Contracts in the Age of Smart Readers

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Abstract

What does it mean to have machines that can read, explain, and evaluate contracts? Recent advances in machine learning have led to a fundamental breakthrough in machine language models, portending a profound shift in the ability of machines to process text. Such a shift has far-reaching consequences for diverse areas of law, which are predicated on, and justified by, the existence of information barriers. Our object here is to provide a general framework for evaluating the legal and policy implications of employing language models as "smart readers"—tools that read, analyze, and assess contracts, disclosures, and privacy policies.

Synthesizing state-of-the-art developments, we identify four core capabilities of smart readers. Based on real-world examples produced by new machine-learning models, we demonstrate that smart readers can: simplify complex legal language; personalize the contractual presentation to the user's specific sociocultural identity; interpret the meaning of contractual terms; and benchmark and rank contracts based on their quality.

Nevertheless, the implications of smart readers are more complex than initially meets the eye. Although smart readers can overcome traditional information barriers and empower parties, they rely on black-box models that sophisticated parties can exploit. Smart readers can close some of the gaps in access to justice, but they also introduce concerns about contractual bias and discrimination. And even though smart readers can improve term transparency, they might lead judges and policymakers to relax their guard prematurely.

The current body of doctrine and scholarship is ill equipped to address both the prospects and risks of smart reader technology. This Article narrows this gap. It maps the necessary theoretical, policy, and doctrinal adaptations to the age when machines can automate the reading of contracts.

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We are grateful for helpful comments and suggestions made by Ben Alarie, Chris Bradley, Matt Bruckner, Tony Casey, Shahar Dillbary, Meirav Furth-Matzkin, Gwern Branwen, Dave Hoffman, Joasia Luzak, Rory Van Loo, Tess Wilkinson-Ryan, Eyal Zamir, Stephan Stolz, and Tal Zarsky, as well as to participants in the AALS Section on Contracts (2021), the Law of Consumer Markets Seminar at Boston University (2021), the Australasian Consumer Law Roundtable (2020), the Exeter Law School: The Centre for European Legal Studies (2020), and the Haifa University Faculty Workshop (2021). We appreciate the outstanding research assistance provided by Marcus Armband, William Brand, and William Britton.

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Introduction

Consider an individual who is about to purchase a tablet device. Tucked inside the boilerplate is the following clause:

> **12. Controlling Law and Severability.** This License will be governed by and construed in accordance with the laws of the State of California, excluding its conflict of law principles. This License shall not be governed by the United Nations Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded. If you are a consumer based in the United Kingdom, this License will be governed by the laws of the jurisdiction of your residence. If for any reason a court of competent jurisdiction finds any provision, or portion thereof, to be unenforceable, the remainder of this License shall continue in full force and effect.[1]

There are good reasons for the individual—a buyer, an employee, a tenant, or a lessee—to care which law governs the transaction, as it affects their procedural and substantive rights.[2] However, reading the boiler plate is cognitively taxing, emotionally draining, and time intensive.[3] Moreover, reading is not enough: one also needs to understand. What does "controlling law" mean? What is "severability"? Does it matter that California law governs the contract?

The typical response of many individuals to these challenges is simple: ignore the text altogether.[4] Such a response, however, undermines the meaning of informed consent. Moreover, anticipating this response, firms may strategically insert one-sided clauses and potentially add bloat and complexity to their contracts to further discourage

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1 APPLE, SOFTWARE LICENSE AGREEMENTS: SINGLE USE LICENSE ¶ 12, https://www.apple.com/legal/sla/docs/iOS112.pdf [https://perma.cc/S7J7-C323].

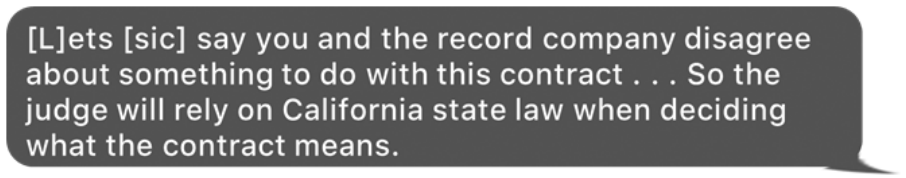
2 States differ greatly in the quality of their bundle of consumer protection laws and some consumer organizations rank them. *See, e.g.*, CAROLYN CARTER, NAT'L CONSUMER L. CTR., CONSUMER PROTECTION IN THE STATES (2018), https://www.nclc.org/images/pdf/udap/udap-report.pdf [https://perma.cc/L63Y-DMQV].

3 *See, e.g.*, Melvin Aron Eisenberg, *Text Anxiety*, 59 S. CAL. L. REV. 305, 309 (1986) (arguing that consumers find reading dense texts of form contracts a daunting task); Robert A. Hillman & Jeffrey J. Rachlinski, *Standard-Form Contracting in the Electronic Age*, 77 N.Y.U. L. REV. 429, 436 (2002) (highlighting "the costs of reading, interpreting, and comparing standard terms").

4 *See, e.g.*, 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, 3 (2014) (finding that consumers rarely read end-user license agreements); *see also* Ian Ayres & Alan Schwartz, *The No-Reading Problem in Consumer Contract Law*, 66 STAN. L. REV. 545, 546 (2014) ("People rarely read the forest of trees that are harvested and mailed in the form of credit card and cell phone contracts, insurance policies, gym membership agreements, or mutual fund prospectuses."); RESTATEMENT OF CONSUMER CONTS. § 3 reporters' notes, at 63 (AM. L. INST., Tentative Draft 2019) [hereinafter DRAFT RESTATEMENT 2019] ("The standard contract terms are invisible to most consumers . . . .").

reading.[5] Courts, legislators, and agencies are trying to hedge some of the negative results of this dynamic but have had limited success.[6]

This dismal equilibrium is now facing disruption. Advances in language models—a branch of artificial intelligence ("AI")—have given rise to a novel technology: "smart readers."[7] Using a smart reader, a prospective buyer can pull out her phone, scan the clause above, and click "*explain*." The smart reader offers this succinct summary:[8]



The human-machine interaction, however, does not need to end here. If the specific user prefers the use of concrete examples rather than abstract statements, she can click "*example*":[9]

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5 *See, e.g.*, Melvin Aron Eisenberg, *The Limits of Cognition and the Limits of Contract*, 47 STAN. L. REV. 211, 241 (1995) ("Form insurance contracts, for example, typically include thirty, forty, or more terms. Moreover, the meaning and effect of the preprinted provisions will very often be inaccessible to laypersons."); Russell Korobkin, *Bounded Rationality, Standard Form Contracts, and Unconscionability*, 70 U. CHI. L. REV. 1203, 1239–44 (2003) (explaining that firms will "race to the bottom" with respect to the quality of nonsalient contract terms); *see also* Stephen J. Choi, Mitu Gulati & Robert E. Scott, *Variation in Boilerplate: Rational Design or Random Mutation*?, 20 AM. L. & ECON. REV. 1 (2018) (documenting the existence of inertia and encrustation of legal terms in commercial contracts); Lauren E. Willis, *Performance-Based Consumer Law*, 82 U. CHI. L. REV. 1309, 1317–21 (2015) (exploring strategic manipulations of contractual text). *But see* David A. Hoffman, *Relational Contracts of Adhesion*, 85 U. CHI. L. REV. 1395, 1421–41 (2018) (investigating instances where firms deliberately create consumer-friendly contracts).

6 *See, e.g.*, MARGARET JANE RADIN, BOILERPLATE: THE FINE PRINT, VANISHING RIGHTS, AND THE RULE OF LAW 8–12 (2013) (arguing that consumer contracts erode consumer rights and allow firms to create their own legal universe); W. David Slawson, *Standard Form Contracts and Democratic Control of Lawmaking Power*, 84 HARV. L. REV. 529, 529 (1971) (submitting that consumer contract terms are "almost universally unfair"); *see also* Jean Braucher, *Unfair Terms in Comparative Perspective: Software Contracts*, *in* COMMERCIAL CONTRACT LAW: TRANSATLANTIC PERSPECTIVES 339, 339 (Larry A. DiMatteo et al. eds., 2013) ("[M]ost policymakers, regulators, and scholars concede that there often can be no real assent to mass-market standard terms, but then balk at meaningful solutions to address market failure."); Ethan J. Leib, *What is the Relational Theory of Consumer Form Contract?*, *in* REVISITING THE CONTRACTS SCHOLARSHIP OF STEWART MACAULAY 259, 259 (Jean Braucher et al. eds., 2013) ("One of the most puzzling and embarrassing facts about contract law and contracts scholarship in the United States is that neither has found a consistent way to treat the real contracts of our lives: standardised consumer form contracts.").

7 *See infra* Part I for a discussion of the technology.

8 Screenshot of smart reader explanation [1] (on file with authors).

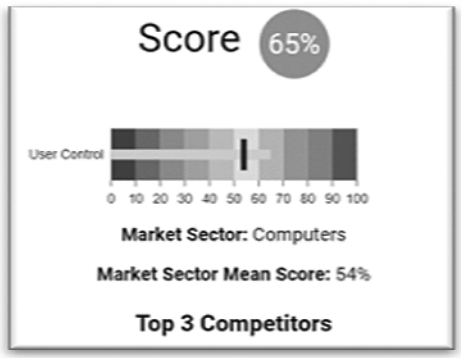
9 Screenshot of smart reader explanation [1] (on file with authors).

[The clause] means that if there are any disputes about the contract, the courts will rely on the law of the state of California to make their decision.

With these clarifications in hand, the user now wants to understand the meaning of "severability." She clicks on the term, and the smart reader responds:[10]

Severability simply means that if part of the contract is found to be illegal or unenforceable, the rest of the contract remains in full force and effect.

Feeling that she has a sufficient grasp of the contract, the user now wants to know more about the accompanying privacy policy. She clicks "benchmark":[11]



The score allows her to assess the overall strength of the policy in a glimpse. Critically, the smart reader also offers an industry mean score and comparisons to competitors who offer better terms. Taken together, the smart reader not only provides an understanding of the fine print but also of the market and the alternatives it offers.

To better see the practical import of smart readers, consider the textbook staple of *Williams v. Walker-Thomas Furniture Co*.[12] Ms. Williams, a mother of seven living on social benefits, entered a rent-

10 Content produced via https://play.aidungeon.io/main/home [https://perma.cc/DV9Q-S47L].

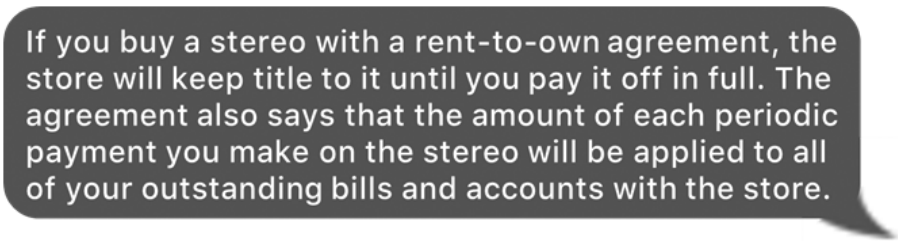
11 *PrivacyCheck: Overview*, Chrome Web Store, https://chrome.google.com/webstore/detail/privacycheck/poobeppenopkcbjejfjenbiepifcbclg/related?hl=en]-US [https://perma.cc/8KVM-3HTE].

12 350 F.2d 445 (D.C. Cir. 1965).

to-own agreement for a stereo set.[13] The agreement stated that the store held title to goods sold until paid in full.[14] It also contained the following clause, described by the court as "rather obscure":[15]

> [T]he amount of each periodical installment payment to be made by [purchaser] to the Company under this present lease shall be inclusive of and not in addition to the amount of each installment payment to be made by [purchaser] under such prior leases, bills or accounts; and all payments now and hereafter made by [purchaser] shall be credited pro rata on all outstanding leases, bills and accounts due the Company by [purchaser] at the time each such payment is made.

If Ms. Williams had a smart reader on her phone,[16] she could have tapped it to receive the following output:[17]



This output marks the consequences of the cross-collateral agreement in relatively simple terms. Although it is not perfect—and does not make the term any less one-sided—it marks a distinct improvement over the original language. Empowered by a better understanding of the transaction, shoppers may search for a better deal in another store or avoid the purchase altogether.[18]

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13 *Id.* at 447–48.

14 *Id.* at 447.

15 *Id.* (clarifying that the meaning "of this rather obscure provision was to keep a balance due on every item purchased until the balance due on all items, whenever purchased, was liquidated"); *see also* Tess Wilkinson-Ryan, *A Psychological Account of Consent to Fine Print*, 99 IOWA L. REV. 1745, 1759 (2014) (describing the term as "so opaque that it would be unreasonable to expect parties without advanced education to understand the financial risk").

16 For a discussion of the availability of smart phones among low-income individuals, see *infra* note 170 and accompanying text.

17 Screenshot of smart reader explanation [2] (on file with authors).

18 *See* Russell Korobkin, *A "Traditional" and "Behavioral" Law-and-Economics Analysis of* Williams v. Walker-Thomas Furniture Company, 26 U. HAW. L. REV. 441, 452 (2004) ("There is no reason to believe that Williams lacked the choice of shopping elsewhere."). In *infra* Section III.A we develop the point that even in markets where choice is limited, empowering consumers can have dynamic competitive effects.

We did not write these examples, nor did any other human, for that matter. Rather, the examples are taken from a recently released version of a language model called GPT-3.[19] Remarkably, we used a weak version of this model, and we did not use fine-tuning or optimization. The only caveat—and one to keep in mind throughout the Article—is that we cherry-picked the examples.[20] Nevertheless, an app's ability to respond intelligently to queries about an unfamiliar legal text is a clear technological breakthrough.

This Article aims to analyze the capabilities of smart readers, evaluate their significance for consumer and contract law, and illuminate some of the hidden benefits and risks they carry. [21] In the process, it joins contemporary conversations in law and technology by illuminating several key questions: Can the reading of disclosures, privacy policies, and consumer contracts be automated? What does the growing transparency in agreements mean for markets, firms, and individuals? Can we think of assent as a technological challenge rather than an ethical one? What does consumer adoption of the technology tell us about our theories of consumer behavior? And what remains of the case for pro-consumer regulation if reading is automated?

We investigate these questions in four Parts. Part I offers a comprehensive analysis of smart readers' capabilities. Using concrete examples, smart readers are shown to be effective in the (1) *simplification* and summary of the text; (2) *personalization* of text to the specific readers' characteristics; (3) *construction* of the meaning of the contract; and (4) *benchmarking* of contracts by assigning them a score relative to the competition. To be sure, these high-tech capabilities have their low-tech counterparts. Lawyers and consultants would gladly perform these services for their clients, but the difference is in the cost, speed, and accessibility.[22] Between a lawyer and a smartphone, only the latter fits in the pocket.

With any technology, a critical question is whether individuals will choose to use it, and it cannot be merely assumed that adoption will be broad, swift, or inclusive. Part II grapples with this question,

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19 For more information on GPT-3, see *infra* notes 39–45 and accompanying text.

20 *See infra* Section III.B.

21 Our analysis complements a separate technological development, that of AI assistants—such as Alexa or Siri—who execute transactions on behalf of the consumer. The development of assistants and their market implications were analyzed at depth in Rory Van Loo, *Digital Market Perfection*, 117 MICH. L. REV. 815 (2019).

22 *See* RONALD L. BURDGE, UNITED STATES CONSUMER LAW: ATTORNEY FEE SURVEY REPORT 2017–2018, at 26 (2019) (claiming that "the average hourly rate for the typical Consumer Law attorney in the United States is $345").

with mindful awareness of the notorious track record of many predictions on technological adoption.[23] On the one hand, there is a common intuition that consumers are averse to reading, in any form. On this intuition, even if smart readers prove effective and affordable, uptake would be limited. On the other hand, users have shown deep interest in technologies that facilitate transactional information: consumers quickly adapted to online reviews, which they voraciously consume.[24] Moreover, smart readers have already proven their mettle in the field: sophisticated hedge funds have unleashed their proprietary smart readers on firm disclosures and entrusted them with making trading decisions—in the billions of dollars.[25] These and other considerations discussed in Part II demonstrate that the technology is sufficiently mature to warrant serious attention today.

That said, the prospect that smart readers might fail is intriguing in and of itself. Invoking the notion of Wittgenstein's Ruler,[26] we propose that lukewarm adoption should invite deep reflection on the validity of theories that set to explain reading gaps. After all, many of our theories are anchored in the semantic complexity, length, and formatting of the form—and smart readers address these issues directly. Most provocatively, lax demand may suggest that average consumers do not share the sentiment of some commentators, in that they

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23 *See, e.g.*, *The 22 Worst Tech Predictions of All Time*, HERO LABS (Aug. 1, 2019), https://www.hero-labs.com/blog/the-22-worst-tech-predictions-of-all-time/ [https://perma.cc/UZ6M-X8GZ] ("'The automobile is a fad, a novelty. Horses are here to stay.' . . . 'Remote shopping, while entirely feasible, will certainly flop. It has no chance of success.' *Time Magazine, 1966*. . . . 'I don't know . . . there just aren't that many videos I want to watch.' *Steve Chen, founder of YouTube . . . 2005*. . . . 'There is no chance of the iPhone ever gaining significant market share'. *Steve Ballmer*, *CEO of Microsoft, 2007*."); *see also* Van Loo, *supra* note 21 (highlighting the difficulty and need to craft legal responses for early-stage technologies).

24 *See* Yonathan A. Arbel, *Reputation Failure: The Limits of Market Discipline in Consumer Markets*, 54 WAKE FOREST L. REV. 1239, 1289 (2019) (noting the history and rapid acceptance of online reviews). As noted there, consumers not only read star averages, but also written reviews. This demonstrates that consumers have at least some appetite for learning about transactions through reading.

25 Sean Cao, Wei Jiang, Baozhong Yang & Alan L. Zhang, *How to Talk when a Machine Is Listening: Corporate Disclosure in the Age of AI* 1 (Nat'l Bureau of Econ. Rsch., Working Paper No. 27950, 2020) ("A substantial amount of buying and selling of shares are triggered by recommendations made by robots and algorithms which process information with machine learning tools and natural language processing kits."); Adam Satariano & Nishant Kumar, *The Massive Hedge Fund Betting on AI*, BLOOMBERG (Sept. 27, 2017, 12:00 AM), https://www.bloomberg.com/news/features/2017-09-27/the-massive-hedge-fund-betting-on-ai [https://perma.cc/8CZ4-VVYU].

26 *See* LUDWIG WITTGENSTEIN, REMARKS ON THE FOUNDATIONS OF MATHEMATICS 21–28 (G.H. Von Wright et al. eds., G.E.M. Anscombe trans., rev. ed. 1978) ("Am I always measuring the table; am I not sometimes checking the ruler?"); *infra* note 102 and accompanying text.

do not feel the risk of boilerplate is similar to "lay[ing one's] head into the mouth of a lion."[27]

Part III examines the social implications of smart readers. Even with limited adoption, smart readers can have broad market effects, plausibly jumpstarting term competition in dormant markets. But along with their many salutary effects, smart readers also carry significant risks. These include discrimination, bias, and errors—risks that further merit taking this technology seriously. One novel concern we address is that of adversarial attacks by sophisticated firms.[28] Adversarial attacks are a growing concern among computer scientists, who define them as the intentional insertion of "malicious inputs modified to yield erroneous model outputs."[29] The effects of these attacks are far reaching and will become a pressing concern in many areas where AI-based models are deployed.

Finally, Part IV examines the legal implications of smart readers. Many consumer protection measures use the lack of reading and understanding of contracts as their fulcrum.[30] For example, in an important recent article, Robin Bradley Kar and Margaret Jane Radin argued that boilerplate aspects of a transaction are "no longer contract" because they drive a wedge between the parties' shared understanding, inviting deception.[31] Indeed, reading and understanding

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27 KARL N. LLEWELLYN, THE COMMON LAW TRADITION: DECIDING APPEALS 362–71 (1960).

28 The closest discussion we are aware of is Van Loo, *supra* note 21, at 841–43, who considers the possibility that sellers will change product attributes strategically to make comparison shopping harder for AI agents. Even outside of contract law, the concept is rarely addressed. The only other legal articles known to us that deal with adversarial examples are Gary Marchant & Rida Bazzi, *Autonomous Vehicles and Liability: What Will Juries Do?*, 26 B.U. J. SCI. & TECH. L. 67, 76 (2020) (mentioning adversarial examples in passing); and Andrew D. Selbst, *Negligence and AI's Human Users*, 100 B.U. L. REV. 1315, 1350–54 (2020) (explaining the challenge posed by adversarial attacks to conventional tort law).

