

Modal Auxiliaries in Legal United States English

The Case of the United States Constitution

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Abstract

Are the modal auxiliaries the same in the United States legal texts as they are in other forms of American English? Data from the Corpus of Contemporary American English (COCA; Davies 2008-) and Corpus of Current US Code (COCUSC; Brigham Young University 2019) indicate that there are significant differences in the usage of the modal auxiliaries in legal language compared to other forms of American English. While the distribution of modal auxiliaries in non-legal United States English is relatively balanced, legal United States English shows an overwhelming preference for the items shall and may, which make together up over 85% of all modal auxiliaries in COCUSC. While corpus data indicates the presence of a quantitative distinction, they do not explain the reason for this gap in usage. This thesis takes a semantics- and pragmatics-based to the observed differences in usage of modals in legal and non-legal United States English. Examined through the United States Constitution, the main contention of this essay is that the modal auxiliaries of the document are semantically and pragmatically distinct from their non-legal counterparts.

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Modals in Legal United States English: The Case of the United State Constitution

This essay is an investigation of the semantic contents and pragmatic functions of the modal auxiliaries (*shall, should, will, would, can, could, may, might, and must*) as they appear in United States legal language. Considered through lens of the United States Constitution, this thesis proposes a semantic and pragmatic account for the modals of the document and contends that modals in at least some varieties of legal language are indeed distinct from their non-legal counterparts. While this essay should not be considered an exhaustive account of modality in United States legal language, it is intended to provide the beginnings of a theoretical framework through which to consider the topic.

1 Introduction: The Challenge of Interpreting the Law

Known to many by the name “legalese,” the language used in United States legal texts is notoriously difficult for the average non-legal practitioner to understand. While some of this difficulty in comprehension may be attributable to the complex system with which legal writing must contend, there is evidence that the form contributes, as much as, if not more to the opacity of legal varieties of United States English. As Martínez et al. (2022a) demonstrate in “Poor writing, not specialized concepts, drives processing difficulty in legal language,” several constructions which are known to be markedly difficult for readers to process, such as center-embedded clauses, uncommon technical terms, and long-distance syntactic dependencies, are significantly more common in legal language than in other, non-legal varieties of U.S. English. In addition to the marked syntactic differences between legal and non-legal varieties of United States English, there are also significant semantic

dissimilarities between the two.¹

1.1 The Problem: Are Modals in Legal Language Distinct?

One such dissimilarity is the subject of this essay, namely the usage, semantic contents, and pragmatic function of the modal auxiliaries. Broadly construed, modals are a category of linguistic items that contribute semantic information about time, possibility, existence, and necessity. While they sometimes occur as sequences of words, such as *have to* and *be obliged to* (see 1-2 below), or in adverbial terms, such as *necessarily* (see 3 below), they frequently occur as one of the following terms: *shall*, *should*, *may*, *might*, *must*, *can*, *could*, *will*, and *would*. This latter group is a subcategory of modals most frequently called the “central modals.”² It is the semantics and pragmatics of this group that will be the subject of this thesis.

- (1) *I **have to** eat breakfast with the captain.*
- (2) *I **am obliged to** eat breakfast with the captain.*
- (3) *I **necessarily** eat breakfast with the captain.*

While the modals each occur with at least some frequency in both legal and non-legal U.S. English, corpus data indicate that there are significant differences in the usage of the modal auxiliaries between the two varieties. Both current and historical data indicate that the modals occur at strikingly different frequencies in legal and non-legal U.S. English. In the Brigham Young University Corpus of Current US Code (COCUSC; Brigham Young University 2019-), for instance, *shall* and *may* together make up more than over 86% of all

¹It should be noted here that there are registers with similar reputations for opacity, such as academic and medical writing. For the purposes of this paper, non-legal language should generally be taken to refer to instantiations of United States English that are able to be easily understood by speakers of United States English without a specific area of professional expertise.

²Though this category of modals is often termed the “central modals,” they will simply be called “modals” for the sake of brevity in this essay. Even so, it should be noted that the above list is not an exhaustive representation of the modals used in United States English.

occurrences of modals in the corpus, with *shall* alone making up over 59% of occurrences. Elsewhere, in the Corpus of Contemporary American English (COCA; Davies 2008-), the distribution of modals is less skewed, with *shall* being the least frequent modal.

Table 1: Relative Frequency of Modals in COCUSC and COCA

	<i>shall</i>	<i>should</i>	<i>will</i>	<i>would</i>	<i>can</i>	<i>could</i>	<i>may</i>	<i>might</i>	<i>must</i>
COCUSC	59.44%	2.22%	4.16%	3.14%	1.21%	0.76%	27.39%	0.20%	1.22%
COCA	0.76%	8.02%	19.71%	20.46%	22.03%	13.32%	7.37%	4.58%	3.75%

Historical corpus data demonstrate the trend even more strongly. In the Brigham Young University Corpus of Early Statutes at Large (CESAL; Brigham Young University n.d.a), *shall* and *may* together make up **over 97%** of all modal auxiliaries in the corpus, with ***shall* alone making up over 83% of all occurrences of modals**. On the other hand, non-legal language data from the Brigham Young University Corpus of Founding Era American English (COFEA; Brigham Young University n.d.b) show a much more balanced distribution.

