

ESSAY

STATUTORY INTERPRETATION FROM THE OUTSIDE

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How should judges decide which linguistic canons to apply in interpreting statutes? One important answer looks to the inside of the legislative process: Follow the canons that lawmakers contemplate. A different answer, based on the “ordinary meaning” doctrine, looks to the outside: Follow the canons that guide an ordinary person’s understanding of the legal text. We offer a novel framework for empirically testing linguistic canons “from the outside,” recruiting 4,500 people from the United States and a sample of law students to evaluate hypothetical scenarios that correspond to each canon’s triggering conditions. The empirical findings provide evidence about which traditional canons “ordinary meaning” actually supports.

This Essay’s theory and empirical study carry several further implications. First, linguistic canons are not a closed set. We discovered possible new canons that are not yet reflected as legal canons, including a “nonbinary gender canon” and a “quantifier domain restriction canon.” Second, we suggest a new understanding of the ordinary meaning doctrine itself, as one focused on the ordinary interpretation of rules, as opposed to the traditional focus on “ordinary language” generally. Third, many of the canons reflect that ordinary people interpret rules with an intuitive anti-literalism. This anti-literalism finding challenges textualist assumptions about ordinary meaning. Most broadly, we hope this Essay initiates a new research program in empirical legal interpretation. If ordinary meaning is relevant to legal interpretation, interpreters should look to evidence of how ordinary people actually under-

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stand legal rules. We see our experiments as a first step in that new direction.

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INTRODUCTION

“American courts have no intelligible, generally accepted, and consistently applied theory of statutory interpretation.”¹ This Hart and Sacks lament is frequently quoted but misleading.² Despite extensive and ongoing debate about how to interpret statutes, most plausible theories share one common principle: a commitment to “ordinary meaning.”³ This Essay focuses on statutory interpretation, but its theory and empirical analysis may extend more broadly. “Ordinary meaning” plays a crucial role in interpreting most legal texts: from contracts and wills, to treaties and the U.S. Constitution.⁴ Normatively, the doctrine often finds justification for

1. Henry M. Hart, Jr. & Albert M. Sacks, *The Legal Process: Basic Problems in the Making and Application of Law* 1169 (William N. Eskridge, Jr. & Philip P. Frickey eds., 1994).

2. See David S. Louk, *The Audiences of Statutes*, 105 *Cornell L. Rev.* 137, 150 (2019) (“A common trope in discussions of statutory interpretation theory is that American judges lack a principled method of interpreting statutes, something legal theorists and members of the judiciary alike have long recognized.”).

3. See Brian G. Slocum, *Ordinary Meaning: A Theory of the Most Fundamental Principle of Legal Interpretation* 1–3 (2015) [hereinafter Slocum, *Ordinary Meaning*]; see also William N. Eskridge, *Interpreting Law: A Primer on How to Read Statutes and the Constitution* 33–41 (2016) [hereinafter Eskridge, *Interpreting Law*]; Antonin Scalia & Bryan A. Garner, *Reading Law: The Interpretation of Legal Texts* 33 (2012); Lawrence M. Solan, *The Language of Statutes: Laws and Their Interpretation* 53 (2010).

4. See, e.g., Cal. Civ. Code § 1644 (2018) (“The words of a contract are to be understood in their ordinary and popular sense”); Cal. Prob. Code § 21122 (2018) (“The words of an instrument are to be given their ordinary and grammatical meaning unless the intention to use them in another sense is clear and their intended meaning can be ascertained.”); Curtis J. Mahoney, Note, *Treaties as Contracts: Textualism, Contract Theory, and the Interpretation of Treaties*, 116 *Yale L.J.* 824, 829–32 (2007) (describing the

“ordinary” language principles based on notice, predictability, and the notion that the public should be able to read, understand, and rely upon legal texts.⁵

Increasingly, the Supreme Court has emphasized that the interpretive process begins by giving statutory language its ordinary meaning.⁶ For some, interpretation begins and ends with ordinary meaning. Modern textualists believe that ordinary meaning should significantly constrain interpretation; other considerations enter only if ordinary meaning is indeterminate.⁷ Purposivists agree that ordinary meaning is at least *relevant* to interpretation,⁸ alongside other criteria including legislative intent (typically ascertained via legislative history).⁹ Few deny that ordinary meaning is regularly deployed by all members of the current Supreme Court.¹⁰ Consider the Court’s recent landmark decision in *Bostock v. Clayton County*.¹¹ The Justices divided sharply, but all the opinions—both the majority and two dissents—invoked “ordinary meaning” in determining whether the term “sex” in Title VII’s antidiscrimination provision includes sexual orientation and transgender discrimination.¹² Not surprisingly, cutting-

Supreme Court’s recent approach to treaty interpretation, which often focuses on the plain meaning of terms in a treaty); Lawrence B. Solum, *The Constraint Principle: Original Meaning and Constitutional Practice* 3 (Apr. 3, 2019), <https://ssrn.com/abstract=2940215> [<https://perma.cc/P7JR-9RDM>] (unpublished manuscript) (“The dominant strain of contemporary originalism emphasizes the public meaning of the constitutional text . . .”).

5. See William N. Eskridge Jr., Brian G. Slocum & Stefan Th. Gries, *The Meaning of Sex: Dynamic Words, Novel Applications, and Original Public Meaning*, 119 Mich. L. Rev. 1503, 1516–17 (2021) [hereinafter Eskridge et al., *The Meaning of Sex*].

6. See, e.g., *Bostock v. Clayton County*, 140 S. Ct. 1731, 1738 (2020) (“This court normally interprets a statute in accord with the ordinary public meaning of its terms . . .”); *Food Mktg. Inst. v. Argus Leader Media*, 139 S. Ct. 2356, 2364 (2019) (“In statutory interpretation disputes, a court’s proper starting point lies in a careful examination of the ordinary meaning and structure of the law itself.”).

7. See, e.g., Victoria Nourse, *Textualism 3.0: Statutory Interpretation After Justice Scalia*, 70 Ala. L. Rev. 667, 669 (2019) (acknowledging but questioning the premise that ordinary meaning constrains as between results in a case).

8. See, e.g., Eskridge, *Interpreting Law*, *supra* note 3, at 35 (“There are excellent reasons for the primacy of the ordinary meaning rule.”).

9. See Robert A. Katzmann, *Judging Statutes* 31–35 (2014) (explaining the purposivist approach to statutory interpretation).

10. As Justice Elena Kagan famously declared of the Court, “We’re all textualists now.” Harvard Law School, *The Scalia Lecture: A Dialogue with Justice Kagan on the Reading of Statutes*, YouTube, at 08:29 (Nov. 25, 2015), <https://youtu.be/dpEtszFT0Tg> (on file with the *Columbia Law Review*). This statement depends upon an essential ambiguity: whether one begins or ends with the text.

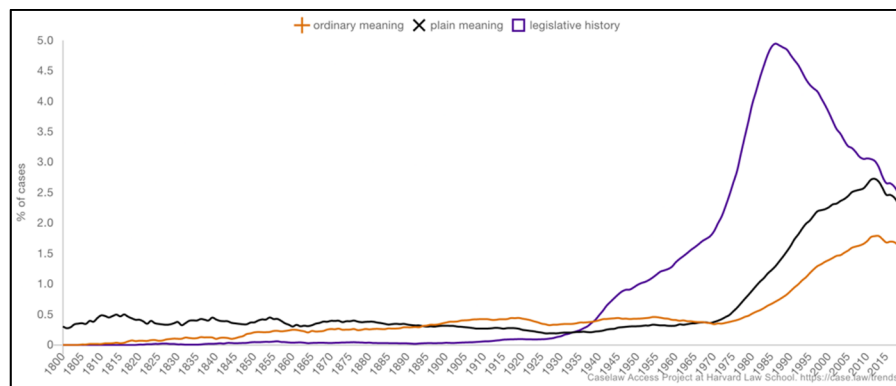
11. 140 S. Ct. 1731.

12. *Id.* at 1750 (Gorsuch, J.) (“[T]he law’s ordinary meaning at the time of enactment usually governs . . .”); *id.* at 1767 (Alito, J., dissenting) (“The *ordinary meaning* of discrimination because of ‘sex’ was discrimination because of a person’s biological sex, not sexual orientation or gender identity.”); *id.* at 1825 (Kavanaugh, J., dissenting) (“[C]ourts must follow ordinary meaning, not literal meaning.”).

edge statutory interpretation theory has turned its focus on “ordinary meaning.”¹³

In fact, “ordinary meaning” is likely to grow in importance. Figure 1 reflects citations to “ordinary meaning,” “plain meaning,” and “legislative history” across six million U.S. cases in Harvard Law School’s Caselaw Access Project. Over the past fifty years, citation to “ordinary meaning” has tripled. By way of comparison, citation to “legislative history” has halved from its peak.

FIGURE 1. U.S. CASE LAW CITATIONS TO ORDINARY MEANING, PLAIN MEANING, AND LEGISLATIVE HISTORY¹⁴



These patterns provide a rough impression of interpretive trends. More robust empirical work supports the same conclusion, particularly in high-profile Supreme Court cases. A recent study of the Supreme Court’s use of interpretive tools found that between 2005 and 2017, the Roberts Court relied on “text” and “plain meaning” in 41% of all opinions and 50% of majority opinions.¹⁵ The Court relied on text more than intent,

13. E.g., Tara Leigh Grove, *Which Textualism?*, 134 Harv. L. Rev. 265 (2020); Anita S. Krishnakumar, *MetaRules for Ordinary Meaning*, 134 Harv. L. Rev. Forum 167 (2021) [hereinafter Krishnakumar, *MetaRules*]; Thomas R. Lee & Stephen C. Mouritsen, *Judging Ordinary Meaning*, 127 Yale L.J. 788 (2018); James A. Macleod, *Finding Original Public Meaning*, 56 Ga. L. Rev. (forthcoming 2021), <https://ssrn.com/abstract=3729005> [<https://perma.cc/8DCR-EFK6>] [hereinafter Macleod, *Finding Original Public Meaning*]; Slocum, *Ordinary Meaning*, supra note 3; Lawrence M. Solan & Tammy Gales, *Finding Ordinary Meaning in Law: The Judge, the Dictionary, or the Corpus?*, 1 Int’l J. Legal Discourse 253 (2016); Kevin P. Tobia, *Testing Ordinary Meaning*, 134 Harv. L. Rev. 726 (2020) [hereinafter Tobia, *Testing Ordinary Meaning*]; Kevin Tobia & John Mikhail, *Two Types of Empirical Textualism*, 86 Brook. L. Rev. 461 (2021).

14. Caselaw Access Project, Harv. L. Sch. (2018) (retrieved Nov. 2, 2021).

15. Anita S. Krishnakumar, *Cracking the Whole Code Rule*, 96 N.Y.U. L. Rev. 76, 97 (2021).

purpose, or legislative history.¹⁶ The Court has recently gained three new textualists, as lower federal courts welcome a new cohort of exceptionally young judges, similarly committed to textualism.¹⁷

So how do courts determine a statute's "ordinary meaning"? Sometimes the debate centers on the meaning of individual terms,¹⁸ with judges increasingly relying on tools like dictionaries.¹⁹ Dictionaries provide evidence about how individual terms are used in nonlegal communications.²⁰ But statutes contain complex expressions, with terms embedded in specific contexts.²¹ This complexity raises difficult questions about the relationship between the conventional meaning of a term and its context.

Often, contextual patterns are so frequently repeated that they are taken to trigger regular assumptions about "ordinary meaning." Take the well-known case of *McBoyle v. United States*, which required the Court to determine whether an airplane is a "vehicle" under the National Motor Vehicle Theft Act.²² This Act punishes those who knowingly transport a stolen "automobile, automobile truck, automobile wagon, motor cycle, or

16. See *id.*

17. See John Gramlich, How Trump Compares With Other Recent Presidents in Appointing Federal Judges, *Pew Rsch. Ctr.* (Jan. 13, 2021), <https://www.pewresearch.org/fact-tank/2021/01/13/how-trump-compares-with-other-recent-presidents-in-appointing-federal-judges/> [<https://perma.cc/R7L9-4D8P>]; Moiz Syed, Charting the Long-Term Impact of Trump's Judicial Appointments, *ProPublica* (Oct. 30, 2020), <https://projects.propublica.org/trump-young-judges/> [<https://perma.cc/W3AX-YRR3>] (explaining that President Trump appointed a record number of federal judges and that his appointees to the Supreme Court and appeals courts are younger than appointees by presidents going back to President Nixon by about four years on average); see also Jason Zengerle, How the Trump Administration Is Remaking the Courts, *N.Y. Times Mag.* (Aug. 22, 2018), <https://www.nytimes.com/2018/08/22/magazine/trump-remaking-courts-judiciary.html> (on file with the *Columbia Law Review*) (noting President Trump's "commit[ment] to . . . nominating and appointing judges that are committed originalists and textualists" (internal quotation marks omitted) (quoting Donald McGahn, White House counsel to President Trump)).

18. See Victoria Nourse, *Misreading Law, Misreading Democracy* 18 (2016) [hereinafter Nourse, *Misreading Law*] (arguing that there are almost always two apparent meanings for key terms).

19. See, e.g., James J. Brudney & Lawrence Baum, Oasis or Mirage: The Supreme Court's Thirst for Dictionaries in the Rehnquist and Roberts Eras, 55 *Wm. & Mary L. Rev.* 483, 493 (2013) (arguing that dictionaries have been "overused and abused by the Court").

20. Although dictionaries can provide general information about word meanings, the judicial practice of relying on dictionaries to define statutory terms is fraught with problems. See Ellen P. Aprill, The Law of the Word: Dictionary Shopping in the Supreme Court, 30 *Ariz. St. L.J.* 275, 297–30 (1998) (stating that the level of "linguistic analysis" performed by courts rarely rises above "dictionary shopping").

21. See generally Peter M. Tiersma, Some Myths About Legal Language, 2 *Law, Culture & Humanities* 29 (2005) [hereinafter Tiersma, *Myths*] (explaining that the way legal texts are drafted adds to their complexity).

22. 283 U.S. 25, 25–26 (1931).

any other self-propelled vehicle not designed for running on rails.”²³ Justice Oliver Wendell Holmes Jr., writing for the Court, found that the statute *did not* apply to an aircraft: An airplane is not a vehicle.²⁴

If one focuses on the term “vehicle,” the Court’s conclusion might seem puzzling. Isn’t an airplane a vehicle?²⁵ But any puzzlement lessens when we consider the ordinary meaning of “vehicle” *in context*. The general words, “any other . . . vehicle,” come after a long list of more specific terms: automobile, automobile truck, automobile wagon, and motorcycle.²⁶ Perhaps, based on this context, an ordinary reader would understand the statutory rule to be more specific: “Vehicle” refers to automobiles, motorcycles, and similar entities, like buses, that are designed for traveling on land. But vehicles of a very different nature (e.g., canoes or airplanes) are not “vehicles” in this context.²⁷ “Vehicle” thus communicates something different when it is placed at the end of a list in a rule. The *ejusdem generis* canon captures this intuition: When general words follow an enumerated class of things, the general words should be construed to apply to things of the same general nature.²⁸ Thus, a statute referring just to “vehicles” may include airplanes as vehicles, but a statute that includes “vehicles” at the end of a list of specific examples might convey a different, narrower meaning.

Judges rely heavily on dozens of interpretive principles like *ejusdem generis*.²⁹ These principles are so long standing and frequently applied that

23. See *id.*

24. See *id.* at 26.

25. Some have questioned whether the ordinary meaning of “vehicle” includes airplanes. See Lee & Mouritsen, *supra* note 13, at 840. Nevertheless, even if some doubt exists, the specific context in *McBoyle* significantly bolstered the Court’s claim that an airplane was not a vehicle. See *McBoyle*, 283 U.S. at 26.

26. *McBoyle*, 283 U.S. at 26.

27. For Justice Brett Kavanaugh, even the question whether a baby stroller is a vehicle in this context may be difficult. See *Bostock v. Clayton County*, 140 S. Ct. 1731, 1825 (2020) (Kavanaugh, J., dissenting) (asserting that a “statutory ban on ‘vehicles in the park’ would literally encompass a baby stroller” but that “the word ‘vehicle,’ in its ordinary meaning, does not encompass baby strollers”).

28. See Larry Alexander, *Bad Beginnings*, 145 U. Pa. L. Rev. 57, 65 (1996) (“When general words follow specific words in a statute, the general words are to be given a ‘sense analogous to that of the particular words.’” (quoting Scott Brewer, *Exemplary Reasoning: Semantics, Pragmatics, and the Rational Force of Legal Argument by Analogy*, 109 Harv. L. Rev. 923, 937 (1996))); see also *infra* section I.C.

29. See William N. Eskridge, Jr., Philip P. Frickey, Elizabeth Garrett & James J. Brudney, *Cases and Materials on Legislation and Regulation: Statutes and the Creation of Public Policy* 1195–215 (5th ed. 2014) [hereinafter Eskridge et al., *Cases and Materials* 2014] (identifying at least 161 different interpretive canons).

they are referred to as “canons” of interpretation.³⁰ In fact, judges cite interpretive canons more frequently now than in the past.³¹ Yet, some courts and commentators also criticize canons as unjustified.³²

Debates about canons’ justification center on two very different empirical questions. One concerns whether legislative authors contemplate the canon when drafting.³³ The other concerns whether the canon reflects how ordinary people reading the statute would understand the language.³⁴ William Eskridge and Victoria Nourse have described these justifications as grounded in the “production” versus the “consumer” economies of statutory interpretation.³⁵ The production economy emphasizes the statute’s authors; the consumer economy emphasizes its readers.³⁶

The empirical claim that canons reflect the meanings of the statute’s producers or authors motivated Abbe Gluck and Lisa Bressman’s seminal work: *Statutory Interpretation from the Inside*.³⁷ In 2013, Gluck and Bressman published a survey of 137 congressional staffers from both chambers of

30. See *id.* at 1195.

31. See Anita S. Krishnakumar & Victoria F. Nourse, *The Canon Wars*, 97 *Tex. L. Rev.* 163, 167 (2018) (arguing that recent Supreme Court cases have focused extensively on the canons of construction); Nina A. Mendelson, *Change, Creation, and Unpredictability in Statutory Interpretation: Interpretive Canon Use in the Roberts Court’s First Decade*, 117 *Mich. L. Rev.* 71, 73 (2018) (“The lion’s share of Roberts Court majority opinions engages at least one interpretive canon in resolving a question of statutory meaning.”).

32. See, e.g., Jesse M. Cross, *When Courts Should Ignore Statutory Text*, 26 *Geo. Mason L. Rev.* 453, 459–60 (2018) (arguing that many canons of construction must be modified or discarded because they are inaccurate).

33. See, e.g., Abbe R. Gluck & Lisa Schultz Bressman, *Statutory Interpretation From the Inside—An Empirical Study of Congressional Drafting, Delegation, and the Canons: Part I*, 65 *Stan. L. Rev.* 901, 906–07 (2013) [hereinafter Gluck & Bressman, *Statutory Interpretation Part I*] (surveying congressional staff and finding that many either ignore or reject certain canons).

34. Cf. William N. Eskridge Jr. & Victoria F. Nourse, *Textual Gerrymandering: The Eclipse of Republican Government in an Era of Statutory Populism*, *N.Y.U. L. Rev.* (forthcoming 2021) (manuscript at 4), <https://ssrn.com/abstract=3809925> [<https://perma.cc/SE3M-CGP4>] (noting some scholars’ concern that canons may be manipulated to “create an arbitrary façade of plain meaning”). These explanations of the justifications are slightly oversimplified. In each case, it is possible that a canon might be justified even if the authors or audience could not themselves name the canon. For example, even if legislative drafters are unfamiliar with the term “*ejusdem generis*,” it might be that applying the rule nevertheless helpfully captures features of intended meaning. Similarly, most non-lawyers would be unfamiliar with the term “*ejusdem generis*.” But it might be that the rule nevertheless helps explain how ordinary people understand statutory language. In each case, the key empirical question is about whether applying the canon brings interpreters closer to meaning—intended or ordinary.

35. See *id.* at 2.

36. See *id.*

37. Gluck & Bressman, *Statutory Interpretation Part I*, *supra* note 33, at 905.

Congress on topics relating to statutory interpretation, including the staffers' knowledge and use of interpretive canons.³⁸ The survey, designed to explore the role the realities of legislative drafting should play in the theories and doctrines of statutory interpretation, revealed that there are some canons the drafters know and use, some the drafters reject in favor of other considerations, and some the drafters do not know as rules but that seem to accurately reflect how Congress drafts.³⁹

Critics of Gluck and Bressman, however, maintain that “insiders’” views on canons are not the relevant measure; such studies simply seek to unearth an unfathomable congressional mind.⁴⁰ Rather than focus on the producers of statutes, they urge focus on the consumers of statutes, the ordinary reader. As Justice Samuel Alito just urged in the 2020–2021 Term, canons are only useful if they reflect ordinary meaning.⁴¹ That is, a canon’s validity comes from ordinary people’s linguistic practices. The key question would be: Is the canon a guide to how ordinary people would understand the language in the statute? For example, when considering the statute at issue in *McBoyle*, would an ordinary person implicitly understand that the scope of “any other . . . vehicle” is partly restricted—meaning not literally any vehicle but only those sufficiently similar to the enumerated

38. See Lisa Schultz Bressman & Abbe R. Gluck, *Statutory Interpretation From the Inside—An Empirical Study of Congressional Drafting, Delegation, and the Canons: Part II*, 66 *Stan. L. Rev.* 725, 728 (2014) [hereinafter Bressman & Gluck, *Statutory Interpretation Part II*]; Gluck & Bressman, *Statutory Interpretation Part I*, *supra* note 33, at 905–06. Judges have cited the Gluck and Bressman studies for the proposition that canons should not be used in interpretation since they are not deployed by drafters. See, e.g., *James v. Heinrich*, 960 N.W.2d 350, 380 (Wis. 2021) (Dallett, J., dissenting). Our study focuses on a different population, ordinary readers, and suggests that ordinary readers understand law consistently with many (but not all) linguistic canons.

39. See Bressman & Gluck, *Statutory Interpretation Part II*, *supra* note 38, at 732–33. In 2002, Victoria Nourse and Jane Schacter published the first case study of legislative drafting by Senate Judiciary Committee staffers, assuming that, of all congressional staffers, these were the “most likely to be schooled in the rules of clarity, canons of construction, and statutory interpretation.” Victoria F. Nourse & Jane S. Schacter, *The Politics of Legislative Drafting: A Congressional Case Study*, 77 *N.Y.U. L. Rev.* 575, 582 (2002). The authors found that canons were not a “central part” of the drafting process. *Id.* at 614. As one staffer explained, “[W]e are conscious of . . . what a court will do, but not at the level of *expressio unius*.” *Id.* at 601. In future work, we hope to ask congressional staffers the same questions we have posed to ordinary readers in this study.

40. John F. Manning, *Without the Pretense of Legislative Intent*, 130 *Harv. L. Rev.* 2397, 2430–31 (2017); see also Amy Coney Barrett, *Congressional Insiders and Outsiders*, 84 *U. Chi. L. Rev.* 2193, 2200–01 (2017) (arguing that Gluck and Bressman take the position of the “hypothetical insider who knows how Congress works” whereas the textualist insists that the “relevant user of language be *ordinary*”); John F. Manning, *Inside Congress’s Mind*, 115 *Colum. L. Rev.* 1911, 1941 (2015) [hereinafter Manning, *Inside Congress’s Mind*] (arguing that the Gluck and Bressman studies support skepticism about looking for answers in Congress’s mind).

41. See *Facebook, Inc. v. Duguid*, 141 S. Ct. 1163, 1175 (2021) (Alito, J., concurring). For the theoretical importance of ordinary meaning, see Slocum, *Ordinary Meaning*, *supra* note 3, at 1–3.

ones? If yes, this would support an empirically based justification for *ejusdem generis*, grounded not in legislative intent or practice but in ordinary meaning.⁴²

The Supreme Court increasingly relies on text and ordinary meaning to resolve interpretive disputes, as do lower courts.⁴³ This calls for a complement to Gluck and Bressman's groundbreaking empirical work, namely a new analysis of statutory interpretation *from the outside*. Recently, Chief Justice John Roberts alluded to this intriguing possibility in oral argument:

[If] our objective is to settle upon the most natural meaning of the statutory language to an ordinary speaker of English . . . the most probably useful way of settling all these questions would be to take a poll of 100 ordinary . . . speakers of English and ask them what [the statute] means, right?⁴⁴

Such an approach was once considered beyond legal academics' capacity,⁴⁵ but no more. There is a rich and growing literature in psychology, linguistics, and cognitive science concerning people's understanding of language.⁴⁶ In law, the new field of "experimental jurisprudence" has already demonstrated that scholars can conduct experiments to better understand the ordinary cognition of law.⁴⁷ Thus far, those studies have

42. It would also suggest that "any vehicle" does not always mean literally any vehicle. We propose a new ordinary meaning canon, the "quantifier domain restriction canon," that reflects this possibility. See *infra* section I.C.

43. See *supra* notes 6–17 and accompanying text (noting courts' increasing reliance on text and ordinary meaning).

44. Transcript of Oral Argument at 51–52, *Facebook, Inc.*, 141 S. Ct. 1163 (No. 19-511), https://www.supremecourt.gov/oral_arguments/argument_transcripts/2020/19-511_1537.pdf [<https://perma.cc/XEP7-QBE5>].

45. See Adrian Vermeule, Interpretation, Empiricism, and the Closure Problem, 66 U. Chi. L. Rev. 698, 701 (1999) ("Many of the empirical questions relevant to the choice of interpretive doctrines are . . . unanswerable, at least at an acceptable level of cost or within a useful period of time.").

46. See, e.g., Dirk Geeraerts, Theories of Lexical Semantics 230 (2010) ("[N]ew word senses emerge in the context of actual language use.").

47. The field builds on work in experimental philosophy. See, e.g., Joshua Knobe & Shaun Nichols, An Experimental Philosophy Manifesto, in *Experimental Philosophy* 3 (Joshua Knobe & Shaun Nichols eds., 2008); Stephen Stich & Kevin P. Tobia, Experimental Philosophy and the Philosophical Tradition, in *A Companion to Experimental Philosophy* 5 (Justin Sytsma & Wesley Buckwalter eds., 2016). For an empirical study assessing the replicability of experimental philosophy studies, see Florian Cova, Brent Strickland, Angela Abatista, Aurélien Allard, James Andow, Mario Attie, James Beebe, Renatas Berniūnas, Jordane Boudesseul, Matteo Colombo, Fiery Cushman, Rodrigo Diaz, Noah N'Djaye, Nikolai van Dongen, Vilius Dranseika, Brian D. Earp, Antonio Gaitán Torres, Ivar Hannikainen, José V. Hernández-Conde, Wenjia Hu, François Jaquet, Kareem Khalifa, Hanna Kim, Markus Kneer, Joshua Knobe, Miklos Kurthy, Anthony Lantian, Shen-yi Liao, Edouard Machery, Tania Moerenhout, Christian Mott, Mark Phelan, Jonathan Phillips, Navin Rambharose, Kevin Reuter, Felipe Romero, Paulo Sousa, Jan Sprenger, Emile Thalabard, Kevin Tobia, Hugo Viciano, Daniel Wilkenfeld & Xiang Zhou, Estimating the

focused on central legal concepts, such as causation,⁴⁸ consent,⁴⁹ intent,⁵⁰ reasonableness,⁵¹ law itself,⁵² and many others.⁵³ Other studies have focused on how ordinary people understand word meanings or how they would resolve specific interpretive disputes.⁵⁴ But, as the *McBoyle* case suggests, the ordinary meaning of statutes does not arise solely from individual word meanings, and commonly occurring types of context and inferences are also important topics of study. Statutes are written in sentences, which must be interpreted in light of relevant context in order to understand the rules expressed. An important legal-interpretive question concerns how ordinary people tend to understand this kind of language.

This Essay takes a first step in this new direction: the empirical study of interpretive canons from an ordinary meaning perspective. Surveying ordinary people might seem straightforward, but designing useful experiments requires very careful theory. In Part I, we develop a framework for empirically testing interpretive canons. We describe the three relevant elements of interpretive canons (triggering, application, and cancellation)

Reproducibility of Experimental Philosophy, 12 *Rev. Phil. & Psych.* 9 (2021). See generally *The Cambridge Handbook of Experimental Jurisprudence* (Kevin Tobia ed., forthcoming).

48. See Joshua Knobe & Scott Shapiro, *Proximate Cause Explained: An Essay in Experimental Jurisprudence*, 88 *U. Chi. L. Rev.* 165 (2021); James A. Macleod, *Ordinary Causation: A Study in Experimental Statutory Interpretation*, 94 *Ind. L.J.* 957 (2019).

49. See Roseanna Sommers, *Commonsense Consent*, 129 *Yale L.J.* 2232 (2020).

50. See Markus Kneer & Sacha Bourgeois-Gironde, *Mens Rea Ascription, Expertise and Outcome Effects: Professional Judges Surveyed*, 169 *Cognition* 139 (2017); Sydney Levine, John Mikhail & Alan M. Leslie, *Presumed Innocent? How Tacit Assumptions of Intentional Structure Shape Moral Judgment*, 147 *J. Experimental Psych.: Gen.* 1728 (2018).

51. See Christopher Brett Jaeger, *The Empirical Reasonable Person*, 72 *Ala. L. Rev.* 887 (2021); Kevin P. Tobia, *How People Judge What Is Reasonable*, 70 *Ala. L. Rev.* 293 (2018) [hereinafter Tobia, *How People Judge What Is Reasonable*].

52. E.g., Brian Flanagan & Ivar R. Hannikainen, *The Folk Concept of Law: Law Is Intrinsically Moral*, *Australasian J. Phil.* (2020); Ivar R. Hannikainen, Kevin P. Tobia, Guilherme da F. C. F. de Almeida, Raff Donelson, Vilius Dranseika, Markus Kneer, Nick Strohmaier, Piotr Bystranowski, Kristina Dolinina, Bartosz Janik, Sothie Keo, Eglé Lauraitytė, Alice Liefgreen, Maciej Próchnicki, Alejandro Rosas & Noel Struchiner, *Are There Cross-Cultural Legal Principles? Modal Reasoning Uncovers Procedural Constraints on Law*, *Cognitive Sci.*, Aug. 2021, at 1.

53. Kevin P. Tobia, *Law and the Cognitive Science of Ordinary Concepts*, in *Law and Mind: A Survey of Law and the Cognitive Sciences* 86 (2021) (examining the relationship between folk psychology (laypeople's commonsense understandings) and the law); Kevin P. Tobia, *Experimental Jurisprudence*, 89 *U. Chi. L. Rev.* (forthcoming 2022), <https://ssrn.com/abstract=3680107> [<https://perma.cc/XJW9-SYJV>] [hereinafter Tobia, *Experimental Jurisprudence*] (debunking myths about experimental jurisprudence and arguing that it is a form of traditional jurisprudence rather than a social scientific replacement of jurisprudence).

54. See, e.g., Omri Ben-Shahar & Lior Jacob Strahilevitz, *Interpreting Contracts via Surveys and Experiments*, 92 *N.Y.U. L. Rev.* 1753, 1765 (2017); Shlomo Klapper, Soren Schmidt & Tor Tarantola, *Ordinary Meaning From Ordinary People* (unpublished manuscript) (on file with the *Columbia Law Review*).

and explain that the triggering element is our focus. A canon's "trigger" is the linguistic condition making the canon applicable, such as a comma or a certain word or type of phrase.⁵⁵ This focus, we argue, is necessary to determine whether ordinary people implicitly apply an interpretive canon in accordance with its definition. In addition, focusing on canon triggers has the potential to help resolve longstanding interpretive problems that have plagued courts, such as poorly defined canons and conflicts between canons.

