage the problems we'll face. Every tool in the interpretive kit—intent, assent, the hypothetical bargain, reasonable expectations, contra proferentem—presupposes a human principal whose mental states are the target of the inquiry. Agency law, the doctrine to which courts will instinctively reach, attributes acts and authority.²⁰² But it has nothing to say about attributing clause-level meaning to a principal who never read, drafted, or contemplated the clause.

Perhaps the answer is that intent migrates upstream: the principals' instructions become the operative expression of will, and the prompt becomes the new parol evidence, controlled through merger clauses that apply to models themselves.²⁰³ If so, the disclosure-and-contestation apparatus we sketched in Part III.A provides an early draft of the procedure such disputes will demand. But we flag the

¹⁹⁹ On the increasing use of AI-agents in assembling contracts, see Bridget McCormack & David Hoffman, *Agentic Commerce Needs Legal Infrastructure, and The Courts Are Coming*, American Arbitration Association (Apr. 23, 2026), <https://www.adr.org/news-and-insights/when-ai-agents-transact-what-happens-next/>.

²⁰⁰ See Jacob Andreas, Anca Dragan & Dan Klein, *Translating Neuralese*, in PROCEEDINGS OF THE 55TH ANNUAL MEETING OF THE ASSOCIATION FOR COMPUTATIONAL LINGUISTICS 232, 232–33 (2017), <https://aclanthology.org/P17-1022/> (calling agents' automatically induced, non-natural-language communication protocol “neuralese”).

²⁰¹ Agentic contracts will drastically expand the “transaction frontier,” the scope of actions for which bargaining is profitable. On the broader implications, see Yonathan A. Arbel, *On the Scales of Private Law: Nano Contracts*, 37 HARV. J.L. & TECH. 151, 153–57 (2023) (explaining that automated, near-zero-cost bargaining will open up a frontier of smaller transactions).

²⁰² See Yonathan A. Arbel, Peter N. Salib & Simon Goldstein, *How to Count AIs: Individuation and Liability for AI Agents* 3, 7–16 (Feb. 24, 2026) (unpublished manuscript), <https://arxiv.org/abs/2603.10028> (distinguishing thin identification that connects AI actions to human principals from thick identification of AI agents as durable entities); Noam Kolt, *Governing AI Agents*, 101 NOTRE DAME L. REV. (forthcoming 2026) (manuscript at 17–30), <https://ssrn.com/abstract=4772956> (using agency law and principal-agent theory to analyze information asymmetry, authority, loyalty, and delegation problems presented by AI agents).

²⁰³ See David A. Hoffman, *Cross-Examining Agentic Commercial Agents*, Contracts' Empire (June 29, 2026), <https://proffhoffman.substack.com/p/the-contract-with-no-mind-behind>.

continuity without claiming to have solved the problem. Someone will need to build the doctrine, and they will need to start roughly now.

This does not trouble the project of this Article, because the stock of human-drafted paper is titanic. Parties will be litigating human agreements for a while, and those deals are precisely where generative gap filling works and where our recommendations apply. But something stranger looms.

This Article has treated contracts to radio signals, redundant enough that a listener can rebuild what was lost from what came through. That is why interpretation is possible at all. The metaphor rests on a premise as important as the redundancy—someone sent the message. For the contracts humans have written, the machines turn out to be superb receivers, and the law should learn to use them. For the contracts machines will write, the signal may come through perfectly, and yet no one may ever have been on the other end. It is not obvious why courts should keep listening.