Table 2: Relative Frequency of Modals in CESAL and COFEA

	<i>shall</i>	<i>should</i>	<i>will</i>	<i>would</i>	<i>can</i>	<i>could</i>	<i>may</i>	<i>might</i>	<i>must</i>
CESAL	83.10%	0.39%	0.95%	0.33%	0.43%	0.05%	14.57%	0.20%	1.22%
COFEA	8.29%	8.06%	18.64%	21.04%	10.84%	8.07%	13.86%	6.72%	4.47%

As the data demonstrate, the gap in usage of modals between legal and non-legal US English is quite marked. This thesis aims to examine this gap and propose an explanation for it. The essay focuses on the following questions:

1. Do the modal auxiliaries in US legal texts have a distinct semantics? If so, what are the semantic contents of each?
2. Do the modal auxiliaries in legal texts have a distinct pragmatic function? If so, what are the pragmatic functions of each?
3. What, if any, purpose might formal semantics and pragmatics serve in the process of interpreting legal texts?

Approaching these questions through the United States Constitution, the main contentions of this essay are three-fold. First, the modals *shall* and *may*, as they appear in the Constitution, have a distinct semantics. Second, the pragmatic function of the modals *shall* and *may* (as they appear in the Constitution) is also distinct from that of non-legal modals. Third and finally, this essay contends that formal semantics and pragmatics has the potential to serve as a powerful tool for approaching matters of ordinary meaning. While the many existing mechanisms for legal interpretation are often effective when they are able to be applied, linguistics offers a unique and data-driven approach to the process.

The thesis is organized into three main parts. First, in sections 1 and 2, the subject matter is introduced from the perspectives of linguistics and legal studies, with special attention paid to how the two have been integrated in the past and how this essay approaches the interface of the two fields. Second, sections 3 through 7 consider the semantics and pragmatics of the modals as they appear in language data sourced from the United States Constitution. Third and finally, section 8 discusses the implications, limitations, and potential future directions of the analyses presented in the essay.

1.2 Interpreting Language in the Legal Context

There are many ways of interpreting the meaning of law, many of which require the expertise of a practitioner who specializes in legal interpretation. Much of the process is rooted in explicit definitions provided in the text of laws, precedent, and special interpretative principles. Outside of these tools, however, the interpretative process in the United States legal system relies on another important resource, **ordinary meaning**.

The concept of “ordinary meaning” is one with a long history in the United States legal system. While it was once considered to be the sense in which a statutory term is most likely to be used in a given situation, American courts shifted in the direction of treating ordinary meaning as a single, standardized interpretation in the late 19th century (Solan 2020). The consequence of the standardized sense of ordinary meaning has been that some approaches

to legal meaning have become, to an extent, a matter determined by the population of English speakers in the United States, even at the expense of the prescriptive opinions of specialists.³ At the core of ordinary meaning is the notion that legal language, however opaque it may be, is a variety of the language spoken by the people it governs. That is, United States law is written in the same English spoken by the people of the United States. Consequently, the meaning of linguistic items not otherwise explicitly defined in the law can and should be determined by their usage among speakers of United States English. The concept of ordinary meaning is well illustrated by the Supreme Court's holding in *Nix v. Hedden* (1893), a unanimously decided Supreme Court case determining the legal status of tomatoes.

Nix v. Hedden: A Case Study in Ordinary Meaning

In 1887, a man named John Nix began a legal battle with a New York port collector, Edward Hedden. The conflict began when Hedden, the official charged with imposing duties on merchants bringing their cargo into his port, required Nix to pay a tariff for a shipment of tomatoes, citing the Tariff Act of March 3, 1883. Crucially, the Act imposed duties on the importation of vegetables, but not fruits. It was through this fruit-vegetable demarcation that Nix sought remuneration, claiming that he should not have been required to pay, as tomatoes are fruits according to botanical definitions. The case reached the Supreme Court, where it was unanimously decided that, in the absence of a special legal or economic meaning, the categories of fruit and vegetable should be defined in law in accordance with their "ordinary meaning." In the case of *Nix v. Hedden*, this meant that tomatoes were vegetables. In the court's own words, delivered by Associate Justice Horace Gray:

Botanically speaking, tomatoes are the fruit of a vine, just as are cucumbers,

³Of course, it cannot be ignored that any approach to meaning that relies on standardization necessarily imposes linguistic hierarchy upon a population, with the result that marginalized language varieties and their speakers go under- or even un-represented. The inability of the contemporary notion of ordinary meaning to adequately account for linguistic variation continues to be a issue in the approach. This topic, however, is not within the scope of this paper.

squashes, beans and peas. But in the common language of the people, whether sellers or consumers of provisions, all these are vegetables, which are grown in kitchen gardens, and which, whether eaten cooked or raw, are, like potatoes, carrots, parsnips, turnips, beets, cauliflower, cabbage, celery and lettuce, usually served at dinner in, with or after the soup, fish or meats which constitute the principal part of the repast, and not, like fruits generally, as dessert. (Gray 1893)

For the court, the decision was straightforward. Without an explicit statutory definition, the interpretation should be guided by common understanding, even at the expense of technical definitions. In such cases, then, meaning may be best ascertained by scholars with a descriptive, rather than prescriptive, approach to the study of language. It is in this respect that linguists are uniquely positioned to make a strong intellectual contribution to the area of statutory interpretation, especially those whose specialty is the study of word and sentence meaning. As the field is designed to investigate and describe language usage, linguists are extremely well-equipped to answer questions about what, precisely, the meaning of a term is in “the common language of the people.” This paper is an exploration of the applications of the two fields of linguistics most concerned with word meaning, semantics and pragmatics, to the problem of the interpretation of modals in the United States Constitution. Unlike the case of *Nix v. Hedden*, which centered around a lexical item, the focus of this project is a series of functional items, the modal auxiliaries. With a particular focus on *shall* and, to a lesser extent, *may*, the main contention of this thesis is that the semantics and pragmatics of modals in the legal context are distinct from those of modals in other registers.