In Parts II and III, we implement our framework through a survey of 4,500 demographically representative people recruited from the United States, as well as a sample of over one-hundred first-year U.S. law students. The survey tested over a dozen interpretive canons.⁵⁶ Our study provides crucial evidence for textualists and others committed to ordinary meaning. Currently, judges and scholars assume that certain canons reflect ordinary meaning on the basis of intuition or tradition. The survey directly addresses this fundamental empirical question about ordinary meaning: Which (if any) of the interpretive canons *actually* reflect how ordinary people understand language?⁵⁷

Part IV considers three broader implications of our work for statutory interpretation theory. First, the results support a new approach toward "ordinary meaning" itself. There is great debate concerning whether that doctrine refers to the ordinary meaning of (1) "legal language" or (2) "ordinary language." We find that people intuitively apply canons across both legal *and* ordinary rules. That is, surprisingly little turns on whether people understand language as ordinary or legal, so long as it is language *in a rule*. We suggest that the legal/ordinary language dichotomy obscures a more fundamental aspect of the ordinary meaning doctrine: It is a doctrine about ordinary understanding of *language in rules*. The canons do not necessarily apply wherever there is "ordinary language" or "legal language"; rather, they apply to interpretation of *rules*. A judge who fails to appreciate the significance of "rule-like" contextual features may misinterpret

55. See *infra* section I.A.

56. The canons tested include what we term "Category One" canons, which have relatively straightforward triggering conditions, as well as "Category Two" canons, which have more complex triggering conditions. For a list of the canons and their definitions, see *infra* Part II.

57. The survey posed hypothetical scenarios, corresponding to each canon's triggering conditions, to determine whether ordinary people implicitly invoke the canons when interpreting both legal and nonlegal rules. To preview our findings: Many existing interpretive canons reflect how ordinary people understand rules, but some popular canons do not. For instance, ordinary people interpret rules in ways that correspond with various longstanding canons such as *ejusdem generis* and *noscitur a sociis* but not in accordance with the popular but frequently criticized canon *expressio unius est exclusio alterius*. In addition, ordinary people implicitly resolve the conflict between the series-qualifier canon and the rule of the last antecedent by interpreting modifiers consistently with the series-qualifier canon.

ordinary meaning from “the outside.” For example, dictionary definitions that are not based on rule-like contexts may not reflect the understanding of “ordinary readers.”

Second, we argue that our results suggest the importance of *anti-literalism* in assessing ordinary meaning. Our study reveals that ordinary people often interpret rules nonliterally. This bears on recent debates at the heart of textualist theory.⁵⁸ Our findings support rejecting ordinary meaning as being synonymous with literal meaning. Specifically, several of the canons implicitly applied by ordinary people result in nonliteral meanings.⁵⁹ Perhaps most importantly, such a commitment to nonliteralism challenges modern textualist practices and may have the salutary effect of decreasing judicial reliance on dictionary definitions and increasing judicial sensitivity to context.

Third, we argue that interpretive canons should be understood as an *open set*, despite conventional assumptions that the traditional canons capture all relevant language generalizations. Our study provides evidence in support of two new ordinary meaning canons—ones not traditionally recognized by law, but that can be justified on the basis of ordinary meaning. One we term the “nonbinary gender canon.”⁶⁰ The other we term the “quantifier domain restriction canon.”⁶¹ Courts committed to ordinary meaning have no less reason to rely on newly discovered canons than traditional ones assumed to reflect ordinary meaning. More broadly, this theory of ordinary meaning canons as an “open set” invites empirical discovery of new language canons, allowing a much more dynamic statutory interpretation based on linguistic dynamism. This dynamism is not only consistent with textualists’ ordinary meaning commitments; it is justified by them.⁶²

We conclude by arguing for a new empirical research agenda in law and language. This project is ambitious and forward-looking, testing fundamental empirical assumptions underpinning interpretive canons, discovering entirely new canons, reconceptualizing the ordinary meaning doctrine as one concerned with rules, proposing an anti-literalist view of some interpretive canons, and articulating a program for future research. We see our study as a first step in this new direction. We hope future studies uncover further evidence about the triggering conditions of certain

58. See *infra* section IV.B.1 (discussing literal interpretations).

59. See *infra* section IV.B.2 (discussing examples including gender canons, number canons, *ejusdem generis*, and *noscitur a sociis*).

60. This canon holds that masculine and plural pronouns like “he/his” and “they” also include the feminine (e.g., “her”) and nonbinary (e.g., “they”). See *infra* section II.B.1.

61. This canon holds that the scope of quantifiers (e.g., “any”) is typically implicitly restricted by context, which is a linguistic fact the Supreme Court has long struggled to recognize. See *infra* section II.C.4.

62. See *infra* section IV.C.

canons, discover additional “hidden” ordinary meaning canons, and test how canons are cancelled or whether they are applied consistently.

I. A FRAMEWORK FOR TESTING INTERPRETIVE PRINCIPLES

This Part provides a theoretical framework necessary for testing which interpretive principles reflect ordinary people’s understanding of language. It explains that every interpretive canon has three essential components to its definition: (1) triggering, (2) application, and (3) cancellation. Identifying the trigger for an interpretive canon is essential to testing whether ordinary people intuitively apply the canon. The basic issue of interpretive canon triggering is thus the critical focus of our empirical inquiries, as opposed to the more involved questions of how canons are ordered or applied in complex legal scenarios.⁶³ In focusing on this basic issue, we divide potential ordinary meaning canons into two categories that correspond to different ways in which context interacts with language generalities. The first category—often called “semantic” or “syntactic” canons—includes those triggered by specific linguistic phenomena, such as the presence of a specific word or comma. The second category includes canons triggered by certain kinds of linguistic formulations or contexts, rather than by specific language. For example, the *ejusdem generis* canon is triggered by the linguistic formulation of general words preceding or following a list of more specific things.

A. *Testing How Canons Are Triggered*

The most basic issue regarding the testing of interpretive canons concerns the tension between the generality of language rules and the intensely contextual nature of legal interpretation. An ordinary meaning determination must cut across contexts unconnected to any particular Congress, subject matter, or statute.⁶⁴ Ordinary meaning interpretive canons thus depend on general presumptions about language usage, but courts assume that contextual evidence pointing to a different interpretation might outweigh these presumptions.⁶⁵ In that sense, presumptions

63. See James J. Brudney, Canon Shortfalls and the Virtues of Political Branch Interpretive Assets, 98 Calif. L. Rev. 1199, 1202 (2010) (“The Court has never developed rules for harmonizing or prioritizing among the scores of existing canons, many of which the Court has created in recent decades.”); Krishnakumar & Nourse, *supra* note 31, at 167 (“[P]recedent and legislative history should take precedence over rules like *noscitur a sociis*.”).

64. See Brian G. Slocum & Jarrod Wong, The Vienna Convention and the Ordinary Meaning of International Law, 46 Yale J. Int’l L. 191, 195 (2021) (noting the transsubstantive nature of ordinary meaning).

65. See John F. Manning, The Absurdity Doctrine, 116 Harv. L. Rev. 2387, 2465 n.285 (2003) [hereinafter Manning, The Absurdity Doctrine] (noting that textual canons “serve only as rules of thumb . . . that help users of legal language discern meaning”).

about ordinary language usage are defeasible; they may be overridden by the specific context of the statute or by other canons.⁶⁶

To analyze the interpretive process, we consider three essential issues: (1) the facts that trigger the canon, (2) the circumstances relevant to applying the canon, and (3) the circumstances relevant to cancelling the language presumption.⁶⁷ Our empirical research question focuses on whether ordinary people, as a general matter, implicitly invoke a given interpretive canon when interpreting language (which is issue #1). As such, it is necessary to neutralize circumstances relating to issues #2 and #3, which include other potentially applicable interpretive canons along with facts and information not related to how the canon is triggered.

To illustrate this point, consider *ejusdem generis*.⁶⁸ That canon is triggered by a catchall following a list of terms.⁶⁹ When one sees a statute that lists “cars, buses, motorcycles, and all other vehicles,” the recognition that there is a list concluding with a general term triggers the canon.⁷⁰ The fact that *ejusdem generis* is “triggered” does not tell us everything there is to know about how it ultimately applies, however. The canon predicts that “all other vehicles” would not be understood to apply to *literally* any vehicle. But to apply the canon, the interpreter must consider what common generalization the list describes. In the example above, the interpreter could consider (at least) two different generalizations: all vehicles with engines (covering lawn mowers) or all wheeled vehicles (covering wheelbarrows). Applying the canon—deploying one or another generalization—is different from knowing that the canon has been triggered (i.e., that “any other vehicle” is restricted *in some way* from its literal meaning).

66. See, e.g., *Lockhart v. United States*, 577 U.S. 347, 355 (2016) (“This Court has long acknowledged that structural or contextual evidence may ‘rebut the last antecedent inference.’” (quoting *Jama v. Immigr. & Customs Enf’t*, 543 U.S. 335, 344 n.4 (2005))); *Taniguchi v. Kan Pac. Saipan, Ltd.*, 566 U.S. 560, 569 (2012) (“[T]he word ‘interpreter’ can encompass persons who translate documents, but because that is not the ordinary meaning of the word, it does not control unless the context in which the word appears indicates that it does.”).

67. Commentators have at times conflated these separate issues. Most famously, Karl Llewellyn purported to show that every canon can be countered by an equal and opposite countercanon, which he argued deprives canons of any probative force in the interpretive process. See Karl N. Llewellyn, *Remarks on the Theory of Appellate Decision and the Rules or Canons About How Statutes Are to Be Construed*, 3 Vand. L. Rev. 395, 401–06 (1950). As various scholars have noted, however, “[t]he large majority of Llewellyn’s competing canonical couplets are presumptions about language and extrinsic sources, followed by qualifications to the presumptions.” William N. Eskridge, Jr., *Norms, Empiricism, and Canons in Statutory Interpretation*, 66 U. Chi. L. Rev. 671, 679 (1999).

68. See *supra* notes 22–29 and accompanying text.

69. See *supra* notes 22–29 and accompanying text.

70. For a more detailed explanation of this canon, see *infra* section I.C.

Similarly, a canon's trigger differs from considerations that might *cancel* the application of the canon. So, in the vehicle example, one might understand that the canon is triggered, consider the possible generalization the list describes, and come to an initial conclusion about the statute's meaning. Perhaps one may intuitively take "cars, buses, motorcycles, and all other vehicles" to exclude canoes. But the same interpreter might abandon that initial conclusion after learning, for example, that the statute provides a broad definition of the term "vehicle" elsewhere.⁷¹ Similarly, an interpreter might determine that the provision's purpose strongly indicates that the catchall should be given a broader meaning.⁷²

1. *Context and Interpretation.* — The distinction between triggering and application or cancellation mirrors the longstanding legal understanding of interpretation as involving both language generalities and the context that shapes and modifies those language generalities. Justice Holmes famously posited that the interpreter's role is to determine "what th[e] words [of the legal text] would mean in the mouth of a normal speaker of English, using them in the circumstances in which they were used."⁷³ As such, the interpreter must consider the general and the specific and choose an interpretation based on: (1) the language assumptions created by the interpreter's general knowledge of language usage, as shaped by (2) inferences about what the language means in its specific context.⁷⁴ This interpretive inquiry, as conceived by Justice Holmes, was necessarily objectified and not empirical. At the time, no mechanisms existed for testing language conventions or determining how actual ordinary people might interpret a given legal text.⁷⁵

In determining a statute's meaning, the interpreter must therefore consider both facts based on language generalizations and facts about the specific context of the statute.⁷⁶ When an interpretive canon is implicated,

71. See *Tanzin v. Tanvir*, 141 S. Ct. 486, 490 (2020) (explaining that statutory definitions supplant "ordinary meaning"). In this case, the interpreter would have to reconcile two different statutory definitions.

72. See Scalia & Garner, *supra* note 3, at 209–10 (discussing examples of catchall language that would have no effect if limited only to the class of enumerated items, and concluding that in such cases, the inclusion of the catchall demonstrates an intent by drafters to broaden the meaning of the provision beyond the enumerated class).

73. Oliver Wendell Holmes, *The Theory of Legal Interpretation*, 12 Harv. L. Rev. 417, 417–18 (1899).

74. See Eskridge, *Interpreting Law*, *supra* note 3, at 3–11 (discussing the importance of context to interpretation).

75. Even if aspects of the interpretive process are capable of being empirically based, such as empirical validation of interpretive canons, we argue that the ultimate statutory interpretation is not a matter of empiricism. Instead, it is based on a combination of various, often conflicting sources of meaning, making necessary a resort to some sort of objectified interpreter.

76. Interpreters must consider both language generalizations and specific context regardless of whether language canons are all valid.

the interpreter must understand the facts that trigger the canon as well as the circumstances relevant to applying the canon or cancelling its presumption. This is a synergistic model of meaning, in which general assumptions about language exist along with specific inferences from context. In fact, ordinary people routinely use contextual evidence to make communication more efficient. Often, relying on the interpreter to exploit contextual elements to discern the correct meaning is more efficient than the author taking the time necessary to make the linguistic meaning clear.⁷⁷ Thus, efficient communication frequently involves recognition of nonliteral and implied meanings triggered by contextual evidence.⁷⁸ Still, the consideration of context can make the interpretive process more difficult and uncertain, such as when a language generalization is in tension with aspects of context or other applicable linguistic conventions.⁷⁹

2. *The Categories of Interpretive Canons.* — Even though context is an essential aspect of interpretation, an interpreter cannot make sense of a text without making assumptions about its linguistic meaning.⁸⁰ These language generalizations frequently involve basic issues regarding conventional word meanings and punctuation rules but may also include more

77. See Brendan Juba, Adam Tauman Kalai, Sanjeev Khanna & Madhu Sudan, Compression Without a Common Prior: An Information-Theoretic Justification for Ambiguity in Language, *Innovations Comput. Sci.*, 2011, at 79, 79, <https://conference.iis.tsinghua.edu.cn/ICS2011/content/paper/23.pdf> [<https://perma.cc/CY76-LN5M>] (“[I]t is easy to justify ambiguity to anyone who is familiar with information theory.”); Hannah Rohde, Scott Seyfarth, Brady Clark, Gerhard Jaeger & Stefan Kaufmann, Communicating With Cost-Based Implicature: A Game-Theoretic Approach to Ambiguity, *in* *Proceedings of SemDial 2012* (SefneDial) 107, 108 (Sarah Brown-Schmidt, Jonathan Ginzburg & Staffan Larsson eds., 2012), http://semdial.org/anthology/Z12-Rohde_semdial_0015.pdf [<https://perma.cc/S6Y6-TD9T>] (“Rather than avoiding ambiguity, speakers show behavior that is in keeping with theories of communicative efficiency that posit that speakers make rational decisions about redundancy and reduction.”).

78. See Steven T. Piantadosi, Harry Tily & Edward Gibson, The Communicative Function of Ambiguity in Language, 122 *Cognition* 280, 281 (2012) (“[W]here context is informative about meaning, unambiguous language is partly redundant with the context and therefore inefficient . . .”).

79. The Supreme Court’s controversial decision in *King v. Burwell*, 135 S. Ct. 2480 (2015), is one notable example where the ordinary meaning of the statutory language was in tension with relevant context. In interpreting one of the Affordable Care Act’s key provisions referring only to “State” as including both federal and state governments, the Court reasoned that a literal interpretation would “make little sense,” and thus that “when read in context,” the relevant provisions were “properly viewed as ambiguous.” *Id.* at 2490–92. As Justice Scalia argued in dissent, the semantic meaning of the relevant language was clear. See *id.* at 2497 (Scalia, J., dissenting) (“It is hard to come up with a clearer way to limit tax credits to state Exchanges than to use the words ‘established by the State.’”).

80. See Eskridge et al., *The Meaning of Sex*, *supra* note 5, at 1517 (“From a linguistic perspective, considerations of context and purpose are ineliminable aspects of the ordinary meaning determination. . . . For example, in determining whether a ‘no vehicles’ law prohibits bicycles from the park, the interpreter . . . might consider the perceived purpose of the law . . .”).

subtle generalizations involving the interaction between linguistic meaning and context.⁸¹ To best assess these language generalizations, empirical studies should present narrow scenarios to test whether a canon is triggered in accordance with its definition. Thus, broader scenarios should be avoided that simultaneously raise issues relating to canon application or cancellation, or the ordering of canons in cases where they conflict.⁸² For example, in testing the triggering conditions of *ejusdem generis*, it is more helpful (for our purposes) to study how ordinary people understand a list concluding with a general term than to study how ordinary people would decide the *McBoyle* case. The former approach isolates only the material relevant to canon triggering. Results using the latter approach might also reflect application or cancellation or competing canons, as well as participants' views about the specific facts of *McBoyle* or their intuitions about which interpretation is fairer to the parties.

In focusing on canon triggering, we divide potential ordinary meaning canons into two categories to highlight the different ways in which context interacts with language generalities.⁸³ The two categories address so-called "textual canons," which are varied presumptions about meaning "that are usually drawn from the drafter's choice of words, their grammatical placement in sentences, and their relationship to other parts of the 'whole' statute."⁸⁴ The presumptions typically are said to be based on general principles of language usage rather than legal concerns.⁸⁵

81. A "generalization" concerns a linguistic regularity in a repeated context. See Florent Perek & Adele E. Goldberg, Linguistic Generalization on the Basis of Function and Constraints on the Basis of Statistical Preemption, 168 *Cognition* 276, 277 (2017) (explaining that in an artificial language experiment, a factor that plays a role in determining whether speakers are willing to generalize the way a verb is used is whether other verbs have already been witnessed being generalized).

82. See *infra* Part II; see also Tobia, Experimental Jurisprudence, *supra* note 53, at 3–9 (describing the different methodological approaches of experimental jurisprudence and legal psychology that aim to model jury decisionmaking).

83. Scholars have proposed various ontologies that account for the differences among interpretive canons, but the basic distinction is between "substantive" and "textual" canons. See, e.g., Gluck & Bressman, Statutory Interpretation Part I, *supra* note 33, at 924–25 (distinguishing between "textual canons" and "substantive canons"). We divide interpretive canons into categories solely to offer a framework that will assist in the empirical evaluation of the canons.

84. William N. Eskridge Jr. & Philip P. Frickey, *Cases and Materials on Legislation: Statutes and the Creation of Public Policy* 634 (2d ed. 1995).

85. See William Baude & Stephen E. Sachs, The Law of Interpretation, 130 *Harv. L. Rev.* 1079, 1121 (2017) ("Linguistic canons . . . are just attempts to read whatever the authors wrote, according to the appropriate theory of reading . . ."); Abbe R. Gluck & Richard A. Posner, Statutory Interpretation on the Bench: A Survey of Forty-Two Judges on the Federal Courts of Appeals, 131 *Harv. L. Rev.* 1298, 1330 (2018) (distinguishing between "linguistic" or "textual" canons, which are presumptions about how language is used, and "substantive" or "policy" canons, which are normative presumptions).

The first category covers canons triggered by specific linguistic phenomena and minimal context. Some of these canons broaden the literal meaning⁸⁶ of a provision.⁸⁷ The second category includes so-called “contextual canons,”⁸⁸ triggered by linguistic phenomena but requiring consideration of the broad context of a statute for their application.⁸⁹ These so-called “contextual canons” are each triggered by a certain kind of linguistic formulation or context,⁹⁰ rather than by precise language, and each requires that the interpreter evaluate context when applying the canon. Typically, these contextual canons narrow the literal meaning of a provision. With respect to canons in either category, we argue that an interpretive principle should be considered an “ordinary meaning canon” if ordinary people would implicitly apply its interpretive presumption when interpreting rules.⁹¹ This is so regardless of whether ordinary people are aware of such usage or could even identify the canon by name.

86. The term “literal meaning” is used throughout this Essay and is meant to refer to the linguistic meaning of the relevant sentence that is conventional and context independent. See C. J. L. Talmage, *Literal Meaning, Conventional Meaning and First Meaning*, 40 *Erkenntnis* 213, 213 (1994). Essentially, then, literal meaning is based on the conventional meaning of language, which is primarily tied to the semantic meanings of the words. See François Récanati, *Literal Meaning* 3 (2004); Lawrence B. Solum, *Communicative Content and Legal Content*, 89 *Notre Dame L. Rev.* 479, 487 (2013) [hereinafter Solum, *Communicative Content*] (“In law, we refer to semantic content as ‘literal meaning.’ This phrase is rarely theorized when it is used, and it may be ambiguous, but when lawyers refer to the literal meaning of a legal text, it seems likely that they are referring to its semantic meaning.”).

87. See *infra* section IV.A.2 (describing how these canons can broaden literal meaning).

88. Scalia & Garner, *supra* note 3, at xiii–xiv.

89. We include the *expressio unius est exclusio alterius* canon in the category, which Scalia & Garner label as a “semantic canon.” *Id.* at xii. Although nothing in our project turns on this categorization, the *expressio unius* canon does not help determine the semantic meaning of any explicit language but, rather, provides for a completeness inference (at least in some circumstances). See *infra* notes 153–156 and accompanying text.

90. The *expressio unius* canon likely depends on context for its application but, when applied, forbids the expansion of the literal meaning of a provision. See *infra* notes 153–156 and accompanying text.

91. In labeling an interpretive canon an “ordinary meaning canon,” we refer to “ordinary meaning” in a general way that corresponds to the interpretive practices of ordinary people and do not choose among possible technical definitions of “ordinary meaning.” We also do not select among the various possible tests for designating an interpretive principle as a “canon.” It has been suggested, for instance, that “canonical status” may require some showing of “historical pedigree, longevity, regularity of use,” or other indication of longstanding usage. See Krishnakumar & Nourse, *supra* note 31, at 164. We refer to the interpretive rules applied by ordinary people as “ordinary meaning canons” and argue that the existing set of interpretive canons is incomplete, but we do not join the debate regarding when the term “canon” should be used when referring to an interpretive principle.

B. *Category One Canons*

The first category of interpretive canons includes those triggered by specific linguistic phenomena and minimal context. These interpretive principles are often referred to as “semantic canons” or “syntactic canons,” among other terms.⁹² Thus, for instance, a grammatical rule may be triggered by the presence (or absence) of a comma.⁹³ Consider the “Oxford comma rule,” one of the interpretive principles we tested.⁹⁴ The term refers to a comma used after the penultimate item in a list of three or more items, the presence of which can create an additional distinct item or category.⁹⁵ The presence (or absence) of such a comma can therefore have interpretive significance. Thus, if the Oxford comma rule is followed,

- (1) Joe went to the store with his parents, Mike, and Michelle.
has a different meaning than does
- (2) Joe went to the store with his parents, Mike and Michelle.

The presence of a second comma in (1) is the only linguistic difference between (1) and (2), but, arguably, this difference changes the meaning of (1) compared to (2). In (1), “Mike” and “Michelle” are not Joe’s parents, but in (2), they are his parents.

The Oxford comma rule is a relatively straightforward interpretive canon. Its trigger is a comma after the penultimate item in a list of three or more items; additional context is not necessary for the rule’s application. The Oxford comma rule, if valid, helps determine the literal meaning of a provision, even if it is defeasible. For example, a judge may consider the canon applicable but find that the broad context of a provision indicates that applying it would be inconsistent with other statutory provisions or undermine the purpose of the provision in some way.⁹⁶

The Oxford comma rule could also, of course, apply in legal contexts. Consider two statutes that provide exemptions from overtime wages. One statute provides as follows:

- (3) The canning, processing, preserving, freezing, drying,
marketing, storing, packing for shipment or distribution of:
 - (1) Agricultural produce;
 - (2) Meat and fish products; and

92. See Scalia & Garner, *supra* note 3, at xii–xiii (describing and defending eleven “semantic canons” and seven “syntactic canons”).

93. See Lance Phillip Timbreza, Note, *The Elusive Comma: The Proper Role of Punctuation in Statutory Interpretation*, 24 *Quinnipiac L. Rev.* 63, 67 (2005) (explaining the Supreme Court’s creation of “Punctuation Doctrines” for statutory interpretation).

94. See John Inazu, *Unlawful Assembly as Social Control*, 64 *UCLA L. Rev.* 2, 13–14 (2017) (discussing problems created by the absence of an Oxford comma).

95. See Oxford Comma, *Dictionary.com*, <https://www.dictionary.com/browse/oxford-comma> [<https://perma.cc/SGY5-QQ8M>] (last visited Sept. 1, 2021).

96. See *infra* section I.D (describing the defeasibility of interpretive canons).

(3) Perishable foods.⁹⁷

The following hypothetical statute is the same except for the addition of a comma after “shipment”:

- (4) The canning, processing, preserving, freezing, drying, marketing, storing, packing for shipment, or distribution of:
- (1) Agricultural produce;
 - (2) Meat and fish products; and
 - (3) Perishable foods.

The first statute was an actual Maine statute, and the U.S. Court of Appeals for the First Circuit held that delivery drivers did not fall within the exemption’s scope, explaining that the provision was “ambiguous” after considering the “relevant interpretive aids,” including the “absent comma.”⁹⁸ Would the interpretive dispute have been decided differently if the Maine statute contained the additional comma, as in (4)?⁹⁹ If ordinary people would interpret (4) more broadly than (3), i.e., as containing an additional category, that would provide some intuitive support for the Oxford comma rule.¹⁰⁰

Other canons based on punctuation rules are similar to the Oxford comma rule, but Category One is not limited to punctuation rules. Below are the interpretive canons we tested in the first category:

97. Me. Rev. Stat. Ann. tit. 26, § 664(3)(F) (2017).

98. *O’Connor v. Oakhurst Dairy*, 851 F.3d 69, 72 (1st Cir. 2017). The statutory provision at issue in this case, see *supra* note 97 and accompanying text, was amended in late 2017 to replace the commas with semicolons and add a semicolon between “shipment” and “or distributing of.” The revised provision stated, “The canning; processing; preserving; freezing; drying; marketing; storing; packing for shipment; or distributing of: (1) Agricultural produce; (2) Meat and fish products; and (3) Perishable foods.” Me. Rev. Stat. Ann. tit. 26, § 664(3)(F) (effective Nov. 1, 2017).

99. The validity of the Oxford comma rule does not depend on such a showing. Other interpretive evidence (such as from legislative history or other text) could still outweigh the probabilistic force of the Oxford comma rule. In fact, the court did consider the law’s purpose and legislative history. See *Oakhurst Dairy*, 851 F.3d at 77–78.

100. Namely, that support would come if ordinary people made this judgment without consideration of the other contextual evidence that was also addressed by the First Circuit (e.g., legislative history). The other contextual evidence is not related to whether a grammatical rule is triggered but rather whether any grammatical rule is cancelled by the other evidence.

TABLE 1. CATEGORY ONE CANONS

<i>Gender and Number Canons</i>	In the absence of a contrary indication, the masculine includes the feminine (and vice versa), and the singular includes the plural (and vice versa). ¹⁰¹
<i>“And” vs. “Or” (Conjunctive/Disjunctive Canon)</i>	“And” joins a conjunctive list; “or” a disjunctive list. ¹⁰²
<i>“May” vs. “Shall”</i>	Mandatory words, such as “shall,” impose a duty while permissible words, such as “may,” grant discretion. ¹⁰³
<i>Oxford Comma</i>	A comma used after the penultimate item in a list of three or more items, the presence of which can create an additional distinct item or category. ¹⁰⁴
<i>Presumption of Nonexclusive “Include”</i>	The verb “to include” introduces examples, not an exhaustive list. ¹⁰⁵
<i>Series-Qualifier Canon</i>	When there is a straightforward parallel construction that involves all nouns or verbs in a series, a prepositive or postpositive modifier normally applies to the entire series. ¹⁰⁶
<i>Rule of the Last Antecedent</i>	(1) A pronoun, relative pronoun, or demonstrative adjective generally refers to the nearest reasonable antecedent. (2) When a modifier is set off from a series of antecedents by a comma, the modifier should be interpreted to apply to all of the antecedents. ¹⁰⁷

101. See Scalia & Garner, *supra* note 3, at 129.

102. See *id.* at 116.

103. See *id.* at 112.

104. See *supra* notes 93–100 and accompanying text (describing the Oxford comma rule).

105. See Scalia & Garner, *supra* note 3, at 132.

106. See *id.* at 147.

107. See *id.* at 144.

Some of these interpretive canons may be more easily cancellable than others. That is an issue beyond the scope of our project. In each case, however, these interpretive canons are triggered by specific linguistic phenomenon and minimal context. Our empirical study assesses those triggering conditions.

C. *Category Two Canons*

The second category of interpretive canons includes those textual canons triggered by a certain kind of linguistic formulation or context, rather than by precise language. Each of these canons interacts with the literal meaning of a provision in some way, typically by narrowing it, on the basis of inferences from context. Although these canons are triggered by specific kinds of language, there are no limits on the contextual evidence that can be considered in applying the canons, allowing judges to consider broad evidence about legislative purpose when applying the canons.¹⁰⁸ The unlimited recourse to contextual evidence may make the application of these “contextual canons” discretionary and unpredictable, but we focus only on whether the canons have discrete and consistent triggers.¹⁰⁹ Below are the four canons in this category that we test:

108. See Anita S. Krishnakumar, *Backdoor Purposivism*, 69 *Duke L.J.* 1275, 1304–05 (2020) [hereinafter *Krishnakumar, Backdoor Purposivism*] (explaining that textualist Justices have engaged in purposive analysis when applying contextual canons); see also Eskridge & Nourse, *supra* note 35, at 7 (arguing that theorists have not fully analyzed the concept of context).

109. See *Krishnakumar, Backdoor Purposivism*, *supra* note 108, at 1291 (arguing that some judges use textual canons in broad, purposivist ways that serve as “launch pads for assuming or constructing legislative purpose and intent” (emphasis omitted)).

TABLE 2. CATEGORY TWO CANONS

<i>Noscitur a sociis</i>	The meaning of words placed together in a statute should be determined in light of the words with which they are associated. ¹¹⁰
<i>Ejusdem generis</i>	When general words in a statute precede or follow a list of specific things, the general words should be construed to include only objects similar in nature to the specific words. ¹¹¹
<i>Expressio unius est exclusio alterius</i>	When a statute expresses something explicitly (usually in a list), anything not expressed explicitly does not fall within the statute. ¹¹²
<i>Quantifier Domain Restriction</i>	The scope of a universal quantifier (i.e., “all,” “any,” etc.) is typically restricted in some way by context. ¹¹³

The *ejusdem generis* canon, discussed above, illustrates the theme of this group of textual canons.¹¹⁴ *Ejusdem generis* provides that “if a series of more than two items ends with a catch-all term that is broader than the category into which the proceeding items fall but which those items do not exhaust, the catch-all term is presumably intended to be no broader than that category.”¹¹⁵ The motivation for the *ejusdem generis* canon is straightforward and intuitive.¹¹⁶ Lists are pervasive in legal texts, and legislatures often use a general term at the end of a list of specifics to ensure that the provision has a broad scope (but not too broad).¹¹⁷ Intuitively, the general,

110. See Scalia & Garner, *supra* note 3, at 195.

111. See *id.* at 199.

112. See *id.* at 107.

113. See *infra* section I.D.1.

114. See *supra* notes 22–32, 68–72.

115. Reed Dickerson, *The Interpretation and Application of Statutes* 234 (1975).

116. See Slocum, *Ordinary Meaning*, *supra* note 3, at 186–87 (explaining the language-production rationale for the *ejusdem generis* canon).