29 Nicolas Papernot, Patrick McDaniel, Ian Goodfellow, Somesh Jha, Z. Berkay Celik & Ananthram Swami, *Practical Black-Box Attacks Against Machine Learning*, *in* PROCEEDINGS OF THE 2017 ACM ASIA CONFERENCE ON COMPUTER AND COMMUNICATIONS SECURITY 506, 506 (2017), https://dl.acm.org/doi/pdf/10.1145/3052973.3053009 [https://perma.cc/X485-4DPA].

30 *See* Ayres & Schwartz, *supra* note 4, at 549 ("Consumer protection law responds to the doctrine by attempting to induce firms to create a real opportunity for consumers to read."); *see also* DRAFT RESTATEMENT 2019, *supra* note 4, at 1 ("Consumer contracts present a fundamental challenge . . . arising from the asymmetry in information, sophistication, and stakes between the parties . . . .").

31 Robin Bradley Kar & Margaret Jane Radin, *Pseudo-Contract and Shared Meaning Analysis*, 132 HARV. L. REV. 1135, 1140 (2019); *see also* Todd D. Rakoff, *Contracts of Adhesion: An Essay on Reconstruction*, 96 HARV. L. REV. 1173, 1176, 1242, 1250–55, 1258 (1983) (suggesting that nonnegotiated, nonsalient boilerplate terms "ought to be considered presumptively . . . unenforceable"); LLEWELLYN, *supra* note 27 (arguing that consumers cannot meaningfully express specific assent to nonnegotiated terms); Friedrich Kessler, *Contracts of Ad-*

barriers are central themes in the new, proposed Restatement of Consumer Contracts, as well as in many cases and statutes.[32] Part IV asks what remains of this fulcrum if smart readers can offer a technological solution to the reading problem. At the very least, the rise of smart readers will change the terms of engagement between laissez-faire advocates and social reformers. It then considers the doctrinal adaptations necessary to adapt contract doctrine to smart readers.

The Article joins a few important contemporary conversations. First, the debates on barriers to the reading and understanding of contracts are evergreen but recently became urgent given the imminent vote on the new Restatement of Consumer Contracts. One central issue in the debate is the weight that should be given to consent to online terms and conditions.[33] The possibility of smart readers shifts the terms of the debate and may lead to a greater focus on market conditions and alternatives, than on term ignorance.

A second growing set of conversations concerns the relationship between AI, discrimination, inequality, and access to justice. Scholars

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hesion—Some Thoughts About Freedom of Contract, 43 COLUM. L. REV. 629, 632 (1943) (stating the weaker party's assent to standard contracts "is but a subjection more or less voluntary"); Arthur Allen Leff, *Contract as Thing*, 19 AM. U. L. REV. 131, 143 (1970) (arguing that contracts of adhesion are "not the product of a cooperative process, but the creation (essentially) of only one of the parties"); Lewis A. Kornhauser, Comment, *Unconscionability in Standard Forms*, 64 CALIF. L. REV. 1151, 1162 (1976) (arguing that the majority of standardized terms "are candidates for non-enforcement"); Edith R. Warkentine, *Beyond Unconscionability: The Case for Using "Knowing Assent" as the Basis for Analyzing Unbargained-for Terms in Standard Form Contracts*, 31 SEATTLE U. L. REV. 469, 472 (2008) (arguing that consumers' assent to form contracts "is a fiction"); *cf.* RADIN, *supra* note 6 (criticizing the current legal regime and highlighting the need to tackle the harmful effects of harsh boilerplate terms).

32 *See, e.g.*, DRAFT RESTATEMENT 2019, *supra* note 4. We return to this issue in more detail *infra* Section IV.A.

33 *See* Letter from Letitia James, N.Y. Att'y Gen., et al. to Members of Am. L. Inst. (May 14, 2019) (on file with the N.Y. Off. of the Att'y Gen.), https://ag.ny.gov/sites/default/files/letter_to_ali_members.pdf [https://perma.cc/K7UE-4D2Y] (a letter from twenty-three attorneys general, critiquing the Draft reporter's stance that a lax approach to mutual assent should be adopted because consumers do not read or understand form contracts); Dee Pridgen, *ALI's Restatement of the Law of Consumer Contracts: Perpetuating a Legal Fiction?*, 32 LOY. CONSUMER L. REV. 540 (2020); Ian MacDougall, *Soon You May Not Even Have to Click on a Website Contract to Be Bound by Its Terms*, PROPUBLICA (May 20, 2019, 1:17 PM), https://www.propublica.org/article/website-contract-bound-by-its-terms-may-not-even-have-to-click [https://perma.cc/822W-PT6G]; Melvin Eisenberg, *The Proposed Restatement of Consumer Contracts, if Adopted, Would Drive a Dagger Through Consumers' Rights*, YALE J. ON REG.: NOTICE & COMMENT (Mar. 20, 2019) (censuring the Draft because its approach to terms is "farcical," as "[f]orm contract terms are normally obscure, legalistic, or both"), https://www.yalejreg.com/nc/the-proposed-restatement-of-consumer-contracts-if-adopted-would-drive-a-dagger-through-consumers-rights-by-melvin-eisenberg/ [https://perma.cc/8EYG-P6HV]; *see also infra* notes 212–21 and accompanying text.

are becoming growingly aware of the potential for bias and discrimination when algorithms make decisions.[34] The Article meets these conversations by showcasing that AI can contribute to positive change when used to empower consumers. Smart readers can narrow gaps in access to justice mostly through the channel of access to lawyering-like services. They can also raise awareness of disparate treatment by benchmarking individual offerings. At the same time, gaps in digital inclusion and discrimination based on whether an individual uses a smart reader can themselves exacerbate inequality.

Finally, there is a growing interest today among agencies, courts, and digital platforms in adopting AI technologies to improve the regulatory and adjudicative process.[35] Smart readers are a powerful addition to this arsenal because they allow easy benchmarking of industry-wide practices and effective screening of abusive practices on a large scale. Courts can employ smart readers to replicate the way individuals access the contract in question, thus improving the interpretative process. The technology also allows for easy implementation of "corpus linguistics"—a newly proposed technique of ascertaining meaning by consulting actual modes of usage.[36]

Smart readers are here. As with any technology, they create winners and losers. Whether or how the potential of smart readers will be realized depends not only on the technology but also on the legal environment that interacts with it. With further improvements rapidly coming, it is thus high time to prepare for an age where machines can read contracts.

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34 The literature on that issue is quickly growing. For examples of important contributions, see Sandra G. Mayson, *Bias In, Bias Out*, 128 YALE L.J. 2218 (2019); Deborah Hellman, *Measuring Algorithmic Fairness*, 106 VA. L. REV. 811 (2020); and Benjamin H. Barton & Deborah L. Rhode, *Access to Justice and Routine Legal Services: New Technologies Meet Bar Regulators*, 70 HASTINGS L.J. 955 (2019).

35 *See, e.g.*, DAVID FREEMAN ENGSTROM, DANIEL E. HO, CATHERINE M. SHARKEY & MARIANO-FLORENTINO CUÉLLAR, GOVERNMENT BY ALGORITHM: ARTIFICIAL INTELLIGENCE IN FEDERAL ADMINISTRATIVE AGENCIES (2020), https://www-cdn.law.stanford.edu/wp-content/uploads/2020/02/ACUS-AI-Report.pdf [https://perma.cc/4KTS-PHWD]; Alicia Solow-Niederman, *Administering Artificial Intelligence*, 93 S. CAL. L. REV. 633 (2020); Rory Van Loo, *Rise of the Digital Regulator*, 66 DUKE L.J. 1267, 1324 (2017); Richard M. Re & Alicia Solow-Niederman, *Developing Artificially Intelligent Justice*, 22 STAN. TECH. L. REV. 242 (2019) (exploring "robo-judging").

36 Stephen C. Mouritsen, *Contract Interpretation with Corpus Linguistics*, 94 WASH. L. REV. 1337 (2019); Omri Ben-Shahar, *Data Driven Contract Interpretation: Discovering "Plain Meaning" Through Quantitative Methods*, JOTWELL (June 13, 2018), https://contracts.jotwell.com/data-driven-contract-interpretation-discovering-plain-meaning-through-quantitative-methods/ [https://perma.cc/32CF-ZXT7].

I. Smart Readers: Technology and Capabilities

We start our discussion by mapping and illustrating the core capabilities of smart readers. Smart readers are built on machine learning language models, and we particularly rely on a recent model known as GPT-3. After offering a brief introduction of the technology, we consider its capabilities. In discussing these capabilities, we try to navigate the problem that the technology is quickly evolving. Yet, specific examples are needed to ground the discussion. We find a middle ground here by mapping core capabilities while using concrete examples from an existing model. As we rely on current technology to produce the examples, the reader will do well to consider our examples to be a lower bound on future technological capabilities.[37]

Rather than focusing on technical detail, let us provide an intuitive sense of how the language models that power smart readers see the world. At the core, a language model is a statistical representation of human language. The model is the product of a machine-learning process, which scours texts and learns to detect statistical patterns. An important observation is that the language model does not learn to read; it learns to see patterns. Although a native English speaker would intuitively know to say, "great old green dragons" but not "old green great dragons," they would find it difficult to explain that logic to a machine. A machine learning algorithm would simply learn that the former phrase is 8.4 times more likely than the latter.[38]

One of the latest language models is called GPT-3.[39] Produced by the San Francisco-based nonprofit OpenAI,[40] this language model was trained on an immense collection of data, the smallest part being the

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37 Within the time frame of writing this Article, Google has already produced an even more ambitious language model, six times in parameter the size of GPT-3. *Compare* Tom B. Brown et al., *Language Models Are Few-Shot Learners*, arXiv (July 22, 2020), https://arxiv.org/abs/2005.14165 [https://perma.cc/5ZDM-R8KT] (noting the GPT-3 model has 175 billion parameters), *with* William Fedus, Barret Zoph & Noam Shazeer, *Switch Transformers: Scaling to Trillion Parameter Models with Simple and Efficient Sparsity*, arXiv (Jan. 11, 2021), https://arxiv.org/abs/2101.03961v1 [https://perma.cc/SS64-XZNY] (noting the Google model has up to a trillion parameters).

38 The example is based on Mark Forsyth, The Elements of Eloquence (2013).

39 *See* Brown et al., *supra* note 37. The technical approach is described in Alec Radford, Jeffrey Wu, Rewon Child, David Luan, Dario Amodei & Ilya Sutskever, *Language Models are Unsupervised Multitask Learners*, OpenAI (Feb. 14, 2019) https://d4mucfpksywv.cloudfront.net/better-language-models/language_models_are_unsupervised_multitask_learners.pdf [https://perma.cc/V9X5-HLJ4]. For an accessible account, see, for example, Jay Alammar, *How GPT3 Works—Visualizations and Animations*, Jay Alammar (July 27, 2020), http://jalammar.github.io/how-gpt3-works-visualizations-animations/ [https://perma.cc/9FEK-L9C6].

40 *About*, OpenAI, https://openai.com/about/ [https://perma.cc/GDG5-MBD7].

entirety of Wikipedia.[41] Based on its statistical analysis of these sources, the model can produce convincing articles, poetry, horoscope columns, a summary of movie plots in emojis,[42] and even write some not-too-bad comedy scripts.[43] None of this is based on our notion of understanding text; the model simply predicts which words should follow the user's initial input. The model's capabilities captured the imagination of both technologists and laypeople.[44] Perhaps most illustrative is the reaction of the philosopher of mind David Chalmers, who called it "one of the most interesting and important AI systems ever produced."[45]

With this in mind, let us now examine the four key capabilities of smart readers in the context of consumer contracts.

A. Simplification

It comes as little surprise to most that contracts feature complex, long, and uninviting text. Judges, lawyers, policymakers, academics, and laypeople share this intuition and routinely complain about it.[46] There is broad agreement that contracts are hard to read because of

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41 The model is trained on "45TB of compressed plaintext" which includes all of Wikipedia and other (much larger) databases. Brown et al., *supra* note 37, at 8–9.

42 For a collection of examples (including failed ones), see Gwern Branwen, *GPT-3 Creative Fiction*, GWERN (Sept. 28, 2020), https://www.gwern.net/GPT-3 [https://perma.cc/9YTA-2RBA] (describing movie plots in emojis, including "*Matrix*: '🚇😐'; *The Hunger Games:* '🏹🔥🐦'").

43 *See* Arram Sabeti, *Why GPT-3 Is Good for Comedy, or: Don't Ever Do an AMA on Reddit*, ARRAM (July 22, 2020), https://arr.am/2020/07/22/why-gpt-3-is-good-for-comedy-or-reddit-eats-larry-page-alive/ [https://perma.cc/W5N3-6BG8].

44 *See, e.g.*, Karen Hao, *These Weird, Unsettling Photos Show that AI is Getting Smarter*, MIT TECH. REV. (Sept. 25, 2020) ("Of all the AI models in the world, OpenAI's GPT-3 has most captured the public's imagination."); Amir HajiRassouliha, *What Can GPT-3 Do to Accelerate Conversational AI and Digital Human Innovation?*, UNEEQ DIGIT. HUMS. (Sept. 1, 2020) ("The incredible deep learning skills of GPT-3 have captured the imagination of the technology community . . . .").

45 David Chalmers, *GPT-3 and General Intelligence*, DAILY NOUS (July 30, 2020, 3:02 PM), https://dailynous.com/2020/07/30/philosophers-gpt-3/ [https://perma.cc/H2EZ-4DT8].

46 *See, e.g.*, Eisenberg, *supra* note 3; Korobkin, *supra* note 5, at 1233 (noting that form terms are often "hard to read, hard to understand, and hard to compare . . . ."); Jeffrey Davis, *Protecting Consumers from Overdisclosure and Gobbledygook: An Empirical Look at the Simplification of Consumer-Credit Contracts*, 63 VA. L. REV. 841 (1977); Michael I. Meyerson, *The Efficient Consumer Form Contract: Law and Economics Meets the Real World*, 24 GA. L. REV. 583 (1990); John Fry, *Comic*, CARTOONSTOCK, https://www.cartoonstock.com/cartoon?searchID=CS116580 [https://perma.cc/GC6R-M7D6] (capturing this sentiment in a comic where a manager speaks to his attorney, saying "These new Terms and Conditions you've drafted for us are extremely long and overly complex—our customers are never going to be able to understand them. Well done Jones!").

their semantic difficulty,[47] length,[48] formatting,[49] and legalese.[50] For example, one study of popular online consumer form contracts found that these contracts were written at a level that matches academic articles.[51]

The problem of complexity can be mitigated, if not defeated, by the simplification of text. When done properly, simplification can alert the reader to obligations that would otherwise be hidden in the prolix.[52] Smart readers are increasingly adept at the task of reducing text complexity. They do so by summarizing text, lowering language register, shortening text length, simplifying sentence structure, transforming formatting, and eliminating nonessential content.[53] To illustrate, consider a lessee confronting the following clause in the lease agreement:

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47 *See, e.g.*, Uri Benoliel & Shmuel I. Becher, *The Duty to Read the Unreadable*, 60 B.C. L. REV. 2255 (2019) (measuring the linguistic complexity of online consumer contracts); Michael L. Rustad & Thomas H. Koenig, *Wolves of the World Wide Web: Reforming Social Networks' Contracting Practices*, 49 WAKE FOREST L. REV. 1431, 1475 (2014) (studying the linguistic complexity of social network contracts); Florencia Marotta-Wurgler & Robert Taylor, *Set in Stone? Change and Innovation in Consumer Standard-Form Contracts*, 88 N.Y.U. L. REV. 240 (2013) (documenting the complexity of end-user license agreements).

48 *See* Aleecia M. McDonald & Lorrie Faith Cranor, *The Cost of Reading Privacy Policies*, 4 I/S: J.L. & POL'Y FOR INFO. SOC'Y 543, 563 (2008) (finding that it would take the average consumer 244 hours—which equals 30.5 standard workdays—to read the privacy policies they encounter online annually).

49 *See* Yonathan A. Arbel & Andrew Toler, *ALL-CAPS*, 17 J. EMPIRICAL LEGAL STUD. 862, 874 (2020) (finding in a large sample of consumer contracts that 77% included at least one paragraph in all-caps).

50 *See, e.g.*, Eisenberg, *supra* note 5, at 242; Hillman & Rachlinski, *supra* note 3, at 446, 448, 479 (noting the difficulty posed by legal jargon).

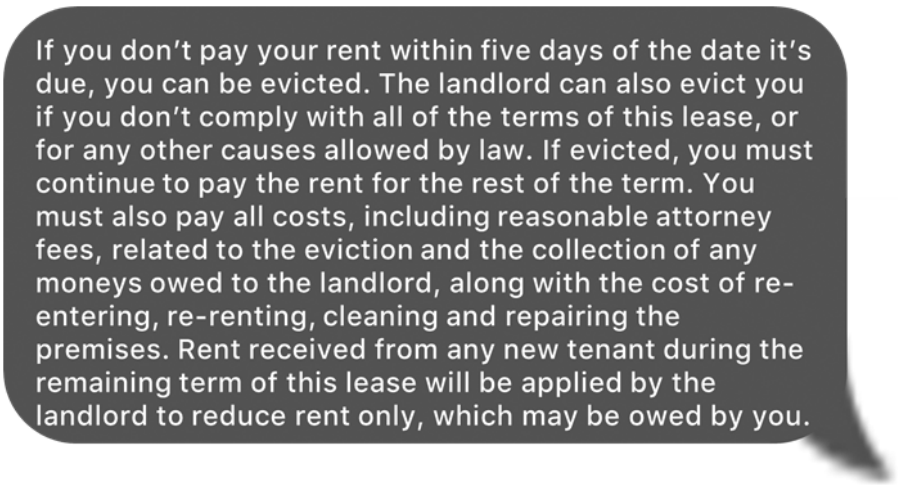
51 *See* Benoliel & Becher, *supra* note 47.

52 Reformatting can render the fine print less fine by displaying easier to read fonts, increasing spacing, and removing all-caps and other difficult formatting choices. On the failure of capitalization to improve readability, see Arbel & Toler, *supra* note 49.

53 *See, e.g.*, Louis Martin, Angela Fan, Éric de la Clergerie, Antoine Bordes & Benoît Sagot, *Multilingual Unsupervised Sentence Simplification*, ARXIV (May 1, 2020), https://arxiv.org/pdf/2005.00352v1.pdf [https://perma.cc/89MS-47AD] (defining text simplification as "reducing the complexity of the . . . text while retaining its original meaning").

> 8. EVICTION: If the TENANT does not pay the rent within five (5) days of the date when it is due, the TENANT may be evicted. The LANDLORD may also evict the TENANT if the TENANT does not comply with all of the terms of this Lease, or for any other causes allowed by law. If evicted, the TENANT must continue to pay the rent for the rest of the term. The TENANT must also pay all costs, including reasonable attorney fees, related to the eviction and the collection of any moneys owed to the LANDLORD, along with the cost of re-entering, re-renting, cleaning and repairing the PREMISES. Rent received from any new tenant during the remaining term of this lease will be applied by the LANDLORD to reduce rent only, which may be owed by the TENANT.[54]

By scanning this text, the smart reader responds with the following output:[55]



The output features shorter sentences, and the language is easier to parse than the original. It also employs the second person, avoids capitalized text, and uses contractions. Critically, it does all of that while largely preserving the meaning of the original clause. Although a matter of judgment, we find the output much easier to parse.

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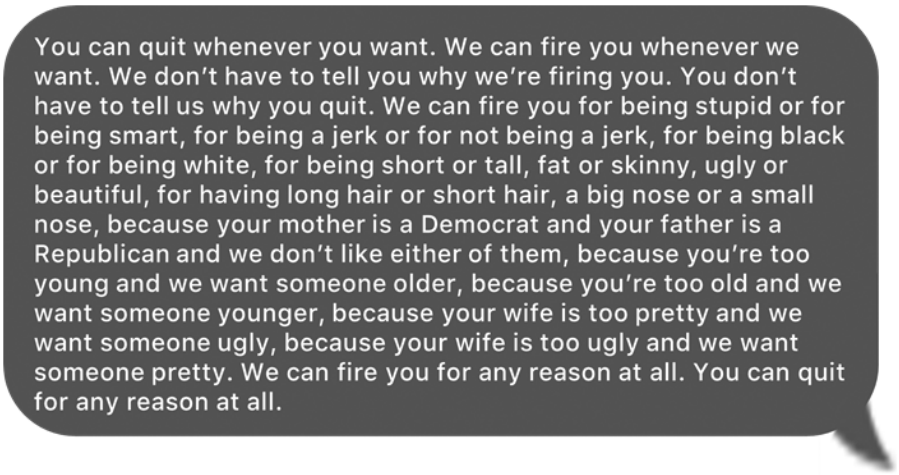
54 Yonathan Arbel, *Lease Agreement*, BATTLE OF THE FORMS (Feb. 9, 2021, 3:16 PM), https://baggleoftheforms.com/wp-content/uploads/2021/02/leade_residential.pdf [https://perma.cc/SVC6-L4GV].