2 Situating the Law as an Object of Linguistic Inquiry

While case studies such as *Nix v. Hedden* are useful for framing debates over meaning in the law from the perspective of legal studies, this essay approaches the subject matter from the perspective of theoretical linguistics. Accordingly, it is necessary to identify and describe

precisely how legal language may be treated as an object of inquiry for the purpose of research in linguistics. The following section aims to achieve this goal in six parts. First, “legal language” is rigorously defined in section 2.1. Section 2.2 presents an overview and discussion of some of the existing linguistics literature on the topics of legal interpretation and ordinary meaning. The third portion, section 2.3, provides a high-level overview of the theoretical semantics concepts employed in this essay for readers without a background in the subfield, while section 2.4 demonstrates how those concepts can be applied to the law. Finally, sections 2.5 and 2.6 situate legal language in terms of the communities that use it and the contexts in which it appears.

2.1 Defining “Legal United States English”

“Legal United States English,” may be broadly defined as the instantiations of American English intended for use in the legal context. This definition includes several varieties of highly distinct cases of legal English, such as executive orders, contracts, judicial opinions, and statutes. When considering legal language as a broad category, it is extremely important to consider the differences between the varieties, as the intended purpose, person or body responsible for interpreting the text, and manner of interpretation may vary depending on the category of legal text being interpreted. For instance, interpretation in criminal law is subject to the **rule of lenity**, a principle that requires that legal ambiguities be interpreted in favor of the defendant (Solan 2020: 296). Of course, such a sort of rule could not possibly apply to legal meaning in a situation where there is no defendant, such as the execution of a will. In spite of such differences, some scholars note that it is the ordinary meaning approach that draws the many domains of law together. In his 2020 article “Testing Ordinary Meaning,” Kevin Tobia writes:

within legal interpretation, among the most pervasive inquiries is the search for ordinary meaning. Across the interpretation of contracts, wills, trusts, deeds, patents, statutes, regulations, treaties, and constitutions, legal theorists and

practitioners regularly evaluate the text’s ordinary meaning. (Tobia 2020: 728)

As section 3 will discuss, the data used in this thesis comes from only one category, and, indeed, only one document. The narrow scope of the data used in this paper renders the particulars of variation across the domains of the law somewhat moot, at least as far as the analysis presented here is concerned. Even so, future research in this area should take this issue seriously, as there are several significant differences between these subcategories of Legal United States English. For the purposes of this essay, however, “Legal United States English” may be taken to refer to the data sourced from the legally binding portions of the United States Constitution written between 1787 and 1789.

2.2 Linguistics and Law

2.2.1 Linguistics and Statutory Interpretation

Among legal scholars, most approaches to statutory interpretation through linguistics come in the form of corpus-based research. Though some scholars offer their support for the use of corpora in process of statutory interpretation, there is significant debate over whether corpus linguistics is a sufficient tool for assessing meaning in the legal context. In his empirical study “Testing Ordinary Meaning,” Tobia (2020) produces strong evidence that corpus linguistics tends to cause legal practitioners and laypeople alike to interpret meaning more narrowly than would be truly appropriate. One explanation for this may be the way in which linguistic corpora decontextualize language data. Solan (2020) contends that corpus methods have the potential to lead interpreters to privilege prototypical word meanings over those that may be more appropriate in a given situation because they remove significant context. Other legal scholars have made similar cases against overreliance on corpus linguistics for the purpose of statutory interpretation. John Ehrett’s article, “Against Corpus Linguistics,” (2019) remarks on the tendency of corpus-based approaches in legal studies towards introducing interpretative biases. For one, where there is often an hierarchy of importance among

historical texts (they are not all equally significant!), Ehrett notes, corpus methods tend to overlook such distinctions in favor of frequency-based information. Worse still, he contends, the use of corpus linguistics in statutory interpretation involves reliance on the design where judges otherwise would themselves choose the texts they use in their research. The use of corpora reassigns this responsibility to the designer of the corpus, potentially significantly reducing the agency of the judiciary in the interpretative process.

While some scholars in legal studies have taken strong anti-corpus linguistics positions in the debate over statutory interpretation, others have approached the topic with a cautious optimism. Lawrence Solan, a linguist and law professor, has highlighted the benefits of the use of corpora, as few other approaches allow for the investigation of large amounts of data in the way that corpus linguistics does (Solan 2020). Beyond this, Solan counters claims about the limitations of corpus linguistics by highlighting the possibility of designing specialty corpora and integrating more advanced computational methods as the field advances.

While legal scholars have mainly relied on corpus methods when integrating linguistics and law, theoretical and applied linguists have engaged with the interface of the areas from a variety of perspectives. Sociolinguists John Rickford and Sharese King have investigated the experience of speakers of marginalized language varieties in U.S. courtrooms (Rickford and King 2016), finding that such speakers unfortunately face significant bias in the U.S. legal system. Elsewhere, experimental linguists such as Eric Martinez have used research methods from psycholinguistics to investigate the accessibility of legal language (Martínez et al. 2022a; Martínez et al. 2022b), finding that the register is significantly more difficult to process than many other forms of U.S. English. Perhaps most relevant to this thesis, some theoretical semanticists have an approach of their own for the process of interpreting the law. Carl Vogel, a computational linguist and semanticist best summarizes the position of these scholars: “Where the text is of a legal nature, a difference between a semanticist and a lawyer is that the semanticist is not on retainer to find a desired interpretation, but to enumerate the possibilities” (Vogel 2009 25). This thesis adopts Vogel’s approach to the

topic. The data is assessed from the perspective of theoretical semantics, and an account that can capture the possible meanings of the modals used in the United States Constitution is proposed.