117. See Peter M. Tiersma, *Categorical Lists in the Law*, in *Vagueness in Normative Texts* 109, 109–10, 122 (Vijay K. Bhatia, Jan Engberg, Maurizio Gotti & Dorothee Heller eds., 2005).

catchall term must be narrower in meaning than its literal meaning would indicate.¹¹⁸ For example, a law concerning the regulation of

(5) gin, bourbon, vodka, rum, and other beverages

would not likely (absent some unusual context) be interpreted as including orange juice, even though it is a “beverage.”¹¹⁹ By applying *ejusdem generis* to narrow the meaning of “other beverages,” a court would be relying on a generality of language usage rather than the literal meaning of the textual language.¹²⁰

The *ejusdem generis* canon is not without its detractors. Some critics claim it does not accurately reflect language usage.¹²¹ Others question the validity of the *ejusdem generis* canon based on its application, arguing that it is inherently indeterminate due to the multiple ways in which the general catchall term (usually an “other” phrase) can be given a limited meaning.¹²² Such indeterminacy may influence judges to downplay its significance and indicate that it is just one “factor” to consider, among many others.¹²³ *Ejusdem generis* is nevertheless an ordinary meaning canon if it reflects how ordinary people interpret catchalls at the end of lists.¹²⁴ Establishing its status as “a canon” is thus dependent on the validity of its triggering element rather than its application or cancellation.

Establishing the validity of a contextual canon’s triggering element requires that it be accurately identified. Sometimes the triggering elements of a canon are conflated with the circumstances of its application or cancellation. Consider, for instance, whether a finding of “ambiguity” is a necessary component of the trigger for the *ejusdem generis* canon, as well as other “contextual canons.”¹²⁵ Justice Elena Kagan, dissenting in *Yates v.*

118. Catchall phrases are often not meant to be given their literal meanings and thus are restricted in scope in some way but not necessarily in the way alleged in a particular interpretive dispute.

119. See Slocum, Ordinary Meaning, *supra* note 3, at 187.

120. See *id.* at 188–98 (arguing that *ejusdem generis* is based on a regularity of language usage that narrows the literal meaning of a catchall).

121. See, e.g., Dickerson, *supra* note 115, at 234 (questioning whether the *ejusdem generis* canon is “lexicographically accurate”).

122. See Brett M. Kavanaugh, Fixing Statutory Interpretation, 129 Harv. L. Rev. 2118, 2161 (2016) (book review) (arguing that he “would consider tossing the *ejusdem generis* canon into the pile of fancy-sounding canons that warrant little weight in modern statutory interpretation” because of the canon’s indeterminacy).

123. See Scalia & Garner, *supra* note 3, at 213 (“*Ejusdem generis* is one of the factors to be considered, along with context and textually apparent purpose, in determining the scope” and “does not always predominate, but neither is it a mere tie-breaker.”).

124. See generally Brian G. Slocum, Conversational Implicatures and Legal Texts, 29 Ratio Juris. 23 (2016) (explaining how the *ejusdem generis* canon is an aspect of a rational system of drafting).

125. See, e.g., *Sebelius v. Auburn Reg’l Med. Ctr.*, 568 U.S. 145, 156 (2013) (indicating that a canon of interpretation “is ‘no more than [a] rul[e] of thumb’ that can tip the scales

United States, argued that the Court should not have applied *noscitur a sociis* and *ejusdem generis* because those canons “resolve ambiguity” rather than help determine the linguistic meaning of a provision.¹²⁶ It is common for courts and scholars to refer to contextual canons as being applicable when a term is “ambiguous.”¹²⁷ Nevertheless, Justice Kagan’s concerns go to the proper application of the canons rather than to whether they were triggered by the statutory language.

One problem with the “ambiguity-is-required” position is that a canon that restricts the literal meaning of language does not resolve “ambiguity.”¹²⁸ The *ejusdem generis* canon does not help a court select between competing lexical meanings but, rather, restricts a catchall to some subset of its literal meaning.¹²⁹ The function of the canon is therefore to select some subset of the term’s literal meaning rather than choose between competing meanings of an ambiguous term. Thus, in (5) above, *ejusdem generis* does not resolve some ambiguity about the meaning of “beverages” because it is quite clear that orange juice is a beverage as a general matter.¹³⁰ Rather, the question is whether the list of four beverages that precedes the “other beverages” catchall indicates that only some subset of “beverages” is targeted, such as those that contain alcohol.

More importantly, the ambiguity-is-required position (thereby making the trigger: *list of items + catchall + ambiguity*) offers a plausible conception of the trigger for *ejusdem generis* only if a broader trigger that would exclude ambiguity (*list of items + catchall*) does not in fact trigger the canon for ordinary people.¹³¹ The better way to view Justice Kagan’s position is

when a statute could be read in multiple ways” (quoting *Conn. Nat’l Bank v. Germain*, 503 U.S. 249, 253 (1992))).

126. 574 U.S. 528, 564 (2015) (Kagan, J., dissenting).

127. See, e.g., *United States v. Stevens*, 559 U.S. 460, 474 (2010) (referring to the *noscitur a sociis* canon as applying to an “ambiguous term”); see also Gluck & Bressman, *Statutory Interpretation Part I*, *supra* note 33, at 930 (describing *noscitur a sociis* as requiring judges to “construe ambiguous terms in a list in reference to other terms on the list”); Anita S. Krishnakumar, *Longstanding Agency Interpretations*, 83 *Fordham L. Rev.* 1823, 1868 (2015) (stating that “language canons” are “supposed to be invoked only when a statute’s meaning is ambiguous or uncertain”).

128. Considering its function, a judicial finding of ambiguity is thus not necessary to trigger the canon, although the often broad scope of the judicial conception of “ambiguity” would allow a provision to be labeled as “ambiguous” whenever the canon is used (giving Justice Kagan a basis for her claim about the requirement of ambiguity). See Brian G. Slocum, *Rethinking the Canon of Constitutional Avoidance*, 23 *U. Pa. J. Const. L.* 593, 616–23 (2021) [hereinafter Slocum, *Rethinking*] (arguing that the finding of ambiguity is subjective rather than being based on neutral linguistic principles).

129. See *supra* notes 114–124 and accompanying text.

130. See, e.g., *Orange Juice*, [https://en.wikipedia.org/wiki/Orange_juice_\[https://perma.cc/A2Z7-LR3U\]](https://en.wikipedia.org/wiki/Orange_juice_[https://perma.cc/A2Z7-LR3U]) (last visited Aug. 1, 2021).

131. Furthermore, a requirement of ambiguity would significantly undermine *ejusdem generis* as an interpretive principle based on a generalization of language usage because it

that the argument about “ambiguity” is not really about the canon’s trigger but rather a consideration important to its application /cancellation. Justice Kagan argued in *Yates* that the catchall should not be narrowed because of the purpose of the provision.¹³² If the purpose of the provision is consistent with the literal meaning of the catchall, *ejusdem generis* should not be used to narrow that meaning. Rather, the canon should be applied only if there is at least some uncertainty about whether the literal meaning of the catchall is too broad. Thus, in (5) above, a court should not narrow the meaning of the catchall, “other beverages,” if the available evidence indicates that the literal meaning of the catchall better supports statutory purpose than would some narrowed meaning.¹³³

D. *Empirical Study of Interpretive Canons*

Using experimental methods to confirm or disconfirm the ordinary meaning status of existing legal interpretive canons is novel and important. As the previous section suggests, empirical evidence may provide other equally important insights.¹³⁴ Empirical evidence may show that the current set of interpretive canons is incomplete or that individual canons are defined inaccurately, and it may even help resolve conflicts between canons. In fact, this Essay argues that currently unrecognized textual canons are waiting to be discovered by the legal system. Furthermore, this Essay suggests that some currently well-accepted canons are defined poorly or are in conflict with other canons.

1. *Interpretive Canons as an Incomplete Set.* — If textual canons reflect ordinary language usage, there is no reason to assume that judicial tradition has identified the complete set of canons.¹³⁵ Scholars often argue that a canon’s language generalization is inaccurate, but they rarely advocate for the recognition of new textual canons.¹³⁶ Legal tradition, not linguistic

would make the trigger subjective and unpredictable. See Slocum, *Rethinking*, supra note 128, at 616–23 (describing the subjective nature of judicial determinations of ambiguity).

132. *Yates v. United States*, 574 U.S. 528, 556–58 (2015) (Kagan, J., dissenting) (making arguments based on legislative history, purpose, and the structure of the statute).

133. See Krishnakumar, *Backdoor Purposivism*, supra note 108, at 1304–05 (explaining that judges heavily rely on statutory purpose when applying contextual canons like *ejusdem generis*).

134. See supra section I.C.

135. There is no official list of textual canons, and thus different lists contain different canons. Compare, e.g., Eskridge et al., *Cases and Materials 2014*, supra note 29, at 1195–215, with Scalia & Garner, supra note 3, at xii–xvii.

136. There are some exceptions. See, e.g., Ethan J. Leib & James J. Brudney, *The Belt-and-Suspenders Canon*, 105 Iowa L. Rev. 735, 736 (2020) (arguing for the creation of a belt-and-suspenders canon presuming that Congress drafts in ways that are “deliberatively duplicative, redundant, and/or reinforcing rather than perfectly parsimonious”). In contrast to textual canons, substantive canons are not triggered by explicit linguistic phenomena, making it easier to advocate in favor of new substantive canons. See infra notes 321–326 and accompanying text (describing proposed substantive canons).

usage, has defined the canons. Empirical study of ordinary language users can thus help determine whether the traditional canons represent the only relevant language generalizations available.¹³⁷

Consider a potential textual canon that we refer to as the “quantifier domain restriction canon.” When interpreting the statement

(6) Everybody went to Paris.

literalism holds that universal quantifier words such as “any,” “everybody,” and “most” quantify over everything.¹³⁸ Therefore, without some restriction, the meaning of (6) is that every existing person went to Paris. But even with little contextual evidence, the literal meaning of (6) is different from that which even “untutored conversational participants” would ascribe to it.¹³⁹ Linguists treat terms such as “everybody” as a restricted quantifier, creating situations where there is a gap between intuitive meaning and literal meaning.¹⁴⁰

Courts have struggled with quantifiers and their domains. The Supreme Court has decided several cases involving quantifier scope. The default view of the Court seems to be that the “natural” meaning of quantifiers is the literal meaning and that courts should look for explicit textual language to limit the scope of universal quantifiers.¹⁴¹ Thus, in *United States v. Gonzales*, the Court sought explicit language in a federal sentencing statute to restrict “any other term of imprisonment” to *federal* sentences.¹⁴² In interpreting the provision as including *state* sentences, the Court emphasized the “naturally . . . expansive meaning” of “any” and refused to consider legislative history due to the “straightforward statutory command.”¹⁴³

137. In fact, in theory at least, textual canons should be added, modified, and eliminated as language usage changes over time. See generally Jean Aitchison, *Language Change: Progress or Decay?* 153–54 (4th ed. 2013) (explaining that “sociolinguistic causes of language change” involve the altering of language as “the needs of its users alter”).

138. See Isidora Stojanovic, *The Scope and Subtleties of the Contextualism-Literalism-Relativism Debate*, 2 *Language & Linguistics Compass* 1171, 1172 (2008).

139. See Récanati, *supra* note 86, at 10–11. Consider the example, “You are not going to die.” Récanati writes:

Kent Bach, to whom [the example] is due, imagines a child crying because of a minor cut and her mother uttering . . . [“you are not going to die”] in response. What is meant is: “You’re not going to die from that cut.” But literally the utterance expresses the propositions that the kid will not die *tout court*—as if he or she were immortal. The extra element contextually provided (the implicit reference to the cut) does not correspond to anything in the sentence itself; nor is it an unarticulated constituent whose contextual provision is necessary to make the utterance fully propositional.

Id. at 8–9.

140. See *id.* at 10.

141. See Slocum, *Ordinary Meaning*, *supra* note 3, at 154.

142. 520 U.S. 1, 5 (1997).

143. *Id.* at 5–6.

In some cases, however, the Court has restricted the domain of the relevant quantifier, based on competing canons or legal principles. For instance, in *Small v. United States*, the Court restricted the scope of the phrase “convicted in any court” to include only domestic, and not foreign, convictions.¹⁴⁴ The restriction, though, was motivated by the interpretive presumption against extraterritorial application of legislation.¹⁴⁵ Similarly, in *Nixon v. Missouri Municipal League*,¹⁴⁶ the Court interpreted a statute authorizing federal preemption of state and local laws prohibiting the ability of “any entity” to provide telecommunications services as not including a state’s own subdivisions.¹⁴⁷ States were thus allowed to prohibit local municipalities from providing telecommunications services.¹⁴⁸ The quantifier domain restriction, though, was at least partly motivated by federalism concerns requiring that Congress be clear when it intends to constrain a state’s traditional authority to order its government.¹⁴⁹

As the above discussion illustrates, there is no existing canon restricting the scope of universal quantifiers. Instead, the most common judicial assumption is that universal quantifiers are unlimited in scope.¹⁵⁰ This assumption is contrary to the evidence provided by linguists and philosophers that the domains of universal quantifiers are restricted by ordinary people even when very little context is provided.¹⁵¹ Potentially, then, the “quantifier domain restriction canon” fits the profile of an “ordinary meaning canon”: A language generalization (universal quantifiers are limited in scope by context) is triggered by a linguistic phenomenon (a universal quantifier), and the restriction is determined on the basis of context and thus can be cancelled on the basis of context.

2. *Poorly Defined Triggers.* — In addition to their potential incompleteness, the currently identified canons may represent either entirely inaccurate language generalizations¹⁵² or, less alarmingly, poorly defined ones. One type of inaccuracy occurs when an interpretive canon sets forth an accurate language generalization but has a too broadly defined trigger. For example, the *expressio unius est exclusio alterius* canon provides that when a statute expresses something explicitly (usually in a list), anything

144. 544 U.S. 385, 387 (2005).

145. *Id.* at 388–89.

146. 541 U.S. 125 (2004).

147. See *id.* at 128–29.

148. See *id.* at 140 (“[F]ederal legislation threatening to trench on the States’ arrangements for conducting their own governments should be treated with great skepticism, and read in a way that preserves a State’s chosen disposition of its own power, in the absence of the plain statement.”).

149. See *id.* at 140–41.

150. See *supra* notes 141–143 and accompanying text.

151. See Slocum, Ordinary Meaning, *supra* note 3, at 153.

152. The inaccuracy may be subtle, such as “ambiguity” being a component of the trigger. See *supra* notes 125–133 and accompanying text.

not expressed explicitly falls outside the statute.¹⁵³ If the canon were triggered by the mere expression of any term, it would apply in a whole host of circumstances where its negative inference may be unwarranted. Critics of the canon have therefore argued that the trigger must require something more.¹⁵⁴ For example, if Mother tells Sally, “You may have a cookie and a scoop of ice cream,” it seems quite clear (to parents and neutral observers, at least) that candy bars are excluded. Yet, the negative inference may not be warranted in other situations. If Mother tells Sally not to “hit, kick, or bite” her brother, the exclusion of other harmful acts—like pinching—might not follow.¹⁵⁵ This example illustrates that the canon trigger depends on an explicit expression but also some additional element that is yet to be identified by courts or scholars. In their book, *Reading Law*, Justice Antonin Scalia and Bryan Garner do not suggest any such additional element but caution that the canon should be “applied with great caution” and “common sense.”¹⁵⁶

Noscitur a sociis raises similar definitional concerns. Its generality of language usage—“the meaning of words should be determined in light of the words with which they are associated”—is so obvious and broad a linguistic proposition that one wonders whether it should qualify as a canon.¹⁵⁷ Under one theory, the *noscitur a sociis* canon could be narrowed by focusing on *lists*: When a word or phrase in a list is unclear (usually by being potentially broader in meaning than the other words), its meaning “should be determined by the words immediately surrounding it.”¹⁵⁸ The trigger then for the canon would be a word in a list that potentially differs in meaning in some important way from the other words in the list. This understanding would usually include the least controversial applications of the canon (what some would call “common sense”), which involve the

153. Some scholars have defended the canon as being consistent with linguistic principles. See, e.g., M.B.W. Sinclair, *Law and Language: The Role of Pragmatics in Statutory Interpretation*, 46 U. Pitt. L. Rev. 373, 416 (1985) (arguing that *expressio unius* is consistent with Gricean principles of communication).

154. See Peter M. Tiersma, *A Message in a Bottle: Text, Autonomy, and Statutory Interpretation*, 76 Tul. L. Rev. 431, 459 (2001) (“[E]ven though *expressio unius* has at least some linguistic justification, courts apply it in what seems to be a rather haphazard fashion.”).

155. William N. Eskridge Jr., Abbe R. Gluck & Victoria F. Nourse, *Statutes, Regulation, and Interpretation: Legislation and Administration in the Republic of Statutes* 457 (2014).

156. See Scalia & Garner, *supra* note 3, at 107. It is questionable whether this characterization would represent a language generalization. It is more of a tautology: When a judge is convinced that everything is included, everything is included.

157. The basic concept, that context can help select the correct word meaning, is an uncontroversial truism of linguistics. See Nicholas Asher & Alex Lascarides, *Lexical Disambiguation in a Discourse Context*, 12 J. Semantics 69, 103 (1995).

158. See Krishnakumar, *Backdoor Purposivism*, *supra* note 108, at 1305; see also *Dolan v. U.S. Postal Serv.*, 546 U.S. 481, 494 (2006) (“Words grouped in a list should be given related meaning.” (internal quotation marks omitted) (quoting *Dole v. United Steelworkers of Am.*, 494 U.S. 26, 36 (1990))).

selection of the correct meaning when a word has more than one conventional meaning. Thus, in a list involving financial institutions, “bank” would designate a financial institution rather than the side of a river.¹⁵⁹

The broad definition of *noscitur a sociis* also does not indicate when the canon is especially appropriate: for example, when the single meaning of a word should be limited to some subset of the category designated. For instance, in *Yates v. United States*, the interpretive question was whether the phrase “any record, document, or tangible object” included undersized red grouper and thus criminalized actions to cover up undersized fishing.¹⁶⁰ The Court, relying in part on the *noscitur a sociis* canon, determined that “tangible object” should include only those things “used to record or preserve information.”¹⁶¹ It is debatable that a common meaning of “tangible object” is something “used to record or preserve information,” if one seeks a meaning representing the concept’s full parameters.¹⁶² Rather, the “used to record or preserve information” meaning represents a subset of the “tangible object” category, selected in part on the basis of the other two items in the list, “record” and “document.” Part IV argues that these situations involve nonliteral interpretations consistent with the nonliteral interpretations directed by other canons.

3. *Uncertain Categorization and Conflicting Canons.* — Some existing canons may raise other issues undermining their value to judges. Uncertainty about a canon’s trigger may lead to uncertainty about its proper categorization and application. In turn, this uncertainty makes it more difficult to resolve conflicts among canons. Both issues suggest the potential benefits of empirical testing of canons.

Consider the series-qualifier canon. Under one simple definition, the series-qualifier canon presumes that “a modifier at the end of the list normally applies to the entire series.”¹⁶³ Alternatively, according to Scalia and Garner, a modifier at the end of a list normally applies to the entire series “[w]hen there is a *straightforward, parallel construction* that involves all

159. See *infra* section II.C.1 (explaining that ordinary people were able to use sentential context in order to select the correct meaning of “bank”).

160. 574 U.S. 528, 531–35 (2015).

161. *Id.* at 549. Another similar canon, *ejusdem generis*, was also mentioned by the Court. See *id.* at 545 (referring to it as a “canon related to *noscitur a sociis*”).

162. That is, no one would claim that as a general matter the ordinary meaning of “tangible object” is something used to record or preserve information. Rather, the question is whether the sentential and broader context indicated that a narrower meaning was intended that would capture only a subset of objects that might otherwise fall under “tangible object.”

163. Shon Hopwood, *Restoring the Historical Rule of Lenity as a Canon*, 95 N.Y.U. L. Rev. 918, 948 (2020) (internal quotation marks omitted) (quoting *Lockhart v. United States*, 577 U.S. 347, 364 (2016) (Kagan, J., dissenting)).

nouns or verbs in [the] series.”¹⁶⁴ Scalia and Garner categorize the series-qualifier canon as a “syntactic canon” (which we include in Category One), rather than a “contextual canon” (which we include in Category Two).¹⁶⁵ This second, alternative definition of the canon enlarges the relevant context. It may be that whether the modifying clause applies to the entire series should be determined only after consideration of the broad context of a statute and its purpose, in the same way that so-called contextual canons require such consideration.¹⁶⁶ If so, the series-qualifier canon is actually a Category Two rather than a Category One canon.

Category One vs. Category Two classification carries no legal consequences, and categorization disputes are inevitable. But imprecise definitions pose problems when there is a definitional conflict between two canons.¹⁶⁷ Consider the conflict between the rule of the last antecedent, which provides that a modifier generally refers to the nearest reasonable antecedent in the absence of a comma before the modifier, and the series-qualifier canon.¹⁶⁸ At least some of the two canons’ definitions show that they provide opposite instructions about how modification works. As Judge Richard Posner has asserted, “the ‘series-qualifier’ canon[] contradicts the ‘last-antecedent’ canon,”¹⁶⁹ and the Supreme Court in *Lockhart v. United States* described the series-qualifier canon as a “countervailing grammatical mandate” to the rule of the last antecedent.¹⁷⁰ While various solutions to the conflict are theoretically possible, as the next Part explains, our empirical evidence indicates that the series-qualifier canon, and not the rule of the last antecedent, is implicitly applied by ordinary people when the two conflict. Further empirical testing may reveal nuances that can

164. See Scalia & Garner, *supra* note 3, at 147 (emphasis added); see also *Lockhart*, 577 U.S. at 355 (describing the “series-qualifier principle” as requiring “a modifier to apply to all items in a series when such an application would represent a natural construction”).

165. See Scalia & Garner, *supra* note 3, at xiii.

166. See *Lockhart*, 577 U.S. at 355–56 (indicating that application of the series-qualifier canon and the rule of the last antecedent “are fundamentally contextual questions”).

167. A definitional conflict occurs when the definitions of two canons are explicitly in conflict. In comparison, a situational conflict occurs when a case involves multiple linguistic issues and one canon directs that one of the linguistic issues be resolved in favor of Interpretation A, while another canon directs that a separate linguistic issue be resolved in favor of Interpretation B. See William N. Eskridge, Jr., *The New Textualism and Normative Canons*, 113 *Colum. L. Rev.* 531, 545 (2013) [hereinafter Eskridge, *The New Textualism and Normative Canons*] (reviewing Scalia & Garner, *supra* note 3) (explaining situational conflicts where there are “a dozen or more canons that are applicable to the issue and . . . will push the interpreter in cross-cutting ways”).

168. See *supra* Table 1. See generally Terri LeClercq, *Doctrine of the Last Antecedent: The Mystifying Morass of Ambiguous Modifiers*, 40 *Tex. J. Bus. L.* 199, 204–05 (2004) (describing Jabez Sutherland’s creation of the rule of the last antecedent).

169. *United States v. Laraneta*, 700 F.3d 983, 989 (7th Cir. 2012).

170. *Lockhart*, 577 U.S. at 355.

help refine the two canons' triggers and lessen or eliminate the conflict, or indicate that the rule of the last antecedent should be discarded.

II. EXPERIMENTAL STUDY OF INTERPRETIVE CANONS

In this Part, we present two original experimental studies, designed to evaluate statutory interpretation “from the outside.” We study whether ordinary people evaluate language in ways predicted by the triggering conditions of major interpretive canons. Study 1 recruits a large sample of 4,500 Americans, presenting them with a series of questions to assess intuitive canon application. Study 2 samples law students who we treat as “highly sophisticated ordinary people”—these are students enrolled in Legislation, surveyed just as they begin the course. The results from these law students largely replicate Study 1’s findings.¹⁷¹

Before turning to the study, we first explain our experimental approach. If the goal of the ordinary meaning doctrine is to capture the interpretation an ordinary person would give a provision, it might seem that experimental surveys should focus on the interpretations ordinary people give to actual provisions in their full contexts. For example, to assess *ejusdem generis*, we could provide participants with the full statute at issue in *McBoyle* and ask them to apply it to a specific situation (e.g., whether an “airplane” is a “vehicle”).¹⁷² This approach seems to address the most important question (the ultimate interpretation of a provision in its full context), but the results of that type of “mock-judging” survey are not particularly useful for our purposes. Mock-judging surveys provide information about a statute’s meaning as applied to specific interpretive disputes, but the results may not be generalizable to the interpretation of other statutes or even to disputes not presented to the survey participants.

Most importantly, for our purposes, mock-judging surveys muddy the distinction between a canon’s trigger and its application and/or cancellation, especially between the relatively low competence involved in recognizing the triggering of a canon versus the much higher level required to apply the canon in light of the full context of a statute. Statutory interpretation is often a multilayered process that involves normative decisions, specialized legal competence, and inferences from context.¹⁷³ Survey participants may be able to competently invoke language generalizations

171. The research involving human subjects was approved by Georgetown University IRB Protocol 00002711.

172. See *supra* notes 22–28 and accompanying text (discussing the Supreme Court’s decision in *McBoyle v. United States*, 283 U.S. 25 (1931)).

173. See *supra* notes 73–75 and accompanying text (describing Justice Holmes’s view of statutory interpretation); see also Eskridge, *Interpreting Law*, *supra* note 3, at 9–10 (discussing aspects of statutory interpretation that may require legal training, such as determining whether there is binding judicial precedent or administrative practice that is relevant to the statutory issue).

when interpreting relatively decontextualized language but may not be able to apply the full range of interpretive sources in a sophisticated manner when engaging in a much more challenging mock-judging experiment. For this reason, to assess the canons' "triggering conditions," we present participants with relatively thin selections of language. This design choice helps reduce the impact of other contextual features, which may lead to canon application and cancellation effects.

A. *A Description of the Study*

Our first experiment tests whether ordinary people intuitively invoke canons of interpretation. Participants evaluated scenarios designed to test the triggering conditions of fourteen major canons of interpretation. Each participant received scenarios in one of three formats: a legal context (concerning laws), an ordinary context (concerning a company's rule for its employees), or a null context (using abstract language and fictional terms to minimize irrelevant contextual effects). The vignettes, questions, hypotheses, and analyses were preregistered at Open Science.¹⁷⁴

We recruited a sample of 4,500 participants from Lucid, a large survey platform.¹⁷⁵ Lucid recruits participants based on nationally representative quotas. This enables us to study a balanced sample of U.S. persons, with respect to age, gender, ethnicity, and political affiliation. The Appendix

174. See Kevin Tobia, *Statutory Interpretation From the Outside*, Open Science Framework, <https://osf.io/9tuw4/> (last updated May 24, 2021). For the experimental design and sample questions, see *infra* Table 3 and the Appendix.

175. Lucid screens every participant with attention checks and open-ended questions, using machine learning to screen out participants that do not respond with care. Profiling Guide, Lucid (Sept. 15, 2021), <https://support.lucidhq.com/s/article/Profiling-Guide> (on file with the *Columbia Law Review*). Lucid also uses technology including Google reCAPTCHA to block bots. Researchers in psychology and cognitive science often use platforms like Lucid and Mechanical Turk to recruit lay participants. See Adam J. Berinsky, Gregory A. Huber & Gabriel S. Lenz, *Evaluating Online Labor Markets for Experimental Research: Amazon.com's Mechanical Turk*, 20 *Pol. Analysis* 351, 366 (2012) ("[Mechanical Turk] potentially provides an important way to overcome the barrier to conducting research raised by subject recruitment costs and difficulties by providing easy and inexpensive access to nonstudent adult subjects."); Michael Buhrmester, Tracy Kwang & Samuel D. Gosling, *Amazon's Mechanical Turk: A New Source of Inexpensive, Yet High-Quality Data?*, 6 *Persps. on Psych. Sci.* 3, 5 (2011); Alexander Coppock & Oliver A. McClellan, *Validating the Demographic, Political, Psychological, and Experimental Results Obtained From a New Source of Online Survey Respondents*, *Resch. & Pol.*, Jan.–Mar. 2019, at 1 (replicating the research done by Berinsky, Huber & Lenz using the Lucid survey platform); Gabriele Paolacci, Jesse Chandler & Panagiotis G. Ipeirotis, *Running Experiments on Amazon Mechanical Turk*, 5 *Judgment & Decision Making* 411, 417 (2010). There are, of course, some criticisms. See, e.g., Richard N. Landers & Tara S. Behrend, *An Inconvenient Truth: Arbitrary Distinctions Between Organizational, Mechanical Turk, and Other Convenience Samples*, 8 *Indus. & Organizational Psych.* 142, 152–53 (2015). This Essay uses Lucid to provide a sample of competent users of the English language. The plausibility of this assumption is strengthened when noting the striking similarity in judgments among the Lucid sample (Study 1) and law students (Study 2).

contains a table with the full demographic information for the 4,500 participants recruited and the 4,430 participants who passed the comprehension check and CAPTCHA questions and were thus included in the analyses.

In each condition, participants received a consent form, followed by a comprehension check question.¹⁷⁶ Participants were randomly divided into one of three conditions (ordinary, legal, or null) and presented with the appropriate introductory text, followed by an explanation of confidence ratings (see Table 3).

TABLE 3. EXPERIMENTAL DESIGN

	<i>Ordinary</i>	<i>Legal</i>	<i>Null</i>
Number of questions	22	22	16 (excluding questions that cannot be tested in the null context)
Introductory text	In the following screens, you will see 22 short questions about different fictional rules.	In the following screens, you will see 22 short questions about different fictional laws.	In the following screens, you will see 16 short questions about different fictional rules. These rules contain some English terms and some fake terms. The fake terms will appear in italics. For example, you might read about a rule involving a <i>pinol</i> , <i>rabax</i> , or <i>vinut</i> .
Confidence text (same for all)	Please pick the answer that you think is best, even if you are unsure. After each question you can rate your confidence in your answer. Please keep in mind that you are not rating your own performance. Rather, you are expressing your level of confidence that the answer you chose is the correct one, based on the information provided.		
Example question:	Imagine that a company has a	Imagine that there is a law.	Imagine that there is a rule. Part of that

176. Participants who failed the check question were not notified that they failed, were able to continue taking the study, and were compensated fully for completing the study.

singular includes plural	<p>rule for its employees. Part of that rule states that “It is prohibited for any person to set off a rocket on company property.” Does this part of the rule mean:</p> <ul style="list-style-type: none"> • It is prohibited for any person to set off one rocket on company property • It is prohibited for any person to set off one or more rockets on company property 	<p>Part of that law states that “It is prohibited for any person to set off a rocket within the city limits.” Does this part of the law mean:</p> <ul style="list-style-type: none"> • It is prohibited for any person to set off one rocket within the city limits • It is prohibited for any person to set off one or more rockets within the city limits 	<p>rule states that “It is prohibited for any person to <i>puwets</i> a <i>mokah</i>.” Does this part of the rule mean:</p> <ul style="list-style-type: none"> • It is prohibited for any person to <i>puwets</i> one <i>mokah</i> • It is prohibited for any person to <i>puwets</i> one or more <i>mokahs</i>
Confidence question (same for all)	<p>How confident are you in the above answer? 0 = not at all confident, to 10 = extremely confident</p>		

Participants assessed twenty-two questions in the legal and ordinary conditions. The full list of legal, ordinary, and null condition questions is available in the Appendix.¹⁷⁷ We have reproduced the prompts and answer choices for the legal condition below.

Participants were randomly assigned to one condition (ordinary, legal, or null). Each participant received questions in a random order. It is possible that the order of questions might affect participants' responses. Perhaps, for example, contemplating a gender canon question might affect one's response to a later number canon question. To sidestep these complications, in our preregistration we specified that our primary analyses would consider *only the first question* answered by each participant. This process allows us to assess participants' evaluation of each canon without the potential influence on participants of reading or answering any other canon question. In other words, for these analyses, each participant is assigned to just one canon (the first question that they receive) in one of three conditions (ordinary, legal, or null).