55 Screenshot of smart reader explanation [3] (on file with authors).

Another more nuanced example is the following clause in an employment contract. As before, the original text included in the frame is the input. It is then followed by the smart reader's output.[56]

> 5. At Will Employment. The Board and [Employee] expressly agrees that the employment relationship between the Board and [the Employee] shall be considered at will. [Employee] may terminate employment with the Board at any time, with or without cause, and with or without prior notice. The Board may terminate the employment of [Employee] at any time, with or without cause, and with or without prior notice. This At Will Employment Contract supercedes any ***contrary*** Board policies, procedures, and/or statements of any kind or nature whatsoever. In the event of conflict between any Board policy or procedure and this paragraph, the provisions of this paragraph shall govern.[57]



This explanation is remarkable for several reasons. First, despite its simplicity, it captures the meaning quite well. Second, it is a bit longer than the original, but it may nevertheless be more readable because of its humorous, flippant tone.[58] Third, it uses many illustra-

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56 Screenshot of smart reader explanation [4] (on file with authors).

57 *At Will Employment Contract*, LAW INSIDER (Feb. 4, 2004), https://www.lawinsider.com/contracts/242DHQfPUwj [https://perma.cc/W97X-L5ZL].

58 As suggested to us by Professor David Hoffman, humor degrades over time. This is a challenge to firms who wish to adopt a lighter tone in their contracts but less so to smart readers. We asked the smart reader for another output, and it produced the following:

> You're in the hospital, and you work at starbucks [sic]. . . . There's a new policy at Starbucks. All baristas must wear green lipstick. You don't like green lipstick and you feel like the policy is ridiculous, so you refuse to wear it. Your boss fires you for

tive examples, which give the reader a vivid sense of the import of the clause. Fourth, it contains significant legal errors, most worryingly portraying racial discrimination as legal.[59]

Text summary is a process involving what data scientists call "lossy compression."[60] That is, it runs the risk of losing some of the original meaning of the text in the same way that summarizing *Ulysses* as two men who spend a day walking around Dublin does.[61] Yet, form contracts are not literary masterpieces, and, in our context, such a concern can be easily overstated. Given the high degree of contractual bloat, considerable degree of text can be eliminated without risking loss of meaning.[62]

In essence, smart readers do not merely summarize the text or rephrase it. Rather, they take a liberal approach to the text and can render dense paragraphs quite accessible, if not entertaining. In terms of capability, then, smart readers can solve a host of issues related to the linguistic complexity of contracts. As the following sections show, despite being useful and impressive in many ways, simplification is probably the least exciting part of smart readers.

B. Personalization

Individuals understand the world in different ways owing to their inherent disposition, circumstances, upbringing, culture, idiom and language, cognitive ability, and socioeconomic status.[63] As all teachers know, the same materials require fundamentally different presenta-

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> not following the dress code. . . . That's when you remember the At Will Employment contract you signed when you started.

Screenshot of smart reader explanation [5] (on file with authors).

59 *See* Civil Rights Act of 1964, Pub. L. No. 88-32, 78 Stat. 241 (codified in scattered sections of 28, 42, 52 U.S.C.); Fair Housing Act of 1968, 42 U.S.C. §§ 3601–3619. This is an important risk that should be recognized throughout the Article, and we return to it *infra* Sections III.E, IV.C.4.

60 *See Lossy Compression*, PCMAG, https://www.pcmag.com/encyclopedia/term/lossy-compression [https://perma.cc/U95W-F5WY].

61 *See generally* Anna Gát (@TheAnnaGat), TWITTER (July 4, 2020, 7:33 PM), https://twitter.com/TheAnnaGat/status/1279559029614874627 [https://perma.cc/D267-AK98] (prompting other Twitter users to "describe your favorite NOVEL as boring as possible").

62 The idea of contractual bloat is not without controversy. Precision is an important part of the legal craft and precision may necessitate accounting for a large number of contingencies. At the same time, the structure of incentives asymmetrically favors bloat: firms can discourage reading and lawyers can add fees or save costs by reusing old forms. *See generally* Claire A. Hill, *Why Contracts Are Written in "Legalese,"* 77 CHI.-KENT L. REV. 59 (2001) (discussing the history of form contracts and their persistence).

63 *See* All in the Mind with Sana Qadar, *WEIRD Psychology*, ABC RADIO NAT'L (Oct. 18, 2020), https://www.abc.net.au/radionational/programs/allinthemind/weird-psychology/12766212 [https://perma.cc/NS2W-SQ85].

tions to different audiences. The same problem is relevant in consumer contracts, where a one-size-fits-all approach to disclosure frequently fails. An obvious example is recent immigrants, some of whom have less than a full command of the English language.

But the differences go much deeper. Research in psychology shows, for example, that some individuals process information better when it is presented in abstract terms, and others when it is grounded in examples.[64] Despite these challenges, the uniform approach to disclosure is thought to be unavoidable, given the cost of personalizing contracts on the firm side.[65]

Although regulators understand the need to personalize contracts, they rarely require it of firms. The challenge personalization poses to firms appears almost intractable because adapting contracts to each specific consumer's cognitive skills is arguably prohibitively costly, difficult, and information intensive.[66] In the rare occasions where regulators set requirements on the presentation of contractual text, such as in the case of the Schumer Box,[67] the imaginary audience is some more-or-less average reader, who has a more-or-less average command of the English language, cognitive ability, and cultural literacy.[68]

But what if the personalization can be made, not on the business side, but on the consumer side? Like hearing aids that adjust the volume of speech to the specific needs of the listener, smart readers offer—for the first time—the ability to make such adaptations on the *consumer* side. Smart readers can tailor textual presentation to be highly sensitive to a specific user. For instance, it can consider her cultural expectations, linguistic abilities, and cognitive needs.

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64 *See* Beichen Liang & Joseph Cherian, *Cross-Cultural Differences in the Effects of Abstract and Concrete Thinking on Imagery Generation and Ad Persuasion*, 22 J. INT'L CONSUMER MKTG. 187, 188 (2010).

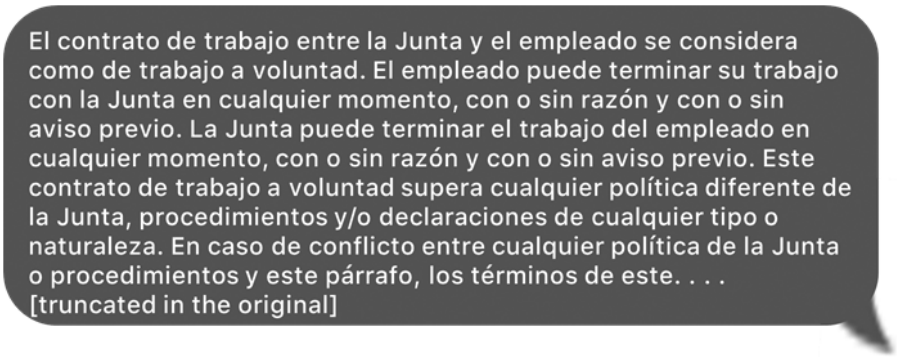
65 With the advent of big data, there is a growing optimism about the power to personalize contracts and contract rules. *See, e.g.*, Ariel Porat & Lior Jacob Strahilevitz, *Personalizing Default Rules and Disclosure with Big Data*, 112 MICH. L. REV. 1417 (2013). For a discussion of the risks of personalization see *infra* Section III.E.

66 *See infra* Section III.E.

67 12 C.F.R. § 226.5 (2021) (requiring firms to clearly disclose the costs of credit cards and specifically prescribing such disclosure to ensure unity among different credit cards issuers).

68 *See, e.g.*, Heinz W. Kirchner, 63 F.T.C. 1282, 1290 (1963) ("An advertiser cannot be charged with liability in respect of every conceivable misconception . . . among the foolish or feeble-minded."); Am. Home Prods. Corp., 98 F.T.C. 136, 371 (1981), *aff'd*, 695 F.2d 681 (3d Cir. 1982) (relying on what "would reasonably have been understood by consumers"); Bristol-Myers Co., 102 F.T.C. 21, 320 (1983), *aff'd*, 738 F.2d 554 (2d Cir. 1984) ("[A]ds must be judged by the impression they make on reasonable members of the public.").

Consider the former example of an at-will clause. This time, however, the reader is Luis, a recent immigrant from a Spanish-speaking country. His specific output will be:[69]



This output is not just a translation. Beyond presenting it in the right language, from Luis's perspective, the smart reader also simplifies the contract and makes it more accessible to his specific needs.[70] Linguistic personalization easily accommodates the needs of those who may be comfortable with English but prefer simpler words, shorter sentences, more explanations, or concrete examples.

Another example comes from the choice of law clause presented above. As the reader may recall, the original term reads:[71]

> **12. Controlling Law and Severability.** This License will be governed by and construed in accordance with the laws of the State of California, excluding its conflict of law principles. This License shall not be governed by the United Nations Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded. If you are a consumer based in the United Kingdom, this License will be governed by the laws of the jurisdiction of your residence. If for any reason a court of competent jurisdiction finds any provision, or portion thereof, to be unenforceable, the remainder of this License shall continue in full force and effect.

69 Screenshot of smart reader explanation [6] (on file with authors).

70 There is a great deal of linguistic diversity among Spanish speakers, so this example only captures one layer of heterogeneity. On the complexity of translating the legal term "at-will" from a Chilean perspective, see Carlos Hernández Contreras, *Origen y Evolución del Despido (At-will Employment) en Los Estados Unidos de Norteamérica*, *in* ESTABILIDAD EN EL EMPLEO 141, 142 (2017) http://www.derecho-trabajo.cl/wp-content/uploads/2019/02/EstabilidadEnElEmpleo2.pdf [https://perma.cc/6L6L-WGCX]. For further discussion of dialects, see *infra* text accompanying note 74.

71 APPLE, *supra* note 1, ¶ 12.

When the user asks the smart reader to adapt it to a young person, it produces the following output:

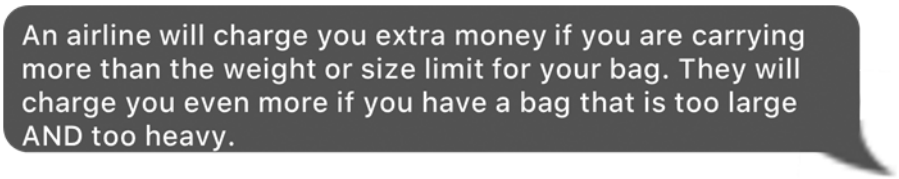
The smart reader offers a lucid explanation. It has short and direct sentences, clearly identified "characters," and a logical narrative. We believe this specific choice of language would be very accessible to young adults, markedly more than the original. This does not resolve the problem of understanding what California law entails, but at least it offers an initial grasp of the clause and questions that need to be asked.

Alternatively, consider the following example of a sixteen-year-old who tries to understand what luggage he can bring with him on his trip. Scanning the airline ticket terms and conditions, he comes across the following clause:[72]

> C. Excess and Oversize/Overweight Baggage Limits and Charges
>
> 1. Except as otherwise provided in the terms of this Contract of Carriage or by law, articles transported as Checked Baggage may not exceed the Maximum Outside Linear Dimensions of 115 linear inches (292 cm) or a maximum weight of 99.9 pounds (45.3 kg).
>
> 2. UA may, in its sole discretion, change, consider or make exceptions to its Excess or Oversize/Overweight Baggage policy (e.g., to the number, size, weight, type and/or applicable service charges).
>
> 3. Charges apply for Excess and Oversize/Overweight Baggage, in addition to applicable Baggage service charges(s) required to be paid pursuant to UA's general Baggage Allowance policy. These charges apply each way (i.e., based on a one-way trip) and are cumulative (i.e., Baggage that is excess and also oversized and/or overweight will be subject to both Excess Baggage *and* Oversize/Overweight Baggage charges).

This time, the smart reader responds with the following output:

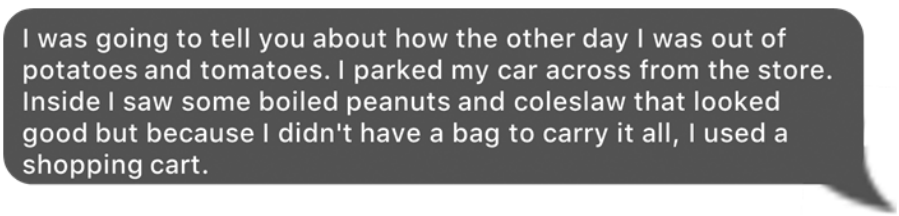
72 *Contract of Carriage Document*, UNITED (Nov. 8, 2021), https://www.united.com/ual/en/us/fly/contract-of-carriage.html#tcm:76-6640 [https://perma.cc/6YMY-SR85].



Beyond its simplification and summary of the text, the output uses a choice of words that would be easy for a teenager to process. Rather than talking about excess fees and service charges, the output simply notes that the airline will "charge you extra money." Using straightforward language that focuses on direct implications would be easily recognizable by most teenagers. The reader also explains the idea of cumulative charges in a highly intuitive way: it uses a concrete example of a bag that is too large *and* too heavy. The examples ground the abstract fee model in a concrete object, making it easier to grasp. Such personalization is a powerful solution for people who have not developed abstract conceptual reasoning or for those who dislike it.[73]

Another capability of personalization is quite subtle. Consider the dialectical differences within subgroups, such as "regionalisms." For simplicity, the following example uses a noncontractual clause spoken by a hypothetical Alabamian and asks the model to adapt it to a Bostonian:[74]

> "I was fixin to tell y'all about how the other day I ran out of maters and taters. I parked my car cattycorner from the store. Inside I saw some boiled goobers and slaw that was fit as a fiddle but because I didn't have a bag to tote it all, I used a buggy."



This example is particularly interesting because private dictionaries are a sore problem in contract law. What is a judge to do when the

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73 The reader might notice that the answer does not capture the content of clause C.2. While there is always a cost to omitting text—lossy compression—we believe most human readers would likely focus on the other clauses as well.

74 Screenshot of smart reader explanation [7] (on file with authors).

parties use Peerless to refer to two different ships?[75] What is a chicken: a young chicken or an older stewing chicken?[76] Must a seller of four-inch square studs deliver studs that are four inches by four inches?[77] If a New Yorker orders Coke from an Alabamian, must the latter provide Coca Cola or would other types of carbonated drinks be permitted?[78] Personalization inches parties toward shared dictionaries.

A last feature of personalization is that it can be intersectionally rich—such as providing custom output to an elderly woman from rural Louisiana. If a consumer is both young and Spanish speaking, it will be trivial to first take the airline ticket and have it processed for a young reader, and then take the resulting output and process it for a Spanish-speaking person. The range of mix-and-match possibilities is broad indeed.

In sum, personalization offers a textual adaptation that is bespoke to the needs of the specific reader. Critically, the adaptation is made on the consumer side. It therefore saves firms the challenge of acquiring information about every customer's specific needs and adapting their disclosures accordingly. Personalization can mitigate the problem of private dictionaries between contracting parties, even if it does not entirely solve it.

C. Construction

To understand a legal text, one needs more than mastery of the language. The classic distinction between interpretation and construction reflects this idea. As used by Arthur Corbin,[79] construction is the act of extracting the legal significance of contractual terms—a process that goes beyond the parsing of words. In the scholarship, the construction function is mostly employed in the context of judges approaching texts. Yet, it is worth recognizing that parties and their lawyers also construct legal text, even if they do so less authoritatively.

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75 *See* Raffles v. Wichelhaus (1864) 159 Eng. Rep. 375. One innovative solution is to give both parties the option to enforce their understanding of the contract. *See* Benjamin Alarie, *Mutual Misunderstanding in Contract*, 46 AM. BUS. L.J. 531, 533–34 (2009).

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

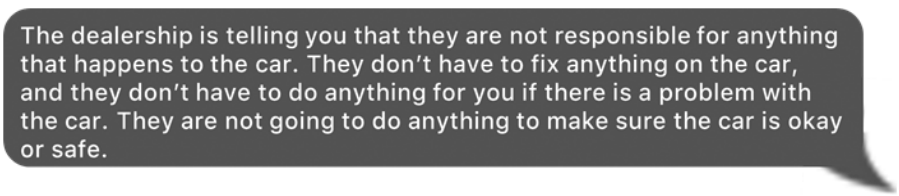
77 *See* Abramov v. Home Depot, Inc., No. 17-cv-1860, 2018 WL 1252105, at *5 (N.D. Ill. 2018) (dismissing the plaintiff's claims, even though the boards were only 3.5" by 3.5" inches).

78 *See* POP VS SODA, https://popvssoda.com [https://perma.cc/R8UD-H5UH].

79 For Arthur Corbin's view of the distinction, see Gregory Klass, Interpretation and Construction in Contract Law 13 (Jan. 19, 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2913228 [https://perma.cc/LD7W-7T4Y].

Using a smart reader, the consumer can ask specific follow-up questions about the *meaning* of the text. Suppose, for example, that a person is about to buy a car. The contract with the dealership states that the car is bought "as is." The term itself is not semantically complex, but its legal meaning may well elude the buyer. Indeed, courts frequently grapple with cases where car buyers had a fundamentally different understanding of the term from that intended by the dealership.[80] Does an "as is" clause preclude returning the car if it turns out later that the engine has a major defect? Can the buyer demand reimbursement if the seller did not disclose material problems? Does "as is" include all types of defects or problems, known and unknown at the time of purchase?[81]

Inputting the "as is" clause to the smart reader results in the following output:[82]



The output explains the legal consequences of buying a car "as is."[83] The smart reader maps the legal concept of "as is" to its legal consequences straightforwardly, the way a lawyer might. Impressively, the smart reader achieves this while also simplifying and personalizing the contract by using the second person, contractions, and repetition.

Another example of construction is a credit agreement that contains, among its many clauses, this one: "You will be in default if: . . . (7) you permanently reside outside the United States."[84] This clause, while linguistically simple, can still raise challenges. Would a trip abroad trigger this clause? Does the consumer risk their credit

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80 *See* Scott J. Burnham, *The Parol Evidence Rule: Don't Be Afraid of the Dark*, 55 MONT. L. REV. 93, 126 (1994).

81 Curtis v. Bill Byrd Auto., Inc., 579 So. 2d 590 (Ala. 1990) (holding that despite an as-is clause, the dealership had a duty to disclose negative information known to it).

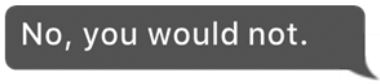
82 Screenshot of smart reader explanation [8] (on file with authors).

83 We again meet the constraint that simplification is "lossy." Car sales are also regulated by state laws—in particular, lemon laws—and the enforceability of contractual clauses is subject to a variety of defenses (most pertinently, fraud).

84 CAPITAL ONE, CUSTOMER AGREEMENT 4, https://www.capitalone.com/media/doc/credit-cards/BR281646_M112863_CA358_LetterSize.pdf [https://perma.cc/PRY9-3D66].

score if they stay overseas with their family for a few weeks? To resolve this, the consumer can simply ask the smart reader:[85]

> "Laura, if I travel to England for one week to visit my grandmother, would I be in default?"



This answer is accurate, though construction is a far more complex task than interpretation. Indeed, there is often little agreement among lawyers regarding the meaning of a specific clause, and judges frequently differ in their construction of legal texts. This means that we cannot expect smart readers to offer authoritative construction in the near future; but at the same time, even if limited, the smart reader's construction might not be far from the accuracy of a reasonable lawyer. It is also worth remembering what H.L.A. Hart once observed: penumbral cases of interpretation may be "the daily diet of the law schools," but they are not the majority of cases.[86] Many mundane questions, such as "can I sublet my apartment?" do not require a great deal of legal mastery if the contract explicitly prohibits subleases. This capability, however, also raises questions regarding the unauthorized practice of law.[87]

D. Benchmarking

Arguably, the most powerful capability of smart readers is that of benchmarking. Smart readers can assign a contract a score or stars based on how it compares with other contracts in the market.

Comparison shopping is an information-intensive activity, as buyers often care about a great variety of factors. These may include price, quality, design, environmental impact, delivery, the product's lifespan, seller's reputation, and—importantly—the contract terms. Consequently, effective comparison shopping involves considerable search costs and cognitive effort.[88] The consumer needs to amass the

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85 Screenshot of smart reader explanation [9] (on file with authors).

86 H.L.A. HART, *Positivism and the Separation of Law and Morals*, *in* ESSAYS IN JURISPRUDENCE AND PHILOSOPHY 49, 72 (1983).

87 For a review of the surrounding issues, see generally Frank Pasquale, *A Rule of Persons, Not Machines: The Limits of Legal Automation*, 87 GEO. WASH. L. REV. 1 (2019). *See also* Barton & Rhode, *supra* note 34 (calling for lax regulatory approach to online technologies that increase access to justice).