2.3 A Crash Course in Semantics

Though this essay is focused on formal semantics, it is intended to be accessible for a wider audience. Accordingly, this section is dedicated to describing the major concepts and formalisms from semantics that are necessary for understanding this paper. Readers familiar with intensional semantics may choose to skip ahead to section 2.4, “Situating the Law in a Semantic Model of Meaning.”

2.3.1 Modeling Meaning

Historically, there has been much contention among linguists about whether natural language meaning is fundamentally able to be represented with mathematical modeling or not. Many held that natural language is too irregular and complex to be represented accurately with a system as regimented as those used in formal logic and mathematics. Even so, some scholars disagreed. Most notably, the logician Richard Montague introduced a theory of his own in 1970 when he claimed there is “no important theoretical difference between natural languages and the artificial languages of logicians” (Montague 1970, 373). Though it underwent much refining, Montague’s approach to modeling meaning has grown popular in the field of semantics.

At its core, semantics is a subfield of linguistics dedicated to modeling meaning, often in terms of theories initially developed in formal logic and discrete mathematics such as first- and higher order logics, set theory, and type theory. Combining this approach with legal studies, pragmatics, and sociolinguistics, this paper aims to generate a robust model of legal meaning.

2.3.2 Semantic Value and the Possible Worlds Metaphor

This paper falls primarily into the domain of intensional semantics, which is to say that it deals with meaning in terms of time, necessity, and possibility. In this model of semantics, sentences that are able to be evaluated as either true or false are called propositions. In the case of modals, a proposition can be said to be in the scope of a modal if it is being modified by one, as in (4-7).

(4) *I **must** eat dinner.*

(5) *I **will** go to school tomorrow.*

(6) *You **may** want to consider taking an extra day off.*

(7) *We **can** meet tonight or this afternoon.*

In each of the above examples, a modal contributes information about the timing and necessity or possibility of some event, whether that is eating dinner as in (4), going to school as in (5), or meeting as in (7). Crucially, it should be noted that the example containing modals can apply to multiple situations. In (4), for instance, the speaker is asserting some obligation to eat dinner. Regardless of the source of that obligation, the main contribution of *must* is that, in all relevantly similar situations, the speaker expects that they will eat dinner. This is markedly distinct from describing a single dinner-eating event. Unlike in extensional semantics, where the semantic value of a proposition is a truth value of either true or false for a specific situation,⁴ the semantic value of propositions in intensional models of meaning is the set of situations, or *possible worlds*, in which they are true.

As the notions of time, possibility, and necessity are highly abstract, it is common in semantics to discuss intensional meaning in terms of possible worlds. In simple terms, the idea of possible worlds is a metaphor designed to make it easier to consider the way things *could*

⁴It is possible for the truth value to be something other than true or false in approaches based on non-classical logics, which sometimes consider truth to be a continuous value instead of a binary one. In the sake of this thesis, however, this approach will be considered out of scope.

be in a given situation or set of situations and describe them in quantificational terms. There are two main quantificational categories into which modals fall: universally quantifying and existentially quantifying. A modal is universally quantifying if the proposition in its scope holds in every possible world within a given model. The notion of universal quantification over a set of possible worlds is typically ascribed to modals expressing ideas about necessity and futurity such as *shall*, *should*, *will*, *would*, and *must*. On the other hand, existentially quantifying modals describe a situation in which some proposition is true in at least one possible world in a set of relevantly similar possible worlds. In simpler terms, existentially quantifying modals express the possibility and potentiality. The items *can*, *could*, *may*, and *might* are considered to fall into this category.

Given an explanation of how modals can quantify over sets of possible worlds, it is equally important to understand how sets of possible worlds are defined. This can be done through Angelika Kratzer's (2012, originally published 1981) dual notions of a modal base and ordering source, updated with Cleo Condoravdi's (2022) more recent account of the same subjects.

2.3.3 Conversational Backgrounds: The Modal Base and Ordering Source

In intensional semantics, propositions denote sets of possible worlds. Since there are conceivably infinitely many possible worlds, it is necessary for theoretical semantics to have a means of identifying the sets of possible worlds over which it might be appropriate to quantify. Kratzer's bipartite theory of conversational backgrounds provides the necessary theoretical tools to accomplish this. It is through the notion of conversational backgrounds that relevant sets of possible worlds are identified. From the selected relevant set of possible worlds, then, combined sets of propositions describing a scenario can be used to identify a set of possible worlds over which a modal would have scope.

The two elements of Kratzer's notion of conversational background are the modal base and the ordering source. The modal base is a function that takes some evaluation world

(most typically the real world) as a baseline and returns a set of possible worlds that are relevantly similar to that baseline. The ordering source is a function that takes an evaluation world and returns a set of propositions (thus a set of sets of possible worlds) that are expected to be true in the given evaluation world. Each of the possible worlds denoted by the modal base is able to be ordered by quality of fit relative to the ordering source based off how many of the ordering source's propositions are true in that possible world. Accordingly, the best possible worlds in the modal base are the ones in which the greatest number of propositions from the ordering source hold true.

