**Statutory Interpretation from the Outside**

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Abstract: 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 rules that lawmakers contemplate. A different answer, based on the “ordinary meaning” doctrine, looks to the *outside*: Follow the rules that would guide an ordinary person’s understanding of the legal text. Empirical scholars have studied statutory interpretation from the inside—revealing what rules drafters follow—but never from the outside. This Article is the first empirical study of ordinary meaning as determined by ordinary people.

We first offer a novel framework for empirically testing interpretive canons. We argue that any empirical inquiry should test whether ordinary people implicitly invoke a canon in accordance with the circumstances that trigger its applicability. Implementing our framework, we recruited 4,500 people from the United States, as well as a sample of U.S. law students, to evaluate hypothetical scenarios that correspond to each canon’s triggering conditions. The results reveal that many existing interpretive canons reflect how ordinary people evaluate rules, but some popular canons do not.

The empirical findings support several implications, even beyond providing crucial evidence about which traditional canons “ordinary meaning” actually supports. First, interpretive canons are not a closed set. We discovered new canons that are not yet reflected as legal canons, including one we term the “non-binary gender canon” and another the “quantifier domain restriction canon.” Second, the results support 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. Furthermore, ordinary people interpret rules with an intuitive *anti-literalism*. This finding in particular challenges textualist assumptions about ordinary meaning.

We hope the Article 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 understand 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 Article focuses on statutory interpretation, but its theory and empirical analysis may extend more broadly. “Ordinary meaning” plays a crucial role in the interpretation of most legal texts: from contracts and wills, to treaties and the U.S. Constitution.⁴ Normatively, the doctrine often finds justification for “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 via legislative history).⁹ Few deny that ordinary

² See David 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.”).
⁴ See e.g., CAL. CIV. CODE § 1644 (West 2018) (“The words of a contract are to be understood in their ordinary and popular sense . . . .”); CAL. PROB. CODE § 21122 (West 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, Treaties as Contracts: Textualism, Contract Theory, and the Interpretation of Treaties, 116 YALE L.J. 824 (2007); Lawrence B. Solum, The Constraint Principle: Original Meaning and Constitutional Practice (Apr. 3, 2019) (unpublished manuscript).
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 Marketing Institute 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.”).
⁸ See, e.g., ESKRIDGE, supra note 3, at 35 (“There are excellent reasons for the primacy of the ordinary meaning rule.”).
meaning is regularly deployed by all members of the current Supreme Court.\textsuperscript{10} Consider the Court’s recent landmark decision in \textit{Bostock v. Clayton County}.\textsuperscript{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 anti-discrimination provision includes sexual orientation discrimination.\textsuperscript{12} Not surprisingly, cutting-edge statutory interpretation theory has turned its focus on “ordinary meaning.”\textsuperscript{13}

So how do courts determine a statute’s “ordinary meaning”? Sometimes the debate centers on the meaning of individual terms,\textsuperscript{14} with judges increasingly relying on tools like dictionaries.\textsuperscript{15} Dictionaries provide evidence about how individual terms are used in non-legal communications.\textsuperscript{16} But statutes contain complex expressions, with terms embedded in specific contexts.\textsuperscript{17} This complexity raises difficult questions about the relationship between 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 \textit{McBoyle v. United States}, which required the Court to determine whether an airplane is a “vehicle.”\textsuperscript{18} The National Motor Vehicle Theft Act punishes those who knowingly transport a stolen “automobile, automobile truck, automobile wagon, motor cycle, or any other self-propelled vehicle not designed for running on rails.”\textsuperscript{19} Justice Holmes, writing for the Court, found that the statute \textit{did not} apply to an aircraft: An airplane is not a vehicle.\textsuperscript{20}

\textsuperscript{11} 140 S. Ct. 1731 (2020).
\textsuperscript{12} \textit{Id.} at 1750 (2020) (Gorsuch, J.) (“the law’s ordinary meaning at the time of enactment usually governs”); \textit{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.”); \textit{id.} at 1825 (Kavanaugh, J. dissenting) (“courts must follow ordinary meaning, not literal meaning.”).
\textsuperscript{14} See \textsc{Victoria Nourse}, \textsc{Misreading Law, Misreading Democracy} (2016).
\textsuperscript{16} 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, \textit{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”).
\textsuperscript{17} See \textsc{Peter Tiersma}, \textsc{Some Myths About Legal Language}, 2 LAW, CULTURE AND HUMANITIES 29 (2005) (explaining that the way legal texts are drafted adds to their complexity).
\textsuperscript{18} 283 U.S. 25 (1931).
\textsuperscript{19} See \textit{id.} at 25-26.
\textsuperscript{20} See \textit{id.} at 26.
If one focuses on the term “vehicle,” the Court’s conclusion might seem puzzling. Isn’t an airplane a vehicle? 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 motor cycle. 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. “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. 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. These principles are so long-standing and frequently applied that they are referred to as “canons” of interpretation. In fact, judges cite interpretive canons more frequently now than in the past. Yet, courts and commentators also criticize canons as unjustified.

Debates about canons’ justification center on two very different empirical questions. One concerns whether legislative authors contemplate the canon when drafting. The other concerns whether the canon reflects how ordinary people reading the statute would understand the language. Eskridge and Nourse have

21 Some have in fact questioned whether an airplane is a vehicle. See Lee and 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.

22 For Justice Kavanaugh, even the question whether a baby stroller is a vehicle in this context may be difficult. See Bostock v. Clayton County, Georgia, 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.”).

23 See Larry Alexander, Bad Beginnings, 145 U. PA. L. REV. 57, 65 (1996); see also infra Part I.


25 See id.

26 See Anita S. Krishnakumar & Victoria F. Nourse, The Canon Wars, 97 TEX. L. REV. 163, 163 (2018) (arguing that “affection for canons of construction has taken center stage in recent Supreme Court cases.”); 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, 71 (2018) (explaining that “the lion’s share of Roberts Court opinions considers and applies at least one interpretive canon.”).

27 See, e.g., Jesse M. Cross, When Courts Should Ignore Statutory Text, 26 GEO. MASON L. REV. 453 (2018) (arguing that many canons of construction must be modified or discarded because they are inaccurate).

28 These explanations of justification 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
described these justifications as grounded in the “production” versus the “consumer” economies of statutory interpretation. The production economy emphasizes the statute’s authors; the consumer economy emphasizes its readers.

The empirical claim that canons reflect the meanings of the statute’s producers or authors motivated Abbe Gluck and Lisa Bressman’s seminal work on “Statutory Interpretation from the Inside.” In 2014, Gluck and Bressman published a survey of 137 congressional staffers from both chambers of Congress on topics relating to statutory interpretation, including the staffers’ knowledge and use of interpretive canons. 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.

A different empirical claim underpins the consumer theory of interpretation. For those who assume that canons reflect the meanings of statutes’ potential readers, canons are tied to ordinary meaning. That is, a canon’s validity comes from ordinary people’s linguistic practices. The relevant question would be: Is the relevant 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 ones? If yes, this would support an empirically-based justification for *ejusdem generis*, grounded not in legislative intent or practice but in ordinary meaning.

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.


32 See *id.* Similarly, in 2002, Victoria Nourse and Jane Schacter published a case study of legislative drafting in the Senate Judiciary Committee, asking eighteen staffers several broad questions about how statutory text is drafted. See Victoria F. Nourse & Jane S. Schacter, *The Politics of Legislative Drafting: A Congressional Case Study*, 77 N.Y.U. L. REV. 575 (2002). The study revealed that the drafters were generally familiar with the interpretive rules applied by judges but did not systematically integrate the rules into the drafting process. The authors concluded that the case study raised issues about the tenets of textualism and revealed the “need for future empirical research to develop a better understanding of the legislative process.” *Id.* at 576.

33 See *SLOCUM, supra* note 3, at 1-3.

34 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 Section I.C. *infra.*
The Supreme Court increasingly relies on text and ordinary meaning to resolve interpretive disputes, as do lower courts. 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 Roberts alluded to this intriguing possibility in oral argument:

Insofar as “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 – ordinary speakers of English and ask them what [the statute] means.”

Such an approach was once considered beyond legal academics’ capacity, but no more. There is a rich and growing literature in psychology, linguistics, and cognitive science concerning people’s understanding of language. In law, the new field of “experimental jurisprudence” has already demonstrated that scholars can conduct experiments to better understand the ordinary cognition of law. Thus far, those studies have focused on central legal concepts, such as causation, consent, intent, and reasonableness. Other studies have focused on how ordinary people understand word meanings or how they would resolve specific interpretive disputes. But, as the McBoyle case suggests, the ordinary meaning of statutes does not arise simply from individual word meanings. Statutes are written in sentences, expressing propositions. An important legal-interpretive question concerns how ordinary people understand this language, in context.

This Article takes an important first step in a new and important area of experimental jurisprudence: the empirical study of interpretive canons from an

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35 See supra notes 6-13 and accompanying text.; infra notes 388-393 and accompanying text (on courts’ increasingly reliance on text and ordinary meaning).
36 Id.
38 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.”).
39 See, e.g., Dirk Geeraerts, Theories of Lexical Semantics 230 (2010) (explaining that “new word senses emerge in the context of actual language use.”).
ordinary meaning perspective. Surveying ordinary people might seem straightforward, but designing useful experiments requires very careful theory. In Part I, we develop a novel framework for empirically testing interpretive canons. We describe the three relevant elements of interpretive canons (triggering, application, and cancellation) 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.46 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 long-standing interpretive problems that have plagued courts, such as poorly defined canons and conflicts between canons.

In Parts II & 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.47 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?48

In Part IV, we consider three broader implications of our work for statutory interpretation theory. First, the results support a new theory of the “ordinary meaning” doctrine 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 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 ordinary meaning from “the outside.”

Second, we propose a new unifying theory of the canons, centered on anti-literalism. Our study reveals that ordinary people often interpret rules non-literally.