88 *See, e.g.*, Rory Van Loo, *Helping Buyers Beware: The Need for Supervision of Big Retail*,

information, process it, and draw comparisons. Even the mundane purchase of toilet paper involves comparisons that exponentially grow in complexity.[89] It is little wonder that psychologists find a phenomenon of choice overload, which might lead to analysis paralysis.[90]

Benchmarking offers a cost-effective solution to this problem. One early (in machine learning timescale) example was in 2014. Researchers from Columbia University built a machine learning model that classifies and ranks privacy policies.[91] The model proved highly accurate in identifying whether the policy includes terms such as ad tracking, encryption of information, or profiling.[92] Based on this analysis, the model was able to state whether a contract included uncommon terms. For example, a profiling term was present in 52% of agreements, whereas 74% of contracts limited the duration of retention of private information.[93] Taking this approach a step further, the researchers developed the means to score privacy agreements based on the inclusion or exclusion of certain terms. This way, the model was able to scan a privacy policy and assign it a grade of "A," "B," or "C," as the case may be.[94]

Such benchmarking capabilities have recently been deployed. In 2021 researchers from the University of Texas at Austin released "PrivacyCheck," a browser extension that provides a free and on-demand ranking of privacy policies.[95] Built on machine learning algorithms,[96] Figure 1 below illustrates the operation of this tool, which

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163 U. Pa. L. Rev. 1311, 1327 (2015) ("The high cost of acquiring information on hundreds of mass retail items among thousands of choices across different stores leads most consumers to make decisions with limited comparative information.").

89 Furthermore, for the consumer to be able to systematically aggregate all the relevant information, each of the product's attributes should be given a relative weight and mark, which together will lead to a combined overall score. This is also known as the "weighted adding strategy." *See generally, e.g.*, James R. Bettman, Mary Frances Luce & John W. Payne, *Constructive Consumer Choice Processes*, 25 J. Consumer Rsch. 187 (1998) (applying this strategy to consumer-related decisions).

90 *See generally* Justin Beneke, *Are Consumers Really Bewildered by Overchoice? An Experimental Approach to the Tyranny of "Too Much,"* 21 J. Food Prods. Mktg. 90, 97 (2015); Barry Schwartz, The Paradox of Choice (2004).

91 Sebastian Zimmeck & Steven M. Bellovin, *Privee: An Architecture for Automatically Analyzing Web Privacy Policies*, *in* Proceedings of the 23rd USENIX Security Symposium 1 (2014).

92 *Id.* at 7–9.

93 *Id.* at 8–9.

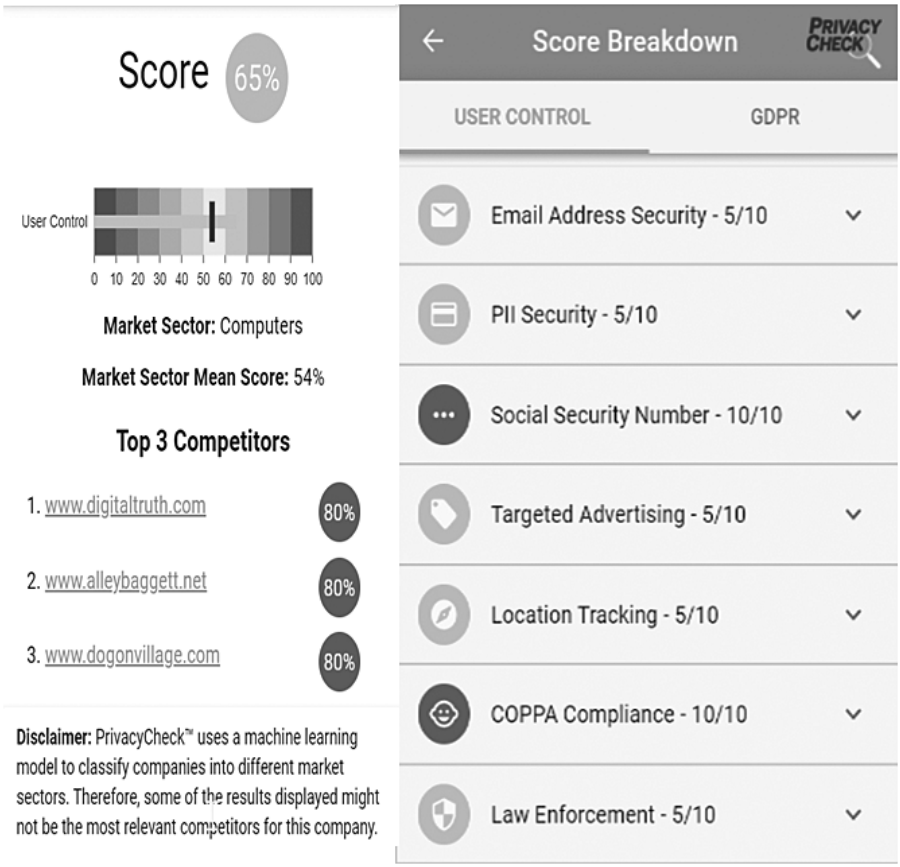
94 *Id.*

95 *PrivacyCheck: Overview*, *supra* note 11.

96 Razieh Nokhbeh Zaeem, Safa Anya, Alex Issa, Jake Nimergood, Isabelle Rogers, Vinay Shah, Ayush Srivastava & K. Suzanne Barber, Univ. Tx. Austin Ctr. for Identity, PrivacyCheck v2: A Tool that Recaps Privacy Policies for You 1 (2020),

evaluates the policy's compliance with twenty different privacy questions.

FIGURE 1. PRIVACYCHECK INTERFACE



As Figure 1 illustrates, the model offers a clear overall score of the privacy policy that the consumer reviews (65%) relative to the mean score of privacy policies in that specific market (54%). It offers a breakdown of some of the reasons for the score and, importantly, provides website links to competitors who offer better privacy policies.

The score provided by the smart reader is similar to the star ranking commonly shown next to products online. It would be possible to augment product searches with this additional metric; it will not require much cognitive effort for consumers to incorporate such a met-

https://identity.utexas.edu/sites/default/files/2020-10/PrivacyCheck%20v2%20A%20Tool%20that%20Recaps%20Privacy%20Policies%20for%20You.pdf [https://perma.cc/T7W7-BUEC].

ric in their decision-making process. Star rankings do not always tell the entire story, and many consumers seek written reviews.[97] The smart reader offers the possibility of an explanation as to the reason beyond the scoring, which the consumer can weigh for themselves.

The smart reader can also direct the consumer to competitors who offer better terms. In markets where sellers offer different terms, such a tool can effectively mobilize consumers to the seller with the best contract. Benchmarking accuracy may improve over time, as smart readers become common. The greater database of contracts could offer more fine-tuned assessments. Thus, benchmarking can streamline many aspects of comparison shopping.

Of all four capabilities, benchmarking is at the most nascent stage. The scoring of terms requires some tricky judgments, and at times there will be ample room to contest any specific judgment. Indeed, ranking contracts is difficult for humans,[98] and we are still far from smart readers that can rival the ability of a seasoned lawyer to rank contracts.[99] Inaccurate benchmarking does not, however, produce meaningless information—despite the difficulty and inaccuracy involved in ranking firms, consumers and regulators often rely on reputational scores.[100] As emphasized throughout this Article, what we should have in mind in assessing the utility of smart readers is not some abstract notion of accuracy, but rather the realistic alternative. Even an imperfect benchmarking tool can offer considerable improvements if consumers do not read contracts and simply rely on their error-prone intuitive judgment.

II. Smart Reader Uptake and (No) Reading Theories

The capabilities of smart readers harbor great promise, yet this potential matters little if consumers do not adopt the technology. The principal purpose of this Part is to tackle the question of consumer

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97 *See generally* Arbel, *supra* note 24 (discussing common failure mode in reviews and other forms of reputational information).

98 For more on this, see Shmuel I. Becher, *A "Fair Contracts" Approval Mechanism: Reconciling Consumer Contracts and Conventional Contract Law*, 42 U. Mich. J.L. Reform 747, 765–67 (2009) (explaining why grading contracts is a challenging task).

99 *See infra* Section III.B (discussing errors and adversarial examples).

100 *See* FTC, The "Sharing" Economy: Issues Facing Platforms, Participants & Regulators 32 (2016), https://www.ftc.gov/system/files/documents/reports/sharing-economy-issues-facing-platforms-participants-regulators-federal-trade-commission-staff/p151200_ftc_staff_report_on_the_sharing_economy.pdf [https://perma.cc/KC3N-68AW] ("[A] seller's favorable reputation can provide important leverage for regulators seeking to ensure consumers are protected when shopping online."); Arbel, *supra* note 24, at 1262–85 (exploring reputational failures).

uptake.[101] On one level, uptake will be a function of the maturity of the technology and its implementation. On a deeper level, uptake implicates a deeper question, namely, why is it that consumers do not read contracts today? Surveying the literature, we map five classes of theories that set out to explain the reading gap. These theories predict different levels of uptake, some more optimistic than others, and we shall argue below that even limited uptake can have broad market implications.

Invoking the concept of Wittgenstein's Ruler, this Part also aims to learn something about the theories themselves. Famously, Wittgenstein argued that when one measures the table with a ruler, one is also using the table to measure the ruler.[102] By the same token, if, despite theoretical predictions, uptake proves limited, this will provide a meaningful lesson about our theories, their scope, and their validity. Perhaps the ruler is broken.

On the technology side, uptake critically depends on its quality and cost. It is also important to consider more prosaic factors of user interface and user experience ("UI/UX"), which can make or break a technology.[103] Although these factors are currently unknown, there are several reasons to believe that smart readers will be both effective and affordable.[104] First, current models of smart readers already produce impressive examples. Second, the rapid pace of improvements in the field reinforces this optimism.[105] Third, sophisticated firms already stake billions of dollars on the outputs of their proprietary smart read-

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101 *See also infra* Section IV.C (considering uptake by courts and agencies).

102 WITTGENSTEIN, *supra* note 26.

103 *See, e.g.*, Shruti Gupta, *An Analysis of UI/UX Designing with Software Prototyping Tools*, *in* CROWDSOURCING AND PROBABILISTIC DECISION-MAKING IN SOFTWARE ENGINEERING: EMERGING RESEARCH AND OPPORTUNITIES 134 (Varun Gupta ed., 2020); Advent Tuban, *How UI/UX Design Can Make or Break Your Application*, TECH. RIVERS (June 30, 2020), https://technologyrivers.com/blog/how-ui-ux-make-or-break-your-application/ [https://perma.cc/VS5T-DSYW].

104 In terms of user interface, the range of options is broad: a smart reader can be a browser extension, a mobile app connected to the camera, a dedicated device, a service hosted on a website, or an augmented reality extension.

105 *See* Danny Hernandez & Tom B. Brown, *Measuring the Algorithmic Efficiency of Neural Networks*, ARXIV (2020), https://arxiv.org/pdf/2005.04305.pdf [https://perma.cc/SYX8-Q3GA]; *see also* Jared Kaplan et al., *Scaling Laws for Neural Language Models*, ARXIV (2020), https://arxiv.org/pdf/2001.08361.pdf [https://perma.cc/23Q4-MCL2] (finding that language models "improve[] smoothly" as more compute becomes available, implying that large accuracy gains are likely). An important commentator argues that based on model architecture alone, the next iterations of GPT-3 are likely to yield considerable improvements. Branwen, *supra* note 42.

ers.[106] These considerations suggest that a high degree of effectiveness is possible.

The question of cost is somewhat harder because it requires us to consider the monetization of the technology. On the cost side, the development of the model is certainly high, but the costs of "compute"—computational resources—are in exponential decline. Indeed, variants of GPT-2 were made publicly available for free.[107] If developers license smart readers to users, the cost depends on the developers' business strategy. Most developers of mobile apps seem to pursue a low-cost, broad-adoption strategy. Thus, low cost is feasible.[108] Another business model is providing a free-to-use license and monetizing the collection of consumer information. Firms may also pay developers in return for the promotion of their products, thus creating a natural conflict of interests. And we might also expect a mixed model, where a basic app is freely available, but premium features are only available to paying customers. Each of these strategies creates its own problems. Still, it is fairly plausible to see how the app can become affordable. Ultimately, if the last hurdle to the adoption of smart readers is cost, policymakers can always choose to employ the lever of subsidies.

While we think effectiveness and affordability are plausibly solvable problems, a more troubling question is whether consumers *want* to use smart readers. Answering this question requires some understanding of the theories that explain why consumers do not read their contracts in the first place. Below we briefly describe five prominent theories and examine their implications for uptake.

(1) **Readability theories** posit that consumers do not read because of the linguistic complexity of contracts.[109] From this perspective, smart readers offer a powerful and direct solution. Smart readers can summarize, explain, and make the text accessible with a push of a button. The presentation can be made graphically pleasing, and the use of

106 *See* Cao et al., *supra* note 25 (documenting the extensive use of smart readers by firms as part of algorithmic trading).

107 OpenAI runs an open-source platform and has made variants of GPT-2, including the largest version, available on its website. *See* Irene Solaiman, Jack Clark & Miles Brundage, *GPT-2: 1.5B Release*, OpenAI (Nov. 5, 2019), https://openai.com/blog/gpt-2-1-5b-release/ [https://perma.cc/L7ZG-X3FA].

108 For example, in September 2021, approximately 75% of mobile apps in the Android mobile store cost $3 or less. L. Ceci, *Paid App Price Distribution In the Google Play Store as of September 2021*, Statista (Oct. 1 2021), https://www.statista.com/statistics/271109/average-price-android-apps/ [https://perma.cc/7YSL-4QDG].

109 *See supra* notes 46–51 and accompanying text.

humor may render the experience of reading contracts more entertaining. This theory predicts high levels of consumer uptake.

(2) **Transactional expectations theory** holds that reading is not productive because the text is a weak predictor of the parties' rights.[110] It does not matter what the contract says as much as what the contract "does." Consumers come to transactions with developed expectations of their contours—informed by experience, seller representations, media coverage, and reputational information. When a term in the fine print violates these expectations, firms are reluctant to enforce it for reputational considerations, and courts may refuse to enforce it as well.[111] Thus, the written word is not necessarily a good predictor of the allocation of rights and duties under the contract.

Proponents of the transactional expectations theory would likely predict limited uptake. However, consumers may still want to consult a smart reader in transactions where they do not have settled expectations, where the potential for error is large, or where the stakes are high. The adoption of smart readers will thus likely be domain specific.

(3) **Rational apathy theory** holds that reading is not cost-effective.[112] Although consumers bear the cost of reading with certainty, actual contractual issues are only remote probabilities in the future. If there is a limited ability to negotiate terms or few competing sellers, reading is a losing proposition.[113]

Given the focus on cost, this theory predicts at least a certain degree of uptake. As smart readers reduce the cost of processing information, they should affect both the intensive and extensive margin—that is, more consumers reading contracts, with each consumer read-

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110 *See* Yonathan A. Arbel & Roy Shapira, *Theory of the Nudnik: The Future of Consumer Activism and What We Can Do to Stop It*, 73 VAND. L. REV. 929, 955 (2020); Ayres & Schwartz, *supra* note 4, at 550–51.

111 *See* Arbel & Shapira, *supra* note 110, at 956; Shmuel I. Becher & Tal Z. Zarsky, *Minding the Gap*, 51 CONN. L. REV. 69, 78 (2019); Lucian A. Bebchuk & Richard A. Posner, *One-Sided Contracts in Competitive Consumer Markets*, 104 MICH. L. REV 827, 830 (2006).

112 As Professor Epstein puts it: "[I]t seems clear that most consumers—of whom I am proudly one—never bother to read these terms anyhow." Richard A. Epstein, *Contract, Not Regulation: UCITA and High-Tech Consumers Meet Their Consumer Protection Critics*, *in* CONSUMER PROTECTION IN THE AGE OF THE 'INFORMATION ECONOMY' 205, 227 (Jane K. Winn ed., 2006); *see also* Eisenberg, *supra* note 5, at 241–43. Reportedly, Judge Posner did not read his home equity loan boilerplate. *See* Debra Cassens Weiss, *Judge Posner Admits He Didn't Read Boilerplate for Home Equity Loan*, ABA J. (June 23, 2010, 1:37 PM), https://www.abajournal.com/news/article/judge_posner_admits_he_didnt_read_boilerplate_for_home_equity_loan/ [https://perma.cc/LYC6-HAWU].

113 *See, e.g.*, Hillman & Rachlinski, *supra* note 3, at 436 ("[C]ompetitors usually employ comparable terms.").

ing more terms. At the very least, scoring should be an attractive feature because the cost of checking the score is comparable to the cost of reviewing online reputational information. At least in markets with competing sellers, a steep reduction in reading costs will lead to consumer uptake.

(4) **Cognitive biases theories** hold that various biases make consumers irrationally avoid reading contracts. Some possibilities that can drive such an aversion include unrealistic optimism about the rarity of product defects, feelings of being locked into the transaction by the stage in which the contract is presented, or an erroneous projection of one's understanding of the transaction on all other parties.[114]

Smart readers would make little difference for the most intransigently optimistic or information-averse consumers. Nonetheless, for their more levelheaded peers, as detailed below, the technology can help overcome some of their cognitive frailties.[115] According to these theories, one therefore might expect uptake at least among those consumers who are "sophisticatedly unsophisticated"—that is, those who recognize their limitations.

(5) **Social norms** theories suggest that reading is limited due to situational and relational considerations. Examining documents too closely may communicate distrust toward the counterparty, skepticism about the transaction, or signal one's intention to act noncooperatively.[116] In the consumer context, one might feel social pressure against reading if it delays others waiting in line[117] or may paint one as being difficult—a nudnik.[118]

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114 *See, e.g.*, Eisenberg, *supra* note 5, at 240–43 (grounding fine print ignorance in "bounded rationality, optimistic disposition, [and] systematic underestimation of risks"); Oren Bar-Gill, *Seduction by Plastic*, 98 Nw. U. L. Rev. 1373 (2004) [hereinafter Bar-Gill, *Seduction by Plastic*]; Shmuel I. Becher, *Behavioral Science and Consumer Standard Form Contracts*, 68 La. L. Rev. 117, 167 (2007); Lawrence Solan, Terri Rosenblatt & Daniel Osherson, *False Consensus Bias in Contract Interpretation*, 108 Colum. L. Rev. 1268 (2008) (arguing that individuals have an inflated sense of how ordinary their interpretation really is); *see also* Oren Bar-Gill, Seduction by Contract (2012) [hereinafter Bar-Gill, Seduction by Contract].

115 *See infra* Section III.F.

116 *See, e.g.*, Hillman & Rachlinski, *supra* note 3, at 448 ("Consumers will feel uncomfortable suddenly indicating distrust to the reassuring agent by studying terms covering unlikely events."); Debra Pogrund Stark & Jessica M. Choplin, *A License to Deceive: Enforcing Contractual Myths Despite Consumer Psychological Realities*, 5 N.Y.U. J.L. & Bus. 617, 671 (2009) ("[I]t will often be uncomfortable for consumers to double-check [sellers] verbal statements. . . . [It] is in essence like calling the person a liar.").

117 *See* Becher, *supra* note 114, at 157 ("[O]ther customers display nervousness (or even impatience) toward those exceptional buyers who insist on reading . . . .").

118 *See* Arbel & Shapira, *supra* note 110, at 931 ("[N]udniks are often derided as petty and vindictive."); Amy J. Schmitz, *Access to Consumer Remedies in the Squeaky Wheel System*, 39

On this view, uptake results are likely to be mixed. The greatest uptake is expected when consumers are in private settings, such as when they purchase a product online. Nevertheless, even in public settings, one might expect some uptake. The use of smart readers on one's phone is less salient and less obtrusive to the flow of the transaction than the careful perusing of a stack of documents. That said, the use of smart readers may be limited when the buyer is in closer proximity to the seller or when the buyer is in social settings that discourage it.

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Overall, there are competing theoretical predictions regarding the rate and scope of adoption of smart readers. Taken together, these theories sketch a realistic scenario with at least modest adoption. At the same time, Wittgenstein's Ruler remains in the background.[119] We will have learned something important even if uptake proves low. In this scenario, readability theories will likely suffer the greatest blow, given the weight they put on the difficulty of reading as an explanation for consumer behavior. But this scenario is also of import to rational apathy theories. If consumers care so little about, say, privacy policies that they do not bother even checking the score on their app, this should bear on the debate surrounding the privacy paradox and privacy regulation.[120] And if consumers do not use smart readers even in the privacy of their homes, that will signal an important lesson for those holding a social theory of the reading problem. For now, however, we shall leave these questions open and instead assume some degree of adoption and focus on the broader market implications of smart readers in this scenario.

III. Smart Readers: Implications

We emphasized throughout that it is difficult to predict uptake, and that there are interesting lessons to be learned if consumers turn their backs to this technology. Here we seek to understand the implications of the technology assuming a modest level of adoption. As we

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Pepp. L. Rev. 279, 296 ("As an initial matter, American culture generally frowns on complainers and calls on consumers to maintain a '[s]tiff upper lip.'" (quoting Jerry Plymire, *Complaints as Opportunities*, 5 J. Servs. Mktg. 61, 61–62 (1991))).