Below we present the results for each canon. The questions are from the legal condition.¹⁷⁸ The ordinary context involved nearly identical language that described a company's rule rather than "a law." The null context always began, "Imagine that there is a rule. Part of that rule describes . . ."¹⁷⁹ The discussion below also indicates which answer we preregistered as the answer that constitutes implicitly "invoking" or "endorsing" the canon. That label was not included in the survey itself or visible to participants. Answer choices were always displayed in a random and counterbalanced order, as were the questions themselves. In consideration of space, the details of statistical analyses are not presented here in the main text but can be found in the Appendix.

B. *Testing Category One Canons*

Recall that the first category of canons includes interpretive principles triggered by specific linguistic phenomena and requiring little context for application.¹⁸⁰ These interpretive principles are typically relevant to the

177. In the null context, variable spaces were randomly filled with italicized five letter nonce words, beginning and ending with a consonant. If the space filled from the ordinary and legal context includes a prefix or suffix, so did the new nonce term, and the full term would be italicized. In the null context condition, participants received fewer questions. Because *noscitur a sociis* and *ejusdem generis* cannot be tested with the null context paradigm, questions 13a, 13b, 13c, and 14 were excluded. Moreover, in the null context version, question 9a and 10a were equivalent, as were 9b and 10b. As such, only one version of those questions was presented.

178. For the most detailed presentation and statistical analyses supporting these conclusions, see *infra* Appendix.

179. For a full list of questions, see *infra* Appendix.

180. See *supra* section I.B.

literal meaning of a provision and are often referred to as “semantic canons” or “syntactic canons,” among other terms.¹⁸¹

1. *Gender Canons.* — Although courts do not explicitly refer to a “gender canon,”¹⁸² there is a longstanding interpretive principle that the masculine includes the feminine.¹⁸³ For instance, the Constitution refers frequently to “he” and “his,” but there is little dispute today that those pronouns include women.¹⁸⁴ The judicially created gender canon has been codified by Congress and some states.¹⁸⁵ Courts have similarly indicated that the feminine includes the masculine, although the judicial presumption may not be as strong.¹⁸⁶

The current gender canon may not cover all situations where a pronoun’s ordinary meaning is broader than its literal meaning.¹⁸⁷ Pronouns are now a widely discussed component of the LGBTQ movement.¹⁸⁸ Historically, English lacked a standard gender-neutral singular third-person personal pronoun, as “they” was thought to be ungrammatical in such situations because it is a plural pronoun.¹⁸⁹ Recent nonlegal empirical studies have indicated that “they” is now interpreted as gender-neutral, including nonbinary/gender-nonconforming referents, and can be used grammatically to reference a singular individual.¹⁹⁰

Our study included three possible gender canons, testing whether (a) masculine, (b) feminine, and (c) plural (e.g., “they”) terms are interpreted narrowly or inclusively. In each question, participants could choose

181. See Scalia & Garner, *supra* note 3, at xii–xiii (listing and defining eleven “semantic canons” and seven “syntactic canons”).

182. A search of Westlaw revealed no judicial references to a “gender canon,” although the principle that the masculine includes the feminine is well established.

183. See Scalia & Garner, *supra* note 3, at 129 (noting that grammarians and lexicographers have traditionally held that the masculine includes the feminine and that in the Constitution, the male pronouns used to refer to the President are widely understood to refer to a President of either sex); see also *Curtis v. State*, 645 S.E.2d 705, 709 (Ga. Ct. App. 2007), overruled on other grounds by *McClure v. State*, 834 S.E.2d (Ga. 2019) (holding that a statute that included masculine pronouns included the “feminine gender”).

184. See Lawrence B. Solum, *Originalism and Constitutional Construction*, 82 *Fordham L. Rev.* 453, 509–10 (2013) (describing the masculine pronouns in the Constitution).

185. See Linda D. Jellum & David Charles Hricik, *Modern Statutory Interpretation: Problems, Theories, and Lawyering Strategies* 144 (2d ed. 2009).

186. See, e.g., *In re Compensation of Williams*, 635 P.2d 384, 386 (Or. Ct. App. 1981) (“The word ‘woman’ is clear and merits no interpretation.”), *aff’d*, 653 P.2d 970 (Or. 1982).

187. See *supra* section I.D.1 (explaining that the current set of interpretive canons may be incomplete or inaccurate).

188. See Evan D. Bradley, Julia Salkind, Ally Moore & Sofi Teitsort, *Singular ‘They’ and Novel Pronouns: Gender-Neutral, Nonbinary, or Both?*, 4 *Proc. Linguistic Soc’y Am.* 1, 1 (2019).

189. See *id.* at 1.

190. See *id.* at 4.

from three possible meanings: The term includes all genders, the term includes only men, or the term includes only women.

STUDY QUESTION 3A. GENDER CANON: HIS (LEGAL VERSION)¹⁹¹

Imagine that there is a law. Part of that law describes that certain benefits will be given to “Whoever files his form before May 1.” Does this part of the law mean:

- Any person (male, female, or non-binary) who files before May 1 [endorsing]
- Only any man who files before May 1
- Only any woman who files before May 1

STUDY QUESTION 3B. GENDER CANON: HER (LEGAL VERSION)

Imagine that there is a law. Part of that law describes that certain benefits will be given to “Whoever files her form before May 1.” Does this part of the law mean:

- Any person (male, female, or non-binary) who files before May 1 [endorsing]
- Only any man who files before May 1
- Only any woman who files before May 1

STUDY QUESTION 3C. GENDER CANON: THEIR (LEGAL VERSION)

Imagine that there is a law. Part of that law describes that certain benefits will be given to “Whoever files their form before May 1.” Does this part of the law mean:

- Any person (male, female, or non-binary) that files before May 1 [endorsing]
- Only any man who files before May 1
- Only any woman who files before May 1

We found strong support that “his” and “their” are gender-inclusive. Lay participants were more divided concerning whether “her” is gender-inclusive. These results were consistent across contexts. The law student sample (legal context only) interpreted all three more gender-inclusively.

191. The “[endorsing]” marker indicates which answer was preregistered as the answer that constitutes implicitly “invoking” or “endorsing” the canon. That label was not included in the survey itself or visible to participants. Otherwise, survey questions are reproduced here exactly as they were presented to participants in the study.

2. *Number Canons.* — The number canon provides that the singular includes the plural (and vice versa).¹⁹² Congress has codified the number canon as it has the masculine gender canon.¹⁹³ Because “singular” and “plural” are often contrasting concepts, some might understand this canon as not an ordinary meaning canon because it selects a nonliteral meaning for the singular (or plural) term.¹⁹⁴ According to Scalia and Garner, the proposition that the plural includes the singular is “not as logically inevitable as the proposition that one includes multiple ones.”¹⁹⁵ We presented two questions to assess the two different number canons.

STUDY QUESTION 4A. NUMBER CANON: SINGULAR (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “It is a misdemeanor for any person to set off a rocket within the city limits.” Does this part of the law mean:

- It is a misdemeanor for any person to set off one rocket within the city limits
- It is a misdemeanor for any person to set off one or more rockets within the city limits [endorsing]

STUDY QUESTION 4B. NUMBER CANON: PLURAL (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “It is a misdemeanor for any person to set off rockets within the city limits.” Does this part of the law mean:

- It is a misdemeanor for any person to set off one or more rockets within the city limits [endorsing]
- It is a misdemeanor for any person to set off two or more rockets within the city limits

We found strong support for both canons in the ordinary and legal conditions. There was support for the plural canon in the null context, while results for the singular canon in the null context were mixed.

3. *Conjunctive and Disjunctive Canons.* — The conjunctive and disjunctive canons provide that “and” combines items while “or” creates alternatives.¹⁹⁶ Scalia and Garner argue that “[c]ompetent users of the language

192. See Scalia & Garner, *supra* note 3, at 129–30.

193. See *id.*

194. See *supra* note 91 and accompanying text (describing what we refer to as an “ordinary meaning canon”).

195. See Scalia & Garner, *supra* note 3, at 130.

196. See *id.* at 116.

rarely hesitate over their meaning.”¹⁹⁷ We included questions to test this possibility.

STUDY QUESTION 1. CONJUNCTIVE CANON (LEGAL VERSION)

Imagine that there is a law. Part of that law describes “property and buildings.” Does this part of the law mean:

- Both property and buildings [endorsing]
- Either property or buildings, or both
- Either property or buildings, but not both

STUDY QUESTION 2. DISJUNCTIVE CANON (LEGAL VERSION)

Imagine that there is a law. Part of that law describes “property or buildings.” Does this part of the law mean:

- Both property and buildings
- Either property or buildings, or both [endorsing]
- Either property or buildings, but not both

There was strong support for the conjunctive canon in all three contexts. Results for the disjunctive canon, however, were more mixed, with many participants choosing both the “and” option and the exclusive “or” option (“or . . . but not both”). We take these results to suggest a more complicated picture than Scalia and Garner’s prediction, confirming that “and” and “or” are sensitive to grammatical context.¹⁹⁸ In some contexts, “or” actually expresses “and” and vice versa.¹⁹⁹

4. *Mandatory and Permissive Canons.* — The mandatory/permissive canon provides that mandatory words, such as “shall,” impose a duty while permissible words, such as “may,” grant discretion.²⁰⁰ Scalia and Garner argue that “[t]he text of this canon is entirely clear, and its content so obvious as to be hardly worth the saying.”²⁰¹ Our results strongly support these claims. Unsurprisingly, people understood “may” permissively and “shall” mandatorily.

197. *Id.*

198. See Ira P. Robbins, “And/Or” and the Proper Use of Legal Language, 77 *Md. L. Rev.* 311, 317–18 (2018).

199. See Kenneth A. Adams & Alan S. Kaye, Revisiting the Ambiguity of “And” and “Or” in Legal Drafting, 80 *St. John’s L. Rev.* 1167, 1172–91, 1195 (2006) (providing an in-depth analysis of the ambiguities that can arise when using “and” and “or”).

200. See Scalia & Garner, *supra* note 3, at 112.

201. *Id.* (“The trouble comes in identifying which words are mandatory and which permissive.”).

STUDY QUESTION 5. MAY CANON (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “Employees may provide written notice.” Does this part of the law mean:

- Employees are permitted, but not required, to provide written notice [endorsing]
- Employees are required to provide written notice

STUDY QUESTION 6. SHALL CANON (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “Employees shall provide written notice.” Does this part of the law mean:

- Employees are permitted, but not required, to provide written notice
- Employees are required to provide written notice [endorsing]

5. *Oxford Comma*. — As discussed earlier, the “Oxford comma” rule refers to a comma used after the penultimate item in a list of three or more items, the presence of which can create an additional distinct item or category.²⁰²

STUDY QUESTION 7A. OXFORD COMMA (NO COMMA) (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “Eligible work includes: The canning, processing, preserving, storing, packing for shipment or distribution of: (1) vegetables; (2) fruits; and (3) fish.” Does this part of the law mean:

- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and packing for distribution of 1–3. [endorsing]
- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and distribution of 1–3.

Question 7b included a comma after the word “shipment” but was otherwise identical.²⁰³ Selecting the *second* option for question 7b was pre-registered as endorsing the Oxford comma rule.

There was a significant difference from chance for the Oxford “no comma” question in the null condition, but not in the ordinary or legal contexts; for the Oxford comma question, there were differences in the

202. See *supra* notes 94–100 and accompanying text.

203. For a full list of the study questions (including question 7b and other questions not listed in full here), see *infra* Appendix.

ordinary and null, but not legal, contexts. In both cases (for questions 7a and 7b), the differences reflected endorsement of the *second* option. That is, in the null context, participants tended toward the second option, even for question 7a.

We also preregistered a comparison between questions 7a and 7b to assess the effect of adding a comma. There were no significant differences from chance in the legal, ordinary, or null contexts. Section III.B presents results from a law student sample. Overall, the results were very similar across lay participant and law student samples, but here there was a small difference. Most law students chose the first option for question 7a but the second option for question 7b. Thus, the law students were more sensitive to the addition of the comma, and their responses were more consistent with the predictions of the Oxford comma rule.

Overall, the results for the Oxford comma examples were fairly mixed. Lay participants were divided between the two options, and the addition of the comma did not make a significant difference. These results suggest that laypeople may not have a general intuitive interpretation for Oxford comma examples. In other words, these results suggest that whether the Oxford comma rule characterizes an ordinary interpretation may depend especially heavily on context.

6. *Presumption of Nonexclusive “Include”*. — The presumption of non-exclusive “include” provides that the word does not introduce an exhaustive list.²⁰⁴

STUDY QUESTION 8. PRESUMPTION OF NONEXCLUSIVE “INCLUDE” (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “The term ‘motor vehicle’ shall include an automobile, automobile truck, automobile wagon, or motor cycle.” Does this part of the law mean:

- The term ‘motor vehicle’ includes only automobiles, automobile trucks, automobile wagons, and motor cycles.
- The term ‘motor vehicle’ includes automobiles, automobile trucks, automobile wagons, motor cycles, and some other entities. [endorsing].

There was a significant difference from chance for the nonexclusive “include” question in the legal and null contexts. However, the pattern of legal results was contrary to the canon’s application. Overall, the pattern of results is mixed and supports the conclusion that there is neither strong intuitive support for a nonexclusive “include” nor for an “exclusive” one.

204. See Scalia & Garner, *supra* note 3, at 132.

7. *Series-Qualifier Canon and Rule of the Last Antecedent*. — Recall the potential conflict between the rule of the last antecedent and the series-qualifier canon, two canons created by lawyers—not linguists.²⁰⁵ The former provides that a modifier generally refers to the nearest reasonable antecedent,²⁰⁶ but the latter provides that when there is a straightforward parallel construction that involves all nouns or verbs in a series, a prepositive or postpositive modifier normally applies to the entire series.²⁰⁷ When a modifier is set off from a series of antecedents by a comma, however, the two canons agree on the proper interpretation.²⁰⁸

The survey included four questions. To assess the impact of the comma, the “9” versions include a comma, while the “10” do not. We also considered the hypothesis that dissimilarity between the nearest antecedent and other antecedents might increase the triggering of the rule of the last antecedent. The question “b” versions replace “trucks” with “food trucks,” with the hypothesis that the latter would be seen as more dissimilar to the other antecedents.

STUDY QUESTION 9A. SERIES-QUALIFIER / LAST ANTECEDENT (COMMA, RELATED) (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “In parking area A, people may park cars, mopeds, and trucks, on weekends.” Does this part of the law mean:

- In parking area A, people may park cars on any day, mopeds on any day, and trucks on only weekends.
- In parking area A, people may park cars on only weekends, mopeds on only weekends, and trucks on only weekends. [endorsing]

205. See *supra* notes 163–170 and accompanying text; see also Baude & Sachs, *supra* note 85, at 1126–27 (“[N]obody proposed [the series-qualifier canon] as a canon until Justice Scalia ‘pioneered it.’” (quoting Asher Steinberg, *The Government Jumps off a Cliff in Lockhart v. U.S.*, and *Why All Textualism Is (Constructive) Intentionalism*, *Narrowest Grounds* (Oct. 22, 2015), <http://narrowestgrounds.blogspot.com/2015/10/the-government-jumps-off-cliff-in.html> [<https://perma.cc/R83H-BRRH>])); LeClercq, *supra* note 168, at 204–07 (describing how the rule of the last antecedent was created by an attorney).

206. See *supra* Table 1.

207. See *supra* Table 1.

208. In such a case, the modifier would apply to all of the antecedents.

STUDY QUESTION 10A. SERIES-QUALIFIER / LAST ANTECEDENT (NO COMMA, RELATED) (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “In parking area A, people may park cars, mopeds, and trucks on weekends.” Does this part of the law mean:

- In parking area A, people may park cars on any day, mopeds on any day, and trucks on only weekends.
- In parking area A, people may park cars on only weekends, mopeds on only weekends, and trucks on only weekends. [endorsing]

There were significant differences from chance in the ordinary context for all four versions (9a, 9b, 10a, and 10b) and in the legal context for all four versions. There were no significant differences from chance in the null context versions. In the ordinary and legal contexts, participants tended to endorse the series-qualifier canon (i.e., choose the second option). In the no-comma versions (10a and 10b), this endorsement is a failure to invoke the rule of the last antecedent.

We also preregistered specific comparisons to assess the effect of the comma (9a vs. 10a; 9b vs. 10b) and whether the relatedness of the last and prior antecedents affects judgments (9a vs. 9b; 10a vs. 10b). Comparing responses within each of the ordinary and legal conditions, we found no significant differences.

These results present a complex picture. The most straightforward finding is that there is little evidence from this study that relatedness of the antecedents matters; “truck” versus “food truck” made little difference. The comma also did not affect participants’ responses. Most importantly, even without the comma (versions 10a, 10b), most laypeople chose option two, consistent with the series-qualifier canon *and flatly inconsistent* with the rule of the last antecedent. Overall, the results provide more support for the series-qualifier canon.

C. *Testing Category Two Canons*

Recall that the second category of interpretive canons includes those textual canons triggered by a certain kind of linguistic formulation or context, rather than by precise language.²⁰⁹ Each of these canons interacts with the literal meaning of a provision in some way, typically by narrowing it, on the basis of inferences from context.²¹⁰ While these canons are triggered by specific kinds of language, their application requires consid-

209. See *supra* notes 88–90 and accompanying text; *supra* section I.C.

210. See *supra* notes 108–109 and accompanying text.

eration of the context of the communication. We focus though not on the application or cancellation of these canons but rather seek to determine whether ordinary people invoke these canons in accordance with their triggers, even when little contextual evidence is provided.

1. *Noscitur a Sociis*. — The *noscitur a sociis* canon provides that the meaning of words placed together in a statute should be determined in light of the words with which they are associated.²¹¹ As noted above, some define the canon more narrowly as requiring ambiguity: When a word or phrase in a list is ambiguous, its meaning “should be determined by the words immediately surrounding it.”²¹² We presented three scenarios testing *noscitur a sociis*: one involving just surrounding words, one involving some additional context, and one involving homonyms.

STUDY QUESTION 13A. *NOSCITUR A SOCIIS*: SURROUNDING WORDS (LEGAL VERSION)

Imagine that there is a law. Part of that law describes “records, documents, or tangible objects.” Does this part of the law mean:

- Records, documents, and tangible objects that are similar to records or documents [endorsing]
- Records, documents, and all tangible objects (including, for example, a fish)

Question 13b stated that “[p]art of that law describes erasing writing from ‘records, documents, or tangible objects’” and was otherwise identical.

STUDY QUESTION 13C. *NOSCITUR A SOCIIS*: HOMONYMS (LEGAL VERSION)

Imagine that there is a law. Part of that law describes “a bank; a financial institution; or a savings and loan association.” Does this part of the law mean:

- terrain alongside the bed of a river (commonly known as a “bank”); a financial institution; or a savings and loan association
- an institution for receiving, lending, exchanging and safeguarding money (commonly known as a “bank”); a financial institution; or a savings and loan association [endorsing]
- terrain alongside the bed of a river (commonly known as a “bank”); an institution for receiving, lending, exchanging and safeguarding money (commonly known as a “bank”); a financial institution; or a savings and loan association

211. See Scalia & Garner, *supra* note 3, at 195.

212. See Krishnakumar, *Backdoor Purposivism*, *supra* note 108, at 1305 (quoting *Noscitur a sociis*, Black’s Law Dictionary (10th ed. 2014)).

Overall, there was strong evidence in favor of the intuitive application of *noscitur a sociis*. There were significant differences from chance for all three questions in the legal context, in the predicted direction (62% endorsing for 13a, 78% endorsing for 13b, and 88% endorsing for 13c). There were significant differences from chance in the ordinary condition for 13b and 13c (83% and 77%, respectively), but there was no statistically significant difference for 13a (63% endorsing).

2. *Ejusdem Generis*. — The *ejusdem generis* canon provides that when general words in a statute precede or follow a list of specific things, the general words should be construed to include only objects similar in nature to the specific words.²¹³ The *ejusdem generis* canon has been criticized by some scholars as based on faulty linguistic premises.²¹⁴ Yet Gluck and Bressman report that legislative staffers are aware of and rely on *ejusdem generis*, along with other Category Two canons.²¹⁵ Others have defended the canon.²¹⁶

STUDY QUESTION 14. EJUSDEM GENERIS (LEGAL VERSION)

Imagine that there is a law. Part of that law refers to “gin, bourbon, vodka, rum, and other beverages.” Does this part of the law mean:

- Gin, bourbon, vodka, rum, and other alcoholic beverages [endorsing]
- Gin, bourbon, vodka, rum, and other alcoholic and non-alcoholic beverages (including, for example, orange juice)

213. See Scalia & Garner, *supra* note 3, at 199. There is a dispute about whether the canon is properly applied to cases where the generalization precedes rather than follows a list. See Gregory R. Englert, *The Other Side of Ejusdem Generis*, 11 *Scribes J. Legal Writing* 51, 52–53 (2007) (noting that whether a court applies the canon may rest on which secondary source a court relies on for its definition of *ejusdem generis*).

214. See Dickerson, *supra* note 115, at 234 (questioning whether *ejusdem generis* is lexicographically accurate).

215. See Manning, *Inside Congress’s Mind*, *supra* note 40, at 1937 n.152 (“While not able to identify these canons by their Latin names, most of the staffers surveyed knew of and embraced the concepts behind the negative implication canon (*expressio unius*) and the word association canons (*noscitur a sociis* and *ejusdem generis*).” (citing Gluck & Bressman, *Statutory Interpretation Part I*, *supra* note 33, at 932–33)). Gluck and Bressman report on *noscitur a sociis*, *ejusdem generis*, the rule against superfluities, *expressio unius*, *in pari materia*, the whole act rule, and the whole code rule. Gluck & Bressman, *Statutory Interpretation Part I*, *supra* note 33, at 932–33.

216. See, e.g., Cass R. Sunstein, *Interpreting Statutes in the Regulatory State*, 103 *Harv. L. Rev.* 405, 455 (1989) (“[*Ejusdem generis* . . . derives from an understanding that the general words are probably not meant to include matters entirely far afield from the specific enumeration. If understood to be truly general, the general words would make the specific enumeration redundant.”).

Overall, there was support for the canon. Participants intuitively applied the canon at rates significantly greater than chance in the legal condition (70%), but not the ordinary condition (62%).

3. *Expressio Unius Est Exclusio Alterius*. — Recall that the *expressio unius est exclusio alterius* canon provides that when a statute expresses something explicitly (usually in a list), anything not expressed explicitly does not fall within the statute.²¹⁷ The trigger for the canon—the explicit expression of one thing + an argument that some implicit term is also included—is obviously too broad to serve as a generalization about language usage.²¹⁸ As a result, the canon has been widely criticized.²¹⁹ Nevertheless, some have suggested that the canon may guide legislative drafters.²²⁰ It remains possible that the canon could be defined more narrowly so that it more precisely captures a language generalization, such as applying only to lists or series of terms under certain circumstances.²²¹

217. See *supra* note 112 and accompanying text. Some scholars have defended the canon as being consistent with linguistic principles. See, e.g., Sinclair, *supra* note 153, at 414–20.

218. See *supra* notes 153–156 and accompanying text.

219. See William N. Eskridge, Jr. & John Ferejohn, *Super-Statutes*, 50 *Duke L.J.* 1215, 1250 (2001) (“Law professors consider [the *expressio unius*] canon unreliable or even bogus.”).

220. See William N. Eskridge, Jr. & Philip P. Frickey, *The Supreme Court, 1993 Term—Foreword: Law as Equilibrium*, 108 *Harv. L. Rev.* 26, 67 (1994) (noting that, even if the empirical assumptions underlying the *expressio unius* canon are suspect, the canon remains valuable as a signal to legislative drafters “if it is usually respected, as it is by the current Court”).

221. See *Chevron U.S.A. Inc. v. Echazabal*, 536 U.S. 73, 81 (2002) (“The [*expressio unius*] canon depends on identifying a series of two or more terms or things that should be understood to go hand in hand, which is abridged in circumstances supporting a sensible inference that the term left out must have been meant to be excluded.”); see also, e.g., Eskridge & Ferejohn, *supra* note 219, at 1250 (“[F]or super-statutes, *inclusio unius* applies only when the new item on a list would derogate from the principle or policy that is the baseline for that statute.”); Sunstein, *supra* note 216, at 456 (arguing that the canon is “helpful . . . [w]hen it is plausible to assume that Congress has considered all the alternatives”).

STUDY QUESTION 11. EXPRESSIO UNIUS EST EXCLUSIO ALTERIUS (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “No one may enter restaurants with dogs or cats.” Jim enters a restaurant with a pet rabbit. Does this part of the law mean:

- No one may enter restaurants with dogs, no one may enter restaurants with cats, and no one may enter restaurants with some other entities (such as a pet rabbit).
- No one may enter restaurants with dogs, no one may enter restaurants with cats, and there is no other prohibition on entering restaurants with anything. [endorsing]

The results for *expressio unius* indicated a lack of support for the canon. In the ordinary condition, participants did *not* implicitly invoke the canon (only 36% endorsing). In the legal condition, participants were divided (52% endorsing).

4. *Quantifier Domain Restriction Canon*. — A potential quantifier domain restriction canon would provide that the scope of a universal quantifier (e.g., “all,” “any”) is typically restricted by context.²²² Currently, the typical judicial assumption is that universal quantifiers are unlimited in scope. Linguists and philosophers, however, have argued that ordinary people restrict the domains of universal quantifiers even when very little context is provided.²²³ We included one possibility to assess understanding of universal quantifiers in rules.

STUDY QUESTION 12. QUANTIFIER DOMAIN RESTRICTION (LEGAL VERSION)

Imagine that there is a law. Part of that law describes “any law enforcement officer.” Does this part of the law mean:

- All law enforcement officers, anywhere in the world
- Some law enforcement officers, anywhere in the world [endorsing]
- All law enforcement officers, in the country in which the law was passed [endorsing]
- Some law enforcement officers, in the country in which the law was passed [endorsing]

222. See *supra* notes 138–151 and accompanying text.

223. See *supra* note 151 and accompanying text.

Most participants, in the ordinary and legal contexts, chose the third option, restricting the scope of “any.” In the null context, there was a dramatic difference, with more participants selecting the *first* option. This result is sensible. Participants had very little context; they evaluated “a rule” about a nonce term like “any *volips*.” Most understand that rule to include any “volip” in the world. What is more striking is that with just a tiny amount of context (see, e.g., the legal version above), participants restrict the scope of “any.”

III. DO THE CANONS REFLECT ORDINARY MEANING?

Part II describes our experimental study of ordinary people and the results for each canon. Part III uses these results to illustrate some broader implications. As explained below, the overall pattern of results is notable. Although most ordinary people have not been taught these legal canons, their judgments of meaning intuitively reflect many of the canons. The results were largely consistent across the ordinary and legal contexts. This Part first describes some of the connections between the canons, such as whether there was a positive or negative relationship between the invocation of different canons. It also describes our second study, which recruited a sample of U.S. law students to answer the legal condition questions. The results largely track those of the first study, with the law students generally implicitly invoking the canons more often than ordinary people. Finally, to make the results as accessible as possible, this Part includes a chart that classifies each canon roughly by its invocation level. These categorizations are very rough, but we hope that this exercise nevertheless provides more clarity about the broad support for many of the canons across both the legal and ordinary conditions.

A. *Broader Empirical Findings*

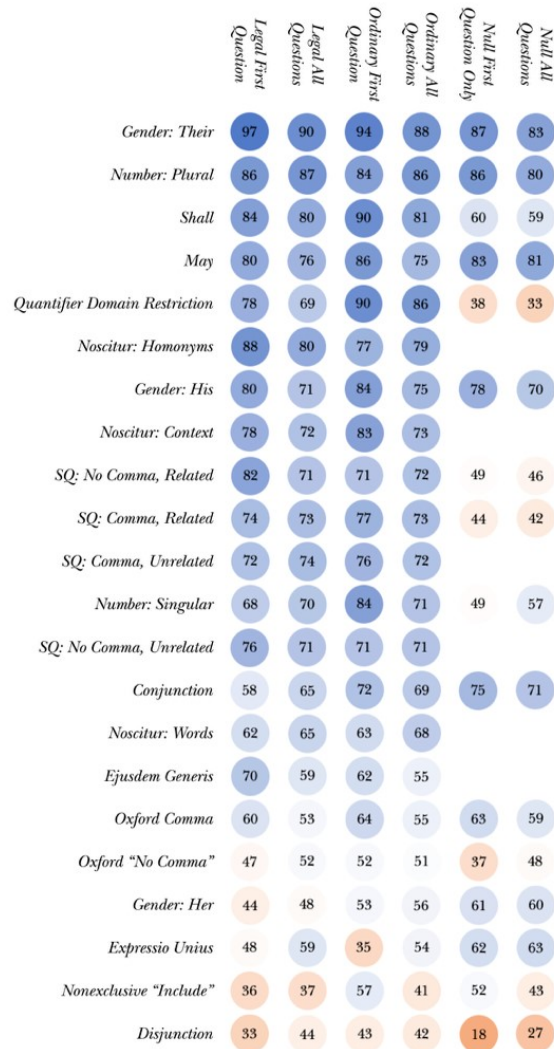
1. *Overall Pattern of Canon Endorsement.* — Figure 2 reports the percentage of participants implicitly invoking each canon, across all three contexts. The results are presented including only the participant’s first question (“First Question”) and including a participant’s answer to every question (“All Questions”). Blue circles reflect agreement with the canon, while orange circles reflect disagreement. Darker colors reflect stronger agreement/disagreement.

As Figure 2 indicates, the results were largely consistent across all three contexts, especially the ordinary and legal contexts. The results also do not vary dramatically when comparing participants’ first-question responses to data that reflects participants’ responses to every question.

We also analyzed the results statistically, in line with our pre-registration, evaluating whether the percentage of implicit application of each canon differed from chance, across each of the three conditions. As

explained above (and as preregistered), we only considered each participant's first canon question. For example, in the ordinary condition, sixty-four participants saw the "gender: his" question first. Of those, fifty-four (84.4%) chose that the rule means any person (men, women, or non-binary); seven (10.9%) chose that the rule means only any man; and three (4.7%) chose that the rule means only any woman. This distribution differs significantly from chance (i.e., a 33.3%, 33.3%, 33.3% distribution), $X^2 = 76.2$, $p < .0001$.²²⁴ The full results of these comparisons are reported in the Appendix.

224. A chi-square test assesses whether there is a statistically significant difference between the expected frequencies and the observed frequencies in a contingency table.

FIGURE 2. PERCENTAGE IMPLICITLY INVOKING THE CANONS²²⁵

2. *Confidence Ratings.* — After each question, participants reported their confidence on a scale from zero to ten. Mean overall confidence ratings differed significantly across contexts. They were highest in the

225. In Figure 2, "SQ" refers to the series-qualifier and rule of the last antecedent examples. We tested four versions of that scenario (with or without a comma; with related or unrelated terms in the series) in two contexts (ordinary and legal) and two versions in the null context.

ordinary context, intermediate in the legal context, and substantially lower in the null context.²²⁶ The relative confidence ratings for each question were similar across contexts. Finally, across all contexts, participants were comparatively more confident about many of the same questions (e.g., gender: their, number: plural) and comparatively less confident about many of the others (e.g., *expressio unius*, Oxford comma).²²⁷

3. *Relationships Among the Implicit Applications of Different Canons.* — We were also interested in assessing the (positive or negative) relationship between invocation of different canons. For example, is someone who (implicitly) invokes *noscitur a sociis* more likely to (implicitly) invoke *ejusdem generis*? To assess this question, we computed tetrachoric correlations across all canons, comparing invocation to non-invocation. Figure 3 displays these correlation coefficients, where darker blue indicates stronger positive associations, white indicates no association, and darker orange indicates stronger negative associations.