46 See Section I.A infra.
47 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.
48 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 non-legal 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 long-standing 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 resolved the conflict between the series qualifier canon and the rule of the last antecedent by interpreting modifiers consistently with the series qualifier canon.
This is crucial evidence bearing on recent debates at the heart of textualist theory. Landmark cases like *Bostock v. Clayton County* (2020) center on Justices’ disagreements about ordinary meaning and literalism. Our findings support rejecting ordinary meaning as literal meaning. Specifically, several of the canons implicitly applied by ordinary people result in non-literal meanings. Perhaps most importantly, such a commitment to non-literalism 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 empirical study discovers two new ordinary meaning canons—ones not traditionally recognized by law, but that could be justified on the basis of ordinary meaning. One we term the “non-binary gender canon.” The other we term the “quantifier domain restriction canon.” These discoveries have immediate practical significance: 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. This dynamism is not only consistent with textualists’ ordinary meaning commitments; it is justified by them.

We conclude by arguing for a major new empirical research agenda in law and language. Our 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 a new anti-literalist unification of interpretive canons, and articulating a program for future research. At the same time, 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 canons, discover additional “hidden” canons, and test how canons are cancelled or whether they are applied consistently.

**I. A FRAMEWORK FOR TESTING INTERPRETIVE PRINCIPLES**

In this Part we provide a theoretical framework necessary for testing which interpretive principles reflect ordinary people’s understanding of language. We explain 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

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49 140 S. Ct. 1731 (2020). Section IV.B. discusses *Bostock* within the context of literal interpretations.

50 This canon holds that masculine and plural pronouns like “he” and “they” include non-binary genders. See infra Section III.A.1.

51 This canon holds that the scope of quantifiers (e.g. “any”) are typically implicitly restricted by context, which is a linguistic issue the Supreme Court has long struggled to recognize. See infra Section III.B.4.
canons are ordered or applied in complex legal scenarios. 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.

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. Ordinary meaning interpretive canons thus depend on general presumptions about language usage, but courts assume these presumptions might be outweighed by contextual evidence pointing to a different interpretation. In that sense, presumptions about ordinary language usage are defeasible; they may be overridden by the specific context of the statute or by other canons.

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

52 See James J. Brudney, *Canon Shortfalls and the Virtues of Political Branch Interpretive Assets*, 98 CALIF. L. REV. 1199, 1202 (2010) (explaining that 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. One language canon may trump another, one substantive canon may displace another, and a language canon may be deemed subservient to a substantive canon in one instance and dominant in the next.”); Krishnakumar & Nourse, supra note 26, at 167 (arguing that precedent and legislative history should take precedence over rules like *noscitur a sociis*).


55 See, e.g., Lockhart v. United States, 136 S. Ct. 958, 965 (2016) (“This Court has long acknowledged that structural or contextual evidence may ‘rebut the last antecedent inference.’”) (quoting Jama v. Immigration and Customs Enforcement, 543 U.S. 335, 344, n. 4 (2005)); Taniguchi v. Kan Pac. Saipan, Ltd., 566 U.S. 560, 569 (2012) (explaining that “the 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.”).

56 These separate issues have at times been conflated. Most famously, Karl Llewellyn purported to show that every canon can be countered by an equal and opposite counter-canon, 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 (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).

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Consider *ejusdem generis*. That canon is triggered by a catch-all following a list of terms. When one sees a statute that lists “cars, motorcycles, airplanes and all other vehicles,” recognition that there is a list concluding with a general term triggers the canon. “Triggering” the canon does not guarantee how it ultimately applies. To apply the canon, the interpreter must consider what common generalization the list describes. 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 is relevant.

Similarly, a canon’s trigger differs from considerations that might cancel the application of the canon. So, in our example, one might understand that the canon is triggered, and even apply it, coming to an initial conclusion about the statute’s meaning. But that initial conclusion might be abandoned if one learned, for example, that the term “vehicle” was defined elsewhere in the statute. Similarly, an interpreter might determine that the provision’s purpose strongly indicates that the catch-all should be given a broad, literal meaning.

1. Context and Interpretation

The distinction between triggering and application or cancellation mirrors the long-standing legal understanding of interpretation as involving both language generalities and the context which shapes and modifies those language generalities. Justice Oliver Wendell Holmes famously posited that the interpreter’s role is to determine “what th[е] 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 . . . .” 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 textual language means in its specific context. This interpretive inquiry, as conceived by 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.

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

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57 See supra notes 14-25 and accompanying text.
58 See id.
59 For a more detailed explanation of this canon, see infra Section I.C.
60 See Tanzin v. Tanvir, 141 S. Ct. 486 (2020) (explaining that “ordinary meaning” is supplanted by statutory definitions). In this case, the interpreter would have to reconcile two different statutory definitions.
61 See SCALIA & GARNER, supra note 3, at 209-10.
63 See ESKRIDGE, supra note 3, at 3-11 (discussing the importance of context to interpretation).
64 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.
statute. When an interpretive canon is implicated, 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. Thus, efficient communication frequently involves recognition of non-literal and implied meanings triggered by contextual evidence. 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.

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. These language generalizations frequently involve basic issues regarding conventional word meanings and punctuation rules but may also include more subtle generalizations involving the interaction between linguistic meaning and context. To best assess these language generalizations, empirical studies should present narrow scenarios to test whether a canon is triggered in accordance with its definition, rather than broader scenarios that raise more complicated issues

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

66 See Steven T. Piantadosi, Harry Tily, and Edward Gibson, The Communicative Function of Ambiguity in Language, 122 COGNITION 280, 280 (2012) (“It is easy to justify ambiguity to anyone who is familiar with information theory.”); Hamah Rohde et al., 2012, Communicating with Cost-based Implicature: a Game-Theoretic Approach to Ambiguity, in PROCEEDINGS OF SEMDIAL 2012 (SEINE DIAL) 108 (Sarah Brown-Schmidt et al. eds., 2012) (“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.”).

67 Id.

68 The 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. As Justice Scalia argued in dissent, the semantic meaning of the relevant language was clear. See id. at 2497 (Scalia, J., dissenting) (arguing that “[i]t 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.’”).

69 See Eskridge, Slocum & Gries, supra note 5.

70 A “generalization” concerns a linguistic regularity in a repeated context. See Florent Perek and 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 word a verb is used is whether other verbs have already been witnessed being generalized).
relating to canon application or cancellation or how canons are ordered in cases where they conflict.\textsuperscript{71} For example, in testing the triggering conditions of \textit{ejusdem generis}, it could be more helpful to study how ordinary people understand a list concluding with a general term, rather than to study how ordinary people would decide the \textit{McBoyle} case. The former approach isolates only the material relevant to triggering. Results using the latter approach might also reflect participants’ views about the specific (and theoretically irrelevant) facts of \textit{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.\textsuperscript{72} The two categories address so-called “textual canons,” which are varied presumptions about meaning “that are drawn from the drafter’s choice of words, their grammatical placement in sentences, and their relationship to other parts of the ‘whole’ statute.”\textsuperscript{73} The presumptions typically are said to be based on general principles of language usage rather than legal concerns.\textsuperscript{74}

The first category covers canons triggered by specific linguistic phenomena and minimal context. Some of these canons broaden the literal meaning\textsuperscript{75} of a provision.\textsuperscript{76} The second category includes so-called “contextual canons,”\textsuperscript{77} triggered by linguistic phenomena but requiring consideration of the broad context of a statute for their application.\textsuperscript{78} These so-called “contextual canons” are each

\begin{itemize}
  \item \textsuperscript{71} See infra Part II; see also Tobia, supra note 40 (describing the different methodological approaches of experimental jurisprudence and legal psychology that aims to model jury decision making).
  \item \textsuperscript{72} 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, supra note 30, at 923-24 (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.
  \item \textsuperscript{73} See WILLIAM ESKRIDGE & PHILIP FRICKEY, CASES AND MATERIALS ON LEGISLATION: STATUTES AND THE CREATION OF PUBLIC POLICY 634 (1995).
  \item \textsuperscript{74} See 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 “normative” or “policy” canons); 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.”).
  \item \textsuperscript{75} The term “literal meaning” is used throughout this Article 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 FRANCOIS RECANATI, LITERAL MEANING 3 (2004); Lawrence Solum, Communicative Content and Legal Content, 89 NOTRE DAME L. REV. 487 (2013) (“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.”).
  \item \textsuperscript{76} See infra Section IV.A.2 (describing how these canons can broaden literal meaning).
  \item \textsuperscript{77} SCALIA & GARNER, supra note 3 at xiv.
  \item \textsuperscript{78} We include the \textit{expressio unius est exclusio alterius} canon in the category, which Scalia & Garner label as a “semantic canon.” Id. at xiii. Although nothing in our project turns on this categorization, the \textit{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).
triggered by a certain kind of linguistic formulation or context, 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. This is so regardless of whether ordinary people are aware of such usage, or could even identify the canon by name.

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. Thus, for instance, a grammatical rule may be triggered by the presence (or absence) of a comma. Consider the “Oxford comma rule,” one of the interpretive principles we tested. 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. 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.

See infra notes 139-42 and accompanying text (discussing the expressio unius canon).

79 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 id.

80 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 long-standing usage. See Krishnakumar & Nourse, supra note 26, 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 do not join the debate regarding when the term “canon” should be used when referring to an interpretive principle.

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


83 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).

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, and 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.85

The Oxford comma rule could also 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
(3) Perishable foods.86

Another 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 state 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.”87 Would the interpretive dispute have been decided differently if the Maine statute contained the additional comma, as in (4)?88 If ordinary people would interpret (4) more broadly than (3), as containing an additional category, that would provide some intuitive support for the Oxford comma rule.89

85 See infra Section I.D. and accompanying text (describing the defeasibility of interpretive canons).
86 26 M.R.S.A. § 664(3).
87 O’Connor v. Oakhurst Dairy, 851 F.3d 69, 72 (1st Cir. 2017).
88 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 id. at 77-78.
89 Namely, that support would come if ordinary people made this judgment without consideration of the other contextual evidence the First Circuit also addressed (e.g. legislative
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:

Table 1. Category One Canons.