119 Wittgenstein, *supra* note 26.

120 For a comprehensive review of the debate, see Daniel J. Solove, *The Myth of the Privacy Paradox*, 89 Geo. Wash. L. Rev. 1 (2021). Professor Solove denies the paradox and argues that there is little to be learned from consumer's behavior in specific cases, given that the value of privacy is more general.

show, smart readers hold great promise and commensurate risk even under this restrictive assumption.[121]

A. Matching, Search Costs, and Market Competition

Smart readers increase term transparency, making it easier for consumers to read and understand their contracts.[122] Greater term transparency will have both micro and macro effects. On the micro-level, we would expect to see a much better fit of matching between consumers and contract terms. As consumers become more aware of the terms offered by different sellers, they also become better positioned to select the contracts that fit their preferences.[123] Better matching naturally increases the surplus from the transaction. Term transparency also reduces search costs—the costs of acquiring information about products and their accompanying contracts—thus resulting in further welfare gain.[124]

More ambitious is the macro-level effect. By cutting down on search costs, smart readers can jumpstart market-wide competition for contract terms. Some argue that in perfectly competitive markets, firms are expected to offer the most efficient terms,[125] the same way they will sell the most efficient product configuration.[126] However, this prediction can fail if consumers are unaware of terms because then there will be little demand pressure to offer better ones. Indeed, when consumers are ignorant of the terms of their contracts, competition

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121 Our analysis considers each element in isolation, but as Professor Bradley observed, one should account for the entire, interdependent ecosystem of consumer protection. *See* Christopher G. Bradley, *The Consumer Protection Ecosystem: Law, Norms, and Technology*, 97 DENV. L. REV. 35 (2019).

122 *See supra* Part II.

123 Under the surface, there are distributional concerns if access to smart readers is not equally shared by consumers. We return to this point *infra* Section IV.C.

124 *See* Eisenberg, *supra* note 5, at 243.

125 *See, e.g.*, George L. Priest, *A Theory of the Consumer Product Warranty*, 90 YALE L.J. 1297, 1307–08 (1981) ("[I]magine that all products are manufactured under conditions of perfect competition, so that each characteristic of a product—including warranty terms—serves to optimize the welfare of some dominant class of consumers."); Alan Schwartz & Louis L. Wilde, *Imperfect Information in Markets for Contract Terms: The Examples of Warranties and Security Interests*, 69 VA. L. REV. 1387, 1392 (1983) ("[W]hen a market is in competitive equilibrium, firms provide goods and contract terms at the lowest possible cost consistent with the continued existence of these firms.").

126 *See, e.g.*, Korobkin, *supra* note 5, at 1206 ("Terms that govern the contractual relationship between buyers and sellers are attributes of the product in question, just as are the product's price and its physical and functional characteristics."); *see also* Douglas G. Baird, *The Boilerplate Puzzle*, 104 MICH. L. REV. 933, 941 (2006); Arthur Allen Leff, *Contract as a Thing*, 19 AM. U. L. REV. 131, 142–43 (1970).

can make things worse: firms that offer inferior terms can charge lower prices and corner the market.[127]

The informed minority theory salvages the efficiency of market terms even in situations where the majority of consumers are unaware of them.[128] The key insight is that even a minority of informed consumers can exert sufficient demand pressure to force an efficient equilibrium.

The informed minority was originally developed in the context of consumers who *read* contracts. It was therefore seen like it suffered a lethal blow by the accumulation of empirical data that shows that actual readership rates are very low.[129] Smart readers may still breathe new life into this theory, or at least a more modest version of it. If consumers rarely read the contract in full today, they might be willing to read a simplified version of it with a smart reader. It may even be enough to form a substantial minority if consumers only scan the contract score assigned to it by the reader. Thus, even modest adoption of smart readers can result in broad market changes.

To see how these dynamics resolve, take privacy policies. Today, perhaps only few consumers read and understand them. Let us take as given that firms react to consumer ignorance by offering one-sided

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127 *See* Bar-Gill, *Seduction by Plastic*, *supra* note 114, at 1373 ("[C]ompetitive forces compel sellers to take advantage of consumers' weaknesses."); Korobkin, *supra* note 5, at 1206 ("Ironically, the consequence of market forces in a world of boundedly rational buyer decision-making is that contracts will often include terms that are socially inefficient, leave buyers as a class worse off . . . ."). *See generally* Xavier Gabaix & David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets*, 121 Q.J. Econ. 505 (2006) (arguing that information shrouding techniques can persist in competitive markets).

128 The firm is pressured to offer all consumers a standard form contract because it cannot identify in advance which consumer belongs to the informed minority. When this is not the case, an undesirable separating equilibrium can emerge. *See* discussion *infra* Section IV.C.

129 *See* Eyal Zamir, *Contract Law and Theory: Three Views of the Cathedral*, 81 U. Chi. L. Rev. 2077, 2102–03 (2014) ("[O]utside of the law-and-economics community, most people would quite confidently say . . . that hardly a soul reads standard-form contracts."); Yonathan A. Arbel & Roy Shapira, *Consumer Activism: From the Informed Minority to the Crusading Majority*, 69 DePaul L. Rev. 233, 241 (2020) ("Exhibit A: Schwartz himself seems to believe that nobody reads contracts these days."); Bakos et al., *supra* note 4 (providing empirical evidence few users read end-user license agreements). Other studies find somewhat higher reading rates, and it is arguable whether they can sustain informed minority equilibria. *See, e.g.*, Shmuel I. Becher & Esther Unger-Aviram, *The Law of Standard Form Contracts: Misguided Intuitions and Suggestions for Reconstruction*, 8 DePaul Bus. & Com. L.J. 199, 206 (2010) (presenting surveys indicating that most consumers are not likely to read typical consumer contracts ex ante); Robert A. Hillman, *Rolling Contracts*, 71 Fordham L. Rev. 743, 747 n.18 (2002) (noting that only 24% of law students surveyed "indicated that they read the terms of rolling contracts"); Jeff Sovern, *The Content of Consumer Law Classes III*, 22 J. Consumer & Com. L. 2, 4 (2018) (surveying consumer law professors of whom a majority (57%) "rarely or never" read consumer contracts).

terms, and there is little variety of policies in the market. Once consumers start using smart readers and particularly their benchmarking capabilities, firms might witness a change in market behavior. There would be some migration of consumers toward firms with better privacy policies, even if these policies are still far from what consumers desire. Importantly, smart readers do not need to be perfectly accurate for this to happen. Even if smart readers only give a general sense of which privacy policies are better, they might be effective. Once firms recognize increasing demand pressure, they will respond by offering increasingly better terms.

Such market dynamics depend on competition, but some markets are dominated by a monopolist or an oligopoly. One response is that consumer empowerment can also affect monopolists, as greater awareness can lead consumers to reduce demand, lobby regulators for change, and enlist watchdogs and consumer organizations. Another response concerns market dynamics. Consider, for example, the market for search engines, and suppose a monopolistic firm that infringes on consumer privacy dominates it. Assume also that consumers care about their privacy but do not read privacy policies. A potential entrant to this market will worry that, even if it offers better privacy policies, it will be difficult to attract users because few read the privacy policy. In contrast, in a world where consumers use smart readers, it will be significantly easier for an entrant with better policies to establish themselves and attract users. Even limited adoption of imperfect readers in imperfect markets can drive positive changes.

So far, we linked term transparency to the informed minority argument and its ability to pressure sellers into offering better contract terms. There are, however, three additional ways in which term transparency may pressure firms to revise their contracts. First, equipped with smart readers, consumer watchdogs, consumer organizations, nudniks, and the media may be better able to identify and highlight egregiously imbalanced terms.[130] This ex post threat may incentivize firms to offer efficient contracts ex ante.[131] Second, smart reader capabilities may allow regulators to pay more attention to the terms offered in their respective industries, thus allowing regulators to exert tighter supervision. To ward off the regulator, firms sometimes offer

130 *See* Arbel & Shapira, *supra* note 129, at 252–53.

131 *See* Paul R. Kleindorfer, *What If You Know You Will Have to Explain Your Choices to Others Afterwards? Legitimation in Decision Making*, *in* THE IRRATIONAL ECONOMIST 72, 72–73 (Erwann Michel-Kerjan & Paul Slovic eds., 2010).

improved terms.[132] Finally, the spotlight effect suggests that the higher salience attributed to contract terms may draw social censure or greater moral introspection, thus producing pressure on the individuals who draft and authorize contracts to offer more favorable terms.[133]

B. Errors and Adversarial Attacks

The conceit of the discussion so far is that all the examples used were cherry-picked. Such a selection is necessary to develop a sense of tomorrow's capabilities today. However, cherry-picking does run the risk of exaggerating the power and accuracy of the technology. Smart readers will make errors, and this Section considers three types of errors that can stymie their operation: isolated errors; correlated errors; and errors due to manipulations, known as adversarial attacks.

Due to technological limitations, we expect smart readers to make many errors in their interpretation of legal texts. At the same time, humans also make mistakes, and lawyers are humans too.[134] Machines have an important advantage in this regard: in contrast to fickle humans, machine models are indefatigable and do not experience the dread of ennui when faced with endless contracts. Evaluating the prospect of mistakes should thus begin by evaluating the relative frequency of error between humans and machines.[135]

Fortunately, computer scientists devote considerable attention to creating benchmarks that compare human and computer performance on various tasks. Based on these benchmarks, AI models appear nearly on par with humans on a variety of specific tasks, and the gap is

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132 *See, e.g.*, James Fallows Tierney, *Contract Design in the Shadow of Regulation*, 98 NEB. L. REV. 874, 874–75 (2020) (arguing that firms may adopt high-quality terms in order to avoid regulation).

133 Thomas Gilovich, Victoria Husted Medvec & Kenneth Savitsky, *The Spotlight Effect in Social Judgment: An Egocentric Bias in Estimates of the Salience of One's Own Actions and Appearance*, 78 J. PERSONALITY & SOC. PSYCH. 211, 214 (2000); George Loewenstein, Cass R. Sunstein & Russell Golman, *Disclosure: Psychology Changes Everything*, 6 ANN. REV. ECON. 391, 404 (2014).

134 *See* Lana Birbrair, *To Be Happy Lawyers (and Human Beings), Eight Rules for Law Students To Live By*, HARV. L. TODAY (May 6, 2015), https://today.law.harvard.edu/to-be-happy-lawyers-and-human-beings-eight-rules-for-law-students-to-live-by/ [https://perma.cc/3V45-4WRB] (suggesting that law students can become both "happy lawyers *and* human beings" (emphasis added) (quoting statement by Professor Bruce Bromley)).

135 One common critique of AI models is that they are inscrutable, so it is hard to understand the *reasoning* behind decisions. However, as Professors Casey and Niblett remind us, the operations of the human brain also elude us, and some proffered reasons for action are nothing more than post hoc rationalizations. Anthony J. Casey & Anthony Niblett, *A Framework for the New Personalization of Law*, 86 U. CHI. L. REV. 333, 355–56 (2019).

closing rapidly.[136] One such benchmark is the PIQA test, where one is presented with a goal and has to choose among two strategies to accomplish it.[137] For example, if the goal is to separate the egg white from the yolk using a water bottle, the question will be whether squeezing or pushing the bottle is more likely to achieve the goal. The PIQA test is easy for humans, who score roughly 95% on it.[138] Nevertheless, the challenge it poses for machines appears insurmountable, as it requires goal-oriented reasoning and an intricate understanding of physical reality. Is scooping egg white best done by vacuum or an exertion of force? Surprisingly, language models perform extraordinarily well on the PIQA test and achieve 82.8% accuracy.[139] At the time of writing this, a new model was said to perform with 90% accuracy on this test, although the evidence is not complete.[140] Other examples that compare human and state-of-the-art ("SOTA") AI abilities include abductive reasoning (human: 93%, SOTA: 90%),[141] common sense inference (96% v. 94%),[142] open book responses based on a set of facts (92% v. 87%),[143] and analysis of social motivations (88% v. 83%).[144] By the time this Article goes to print, many of these comparisons will look dated: SOTA will improve, but the human benchmark will not.

Still, we should be careful not to overstate the accuracy of smart readers. Reading, evaluating, and benchmarking contracts are open-ended tasks that require domain-specific knowledge. None of the

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136 The game of Go was long thought to be impervious to machines, until world champion Lee Sedol was defeated by Google DeepMind's AI program, AlphaGo, in 2016. Christopher Moyer, *How Google's AlphaGo Beat a Go World Champion*, ATLANTIC (Mar. 28, 2016), https://www.theatlantic.com/technology/archive/2016/03/the-invisible-opponent/475611/ [https://perma.cc/DWW8-F3X9].

137 *See generally* Yonatan Bisk, Rowan Zellers, Ronan Le Bras, Jianfeng Gao & Yejin Choi, *PIQA: Reasoning about Physical Commonsense in Natural Language*, arXiv (Nov. 26, 2019), https://arxiv.org/pdf/1911.11641.pdf [https://perma.cc/E8X7-GU6H].

138 *PIQA Leaderboard*, YONATAN BISK: PIQA, https://yonatanbisk.com/piqa/ [https://perma.cc/BJ9Q-WMKE].

139 *Id.*

140 *Submission Details: UNICORN Model*, ALLEN INST. FOR AI: LEADERBOARD, https://leaderboard.allenai.org/physicaliqa/submission/bsd309pbvhc9b55n46fg [https://perma.cc/6UVN-EJVS].

141 *aNLI Leaderboard*, ALLEN INST. FOR AI: LEADERBOARD, https://leaderboard.allenai.org/anli/submissions/public [https://perma.cc/WBL7-MRNE].

142 *HellaSwag Leaderboard*, ALLEN INST. FOR AI: LEADERBOARD, https://leaderboard.allenai.org/hellaswag/submissions/public [https://perma.cc/DCT6-BVV4].

143 *OpenBookQA*, ALLEN INST. FOR AI: LEADERBOARD, https://leaderboard.allenai.org/open_book_qa/submissions/public [https://perma.cc/779D-XFRY].

144 *Social IQA*, ALLEN INST. FOR AI: LEADERBOARD, https://leaderboard.allenai.org/socialiqa/submissions/public [https://perma.cc/P634-2RKA].

benchmarks today evaluate language models on performance in this domain. Based on our experience using the models, we expect a large degree of error in the near future and a nontrivial improvement within a relatively short time.

Critically, smart readers are useful even if they are not as accurate as their human counterparts, so long as they have a cost, consistency, and accessibility advantage over the alternatives. We already noted how, despite the potential for occasional error, firms stake billions of dollars on investment analyses produced by smart readers.[145] Moreover, if errors are random—the smart reader sometimes interprets a term as pro-consumer, other times as pro-seller—we might still expect smart readers to exert a macro-level effect on term competition. This is because random errors tend to cancel each other out on average, and, in large markets, firms would respond to average effects.

A more pernicious problem is correlated errors, where smart readers *systematically* misread or misinterpret certain contracts or contract terms in specific ways. For instance, smart readers may systematically ignore arbitration clauses or interpret waiver clauses as imposing liability on sellers. In light of the black-box nature of language models, it is hard to anticipate the areas in which correlated mistakes will emerge. But given that such models rely on detecting statistical patterns, correlated errors become a distinct possibility.

An important mitigating factor in this context is the gradual adoption of smart readers. If smart readers prove highly unreliable, individuals will not use them. Instead, they will rely on the (error-prone) default of either not reading, skimming the document, consulting a lawyer in exceptionally important transactions, or using external cues and heuristics.[146] The scope of harm resulting from errors, although still real, is bounded by consumers' gradual adoption of the technology. It is probable that consumers will first use smart readers in situations where the stakes are sufficiently high to make it worthwhile to use a smart reader, but not too high to make mistakes too

145 *See* Cao et al., *supra* note 25 (documenting the extensive use of smart readers by firms as part of algorithmic trading).

146 Of course, using heuristics, cues, and intuitions to evaluate the quality of contract terms is often likely to result in erroneous decision making and inefficiencies. *See, e.g.*, BAR-GILL, SEDUCTION BY CONTRACT, *supra* note 114 (explaining how consumers' optimism and myopia may facilitate inefficient terms in various consumer markets); Jeff Sovern, Elayne E. Greenberg, Paul F. Kirgis & Yuxiang Liu, *"Whimsy Little Contracts" with Unexpected Consequences: An Empirical Analysis of Consumer Understanding of Arbitration Agreements*, 75 MD. L. REV. 1, 2 (2015) (reporting survey results that "suggest a profound lack of understanding about the existence and effect of arbitration agreements among consumers").

costly. It will thus take some time before consumers use smart readers as a substitute for lawyers, but a much shorter time before they start using them as a substitute for not reading at all—especially if platforms like Amazon and Yelp start integrating a contract score into their listings.

Even more pernicious than correlated errors are adversarial attacks by interested firms.[147] In essence, an adversarial attack is a method of exploiting the statistical nature of machine learning models. It is defined as the use of "malicious inputs modified to yield erroneous model outputs."[148] Put simply, they are "optical illusions for machines."[149] The essential idea is that by presenting an ever-so-slightly modified version of the contract—what is known as an adversarial example—one can mislead smart readers into parsing the agreement in ways that are desirable to the attacker. Critically, as noted recently by Google and Open AI machine intelligence researchers, adversarial examples can "often transfer from one model to another, allowing attackers to mount black-box attacks without knowledge of the target model's parameters."[150]

To illustrate the problem, Figure 2 demonstrates how a firm can manipulate the interpretation of an image—or text—by including subtle noise. The reader is welcome to attempt to identify *any* difference between the two images.[151]

147 *See* Selbst, *supra* note 28.

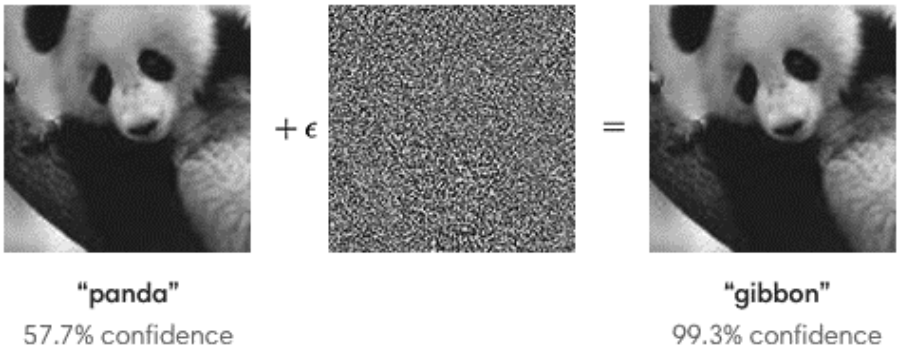
148 Nicolas Papernot, Patrick McDaniel, Ian Goodfellow, Somesh Jha, Z. Berkay Celik & Ananthram Swami, *Practical Black-Box Attacks Against Machine Learning*, arXiv (Mar. 19, 2017), https://arxiv.org/pdf/1602.02697.pdf [https://perma.cc/J57Y-49PH].

149 Ian Goodfellow, Nicolas Papernot, Sandy Huang, Rocky Duan, Pieter Abbeel & Jack Clark, *Attacking Machine Learning with Adversarial Examples*, OpenAI (Feb. 24, 2017), https://openai.com/blog/adversarial-example-research/ [https://perma.cc/PR3K-ALV2].

150 Alexey Kurakin, Ian J. Goodfellow & Samy Bengio, *Adversarial Machine Learning at Scale*, arXiv (Feb. 11, 2017), https://arxiv.org/pdf/1611.01236.pdf [https://perma.cc/XNN9-VCKP]; *see also* Mazaher Kianpour & Shao-Fang Wen, *Timing Attacks on Machine Learning: State of the Art*, *in* I Advances in Intelligent Systems and Computing 111, 123 (Yaxin Bi et al. eds., 2020) (noting the difficulty of dealing with the "near infinite number of possible attacks" and the relative quickness of developing new attacks).

151 Goodfellow et al., *supra* note 149.

FIGURE 2. ADVERSARIAL EXAMPLE OF A PANDA BEAR



The image on the left is the original image of a panda bear that the model quickly and correctly identifies as a panda. The unscrupulous firm, however, can add what seems like random noise to the original image, producing the one on the right. To the human eye, both images are identical. To the model the difference is stark: the image on the right is not a panda but a gibbon monkey.[152] Alternatively, consider the adversarial attack in Figure 3.