As the figure indicates, implicit invocation of many canons was positively associated with implicit invocation of certain others. Some of these are unsurprising. For example, implicit invocation of the series-qualifier canon in one version was positively associated with implicit invocation of that canon in the other three versions.

There was a correlation between the implicit invocation of canons that are (seemingly) unrelated. For example, interpreting “their” or “his” as including female or nonbinary persons was associated with interpreting singulars as inclusive of plurals and plurals as inclusive of singulars. That result might suggest that some participants were inclined to *generalize* when interpreting rules: The same participant that interprets “his” broadly also interprets singular terms broadly.

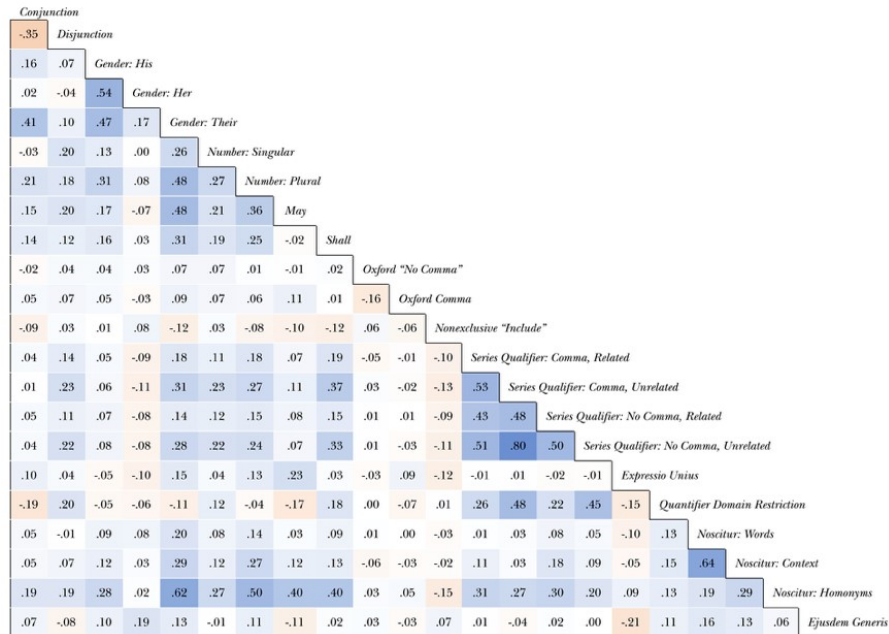
That idea, however—that (many) participants were “broad interpreters”—does not adequately explain other relationships. For example, there was an association between invoking the gender and number canons, and also with invoking *noscitur a sociis*. In the experimental materials, invoking the *noscitur* canon *narrows* the meaning of a term in a list, in light of the surrounding words and/or context. An alternative interpretation of the striking correlations among canon applications is that many involve a

226. Across all sixteen shared questions, the estimated marginal mean confidence rating was 8.57 (95% Confidence Interval (CI): 8.47, 8.66) in the ordinary context; 8.32 (95% CI: 8.22, 8.41) in the legal context; and 7.06 (95% CI: 6.96, 7.16) in the null context. A generalized linear model found a significant effect of the null context on confidence ratings, Odds Ratio (OR) = .286 (95% CI: .249, .329), $p < .00001$, and a significant effect of the ordinary context, OR = 1.283 (95% CI: 1.116, 1.474), $p < .00001$.

227. No mean ratings were below 5.00. The null context participants did not receive two series-qualifier questions, the *noscitur a sociis* questions, or the *ejusdem generis* questions; as such, there are no confidence ratings for those questions.

type of *nonliteral* interpretation. What we mean by “nonliteral” is that readers expand or contract meaning according to context. This idea could unify many of the canons: from Category One canons, like the gender and number canons, to Category Two canons, like *noscitur a sociis*. This Essay develops this idea in Part IV.

FIGURE 3. CORRELATIONS AMONG IMPLICIT INVOCATION OF CANONS



Each cell indicates the correlation between endorsing two canons. Darker blue indicates larger positive correlation and darker orange indicates larger negative correlation. For example, endorsing “gender: his” (i.e., “his” takes a gender-inclusive meaning) is positively correlated (.54) with endorsing “gender: her” (i.e., “her” takes a gender-inclusive meaning).

B. Extending the Study With a Law Student Sample

Some might have concerns about Study 1’s online convenience sample of laypeople. Scholars have defended the use of these research platforms in law and psychology research.²²⁸ But some readers might still worry

228. Krin Irvine, David A. Hoffman & Tess Wilkinson-Ryan, Law and Psychology Grows Up, Goes Online, and Replicates, 15 J. Empirical Legal Stud. 320, 322–23 (2018) (arguing that cheap, online research, done properly, can be perfectly effective).

about online convenience samples. Perhaps, some might argue, those participants are not sufficiently attentive or representative of “ordinary people.”

Concerning attention, we used several attention/comprehension checks and also relied upon a survey platform that prescreens participants for attentiveness. Moreover, the results do not support the contention that participants were answering randomly. If participants were answering randomly, one would expect canon invocation to be no different from chance (50% implicit application of most canons). We found, however, that participants invoked certain answers at rates greater than chance (see Figure 2). Additionally, the answers invoked were not just arbitrary; rather, they were the answers consistent with the canons’ triggering hypotheses.

Concerning representativeness, insofar as ordinary meaning interpretation is concerned with how (all) people would understand legal texts, we think that to rely on our lay sample is certainly better than to rely on the intuition of one judge (or commentator). Our sample is demographically diverse in terms of gender, race, political orientation, income, and U.S. geography (see Appendix). Still, our sample is not a perfect reflection of all aspects of the population. Some features of our population are not shared by every American: To take the survey, all of our online participants must speak English and have access to a mobile phone or computer. As such, there are other members of the public that our survey may not adequately reflect, including Americans whose primary language is not English. Future work on “ordinary” and “public” meaning should take seriously the potential impact of neglecting those members of the public in its theory or research.²²⁹

Our second study provides a further empirical response to concerns about Study 1’s sample.²³⁰ We recruited a sample of U.S. law students from four legislation classes at two U.S. law schools. The students were recruited before or during the first week of class. This Essay thus does not conceptualize this population as one of “legal experts.” Rather, we recruited U.S. law students who have not yet taken legislation or administrative law in an effort to recruit a population that should be understood by our readers as “sufficiently sophisticated ordinary people.” These are participants that have not yet learned the interpretive canons in a legislation course, but they are highly educated and likely attentive in survey taking.

229. For one article grappling with diverse linguistic communities, see generally Christina Mulligan, Michael Douma, Hans Lind & Brian Quinn, *Founding-Era Translations of the U.S. Constitution*, 31 *Const. Comment.* 1 (2016).

230. See Irvine et al., *supra* note 228, at 322 (demonstrating that for some projects in law and psychology, online convenience sample studies replicate in-person studies).

Participants evaluated twenty-two scenarios designed to test the canons' triggering conditions.²³¹ These were the same twenty-two scenarios presented in the legal context to the lay participants. Each participant received the scenarios in the legal context (concerning laws).²³² The findings are remarkably consistent with those of Study 1.

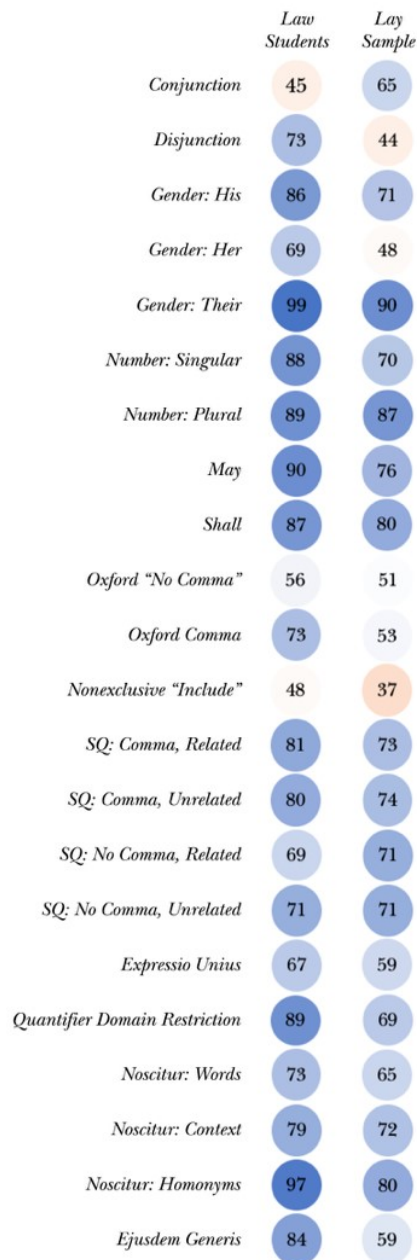
The law student sample implicitly invoked nearly all of the canons that the lay sample implicitly invoked.²³³ In many cases, a greater proportion of the law students invoked the canon's answer. The law student sample also supported some canons whose statuses were more unclear in the lay sample, such as the "gender: hers" canon. Both samples failed to implicitly invoke the rule of the last antecedent, which predicts the opposite of the series-qualifier canon in our series-qualifier cases.

There were five small differences. First, where the lay sample was divided about "gender: hers," the law student sample was more inclined to evaluate "hers" inclusively, in line with the proposed canon. Second, where the lay sample tended to *not* adhere to the presumption of a non-exclusive "include," the law sample was divided (i.e., did not reject it). Third, the law sample accepted *expressio unius*. Fourth, the law and lay samples differed on the conjunctive canon. Finally, the law students were more sensitive to the addition of the Oxford comma.

231. One hundred and thirty-three participants began taking the study. Ten did not proceed far into the study (and entered no demographic information), and one failed the comprehension check question. Following our preregistration, we analyzed results for the remaining 122 students.

232. The full vignettes, questions, hypotheses, and proposed analyses were all preregistered at Open Science (osf.io).

233. The law student sample was 60.7% female, 37.7% male, and 0.8% transgender, while 0.8% of students preferred not to respond. The mean age was 26.5 (Standard Deviation (SD) = 6.1). Nearly all who reported their year of law school were in their first year (98.5%). Regarding political views, 66.9% self-identified as liberal, 15.1% as "middle of the road," and 17.9% as conservative.

FIGURE 4. PERCENTAGE OF LAW STUDENTS (N = 122) AND LAYPEOPLE (N = 1478) INVOKING THE CANONS, IN THE LEGAL CONTEXT²³⁴

C. *General Conclusions From the Experimental Studies*

This section provides some broader insights into the key takeaways of our two studies in a more general and accessible way. We classify each canon roughly by its invocation level. These categorizations are very rough, but we hope that this exercise nevertheless provides more clarity about what one might plausibly conclude from this study.

Table 4 categorizes each canon from “strongly invoked” to “not invoked,” based on the results of Study 1. The table criteria are as follows:

- If both the ordinary and legal context results differed significantly from chance in the predicted direction (i.e., consistently with the canon’s application), the canon is categorized as “strongly invoked.”²³⁵
- If the results in only one context differed significantly from chance in the predicted direction, the canon is categorized as “invoked.”
- If the results in one or more contexts differed significantly from chance in a nonpredicted direction (i.e., inconsistently with the canon’s prediction), the canon is categorized as “not invoked.”
- If multiple of the conditions above are met, or if none is met, the canon is categorized as “unclear.”

Our primary focus in Table 4 is Study 1’s lay sample, a demographically representative sample of U.S. persons. The results from the law students (Study 2) are reflected in the annotations “*” and “–”. If the law student sample invoked a canon at rates greater than chance, a “*” mark appears. If the law students failed to invoke the canon, a “–” mark appears.

234. In Figure 4, “SQ” refers to the series-qualifier and rule of the last antecedent examples. We tested four versions (with or without a comma, with related or unrelated terms in the series).

235. Here we focus on the ordinary and legal context for two reasons. For one, the “null” results were reported with less confidence, and we take those more cautiously. Two, some canons were not possible to present at all in the null context (e.g., *noscitur a sociis*).

TABLE 4. SUMMARY OF CANON IMPLICIT INVOCATION	
<i>Strongly Invoked</i>	<ul style="list-style-type: none"> - Conjunction – - Gender: his * - Gender: their * - Singular includes plural * - Plural includes singular * - May * - Shall * - <i>Noscitur a sociis</i> (words and context) * - <i>Noscitur a sociis</i> (homonyms) * - Series-qualifier *
<i>Invoked</i>	<ul style="list-style-type: none"> - Oxford comma * - <i>Noscitur a sociis</i> (surrounding words) * - <i>Ejusdem generis</i> * - Quantifier domain restriction *
<i>Unclear</i>	<ul style="list-style-type: none"> - Oxford “no comma” - Gender: hers *
<i>Not Invoked</i>	<ul style="list-style-type: none"> - Disjunction * - <i>Expressio unius</i> - Nonexclusive “include” - Rule of the last antecedent

* indicates law student invocation

– indicates law student rejection

no annotation indicates unclear results among law students

The overall pattern of results is notable. Although most ordinary people have not been specifically taught these legal canons—such as *noscitur a sociis* or *ejusdem generis*—their judgments of meaning intuitively reflect these rules.

There are some exceptions. For example, participants’ judgments strongly conflicted with the guidance of the rule of the last antecedent (which makes the opposite prediction from the series-qualifier canon in the cases we tested). For other canons, categorized as “unclear,” the results were less straightforward. For example, lay participants were *very divided* about whether rules about “her” include only women or include men, women, and nonbinary persons. Law student participants, however, largely judged “her” as gender inclusive.

Before turning to the next Part, we address some possible objections to our study. One (inevitable) limitation of our design is the finite number of examples for each canon. For example, we include four hypothetical variations designed to assess the series-qualifier and last antecedent canons (across multiple “contexts”), resulting in ten questions. For other canons (like *ejusdem generis*) we only have two examples. One possible objection is that our conclusions about a “canon” would be more convincing if we tested five, or twenty, or one hundred examples. We agree. Our confidence in our conclusions would increase upon evidence that the results extend to additional examples, and our confidence would decrease upon evidence to the contrary. In other words, we see this objection as broadly in agreement with our view about the debate: The future of legal inquiry into “ordinary meaning” should continue to rely on empirical evidence. Our project is a first step in this new direction; we claim to contribute to these debates, not to definitively resolve them.

There is a stronger possible version of this objection, which is that our studies are so small that one should not take the results to have *any* significance. With this we disagree. We recognize the (inevitable) issue raised by testing a finite number of examples for each canon. But this, we contend, does not render the study “meaningless.” We tested a large number of canons, with a large number of participants, with both layperson and law student samples, in three different modes of presentation (contexts).²³⁶

In particular, the variance in the modes of presentation supports our claims. For example, in the ordinary and legal contexts, the question testing the “plural-includes-singular” canon involves rockets. Perhaps there is something special about sentences involving rockets that drives our results. The null context helps address this worry by replacing such potentially influential terms (e.g., rockets) with nonce terms:

Imagine that there is a rule. Part of that rule states that “It is prohibited for any person to *jiman patols*.” Does this part of the rule mean:

- It is prohibited for any person to *jiman* two or more *patols*.
- It is prohibited for any person to *jiman* one or more *patols*.
[endorsing]

We hope the null context findings reinforce confidence that the results are not the product of irrelevant or unimportant features of the ordinary or legal examples (e.g., something special about firing rockets).

A second worry is that some results may appear “obvious.” We do not find all of our results obvious; the study helps inform contentious debates about conflicting canons (rule of the last antecedent versus series-qualifier) and also provides evidence of entirely new canons. More broadly, although some may have claimed or *hypothesized* that certain canons reflect ordinary meaning, we see our study as providing *evidence* about

236. See *supra* Figures 1 and 2.

those claims. To those who claim that a certain canon is “obviously” a reflection of ordinary meaning, we offer our study as evidence upon which they can now rely.

Our study is the first in the legal literature to use experimental methods to assess these legal questions about ordinary meaning. To be sure, there is highly relevant work in experimental psycholinguistics, semantics, and philosophy of language.²³⁷ We believe ordinary meaning theories of legal interpretation should look to empirical evidence from these fields.²³⁸ This study, however, is designed with specific legal questions in mind. We see it as offering particularly useful and novel evidence to legal debates. General experimental linguistic studies do not usually consider differences between ordinary and legal cognition. Here we focus directly on that possibility. Moreover, although some extant linguistic studies provide insight into how legal interpretive canons might apply, our study takes a step forward by articulating and testing legal canons’ precise triggering conditions.

The way in which we understand the relationship between our experimental study and existing work in theoretical linguistics (and legal theory) can be illustrated by an analogy to linguistics. Before the rise of experimental linguistics, theoretical linguists made a number of empirical claims about language. As one example, theoretical linguistics often claimed that certain sentences were “acceptable,” while others were not.²³⁹ These were typically offered as “intuitions,” assumed to be shared across (all) people within a linguistic community, but often tested informally among just a handful of colleagues.²⁴⁰ A seminal experimental study set out to test whether those claims actually reflected how people understood

237. See generally Michael Devitt, *Whither Experimental Semantics?*, 27 *Theoria* 5 (2012) (proposing a methodology to better use experiments to test linguistic usage); Teenie Matlock & Bodo Winter, *Experimental Semantics*, in *The Oxford Handbook of Linguistic Analysis* 771 (Bernd Heine & Heiko Narrog eds., 2d ed. 2015) (providing an overview of experimental semantics and discussing multiple methods and studies in this field). As one example, consider research in experimental linguistics on recency and attachment. See, e.g., Edward Gibson, Neal Pearlmutter, Enriqueta Canseco-Gonzalez & Gregory Hickok, *Recency Preference in the Human Sentence Processing Mechanism*, 59 *Cognition* 23 (1996) [hereinafter Gibson et al., *Recency Preference*]. Research suggests that laypeople (often) prefer recent attachment. For example, consider the sentence “John said Bill died yesterday.” People attach “yesterday” to “died” (the more recently processed phrase), rather than to “said.” Edward Gibson, Neal J. Pearlmutter & Vicenc Torrens, *Recency and Lexical Preferences in Spanish*, 27 *Memory & Cognition* 603, 603 (1999). There are, however, other notable exceptions to recency preference. Gibson et al., *Recency Preference*, supra, at 41–42 (suggesting “Predicate Proximity” as an alternate factor in human sentence processing).

238. See *infra* Part IV.

239. See, e.g., Jon Sprouse, *A Validation of Amazon Mechanical Turk for the Collection of Acceptability Judgments in Linguistic Theory*, 43 *Behav. Rsch. Methods* 155, 155 (2011).

240. See, e.g., *id.*; see also *Acceptability in Language* (Sidney Greenbaum ed., 1977).

language.²⁴¹ Researchers conducted a large experiment, asking laypeople to assess a random sample of acceptability cases taken from judgments made by theorists in an influential journal of linguistic theory. As it happens, the experimental results overwhelmingly confirmed the theorists' intuitive assumptions.²⁴²

We see our experimental study similarly. We are building on tremendously important linguistic and legal scholarship related to law's interpretive canons.²⁴³ Our study might have supported that some canons reflect ordinary meaning—or not. The key point is that, *whatever our study found*, we now have empirical data to assess prior claims. As Part IV discusses, this experimental approach does not close the door on more theoretical work. To the contrary, it invites it.²⁴⁴ Of course, thoughtful readers might still worry that there are other idiosyncratic elements of our vignettes (shared by even the null context version) and that these features explain our results. For example, perhaps ordinary people intuitively judge that the plural includes the singular only in prohibitory rules but not in permissive rules. We welcome those empirically testable hypotheses. It is impossible to assess every such hypothesis in this Essay, but we hope and expect that further empirical research will help refine the triggering conditions of canons, as well as the circumstances of their application and cancellation.

IV. RETHINKING ORDINARY MEANING AND INTERPRETIVE CANONS

Textual canons are often assumed to reflect ordinary meaning, but whether they do is an empirical question. Thus far, we have developed a theory and framework for empirically testing legal interpretive canons and conducted the first experimental study of whether ordinary people implicitly invoke canons.²⁴⁵ Parts II and III elaborate on the experiments' implications for the canons. The evidence suggests that ordinary people interpret rules consistently with many longstanding canons but inconsistently with others. The results also reveal that people interpret rules in line with two new canons.²⁴⁶ This evidence is crucial to interpretive theories (e.g., textualism) that justify interpretive canons as reflections of ordinary meaning. Beyond relying on tradition, interpreters can now look to actual

241. See Jon Sprouse, Carson T. Shütze & Diogo Almeida, A Comparison of Informal and Formal Acceptability Judgments Using a Random Sample From *Linguistic Inquiry* 2001–2010, 134 *Lingua* 219, 219–20 (2013).

242. See *id.* at 236.

243. See, e.g., Eskridge, *Interpreting Law*, *supra* note 3; Scalia & Garner, *supra* note 3; Slocum, *Ordinary Meaning*, *supra* note 3; Solan, *supra* note 3.

244. See *infra* Part IV.

245. More specifically, we tested whether ordinary people implicitly invoke the canons in accordance with the circumstances that trigger their applicability. See *supra* Parts I–III.

246. These are canons that have never before been acknowledged as canons, but that equally guide ordinary interpretation of rules. See *supra* Part II.

evidence about the canons. We see our results as providing some crucial data to that project but recognize that future empirical work may consider other canons or variations on our research questions. Here, we consider our findings as a springboard for a future research plan.

This Part turns to the broader implications of our empirical work, concerning more fundamental issues of legal interpretation. The broadest implication concerns the ordinary meaning doctrine itself.²⁴⁷ Courts tend to treat ordinary meaning as a question about *nonlegal ordinary language*, but some critics view the doctrine as wholly inaccurate: Statutes contain *legal language*, not ordinary language. Our empirical findings suggest that this debate may need to be refocused. Our findings are consistent with the idea that ordinary people understand many types of ordinary and legal rules similarly. This finding suggests a different way forward. Theorists should consider whether the ordinary meaning doctrine should focus not on the meaning of “ordinary language” or “legal language,” but rather on the meaning of language within *rules*.

A second broad implication builds on this reconceptualization of ordinary meaning.²⁴⁸ Some scholars have suggested that the interpretive canons generally function to narrow meaning, leading to jurisprudentially conservative results.²⁴⁹ Our results point toward a different unifying aspect of linguistic canons. We find that across a range of cases, people interpret rules with an intuitive *anti-literalism*: Singular terms also include plurals, masculine pronouns also include feminine ones, the literal meanings of terms are restricted by the surrounding words and context, quantifiers like “any” are understood with a restricted scope, and so on. Anti-literalism does not always lead to narrower interpretations. This is a particularly significant finding, given that in recent Terms, Supreme Court Justices have taken to jousting with each other, indicting certain forms of textualism as false “literalism.”²⁵⁰

Finally, building on these insights, we propose a new empirical research agenda at the intersection of law and language.²⁵¹ A key feature of this agenda is *dynamism*. Insofar as ordinary meaning provides reasons to apply an interpretive canon, the set of interpretive canons should be understood as *dynamic* rather than static. Canons are most often identified

247. See *infra* section IV.A.

248. See *infra* section IV.B.

249. See *infra* notes 309–310 and accompanying text (describing David Shapiro’s theory of the canons).

250. See, e.g., *Niz-Chavez v. Garland*, 141 S. Ct. 1474, 1491–92 (2021) (Kavanaugh, J., dissenting) (chiding the majority for relying on the literal meaning of the word “a”); *Bostock v. Clayton County*, 140 S. Ct. 1731, 1824–25 (2020) (Kavanaugh, J., dissenting) (declining to apply the majority’s “literalist” reading).

251. See *infra* section IV.C.

simply by tradition.²⁵² This Essay is the first to contemplate and demonstrate the possibility of discovering further canons via ordinary meaning. We discover two—the “nonbinary gender canon” and the “quantifier domain restriction canon.” But we see this as just the start of a much larger research program. Our experiments raise other questions for future work, including whether all ordinary people understand rules in precisely the same way, and how the canons—once triggered—are intuitively applied and cancelled.

The arguments in this Part can all be seen not only as refinements to ordinary meaning theory but also as challenges to certain common textualist beliefs or practices. Insofar as ordinary meaning is justified by rule of law values (e.g., publicity, fair notice), our results support the conclusion that interpreters should be much more attentive to context. This includes the “rule-like” contextual features of language implicated in legal interpretive disputes. Moreover, interpreters should recognize and grapple with the intuitive anti-literalism that characterizes ordinary people’s understanding of rules. Finally, interpreters should acknowledge that ordinary meaning canons are an open set; not all of the relevant ordinary linguistic practices have been identified by judicial intuition or legal tradition. If textualist theory is committed to an accurate understanding of language and ordinary meaning, it must not ignore empirical realities about how ordinary people understand language.²⁵³

A common thread runs through this Part’s arguments: As legal interpreters increasingly rely on ordinary meaning, they should do so not merely by intuition or tradition but with reference to actual facts about how people understand language. As Parts II and III illustrate, empirical studies can help uncover which canons are actually supported by ordinary meaning. As this Part demonstrates, empirical study can also help make progress on longstanding debates about deeper and more fundamental questions in interpretation theory.

252. Cf. Antonin Scalia, *Assorted Canards of Contemporary Legal Analysis*, 40 *Case W. Resv. L. Rev.* 581, 583 (1990) (“Once [canons] have been long indulged, they acquire a sort of prescriptive validity, since the legislature presumably has them in mind when it chooses its language—as would be the case, for example, if the Supreme Court were to announce . . . that ‘is’ shall be interpreted to mean ‘is not.’”). For the seminal works in dynamic interpretation, see William N. Eskridge, Jr., *Dynamic Statutory Interpretation* (1994); William N. Eskridge, Jr., *Dynamic Statutory Interpretation*, 135 *U. Pa. L. Rev.* 1479 (1987). We see our study of the canons as complementary to such a dynamic approach, clarifying a way in which the generalizations explaining ordinary people’s understanding of legal rules may evolve over time.

253. Currently, there is a debate within textualism about whether “flexible textualism” or “formalistic textualism” is superior. See Grove, *supra* note 13, at 266–67. While it is not entirely clear which one, if either, would treat empirical evidence about ordinary meaning seriously, an ordinary meaning doctrine that emphasizes consideration of context and nonliteral meanings would challenge both.

A. *Reframing Ordinary Meaning: The Meaning of Rules*

First, our results suggest a reorientation of the ordinary meaning doctrine as one focused on the ordinary interpretation of *rules*, as opposed to one focused on nonlegal language more generally. Courts have long accepted that “ordinary meaning” stands for the proposition that legal and nonlegal language coincides.²⁵⁴ But some prominent critics have argued that the doctrine is a pernicious fiction. These critics argue that “ordinary meaning” is a misnomer and should be described as something like the “ordinary *legal* meaning” concept.²⁵⁵ Relatedly, critics such as Richard Fallon reject the “premise that statutes have linguistic meanings that we can reliably ascertain in roughly the same way we determine the meaning of utterances in ordinary conversation.”²⁵⁶ Courts could solve the problem by not focusing on determining linguistic meaning,²⁵⁷ or they could seek to determine, in a very general sense, how ordinary people want statutes to be interpreted.²⁵⁸

The debate about the meaning of ordinary meaning has thus been dichotomous: (1) legal and nonlegal language correspond versus (2) “ordinary meaning” is a fiction that needs correction. Critics are right that nonlegal language is distinct in important ways from statutory texts. The lexical and structural features that make statutory language different from nonlegal language have been well documented.²⁵⁹ The notion that statutes

254. See Brian G. Slocum, *The Ordinary Meaning Doctrine and the Problem of Actual Intentionalism*, in *Problems of Normativity, Rules and Rule-Following* 295, 296 (Michael Araszkiewicz, Paweł Banaś, Tomasz Gizbert-Studnicki & Krzysztof Pleszka eds., 2015) (“[A]bsent some reason for deviation, such as words with technical or special legal meanings, the language used in legal texts should be viewed as corresponding with that used in non-legal communications.” (citation omitted)).

255. See David A. Strauss, *Why Plain Meaning?*, 72 *Notre Dame L. Rev.* 1565, 1568 (1997) (“Terms like ‘witness,’ ‘zoning,’ and even ‘speed limit,’ when used in a legal context, can mean something quite different from what they might mean when used in other contexts.”); see also John O. McGinnis & Michael B. Rappaport, *The Constitution and the Language of the Law*, 59 *Wm. & Mary L. Rev.* 1321, 1325 (2017) (arguing that the Constitution is written in a distinctive legal language).

256. Richard H. Fallon, Jr., *The Statutory Interpretation Muddle*, 114 *Nw. U. L. Rev.* 269, 271 (2019) [hereinafter Fallon, *Statutory Interpretation Muddle*]; see also Paul E. McGreal, *Slighting Context: On the Illogic of Ordinary Speech in Statutory Interpretation*, 52 *U. Kan. L. Rev.* 325, 327–28 (2004) (arguing that “ordinary conversation is a poor model for understanding statutes”).

257. See Fallon, *Statutory Interpretation Muddle*, *supra* note 256, at 282 (“[J]udges’ guiding aspiration should be to resolve cases in the most morally and politically legitimate way.”).

258. See William D. Popkin, *Statutes in Court: The History and Theory of Statutory Interpretation* 181 (1999) (“The proper question to ask, if we are to insist on a link to ordinary language usage, is *not* what do words ordinarily mean, but how would ordinary people want language to be interpreted in specialized settings?”).

259. See, e.g., David Mellinkoff, *The Language of the Law* 11–17 (1963) (describing how legal texts often use Latin words and phrases, terms of art, and Old French and Anglo-

constitute an entirely *sui generis* form of communication, though, is mistaken. In fact, the interpretation of statutes may be similar in important ways to the interpretation of rules generally. Our experiments suggest that, at least with respect to the application of canons, ordinary people evaluate legal rules and ordinary rules in strikingly similar ways, and that this may differ from how ordinary people understand language in other nonrule contexts. These findings suggest that the ordinary meaning doctrine should not be construed as one concerned with “ordinary language” or “legal language” generally; instead, the doctrine should focus on ordinary understanding of the language of *rules*.

1. *Empirical Research and the Significance of Rules.* — Consider the ordinary meaning issue within the context of empirical research. When we set out to design this Essay’s experiments, we were immediately confronted with a hard question. When studying “ordinary meaning,” should the study’s participants be told to evaluate “a law,” or should they instead be asked to interpret ordinary language, such as language about an ordinary “rule”? We chose to do both. In our legal condition, participants were presented with language from “a law.”²⁶⁰ Our ordinary condition took the opposite approach, providing participants with a company’s rule.²⁶¹ The position that legal language is *sui generis* would assume that there would be little commonality between these modes of presentation. Legal language certainly differs from ordinary language. Our experimental study, however, suggests that this distinction may not always be so significant. Although there were some minor differences between the “legal” and “ordinary” rule results, overall, they were extremely similar.²⁶²

The empirical evidence suggests that some words are generalized when they appear within rules.²⁶³ Consider some of the canons that were strongly supported across all three contexts (ordinary, legal, and null), such as the nonbinary gender canon. Participants were inclined to judge that “[w]hoever files his form” refers to “[a]ny person who files” in a rule. But that canon may not reflect how “his” is generally understood. In many—perhaps most—contexts, “his” is understood to refer to a man, not a person of any gender:

- A. Who is your father, and what is his birthday?
- B. His singing wasn’t very good.
- C. His car is over there.