<table>
<thead>
<tr>
<th>Gender/Number Canon</th>
<th>In the absence of a contrary indication, the masculine includes the feminine (and vice versa), and the singular includes the plural (and vice versa).⑨₀</th>
</tr>
</thead>
<tbody>
<tr>
<td>“And” vs. “Or”</td>
<td>“And” joins a conjunctive list, “or” a disjunctive list.⑨₁</td>
</tr>
<tr>
<td>(Conjunctive/Disjunctive Canon)</td>
<td></td>
</tr>
<tr>
<td>“May” vs. “Shall”</td>
<td>Mandatory words, such as “shall,” impose a duty while permissible words, such as “may,” grant discretion.⑨₂</td>
</tr>
<tr>
<td>Oxford Comma</td>
<td>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.⑨₃</td>
</tr>
<tr>
<td>Presumption of Nonexclusive ‘Include’</td>
<td>The verb “to include” introduces examples, not an exhaustive list.⑨₄</td>
</tr>
<tr>
<td>Series-qualifier Canon</td>
<td>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.⑨₅</td>
</tr>
</tbody>
</table>
| Rule of the Last Antecedent | (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.⑨₆ |

⑨₀ See SCALIA & GARNER, supra note 3, at 129.  
⑨₁ See id. at 116.  
⑨₂ See id. at 112.  
⑨₃ See supra notes 83-89 and accompanying text (describing the Oxford comma rule).  
⑨₄ See SCALIA & GARNER, supra note 3, at 132.  
⑨₅ See id. at 147.  
⑨₆ 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. 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. Below are the four canons in this category that we test.

### Table 2. Category Two Canons.

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

97 *See* Anita S. Krishnakumar, *Backdoor Purposivism*, 69 DUKE L.J. 1275 (2020) (explaining that textualist Justices have engaged in purposive analysis when applying contextual canons); *see also* Eskridge & Nourse, *supra* note 29 (arguing that theorists have not fully analyzed the concept of context).

98 *See* Krishnakumar, *supra*, 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.”)

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

100 *See* id. at 199.

101 *See* id. at 107.
The *ejusdem generis* canon, discussed above, illustrates the theme of this group of textual canons.102 *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.”103 The motivation for the *ejusdem generis* canon is straightforward and intuitive.104 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).105 Intuitively, the general, catch-all term must be narrower in meaning than its literal meaning would indicate.106 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.”107 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.108

The *ejusdem generis* canon is not without its detractors. Some critics claim it does not accurately reflect language usage.109 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.110 Such indeterminacy may influence judges to downplay its significance and indicate that it is just one “factor” to consider, among many others.111 *Ejusdem generis* is nevertheless an ordinary meaning canon if it reflects how ordinary people interpret catch-alls at the end of

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102 See supra notes 24-25, 57-59.
104 See SLOCUM, supra note 3, at 186-87 (explaining the language production rationale for the *ejusdem generis* canon).
105 See Peter Tiersma, Categorical Lists in the Law, in LEGAL DISCOURSE ACROSS CULTURES AND SYSTEMS 115 (Vijay K. Bhatia, Christopher N. Candlin, Jan Engberg, eds., 2005).
106 Catch-all 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.
107 See SLOCUM, supra note 3, at 187.
108 See id. at 188-98 (arguing that *ejusdem generis* is based on a regularity of language usage that narrows the literal meaning of a catch-all).
109 See, e.g., DICKERSON, supra note 103, at 234 (questioning whether the *ejusdem generis* canon is “lexicographically accurate”).
110 See Brett M. Kavanaugh, Fixing Statutory Interpretation, 129 HARV. L. REV. 2118, 2161 (2016) (arguing that he would “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).
111 See SCALIA & GARNER, supra note 3, at 213 (arguing that “*ejusdem generis* is one of the factors to be considered, along with context and textually apparent purpose in determining the scope. It does not always predominate, but neither is it a mere tie-breaker.”).
lists. Establishing its status as such “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.” Justice Kagan, dissenting in *Yates v. 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. While Justice Kagan’s arguments about the application of those canons in *Yates* may have been well-founded, her concerns go to the proper application of the canons rather than to whether they were triggered by the statutory language.

It is common for courts and scholars to refer to contextual canons as being applicable when a term is “ambiguous.” One problem with the ambiguity-is-required position though is that a canon that restricts the literal meaning of language does not resolve “ambiguity.” The *ejusdem generis* canon does not help a court select between competing lexical meanings but, rather, restricts a catch-all to some subset of its literal meaning. 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 resolve some ambiguity about the meaning of “beverages,” because it is quite clear that orange juice is a beverage as a general matter. Rather, the question is whether the list of four beverages that precedes the “other beverages” catch-all indicates that only some subset of “beverages” is targeted, such as those that contain alcohol.

More importantly, Justice Kagan’s ambiguity-is-required position (thereby making the trigger: *list of items + catch-all + ambiguity*) offers a plausible conception of the trigger for *ejusdem generis* only if a broader trigger that would

112 See 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).
113 See, e.g., Sebelius v. Auburn Reg'l Med. Ctr., 568 U.S. 145, 156 (2013) (indicating that a canon of interpretation is “is no more than [a] rul[e] of thumb” that can tip the scales when a statute could be read in multiple ways”) (quotations and citation omitted).
115 Id. at 564 (Kagan, J., dissenting).
116 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 Anita S. Krishnakumar, *Longstanding Agency Interpretations*, 83 FORDHAM L. REV. 1823, 1868 (2015) (describing how “language canons” are “supposed to be invoked only when a statute’s meaning is ambiguous or uncertain”); Gluck & Bressman, supra note 30, at 930 (describing “*noscitur a sociis*” as requiring judges to “construe ambiguous terms in a list in reference to other terms on the list”).
117 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, *Reforming the Canon of Constitutional Avoidance*, U. PA. J. CONST. L. (forthcoming 2021).
118 See supra notes 102-112 and accompanying text.
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exclude ambiguity (list of items + catch-all) does not in fact trigger the canon for ordinary people. The better way to view Justice Kagan’s position is 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. If the purpose of the provision is consistent with the literal meaning of the catch-all, *ejusdem generis* should therefore 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 catch-all is too broad. Thus, in (5) above, a court should not narrow the meaning of the catch-all, “other beverages,” if the available evidence indicates that the literal meaning of the catch-all better supports statutory purpose than would some narrowed meaning.

**D. Empirical Study of Interpretive Canons**

Using experimental methods to confirm or disconfirm the ordinary meaning status of existing interpretive canons is novel and important. As suggested in the previous section, empirical evidence may provide other equally important insights. Empirical evidence may show that the current set of interpretive canons is incomplete, that individual canons are defined inaccurately, and may even help resolve conflicts between canons. In fact, we argue that currently unrecognized textual canons are waiting to be discovered by the legal system. Furthermore, we show 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. Scholars often argue that a canon’s language generalization is inaccurate, but they rarely advocate for the recognition of new textual canons. Legal tradition, not linguistic usage, has defined the canons. Empirical study of ordinary language users can thus help

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120 Furthermore, a requirement of ambiguity would significantly undermine *ejusdem generis* as an interpretive principle based on a generalization of language usage because it would make the trigger subjective and unpredictable. See Slocum, *supra* note 112 (describing the subjective nature of judicial determinations of ambiguity).


122 See Krishnakumar, *supra* note 97 (explaining that judges heavily rely on statutory purpose when applying contextual canons like *ejusdem generis*).

123 There is no official list of textual canons, and thus different lists contain different canons.

124 There are some exceptions. See, e.g., Ethan J. Leib & James J. Brudney, *The Belt-and-Suspenders Canon*, 105 IOWA L. REV. 735, 737 (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 285-291 and accompanying text (describing proposed substantive canons).

Electronic copy available at: https://ssrn.com/abstract=3786090
determine whether the traditional canons represent the only relevant language generalizations available. 125

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. 126 Therefore, without some restriction, the meaning of (6) is that every existing person went to Paris. 127 But even with little contextual evidence, the literal meaning of (6) is different from that which even “untutored conversational participants” would ascribe to it. 128 Linguists treat terms such as “everybody” as a restricted quantifier, creating situations where there is a gap between intuitive meaning and literal meaning. 129

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. 130 Thus, in United States v. Gonzales, 131 the Court sought explicit language in a federal sentencing statute to restrict “any other term of imprisonment” to federal sentences. 132 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.” 133

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, 134 the Court restricted the scope of the phrase “convicted in any court” to include only domestic, and not foreign, convictions. The restriction, though, was motivated by the interpretive presumption against extraterritorial application of legislation. 135 Similarly, in Nixon v. Missouri Municipal League, 136 the Court interpreted a statute authorizing federal preemption of state and local laws prohibiting the ability of “any entity” to provide telecommunications services as

125 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 (2015) (explaining that “sociolinguistic causes of language change” involve the altering of language as “the needs of its users alter”).
127 See id.
128 See Recanati, Literal Meaning, supra note 75, at 11.
129 See id.
130 See Slocum, supra note 3, at 153.
131 520 U.S. 1 (1997).
132 Id. at 5.
133 Id. at 6.
135 Id. at 388-89.
not including a state’s own subdivisions.\textsuperscript{137} States were thus allowed to prohibit local municipalities from providing telecommunications services.\textsuperscript{138} 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.\textsuperscript{139}

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.\textsuperscript{140} 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.\textsuperscript{141} At least potentially then, the “quantifier domain restriction canon” fits the profile of a potential “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 generalizations\textsuperscript{142} 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 \textit{expressio unius est exclusio alterius} canon provides that when a statute expresses something explicitly (usually in a list) anything not expressed explicitly falls outside the statute.\textsuperscript{143} 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 therefore require something more.\textsuperscript{144} “For example, if Mother tells Sally, “you may have a cookie and a scoop of ice cream,” it seems quite clear (to parents, at least) that candy bars are excluded. Yet, the negative inference may not be warranted in other situations. If Mother tells

\begin{itemize}
\item \textsuperscript{137} See \textit{id.} at 128-29.
\item \textsuperscript{138} See \textit{id.} at 140 (indicating that “federal 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.”).
\item \textsuperscript{139} See \textit{id.} at 140-41.
\item \textsuperscript{140} See supra notes 126-129 and accompanying text.
\item \textsuperscript{141} See SLOCUM, supra note 3, at 153.
\item \textsuperscript{142} The inaccuracy may be subtle, such as “ambiguity” being a component of the trigger. See \textit{supra} notes 110-116 and accompanying text.
\item \textsuperscript{143} Some scholars have defended the canon as being consistent with linguistic principles. See, e.g., M.B.W. Sinclair, \textit{Law and Language: The Role of Pragmatics in Statutory Interpretation}, 46 U. PITT. L. REV. 373, 416 (1985) (arguing that \textit{expressio unius} is consistent with Gricean principles of communication).
\item \textsuperscript{144} See Peter M. Tiersma, \textit{A Message in a Bottle: Text, Autonomy, and Statutory Interpretation}, 76 TUL. L. REV. 431, 444, 459 (2001) (explaining that “even though \textit{expressio unius} has at least some linguistic justification, courts apply it in what seems to be a rather haphazard fashion.”).
\end{itemize}
Sally not to “hit, kick, or bite” her brother, the exclusion of other harmful acts—like pinching—might not follow. 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. Scalia & Garner do not suggest any such additional element but caution that the canon should be “applied with great caution” and “common sense.”