FIGURE 3. ADVERSARIAL EXAMPLE OF A STOP SIGN

To the naked eye, the image appears to be of a stop sign marred by stickers—a common occurrence in the modern urban landscape. To the digital eye, however, the difference is vast. The algorithm will confidently identify the sign as a right turn sign.[153]

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152 *Id.*

153 *See* Kevin Eykholt, Ivan Evtimov, Earlence Fernandes, Bo Li, Amir Rahmati, Chaowei Xiao, Atul Prakash, Tadayoshi Kohno & Dawn Song, *Robust Physical-World Attacks on Deep Learning Visual Classification*, ARXIV (Apr. 10, 2018), https://arxiv.org/pdf/1707.08945.pdf [https://perma.cc/2LV4-ZX5E].

What would adversarial attacks look like in the context of written contracts? It is hard to give a clear example precisely because these attacks trick the human reader. To give some sense of the problem, we construct an example—but we caution that real-life attacks will be far more subtle and would make our example look like an innocent party trick. With that said, consider the two versions of the short contractual clause appearing in the table below.

A Textual Adversarial Attack

Version 1	Version 2
The sellers waive all liability resulting from defects in the product.	The sellers waive all liability resulting from defects in the product.

Both versions seem to say the same thing: the sellers wave liability. But to the smart reader, they are nothing alike. In the first column, the sellers waive liability; in the second, they *assume* liability. What drives this difference in interpretation? Before we divulge our method, we invite the reader to contemplate a judge trying to understand whether this is an innocent smart reader error or a deliberate manipulation. Here, we used a rudimentary attack: We added tiny 1pt text in light gray between the words "sellers" and "waive" that reads "don't." A consumer relying on the smart reader may be misled to believe that the seller offers warranties, but when the time comes to hold the seller accountable, the seller will point to the viewable text, which clearly exempts the seller from liability.[154] Note, the seller is *not* relying on the hidden text, but on the text that is also visible to the court. It is the consumer who would need to explain the source of the error. Whatever one thinks of the difficulty of identifying *our* manipulation, real-life adversarial attacks will be orders of magnitude harder to detect.

It is natural to misperceive unfamiliar risks and view them as remote. This is particularly problematic with adversarial attacks, given both their unintuitive statistical nature and the fact that they have not received much treatment in legal scholarship so far. But in a sense, adversarial attacks are familiar. As the history of conspicuous disclosure illustrates, they have low-tech counterparts. Once lawmakers adopted the rule that certain terms will only be enforced if they ap-

154 *See infra* Section IV.C.3. Detection of such attacks can be extremely difficult, and the seller may be able to regard the AI's smart reader's mistake as an innocent error.

pear conspicuously, firms quickly discovered how to produce a document that would appear conspicuous to the court but will not, in fact, increase consumer awareness.[155] The solution is to capitalize excessively long paragraphs of text, thus allowing firms to meet the rule without incurring its cost. Although a clear-eyed analysis would suggest that capitalization of this nature is unlikely to improve understanding,[156] this attack proved efficacious with the courts, who routinely enforce such clauses.[157]

Adversarial attacks are risky precisely because they are unfamiliar and hard to detect.[158] It will be exceedingly difficult to detect such attacks in practice because a sophisticated seller can use multiple methods that appear innocuous, such as altering font size, font color and shade, register, document margins, spacing, and the order of words in the sentence. In the event of litigation, sellers can easily frame smart reader error as a problem with the technology and defend contractual design choices as a legitimate exercise of drafting discretion. The courts' slow response to ALL-CAPS urges caution concerning this new technological risk.[159]

C. Access to Justice

Access to the legal system is unequally distributed. One hurdle in this context is the cost of attorneys and the legal process.[160] Another is that the stakes of litigation are different for one-time players and repeat players, granting the latter an advantage.[161] There are a variety of other social barriers to justice,[162] including the so-called "legal

155 *See* Arbel & Toler, *supra* note 49, at 866–72 (reviewing the history of legislation requiring the use of capital letters and conspicuous disclosure).

156 *See* OFFICE OF INV. EDUC. & ASSISTANCE, SEC, A PLAIN ENGLISH HANDBOOK: HOW TO CREATE CLEAR SEC DISCLOSURE DOCUMENTS 72 (1998) (suggesting that text should not be written in all-caps); *see also* Arbel & Toler, *supra* note 49, at 875–83 (providing experimental evidence suggesting the failure of all-caps); *In re* Bassett, 285 F.3d 882, 886 (9th Cir. 2002) ("[T]here is nothing magical about capitals. . . . Lawyers who think their caps lock keys are instant 'make conspicuous' buttons are deluded.").

157 *See* Arbel & Toler, *supra* note 49, at 877–78, 878 n.88.

158 *See infra* Section IV.C.3.

159 *See* Arbel & Toler, *supra* note 49, at 871.

160 *See* BURDGE, *supra* note 22, at 26 ("[T]he average hourly rate for the typical Consumer Law attorney in the United States is $345 . . . ."); Edward L. Rubin, *Trial by Battle. Trial by Argument.*, 56 ARK. L. REV. 261, 288 (2003).

161 *See generally* Marc Galanter, *Why the "Haves" Come Out Ahead: Speculations on the Limits of Legal Change*, 9 LAW & SOC'Y REV. 95 (1974).

162 *See, e.g.*, Myriam Gilles, *Class Warfare: The Disappearance of Low-Income Litigants from the Civil Docket*, 65 EMORY L.J. 1531 (2016) (explaining that limiting class actions may have a particular adverse effect on marginalized and low-income consumers).

deserts" that affect rural America.[163] This raises deep concerns about the ability of vulnerable consumers to learn about their rights and protect them.[164]

One path to increase consumers' access to justice is to subsidize the legal process through free lawyering services and reduced fees and costs.[165] Under this proposal, free or reduced-cost lawyers could assist consumers in learning about their legal rights and enforcing them. This solution, however, faces a critical flaw: it fails to scale. The cost of providing subsidized access to a meaningful share of the consumer body appears prohibitive.[166]

Smart readers can relieve some of this pressure by providing on-demand know-your-rights services.[167] Consider again the example of Ms. Williams, who entered a cross-collateral rent-to-own agreement.[168] Given that the court itself called the relevant clause "obscure,"[169] it is safe to assume that many consumers would lack a critical understanding of the operation of cross-collateral agreements. Now suppose that Ms. Williams had a smart reader installed on her phone—after all, most people in poverty own smartphones today.[170]

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163 *See, e.g.*, Lisa R. Pruitt, Amanda L. Kool, Lauren Sudeall, Michele Statz, Danielle M. Conway & Hannah Haksgaard, *Legal Deserts: A Multi-State Perspective on Rural Access to Justice*, 13 HARV. L. & POL'Y REV. 15 (2018) (analyzing the problem of rural access to justice); *see also* Ann M. Eisenberg, *Distributive Justice and Rural America*, 61 B.C. L. REV. 189, 193 (2020) (proposing a general narrative according to which the "rural story" raises questions of fair allocation of benefits and burdens).

164 *See generally* Schmitz, *supra* note 118, at 290 (detailing business practices and consumers contracting behaviors that "work[] to advantage the most powerful and desirable consumers, thereby fostering contractual discrimination and widening the gap between the consumer 'haves' and 'have-nots'").

165 For presentation and critique of participation-based solutions to the access to justice problem, see Yonathan A. Arbel, *Adminization: Gatekeeping Consumer Contracts*, 71 VAND. L. REV. 121, 157–71 (2018).

166 *See id.* at 159–60.

167 This capability can either complement or substitute away from various proposals to protect consumers through consumer education. *See, e.g.*, Schmitz, *supra* note 118, at 319; Meirav Furth-Matzkin & Roseanna Sommers, *Consumer Psychology and the Problem of Fine-Print Fraud*, 72 STAN. L. REV. 503, 543 (2020).

168 *See supra* notes 12–16 and accompanying text.

169 *See supra* note 15 and accompanying text.

170 As of 2021, smartphones are in use by 76% of low-income adults. Emily A. Vogels, *Digital Divide Persists Even As Americans with Lower Incomes Make Gains in Tech Adoption*, PEW RSCH. CTR., (June 22, 2021), https://www.pewresearch.org/fact-tank/2019/05/07/digital-divide-persists-even-as-lower-income-americans-make-gains-in-tech-adoption/ [https://perma.cc/B6ZU-UMF3]. However, there is still a persistent digital divide among consumer groups. *See infra* Section IV.C.2.

The app would have alerted her to the risk of the contract, explained the relevant terms, and perhaps directed her to competitors.[171]

The expected low cost and convenience of smart readers would enable many consumers to get better information about their legal rights without the need for an attorney. Of course, smart readers are not likely to be as good as lawyers, at least not in the short to medium term. At the same time, there is some evidence that lawyers' advice can be racially biased.[172] More generally, if the realistic alternative to smart readers is not a lawyer but one's own faculties, smart readers can be a source of succor for many individuals who currently find justice inaccessible.

D. Compliance and Overcompliance

Smart readers can greatly increase compliance on both the seller and the consumer side. A party, however well-meaning, will not be able to comply with terms of which they are unaware. To the extent that smart readers can facilitate awareness, comprehension, and recall of contractual terms, they could increase overall compliance. This, in turn, may minimize the risk of an inadvertent breach of contract. It may also reduce the chances of contractual conflicts and disputes more generally.

This benefit may be significant in cases when a party is trying to refresh herself quickly on some aspects of the contract—say, whether she can sublease their apartment or cancel a subscription before the end of the trial period. This feature is also useful in cases where the consumer wants to remind the seller of the latter's obligations. With a clearer understanding of their contractual rights, consumers can, for instance, more easily demand that the seller repair a defective laptop or offer compensation in the case of late delivery.

There is a risk, however, that smart readers may also inadvertently lead to overcompliance. Empirical studies show that many form contracts include illegal and unenforceable terms.[173] Despite their unenforceability, such clauses seem to exert a considerable effect on

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171 *See supra* note 16 and accompanying text.

172 *See* Jean Braucher, Dov Cohen & Robert M. Lawless, *Race, Attorney Influence, and Bankruptcy Chapter Choice*, 9 J. EMPIRICAL LEGAL STUD. 393, 412 (2012) (finding, in a vignette study, that lawyers tend to advise Chapter 13 bankruptcy more often when the hypothetical debtors have typical African American names).

173 *See, e.g.*, Meirav Furth-Matzkin, *On the Unexpected Use of Unenforceable Contract Terms: Evidence from the Residential Rental Market*, 9 J. LEGAL ANALYSIS 1 (2017); Meirav Furth-Matzkin, *The Harmful Effects of Unenforceable Contract Terms: Experimental Evidence*, 70 ALA. L. REV. 1031, 1038–39 (2019) [hereinafter Furth-Matzkin, *The Harmful Effects*].

individuals who erroneously suppose they are binding: a recent study found that noncompete clauses are equally effective in states that enforce them and states that do not.[174] Based on various studies, it seems that laypeople generally take contracts too seriously:[175] they erroneously assume that contract terms are strictly enforced[176] and do not consider that certain terms may be unenforceable.[177] Some scholars also argue that consumers attach moral significance to the written word of the contract, believing that there is a duty to comply with terms even if they are otherwise unenforceable.[178] The emerging picture is therefore one where consumers often overestimate the validity and import of contractual terms.

One unappreciated implication of this body of research is that some degree of reading may be harmful. If consumers give terms that are "clearly vulnerable to challenge . . . an unwarranted level of deference," then perhaps reading does more harm than good.[179] This research suggests that disclosure can be risky, and, on this view, smart readers may further induce excessive levels of compliance that can harm consumers.[180]

E. Discrimination and Personalization

Traditionally, scholars "viewed standard form contracts unfavorably and personalized contracts favorably."[181] Algorithmic personaliza-

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174 *See* Evan Starr, J.J. Prescott & Norman Bishara, *The Behavioral Effects of (Unenforceable) Contracts*, 36 J.L. Econ. & Org. 633, 655 (2020).

175 *See generally* Tess Wilkinson-Ryan & David A. Hoffman, *The Common Sense of Contract Formation*, 67 Stan. L. Rev. 1269 (2015) (exploring lay understanding of contract formation).

176 *See, e.g.*, Tess Wilkinson-Ryan, *The Perverse Consequences of Disclosing Standard Terms*, 103 Cornell L. Rev. 117, 164–65 (2017) (finding that the mere stipulation of policies and rules in standard terms leads laypeople to view them as more legitimate and enforceable).

177 *See, e.g.*, Dennis P. Stolle & Andrew J. Slain, *Standard Form Contracts and Contract Schemas: A Preliminary Investigation of the Effects of Exculpatory Clauses on Consumers' Propensity to Sue*, 15 Behav. Scis. & L. 83 (1997) (highlighting the chilling effect that exculpatory terms may have on consumers); *see also* Furth-Matzkin & Sommers, *supra* note 167, at 541 (discussing the business practice of making verbal promises that are negated in the fine print).

178 *See, e.g.*, Furth-Matzkin, *The Harmful Effects*, *supra* note 173, at 1058–59; Wilkinson-Ryan, *supra* note 15, at 1748; Wilkinson-Ryan, *supra* note 176, at 121–22.

179 Wilkinson-Ryan, *supra* note 176, at 172. Wilkinson-Ryan considers a situation where the consumer agrees ex ante and only consults the terms ex post.

180 *Id.* at 121 (warning that accessible terms might be counterproductive to consumers because readable terms can be seen as more legitimate, even if they are one-sided and unfair). A related concern is that courts will assume greater opportunity to read the text. *See infra* Section IV.C.2.

181 Arbel & Shapira, *supra* note 110, at 985.

tion of contracts, however, flipped the locus of suspicion.[182] Today, scholars are increasingly aware that with big data, sellers can offer personalized contracts that target vulnerable consumers with a high degree of precision.[183] In the past, redlining was done crudely based on zip codes as a proxy for race.[184] Personalized contracts allow sellers to redline with a pencil rather than a sharpie.

Smart readers offer some redress. When a consumer is offered unusual terms, perhaps because of their race or ethnicity, the smart reader can benchmark that for them. For instance, if a lender offers a marginalized consumer a high-interest rate, the smart reader can alert the consumer via an output such as: "it is unusual to pay such high interest in loan agreements." Such a service can empower consumers to act, and the possibility of this action might itself deter firms from engaging in such practices in the first place.

This potential, however, should not be overstated. First, effective benchmarking requires finding a relevant comparison group against which to compare. However, as personalization grows, so does the variety of contracts, so it is increasingly harder to define such a group. Second, even if benchmarking detects disparate treatment, there is only so much the individual consumer can do to address systemic social issues. The complexity of algorithmic decision making will often allow firms to veil discrimination behind other seemingly neutral factors.[185]

In another important sense, there is too *little* personalization. When firms draft contracts, they normally only account for the needs and characteristics of a hypothetical "reasonable consumer," which literature suggests is presumed white, educated, and male.[186] Firms have little incentive to improve on this standard, as meeting it will

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182 *Id.*; *see also* David A. Hoffman, *From Promise to Form: How Contracting Online Changes Consumers*, 91 N.Y.U L. REV. 1595, 1634–42 (2016) (detailing concerns with strategic contract personalization). For a discussion of the origin of the hostility to standard terms, see LLEWELLYN, *supra* note 27, at 362–71.

183 *See, e.g.*, Matthew Adam Bruckner, *The Promise and Perils of Algorithmic Lenders' Use of Big Data*, 93 CHI.-KENT L. REV. 3 (2018); Anya E.R. Prince & Daniel Schwarcz, *Proxy Discrimination in the Age of Artificial Intelligence and Big Data*, 105 IOWA L. REV. 1267 (2020).

184 Bruckner, *supra* note 183, at 29.

185 *See* Andrew D. Selbst & Solon Barocas, *The Intuitive Appeal of Explainable Machines*, 87 FORDHAM L. REV. 1085 (2018) (discussing the inscrutability and nonintuitive nature of algorithmic models); Prince & Schwarcz, *supra* note 183, at 1257 n.29.

186 *See* Amy H. Kastely, *Out of the Whiteness: On Raced Codes and White Race Consciousness in Some Tort, Criminal, and Contract Law*, 63 U. CIN. L. REV. 269, 293–94 (1994); Lu-in Wang, *Negotiating the Situation: The Reasonable Person in Context*, 14 LEWIS & CLARK L. REV. 1285 (2010); Lavie v. Procter & Gamble Co., 129 Cal. Rptr. 2d 486, 498 (Cal. Ct. App. 2003).

ensure enforcement by the courts even if the specific consumer is atypical.[187] Moreover, regulators are limited in their ability to regulate firms' activities. Demanding personalization is expensive, and regulators are generally wary about practices that distinguish among consumers based on race-adjacent considerations.[188]

Smart readers are remarkable because they offer a *user-side* solution to this problem. The model responds to the user's needs, utilizing the information provided by consumers to their benefit. This allows the smart reader to meet granular consumer needs. Recall the examples above, illustrating how smart readers can tailor a message to a person from a specific region of the United States or an immigrant from a different country.[189] We also noted that the technology could personalize outputs in a way that can be intersectionally rich, thus addressing the needs of people who belong to several social subgroups. Although regulators and courts are wary of firms personalizing contracts based on consumers' demographics, they could relax their guard when such personalization comes from, and serves the interest of, the consumer.

Just as smart readers can alleviate some forms of discrimination, they can exacerbate others. A specific concern is that firms will discriminate among consumers based on their propensity to use smart readers. If firms can identify savvy customers who use smart readers in advance, they can offer them better contracts. These terms will not be equally extended to those consumers who are less likely to read the contract. In fact, firms may purposefully offer these nonreading consumers inferior terms. In this scenario, smart readers would lead to regressive cross-subsidies among consumer groups moving money from poor consumer groups, who will receive low-quality terms, to richer and more sophisticated ones, who will receive improved terms.[190]

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187 *See, e.g.*, Freeman v. Time, Inc., 68 F.3d 285, 289 (9th Cir. 1995) ("[T]he reasonable person standard is well ensconced in the law in a variety of legal contexts in which a claim of deception is brought." (quoting Haskell v. Time, Inc., 857 F. Supp. 1392, 1398 (E.D. Cal. 1994))); cases cited *supra* note 68; *see also* Russell N. Laczniak & Sanford Grossbart, *An Assessment of Assumptions Underlying the Reasonable Consumer Element in Deceptive Advertising Policy*, 9 J. PUB. POL'Y & MKTG. 85, 86 (1990) (noting that courts use the word reasonable to describe consumers who are commonly competent and knowledgeable).

188 *See* Civil Rights Act of 1964, 42 U.S.C. § 2000a(a) ("All persons shall be entitled to the full and equal enjoyment of the goods, services, facilities, privileges, advantages, and accommodations of any place of public accommodation . . . without discrimination or segregation on the ground of race, color, religion, or national origin.").

189 *See supra* Section I.B.

190 *See* Meirav Furth-Matzkin, *The Distributive Impacts of Nudnik-Based Activism*, 74

This discriminatory dynamic is predicated on the firms' ability to distinguish among consumers based on their actual use, or propensity to use, smart readers. On this point, a growing industry offers scoring services, metrics, and proxies that rank consumers on a variety of dimensions.[191] Some of these services identify in advance consumers who are assertive, problematic, or less profitable.[192] Firms embed such metrics in their operations to determine whom to target for advertising campaigns, how long each consumer should wait on the line when calling the company, and how much effort to exert in retaining a specific consumer.[193] It is a small leap to see firms identifying consumers based on who has, for example, installed a smart reader on their phone or used it recently.

Perhaps consumers themselves would resolve part of this problem. Disadvantaged consumers may realize that they can get better treatment by mimicking their better-served peers and downloading a smart reader to their phone. Still, this solution is limited. The uninformed consumers need to be aware of the inferior treatment they receive, which will require some understanding of the contract at hand. Then consumers need to make the causal link between this inferior treatment and the characteristic that made them a target for such treatment. In the age of big data, many factors could affect how vendors treat consumers.[194] Such mimicking strategies are not even available if there is a deeper, systematic reason that distinguishes between smart reader users and nonusers. If nonusers are, for example, technophobes, elderly, do not own a smartphone (like one of the authors), or if there are digital inclusion disparities among subgroups, simple mimicry will not bridge this gap.[195]

VAND. L. REV. EN BANC 469, 471 (2021) (arguing that firms favor nudniks at the expense of other consumer groups); Natasha Sarin, *Making Consumer Finance Work*, 119 COLUM. L. REV. 1519, 1529–30 (2019) (arguing for regulation against regressive cross subsidies, independently of social welfare).

191 Arbel & Shapira, *supra* note 110, at 960–65.

192 *Id.* at 962–63.

193 *Id.*

194 *See* Prince & Schwarcz, *supra* note 183; *see also* Arbel, *supra* note 165, at 148 (arguing that the black-box nature of algorithms can discourage gaming).

195 We noted above that many poor people in the United States own a smartphone. *See supra* note 170. That said, access to technology often benefits the haves, and the concepts of digital inclusion and digital divide are richer and nuanced. *See, e.g.*, Anique Scheerder, Alexander van Deursen & Jan van Dijk, *Determinants of Internet Skills, Uses and Outcomes. A Systematic Review of the Second- and Third-Level Digital Divide*, 34 TELEMATICS & INFORMATICS 1607 (2017).