Imagine discussing beaches in terms of intensional semantics. First, a modal base is used to identify the set of possible worlds that are similar to the evaluation world. In this case, we might take the real world we occupy to be our evaluation world. From this point, we will want to consider only the possible worlds in which it is possible for there to be a beach, based off how we understand what is necessary for a beach to exist. For instance, though it is certainly possible to imagine alternate worlds with no oceans, it would not be possible for a beach to exist under such conditions, so those worlds will not be included by the modal base. On the other hand, possible worlds in which sand is purple instead of yellow are perfectly acceptable. The resulting set of possible worlds is the modal base. In formal terms, then, the modal base in the beach scenario is the set of possible worlds that is such that it is possible for a beach to exist in that world, or $\{w_{\text{beach}} \mid \text{it is possible for beaches to exist in } w_{\text{beach}}\}$.

With a modal base established, an ordering source may be used to identify the beachiest possible worlds within the set. Imagine spending a day at the beach. Such a scenario summons images of salty waves, a sandy plain, swimmers, sandcastles, towels, and life guards, among other things. Given all the complexities of the setting, the situation is best described in terms of sets of propositions about the conditions that characterize its beachiness. This set of propositions is the ordering source. The greater the number of beachy conditions fulfilled in a possible world in the modal, the closer the world is becomes to the ideal prototypical beach world. This set of propositions may be something similar to the following: x is a location by

the ocean, x has sand, x is a popular recreational destination. It is now possible to identify the beachiest worlds among them. Given the above ordering source, the absolute beachiest worlds in the modal base are the ones in which is possible for beaches to exist **and** some x is a location by the ocean **and** that x has sand **and** that x is a popular recreational destination. The reason the modal base and ordering source make for such a powerful combination is that are together able to account for the messiness of the world. Some beaches, for instance, have rocks instead of sand. While they may not be the first thing people imagine when they think of beaches, rocky beaches are beaches nonetheless. Taken together, the ordering source and modal base allow speakers to acknowledge the difference between sandy beaches and rocky ones without being forced to deny the beachiness of either.

2.3.4 Sources of Possibility and Necessity

Following from Angelika Kratzer’s “What ‘Must’ and ‘Can’ Must and Can Mean,” (Kratzer 1977), whether something holds in a given possible world is one matter, but the reason *why* it holds is another altogether. Sometimes the reason is deontic, meaning that it is rooted in a duty or obligation. Other times it is bouletic, meaning that it is upheld by the decision of some body. In other cases still, the reason a proposition holds can be related to the preferences of a speaker rather than some enforceable cause such as the decision of a deliberative body. Sometimes, particularly in legal contexts, where most bouletic modal propositions are also deontic, there can be multiple simultaneous reasons. The following examples illustrate each of these uses through the modal auxiliary *must*:

- (8) **Deontic:** *Citizens **must** pay their taxes.*
- (9) **Bouletic:** *The high council has delivered their opinion: “Apples **must** be eaten on a daily basis!”*
- (10) **Preferential:** *You **must** try the apples, they’re to die for!*
- (11) **Combined Deontic-Bouletic:** *By vote of Congress, all citizens under 34 **must***

pay the apple tax.

In assessing the semantic contents of modals in legal documents, the source of necessity and possibility is an especially relevant concern. Where quantificational information can provide some insight about modals, this second leg of analysis can further refine those insights. For instance, one of the differences between an executive order issued by the President and a law passed by Congress is that only the Congressional legislation can be appropriately considered bouletic while both may appropriately be labeled deontic. It is in this way that identifying the source of necessity in legal texts can enhance understanding of the law. Most significantly, it should be noted that (universally quantifying) modals in legally binding documents should minimally be considered deontic in almost all cases. Beyond this, they may also be variably considered bouletic, especially when issued by a legislative body.

2.4 Situating the Law in a Semantic Model of Meaning

Given a sense for the semantic mechanisms used to map modality, it is now possible to situate legal language data within a model using those tools. First, the concept of the modal base can be used to model a body of relevant laws. Where a law or group of laws is a set of propositions demarcating the set of situations which are and are not licit within a given legal system, the law as a whole may be considered an intersected set of propositions. Thus, the set of possible worlds in which the law is followed, or, minimally, the set of possible worlds in which it is expected that the law will be followed, is defined. It is over this set of possible worlds that the modals of legal language are said to have scope.

2.5 The Sociolinguistic Context: Considering Legal Language

Though it is clear that many recognize the language of the law to be more verbose and obscure than other varieties of English, it is less clear *why* legal language in particular may be observed to be uniquely opaque among the forms of United States English. Where the

intuition of many has been to dismiss it as the product of pretentiousness, there may be a functional explanation for the particular form of legal language. Sociolinguistic theory on linguistic communities of practice offers a strong explanation for why at least some of the unique properties of legal language may be necessary for it to perform its functions (Lave & Wenger 1991; Eckert & McConnell-Ginet 1992). Eckert and McConnell-Ginet define communities of practice in terms of shared behaviors, goals, and functions within a group as the members interact with each other:

A community of practice is an aggregate of people who come together around mutual engagement in some common endeavor. Ways of doing things, ways of talking, beliefs, values, power relations - in short, practices - emerge in the course of their joint activity around that endeavor. A community of practice is different as a social construct from the traditional notion of community, primarily because it is defined simultaneously by its membership and by the practice in which that membership engages. Indeed, it is the practices of the community and members' differentiated participation in them that structures the community socially. (Eckert & McConnell-Ginet 1992: 8)