**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. Under one theory, *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.”

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 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.

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 the action of throwing fish overboard to avoid being found in violation of a separate provision barring undersize fishing. 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.” 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.

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146 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.

147 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 Journal of Semantics 69 (1995).

148 See Krishnakumar, supra note 97, at 1280, 1305; see also Dolan v. U.S. Postal Serv., 546 U.S. 481, 494 (2006) (indicating that “[w]ords grouped in a list should be given related meaning.”).

149 See infra notes 207–208 and accompanying text (explaining that ordinary people were able to use sentential context in order to select the correct meaning of “bank”).


151 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”).

152 That is, no one would claim that as a general matter the ordinary meaning of “tangible object”
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.” We argue in Part IV that these situations involve non-literal interpretations consistent with the non-literal 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.”153 Alternatively, according to Scalia & Garner, a modifier at the end of a list normally applies to the entire series “when there is a straightforward parallel construction that involves all nouns or verbs in [the] series . . . .” (emphasis added).154 Scalia & 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).155 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 not be determined without consideration of the broad context of a statute and its purpose, in the same way that so-called contextual canons require such consideration.156 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.157 Consider the conflict between the rule of the last antecedent, which provides that a modifier generally

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.”

153 Shon Hopwood, Restoring the Historical Rule of Lenity as a Canon, 95 N.Y.U. L. Rev. 918, 948 (2020).
154 See Scalia & Garner, supra note 3, at 147; see also Lockhart v. United States, 136 S.Ct. 958, 965 (2016) (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.”).
155 See Scalia & Garner, supra note 3, at xv.
156 See Lockhart, 136 S. Ct. at 965 (indicating that application of the series-qualifier canon and the rule of the last antecedent “are fundamentally contextual questions.”).
157 A definitional conflict occurs when the definitions of two canons are explicitly in conflict, as compared to a situational conflict, which 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, 531 (2013) (explaining situational conflicts where “[f]or any difficult case, there will be as many as twelve to fifteen relevant ‘valid canons’ cutting in different directions, leaving considerable room for judicial cherry-picking.”).
refers to the nearest reasonable antecedent in the absence of a comma before the modifier, and the series-qualifier canon. At least some of the two canons’ definitions show that they provide opposite instructions about how modification works. As Judge Posner has asserted, “the ‘series-qualifier’ canon contradicts the ‘last-antecedent’ canon,” 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. 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 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.

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 (for example) the full statute at issue in *McBoyle* and ask them to apply it to a specific situation (such as whether an “airplane” is a “vehicle”). 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, mock-judging surveys muddy the distinction between a canon’s trigger and its application, and especially between the relatively low

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158 See supra Table 2. See generally Terri LeClercq, Doctrine of the Last Antecedent: The Mystifying Morass of Ambiguous Modifiers, 40 TEX. J. BUS. L. 199 (2004) (describing Jabez Sutherland’s creation of the rule of the last antecedent).

159 United States v. Laraneta, 700 F.3d 983, 989 (7th Cir. 2013).


161 The research involving human subjects was approved by [institution removed for anonymous review] IRB Protocol 00002711.

162 See supra notes 18-23 and accompanying text (discussing the Supreme Court’s decision in *McBoyle v. United States*).
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 multi-layered process that involves normative decisions, specialized legal competence, and inferences from context. Survey participants may be able to competently invoke language generalizations when interpreting relatively de-contextualized 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, our studies take a different approach. 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 all of the 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 pre-registered at Open Science (osf.io). See Table 3 for the design and sample questions.

We recruited a sample of 4,500 participants from Lucid, a large survey platform. 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 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.

163 See supra notes 62-64 and accompanying text (describing Justice Holmes’ view of statutory interpretation).

164 Lucid screens every participant with attention checks and open-ended questions, using machine learning to screen out participants that do not respond with care. 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 et al., Evaluating Online Labor Markets for Experimental Research: Amazon.com’s Mechanical Turk, 20 POL. ANALYSIS 351, 366 (2012); Gabriele Paolacci et al., Running Experiments on Amazon Mechanical Turk, 5 JUDGMENT & DECISION MAKING 411, 412–13 (2010); 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). There are of course some criticisms. See generally 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). Our Article 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 (Experiment 1) and law students (Experiment 2).
In each condition, participants received a consent form, followed by a comprehension check question. 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**

<table>
<thead>
<tr>
<th></th>
<th>Ordinary</th>
<th>Legal</th>
<th>Null</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of questions</td>
<td>22</td>
<td>22</td>
<td>16 (excluding questions that cannot be tested in the null context).</td>
</tr>
<tr>
<td>Intro. Text</td>
<td>In the following screens, you will see 22 short questions about different fictional rules.</td>
<td>In the following screens, you will see 22 short questions about different fictional laws.</td>
<td>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 <em>pinol</em>, <em>rabax</em>, or <em>vinut</em>.</td>
</tr>
<tr>
<td>Conf. text (same for all)</td>
<td>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.</td>
<td>Imagine that there is a law. Part of that law states that “It is prohibited for any person to set off a rocket on company property.” Does this</td>
<td>Imagine that there is a rule. Part of that rule states that “It is prohibited for any person to <em>puwets a mokah</em>.” Does this</td>
</tr>
</tbody>
</table>

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

Participant were randomly assigned to one condition (ordinary, legal, or null). Each participant received questions in a random order. In our pre-registration, we specified that our primary analysis would consider only the first question answered by each participant. This allows us to assess participants’ evaluation of each canon without the influence of reading or answering any other canon question. In effect, this analysis takes our study to have a between-subjects design, with crossed condition (ordinary, legal, or null) and (first and only) question.

Below we present the results for each canon. The questions are from the legal condition. The ordinary context involved nearly identical language that described

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Confidence Question (same for all) How confident are you in the above answer?

0 = not at all confident, to 10 = extremely confident

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166 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.

167 The most detailed presentation and statistical analyses supporting these conclusions can be found in the Article’s Appendix.
a company’s rule rather than “a law.” The null context always began, “Imagine that there is a rule. Part of that rule describes…”168 The discussion below also indicates which answer we pre-registered 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.169 These interpretive principles are typically relevant to the literal meaning of a provision and are often referred to as “semantic canons” or “syntactic canons,” among other terms.170

1. Gender Canons

Although courts do not explicitly refer to a “gender canon,”171 there is a long-standing interpretive principle that the masculine includes the feminine.172 For instance, the Constitution refers frequently to “he” and “his” but there is little dispute today that those pronouns include women.173 The judicially-created gender canon has been codified by Congress and some states.174 Courts have similarly indicated that the feminine includes the masculine, although the judicial presumption may not be as strong.175

The current gender canon may not cover all situations where a pronoun’s ordinary meaning is broader than its literal meaning.176 Pronouns are now a widely discussed component of the LGBTQ movement.177 Historically, English lacked a standard gender-neutral singular third-person personal pronoun, as “they” was

168 All questions are available in the Appendix.
169 See Section I.B. supra.
170 See SCALIA & GARNER, supra note 3, at xii-xiii (describing and defending eleven “semantic canons” and seven “syntactic canons”).
171 A search of Westlaw revealed no judicial references to a “gender canon,” although the principle that the masculine includes the feminine is well established.
172 See SCALIA & GARNER, supra note 3, at 129; see also Curtis v. State, 645 S.E.2d 705, 709 (2007) (holding that a statute that included masculine pronouns included the “feminine gender.”).
174 See LINDA D. JELLUM & DAVID CHARLES HRICK, MODERN STATUTORY INTERPRETATION 144 (2009).
175 See, e.g., In re Compensation of Williams, 635 P.2d 384, 386 (Or. Ct. App. 1981), aff’d 653 P.2d 970 (Or. 1982) (indicating that “[t]he word ‘woman’ is clear and merits no interpretation.”).
176 See supra notes 123-41 and accompanying text (explaining that the current set of interpretive canons may be incomplete or inaccurate).
177 See Evan D. Bradley, Julia Salkind, Ally Moore & Sofi Teitsor, Singular ‘They’ and Novel Pronouns: Gender-neutral, Nonbinary, or Both?, 4 PROC LING SOC AMER 36 (2019).
thought to be ungrammatical in such situations because it is a plural pronoun.\textsuperscript{178} Recent non-legal empirical studies have indicated that “they” is now interpreted as gender-neutral, including non-binary/gender-nonconforming referents and can be used grammatically to reference a singular individual.\textsuperscript{179}

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

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.