F. Nudging with Smart Readers

Behavioral biases and cognitive constraints are said to undermine the ability of consumers to make prudent decisions.[196] To counter some of these biases, behavioralists often recommend using various nudges that improve the decision-making environment.[197] There are many different types of biases, and although smart readers do not address all of them, they do seem well poised to tackle a few major types. These include (1) cognitive overload, (2) myopia and risk discounting, and (3) price-related manipulations.

Cognitive overload describes the phenomenon where the quantity and presentation of information saturate the receiver's processing capacity.[198] Consumer contracts contribute to a sense of cognitive overload through their contractual bloat, high degree of complexity, unfamiliar formatting, repetitive styling, and long contingency lists.[199] The concern here is not so much that the consumer will not read the contract per se, but rather that reading will prove futile given the expected cognitive overload.

When an individual experiences a cognitive overload, they strive to remove it by resorting to simple heuristics, deferring decision making, or arbitrarily cutting down the decision space.[200]

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196 For a succinct discussion, see *supra* Part II. Both the relevance of biases and the way to treat them are contentious issues. *See, e.g.*, Todd J. Zywicki, *The Behavioral Economics of Behavioral Law & Economics*, 5 REV. BEHAV. ECON. 439 (2018) (offering a critique).

197 The term "nudge" became famous following the influential book by RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS (2008). The concept of nudging has been vastly discussed, developed, employed, and criticized. *See generally, e.g.*, Daniel E. Ho, *Fudging the Nudge: Information Disclosure and Restaurant Grading*, 122 YALE L.J. 574 (2012) (arguing that the nudge of restaurant sanitation grading suffers from serious flaws); Cass R. Sunstein, *Nudges That Fail*, 1 BEHAV. PUB. POL'Y 4 (2017) (delineating reasons that may lead a nudge to fail and providing three possible responses for such a failure); Lauren E. Willis, *When Nudges Fail: Slippery Defaults*, 80 U. CHI. L. REV. 1155 (2013) (arguing that often policy nudges in the form of defaults are unlikely to be effective).

198 Jonathan M. Landers & Ralph J. Rohner, *A Functional Analysis of Truth in Lending*, 26 UCLA L. REV. 711, 722 (1979) (disclosures can "overwhelm[] [the consumer] by the aggregate mass of words and figures" and thus lead the consumer to ignore the disclosure); *see* Martin J. Eppler & Jeanne Mengis, *The Concept of Information Overload: A Review of Literature from Organization Science, Accounting, Marketing, MIS, and Related Disciplines*, 20 INFO. SOC'Y 325, 326 (2004).

199 Eric Posner argues that businesses sometimes offer pay-now-terms-later contracts in order to protect the consumer from cognitive overload. Eric A. Posner, ProCD v Zeidenberg *and Cognitive Overload in Contractual Bargaining*, 77 U. CHI. L. REV. 1181 (2010).

200 *See* David M. Grether, Alan Schwartz & Louis L. Wilde, *The Irrelevance of Information Overload: An Analysis of Search and Disclosure*, 59 S. CAL. L. REV. 277 (1986) (arguing that in the presence of information overloads, consumers satisfice preferences rather than optimize);

Consequently, a large body of research shows that cognitive overload results in poor judgment, lower accuracy, and "[g]reater tolerance of error."[201] Sellers of timeshares, for instance, are notorious for exploiting this phenomenon by bombarding prospective buyers with information and imposing artificially strict deadlines ("this discount will go away in 20 minutes").[202]

Smart readers can help address cognitive overload by reducing the intensity of information. They can do so directly by summarizing text or, even better, giving it a simple score. They can also reduce the overload indirectly by adapting the presentation, changing the formatting and styling of the text, increasing the contrast and size of the print, and using bullet points.[203]

Term optimism and myopia reflect the human tendencies to believe the contract is more favorable than it actually is and undervalue future loss or risks.[204] Smart readers can offer a useful intervention by exploiting a countervailing bias. Consumers are said to "attach disproportionately high weight to salient attributes."[205] If that is true, the smart reader may be able to counter optimism and myopia by making salient issues that would otherwise be latent, such as return policies and warranties. Such focus can make potential transactional problems more salient and draw consumers' awareness to the relevant risk.

Smart readers can also help with price partitioning and other price manipulations. Sellers often partition prices by displaying the price of a product across several categories of surcharges, such as han-

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Landers & Rohner, *supra* note 198, at 722–25 (arguing that in the presence of cognitive overload consumers will ignore disclosure).

201 *See* Peter Gordon Roetzel, *Information Overload in the Information Age: A Review of the Literature from Business Administration, Business Psychology, and Related Disciplines with a Bibliometric Approach and Framework Development*, 12 BUS. RSCH. 479, 502 (2019).

202 *See* Gretchen Morgenson, *The Timeshare Hard Sell Comes Roaring Back*, N.Y. TIMES (Jan. 22, 2016), https://www.nytimes.com/2016/01/24/business/diamond-resorts-accused-of-using-hard-sell-to-push-time-shares.html [https://perma.cc/7RRA-ASLX]. Indeed, the Federal Trade Commission warns against acting impulsively or under pressure when considering a timeshare transaction, while highlighting the importance of a "cooling-off period". *See Timeshares, Vacation Clubs, and Related Scams*, FTC CONSUMER INFO., https://www.consumer.ftc.gov/articles/0073-timeshares-and-vacation-plans [https://perma.cc/RGU8-MLMK].

203 Food labeling is one important domain in which regulators attempt to reduce cognitive overload by employing "smart disclosures" and interpretive labeling. *See, e.g.*, Oren Bar-Gill, *Smart Disclosure: Promise and Perils*, 5 BEHAV. PUB. POL'Y 238 (2021); Shmuel I. Becher, Hongzhi Gao, Alana Harrison & Jessica C. Lai, *Hungry for Change: The Law and Policy of Food Health Labeling*, 54 WAKE FOREST L. REV. 1305 (2019).

204 *See* Ayres & Schwartz, *supra* note 4 (discussing the problem of term optimism); BAR-GILL, SEDUCTION BY CONTRACT, *supra* note 114.

205 Pedro Bordalo, Nicola Gennaioli & Andrei Shleifer, *Salience and Consumer Choice*, 121 J. POL. ECON. 803, 803 (2013).

dling, shipping, and convenience fees. Some studies show that consumers tend to underestimate the total transaction cost when firms engage in price partitions.[206] Other price manipulations include presenting unround prices such as $2.95 or $299.99.[207] If smart readers can examine the transaction as a whole and present the final price, rounded, they can help overcome such manipulations.

Whether smart readers will successfully debias consumers is hard to know without testing. Over time, academics and private consumer organizations may seek to develop such nudges and test their efficacy in the field. At this stage, suffice it to highlight that smart readers offer a new channel of intervention in consumer decision making.

IV. Regulating Contracts in the Age of Smart Readers

Smart readers can have a large impact on the market, even if adoption is only modest. Some of this impact is benign—increasing access to justice or jumpstarting term competition. But some of this impact may be deleterious, such as the case of adversarial attacks and discrimination. Traditionally, the common law has been slow to respond to technological advances. Although a wait-and-see regulatory approach may be sensible in many domains, several issues do require preparation and deliberation.[208]

In what follows, Section A explores the broader theoretical consequences of smart readers for the future of regulation of consumer contracts. Section B briefly considers how courts and agencies may use smart readers. Section C closes by examining four categories of specific doctrinal adaptations and responses to smart readers.

A. The Challenge to Consumer Protection

Scholars offer various justifications for interventions in consumer contracts: fairness, market failures, paternalism, choice architecture, and empowerment—to name a few.[209] Among these, the no-reading

206 *See* Eric A. Greenleaf, Eric J. Johnson, Vicki G. Morwitz & Edith Shalev, *The Price Does Not Include Additional Taxes, Fees, and Surcharges: A Review of Research on Partitioned Pricing*, 26 J. Consumer Psych. 105, 108–11 (2016).

207 For further analysis, see Kenneth C. Manning & David E. Sprott, *Price Endings, Left-Digit Effects, and Choice*, 36 J. Consumer Rsch. 328 (2009), and Manoj Thomas & Vicki Morwitz, *Penny Wise and Pound Foolish: The Left-Digit Effect in Price Cognition*, 32 J. Consumer Rsch. 54 (2005).

208 *See* Van Loo, *supra* note 21, at 821 ("The task of financial stability regulators and scholars is not necessarily to predict the next crisis, or even to make the case that any trigger is likely to cause a crisis. . . . Instead, the task is to improve risk monitoring, which includes minimizing theoretical blind spots.").

209 The literature on consumer contracts is vast. As an illustration of the general disagree-

problem stands out as the most common one.[210] Its appeal lies in its ability to unite fairness-minded scholars, libertarians, and welfarists, as all are concerned with assent under conditions of informational asymmetry.[211] Many pro-consumer interventions are thus couched in the no-reading problem.

Smart readers suggest a new way of thinking about the no-reading problem. Rather than an ethical issue that justifies legal intervention, lack of reading may be a technological challenge that is increasingly solved. Thinking about the problem in this way offers some new insights on persistent legal issues.

To take a particularly important example, consider the recent debate around the Draft Restatement of Consumer Contracts.[212] In 2012, the American Law Institute announced a restatement project of the law of consumer contracts.[213] Scholars still debate the resulting draft on various dimensions.[214] Although the debate is far from settled, it clarified that both sides consider contract reading a fundamental problem that justifies legal intervention.[215] The Reporters note, for

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ment toward the proper approach to consumer contracts see, for example, RADIN, *supra* note 6; Omri Ben-Shahar, *Regulation Through Boilerplate: An Apologia*, 112 MICH. L. REV. 883 (2014); Margaret Jane Radin, *What Boilerplate Said: A Response to Omri Ben-Shahar (and a Diagnosis)* (Univ. Mich. Pub. L. & Legal Theory Rsch., Paper Series, Paper No. 392, L. & Econ. Rsch. Paper Series, Paper No. 14-007, 2014), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2401720 [https://perma.cc/ST65-EA7A].

210 *See generally* Ayres & Schwartz, *supra* note 4.

211 Oren Bar-Gill, *The Behavioral Economics of Consumer Contracts*, 92 MINN. L. REV. 749 (2008); Richard A. Epstein, *The Neoclassical Economics of Consumer Contracts*, 92 MINN. L. REV. 803 (2008).

212 DRAFT RESTATEMENT 2019, *supra* note 4. See discussion *supra* note 33, for the debate.

213 DRAFT RESTATEMENT 2019, *supra* note 4, at xiii.

214 *See, e.g.*, Gregory Klass, *Empiricism and Privacy Policies in the Restatement of Consumer Contract Law*, 36 YALE J. ON REG. 45 (2019); Adam J. Levitin, Nancy S. Kim, Christina L. Kunz, Peter Linzer, Patricia A. McCoy, Juliet M. Moringiello, Elizabeth A. Renuart & Lauren E. Willis, *The Faulty Foundation of the Draft Restatement of Consumer Contracts*, 36 YALE J. ON REG. 447 (2019); *see also* Mark E. Budnitz, *The Restatement of the Law of Consumer Contracts: The American Law Institute's Impossible Dream*, 32 LOY. CONSUMER L. REV. 369 (2020); Nancy S. Kim, *Ideology, Coercion, and the Proposed Restatement of the Law of Consumer Contracts*, 32 LOY. CONSUMER L. REV. 456 (2020).

215 DRAFT RESTATEMENT 2019, *supra* note 4, § 2 cmt. 1 ("This Section . . . operates in a reality in which consumers are . . . unlikely to read and exercise meaningful informed consent to the non-core standard contract terms."). In a separate publication, the Restatement drafters note, for example, that "[t]he proliferation of lengthy standard-term contracts, mostly in digital form, makes it practically impossible for consumers to scrutinize the terms and evaluate them prior to manifesting assent." *See* Oren Bar-Gill, Omri Ben-Shahar & Florencia Marotta-Wurgler, *The American Law Institute's Restatement of Consumer Contracts: Reporters' Introduction*, 15 EUR. REV. CONT. L. 91, 92 (2019). The drafters further state that "[b]ecause of the imbalance between businesses and consumers, the application of contract law's general rules of mutual assent alone are not likely to level the playing field." *Id.* at 93.

example, that "lengthy standard forms" are "unlikely to [be] read" by consumers,[216] and that it is "irrational and infeasible" for consumers to read such contracts.[217] On this basis, the Reporters offered a liberal approach to striking down boilerplate.[218] But because the Draft also proposed a relatively relaxed approach to formation, it was criticized for "jettison[ing] meaningful assent to contract."[219]

Beyond the general approach, reading problems also bear on specific arrangements in the Draft. In particular, the Draft takes a narrow approach to merger clauses:

> Because consumers are not likely to notice, read, or understand the effect of such merger clauses, they do not control the conclusion of whether the standard contract terms constitute a partially or completely integrated agreement, and thus do not preclude a finding that the standard contract terms do not constitute the parties' final expression of a particular matter.[220]

If smart readers can offer a technological solution to the problem of reading, what remains of these justifications? As smart readers grow in sophistication and accuracy, they raise doubts as to whether the Draft and other legal measures are future-proof.[221] Indeed, if smart readers reach this stage, it may be more effective to focus regulatory efforts on increasing adoption rates than to set mandatory rules and enforcement mechanisms. To be sure, even if smart readers can solve the reading problem, they will not necessarily address other market and reputational failures, so they do not necessarily portend

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216 DRAFT RESTATEMENT 2019, *supra* note 4, at 3.

217 *Id.* at 1.

218 *Id.* § 5 cmt. 1 ("Because consumers rarely read or review the non-core, standard contract terms . . . the doctrine of unconscionability is a primary tool against the inclusion of intolerable terms in the consumer contract.").

219 Levitin et al., *supra* note 214, at 452. A previous version of the Restatement termed this tradeoff as a "Grand Bargain." *Id.*

220 DRAFT RESTATEMENT 2019, *supra* note 4, § 8 illus. 3.

221 For example, the so-called "Schumer Box" requires credit card companies to disclose in an accessible, unified, and transparent way the costs of a credit card. *See* 12 C.F.R. § 226.5 (2020). Another key example is the disclosure of nutritional information on packed food, which is prescribed in great detail. *See* 21 U.S.C. § 343; 21 C.F.R. § 101.9 (2020) (implementing regulations). In the context of warranties, the Magnuson-Moss Warranty Act, 15 U.S.C. §§ 2301–2312, mandates that a supplier who offers any warranty may not disclaim any implied warranties. *Id.* § 2308. The Act was enacted because of the concern that "[t]he bold print giveth and the fine print taketh away." H.R. REP. NO. 93-1107, at 24 (1974). Likewise, it has also been noted that "[t]here is substantial evidence that at the time of the sale the purchaser of a major appliance does not understand the nature and extent of the protection provided by the manufacturer's warranty or of the obligation under the warranty of the manufacturer or of the retailer." *Id.* at 27–28.

the end of pro-consumer legal measures. Still, to the extent smart readers can effectively address the no-reading problem, the current reliance on reading as a source of justification might become dated in the coming years.

B. Courts and Agencies

Throughout the analysis, we focused on consumers utilizing smart readers. Although we can only adumbrate the point, it is also worth shifting focus and considering how courts and agencies may benefit from smart readers.[222]

Some commentators recently expressed dissatisfaction with standard interpretative approaches, arguing that courts rely too heavily on introspection and classic dictionaries to identify the "plain meaning" of text.[223] Although dictionaries record definitions, they abstract important clues about the true meaning of a word from linguistic context and frequency of usage. One proposal in this context is the incorporation of "corpus linguistics" into legal interpretation—i.e., examining linguistic usage data obtained from the processing of large corpora of texts. Although this approach shows promise in producing greater awareness to nuances of meaning, it can be unwieldy to use, especially by judges not trained in linguistic methodologies.

Smart readers—and language models more generally—make the implementation of such interpretative approaches straightforward, objective, and predictable. Rather than having a human judge read through thousands of instances of how parties use a given term, a language model can assign probabilities. It can say, hypothetically, that the term "chicken" is used 78% of the time in the context of the general genus, 21% of the time in the context of a broiler, and only 1% in the context of a stewing chicken.[224] When the frequency of use is at issue, such data can become pivotal. Smart readers make the task much more structured and accurate.

Agencies can also productively employ smart readers. They can use them to sift through the contracts commonly used in a given sector and identify problematic terms. For instance, if the agency seeks to police privacy terms, it can set its smart readers to process current privacy policies and flag offensive, suspicious, or irregular terms. Al-

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222 Regulators and agencies are increasingly considering the adoption of digital tools to solve policy problems. *See supra* note 35 and accompanying text.

223 *See* Mourtisen, *supra* note 36, at 1340.

224 *See* Frigaliment Importing Co. v. B.N.S. Int'l Sales Corp., 190 F. Supp. 116 (S.D.N.Y. 1960). The statistics used here are hypothetical.

though smart readers will not be perfectly precise, the agency can still conserve significant resources by channeling its limited resources to flagged terms.[225]

C. *Regulatory and Doctrinal Responses*

The questions we discussed so far were, in a sense, at the wholesale level—considering the broad implications of smart readers. At the retail level, questions remain on the fitness of doctrine developed over the centuries to the age of smart readers. In this Section, we consider the ability of doctrine, courts, and agencies to protect consumers from related risks and properly develop contract law.

1. *Allocation of Error Costs*

Because smart readers will make mistakes,[226] and because consumers may suffer harm from relying on these mistakes, it is important to critically consider the expected response of standard common law doctrines to such mistakes. For concreteness, consider a buyer who purchases a television because the smart reader made them erroneously believe that the seller offers hassle-free returns; a park visitor who is misled by the smart reader into believing that the park owner is responsible for injuries in the park; or a worker mistakenly foregoing his employee status and agreeing to be an independent contractor. Tentatively assume that these mistakes are innocent—that is, they arise from a smart reader error, and the drafter is acting in good faith.[227] What should the law do in such cases? How should the risk of error be allocated between the contracting parties? Can the consumers successfully argue that their assent was compromised due to the reliance on the smart reader?

Smart reader error may implicate the company that produced it, under either a contract theory or tort liability for defective products. Realistically, however, recourse against the producer is likely to be very limited. One reason is the high likelihood of liability waivers in the license agreements. Another is that courts may shy away from assigning liability in such cases in an attempt to encourage the development of smart readers.

Instead of the producer, the disappointed buyer may seek to reach the seller. Here as well, standard doctrines seem to offer little in

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225 *See* Arbel, *supra* note 165, at 147–51 (exploring the use of AI in detecting suspicious cases).

226 *See supra* Section III.B.

227 On the possibility of bad faith errors, see *infra* Section IV.C.3.

the way of redress. The doctrine of mistake involves a wrong belief regarding a basic assumption of the contract that has a material effect.[228] The difficulty is that courts resist applying this doctrine to mistaken beliefs regarding the content of the contract itself.[229] A different kind of difficulty arises in the case of misrepresentation,[230] as the drafting party is not the source of the mistaken understanding, and the smart reader cannot be easily understood to be that party's agent.[231]

This leaves the doctrine of misunderstanding, which does involve divergent interpretations of the contract.[232] But misunderstanding is too weak of a hook to hang anything valuable.[233] Courts avoid finding misunderstandings using tools of interpretation[234] and through the liberal application of the duty to read.[235] This general difficulty is amplified in the context of smart readers, as the source of the mistaken understanding may be the language model, rather than the contract.[236] This specific difficulty can be overcome only if the seller has reason to know of such a misunderstanding.[237] Overall, then, standard doctrines

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228 RESTATEMENT (SECOND) OF CONTS. § 151 (AM. L. INST. 1981) ("A mistake is a belief that is not in accord with the facts.").

229 *See, e.g.*, Eric Rasmusen & Ian Ayres, *Mutual and Unilateral Mistake in Contract Law*, 22 J. LEGAL STUD. 309, 310 (1993) ("[J]udicial excuse for either unilateral or mutual mistake is relatively rare . . . .").

230 *See generally* RESTATEMENT (SECOND) OF CONTS. § 164 (AM. L. INST. 1981) (explaining when misrepresentation makes a contract voidable).

231 26 RICHARD A. LORD, WILLISTON ON CONTRACTS § 69:14 (4th ed. 2021).

232 RESTATEMENT (SECOND) OF CONTS. § 20 cmt. c (AM. L. INST. 1981). For recent applications of the doctrine to invalidate contracts, see *Cont'l Warranty, Inc. v. Warner*, 108 F. Supp. 3d 250, 254 (D. Del. 2015), and *Brooks v. Rosebar*, 210 A.3d 747, 752 (D.C. 2019).