From this definition, it is clear that practitioners of the law can appropriately be construed as a linguistic community of practice. Those who use language to engage with the law are united in numerous ways that those who have no use for legal language may not be. Therefore legal practitioners may use legal language in ways that may not be shared by other linguistic communities of practice. Beyond simply demonstrating that linguistic communities of practice can explain how legal language can be a unique register, this view, in combination with the pragmatic function of the law, can also offer an explanation of why the legal register is necessarily highly verbose and prescribed. Laws establish legal obligation by stating it, and are thus inherently performative. Because of this, the linguistic contents of laws must be chosen carefully and communicated in such a way that their meaning is clear to members of the linguistic community of legal practice. Unlike other registers where the stakes may

be lower, there is very limited room for miscommunication or ambiguity. Thus, many legal practitioners adhere closely to prescribed conventions and err on the side of overspecification where language users in non-legal speaker communities would be unlikely to do the same.

2.6 Performativity and Legal Language

One critically important feature of United States legal language is its relationship to the pragmatic notion of performativity. First described by J.L. Austin, the fundamental idea behind the concept is that some utterances enable a speaker to take perform an action simply by saying it (Austin 1962). Thus, performative utterances enact the very thing they describe as they describe it. Though this fundamental idea underpins nearly all theories of performativity, the details of the concept have been debated in the literature for over half a century. John Searle famously diverged from Austin's account to form his own theory of performativity (Searle 1989, 1975). Significantly, Searle, draws a distinction between declarations and performatives, noting that declarations require the speaker to have some sort of extra-linguistic factor allowing the utterance to have an effect while true performatives have no such requirement. For instance, Searle claims, while anyone is able to object to something (a true performative in Searle's account), it is not possible for just any speaker to excommunicate someone. As demonstrated by (12) and (13) below, there is a particular extralinguistic requirement of institutional power for those utterances deemed by Searle to be declarations rather than true performatives.

(12) *I excommunicate*

[Performative iff speaker has authority to excommunicate someone]

(Searle 1975: 349)

(13) *I object*

(Searle 1975: 348)

While Searle's account of performativity is certainly influential, recent scholarship has

challenged a number of his positions on the matter. As described by Condoravdi and Lauer (2011), the three criteria for performativity in the Searlean account are that (a) performatives name the acts they carry out, (b) performative utterances guarantee themselves by bringing about a state of affairs that renders the utterance true, and (c) performative utterances achieve the first two criteria through a literal interpretation of a uniform lexical contribution. These three criteria are founded on the assumption that intent is required for the successful production of a performative utterance. Condoravdi and Lauer take the position that the intent assumption is unnecessary. Further, himself Lauer (2015) implicitly takes a position against the self-naming criterion and the lexicality requirement by referring to modals as performatives when they do not describe the act they perform in the manner prescribed by Searle (see (14) below).

(14) *You **may** / **can** have some ice cream.*

(Lauer 2015: 1)

Elsewhere in the literature, Eckardt (2012) also defines performativity in broader terms than Searle, claiming the following:

All examples taken together confirm that there are no simple linguistic signals, features or feature bundles that characterize performative utterances. Eventually, comprehension of the literal content of a sentence is mandatory to decide whether that sentence, under suitable circumstances, can be used in a performative sense. (Eckhardt 2012: 26)

This essay rejects Searle's claim that extralinguistic factors are sufficient reason to deny that an utterance is performative in nature. Just as some religious authority is required to excommunicate someone from a church, so too is some extralinguistic power required to issue an order in such a way that it would result in a change in to the existing state of affairs in a given situation, though Searle would insist that only the second act is truly performative. Taken a step further, this thesis assumes legal language to be inherently performative.

In a further departure from Searle, Eckhardt, Condoravdi, and Lauer all place an emphasis on semantics as well as pragmatics in their accounts of performativity. It is the position of this essay that such an integrated semantics-pragmatics account is most appropriate for the research questions posed in this project. In more specific terms, this thesis follows Henk Zeevat (2003) in its treatment of the semantics-pragmatics of modal auxiliaries in U.S. legal language. Accordingly, this essay assumes that the following three features characterize the semantics-pragmatics of speech acts:

- i. There is some set of preceding or concurrent conditions existing that allow for an utterance to bring about a change in the state of affairs.
- ii. When a speaker issues an utterance intended to bring about a change in the state of affairs, they are proposing an addition to the set of propositions commonly held by the conversational participants to be true, also known as in the common ground.
- iii. Successful performative utterances result in the addition of the utterance to the common ground and an accompanying word to world change in the state of affairs.

(Zeevat 2003: 1)

3 The Modals of the United States Constitution

Though, as the introductory section of this essay demonstrates, the phenomenon of disparate usage of modal auxiliaries between non-legal U.S. English and legal U.S. English is evident across multiple sources, this thesis relies on data from the United States Constitution. Within the text of the Constitution, this thesis focuses on the legally binding text written between 1787 and 1789. This section will discuss the reasons for doing so and introduce the topic of modality in the document.