\textsuperscript{178} See id.
\textsuperscript{179} See id.
2. Number Canons

The number canon provides that the singular includes the plural (and vice versa). Congress has codified the number canon as it has the gender canon. Because “singular” and “plural” are often contrasting concepts, some might understand this canon as not an ordinary meaning canon because it selects a non-literal meaning for the singular (or plural) term. According to Scalia & Garner, the plural includes the singular is “not as logically inevitable as the proposition that one includes multiple ones . . . .” 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. Scalia and Garner argue that “[c]ompetent users

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180 See Scalia & Garner, supra note 3, at 130.
181 See id.
182 See supra note 80 and accompanying text (describing what we refer to as an “ordinary meaning canon”).
183 Id.
184 See Scalia & Garner, supra note 3, at 116.
of the language rarely hesitate over their meaning.”¹⁸⁵ We included questions to test this possibility.

**Study Question 1. Conjunctive Canon (Legal Version)**

<table>
<thead>
<tr>
<th>Imagine that there is a law. Part of that law describes “property and buildings.” Does this part of the law mean:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Both property and buildings [endorsing]</td>
</tr>
<tr>
<td>• Either property or buildings, or both</td>
</tr>
<tr>
<td>• Either property or buildings, but not both</td>
</tr>
</tbody>
</table>

**Study Question 2. Disjunctive Canon (Legal Version)**

<table>
<thead>
<tr>
<th>Imagine that there is a law. Part of that law describes “property or buildings.” Does this part of the law mean:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Both property and buildings</td>
</tr>
<tr>
<td>• Either property or buildings, or both [endorsing]</td>
</tr>
<tr>
<td>• Either property or buildings, but not both</td>
</tr>
</tbody>
</table>

There was strong support for the conjunctive canon, in all three contexts. However, results for the disjunctive canon were more mixed, with many participants choosing both the “and” option and the exclusive-or option. 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.¹⁸⁶ In some contexts, “or” actually expresses “and” and vice-versa.¹⁸⁷

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.¹⁸⁸ Scalia & Garner argue that “[t]he text of this canon is entirely clear, and its content so obvious as to be hardly worth the saying.”¹⁸⁹ Our results strongly support this claims. Unsurprisingly, people understood “may” permissively and “shall” mandatorily.

¹⁸⁵ Id.
¹⁸⁷ See Kenneth A. Adams & Alan S. Kaye, Revisiting the Ambiguity of “And” and “Or” in Legal Drafting, 80 ST. JOHN’S L. REV. 1167 (2006) (providing an in-depth analysis of the ambiguities that can arise when using “and” and “or”).
¹⁸⁸ See SCALIA & GARNER, supra note 3, at 112.
¹⁸⁹ Id. (explaining that “[t]he 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]

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.

7b included a comma after the word “shipment,” and was otherwise identical. 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; and for the Oxford comma question, there were differences in the ordinary and null, but not legal contexts. In both cases (for question 7a and 7b), the differences were ones reflecting endorsement of the second option. That is, in the null context, participants tended towards the second option, even for question 7a.

We also pre-registered 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. In Section III.B we present results from a law student sample. Overall, the results were very similar across lay 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

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.190

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

We also pre-registered 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. In Section III.B we present results from a law student sample. Overall, the results were very similar across lay 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

190 See supra notes 81-89 and accompanying text.
were more sensitive to the addition of the comma, and their responses were more consistent with the predictions of the Oxford comma rule.

6. Presumption of Nonexclusive “Include”

The presumption of nonexclusive “include” provides that the word does not introduce an exhaustive list.\textsuperscript{191}

\begin{table}[!h]
\centering
\begin{tabular}{ |p{1\textwidth}| }
\hline
\textbf{Study Question 8. Presumption of Nonexclusive ‘Include’ (Legal Version)}
\hline
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:
\begin{itemize}
  \item The term ‘motor vehicle’ includes only automobiles, automobile trucks, automobile wagons, and motor cycles.
  \item The term ‘motor vehicle’ includes automobiles, automobile trucks, automobile wagons, motor cycles, and some other entities. [endorsing].
\end{itemize}
\hline
\end{tabular}
\end{table}

There was a significant difference from chance for the Nonexclusive Includes 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 we conclude there is certainly not strong intuitive support for a nonexclusive “includes” (nor for an “exclusive” one).

7. Series-Qualifier Canon & 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.\textsuperscript{192} The former provides that a modifier generally refers to the nearest reasonable antecedent,\textsuperscript{193} 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.\textsuperscript{194} When a modifier is set off from a series of antecedents by a comma, however, the two canons agree on the proper interpretation.\textsuperscript{195}

We 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 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.

\begin{itemize}
  \item \textsuperscript{191} See \textsc{Scalia} & \textsc{Garner}, supra note 3, at 132.
  \item \textsuperscript{192} See supra notes 153-160 and accompanying text.; see also Baude & Sachs, supra note 74, at 1126-27 ("nobody proposed [the series-qualifier canon] as a canon until Justice Scalia “pioneered it"); LeClercq \textit{supra} note 158 (describing how the rule of the last antecedent was created by an attorney).
  \item \textsuperscript{193} See supra Table 2.
  \item \textsuperscript{194} See \textit{id}.
  \item \textsuperscript{195} In such a case, the modifier would apply to all of the antecedents.
\end{itemize}
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]

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, 10b), this is a rejection of the rule of the last antecedent.

We also pre-registered specific comparisons to assess the effect of the comma (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.

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 2, 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. 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
While these canons are triggered by specific kinds of language, their application requires consideration 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. As we noted above, some define the canon more narrowly as requiring ambiguity: when a word or phrase in a list is unclear, its meaning “should be determined by the words immediately surrounding it.” 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)**

<table>
<thead>
<tr>
<th>Imagination</th>
<th>Question Meanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imagine that there is a law. Part of that law describes “records, documents, or tangible objects.” Does this part of the law mean:</td>
<td>• Records, documents, and tangible objects that are similar to records or documents [endorsing]</td>
</tr>
<tr>
<td></td>
<td>• Records, documents, and all tangible objects (including, for example, a fish)</td>
</tr>
</tbody>
</table>

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

**Study Question 13c. Noscitur a sociis: homonyms (Legal Version)**

<table>
<thead>
<tr>
<th>Imagination</th>
<th>Question Meanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>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:</td>
<td>• terrain alongside the bed of a river (commonly known as a “bank”); a financial institution; or a savings and loan association</td>
</tr>
<tr>
<td></td>
<td>• an institution for receiving, lending, exchanging and safeguarding money (commonly known as a “bank”); a financial institution; or a savings and loan association [endorsing]</td>
</tr>
<tr>
<td></td>
<td>• 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</td>
</tr>
</tbody>
</table>

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%, 78%, 88%). There

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196 See supra notes 97-122 and accompanying text.
197 See SCALIA & GARNER, supra note 3, at 195.
198 See Krishnakumar, supra note 97, at 1305.
were significant differences from chance in the ordinary condition for 13b and 13c (83%, 77%) 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 specific things, the general words should be construed to include only objects similar in nature to the specific words.\(^\text{199}\) The *ejusdem generis* canon has been criticized by some scholars, including Richard Posner, as based on faulty linguistic premises.\(^\text{200}\) Yet, Gluck and Bressman report that legislative staffers are aware of and rely on *ejusdem generis*, along with other category two canons.\(^\text{201}\) Others have defended the canon.\(^\text{202}\)

### 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)

Overall, there was support for the canon. Participants intuitively applied the canon at rates greater than chance in the legal condition (70%), but not 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.\(^\text{203}\) The trigger for the canon—the explicit expression of one thing + an argument that some implicit term is also included—

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\(^\text{199}\) 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. Engler, *The Other Side of Ejusdem Generis*, 11 SCRIBES J. LEGAL WRITING 51, 53 (2007).


\(^\text{201}\) See Gluck & Bressman, supra note 30, at 932-33 (“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*).”).

\(^\text{202}\) See Cass R. Sunstein, *Interpreting Statutes in the Regulatory State*, 103 HARV. L. REV. 405, 455 (1989) (explaining that *ejusdem generis* “derives from an understanding that the general words are probably not meant to include matters entirely for afield from the specific enumeration. If understood to be truly general, the general words would make the specific enumeration redundant.”).

\(^\text{203}\) Some scholars have defended the canon as being consistent with linguistic principles. See Sinclair, supra note 143.
is obviously too broad to serve as a generalization about language usage. As a result, the canon has been widely criticized. Nevertheless, some have suggested that the canon may guide legislative drafters. 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.

**Study Question 11. Expressio unius est exclusion 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.

The results for *expressio unius* indicated a lack of support for the canon. In the ordinary condition, participants rejected 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 (i.e., “all,” “any,” etc.) is typically restricted by context. Currently, the judicial assumption is typically that universal quantifiers are unlimited in scope. Linguists and philosophers, however, have argued that the domains of universal quantifiers are restricted by ordinary people even when very little context is provided. We included one possibility to assess understanding of universal quantifiers in rules.

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204 See supra notes 142-144 and accompanying text.
205 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.”).
206 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”).
207 See *Chevron U.S.A. Inc. v. Echazabal*, 122 S. Ct. 2045, 2050 (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, e.g., Eskridge, Jr. & Ferejohn, supra, at 1250 (“for 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.”); Cass R. Sunstein, *Interpreting Statutes in the Regulatory State*, 103 HARV. L. REV. 405, 455 (1989) (arguing that the canon is “helpful” “[w]hen it is plausible to assume that Congress has considered all the alternatives”).
208 See supra notes 126-141 and accompanying text.
209 See supra note 141 and accompanying text.
Study Question 12. Universal Quantifier (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]

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 most participants selecting the first option. This result is sensible. Participants had very little context; they evaluated “a rule” about a nonse 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 described our experimental study of ordinary people and the results for each canon. Part III uses these results to illustrate some broader implications. As we explain, 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. We first describe some of the connections between the canons, such as whether there was a positive or negative relationship between the invocation of different canons.