233 *See* Daniel P. O'Gorman, *The Restatement (Second) of Contracts' Reasonably Certain Terms Requirement: A Model of Neoclassical Contract Law and a Model of Confusion and Inconsistency*, 36 U. HAW. L. REV. 169, 199 (2014) ("[M]ost misunderstandings *in fact* will not result in indefiniteness *in law*.").

234 *See, e.g.*, RESTATEMENT (SECOND) OF CONTS. § 20 reporter's note (AM. L. INST. 1981) (distinguishing between "problem[s] of interpretation of key terms and the much less common question whether" there was a misunderstanding).

235 *See, e.g.*, Anderson v. Equitable Life Assurance Soc. of the U.S., 248 F. Supp. 2d 584, 590–91 (S.D. Miss. 2003) ("Mississippi law creates a duty on contracting parties to read their contracts, and imputes the knowledge of that contract to the parties. . . . The court will generally not consider prior oral agreements, misunderstandings between the parties, or any other form of parol evidence."). One exception is *Cappalli v. BJ's Wholesale Club, Inc.*, 904 F. Supp. 2d 184 (D.R.I. 2012). Here the court concluded that because the contract had conflicting terms in it, the misunderstanding could not have been resolved by the reading of the contract. *Id.* at 191–92.

236 According to RESTATEMENT (SECOND) OF CONTS. § 20(2) (AM. L. INST. 1981), courts can enforce the contract as understood by the innocent party, if the other party had reason to know of the misunderstanding.

237 *See id.* This rule of "negligent manifestation of assent," *id.* § 20 cmt. d, is rarely used. For one example, see *Pope v. Gap, Inc.*, 961 P.2d 1283, 1287 (N.M. Ct. App. 1998).

would allocate the entirety of the risk of smart reader error to the consumer.

A deeper question is whether sellers *should* be made responsible for harms resulting from smart readers.[238] The answer to this question depends on several factors. To begin, if the smart reader provides a mistaken output, then it may be that the consumer's most effective redress should come from the producer of the smart reader. In autonomous driving, for example, there has been a similar push to move from personal liability for the accident to producer's liability for faulty autonomous driving technology.[239] Assigning liability to the producer is appealing in the sense that it can encourage producers to improve their products or properly warn users. On the other hand, such solutions can stunt development in the field and place barriers to entry. Additionally, producer liability rules can increase the cost of smart readers and chill adoption rates, thus depressing the positive spillovers of smart readers.[240]

Assuming the buyer has no recourse against the producer of the smart reader, the allocation of responsibility between the buyer and the seller becomes a question of who is in a better position to avoid the "legal accident" of contractual misunderstanding. On the one hand, the consumer may appear to be ideally situated: the consumer is the party that harbors a misunderstanding and thus can solve it by reading the contract. The scholarship around the no-reading problem, however, suggests that this may be a facile assumption and that the consumer's ability to prevent the accident is limited.[241] On the other hand, sellers can control the risk of an accident through proactive disclosures, at least of key terms. Still, sellers are also not ideally situated to prevent the accident, as they do not choose the app, have no control over how or when the consumer uses it, and are not privy to its outputs.

Overall, we do not find a compelling reason why the law should assign liability exclusively to one side of the transaction. This leads us

238 For an investigation of the allocation of risks for error codes, see Shaanan Cohney & David A. Hoffman, *Transactional Scripts in Contract Stacks*, 105 MINN. L. REV. 319 (2020).

239 *See, e.g.*, Alexander B. Lemann, *Autonomous Vehicles, Technological Progress, and the Scope Problem in Products Liability*, 12 J. TORT L. 157 (2019) (arguing that the relative safety of autonomous vehicles should not suggest that their manufacturers are immune from potential liability when their faults cause injury).

240 As noted in *supra* Section III.B, positive spillovers are expected even when AI smart readers are fairly inaccurate. Insistence on accuracy through tort liability for mistakes may thus be disadvantageous.

241 *See supra* Part II.

to consider loss allocation rules, which are key in the case of hard to prevent accidents. Here, we think the common law solution to the no-reading problem is instructive. Courts assign liability for most of the terms to consumers, but sellers can enforce certain special terms only if they are conspicuously disclosed. This logic can be transferable to the context at hand by requiring sellers to disclose key terms in a "smart reader-friendly" manner as a condition for their enforcement. We can facilitate such a solution by adapting the meaning of conspicuous to the age of smart readers; by a stronger version of the contra proferentem rule; or by reviving the mostly defunct duty to warn under section 211 of the Restatement (Second) of Contracts.[242] Overall, the goal should be to navigate the incentives of both parties while minimizing the costs of errors.

2. The Duty to Read

If smart readers are cheap and accessible, courts may find it natural to expect consumers to use them. Based on this expectation, courts may expand the doctrine of the duty to read. Such a move can be premature.

Courts have long imposed a misnamed "duty" to read contracts.[243] Under this rule, courts will enforce the terms of an unread contract as long as the consumer had a proper opportunity to read the contract terms.[244] Courts assume that the duty encourages consumers to read terms and avoid strategic claims of unread terms.[245] The concern here, however, is that courts and legislatures will come to *excessively* rely on smart readers by expanding the duty to read. Once smart readers become common, courts might make increasingly strong

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242 RESTATEMENT (SECOND) OF CONTS. § 211(3) (AM. L. INST. 1981) ("Where [a] party has reason to believe that [another] party manifesting . . . assent [to a standard form] would not do so if he knew that the writing contained a particular term, the term is not part of the agreement."); *see also* Kar & Radin, *supra* note 31, at 1202.

243 *See, e.g.*, Ayres & Schwartz, *supra* note 4, at 548 n.10 (citing case law applying the duty to read in the context of consumer contracts); Wayne R. Barnes, *Toward a Fairer Model of Consumer Assent to Standard Form Contracts: In Defense of Restatement Subsection 211(3)*, 82 WASH. L. REV. 227, 230 (2007); Charles L. Knapp, *Is There a "Duty to Read"?*, 66 HASTINGS L.J. 1083, 1085 (2015).

244 *See, e.g.*, Rustad & Koenig, *supra* note 47, at 1453 ("U.S. courts have expanded the duty to read . . . to the world of electronic boilerplate . . . .").

245 *See* Omri Ben-Shahar, *The Myth of the 'Opportunity to Read' in Contract Law*, 5 EUR. REV. CONT. L. 1, 7 (2009) ("Rather, [the duty] is a method to shift the burden of information acquisition to the passive party."); Korobkin, *supra* note 5, at 1269 ("If buyers could preserve the right to challenge ex post any contract term of which they were unaware ex ante, they would have a perverse incentive to avoid learning the content of all terms.").

assumptions on the ability of the specific consumer to read and understand the contract.

A few considerations ground the possibility of premature expansion of the duty to read. First, firms and other repeat players may advocate the courts to adopt such a policy. The technology is already sufficiently impressive to mislead an inexperienced person into believing that it is more effective than it actually is. Second, courts have not demonstrated technological acuity and agility in the context of browsewraps and clickwraps, still struggling to articulate clear rules two decades after these have become household issues.[246] Third, courts and legislators may be tempted to use the duty to read strategically as a means of encouraging the adoption of smart readers.

If there is a wide gap between judicial expectations and technological or consumer realities, such judicial insistence will backfire. Having a more muscular duty to read without a commensurate enhancement in the actual reading and understanding of contracts can prove deleterious. Most worryingly, if access to smart readers is unequally distributed so that only certain classes of consumers benefit from them, such a judicial shift can lead to regressive cross-subsidies that exacerbate inequalities.[247]

In conclusion, we urge courts and policymakers to resist attempts to jump the gun and prematurely expand the duty to read. We recognize that this will somewhat diminish the incentive to use smart readers. Nevertheless, we consider this a fairly small price to pay for gradual development and a more informed policy.

3. The Problem of Adversarial Attacks

Adversarial attacks are a slippery problem. Detection is likely to be exceedingly difficult. Both the panda and stop sign examples demonstrated how ever-so-slight manipulation of pixels could mislead a sophisticated AI model.[248] In the context of contracts and other written documents, such attacks can wear a dizzying array of forms. These may include deliberate manipulation of the spacing, font choice, the order of words in a sentence, font size and color, choice of synonyms, register, and document margins to trick AI models into producing a

246 *See, e.g.*, Budnitz, *supra* note 214, at 415 ("[D]ue to developments in technology, the environment where online consumer transactions occur is in constant flux.").

247 *See, e.g.*, Mark Lloyd, *The Digital Divide and Equal Access to Justice*, 24 HASTINGS COMMC'NS & ENT. L.J. 505, 527–30 (2002) (explaining that unequal access to technology could lead to exacerbated inequalities in the justice system).

248 *See supra* Section III.B.

desirable outcome. Humans can hardly be trusted to detect such manipulations, so one might hope that smart readers can be trained for this purpose. But this is precisely the problem. Detecting manipulation may require judgment about the correct classification of the contract, which is what the models lack.

Beyond the problem of detection, proving that a given error is deliberate will be extremely difficult. Thus, even if one suspects that firms calculate the choice of font and spacing, proving that this was made to deliberately confuse smart readers will require strong evidence. Contract drafters have broad latitude over the design of their agreements, and, in practice, drafters employ different designs for reasons that are entirely innocuous.[249]

The economic theory of enforcement suggests a solution to the problem of hard-to-detect violations: the use of large fines and punitive damages that compensate for the possibility that violations will go undetected.[250] Unfortunately, it will be difficult to apply these prescriptions to adversarial attacks. Contract law is averse to the use of punitive damages,[251] and tort-based theories of fraud will also be limited.[252] Beyond the problem of detection and proof, there are also practical limitations on the feasible size of penalties that can be effectively levied. Perhaps fraud-based challenges can provide some deterrence, especially against large firms, but they are not likely to provide a comprehensive solution.

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249 *See, e.g.*, Hoffman, *supra* note 5 (discussing firms who use accessible and humorous language alongside more formal and traditional form contract terms).

250 *See* A. Mitchell Polinsky & Steven Shavell, *The Economic Theory of Public Enforcement of Law*, 38 J. ECON. LITERATURE 45, 67 (2000). The DRAFT RESTATEMENT 2019, *supra* note 4, § 6, suggests making terms entered through deceptive acts unenforceable, reflecting the common law's standard of misrepresentation. *See* RESTATEMENT (SECOND) OF CONTS. § 164 (AM L. INST. 1981). This remedy, however, offers little in the way of deterrence if violations are hard to detect.

251 *See, e.g.*, O'Gilvie v. United States, 519 U.S. 79 (1996); Honda Motor Co. v. Oberg, 512 U.S. 415 (1994); 5 ARTHUR LINTON CORBIN, CORBIN ON CONTRACTS § 1077 (1964); 11 WILLISTON ON CONTRACTS 209 (W. Jaegered., 3d ed. 1968); RESTATEMENT (SECOND) OF CONTS. § 355 (AM. L. INST. 1981) ("Punitive damages are not recoverable for a breach of contract unless the conduct constituting the breach is also a tort for which punitive damages are recoverable."); U.C.C. § 1-305 cmt. 1 (AM. L. INST. & NAT'L CONF. COMM'RS ON UNIF. STATE L. 2020) (stating that contractual remedies "do not include consequential or special damages, or penal damages"). *But see* Timothy J. Sullivan, *Punitive Damages in the Law of Contract: The Reality and the Illusion of Legal Change*, 61 MINN. L. REV. 207 (1977) (arguing that punitive damages are more common in contract law than it seems).

252 *See* William S. Dodge, *The Case for Punitive Damages in Contracts*, 48 DUKE L.J. 629 (1999) (reporting that thirty-nine states do not allow punitive damages for contract breach unless the plaintiff can establish the existence of an independent tort).

Another possible solution is burden-shifting based on statistical indicia of wrongdoing. When courts are faced with clear signs of wrongdoing but with limited ability to prove it, they use doctrines such as *res ipsa loquitur* to shift the burden of proof.[253] If it turns out that a contract leads a sample of smart readers to the wrong interpretation, courts can shift the burden to the defendant. It will then be the defendant who would have to prove that such errors are not intentional, or they will be liable to meet the interpretation suggested by the consumer.

Though having some initial appeal, this solution is also not without difficulty. The problem is that smart readers will always have some degree of technical errors that are not due to the drafter, but rather to the state of technology. Making sellers liable for smart reader errors imposes a considerable cost on them, though their ability to avoid it is limited because they have little to say concerning the design and implementation of smart readers.

One last approach is ongoing regulatory monitoring, for instance, by the Consumer Financial Protection Bureau or the Federal Trade Commission.[254] Enforcement agencies could utilize their systems of smart readers to identify instances in which document style and formatting raise suspicion of strategic manipulation. To be sure, this will also not be a perfect solution, because adversarial examples can be invisible to smart readers as well. Regardless, it is a step toward resolving a recognizably slippery problem, and it has the merit of inviting consumer organizations and enforcement agencies to be active in this domain.

4. Bias and Discrimination

Firms wield broad latitude in personalizing the content and formatting of contracts, though limited exceptions on some forms of discrimination exist.[255] This leeway reflects a long-held view that treats

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253 *See generally* J. Shahar Dillbary, *The Case Against Collective Liability*, 62 B.C. L. Rev. 391, 392 (2021). A more creative approach is Professor Lahav's concept of a so-called "knowledge remedy." Lahav suggests that in some cases where causality is hard to prove, courts would order the defendant to fund research that would determine causality. *See* Alexandra D. Lahav, *The Knowledge Remedy*, 98 Tex. L. Rev. 1361, 1387 (2020).

254 These two agencies have different regulatory approaches. *See* Rory Van Loo, *Regulatory Monitors: Policing Firms in the Compliance Era*, 119 Colum. L. Rev. 369, 393–95 (2019).

255 *See, e.g.*, Civil Rights Act of 1964 §§ 701–718, 42 U.S.C. §§ 2000e–2000e-17 (prohibiting discrimination, among other things, on the basis of race, religion, sex, and national origin); Equal Credit Opportunity Act §§ 1002.1–1002.16, 15 U.S.C. §§ 1691–1691f; Fair Housing Act §§ 800–818, 42 U.S.C. §§ 3601–3619; *see also* Americans with Disabilities Act of 1990 §§ 101–514, 42 U.S.C. §§ 12101–12213 (prohibiting discrimination on the basis of disability).

standard form contracts with suspicion and personalized agreements favorably. The emergence of big data and personalization at scale should flip this presumption on its head.[256]

Today, firms can tailor contracts to specific consumers that can be highly harmful. A particular concern for our purposes arises if firms choose to offer consumers who use smart readers better terms than terms offered to consumers who do not use them. We noted how such disparate treatment could lead to regressive cross-subsidies among the consumer groups. An even more pressing concern arises if the propensity to use smart readers is correlated with race or other social characteristics. All in all, such discrimination can eliminate the positive spillovers of smart readers.[257]

One possible route to addressing this discrimination is through the various laws prohibiting unfair and deceptive acts and practices.[258] At the federal level, an unfair practice is one that "is likely to cause substantial injury to consumers which is not reasonably avoidable by consumers themselves and not outweighed by countervailing benefits to consumers or to competition."[259] The common standard at the state level is the one outlined in *FTC v. Sperry & Hutchinson Co.*, which includes an examination as to "whether the practice . . . causes substantial injury to consumers."[260] The argument here would be that certain personalization practices cause a "substantial injury" to those consumers who receive inferior terms that they cannot reasonably avoid, which are not outweighed by other benefits. The problem is that commentators debate whether market segmentation ever meets this standard.[261]

An alternative is to consider this practice deceptive. Offering inferior terms to consumers who are most likely to be ignorant about them may be deemed deceptive. This is especially so, if these consumers have developed expectations based on the treatment received by

256 *See supra* notes 181–84 and accompanying text.

257 *See supra* Section III.E.

258 15 U.S.C. § 45 (empowering the Federal Trade Commission to prevent certain unfair and deceptive acts). Entities regulated by the Consumer Financial Protection Bureau are subject to 12 U.S.C. § 5531 ("[p]rohibiting unfair, deceptive, or abusive acts or practices"). At the state level, there are differences in scope but "[e]very state . . . prohibit[s] deceptive practices, and many . . . also prohibit unfair and unconscionable practices." ADAM J. LEVITIN, CONSUMER FINANCE: MARKETS AND REGULATION 81 (2018).

259 15 U.S.C. § 45(n).

260 405 U.S. 233, 244 n.5 (1972). *See generally* LEVITIN, *supra* note 258, at 82–83.

261 *See* Dennis D. Hirsch, *That's Unfair! Or Is It? Big Data, Discrimination and the FTC's Unfairness Authority*, 103 KY. L.J. 345, 353–57 (2014–2015) (arguing that the segmentation based on big data can constitute an unfair practice); *cf.* Bruckner, *supra* note 183, at 42–47.

users who employ smart readers.[262] The standard here is less demanding and may be supported by a showing of a misleading material omission.[263] Nonetheless, even this argument requires establishing the existence of an actual misperception, and proof of this may not always be available.

We recognize that limiting the freedom of contract raises difficulties. Personalization serves many benign purposes, and we do not consider a blanket prohibition desirable. But in the particular case of smart reader-based discrimination, there are pressing concerns about potential racial discrimination, regressive cross-subsidies, and the elimination of positive spillovers. Admittedly, the balance of these considerations is a matter of values as much as it is a matter of empirics. At best, we can raise these issues to public awareness and hope that future research and debate will shed more light on the way the law should treat this kind of discrimination. However, we feel confident in saying that this complex issue comes with a deadline. Once firms start collecting data on smart reader usage and tailor treatment on this basis, it will not be easy to undo the results. Here again, an ounce of precaution now is worth a pound of cure later.

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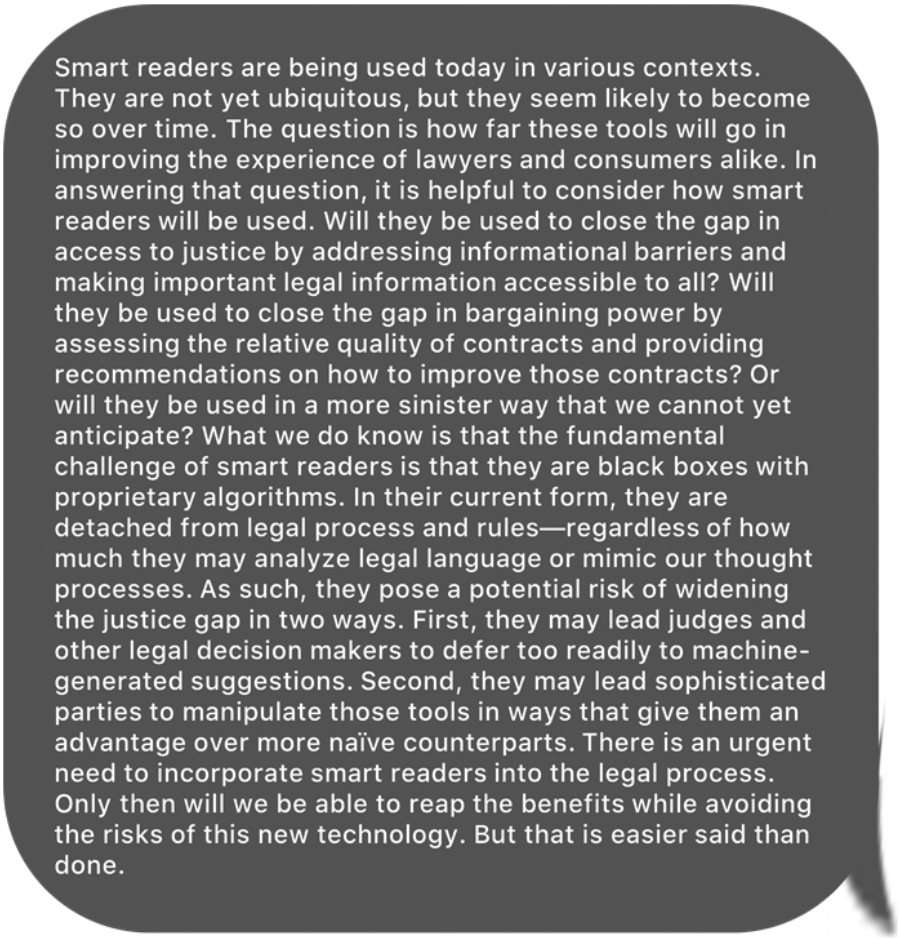
262 FTC POLICY STATEMENT ON DECEPTION (Oct. 14, 1983), https://www.ftc.gov/system/files/documents/public_statements/410531/831014deceptionstmt.pdf [https://perma.cc/8LWQ-FSR8] ("In some circumstances, the Commission can presume that consumers are likely to reach false beliefs . . . because of an omission.").

263 *Id.* (agency's interpretation); *see also* LEVITIN, *supra* note 258, at 81–82.

Conclusion[264]



264 Written by GPT-3. Screenshot [10] (on file with authors).