This contrast between rules and nonrule contexts clarifies a deeper implication about the gender canon and when it is triggered. The gender

Norman words); Tiersma, *Myths*, *supra* note 21, at 44–45 (describing the unique linguistic features of legal language).

260. See *supra* Part II.

261. See *supra* Part II.

262. See *supra* Part II.

263. As the next section argues, the same canons also support nonliteral interpretations.

canon applies to *legal rules*—and, as the experiment reveals, also to ordinary rules. But it does not apply to “ordinary language” as a general matter.²⁶⁴ The presence of the trigger (a term like “his”) does not imply that there is a general gender-inclusive ordinary meaning.²⁶⁵ In examples A, B, and C above, ordinary people would not intuitively apply the canon. There is something special about meaning within the context of *rules*.

One might think that this provides support for critics of ordinary meaning. Perhaps the study shows that it is *legal language*, not ordinary language, that is relevant in interpretation. But consider that the gender canon does not apply to “legal language,” understood broadly. There are many legal propositions that seemingly involve the trigger (e.g., “his”) but do not reflect a gender-inclusive meaning. Imagine this statement from a defense attorney to his client:

D. The prosecutor is tough; don’t be rattled by his hard questioning.

Or a witness on the stand:

E. I couldn’t see exactly who it was, but I did see his gun.

The canon would be triggered in most legal texts. But we propose that this is because those texts contain *rules*, not because they contain legal language. Suppose (E) was written as a response to an interrogatory. The gender canon still does not apply, even if the writing is language that should be understood as “legal.”

The same insight about the generalization of some terms in the context of rules applies to other canons. For example, consider the number canon, which provides that the singular includes the plural (and vice versa).²⁶⁶ We found evidence that ordinary people intuitively apply that canon within the context of legal rules.²⁶⁷ But it is not obvious that the singular includes the plural as a *general* matter, in either “ordinary language” or “legal language.” When someone describes “a rocket” or “a law,” the person most often would be understood as describing just one rocket or law. Like the gender canon, the number canon operates within the context of rules, but it may not be applicable in many nonrule contexts.

2. *The Ordinary Meaning of Rules.* — Our results thus suggest that something is missing from the modern debate about ordinary meaning. That

264. Consider rules arising in nonlegal contexts, such as interpretation of the Bible. Perhaps here, too, most would understand rules nonliterally and gender-inclusively. For example, prohibitions against desiring a “neighbor’s wife” or “his field” might be most commonly understood as ones against desiring a neighbor’s partner and against desiring his, her, or their field.

265. See Kevin Tobia, *The Corpus and the Courts*, U. Chi. L. Rev. Online *1, *15–16 (2021) [hereinafter Tobia, *The Corpus and the Courts*].

266. See Scalia & Garner, *supra* note 3, at 130.

267. See *supra* Part II.

missing piece is a focus on rules. Within the context of rules, there may be significant similarities between ordinary and legal language that are not replicated in other contexts. So beyond debating whether legal texts contain “ordinary” or “legal” language, progress might be made by contemplating the nature of language within rules. Interpreters invested in discovering how ordinary people understand law should therefore consider focusing on ordinary cognition of *rules* (legal or ordinary). Some experimentalists have begun to take this approach, using empirical methods to study how ordinary people understand rules.²⁶⁸ We hope that our project helps initiate a larger new empirical research program in interpretation, one that studies the nature of legal rules.

We do not here offer a full theory of the “ordinary meaning of rules.” Nevertheless, a few aspects of such a focus are worth highlighting. First, (some) legal language canons, such as the gender and number canons, are triggered even in some nonlegal contexts. The possibility that interpretive canons identified by courts to address legal interpretation might also apply more generally is sometimes overlooked. Second, while some interpretive principles may apply specially in the context of rules, many other nonrule language conventions may still apply. We suspect the interpretation of legal texts is not *sui generis*, and neither is the interpretation of rules.²⁶⁹ Third, and perhaps most importantly, some principles that apply within the context of the interpretation of rules may not apply generally. Our theory calls attention to the ordinary cognition of rules; perhaps there are some interpretive practices that equally guide ordinary understanding of rules that courts have not yet recognized.²⁷⁰

This third point may help scholars focus on what is or is not unique about the interpretation of legal texts. For instance, some interpretive canons when applied result in a narrowing of statutory meaning.²⁷¹ This narrowing, but not broadening, of meaning based on interpretive conventions and context is consistent with a general theory of how language works. As the linguist Jason Stanley explains, “If context could affect the interpretation of words in such a manner that” would render them inconsistent “with their context-independent meaning, that would threaten the systematic nature of interpretation.”²⁷² Thus, “extra-linguistic context” is “never called upon to *expand*” the meaning of a term.²⁷³ Yet the interpretation of rules may present a special kind of context. As we have seen

268. See Noel Struchiner, Ivar R. Hannikainen & Guilherme da F.C.F. de Almeida, *An Experimental Guide to Vehicles in the Park*, 15 *Judgment & Decision Making* 312, 315–27 (2020); Tobia, *Testing Ordinary Meaning*, *supra* note 13, at app.

269. For an illustration of this point in the context of nonliteral interpretations, see *infra* section IV.B.

270. See *infra* section IV.C.

271. See *supra* section I.C (describing Category Two canons).

272. Jason Stanley, *Language in Context: Selected Essays* 18 (2007).

273. *Id.*

with the gender and number canons, the special context of rules may cause ordinary people to broaden the meanings of some words.

A focus on the uniqueness of rules adds a critical new dimension to the longstanding debate about the meaning of ordinary meaning and its coherence as a doctrine of statutory interpretation. Critics claim that the interpretation of statutes is distinct from interpretation in ordinary conversation, but whether that assertion is true should not determine the validity of the ordinary meaning doctrine. Rather, the question should be whether statutes contain rules that “we can reliably ascertain in roughly the same way we determine the meanings” of rules in nonlegal situations.²⁷⁴ If so, the linguistic principles and conventions relevant to how ordinary people interpret nonlegal rules should be at least relevant to the interpretation of statutes. In further work, we hope to identify the “rule-specific” interpretive principles that ordinary readers deploy. Identifying these interpretive principles may be essential to accurately assessing the ordinary meanings of statutes.

B. *The Interpretive Canons’ Anti-Literalism*

Our second broader conclusion concerns the theory of interpretive canons. The empirical results suggest that many canons represent an intuitive *anti-literalism*. Basic concepts of linguistics provide that the interpretation of communications requires consideration of context, which often supports nonliteral meanings.²⁷⁵ The empirical results suggest the same is true for statutory interpretation. Broadly speaking, an empirically grounded ordinary meaning doctrine would differ in important respects from a purely literal approach to interpretation. That is, ordinary meaning sometimes mandates nonliteral statutory interpretations. This important insight should influence how textualists develop their stated commitment to nonliteralist interpretation. More broadly, we propose anti-literalism as a new unifying theory of many of the canons and suggest that future canons are likely to share this fundamental feature.

1. *Current Debates About Literalism in Statutory Interpretation.* — The literalism debate in statutory interpretation was sharpened by the Supreme Court’s recent decision in *Bostock v. Clayton County*, where the Court held that Title VII protects lesbians, gay men, transgender persons, and other sex and gender minorities against workplace discrimination.²⁷⁶ Apart from the landmark civil rights achievement for LGBTQ persons, the decision made waves within legal theory for its dueling textualist opinions that came

274. Fallon, *Statutory Interpretation Muddle*, *supra* note 256, at 278–79. Fallon’s argument about ordinary meaning is an overstatement even without focusing on the interpretation of rules rather than ordinary speech, but developing an effective rebuttal is beyond the scope of this Essay.

275. See Récanati, *supra* note 86, at 5–10.

276. 140 S. Ct. 1731, 1737 (2020).

to radically different conclusions about how Title VII should be interpreted.²⁷⁷ The opinions were unified in their commitment to “ordinary” meaning—and in their opposition to “literalism.”

As Justice Neil Gorsuch put it: “[W]e must be attuned to the possibility that a statutory phrase ordinarily bears a different meaning than the terms do when viewed individually or literally.”²⁷⁸ Justice Brett Kavanaugh agreed: “[C]ourts must follow ordinary meaning, not literal meaning. And courts must adhere to the ordinary meaning of phrases, not just the meaning of the words in a phrase.”²⁷⁹ Yet, the two (self-proclaimed) anti-literalist Justices came to conflicting verdicts about what ordinary meaning and nonliteralism entailed. Scholars have proposed thoughtful analyses of the *Bostock* opinions but have not offered theories of what the decision means for textualism as it relates to nonliteral interpretation.²⁸⁰

Most textualists agree with Justice Kavanaugh’s basic claim: Textualism is not literalism.²⁸¹ Yet, nonliteralism is undertheorized. This section explores a new suggestion to resolve some of the dispute: Textualists should embrace empirically grounded ordinary meaning canons, which often support nonliteral interpretations. This should be seen as a friendly suggestion to textualism. Many textualists articulate normative justifications for the ordinary meaning doctrine—such as fair notice, reliance, and democratic values—that are tied to facts about how ordinary people actually understand language.²⁸² Textualists have further suggested that a commitment to ordinary people can extend to anti-literalism in interpretation. Ordinary people do not understand legal texts in simplistic, literal terms. As Justice Kavanaugh puts it:

A literalist approach to interpreting phrases disrespects ordinary meaning and deprives the citizenry of fair notice of what the law is For phrases as well as terms, the linchpin of statutory interpretation is *ordinary meaning*, for that is going to be most accessible to the citizenry desirous of following the law Bottom line: Statutory Interpretation 101 instructs courts to follow ordinary meaning, not literal meaning.²⁸³

277. See Eskridge et al., *The Meaning of Sex*, supra note 5, at 1519–22.

278. *Bostock*, 140 S. Ct. at 1750.

279. *Id.* at 1825 (Kavanaugh, J., dissenting).

280. See, e.g., Anuj C. Desai, *Text Is Not Enough*, 93 U. Colo. L. Rev. (forthcoming 2021) (manuscript at 2–3) (arguing that *Bostock* had nothing to do with textualism); Grove, supra note 13; Macleod, *Finding Original Public Meaning*, supra note 13; Tobia & Mikhail, supra note 13, at 5–15.

281. See, e.g., Solum, *Communicative Content*, supra note 86, at 487.

282. See, e.g., *Bostock*, 140 S. Ct. at 1828 (Kavanaugh, J., dissenting).

283. *Id.* at 1828 (Kavanaugh, J., dissenting) (citing Eskridge, *Interpreting Law*, supra note 3, at 81; Scalia & Garner, supra note 3, at 17).

A key question remains virtually unanswered: What makes interpretation problematically literalist?²⁸⁴ In other words, if textualism seeks to interpret texts in line with their *actual* ordinary meanings—closely connected to facts about how ordinary people actually understand language—how should such nonliteralist interpretation proceed? A starting point, and one about which textualists agree, concerns the importance of statutory context. As Justice Kavanaugh argued:

In the words of Learned Hand: ‘a sterile literalism . . . loses sight of the forest for the trees.’ The full body of a text contains implications that can alter the literal meaning of individual words. . . . Put another way, “the meaning of a sentence may be more than that of the separate words, as a melody is more than the notes.”²⁸⁵

The reference to the “full body of a text” reflects a key aspect of nonliteralism. In an important article, Fallon lists six different types of “legal meaning,” including “semantic or literal meaning” and “contextual meaning as framed by the shared presuppositions of speakers and listeners, including shared presuppositions about application and nonapplication.”²⁸⁶ Call this latter option “contextual meaning” for shorthand. Our empirical study can be seen as providing evidence about how the contextual meanings of (legal) rules differs from their literal meanings.

A full theory of nonliteral interpretation is beyond the scope of this Essay, but we argue that any such theory should be based, at least in part, on empirical realities and the interpretive canons that reflect those realities. Although (at least some) textualists purport to embrace nonliteralism, doing so may change current textualist interpretive practices. While textualists now of course emphasize the importance of context,²⁸⁷

284. Justice Kavanaugh’s dissent in *Bostock* emphasized several anti-literalist themes and mentioned a few canons, including the rule against surplusage, see *id.* at 1830, and the absurdity doctrine, see *id.* at 1827 n.4, but did not offer a theory of how canons often counsel in favor of nonliteral interpretations. Furthermore, some of his themes were ill-conceived, such as viewing the choice between ordinary meaning and scientific meaning as a question of literalism. See *id.* at 1825 (discussing *Nix v. Hedden*, 149 U.S. 304 (1893)). In addition, one of Justice Kavanaugh’s arguments, made using the meaning of “vehicle,” was that dictionary definitions are often too broad to constitute ordinary meaning (which is true), but he did not connect the observation to the debate between literal and ordinary meaning. See *id.* at 1825. Justice Kavanaugh asserted that the meaning of “vehicle” “would literally encompass a baby stroller” but the ordinary meaning of “vehicle” in the context of a no-vehicles-in-the-park statute would not. See *id.* Justice Kavanaugh though did not explain how he (or any other judge) knows either assertion to be true and did not point to any interpretive canon that would support such an interpretation.

285. *Id.* (first quoting Scalia & Garner, *supra* note 33, at 356 (footnote omitted) (internal quotation marks omitted); and then quoting *Helvering v. Gregory*, 69 F.2d 809, 810–11 (2d Cir. 1934) (Hand, J.)).

286. Richard H. Fallon Jr., The Meaning of Legal “Meaning” and Its Implications for Theories of Legal Interpretation, 82 U. Chi. L. Rev. 1235, 1244–51 (2015).

287. See, e.g., John F. Manning, What Divides Textualists From Purposivists?, 106 Colum. L. Rev. 70, 79 (2006) [hereinafter Manning, What Divides Textualists From

they also often emphasize the importance of the semantic meaning of statutes.²⁸⁸ Correlatively, the judicial use of dictionaries has increased dramatically along with the ascendancy of textualism.²⁸⁹

An exclusive reliance on literal meaning is in tension with empirical findings about ordinary meaning. Recent empirical research has suggested that ordinary people rely on both literal text *and* purpose in interpreting laws.²⁹⁰ For example, a 2020 empirical study examined ordinary people's understanding of the term "vehicle" by asking one group of people questions like "Is a bicycle a vehicle?"²⁹¹ Another group evaluated whether a rule prohibiting "vehicles from the park" prohibited certain entities (like bicycles).²⁹² Although most from the first group were inclined to categorize bicycles as vehicles, most from the second group did not see bicycles as "vehicles" prohibited by the rule.²⁹³ What explains the divergence between these two groups? One possibility is that people are generally inclined to understand and construe language more narrowly when it is in legal rules. Perhaps there is a sense in which a bicycle is not really a vehicle, and people understand "vehicle" to take this more narrow sense in law. Another possibility is that the apparent purpose of a law, suggested or assumed from the legal rule's language, informs ordinary understanding of the rule's meaning. A rule prohibiting "vehicles from the park" does not prohibit *literally* all vehicles, and the presumed purpose of the rule does not prohibit a bicycle (even though it may be a vehicle).

Purposivists?] ("Modern textualists . . . assert that language is intelligible only by virtue of a community's shared conventions for understanding words in context."); Scalia & Garner, *supra* note 3, at 33 (pointing out the importance of context—which includes textual purpose, a word's historical associations, and a word's immediate syntactic setting—in the ability to fairly read text). Textualists may emphasize the importance of context, but the perception of textualism is of a methodology committed to literalist interpretation. See William D. Popkin, *A Dictionary of Statutory Interpretation* 194 (2007) ("'Literalism' is often used as a synonym for 'textualism.'").

288. See Grove, *supra* note 13, at 269 ("Formalistic textualism emphasizes semantic context . . ."); Jeremy K. Kessler & David E. Pozen, *Working Themselves Impure: A Life Cycle Theory of Legal Theories*, 83 U. Chi. L. Rev. 1819, 1849 (2016) (arguing that textualists "focus on the semantic structure of statutory texts rather than the policy debates surrounding their passage"); Manning, *What Divides Textualists From Purposivists?*, *supra* note 287, at 76 (arguing that "[t]extualists give precedence to semantic context").

289. See, e.g., Brudney & Baum, *supra* note 19 (describing the Court's increasing reliance on dictionaries).

290. See Struchiner et al., *supra* note 268, at 315–27 (presenting evidence that text and purpose affect ordinary interpretation); see also Tobia, *Testing Ordinary Meaning*, *supra* note 13, at app. (presenting evidence consistent with purpose affecting ordinary interpretation); Klapper et al., *supra* note 54, at 24–41 (presenting evidence that text and purpose affect ordinary interpretation).

291. See Tobia, *Testing Ordinary Meaning*, *supra* note 13, 753–56.

292. *Id.* app. at 2–5.

293. *Id.* at 756–57; *id.* app. at 4.

The 2020 study provides evidence more consistent with the importance of purpose to ordinary people. A third group of participants evaluated a rule with an *arbitrary* purpose: All vehicles can display a blue sticker, but everything that is not a vehicle cannot display a blue sticker.²⁹⁴ Participants' judgments about what counts as a vehicle were strikingly similar to those of the *first* group—the group evaluating just the term “vehicle.”²⁹⁵ In other words, there is something about the addition of “from the park” in the second group that seems especially important in explaining the divergence between the first two groups. And a rule with an *arbitrary* purpose (one unhelpful if purpose were relevant to ordinary interpretation) had no effect.²⁹⁶ Subsequent studies have provided more direct evidence, directly manipulating the stated purpose of rules and finding that the manipulated purpose affects ordinary understanding of the language.²⁹⁷

Our findings complement these recent results, indicating that ordinary people sometimes reject the semantic (or dictionary) meanings of words, often in favor of narrower meanings and sometimes in favor of broader meanings. Our study highlights the important role of context in determining ordinary meaning. Given the empirical findings about purpose's impact on ordinary meaning, it is likely that purpose plays an important role in the ordinary application of contextual canons.

For example, consider two possible statutes:

- (1) No cars, motorcycles, or other vehicles are permitted in the park.
- (2) No bicycles, scooters, or other vehicles are permitted in the park.

Our results suggest that in (1) and (2), ordinary people would understand “other vehicles” to refer to some subset of vehicles. Neither rule is understood to mean that *literally* every vehicle is prohibited from the park. Perhaps, for example, baby strollers are permitted under both rules.

Remember, however, that the *triggering* of a contextual restriction, consistent with *ejusdem generis*, is only step one in an ordinary meaning interpretation.²⁹⁸ It is merely the threshold determination that the canon applies. An interpreter committed to ordinary meaning must then determine *how* the canon is applied, in context. Based on the language of the provisions, perhaps a skateboard is understood to be *prohibited* under rule (2) but *permitted* under rule (1). Such a view could reflect ordinary people's “pure” comparison of the examples listed: A skateboard is similar to

294. See *id.* app. at 6–8.

295. See *id.* at 757; app. at 7.

296. See *id.* app. at 7.

297. See Struchiner et al., *supra* note 268, at 325 (arguing that text and purpose affect ordinary interpretation); see also Klapper et al., *supra* note 54, at 49 (same).

298. See *supra* notes 68–72 and accompanying text (distinguishing the triggering of *ejusdem generis* with its application).

bicycles or scooters but not to cars and motorcycles. Yet, the perceived purpose of the rule may also be influential. Often, that perceived purpose reinforces an initial determination based only on language. Thus, perhaps the (most) plausible purposes of a rule prohibiting cars and motorcycles from the park does not extend to skateboards, but the (most) plausible purposes of a rule prohibiting bicycles and scooters would. Alternatively, some feature of the park or purpose of the prohibition might indicate that skateboards should be prohibited under both rules.²⁹⁹ Given extant empirical evidence on the role of purpose in people's judgments of meaning,³⁰⁰ the possibility of perceived purpose influencing application of the canon seems especially worthy of further exploration.

2. *Interpretive Canons That Create Nonliteral Meanings.* — Some existing textual canons already reflect a nonliteralist approach to interpretation, although scholars have not characterized them in such a manner. The most obvious example is *ejusdem generis*.³⁰¹ The very function of the *ejusdem generis* canon is to reject the literal meaning of the words in a catchall in favor of some narrower meaning. Thus, when “other vehicles” follows a list of specific examples, the phrase may include only some subset of the things commonly included within the category “vehicle,” such as only vehicles that have engines.³⁰² The *noscitur a sociis* canon often serves the same function. The *noscitur* canon can be used to select between competing definitions, as our “bank” question illustrates,³⁰³ but, similar to the *ejusdem generis* canon, it is also often used to select some subset of a term's literal meaning. Thus, in *Yates v. United States*, the Court considered the *noscitur* canon to be relevant to selecting some subset of the literal meaning of “tangible object.”³⁰⁴ Even the rule against surplusage, which we did not assess in our empirical study, often points to a nonliteral interpretation.³⁰⁵

Other canons expand literal meaning in more subtle ways. For instance, as discussed above, one of the gender canons provides that male

299. Even then, such a determination would not necessarily mean that all vehicles are prohibited under the two rules.

300. See *supra* notes 290–297 and accompanying text.

301. See *supra* notes 114–130 and accompanying text (describing the *ejusdem generis* canon).

302. See *supra* notes 22–28 and accompanying text (describing the *McBoyle* case).

303. See *supra* section II.C.1 (describing the survey question involving the homonym “bank”).

304. 574 U.S. 528, 543–44 (2015). The Court used *noscitur* and *ejusdem generis* to help counter the literal interpretation advocated by Justice Kagan that “[a] ‘tangible object’ is an object that's tangible.” *Id.* at 553 (Kagan, J., dissenting); see also *supra* notes 126–133 and accompanying text (discussing *Yates*).

305. See, e.g., *Gustafson v. Alloyd Co.*, 513 U.S. 561, 574–75 (1995) (interpreting “communication” to mean “documents of wide dissemination” in part based on the rule against surplusage).

pronouns be interpreted broadly to include women and nonbinary persons, which may not correspond with some dictionary definitions and could thus be viewed as a nonliteral meaning.³⁰⁶ Similarly, the singular-includes-plural (and vice versa) canon may also deviate in some cases from literal meaning.³⁰⁷ People intuitively apply the canon to a prohibition on firing “rockets,” concluding that the prohibition includes firing one rocket (and thereby expanding the literal meaning of the prohibition).³⁰⁸

3. *Discovering New Canons That Create Nonliteral Meanings.* — Scholars have occasionally offered overarching theories of how interpretive canons tend to operate. Famously, David Shapiro argued that interpretive canons systematically favor “continuity over change” by “emphasiz[ing] the importance of not changing existing understandings any more than is needed to implement the statutory objective.”³⁰⁹ Often, “continuity over change” is promoted by applying canons that narrow possible meanings.³¹⁰

Our results suggest that the unifying theory of (many) canons might have more to do with nonliteralism than narrowness. While “continuity over change” may well represent an important theme of statutory interpretation (reflecting the application of both textual and substantive canons), we propose anti-literalism as an alternative unifying theory of many of the canons. Furthermore, it is now possible to give this theme an empirical and linguistic basis.³¹¹

A commitment to the empirical realities of ordinary meaning as often nonliteralist may change how courts, whether textualist or intentionalist, approach statutory interpretation. We propose one such new nonliteralist canon, the *quantifier domain restriction canon*.³¹² Recognition of this canon and others as both valid and nonliteralist may have the salutary effect of

306. See, e.g., His, Merriam-Webster, <https://www.merriam-webster.com/dictionary/his> [<https://perma.cc/6XMC-97WP>] (last visited Sept. 1, 2021) (defining “his” as “of or relating to him or himself especially as possessor, agent, or object of an action”). But see He, Merriam-Webster, <https://www.merriam-webster.com/dictionary/he> [<https://perma.cc/Y6SB-MCMU>] (last visited Sept. 1, 2021) (defining “he” with both gendered and generic senses); see also *supra* section II.B.1.

307. See *supra* section II.B.2.

308. Even a rejection of the *expressio unius* canon, which ordinary people may not widely apply, can be viewed as reflecting nonliteralism. After all, a rejection of *expressio unius* is an indication that the interpreter contemplates the possibility of implied terms. See *supra* notes 153–156 and accompanying text (describing the *expressio unius* canon).

309. See David L. Shapiro, Continuity and Change in Statutory Interpretation, 67 N.Y.U. L. Rev. 921, 925 (1992).

310. See *id.* at 929 (noting that *eiusdem generis* is one example of a canon that “is frequently invoked to suggest that a phrase which in isolation appears to have a broad scope should be construed more narrowly when considered in its linguistic setting”).

311. See *supra* Parts I–II (describing how the possibility of empirical testing of interpretive rules represents an important advancement in statutory interpretation theory).

312. See *supra* section II.C.4.

decreasing judicial reliance on dictionary definitions and increasing judicial sensitivity to context.³¹³ For instance, in *Ali v. Federal Bureau of Prisons*, the Court (via Justice Clarence Thomas), in interpreting the statutory phrase “any other law enforcement officer,” began its analysis by emphasizing that “[r]ead naturally, the word ‘any’ has an expansive meaning” and quoted a dictionary definition (via one of its previous decisions) that defined “any” as “one or some indiscriminately of whatever kind.”³¹⁴ If the quantifier domain restriction canon were judicially recognized, the Court would not have been as adamant that the dictionary definition of “any” was virtually dispositive. Furthermore, our empirical results supporting the new quantifier canon suggest the possibility that other nonliteralist canons are waiting to be discovered.

C. *A New Law and Language Research Program*

As we argue, our empirical results provide crucial evidence about which canons actually reflect ordinary people’s understanding of legal and ordinary rules. This is vital data for courts and interpreters concerned with ordinary meaning. Our research challenges the dominant conception of “ordinary meaning” as being focused on nonlegal language generally.³¹⁵ The research also challenges common textualist practices, such as emphasizing the literal meanings of statutes.³¹⁶ This section discusses several remaining issues relating to our work, including the possibility of discovering new canons, the possibility of multiple speech communities, the limitations of our research, and, finally, how future research might proceed.

1. *Discovering Hidden Canons: Are There More Canons?* — Our study assessed the triggering conditions of over a dozen interpretive principles, and there are many others that have been traditionally recognized as canons. But there may also be other ordinary meaning rules that have never been recognized as even possible canons.³¹⁷ We have identified two new candidates for canon status, but a broader implication of our study is the existence of this possibility: With ordinary meaning as the justification, *many* other new canons are waiting to be discovered. The importance of possible new canons should not be underestimated. Textual canons, including the ones tested in this Essay, have mostly been legitimized by their historical pedigrees, rather than by empirical testing. This has resulted in

313. See M.A.K. Halliday & Colin Yallop, *Lexicology: A Short Introduction* 25 (2007) (“[T]he dictionary takes words away from their common use in their customary settings,” which “can be highly misleading if used as a basis of theorizing about what words and their meanings are.”).

314. 552 U.S. 214, 218–19 (2008) (quoting *United States v. Gonzales*, 520 U.S. 1, 5 (1997) (internal quotation marks omitted) (quoting Webster’s Third New International Dictionary 97 (1976))).

315. See *supra* section IV.A.

316. See *supra* section IV.B.

317. See *supra* section III.C.

a largely accepted assumption that the set of textual canons cannot expand.³¹⁸ Prominent textualists like Justice Scalia and John Manning have suggested that historical pedigree is the paramount criteria for canons, and there is no need to seek out new canons.³¹⁹ A focus on empirical legitimization challenges the historical pedigree position and opens the door to new possibilities. If ordinary meaning via ordinary people legitimizes language canons, there are likely other hidden canons to discover.³²⁰

The argument for additional interpretive canons is not new, but virtually all such proposals involve *substantive* canons and thus have been advocated for on normative rather than linguistic grounds.³²¹ For example, Cass Sunstein has proposed that judges “should interpret agency-administered statutes in ways that counteract political and regulatory pathologies.”³²² Other canons have been proposed, such as an “environmental canon,”³²³ a “dignity canon,”³²⁴ a “CBO” canon providing that “ambiguous statutes should be interpreted in accordance with the reading of the statute adopted by the Congressional Budget Office,”³²⁵ and a canon resolving constitutional ambiguity in favor of “the party that is less likely . . . to be able to obtain a constitutional amendment to ‘correct’ the Court’s interpretation.”³²⁶

Our canons are different in type. If ordinary meaning is a possible justification for a canon, such canons might be seen as “discovered” rather than “created.” Of course, a researcher would not likely stumble across a canon but rather would test possible canons based on knowledge of linguistics, or some related field, or with some theme in mind. Consider two

318. There are of course some occasional exceptions. See *supra* note 136.

319. See Manning, *The Absurdity Doctrine*, *supra* note 65, at 2474 (“If textualists follow their premises to a logical conclusion, then they must largely accept the world as they find it, treating the existing set of background conventions as a closed set.”).

320. *Cf. Bond v. United States*, 572 U.S. 844, 861 (2014) (explaining that “[w]hen used in the manner here, the chemicals in this case are not of the sort that an ordinary person would associate with instruments of chemical warfare”).

321. See *supra* note 81 (distinguishing between substantive and textual canons).

322. Eben Moglen & Richard J. Pierce, Jr., *Sunstein’s New Canons: Choosing the Fictions of Statutory Interpretation*, 57 U. Chi. L. Rev. 1203, 1204 (1990) (reviewing Sunstein, *supra* note 216).

323. Nicholas S. Bryner, *An Ecological Theory of Statutory Interpretation*, 54 Idaho L. Rev. 3, 6–7 (2018) (“[W]hen possible, statutes must be read in a manner that best promotes ecological integrity and sustainability for present and future generations. Only a clear statement in a statute may overcome this rule.”).

324. Noah B. Lindell, *The Dignity Canon*, 27 Cornell J.L. & Pub. Pol’y 415, 417 (2017) (“The rule would require that a legislature speak clearly if it wishes to pass a provision that would diminish individuals’ intrinsic worth as human beings.”).

325. Abbe R. Gluck, *Congress, Statutory Interpretation, and the Failure of Formalism: The CBO Canon and Other Ways That Courts Can Improve on What They Are Already Trying to Do*, 84 U. Chi. L. Rev. 177, 182 (2017).

326. See Lynn A. Baker, *Constitutional Ambiguities and Originalism: Lessons From the Spending Power*, 103 Nw. U. L. Rev. 495, 496 (2009).

possible themes. The first, inspired by our proposed “quantifier domain restriction canon” and relating to nonliteral language conventions, has already been discussed.³²⁷

The second is based on the dynamic nature of language. Because language is dynamic, words may mean today something quite different than in some earlier period.³²⁸ This dynamic feature of language sometimes follows changes in society.³²⁹ Consider our nonbinary gender canon: In rules, masculine and plural pronouns include nonbinary persons. Nonbinary gender identities have only very recently gained widespread recognition in American life and law.³³⁰ It is not clear when the nonbinary gender canon began to reflect ordinary people’s understanding of rules, but it is conceivable that it was not always the case. At some point in the past, ordinary Americans may not have understood rules referring to “he” or “they” to include nonbinary persons.³³¹ It is likely that other changes in society and language have created other new language conventions, some of which affect the interpretation of rules. We expect social changes to continue to do so.

By assessing the possibility of new canons, empirical methods help maintain the accuracy and vitality of the ordinary meaning doctrine, grounding the doctrine in ordinary meaning rather than mere tradition. This also raises a challenge to textualist interpretation that vocalizes commitment to ordinary meaning but relies only on traditional rules of interpretation that may not fully capture the process of ordinary understanding. Theories, such as textualism, that are committed to ordinary meaning as a normative basis of interpretation should accept the possibility of new understandings of how ordinary people understand legal language. Future research might propose and test other such canons, helping ground legal interpretation concerned with “ordinary meaning” in ordinary meaning.