We also describe our second study, which recruited a sample of U.S. law students to answer the legal condition questions. As we explain, 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, we include 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

We began by evaluating whether the percentage of implicit application of each canon differed from chance, across each of the three conditions. As explained above, we only considered each participant’s first canon question. For example, in the ordinary condition, 64 participants saw the “Gender: His” question first. Of those, 54 (84.4%) chose that the rule means any person (men, women, or non-
binary); 7 (10.9%) chose that the rule means only any man; and 3 (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), \(X^2 = 76.2, p < .0001\).

As Figure 1 indicates, the results were largely consistent across 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.

**Figure 1.** Percentage Implicitly Invoking the Canons, in the Ordinary and Legal Contexts
Figure 2 includes results from the null context, which were more varied. Some results were consistent (e.g. gender canons, number canons), which is striking given how little context is included in that experimental condition. Recall that some questions could not be presented at all in the null context (e.g. *ejusdem generis*), given the hypothesized triggering conditions.

**Figure 2.** Percentage Implicit Application of the Canons, in the Ordinary, Legal, and Null Contexts
2. Confidence Ratings

After each question, participants reported their confidence, on a scale from 0 to 10. Mean overall confidence ratings differed across contexts (See Figure 3). They were highest in the ordinary context, intermediate in the legal context, and substantially lower in the null context.210 The relative confidence ratings for each question was 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).211

**Figure 3.** Mean Confidence Ratings by Question, across Contexts

![Confidence Ratings Graph](image)

210 Across all 16 shared questions, the estimated marginal mean confidence rating is the 8.57 (95% 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, 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.

211 The x-axis begins from 5 for readability. No mean ratings were below 5.00. The null context participants did not receive two series-qualifier questions, the *noscitur* questions, or the *ejusdem* questions; as such, there are no confidence ratings for those questions.

Electronic copy available at: https://ssrn.com/abstract=3786090
3. Relationships Among the Implicit Applications of Different Canons

We were also interested to assess the (positive or negative) relationship between the invocation of different canons. For example, is someone inclined to invoke *noscitur a sociis* more likely to invoke *ejusdem generis*? To assess this question, we computed tetrachoric correlations across all canons, comparing invocation to non-invocation. Figure 4 displays these correlation coefficients in a heatmap, where darker blue indicates stronger positive associations, white indicates no association, and darker red indicates stronger negative associations.

**Figure 4.** Correlations Among Implicit Applications of Canons

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

Implicit invocation of canons that are (seemingly) unrelated were correlated. For example, interpreting “their” or “his” as including female or non-binary 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. However, that idea—that (many) participants were “broad interpreters”—does not adequately explain other relationships. For example, invoking the gender and number canons were associated with each other, but also with invoking *noscitur a sociis.* In the
experimental materials, invoking *noscitur 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 type of *non-literal* interpretation. What we mean by “non-literal” 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*. The Article develops this idea in Section IV.

**B. Extending the Study with a Law Student Sample**

Some might have concerns about Study 1’s online convenience sample of laypeople. Perhaps those participants are not sufficiently attentive or representative of “ordinary people.” We do not find these worries particularly plausible. Concerning attention, we used several attention/comprehension checks and also relied upon a survey platform that pre-screens participants for attentiveness. Moreover, the results do not support 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, which had two options). However, we found that participants invoked certain answers at rates greater than chance—often the answers consistent with our triggering hypotheses. Whether our pool is the right population for a study of “ordinary meaning” is a more complicated question. Insofar as ordinary meaning interpretation is concerned with how (all) people would understand legal texts, we think our population is ideal. Our sample is demographically very diverse in terms of gender, race, political orientation, income, and U.S. geography (see Appendix).

Nevertheless, some scholars may still carry a more general skepticism about online convenience samples. Others defend the use of these research platforms in law and psychology research.\(^{212}\) Our second study addresses any lingering concerns with data.\(^{213}\) 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 within the first week of class, to ensure that they were most comparable to ordinary people in terms of knowledge (i.e., they had not yet learned the canons of interpretation through their legislation course). Within the context of our paper, this population is thus not conceptualized 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, but are highly educated and likely attentive in survey-taking.

Participants evaluated twenty-two scenarios designed to test the canons’ triggering conditions. Each participant received the scenarios in the legal context (concerning laws).\(^{214}\) One hundred and thirty three participants began taking the

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\(^{213}\) See id. (demonstrating that for some projects in law and psychology, online convenience sample studies replicate in-person studies).

\(^{214}\) The full vignettes, questions, hypotheses, and proposed analyses were all pre-registered at
study. Ten did not proceed far into the study (and entered no demographic information), and one failed the comprehension check question. Following our pre-registration, we analyzed results for the remaining students (one-hundred and twenty two). The findings are remarkably consistent with those of Study 1.

**Figure 5.** Law Student and Lay Percentage Implicit Invocation, in the Legal Context

The law student sample expressed no less support for invoking nearly all of the canons invoked by the lay sample. In many cases, a greater proportion of the law students invoked the canon’s answer. The law student sample also supported some canons more unclear in the lay sample, such as the “Gender: Hers” canon. Both samples rejected the rule of the last antecedent, which predicts the opposite of series-qualifier in our series-qualifier cases.

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Open Science (osf.io).

215 The sample was 60.7% female, 37.7% male, .8% transgender, .8% prefer not to respond. The mean age was 26.5 (SD = 6.1). Nearly all who reported their year of law school were in their first year (98.5%). 66.9% self-identified as liberal, 15.1% as “middle of the road,” and 17.9% as conservative.
There were five small differences. First, where the lay sample was divided about Gender-Hers, the law sample was more inclined to evaluate “hers” inclusively, in line with the proposed canon. Second, where the lay sample tended to reject the presumption of a non-exclusive “includes,” 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.

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 summarizes our findings. It lists each canon from “strongly invoked” to “strongly rejected,” 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 listed as “strongly invoked.”
- If the results in only one context differed significantly from chance in the predicted direction, the canon is listed as “invoked.”
- If both the ordinary and legal context results differed significantly from chance in a non-predicted direction (i.e. inconsistently with the canon’s application), the canon is listed as “strongly rejected.”
- If the results in only one context differed significantly from chance in a non-predicted direction, the canon is listed as “weakly rejected.”
- If multiple of the conditions above are met, or if none is met, the canon is listed under “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 students sample invoked a canon at rates greater than chance, a “*” mark appears. If they rejected the canon, a “—” marks appears.

216 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 and Rejection

| Strongly Invoked | - Conjunction --
|                 | - Gender: His *
|                 | - Gender: Their *
|                 | - Singular includes plural *
|                 | - Plural includes singular *
|                 | - May *
|                 | - Shall *
|                 | - Noscitur a sociis (words and context) *
|                 | - Noscitur a sociis (homonyms) *
|                 | - Series-qualifier *
| Invoked         | - Oxford comma *
|                 | - Noscitur a sociis (surrounding words) *
|                 | - Ejusdem generis *
|                 | - Quantifier domain restriction *
| Unclear         | - Oxford “no comma”
|                 | - Gender: Hers *
| Rejected        | - Disjunction *
|                 | - Expressio Unius
|                 | - Non-Exclusive “Includes”
| Strongly Rejected | - Rule of the Last Antecedent

* indicates law student invocation, -- indicates law student rejection

The overall pattern of results is striking. 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 men, women, and non-binary persons. Law student participants, however, largely judged “her” as gender-inclusive.

Before turning to the next Part, we address the most likely possible objections to our study. We tested a large number of canons, with a large number of participants, in three different modes of presentation (contexts). One limitation of our design choice is that we used only one example for each canon (in three different modes of presentation). For example, in the ordinary and legal contexts, the only question testing the “plural includes the singular” canon involves rockets. The null context helps address this worry by replacing 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 jimn 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*. [invoking]

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 resolve contentious debates about conflicting canons (rule of the last antecedent versus series qualifier), and they also provide 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 those claims. To those who say 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 specific legal questions about ordinary meaning. To be sure, there is relevant work in experimental psycholinguistics, semantics, and philosophy of language.217 We believe ordinary meaning theories of legal interpretation should look to empirical evidence from these fields.218 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 other were not. These were typically offered as “intuitions,” assumed (but not demonstrated) to be shared across people. A seminal experimental study set out to test whether those claims actually reflected how people understood language.219 Researchers conducted a large experiment, asking laypeople to assess a random sample of acceptability cases. Those cases were 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.

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218 See Part IV infra.

We see our experimental study similarly. We are building on tremendously important linguistic and legal scholarship related to law’s interpretive canons. Our study might have shown 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 we discuss in Part IV, this experimental approach does not close the door on more theoretical work. To the contrary, it invites it. 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 sincerely welcome those empirically testable hypotheses. It is impossible to assess every such hypothesis in this Article, 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

Canons are often assumed to reflect ordinary meaning, but whether they do is an empirical question. Thus far, we have developed a new theory and framework for empirically testing legal-interpretive canons and conducted the first experimental study of whether ordinary people implicitly invoke the canons. Parts II and III elaborated the experiments’ implications for the canons. The evidence suggests that ordinary people interpret rules consistently with many long-standing canons, but not others. The results also reveal that people interpret rules in line with two new canons. 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 evidence about the canons. We see our results as providing some crucial data to that project.

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. Courts tend to treat ordinary meaning as a question about 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 should be refocused. We find that ordinary people understand many types of ordinary and legal rules similarly. This finding suggests a different way forward. The ordinary meaning doctrine should not focus 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. Some scholars have suggested that the interpretive canons generally

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220 See, e.g., SLOCUM, supra note 3; ESKRIDGE, supra note 3; SCALA & GARNER, supra note 3; SOLAN, supra note 3.
221 See infra Part IV.
222 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.
223 These are canons that have never before been acknowledged as canons, but which equally guide ordinary interpretation of rules. See supra Part II.
function to narrow meaning, leading to jurisprudentially conservative results. We see our results as providing evidence of a different unifying theory of the 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 more narrow interpretations.

Finally, building on this new theory of ordinary meaning and the canons, we propose a new empirical research agenda at the intersection of law and language. 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 simply by tradition. This Article is the first to contemplate and demonstrate the possibility of discovering further canons via ordinary meaning. We discover two—the “non-binary gender canon” and “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 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 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.