One major consideration for researchers outside of legal studies investigating topics relating to the law is the set of limitations imposed by the scholar's lack of training with the subject matter. For the linguist studying legal meaning, one large obstruction poses a major

issue for the task of interpretation: lack of legal education. In the absence of knowledge of legal principles of interpretation and the set of cases informing precedent, linguists are unlikely to reach the same conclusions legal experts would when assessing legal language. Beyond this consideration, a further issue arises with regard to using corpus data as a primary source for linguistic analysis of the law. As discussed in the preceding section, Ehrett (2019), Tobia (2020), and even the slightly more optimistic Solan (2020) demonstrate that corpus linguistics is not sufficient for the task of legal interpretation and is likely to expose researchers and judges to bias or cause them to overlook relevant information.

In order to manage these potential issues, the main source of this paper’s data is the United States Constitution. While the 1787-1789 text of the document is quite short (fewer than 5,000 words!), it is exceptionally well suited for semantic inquiry. First, the challenge of illegibility to non-legal audiences is resolved by using the Constitution as a source of data; the Constitution is so important to the American legal system that it has been explicated many times over, rendering the text accessible to non-legal audiences. Second, the challenge of precedent is also reduced, as the text predates most United States law.⁵ As a third point, the United States Constitution is the measure against which all other American law is compared; no law is permitted to contradict its terms and remain in force. Because of this, the text may, within reason, be treated as representative of the category of legal U.S. English examined in this thesis. The data is further restricted to the 1787-1789 text of the Constitution for the sake of synchronicity. As the subject of this essay is legal language, only legally binding portions of the document are used as data.⁶

⁵It should be noted here that the Constitution includes a provision maintaining the legal status of debts and arrangements predating the ratification of the document: “All Debts contracted and Engagements entered into, before the Adoption of this Constitution, shall be as valid against the United States under this Constitution, as under the Confederation.” (Article VI). Even so, this should be treated as the exception rather than the rule.

⁶This text includes the portions of the document that were legally binding at the time of the Constitution’s ratification, namely the articles and the first ten amendments. There is a brief, non-legal section between these two portions. This section has been excluded. There is also a brief quotation in the articles containing the presidential oath of office. As the quotation contains two modals, it is briefly commented on, but it is not considered legal language for the sake of the analysis.

Given these considerations, the legally binding portion of the United States Constitution emerges as an ideal subject for a pilot study investigating the applicability of theoretical linguistics to legal interpretation. In spite of the limitations of the text, the data is worthy of careful consideration. The next section of this essay will present the modals of the U.S. Constitution and propose semantic and pragmatic accounts of their behavior.

3.1 The Quantitative View of Modals in the U.S. Constitution

While there are nine modal auxiliaries (*shall*, *should*, *will*, *would*, *can*, *could*, *may*, *might*, and *must*), only five occur at all in the 1787-1789 text of the Constitution. Among these, two of the three occurrences of *will* have been excluded on account of being non-legal in nature.

Table 3: Raw and Relative Frequency of Modals in the United States Constitution

	<i>shall</i>	<i>may</i>	<i>will</i>	<i>can</i>	<i>should</i>	<i>might/must/could/would</i>
Count	208	33	1	1	1	0
Proportion	85.25%	13.52%	0.41%	0.41%	0.41%	0.0%

As Table 3 demonstrates, the observed trends in the COCUSC and CESAL corpora appear once again in the Constitution, as an extremely strong preference for *shall* and *may* is clearly evident. With 208 occurrences (85.25% of all modals), *shall* is by far the most common modal in the document. The second most common modal is *may* with 33 occurrences (13.4% of all modals). The combined proportion of *shall* and *may* is **98.77%**. The observed level of frequency in usage of *shall* and *may* is even more pronounced than the patterns observed in COCUSC (86.83% combined proportion) and CESAL (97.67% combined proportion). It is clear that the distribution of the modals in the Constitution is striking. The next section addresses possible explanations for how such a distribution could have occurred in the first place.

4 Addressing the Distribution of Modals in the Constitution: Three Possible Explanations

With it in mind that legal language is the product of an intentionally constructed linguistic community of practice, this paper proposes three potential explanations emerge for the distribution of modals in the United States Constitution: (1) the formularity explanation, (2) the conservativity explanation, and (3) the distinct semantics explanation.

4.1 The Formularity Explanation

The formularity explanation posits that the observed distribution of modals in the Constitution is the product of intentional reliance on linguistic formulae using *shall* and *may*. This reliance causes both the extremely high relative frequency of *shall* and *may* and the relative paucity of the other modals that appear more frequently in contemporaneous non-legal data (such as COFEA) and which are considered to have similar semantic properties (such as being universally quantifying over sets of possible worlds). Following from literature on linguistic formulae, the distribution of modals in the Constitution is the product of a set of “idiosyncratic conditions of use” resulting from a combination of limited memory and social convention specific to the context in which legal language is used (Kuiper 2000: 292). In other words, the distribution is the result of the repetition-based activities of the linguistic community of practice centered around legal language, not the semantic contents or pragmatic function of the modals.

4.2 The Conservativity Explanation

Similar to the formularity explanation, the conservativity explanation focuses on behaviors associated with the legal linguistic community of practice rather than the semantics and pragmatics of modals as they appear in legal U.S. English. Without proposing a modified

semantics of the modals, the conservativity explanation proposes that the distribution of modals is the product of legal practitioners writing in the style of a variety of English featuring a distribution of modals similar to the one observed in the Constitution. Since legal language is highly prescribed and guided by precedent, the distribution of the modals in the legal text is reflective of a variety of English in which *shall* and *may* were simply far more common than other modals.