2. *Ordinary Meaning and Demographics.* — Empirical evidence revealing demographic differences in the interpretation of statutes might also challenge current assumptions about ordinary meaning. Courts tend to reference a generic ordinary person based on the assumption of ordinary

327. See *supra* section IV.B.

328. Geeraerts, *supra* note 46, at 230 (“[N]ew word senses emerge in the context of actual language use.”); Peter Ludlow, *Living Words: Meaning Underdetermination and the Dynamic Lexicon* 3 (2014) (rejecting the idea that “words are relatively stable things with fixed meanings”).

329. See Aitchison, *supra* note 137, at 153–54 (explaining that “sociolinguistic causes of language change” involve the altering of language as “the needs of its users alter”).

330. See Jessica A. Clarke, *They, Them, and Theirs*, 132 *Harv. L. Rev.* 894, 896–99 (2019).

331. Cf. Eskridge et al., *The Meaning of Sex*, *supra* note 5, 1561–64 (showing through corpus linguistics research how references in popular culture to LGBTQ persons have become more positive over the last several decades).

people representing a single speech community.³³² Scholars have recently questioned this assumption.³³³ Whether there are dramatic differences in how different people understand legal texts is an empirical question. This was not the primary focus of our study, but our results provide some initial insight into this issue.

There may well be ordinary meaning differences based on gender. We did not set out to study demographic differences, and we only analyzed responses by gender as applied to the gender canons. There we found small differences. Women were six to eight percent more likely to intuitively apply the gender canons (i.e., understand terms like “his” and “their” inclusively).³³⁴

Interpretive differences may also be based on education, particularly legal education. On the one hand, law students (who had not yet taken legislation or administrative law) were slightly more inclined to apply many of the canons, suggesting that there may be differences among different populations. For instance, greater education and being a law student increased application of the gender canons.³³⁵ It may be that law students, even ones who are still in their first year, understand that laws are meant to be generally applicable, even if they are not aware of the specific canon at issue. Thus, more law students interpreted “her” inclusively, while laypeople were very divided on that question.³³⁶ On the other hand, these differences were small, and both the ordinary people and law student populations tended to invoke the same canons.

These differences could be magnified if interpretive canons that require a more complex or involved analysis were considered. For instance, the *in pari materia* canon creates a presumption of statutory coherence, which includes consistency across related provisions regarding word meanings.³³⁷ Are these concerns relevant to language comprehension and thus to how ordinary people would interpret a provision? Applying the *in pari materia* canon often requires an in-depth knowledge of the

332. Consider, for instance, Judge Frank Easterbrook’s belief that the “significance of an expression depends on how the interpretive community alive at the time of the text’s adoption understood those words.” Scalia & Garner, *supra* note 3, at xxv.

333. See Krishnakumar, *MetaRules*, *supra* note 13, at 169–74; Louk, *supra* note 2, at 140–41; see also Nourse, *Misreading Law*, *supra* note 18, at 22 (positing that statutes are directed to multiple audiences).

334. See *infra* Appendix.

335. See *infra* Appendix.

336. See *infra* Appendix.

337. See Jacob Scott, *Codified Canons and the Common Law of Interpretation*, 98 Geo. L.J. 341, 376 (2010) (“The presumption of consistent usage and *in pari materia*, which both accept an interpreter’s examination of the context of a particular term and what sort of meaning that term has acquired in other statutes, are implicitly the same canon as the presumption of consistency between statutes.”).

legal system, which an ordinary member of the community would not possess.³³⁸ Thus, there are likely fewer demographic differences in situations involving canons that can be tested using relatively decontextualized language than in the much more challenging scenarios that may be required by other canons.

There may also be different “types” of ordinary people interpreters that are correlated with demographic attributes. Consider our findings indicating positive correlations of invocation across many of the canons. Participants who intuitively invoked the gender canon were more likely to also apply other canons, like the singular-includes-plural canon and *noscitur a sociis*. This might reflect (1) that some participants were attending more carefully to the survey, or (2) that there are different “types” of lay participants—some who understand the meaning of rules more literally than others. Exploratory analyses support the first interpretation: Canons’ invocation was predicted by duration of time spent on the survey and by participants’ confidence ratings.³³⁹ Those invoking the canons spent more time on the survey and were more confident in their answers. Nevertheless, future work could help explore these questions further.

While our empirical evidence supports the possibility of some demographic differences, we are also struck by the remarkable degree of similarity—across ordinary and legal rules, and across laypeople and law students. The majority of participants interpreted both legal and nonlegal rules consistently with most of the interpretive canons. Nevertheless, the possibility that demographic and other differences reflect different ordinary meaning speech communities poses an intriguing question for future research, and one that would offer a difficult challenge to textualist and other theories that rely on ordinary meaning.

3. *Current and Future Empirical Testing of Interpretive Canons.* — We have offered evidence of how ordinary people interpret rules and have explored various implications from this empirical work, including how ordinary meaning is oriented to the meaning of rules, is sometimes nonliteral, may depend on canons not yet identified, and may vary depending on the characteristics of the group being studied.

However, we do not take the empirical evidence to support that we should *broadly* “reject” all forms of any particular interpretive canon. For example, recall the *expressio unius est exclusio alterius* canon.³⁴⁰ The claim

338. For instance, in determining the meaning of the stipulated definition of “take” in the Endangered Species Act of 1973, an ordinary person may not readily infer from a separate provision providing for permits for takings that a broad meaning of “take” was congressionally intended. See *Babbitt v. Sweet Home Chapter of Cmty. for a Great Or.*, 515 U.S. 687, 700–01 (1995) (making such an inference).

339. See *infra* Appendix.

340. See *supra* notes 153–156 and accompanying text (describing the *expressio unius* canon).

we tested provides that when a statute expresses something explicitly (usually in a list), anything not expressed explicitly falls outside the statute.³⁴¹ Our study found that participants did not implicitly invoke that canon (in fact, participants tended to reject it).³⁴² Our conclusion is not to *broadly* reject *expressio unius*, but rather to suggest that its triggering condition(s) should be reconsidered.³⁴³ The current commonly stated triggering condition is likely far too broad (when something is expressed explicitly, anything not expressed explicitly falls outside of the provision). Nevertheless, it may be that there is some element of truth to the principle of *expressio unius*. That is, perhaps the *expressio unius* canon does not reflect ordinary meaning *whenever* something is expressed explicitly, but only in some subset of cases. As one hypothesis (for future research), perhaps *expressio unius* is triggered when the categories expressed are clearly understood as ones drawn from a finite (and/or small) set that is well-known to the speaker. Thus, perhaps in the rule, “those violating section 2 or 5 of the Code are subject to the following penalties,” the explicit mention of sections 2 and 5 is taken to exclude sections 1, 3, and 4.

We also do not take the empirical evidence to *broadly* “validate” any particular interpretive canon. Recall the theory that Part I develops: A canon has three elements: triggering, application, and cancellation.³⁴⁴ We have studied only the triggering conditions of the canons. Simply because a canon is invoked by ordinary people does not, by itself, validate it as a rule applicable to any legal interpretation.

As a simple example, consider cancellation of the singular-includes-plural canon. We found that people generally understand a singular to include a plural in a rule: “Rocket” also includes rockets. But suppose a legal rule contains one section concerning the singular (e.g., prohibitions and penalties for firing a rocket) and a second section addressing the plural (e.g., prohibitions and penalties for firing rockets). That would provide strong evidence of cancellation.

The empirical evidence therefore does not demonstrate that judges or interpreters should *always* apply any particular canon. Critically, it does not establish exactly how any given canon applies in different contexts or the circumstances in which it might be cancelled. Nor does the empirical evidence resolve other interpretive issues, such as how canons should be ordered in cases where two or more canons conflict or the persuasive value

341. See *supra* notes 153–156 and accompanying text.

342. See *supra* section II.C.3 (describing the survey results).

343. See *supra* notes 154–156 (suggesting that the current trigger for the *expressio unius* canon is too broad).

344. See *supra* notes 63–72 and accompanying text (describing the three elements).

a canon has in comparison to other sources of meaning like legislative history.³⁴⁵

Furthermore, our data does not itself provide a normative justification for judicial reliance on ordinary meaning. We have taken as our starting point that ordinary meaning is at least relevant to the interpretation of statutes.³⁴⁶ But that is a normative premise that we have accepted rather than asserted. Many scholars have advocated that statutory interpretation can be improved through a more sophisticated understanding of the legislative process.³⁴⁷ Even so, it is implausible that ordinary meaning would not play *some* role in the interpretation of statutes.³⁴⁸ Language conventions are critical to statutory interpretation, and it is unlikely that information about the language production of Congress can offer a complete theory of statutory interpretation. After all, the legislative drafters themselves must rely on language conventions and likely share many of the same intuitions about the meanings of rules as do ordinary people.³⁴⁹

Thus, we see this Essay as the start of a new approach to legal interpretation rather than the culmination of one. It is the starting point of what we hope will be a new research program at the intersection of empirical studies and interpretation. If interpretive principles are to be based on empirical realities rather than tradition, further foundational work is needed. Consider just a few of the possibilities for further empirical research:

- 1) whether other traditional interpretive canons (ones not tested in this Essay) reflect how ordinary people interpret legal rules;³⁵⁰
- 2) whether there are currently unrecognized canons that reflect how ordinary people interpret legal rules;³⁵¹

345. See Eskridge, *The New Textualism and Normative Canons*, *supra* note 167, at 531 (describing how interpretive canons are often in conflict).

346. See *supra* notes 1–13 and accompanying text.

347. See, e.g., Abbe R. Gluck, *Imperfect Statutes, Imperfect Courts: Understanding Congress's Plan in the Era of Unorthodox Lawmaking*, 129 *Harv. L. Rev.* 62 (2015) (analyzing statutory interpretation through the processes used by Congress in enacting legislation).

348. See Eskridge, *Interpreting Law*, *supra* note 3, at 33–41 (describing the importance of the ordinary meaning doctrine to statutory interpretation).

349. Gluck and Bressman's surveys asked legislative drafters whether they were aware of and used certain interpretive canons but did not test what canons the drafters actually implicitly invoked when interpreting rules. See Bressman & Gluck, *Statutory Interpretation Part II*, *supra* note 38, at 732–34; Gluck & Bressman, *Statutory Interpretation Part I*, *supra* note 33, at 926–28.

350. See *supra* Part II (listing the interpretive canons that were tested).

351. See *supra* section IV.C.1 (discussing the possibility of empirically discovering additional canons).

3) whether any of the currently unrecognized canons reflect the theme of anti-literalism that is common to many of the canons;³⁵²

4) once triggered, what facts are relevant to a canon's application or cancellation, and what should be viewed as a "consistent" application of the canon;³⁵³

5) the extent to which language conventions apply only in scenarios involving the interpretation of rules; and

6) the extent to which demographic or other differences impact any of the above research issues.

As these questions make clear, our larger point is that empirical tools and cognitive science offer new ways to make progress on traditional debates in legal theory—particularly concerning "ordinary meaning."

This Essay employs experimental methods, but other empirical methods might also contribute to this new mode of inquiry. For example, legal corpus linguistics, which has received significant attention in recent years, might also provide insight into interpretive canons.³⁵⁴ Our work here also carries recommendations for that approach. Recall that we propose that there is something distinctive about the ordinary meaning of *rules*. The modern legal corpus linguistics movement has thus far focused largely on quantitative assessments of how terms are most commonly used, without much consideration of whether that data reflects examples of usage occurring in rules or similar authoritative pronouncements.³⁵⁵ Many of those examples come from usage in newspapers, online sources, or works of fiction.³⁵⁶ If statutory language is best understood as language within rules, future work in legal corpus linguistics might be more helpful if it can develop methods to isolate patterns of usage occurring within rules.³⁵⁷

As empiricists, we take our results cautiously, as initial evidence that certain canons are, in fact, accurate generalizations about how ordinary people understand rules. Of course, future research might discover that there are some exceptional cases, or maybe many exceptional cases, that conflict with our findings. We are open to that possibility and invite exactly that type of further empirical study. This is an enormous project, which cannot be completed in a single essay. But we take this Essay to have made significant progress on some of these questions and to have clarified important steps forward on others.

352. See *supra* section IV.B.

353. See Mendelson, *supra* note 31, at 131 (wondering whether consistent application of canons outweighs "the prospect that individual cases might be wrongly or unjustly decided").

354. See, e.g., Lee & Mouritsen, *supra* note 13, at 832.

355. See *id.* at 795.

356. See *id.* at 828, 833–35.

357. Cf. Tobia, *The Corpus and the Courts*, *supra* note 265, at 35–36 (discussing potential future directions of legal corpus linguistics).

CONCLUSION

This Essay began by posing a simple but fundamental question: How should judges decide which linguistic canons to apply in interpreting statutes? One important answer addresses the question “from the inside,” and seeks to provide an empirically grounded account of what rules legislative drafters know and apply.³⁵⁸ Another possibility, which we explored in this Essay, is based on the “ordinary meaning” doctrine and its underlying notions of fair notice and the rule of law. As such, it seeks to identify empirically the rules that explain an ordinary person’s understanding of a legal text. We do not seek to defend normatively this second approach. But *if* a court or interpreter purports to rely on “ordinary meaning,” that interpreter should do so with reference to empirical data, not merely by tradition or intuition. Our project takes this approach seriously, conducting the first empirical study of statutory interpretation “from the outside.”

Considering the importance of ordinary meaning, it is particularly concerning that courts frequently make claims about interpretation “from the outside” that are based largely on tradition or normative commitments. This Essay has taken a first step in collecting the kind of empirical data that should be critical to statutory interpretation focused on ordinary meaning. The findings provide support for some traditional canons, raise questions about others, and identify two new canons (the “nonbinary gender” and “quantifier domain restriction” canons).

As this Essay demonstrates, empirical study can also lead to important new insights in interpretation theory. For instance, our results support a theoretical reformation of the ordinary meaning doctrine, as one focused on the language of *rules* rather than “legal language” or “ordinary language.” Moreover, the results support a new theory of the function of legal interpretive canons and clarify how ordinary meaning interpretation *should* be “anti-literalist.”

Given the importance of ordinary meaning, these empirical and theoretical conclusions carry practical implications. Most obviously, they could shape the behavior of courts. Courts are free to change the principles of interpretation, and thus can adopt, drop, or modify interpretive canons in light of empirical realities.³⁵⁹ If “ordinary meaning” is meant to reflect how ordinary people actually understand language, we see our study as highly relevant evidence. Less obviously, and more controversially, this kind of empirical work could even influence legislatures. Empirical

358. Bressman & Gluck, Statutory Interpretation Part II, *supra* note 38; Gluck & Bressman, Statutory Interpretation Part I, *supra* note 33.

359. See Adrian Vermeule, The Cycles of Statutory Interpretation, 68 U. Chi. L. Rev. 149, 149 (2001) (“[T]he Court has changed its practice, and sometimes the formally stated rules, with remarkable frequency.”).

work can help legislatures assess whether they should enact legislation dictating interpretive rules, as well as the substance of those interpretive rules.³⁶⁰

This Essay contributes to a new research program in empirical legal interpretation. We hope future work will continue to discover other new canons, as well as test and refine the triggering, application, and cancellation conditions of existing canons. We predict the continued application of empirical methods to legal interpretive theory to have broad and wide-ranging implications and offer this Essay as a first step in that new research program.

360. See Nicholas Quinn Rosenkranz, *Federal Rules of Statutory Interpretation*, 115 Harv. L. Rev. 2085, 2086 (2002) (contending that Congress should statutorily dictate a set of rules for interpretation).

APPENDIX

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I. LIST OF CANONS

1, 2. “And” vs. “Or” (Conjunctive/Disjunctive Canon)	“And” joins a conjunctive list; “or” a disjunctive list
3a, 3b, 3c, 4a, 4b. Gender and Number Canons (including a potential new nonbinary canon)	In the absence of a contrary indication, the masculine includes the feminine (and vice versa), and the singular includes the plural (and vice versa) (potential canon: nonbinary canon) In the absence of a contrary indication, the masculine and feminine include the nonbinary, and plural pronouns (e.g., “they/them/theirs”) include the masculine and feminine
5, 6. “May” vs. “Shall”	Mandatory words, such as “shall,” impose a duty while permissible words, such as “may,” grant discretion
7a, 7b. Oxford Comma	A comma used after the penultimate item in a list of three or more items, the presence of which can create an additional distinct item or category

8. Presumption of Nonexclusive “Include”	The verb “to include” introduces examples, not an exhaustive list
9a, 9b. Series-Qualifier Canon	When there is a straightforward parallel construction that involves all nouns or verbs in a series, a prepositive or postpositive modifier normally applies to the entire series
10a, 10b. Rule of the Last Antecedent	<p>A pronoun, relative pronoun, or demonstrative adjective generally refers to the nearest reasonable antecedent</p> <p>When a modifier is set off from a series of antecedents by a comma, the modifier should be interpreted to apply to all of the antecedents</p>
11. <i>Expressio unius est exclusio alterius</i>	When a statute expresses something explicitly (usually in a list), anything not expressed explicitly does not fall within the statute
12. Quantifier Domain Restriction (potential new canon)	The scope of a universal quantifier (i.e., “all,” “any,” etc.) is typically restricted in some way by context
13a, 13b, 13c. <i>Noscitur a sociis</i>	The meaning of words that are placed together in a statute should be determined in light of the words with which they are associated
14. <i>Ejusdem generis</i>	When general words in a statute precede or follow a list of specific things, the general words should be construed to include only objects similar in nature to the specific words

II. SURVEY QUESTIONS AND ANSWER CHOICES

1. *Conjunctive Canon*A. *[Legal]*

Imagine that there is a law. Part of that law describes “property and buildings.” Does this part of the law mean:

- Both property and buildings [endorsing]
- Either property or buildings, or both
- Either property or buildings, but not both

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule describes “property and buildings.” Does this part of the rule mean:

- Both property and buildings [endorsing]
- Either property or buildings, or both
- Either property or buildings, but not both

C. *[Null]*

Imagine that there is a rule. Part of that rule describes “A and B.” Does this part of the rule mean:

- Both A and B [endorsing]
- Either A or B, or both
- Either A or B, but not both

2. *Disjunctive Canon*A. *[Legal]*

Imagine that there is a law. Part of that law describes “property or buildings.” Does this part of the law mean:

- Both property and buildings
- Either property or buildings, or both [endorsing]
- Either property or buildings, but not both

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule describes “property or buildings.” Does this part of the rule mean:

- Both property and buildings
- Either property or buildings, or both [endorsing]
- Either property or buildings, but not both

C. *[Null]*

Imagine that there is a rule. Part of that rule describes “C or D.” Does this part of the rule mean:

- Both C and D
- Either C or D, or both [endorsing]
- Either C or D, but not both

3a. *Gender Canon: His*A. *[Legal]*

Imagine that there is a law. Part of that law describes that certain benefits will be given to “Whoever files his form before May 1.” Does this part of the law mean:

- Any person (male, female, or non-binary) who files before May 1 [endorsing]
- Only any man who files before May 1
- Only any woman who files before May 1

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule describes that certain benefits will be given to “Whoever submits his monthly report before the first of the month.” Does this part of the rule mean:

- Any person (male, female, or non-binary) who submits the monthly report before the first of the month [endorsing]
- Only any man who submits the monthly report before the first of the month
- Only any woman who submits the monthly report before the first of the month

C. *[Null]*

Imagine that there is a rule. Part of that rule describes “Whoever *Es* his *F*.” Does this part of the rule mean:

- Any person (male, female, or non-binary) who *Es* that person’s *F* [endorsing]
- Only any man who *Es* that man’s *F*
- Only any woman who *Es* that woman’s *F*

3b. *Gender Canon: Her*A. *[Legal]*

Imagine that there is a law. Part of that law describes that certain benefits will be given to “Whoever files her form before May 1.” Does this part of the law mean:

- Any person (male, female, or non-binary) who files before May 1 [endorsing]
- Only any man who files before May 1
- Only any woman who files before May 1

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule describes that certain benefits will be given to “Whoever submits her monthly report before the first of the month.” Does this part of the rule mean:

- Any person (male, female, or non-binary) who submits the monthly report before the first of the month [endorsing]
- Only any man who submits the monthly report before the first of the month
- Only any woman who submits the monthly report before the first of the month

C. *[Null]*

Imagine that there is a rule. Part of that rule describes “Whoever Gs her H.” Does this part of the rule mean:

- Any person (male, female, or non-binary) who Gs that person’s H [endorsing]
- Only any man who Gs that man’s H
- Only any woman who Gs that woman’s H

3c. *Gender Canon: Their*A. *[Legal]*

Imagine that there is a law. Part of that law describes that certain benefits will be given to “Whoever files their form before May 1.” Does this part of the law mean:

- Any person (male, female, or non-binary) who files before May 1 [endorsing]
- Only any man who files before May 1
- Only any woman who files before May 1

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule describes that certain benefits will be given to “Whoever submits their monthly report before the first of the month.” Does this part of the rule mean:

- Any person (male, female, or non-binary) who submits the monthly report before the first of the month [endorsing]
- Only any man who submits the monthly report before the first of the month
- Only any woman who submits the monthly report before the first of the month

C. *[Null]*

Imagine that there is a rule. Part of that rule describes “Whoever *Is* their *J*.” Does this part of the rule mean:

- Any person (male, female, or non-binary) who *Is* that person’s *J*. [endorsing]
- Only any man who *Is* that man’s *J*
- Only any woman who *Is* that woman’s *J*

4a. *Number Canon: Singular*A. *[Legal]*

Imagine that there is a law. Part of that law states that “It is a misdemeanor for any person to set off a rocket within the city limits.” Does this part of the law mean:

- It is a misdemeanor for any person to set off one rocket within the city limits.
- It is a misdemeanor for any person to set off one or more rockets within the city limits. [endorsing]

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule states that “It is prohibited for any person to set off a rocket on company property.” Does this part of the rule mean:

- It is prohibited for any person to set off one rocket on company property.
- It is prohibited for any person to set off one or more rockets on company property. [endorsing]

C. *[Null]*

Imagine that there is a rule. Part of that rule states that “It is prohibited for any person to *K a L*.” Does this part of the rule mean:

- It is prohibited for any person to *K one L*.
- It is prohibited for any person to *K one or more Ls*. [endorsing]

4b. *Number Canon: Plural*A. *[Legal]*

Imagine that there is a law. Part of that law states that “It is a misdemeanor for any person to set off rockets within the city limits.” Does this part of the law mean:

- It is a misdemeanor for any person to set off one or more rockets within the city limits. [endorsing]
- It is a misdemeanor for any person to set off two or more rockets within the city limits.

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule states that “It is prohibited for any person to set off rockets on company property.” Does this part of the rule mean:

- It is prohibited for any person to set off one or more rockets on company property. [endorsing]
- It is prohibited for any person to set off two or more rockets on company property.

C. *[Null]*

Imagine that there is a rule. Part of that rule states that “It is prohibited for any person to *M Ns*.” Does this part of the rule mean:

- It is prohibited for any person to *M one or more Ns*. [endorsing]
- It is prohibited for any person to *M two or more Ns*.

5. *May Canon*A. *[Legal]*

Imagine that there is a law. Part of that law states that “Employees may provide written notice.” Does this part of the law mean:

- Employees are permitted, but not required, to provide written notice. [endorsing]
- Employees are required to provide written notice.

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule states that “Employees may provide written notice.” Does this part of the rule mean:

- Employees are permitted, but not required, to provide written notice. [endorsing]
- Employees are required to provide written notice.

C. *[Null]*

Imagine that there is a rule. Part of that rule states that “*Os* may *P*.” Does this part of the rule mean:

- *Os* are permitted, but not required, to *P*. [endorsing]
- *Os* are required to *P*.

6. *Shall Canon*A. *[Legal]*

Imagine that there is a law. Part of that law states that “Employees shall provide written notice.” Does this part of the law mean:

- Employees are permitted, but not required, to provide written notice.
- Employees are required to provide written notice. [endorsing]

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule states that “Employees shall provide written notice.” Does this part of the rule mean:

- Employees are permitted, but not required, to provide written notice.
- Employees are required to provide written notice. [endorsing]

C. *[Null]*

Imagine that there is a rule. Part of that rule states that “*Qs* shall *R*.” Does this part of the rule mean:

- *Qs* are permitted, but not required, to *R*.
- *Qs* are required to *R*. [endorsing]

7a. *Oxford Comma: No Comma*A. *[Legal]*

Imagine that there is a law. Part of that law states that “Eligible work includes: The canning, processing, preserving, storing, packing for shipment or distribution of: (1) vegetables; (2) fruits; and (3) fish.” Does this part of the law mean:

- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and packing for distribution of 1-3. [endorsing]
- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and distribution of 1-3.

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule states that “Eligible work includes: The canning, processing, preserving, storing, packing for shipment or distribution of: (1) vegetables; (2) fruits; and (3) fish.” Does this part of the rule mean:

- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and packing for distribution of 1-3. [endorsing]
- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and distribution of 1-3.

C. *[Null]*

Imagine that there is a rule. Part of that rule states that “Eligible S includes: The T, U, V, W, X for Y or Z of: (1) toops; (2) sindos; and (3) parmaps.” Does this part of the rule mean:

- Eligible S includes the T, U, V, W, X for Y, and X for Z of 1-3. [endorsing]
- Eligible S includes the T, U, V, W, X for Y, and Z of 1-3.

7b. *Oxford Comma: Comma*A. *[Legal]*

Imagine that there is a law. Part of that law states that “Eligible work includes: The canning, processing, preserving, storing, packing for shipment, or distribution of: (1) vegetables; (2) fruits; and (3) fish.” Does this part of the law mean:

- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and packing for distribution of 1-3.

- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and distribution of 1-3. [endorsing]

B. *[Ordinary]*

Imagine that a company has a rule for its employees. Part of that rule states that “Eligible work includes: The canning, processing, preserving, storing, packing for shipment, or distribution of: (1) vegetables; (2) fruits; and (3) fish.” Does this part of the rule mean:

- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and packing for distribution of 1-3.
- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and distribution of 1-3. [endorsing]

C. *[Null]*

Imagine that there is a rule. Part of that rule states that “Eligible A includes: The B, C, D, E, F for G, or H of: 1; 2; and 3.” Does this part of the rule mean:

- Eligible A includes the B, C, D, E, F for G, and F for H of 1-3.
- Eligible A includes the B, C, D, E, F for G, and H of 1-3. [endorsing]

8. *Presumption of Nonexclusive “Include”*

A. *[Legal]*

Imagine that there is a law. Part of that law states that “The term ‘motor vehicle’ shall include an automobile, automobile truck, automobile wagon, or motor cycle.” Does this part of the law mean:

- The term ‘motor vehicle’ includes only automobiles, automobile trucks, automobile wagons, and motor cycles.
- The term ‘motor vehicle’ includes automobiles, automobile trucks, automobile wagons, motor cycles, and some other entities. [endorsing]

B. *[Ordinary]*

Imagine that a company has a rule. Part of that rule states that “The term ‘motor vehicle’ shall include an automobile, automobile truck, automobile wagon, or motor cycle.” Does this part of the rule mean:

- The term ‘motor vehicle’ includes only automobiles, automobile trucks, automobile wagons, and motor cycles.