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224 See infra notes 278-79 and accompanying text (describing David Shapiro’s theory of the canons).

225 Cf. Antonin Scalia, Assorted Canards of Contemporary Legal Analysis, 40 CASE W. RES. 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 and regularly act upon the proposition that “is” shall be interpreted to mean “is not.”). For the seminal work in dynamic interpretation see WILLIAM N. ESKRIDGE, DYNAMIC STATUTORY INTERPRETATION (1994) and William N. Eskridge, 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.

226 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 seriously empirical evidence about ordinary meaning, an ordinary meaning doctrine that emphasizes consideration of context and non-literal meanings would be a challenge to both.
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. Empirical studies can help uncover which canons are actually supported by ordinary meaning (Parts II and III). As this Part demonstrates, empirical study can also help make progress on longstanding debates about deeper and more fundamental questions in interpretation theory.

A. Reframing Ordinary Meaning: The Meaning of Rules

First, our results support a new understanding of the ordinary meaning doctrine, as one focused on the ordinary interpretation of rules, as opposed to one focused on non-legal language more generally. Courts have long accepted that “ordinary meaning” stands for the proposition that legal and non-legal language coincides. 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. 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.” Courts could solve the problem by not focusing on determining linguistic meaning, or they could seek to determine, in a very general sense, how ordinary people want statutes to be interpreted.

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

227 See David Mellinkoff, The Language of the Law 34 (1963) (indicating that “absent 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 nonlegal communications.”).


230 See Fallon, supra, at 269 (arguing that courts should adopt whichever “invented meaning would best promote judicial and governmental legitimacy.”).


232 See, e.g., Tiersma, supra note 17 (describing the unique linguistic features of statutes); Mellinkoff, supra note 224 (describing how legal texts often use Latin words and phrases, terms of art, and Old French and Anglo-Norman words).
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 non-rule 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 Article’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 some 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.” Our ordinary condition took the opposite approach, providing participants with a company’s rule. 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. However, our experimental study 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.

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

(1) Who is your father, and what is his birthday?
(2) His singing wasn’t very good.
(3) His car is over there.

This contrast between rules and non-rules contexts clarifies something deep about the gender canon and when it is triggered. The gender canon applies to legal rules—and as the experiment reveals, also to ordinary rules. But it does not apply to “ordinary language.” The presence of the trigger (a term like “his”) does not

233 See Part II supra.
234 Id.
235 Id.
236 As argued in the next section, the same canons also support non-literal interpretations.
237 Consider rules arising in non-legal contexts, such as interpretation of the Bible. Perhaps here, too, most would understand rules non-literally and gender-inclusively. For example, prohibitions
imply that there is a general gender-inclusive ordinary meaning.\footnote{See also Kevin Tobia, *The Corpus and the Courts*, U. CHI. L. REV. ONLINE (forthcoming 2021).} In examples 1-3 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 which do not reflect a gender-inclusive meaning. Imagine this statement from a defense attorney to his client:

(4) The prosecutor is a tough, don’t be rattled by his hard questioning.

Or a witness on the stand:

(5) 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 (5) was written as a response to an interrogatory. The gender canon still does not apply, even if the writing is written 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).\footnote{See Scalia \& Garner, supra note 3, at 130.} We found evidence that ordinary people intuitively apply that canon, within the context of legal rules.\footnote{See Part II supra.} 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 taken to mean just one rocket or law. Like the gender canon, the number canon operates within the context of rules, but may not be applicable in many non-rules contexts.

2. The Ordinary Meaning of Rules

Our results thus suggest that something is missing from the modern debate about ordinary meaning. That 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. 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 in even some non-legal 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 non-rule language conventions may still apply. We suspect the interpretation of legal texts is not *sui generis*, and neither is the interpretation of rules. 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 ordinary interpretive practices that equally guide ordinary understanding of rules, but ones that courts have not yet recognized.

This third point may help scholars focus on what is unique, or not, about the interpretation of legal texts. For instance, some interpretive canons when applied result in a narrowing of statutory meaning. 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, “[i]f context could affect the interpretation of words in such a manner that” would be inconsistent “with their context-independent meaning, that would threaten the systematic nature of interpretation.” Thus, “extra-linguistic context” is “never called upon to expand” the meaning of a term. Yet, the interpretation of rules may present a special kind of context. As we have seen 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 interpretation adds a critical new dimension to the long-standing 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 non-legal situations. If so, the linguistic principles and conventions

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242 This point is further discussed in the section below.

243 See Section IV.C *infra*.

244 See supra notes 95-118 and accompanying text (describing Category Two canons).


246 *Id.*

247 Fallon, *supra* note 229. Fallon’s argument 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 Article.
relevant to how ordinary people interpret non-legal rules should be, at the least, relevant to the interpretation of statutes. In further work, we hope to identify the “rule-specific” interpretive principles deployed by ordinary readers. 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 are unified by an intuitive anti-literalism. Basic concepts of linguistics provide that the interpretation of communications requires consideration of context, which often supports non-literal meanings. 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 non-literal statutory interpretations. This important insight should influence how textualists develop their stated commitment to non-literalist 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. Apart from the landmark civil rights achievement for LGBTQ persons, the decision made waves within legal theory for its dueling textualist opinions that came to radically different conclusions about how Title VII should be interpreted. The opinions were unified in their commitment to “ordinary” meaning—and in their opposition to “literalism.”

As Justice Gorsuch put it: “we must be attuned to the possibility that a statutory phrase ordinarily bears a different meaning than the terms do when viewed individually or literally.” Justice Kavanaugh agreed: “courts 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.” Yet, the two (self-proclaimed) anti-literalist Justices came to conflicting verdicts about what ordinary meaning and non-literalism entailed. Scholars have proposed thoughtful analyses of the Bostock opinions but have not offered theories of how the decision relates to textualism and non-literal interpretation.

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248 See generally Recanati, supra note 75.
249 140 S. Ct. 1731 (2020).
250 See Eskridge, Slocum & Gries, supra note 5.
251 Bostock v. Clayton County, Georgia, 140 S.Ct. at 1750.
252 Id., at 1825 (Kavanaugh, dissenting).
253 See, e.g., Grove, supra note 13; Anuj Desei, Text is Not Enough: Semantic Meaning and Social Meaning in the Interpretation of Title VII (unpublished manuscript); Tobia & Mikhail, supra
Most textualists agree with Justice Kavanaugh’s basic claim: textualism is not literalism.\textsuperscript{254} Yet, non-literalism 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 non-literal 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 and reliance and democratic values—that are tied to facts about how ordinary people actually understand language.\textsuperscript{255} 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 \textit{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.\textsuperscript{256}

A key question remains virtually unanswered: What makes interpretation problematically literalist?\textsuperscript{257} In other words, if textualism seeks to interpret texts in line with their \textit{actual} ordinary meanings—closely connected to facts about how ordinary people actually understand language—how should such non-literalist 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.” [quoting Scalia and Garner] . . . Put another way, “the meaning of a sentence may be more than that of the

\textsuperscript{\textit{Note 13}; James Macleod, supra note 13.}
\textsuperscript{254} See, e.g., Lawrence B. Solum, \textit{Communicative Content and Legal Content}, 89 NOTRE. DAME L. REV. 479 (2013).
\textsuperscript{255} See, e.g., \textit{Bostock}, 140 S.Ct. at 1828 (Kavanaugh, dissenting).
\textsuperscript{256} \textit{Id.} at 1828 (Kavanaugh, dissenting) (citing ESKRIDGE, supra note 3, at 81; and SCALIA, supra note 3, at 17).
\textsuperscript{257} Justice Kavanaugh’s dissent in \textit{Bostock} emphasized several anti-literalist themes and mentioned a few canons, including the rule against surplusage, \textit{see id.} at 1830, and the absurdity doctrine, \textit{see id.} at 1827 n. 4, but did not offer a theory of how canons often counsel in favor of non-literal 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. \textit{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. \textit{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. \textit{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.

Electronic copy available at: https://ssrn.com/abstract=3786090
separate words, as a melody is more than the notes.” [quoting Learned Hand].

The reference to the “full body of a text” reflects a key aspect of non-literalism. In an important Article, Richard 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.” 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 non-literal interpretation is beyond the scope of this Article, 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 non-literalism, doing so may change current textualist interpretive practices. While textualists now of course emphasize the importance of context, they also often emphasize the importance of the semantic meaning of statutes. Correlatively, the judicial use of dictionaries has increased dramatically along with the ascendancy of textualism. Our findings indicate 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.

2. Interpretive Canons that Create Non-Literal Meanings

Some existing textual canons already reflect a non-literalist approach to interpretation, although scholars have not characterized them in such a manner. The most obvious example is ejusdem generis. The very function of the ejusdem generis canon is to reject the literal meaning of the words in a catch-all 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

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260 Textualists may emphasize the importance of context, but the perception of textualism is of a methodology committed to literalist interpretation. See, POPKIN, A DICTIONARY OF STATUTORY INTERPRETATION 194 (2007) (observing that “literalism is often used as a synonym for textualism.”).


262 See, e.g., Brudney & Baum, supra note 15 (describing the Court’s increasing reliance on dictionaries).

263 See supra notes 102-119 and accompanying text (describing the ejusdem generis canon).
included within the category “vehicle,” such as only vehicles that have engines.\textsuperscript{264} The \textit{noscitur a sociis} canon often serves the same function. The \textit{noscitur} canon can be used to select between competing definitions, as our “bank” question illustrates.\textsuperscript{265} but, similar to the \textit{ejusdem generis} canon, it is also often used to select some subset of a term’s literal meaning. Thus, in \textit{Yates vs. United States}, the Court considered the \textit{noscitur} canon to be relevant to selecting some subset of the literal meaning of “tangible object.”\textsuperscript{266} Even the rule against surplusage, which we did not assess in our empirical study, often points to a non-literal interpretation.\textsuperscript{267}

Other canons expand literal meaning in more subtle ways. For instance, as discussed above, one of the gender canons provides that male pronouns be interpreted broadly to include women and non-binary persons, which may not correspond with some dictionary definitions and could thus be viewed as a non-literal meaning.\textsuperscript{268} Similarly, the singular includes the plural (and vice versa) canon may also deviate in some cases from literal meaning. 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).\textsuperscript{269}

3. Discovering New Canons that Create Non-Literal 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 selecting interpretations that “do not alter relationships any more than is necessary to achieve the statutory objectives.”\textsuperscript{270} Often, “continuity over change” is promoted by applying canons that narrow possible meanings.\textsuperscript{271}

\textsuperscript{264} See supra notes 18-24 and accompanying text (describing the McBoyle case).

\textsuperscript{265} See supra notes 197-198 and accompanying text (describing our survey question involving the homonym “bank”).

\textsuperscript{266} 574 U.S. 528, 543-44 (2015). The Court used \textit{noscitur} and \textit{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 supra notes 113-122 and accompanying text (discussing Yates).

\textsuperscript{267} See e.g., Gustafson v. Alloyd Co., Inc., 513 U.S. 561, 574-75 (1995) (interpreting “communication” to mean “documents of wide dissemination” in part based on the rule against surplusage).

\textsuperscript{268} See, e.g., Merriam-Webster Online, https://www.merriam-webster.com/dictionary/his (defining “his” as “of or relating to him or himself especially as possessor, agent, or object of an action”. But see Merriam-Webster Online, https://www.merriam-webster.com/dictionary/he (defining “he” with both gendered and generic senses).

\textsuperscript{269} Even a rejection of the \textit{expressio unius} canon, which ordinary people may not widely apply, can be viewed as reflecting non-literalism. After all, a rejection of \textit{expressio unius} is an indication that the interpreter contemplates the possibility of implied terms. See supra notes 142-146 and accompanying text (describing the \textit{expressio unius} canon).


\textsuperscript{271} See id. 929 (noting that the \textit{ejusdem 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.”).
Our results suggest that the unifying theory of (many) canons might have more to do with non-literalism 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.272

A commitment to the empirical realities of ordinary meaning as often non-literalist may change how courts, whether textualist or intentionalist, approach statutory interpretation. We propose one such new non-literalist canon, the quantifier domain restriction canon.273 Recognition of this canon and others as both valid and non-literalist may have the salutary effect of decreasing judicial reliance on dictionary definitions and increasing judicial sensitivity to context.274 For instance, in *Ali v. Bureau of Prisons*,275 the Court (via Justice 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 of some indiscriminately of whatever kind.”276 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 non-literalist canons are waiting to be discovered.

C. A New Law and Language Research Program

As we have argued, 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 non-legal language generally.277 as well as common textualist practices, such as emphasizing the literal meanings of statutes.278 This Section discusses several remaining issues relating to our work, including the possibility of discovering new canons, multiple speech-communities, the limitations of our research, and, finally, how future research might proceed.

272 See Parts I and II supra (describing how the possibility of empirical testing of interpretive rules represents an important advancement in statutory interpretation theory).
273 See supra notes 126-141 and accompanying text.
274 See M.A.K. Halliday & Colin Yallop, Lexicology 24-25 (2007) (explaining that “the dictionary takes words away from their common use in their customary settings,” which can “can be highly misleading if used as a basis of theorizing about what words and their meanings are.”).
275 552 U.S. 214 (2008)
276 Id. at 219 (quoting United States v. Gonzales, 520 U.S. 1, 5 (1997) (quoting Webster’s Third New International Dictionary 97 (1976)).
277 See supra Section IV.A.
278 See supra Section IV.B.
1. Discovering Hidden Canons: Are There More Canons?

Our study assessed the triggering conditions of over a dozen interpretive principles, and there are 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. 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 Article, have mostly been legitimized by their historical pedigrees, rather than by empirical testing. This has resulted in a largely accepted assumption that the set of textual canons cannot expand. 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. 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.

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. For example, Cass Sunstein has proposed that judges “should interpret agency-administered statutes in ways that counteract political and regulatory pathologies.” Other canons have been proposed, such as an “environmental canon,” a “dignity canon,” a “CBO” canon providing that “ambiguous statutes should be interpreted in accordance with the reading of the statute adopted by the Congressional Budget Office),” 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.”

279 See supra Section III.C.
280 There are of course some occasional exceptions. See supra note 124.
281 See Manning, supra note 54, at 2474 (2003) (“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.”).
282 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.”).
283 See supra notes 69-80 and accompanying text (distinguishing between substantive and textual canons).
288 See Lynn A. Baker, Constitutional Ambiguities and Originalism: Lessons from the Spending
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 possible themes. The first, inspired by our proposed universal quantifier domain canon and relating to non-literal language conventions, has already been discussed.\textsuperscript{289}

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.\textsuperscript{290} This dynamic feature of language sometimes follows changes in society.\textsuperscript{291} Consider our non-binary gender canon: In rules, masculine and plural pronouns include non-binary persons. Non-binary gender identities have only very recently gained widespread recognition in American life and law.\textsuperscript{292} It is not clear when the non-binary 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 understand rules referring to “he” or “they” to include non-binary persons.\textsuperscript{293} 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

\textsuperscript{289} See supra Section IV.B.
\textsuperscript{290} PETER LUDLOW, LIVING WORDS: MEANING UNDERDETERMINATION AND THE DYNAMIC LEXICON (2014) (rejecting the idea that “words are relatively stable things with fixed meanings”); DIRK GEERAERTS, THEORIES OF LEXICAL SEMANTICS 230 (2010) (explaining that “new word senses emerge in the context of actual language use.”).
\textsuperscript{291} See AITCHISON, supra note 125, at 153-54 (explaining that “sociolinguistic causes of language change” involve the altering of language as “the needs of its users alter”).
\textsuperscript{293} Cf. Eskridge, Slocum & Gries, supra note 5 (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. Scholars have recently questioned this assumption. 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 6-8% more likely to intuitively apply the gender canons (i.e. understand terms like “his” and “their” inclusively).

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. 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. 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. 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 legal system, which an ordinary member of the community would not possess. Thus, there are likely fewer demographic differences in situations

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294 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.

295 See David Louk, supra note 2, at 1500; Krishnakumar, supra note 13; see also Nourse, supra note 14 (positing that statutes are directed to multiple audiences).

296 See Appendix.

297 Id.

298 Id.

299 See Jacob Scott, Codified Canons and the Common Law of Interpretation, 98 GEO. L.J. 341, 376 (2010) (explaining that “[t]he 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.”).

300 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 Cmtys. for a Great Oregon, 515 U.S. 687, 700-01 (1995) (making such an inference).
involving canons that can be tested using relatively de-contextualized 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, perhaps types that are correlated with some demographic attributes. Consider our findings indicating positive correlations across the invocation of many of the canons. Participants who intuitively invoked the gender canon were more likely to also apply other canons, like the singular-includes-the-plural canon and *noscitur a sociis*. This might reflect (i) that some participants were attending more carefully to the survey, or (ii) 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.\(^3\) 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 non-legal 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 Validation 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 broadly “validate” any interpretive canon. Recall the theory developed in Part I: A canon has three elements: triggering, application, and cancellation.\(^4\) We have studied only the triggering conditions of the canons. Simply because a canon is invoked, or triggered, 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

\(^3\) See Appendix.

\(^4\) See supra notes 52-122 and accompanying text (describing the three elements).
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 a canon has in comparison to other sources of meaning like legislative history.\footnote{See Eskridge, supra note 157, at 531 (describing how interpretive canons are often in conflict).}

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.\footnote{See supra notes 1-13 and accompanying text.} 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.\footnote{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).} Even so, it is implausible that ordinary meaning would not play some role in the interpretation of statutes.\footnote{See ESKRIDGE, supra note 3 (describing the importance of the ordinary doctrine to statutory interpretation).} 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.\footnote{Gluck & 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. Gluck & Bressman, supra note 30; Gluck & Bressman, supra note 31.}

Thus, we see our Article 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 Article) reflect how ordinary people interpret legal rules;\footnote{See supra Part II (listing the interpretive canons that were tested).}

2) whether there are currently unrecognized canons that reflect how ordinary people interpret legal rules;\footnote{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;\footnote{See supra Section IV.B.}

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;\footnote{See Nina A. Mendelson, supra note 26, at 131 (wondering whether consistent application of}
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 Article 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. However, 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. Many of those examples come from usage in newspapers, online sources, or works of fiction. 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.

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 article. But we take our Article to have made significant progress on some of these questions and to have clarified important steps forward on others.

**CONCLUSION**

We began this Article 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. Another possibility, which we explored in this Article, 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

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312 See, e.g., Lee & Mouritsen, supra note 13.
313 See id.
314 See id.
315 See also Tobia, supra note 238.
316 Gluck & Bressman, supra note 30; Gluck & Bressman, supra note 31.
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.”

This ordinary meaning approach is consistent with current trends in statutory interpretation. In fact, “ordinary meaning” is likely to grow in importance. Figure 6 reflects citations to “ordinary meaning,” “plain meaning,” and “legislative history” across six million U.S. cases in the 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 6. U.S. Caselaw citations to ordinary meaning, plain meaning, and legislative history. Caselaw Access Project (2018) (Retrieved Dec. 12, 2020).](image)

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 2005-2017 the Roberts court relied on “text” and “plain meaning” in 41% of all opinions and 50% of majority opinions.317 The Court relied on text more than intent, purpose, or legislative history.318 The Court has recently gained three new textualists, as lower federal courts welcome a new cohort of exceptionally young judges, similarly committed to textualism.319

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 Article 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

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318 See id.

traditional canons, raise questions about others, and identify two new canons (the “non-binary gender” and “quantifier domain restriction” canons).

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

We see our Article as an important—and long overdue—step in a new research program in empirical legal interpretation. We hope future work will continue to discover other new canons, as well as test 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 Article as a first step in that new research program.

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320 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.”)