- The term ‘motor vehicle’ includes automobiles, automobile trucks, automobile wagons, motor cycles, and some other entities. [endorsing]

C. [Null]

Imagine that there is a rule. Part of that rule states that “The term ‘AA’ shall include a BB, CC, DD, or EE.” Does this part of the rule mean:

- The term ‘AA’ includes only BBs, CCs, DDs, and EEs.
- The term ‘AA’ includes BBs, CCs, DDs, EEs, and some other entities. [endorsing]

9a. *Series Qualifier / Last Antecedent: Comma, Related*

A. [Legal]

Imagine that there is a law. Part of that law states that “In parking area A, people may park cars, mopeds, and trucks, on weekends.” Does this part of the law mean:

- In parking area A, people may park cars on any day, mopeds on any day, and trucks on only weekends.
- In parking area A, people may park cars on only weekends, mopeds on only weekends, and trucks on only weekends. [endorsing]

B. [Ordinary]

Imagine that a company has a rule. Part of that rule states that “In parking area A, people may park cars, mopeds, and trucks, on weekends.” Does this part of the rule mean:

- In parking area A, people may park cars on any day, mopeds on any day, and trucks on only weekends.
- In parking area A, people may park cars on only weekends, mopeds on only weekends, and trucks on only weekends. [endorsing]

C. [Null]

Imagine that there is a rule. Part of that rule states that “People may FF GGs, HHs, and IIs, on JJ. Does this part of the rule mean:

- People may FF GGs. People may FF HHs. People may FF IIs on JJ.
- People may FF GGs on JJ. People may FF HHs on JJ. People may FF IIs on JJ. [endorsing]

9b. *Series Qualifier / Last Antecedent: Comma, Unrelated*A. *[Legal]*

Imagine that there is a law. Part of that law states that “In parking area A, people may park cars, mopeds, and food trucks, on weekends.” Does this part of the law mean:

- In parking area A, people may park cars on any day, mopeds on any day, and food trucks on only weekends.
- In parking area A, people may park cars on only weekends, mopeds on only weekends, and food trucks on only weekends. [endorsing]

B. *[Ordinary]*

Imagine that a company has a rule. Part of that rule states that “In parking area A, people may park cars, mopeds, and food trucks, on weekends.” Does this part of the rule mean:

- In parking area A, people may park cars on any day, mopeds on any day, and food trucks on only weekends.
- In parking area A, people may park cars on only weekends, mopeds on only weekends, and food trucks on only weekends. [endorsing]

10a. *Series Qualifier / Last Antecedent: No Comma, Related*A. *[Legal]*

Imagine that there is a law. Part of that law states that “In parking area A, people may park cars, mopeds, and trucks on weekends.” Does this part of the law mean:

- In parking area A, people may park cars on any day, mopeds on any day, and trucks on only weekends.
- In parking area A, people may park cars on only weekends, mopeds on only weekends, and trucks on only weekends. [endorsing]

B. *[Ordinary]*

Imagine that a company has a rule. Part of that rule states that “In parking area A, people may park cars, mopeds, and trucks on weekends.” Does this part of the rule mean:

- In parking area A, people may park cars on any day, mopeds on any day, and trucks on only weekends.
- In parking area A, people may park cars on only weekends, mopeds on only weekends, and trucks on only weekends. [endorsing]

C. *[Null]*

Imagine that there is a rule. Part of that rule states that “People may FF GGs, HHs, and IIs on JJ. Does this part of the rule mean:

- People may FF GGs. People may FF HHs. People may FF IIs on JJ.
- People may FF GGs on JJ. People may FF HHs on JJ. People may FF IIs on JJ. [endorsing]

10b. *Series Qualifier / Last Antecedent: No Comma, Unrelated*A. *[Legal]*

Imagine that there is a law. Part of that law states that “In parking area A, people may park cars, mopeds, and food trucks on weekends.” Does this part of the law mean:

- In parking area A, people may park cars on any day, mopeds on any day, and food trucks on only weekends.
- In parking area A, people may park cars on only weekends, mopeds on only weekends, and food trucks on only weekends. [endorsing]

B. *[Ordinary]*

Imagine that a company has a rule. Part of that rule states that “In parking area A, people may park cars, mopeds, and food trucks on weekends.” Does this part of the rule mean:

- In parking area A, people may park cars on any day, mopeds on any day, and food trucks on only weekends.
- In parking area A, people may park cars on only weekends, mopeds on only weekends, and food trucks on only weekends. [endorsing]

11. *Expressio unius est exclusio alterius*A. *[Legal]*

Imagine that there is a law. Part of that law states that “No one may enter restaurants with dogs or cats.” Jim enters a restaurant with a pet rabbit. Does this part of the law mean:

- No one may enter restaurants with dogs, no one may enter restaurants with cats, and no one may enter restaurants with some other entities (such as a pet rabbit).
- No one may enter restaurants with dogs, no one may enter restaurants with cats, and there is no other prohibition on entering restaurants with anything. [endorsing]

B. *[Ordinary]*

Imagine that a restaurant chain has a rule. Part of that rule states that “No one may enter our restaurants with dogs or cats.” Jim enters a restaurant with a pet rabbit. Does this part of the rule mean:

- No one may enter the chain’s restaurants with dogs, no one may enter the chain’s restaurants with cats, and no one may enter the chain’s restaurants with some other entities (such as a pet rabbit).
- No one may enter the chain’s restaurants with dogs, no one may enter the chain’s restaurants with cats, and there is no other prohibition on entering the chain’s restaurants with anything. [endorsing]

C. *[Null]*

Imagine that there is a rule. Part of that rule states that “No one may KK with LL or MM.” Jim KKs with a NN. Does this part of the rule mean:

- No one may KK with LL, no one may KK with MM, and no one may KK with some other things (such as a NN).
- No one may KK with LL, no one may KK with MM, and there is no other prohibition on KKing with anything. [endorsing]

12. *Quantifier Domain Restriction*A. *[Legal]*

Imagine that there is a law. Part of that law describes “any law enforcement officer.” Does this part of the law mean:

- All law enforcement officers, anywhere in the world
- Some law enforcement officers, anywhere in the world [endorsing]
- All law enforcement officers, in the country in which the law was passed [endorsing]
- Some law enforcement officers, in the country in which the law was passed [endorsing]

B. *[Ordinary]*

Imagine that a company has a rule. Part of that rule describes “any administrative assistant.” Does this part of the rule mean:

- All administrative assistants, anywhere in the world
- Some administrative assistants, anywhere in the world [endorsing]
- All administrative assistants, in the company [endorsing]
- Some administrative assistants, in the company [endorsing]

C. *[Null]*

Imagine that there is a rule. Part of that rule describes “any OO.” Does this part of the rule mean:

- All OOs, anywhere in the world
- Some OOs, anywhere in the world [endorsing]
- All OOs, within some region of the world (such as the country in which the rule exists) [endorsing]
- Some OOs, within some region of the world (such as the country in which the rule exists) [endorsing]

13a. *Noscitur a sociis: Surrounding Words*A. *[Legal]*

Imagine that there is a law. Part of that law describes “records, documents, or tangible objects.” Does this part of the law mean:

- Records, documents, and tangible objects that are similar to records or documents [endorsing]
- Records, documents, and all tangible objects (including, for example, a fish)

B. *[Ordinary]*

Imagine that there is a rule. Part of that rule describes “records, documents, or tangible objects.” Does this part of the rule mean:

- Records, documents, and tangible objects that are similar to records or documents [endorsing]
- Records, documents, and all tangible objects (including, for example, a fish)

13b. *Noscitur a sociis: Surrounding Context*A. *[Legal]*

Imagine that there is a law. Part of that law describes erasing writing from “records, documents, or tangible objects.” Does this part of the law mean:

- Records, documents, and tangible objects that are similar to records or documents [endorsing]
- Records, documents, and all tangible objects (including, for example, a fish)

B. *[Ordinary]*

Imagine that there is a rule. Part of that rule describes erasing writing from “records, documents, or tangible objects.” Does this part of the rule mean:

- Records, documents, and tangible objects that are similar to records or documents [endorsing]
- Records, documents, and all tangible objects (including, for example, a fish)

13c. *Noscitur a sociis: Homonyms*A. *[Legal]*

Imagine that there is a law. Part of that law describes “a bank; a financial institution; or a savings and loan association.” Does this part of the law mean:

- Terrain alongside the bed of a river (commonly known as a “bank”); a financial institution; or a savings and loan association
- An institution for receiving, lending, exchanging and safe-guarding money (commonly known as a “bank”); a financial institution; or a savings and loan association [endorsing]
- Terrain alongside the bed of a river (commonly known as a “bank”); an institution for receiving, lending, exchanging and safeguarding money (commonly known as a “bank”); a financial institution; or a savings and loan association

B. *[Ordinary]*

Imagine that there is a rule. Part of that rule describes “a bank; a financial institution; or a savings and loan association.” Does this part of the rule mean:

- Terrain alongside the bed of a river (commonly known as a “bank”); a financial institution; or a savings and loan association
- An institution for receiving, lending, exchanging and safe-guarding money (commonly known as a “bank”); a financial institution; or a savings and loan association [endorsing]
- Terrain alongside the bed of a river (commonly known as a “bank”); an institution for receiving, lending, exchanging and safeguarding money (commonly known as a “bank”); a financial institution; or a savings and loan association

14. *Ejusdem generis*A. *[Legal]*

Imagine that there is a law. Part of that law refers to “gin, bourbon, vodka, rum, and other beverages.” Does this part of the law mean:

- Gin, bourbon, vodka, rum, and other alcoholic beverages [endorsing]
- Gin, bourbon, vodka, rum, and other alcoholic and non-alcoholic beverages (including, for example, orange juice)

B. *[Ordinary]*

Imagine that a company has a rule. Part of that rule refers to “gin, bourbon, vodka, rum, and other beverages.” Does this part of the rule mean:

- Gin, bourbon, vodka, rum, and other alcoholic beverages [endorsing]
- Gin, bourbon, vodka, rum, and other alcoholic and non-alcoholic beverages (including, for example, orange juice)

III. STUDY 1 PARTICIPANTS AND DEMOGRAPHICS¹

	Passed Checks	Recruited
	(N = 4,430)	(N = 4,500)
Gender		
Male	2095 (47.5%)	2134 (47.7%)
Female	2251 (51.0%)	2272 (50.7%)
Transgender	13 (0.3%)	9 (0.2%)
Nonbinary	20 (0.5%)	23 (0.5%)
Not reported	1	3
Age	<i>M</i> = 45.5, <i>SD</i> = 16.9	<i>M</i> = 45.3, <i>SD</i> = 16.9
Education		
Some high school or less	110 (2.5%)	116 (2.6%)
High school graduate	1074 (24.2%)	1085 (24.1%)
Other post-high school vocational training	111 (2.5%)	112 (2.5%)
Completed some college, no degree	826 (18.6%)	837 (18.6%)
Associate's degree	358 (8.1%)	363 (8.1%)
Bachelor's degree	1257 (28.4%)	1266 (28.2%)
Master's or professional degree	582 (13.1%)	601 (13.4%)
Doctorate degree	91 (2.1%)	94 (2.1%)
None of the above	20 (0.5%)	23 (0.5%)
Not reported	1	3
Law Degree		
Yes	216 (4.9%)	244 (5.4%)
No	4167 (94.4%)	4202 (93.8%)
Other	30 (0.7%)	32 (0.7%)
Not reported	17	22

1. Participants were permitted to answer with more than one option for several of the demographic questions: gender, ethnicity, and law experience. Percentages also may not sum to 100% due to rounding. Percentage calculations exclude individuals who did not answer the question (those listed in the "not reported" rows).

Ethnicity		
White (including Hispanic)	3198 (72.2%)	3239 (72.0%)
Black, or African American	519 (11.7%)	533 (11.9%)
Native American	65 (1.5%)	65 (1.5%)
Asian	262 (5.9%)	266 (5.9%)
Pacific Islander	17 (0.4%)	17 (0.4%)
Hispanic	492 (11.1%)	554 (12.3%)
Another race	293 (6.6%)	299 (6.6%)
Not reported	1	3
Country of Residence		
United States	4387 (99.4%)	4446 (99.3%)
Other	26 (0.6%)	28 (0.6%)
Not reported	17	22
Region		
Northeast	906 (20.5%)	920 (20.5%)
Midwest	850 (19.2%)	860 (19.1%)
South	1671 (37.7%)	1698 (37.8%)
West	1002 (22.6%)	1019 (22.7%)
Not reported	1	3
Sexual Orientation		
Heterosexual or straight	3903 (88.4%)	3955 (88.3%)
Gay or lesbian	164 (3.7%)	165 (3.7%)
Bisexual	230 (5.2%)	234 (5.2%)
Another orientation	47 (1.1%)	50 (1.1%)
Prefer not to respond	69 (1.6%)	74 (1.7%)
Not reported	17	22
Disability		
Yes	855 (19.4%)	880 (19.7%)
No	3468 (78.6%)	3503 (78.2%)
Prefer not to respond	90 (2.0%)	95 (2.1%)
Not reported	17	22
Native Language		

English	4187 (94.9%)	4248 (94.9%)
English and Other	82 (1.9%)	84 (1.9%)
Only Other	144 (3.3%)	146 (3.3%)
Not reported	17	22
Law Experience		
Past experience (e.g., plaintiff, juror)	1095 (24.9%)	1130 (25.3%)
Sought legal advice	2035 (46.2%)	2068 (46.3%)
Work/worked for government	812 (18.5%)	841 (18.8%)
Not reported	27	33
Income		
Less than \$14,999	647 (14.6%)	661 (14.7%)
\$15,000 to \$19,999	215 (4.9%)	218 (4.8%)
\$20,000 to \$24,999	287 (6.5%)	288 (6.4%)
\$25,000 to \$29,999	269 (6.1%)	274 (6.1%)
\$30,000 to \$34,999	246 (5.6%)	249 (5.5%)
\$35,000 to \$39,999	205 (4.6%)	205 (4.6%)
\$40,000 to \$44,999	189 (4.3%)	194 (4.3%)
\$45,000 to \$49,999	203 (4.6%)	206 (4.6%)
\$50,000 to \$54,999	259 (5.8%)	264 (5.9%)
\$55,000 to \$59,999	115 (2.6%)	117 (2.6%)
\$60,000 to \$64,999	133 (3.0%)	138 (3.1%)
\$65,000 to \$69,999	128 (2.9%)	128 (2.8%)
\$70,000 to \$74,999	137 (3.1%)	139 (3.1%)
\$75,000 to \$79,999	155 (3.5%)	157 (3.5%)
\$80,000 to \$84,999	78 (1.8%)	81 (1.8%)
\$85,000 to \$89,999	65 (1.5%)	65 (1.4%)
\$90,000 to \$94,999	69 (1.6%)	70 (1.6%)
\$95,000 to \$99,999	125 (2.8%)	125 (2.8%)
\$100,000 to \$124,999	276 (6.2%)	278 (6.2%)
\$125,000 to \$149,999	185 (4.2%)	187 (4.2%)
\$150,000 to \$174,999	99 (2.2%)	103 (2.3%)

\$175,000 to \$199,999	66 (1.5%)	67 (1.5%)
\$200,000 to \$249,999	65 (1.5%)	70 (1.6%)
\$250,000 and above	69 (1.6%)	69 (1.5%)
Prefer not to answer	144 (3.3%)	144 (3.2%)
Not reported	1	3
Politics		
Very liberal	410 (9.3%)	419 (9.4%)
Liberal	671 (15.2%)	687 (15.3%)
Somewhat liberal	412 (9.3%)	419 (9.4%)
Middle of the road	1489 (33.7%)	1508 (33.7%)
Somewhat conservative	492 (11.1%)	494 (11.0%)
Conservative	557 (12.6%)	564 (12.6%)
Very conservative	382 (8.7%)	387 (8.6%)
Not reported	17	22
Party		
Strong Democrat	1205 (27.2%)	1230 (27.4%)
Not very strong Democrat	603 (13.6%)	609 (13.5%)
Independent Democrat	343 (7.7%)	346 (7.7%)
Independent – neither	517 (11.7%)	525 (11.7%)
Independent Republican	292 (6.6%)	294 (6.5%)
Other – leaning Democrat	28 (0.6%)	29 (0.6%)
Other – neither	178 (4.0%)	182 (4.0%)
Other – leaning Republican	37 (0.8%)	39 (0.9%)
Not very strong Republican	463 (10.5%)	465 (10.3%)
Strong Republican	763 (17.2%)	778 (17.3%)
Not reported	1	3

IV. DETAILS OF STATISTICAL ANALYSES

A. *Differences From Chance*

To evaluate whether the endorsement of each canon differed from chance, we conducted chi square tests, *taking only the first question answered by each participant*. In other words, we evaluated the data as a fully between-subjects study: *Condition (ordinary, legal, null) * Canon*. There were 22 canons presented in each of the legal and ordinary contexts, and 16 in the null context. To correct for the 60 multiple comparisons, we adopt Bonferroni corrections ($\alpha = .00083$).

There were significant differences from chance for the conjunctive canon, in the ordinary,² legal,³ and null contexts⁴; and for the disjunctive canon in the legal⁵ and null⁶ but not ordinary⁷ contexts. The difference in the legal condition was not in the direction predicted by the canon's application.

There were significant differences from chance for the gender: his canon, in the ordinary,⁸ legal,⁹ and null contexts¹⁰; for the gender: hers canon, in the ordinary,¹¹ legal,¹² and null contexts¹³; and for the gender: their canon, in the ordinary,¹⁴ legal,¹⁵ and null contexts.¹⁶ Across all three contexts, the pattern of results in gender: hers was ambivalent with respect to the canon's predictions.

There were significant differences from chance for the number canon: singular, in the ordinary¹⁷ and legal¹⁸ but not null contexts¹⁹; and

2. $X^2 = 45.9, p < .00001$.

3. $X^2 = 20.6, p < .00001$.

4. $X^2 = 78.5, p < .00001$.

5. $X^2 = 11.1, p = .0039$.

6. $X^2 = 33.1, p < .00001$.

7. $X^2 = 3.2, p = .2058$.

8. $X^2 = 76.2, p < .00001$.

9. $X^2 = 64.9, p < .00001$.

10. $X^2 = 93.8, p < .00001$.

11. $X^2 = 28.4, p < .00001$.

12. $X^2 = 34.4, p < .00001$.

13. $X^2 = 40.2, p < .00001$.

14. $X^2 = 126.8, p < .00001$.

15. $X^2 = 121.6, p < .00001$.

16. $X^2 = 139.9, p < .00001$.

17. $X^2 = 30.2, p < .00001$.

18. $X^2 = 8.4, p = .0038$.

19. $X^2 = .05, p = .8231$.

for the number canon: plural, in the ordinary,²⁰ legal,²¹ and null contexts.²²

There were significant differences from chance for the may canon, in the ordinary,²³ legal,²⁴ and null contexts²⁵; and for the shall canon, in the ordinary²⁶ and legal²⁷ but not null contexts.²⁸

There were significant differences from chance for the Oxford "no comma" question in the null condition,²⁹ but not ordinary³⁰ or legal contexts³¹; and for the Oxford comma canon, in the ordinary³² and null³³ but not legal contexts.³⁴

There was a significant difference from chance for the nonexclusive "include" question, in the legal,³⁵ but not ordinary³⁶ or null contexts.³⁷ The pattern of legal results was contrary to the canon's application.

For the series qualifier and last antecedent questions, there were significant differences from chance in the ordinary context for all four versions: comma, related;³⁸ comma, unrelated;³⁹ no comma, related;⁴⁰ and no comma, unrelated⁴¹; and in the legal context for all four versions: comma, related;⁴² comma, unrelated;⁴³ no comma, related;⁴⁴ and no

20. $X^2 = 34.7, p < .00001$.

21. $X^2 = 39.4, p < .00001$.

22. $X^2 = 51.0, p < .00001$.

23. $X^2 = 54.0, p < .00001$.

24. $X^2 = 20.6, p < .00001$.

25. $X^2 = 42.7, p < .00001$.

26. $X^2 = 36.5, p < .00001$.

27. $X^2 = 29.3, p < .00001$.

28. $X^2 = 3.1, p = .0772$.

29. $X^2 = 5.8, p = .0164$.

30. $X^2 = .143, p = .7055$.

31. $X^2 = .153, p = .6961$.

32. $X^2 = 4.1, p = .0431$.

33. $X^2 = 5.4, p = .01963$.

34. $X^2 = 2.7, p = .0990$.

35. $X^2 = 5.7, p = .0168$.

36. $X^2 = 1.1, p = .3017$.

37. $X^2 = .1, p = .7582$.

38. $X^2 = 19.6, p < .00001$.

39. $X^2 = 17.3, p < .00001$.

40. $X^2 = 13.8, p = .0002$.

41. $X^2 = 13.8, p = .0002$.

42. $X^2 = 15.5, p = .00008$.

43. $X^2 = 16.8, p = .00004$.

44. $X^2 = 38.3, p < .00001$.

comma, unrelated.⁴⁵ There were no significant differences in the null context versions, with⁴⁶ or without⁴⁷ the comma.

There were significant differences from chance for *expressio unius est exclusio alterius*, in the ordinary⁴⁸ and null,⁴⁹ but not legal contexts.⁵⁰ The pattern of ordinary results was contrary to the canon's recommended application.

There were significant differences from chance for the quantifier domain restriction question, in the ordinary,⁵¹ legal,⁵² and null contexts.⁵³ The pattern of null results was contrary to the canon's application.

There were significant differences from chance for *noscitur a sociis*: words, in the legal⁵⁴ but not ordinary⁵⁵ contexts. There were significant differences from chance for *noscitur a sociis*: context, in the ordinary⁵⁶ and legal⁵⁷ contexts. There were significant differences from chance for *noscitur a sociis*: homonyms, in the ordinary⁵⁸ and legal⁵⁹ contexts. There were no comparable questions in the null context.

There were significant differences from chance for *ejusdem generis*, in the legal⁶⁰ but not the ordinary⁶¹ context. There was no comparable question in the null context.

B. Specific Comparisons

We pre-registered several other specific comparisons. We wanted to assess whether the presence of a comma affected interpretation in Oxford comma scenarios.

45. $X^2 = 15.5$, $p = .00008$.

46. $X^2 = 1.1$, $p = .2855$.

47. $X^2 = .04$, $p = .8366$.

48. $X^2 = 5.2$, $p = .0223$.

49. $X^2 = 4.6$, $p = .03254$.

50. $X^2 = .13$, $p = .7180$.

51. $X^2 = 91.5$, $p < .00001$.

52. $X^2 = 66.4$, $p < .00001$.

53. $X^2 = 61.3$, $p < .00001$.

54. $X^2 = 3.9$, $p = .0489$.

55. $X^2 = 3.8$, $p = .0510$.

56. $X^2 = 29.33$, $p < .00001$.

57. $X^2 = 22.0$, $p < .00001$.

58. $X^2 = 53.4$, $p < .00001$.

59. $X^2 = 85.5$, $p < .00001$.

60. $X^2 = 8.3$, $p = .00392$.

61. $X^2 = 3.57$, $p = .0588$.

STUDY QUESTION 7A. OXFORD COMMA (NO COMMA) (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “Eligible work includes: The canning, processing, preserving, storing, packing for shipment or distribution of: (1) vegetables; (2) fruits; and (3) fish.” Does this part of the law mean:

- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and packing for distribution of 1-3. [endorsing]
- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and distribution of 1-3.

STUDY QUESTION 7B. OXFORD COMMA (COMMA) (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “Eligible work includes: The canning, processing, preserving, storing, packing for shipment, or distribution of: (1) vegetables; (2) fruits; and (3) fish.” Does this part of the law mean:

- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and packing for distribution of 1-3.
- Eligible work includes the canning, processing, preserving, storing, packing for shipment, and distribution of 1-3. [endorsing]

For the lay sample, there was no significant difference in the legal,⁶² ordinary,⁶³ or null contexts.⁶⁴ The majority of participants chose the second option, for both 7a and 7b. The law student results differed dramatically. Most chose the first option for question 7a and most chose the second option for question 7b.⁶⁵

We also pre-registered specific comparisons to assess the series qualifier and rule of the last antecedent canons. In particular, we planned to compare whether the addition of a comma affects judgments (9a v. 10a; 9b v. 10b), and whether the relatedness of the last and prior antecedents affects judgments (9a v. 9b, 10a v. 10b). Comparing responses within each of the ordinary and legal conditions, we found no significant differences

62. $X^2 = .68$, $p = .4096$.

63. $X^2 = 3.05$, $p = .0899$.

64. $X^2 = 0.00$, $p = .9860$.

65. McNemar's test, $X^2 = 6.13$, $p = 0.01333$.

(all $ps > .2$, except for the legal condition 9b vs. 10b, McNemar's test, $X^2 = 3.65$, $p = .05619$). For the law student sample, there were no significant differences between the 9a–9b and 10a–10b comparisons, $ps < .85$. However, there was a significant difference between 9a–10a,⁶⁶ and a nonsignificant difference between 9b–10b, although one in the same direction.⁶⁷

STUDY QUESTION 9A. SERIES QUALIFIER / LAST ANTECEDENT (COMMA, RELATED) (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “In parking area A, people may park cars, mopeds, and trucks, on weekends.” Does this part of the law mean:

- In parking area A, people may park cars on any day, mopeds on any day, and trucks on only weekends.
 - In parking area A, people may park cars on only weekends, mopeds on only weekends, and trucks on only weekends.
- [endorsing]

STUDY QUESTION 10A. SERIES QUALIFIER / LAST ANTECEDENT (NO COMMA, RELATED) (LEGAL VERSION)

Imagine that there is a law. Part of that law states that “In parking area A, people may park cars, mopeds, and trucks on weekends.” Does this part of the law mean:

- In parking area A, people may park cars on any day, mopeds on any day, and trucks on only weekends.
 - In parking area A, people may park cars on only weekends, mopeds on only weekends, and trucks on only weekends.
- [endorsing]

66. McNemar's test, $X^2 = 4.67$, $p = .0307$.

67. McNemar's test, $X^2 = 3.76$, $p = .0526$.

C. *Ordinary Versus Legal Context*

To assess differences between the ordinary and legal contexts, we conducted a generalized probit model. Below is the model table, following best practice guidelines from Leotte Meteyard & Robert A.I. Davies, *Best Practices Guidance for Linear Mixed-Effects Models in Psychological Science*, 112 *J. Memory & Language* (2020). Notably, there was no significant effect of ordinary versus legal context. There were only two significant Context*Question interactions. Participants were more likely to implicitly invoke *expressio unius est exclusio alterius* and *noscitur a sociis* (homonyms example) in the legal, compared to the ordinary, condition.

	Parameter Estimates					
	Est/Beta	SE	95% CI (lower)	(upper)	z	p
Intercept	0.5717	0.0264	0.52008	0.62379	21.6154	< .00001
Context	0.0713	0.0529	-0.03257	0.17485	1.348	0.17766
Question 2	-0.6961	0.1643	-1.01976	-0.37542	-4.2357	0.00002
Question 3a	0.5302	0.1752	0.18878	0.87592	3.0268	0.00247
Question 3b	-0.4274	0.1591	-0.74031	-0.11646	-2.6865	0.00722
Question 3c	1.2556	0.22	0.84155	1.71211	5.7062	< .00001
Question 4a	0.3305	0.1703	-0.00215	0.66567	1.9411	0.05224
Question 4b	0.6528	0.1726	0.31661	0.99371	3.7824	0.00016
Question 5	0.5654	0.1805	0.21407	0.92231	3.1319	0.00174
Question 6	0.69	0.1851	0.33096	1.05718	3.7288	0.00019
Question 7a	-0.4374	0.1624	-0.75669	-0.12005	-2.6939	0.00706
Question 7b	-0.1087	0.1637	-0.42994	0.21201	-0.6639	0.50677
Question 8	-0.4947	0.1624	-0.81402	-0.17739	-3.0469	0.00231
Question 9a	0.3037	0.1677	-0.0243	0.63336	1.8112	0.07011
Question 9b	0.2344	0.1621	-0.08314	0.55271	1.4459	0.1482
Question 10a	0.3281	0.1586	0.0173	0.6394	2.068	0.03864
Question 10b	0.2052	0.1652	-0.11818	0.52963	1.2421	0.2142
Question 11	-0.609	0.1619	-0.92774	-0.29285	-3.7611	0.00017

Question 12	0.6386	0.1735	0.30126	0.98226	3.6802	0.00023
Question 13a	-0.0929	0.1636	-0.41402	0.22762	-0.5677	0.57022
Question 13b	0.4599	0.1708	0.12653	0.79636	2.6929	0.00708
Question 13c	0.5296	0.1776	0.18398	0.88063	2.9827	0.00286
Question 14	0.0154	0.1688	-0.31532	0.34647	0.0911	0.9274
Question 2 * Context	-0.1323	0.3287	-0.77654	0.5122	-0.4024	0.68737
Question 3a * Context	-0.2244	0.3503	-0.91098	0.46341	-0.6406	0.52177
Question 3b * Context	-0.1771	0.3182	-0.80151	0.4462	-0.5564	0.57792
Question 3c * Context	-0.8431	0.4401	-1.74867	-0.0044	-1.9157	0.0554
Question 4a * Context	0.1098	0.3405	-0.55656	0.77911	0.3225	0.74711
Question 4b * Context	-0.5008	0.3452	-1.17973	0.17458	-1.4507	0.14686
Question 5 * Context	-0.1797	0.3611	-0.88749	0.52917	-0.4977	0.61873
Question 6 * Context	-0.2209	0.3701	-0.94498	0.50778	-0.597	0.55051
Question 7a * Context	-0.2706	0.3247	-0.90791	0.36539	-0.8333	0.40467
Question 7b * Context	-0.2691	0.3274	-0.91137	0.37252	-0.8219	0.41111
Question 8 * Context	0.1412	0.3247	-0.49543	0.77787	0.4348	0.66371
Question 9a * Context	-0.2958	0.3354	-0.95386	0.36148	-0.8819	0.37784

Question 9b * Context	-0.3039	0.3243	-0.93969	0.332	-0.9372	0.34866
Question 10a * Context	-0.74	0.3173	-1.36377	-0.11958	-2.3324	0.01968
Question 10b * Context	-0.595	0.3304	-1.24512	0.05047	-1.8009	0.07172
Question 11 * Context	-0.7106	0.3238	-1.34703	-0.07722	-2.1942	0.02822
Question 12 * Context	0.1648	0.347	-0.51154	0.85057	0.4748	0.63496
Question 13a * Context	-0.4047	0.3273	-1.04715	0.23613	-1.2367	0.21621
Question 13b * Context	-0.1689	0.3416	-0.83797	0.50176	-0.4946	0.62086
Question 13c * Context	-0.8431	0.3551	-1.54408	-0.15074	-2.374	0.0176
Question 14 * Context	-0.6088	0.3375	-1.27235	0.0512	-1.8037	0.07128
Model fit						
AIC	3312.9					
R ²	.11					
	<p>Key: Confidence Intervals have been calculated using the Wald method.</p> <p>Model equation: Judgment ~ 1 + Question + Context + Question: Context</p>					

ESTIMATED PROBABILITIES OF IMPLICITLY INVOKING CANON

95% Confidence Interval				
Question	Prob.	SE	Lower	Upper
1	0.654	0.0434	0.565	0.734
2	0.382	0.0437	0.300	0.470
3a	0.823	0.0337	0.749	0.881
3b	0.487	0.0427	0.405	0.571
3c	0.951	0.0190	0.901	0.978
4a	0.766	0.0377	0.686	0.833
4b	0.853	0.0291	0.788	0.902
5	0.832	0.0344	0.756	0.891
6	0.861	0.0316	0.790	0.914
7a	0.483	0.0446	0.397	0.570
7b	0.613	0.0436	0.525	0.695
8	0.461	0.0444	0.375	0.548
9a	0.758	0.0373	0.679	0.825
9b	0.736	0.0365	0.660	0.802
10a	0.765	0.0326	0.697	0.824
10b	0.726	0.0386	0.646	0.796
11	0.416	0.0434	0.333	0.502
12	0.849	0.0298	0.784	0.900
13a	0.619	0.0433	0.532	0.700
13b	0.804	0.0342	0.730	0.864
13c	0.823	0.0346	0.747	0.882
14	0.659	0.0443	0.569	0.742

V. EXPLORATORY ANALYSES: DEMOGRAPHICS AND INDIVIDUAL DIFFERENCES

Finally, we conducted several exploratory analyses. These exploratory analyses were not preregistered and we recommend taking them with caution.

First, we examined whether there was a relationship between intuitively invoking the canon and duration of time spent on the survey. We computed an overall canon invocation score for each participant, counting each answer consistent with the canon application as “1” and each answer inconsistent with the canon application as “0.” Minutes of survey taking differed across contexts (ordinary $M = 15.7$; legal $M = 15.7$; null $M = 11.7$). We conducted a generalized linear model, controlling for context, to estimate the effect of survey-taking duration on canon invocation, with the invocation score as the dependent variable. Duration was a small but significant predictor of invocation score; spending more time on the survey was positively related to answering more questions consistently with the recommendation of the canons.⁶⁸

Second, we examined whether there was a relationship between participants’ self-reported confidence ratings and invocation of answers recommended by the canons. The confidence ratings were computed using the sixteen confidence questions corresponding to the sixteen questions shared among the three contexts. Mean confidence scores differed across contexts (ordinary $M = 8.6$; legal $M = 8.3$; null $M = 7.0$). A generalized linear model, controlling for context, estimated the effect of self-reported confidence on canon application, with the invocation score as the dependent variable. Self-reported confidence was positively related to answering more questions consistently with the canons’ recommendation.⁶⁹

We also considered whether demographic factors affected application of the gender: his and gender: their canons. Women were about 8% more likely than men to interpret “his” as inclusive of men, women, and nonbinary persons,⁷⁰ and about 6% more likely to interpret “their”

68. A generalized linear model controlling for context found a significant effect of duration, $OR = 1.004$ (95% CI: 1.001, 1.006), $p < .004$.

69. A generalized linear model controlling for context found a significant effect of confidence, $OR = 1.24$ (95% CI: 1.20, 1.28), $p < .001$.

70. Men: 67.6% [95% CI: 65.6, 69.6] vs. Women: 75.6% [95% CI: 73.9, 77.4]. A generalized probit model controlling for context found a significant effect of gender, $OR = 1.27$ [95% CI: 1.18, 1.38], $p < .001$.

broadly.⁷¹ Greater education level also predicted invocation of the gender: his⁷² and gender: their canons.⁷³

71. Men: 83.8% [95% CI: 82.2, 85.3] vs. Women: 89.4% [95% CI: 88.0, 90]. A generalized probit model controlling for context found a significant effect of gender, OR = 1.30 (95% CI: 1.18, 1.42), $p < .001$.

72. A generalized probit model controlling for context found a significant effect of education, $p = .00013$. For gender: his, the probability of judging consistently with the canon was:

high school or less: 57.2% [95% CI: 47.8, 66.2];
 high school graduate: 67.5% [95% CI: 64.7, 70.3];
 other vocational training: 74.6% [95% CI: 65.7, 82.1];
 some college: 71.2% [95% CI: 68.0, 74.2];
 associate's degree: 73.% [95% CI: 68.3, 77.5];
 bachelor's degree: 74.8% [95% CI: 72.3, 77.1];
 master's degree: 74.4% [95% CI: 70.7, 77.8];
 doctoral degree: 75.7% [95% CI: 66.0, 83.6].

73. A generalized probit model controlling for context found a significant effect of education, $p < .00001$. For gender: their, the probability of judging consistently with the canon was:

high school or less: 79.4% [95% CI: 80.9, 86.1];
 high school graduate: 82.0% [95% CI: 79.6, 84.2];
 other vocational training: 92.2% [95% CI: 85.1, 96.3];
 some college: 89.6% [95% CI: 87.4, 91.6];
 associate's degree: 87.7% [95% CI: 83.8, 90.9];
 bachelor's degree: 89.7% [95% CI: 87.9, 91.3];
 master's degree: 84.8% [95% CI: 81.2, 94.2];
 doctoral degree: 89.0% [95% CI: 81.2, 94.2].