4.3 The Distinct Semantics-Pragmatics Explanation

The third and final potential account, the distinct semantics-pragmatics explanation, differs from the first two proposals in that it is based on a unique semantic account of modals in legal texts rather than a claim about the behaviors of a linguistic community of practice. Crucially, it contends that modals in legal United States English have a distinct semantic contribution and pragmatic function from their non-legal counterparts. In this theory, the semantics of legal modals is narrowly defined, with universally quantifying modals being deontic by default and common readings such as the exhortative and deliberative interpretations of *shall* unavailable in the legal context (see (15) and (16) below). On the pragmatic side of the account, the pragmatic function of the modals is construed narrowly, such that *shall* and *may* are treated as speech act markers in the style of Zeevat (2003).

(15) *Shall we proceed?*

Exhortative reading of *shall*

(16) *What shall we eat for dinner?*

Deliberative reading of *shall*

4.4 The Case for the Distinct Semantics-Pragmatics Account

While all three of the explanations seem to be able to answer the question of why the distribution of modals in the Constitution is so unusual, closer examination reveals that the

formularity and conservativity explanations are as not well supported by the data as the distinct semantics-pragmatics account. While all three accounts likely make some contribution to the observed distribution of data, this essay contends that the unique semantics and pragmatics of the modals of Constitution, especially *shall* and *may*, is the leading factor driving the pattern.

4.4.1 Against the Formularity Explanation

The formularity account fails for two main reasons: (1) it does not truly offer an explanation of *why* the distribution of modals is so imbalanced and (2) it falls short of accounting for the varied use of *shall* and *may* in the Constitution. To the first point, the insufficiency of the formularity account is clear when one considers that it does not make a distinction between *shall* and the other universally quantifying modals, and *may* and the other existentially quantifying modals. In the absence of such a distinction, it remains unclear why the two would appear so frequently and at the expense of the other modals in the legal context. Given this flaw, the formularity explanation allows for little advancement past the initial starting question of what distinguishes *shall* and *may* to the point that they would be so much more common in the Constitution than the other modals. To the second point, the account also fails to explain the variation in the constructions in which *shall* and *may* occur. As (17) through (19) demonstrate, *shall* and *may* both appear in a variety of constructions in the Constitution. They appear in different aspectual expressions, negated and non-negated propositions, and with bare plurals and definite descriptions. Indeed, it is not immediately clear what set of formulae would capture the degree of variation observed in the data.

(17) *Every Bill which **shall** have passed the House of Representatives and the Senate, **shall**, before it become a Law, be presented to the President of the United States.*
(U.S. Const. Art. I, §7.)

(18) *And the Congress **may** by general Laws prescribe the Manner in which such Acts, Records and Proceedings **shall** be proved, and the Effect thereof.*

(U.S. Const. Art. IV, §1.)

- (19) *No Person **shall** be a Representative who **shall** not have attained to the Age of twenty five Years, and been seven Years a Citizen of the United States, and who **shall** not, when elected, be an Inhabitant of that State in which he **shall** be chosen.*

(U.S. Const. Art. I, §2.)

As the formularity account fails to explain the patterns observed in the data, it is not a sufficient explanation for the problem at hand.

4.4.2 Against the Conservativity Explanation

The conservativity account fails because its predictions are simply not reflected in data. While some expect that the distribution is able to be explained with the idea that *shall* and *may* were simply more common than other modals at the time of the Constitution’s composition and thus appear with greater frequency, corpus data from the time period indicates that the Constitution’s distribution is quite different. Data on modals from the Corpus of Founding Era American English (COFEA n.d.b; copied below for convenience) indicate that the 98.7% combined frequency of *shall* and *may* does not even begin to compare to the more evenly balanced distribution observed in the corpus.

Table 4: Relative Frequency of Modals in COFEA

	<i>shall</i>	<i>should</i>	<i>will</i>	<i>would</i>	<i>can</i>	<i>could</i>	<i>may</i>	<i>might</i>	<i>must</i>
COFEA	8.29%	8.06%	18.64%	21.04%	10.84%	8.07%	13.86%	6.72%	4.47%

4.4.3 In Favor of the Distinct Semantics-Pragmatics Explanation

Where the formularity and conservativity accounts fail to explain the distribution of modals in the Constitution and account for their semantic and pragmatic contributions to the text, the distinct semantics-pragmatics explanation succeeds. First, with a modified semantics, it is clear why modals in legal language have such a markedly unique distribution compared

to other registers. While *shall* and *may* as they appear in legal texts share a surface form with *shall* and *may* in non-legal texts, their actual semantic contributions and pragmatic functions are distinct.

5 The Semantics of the Modals of the United States Constitution

5.1 The Semantics of Constitutional *shall*

The modal auxiliary *shall* appears 208 times in the relevant text of the United States Constitution. With such a high frequency, *shall* is by far the most common modal auxiliary in the document, with *may* being the second most common with only 33 appearances in the text. Other common modal auxiliaries such as *should* and *might* are entirely absent from the legally binding text of the document. Even though it is clear that *shall* is the most common in the document, it is less obvious what the semantic contents of the Constitution’s most popular modal really are. This section is a model-theoretic approach to a theoretical and statutory question: What does Constitutional *shall* mean? The approach of this analysis is primarily rooted in modal semantics in the tradition of Kratzer (1977, 2012), Condoravdi (2002), von Stechow & Heim(1997), and Lauer (2015), but also incorporates presupposition-focused pragmatic arguments in the style of Yanovich (2016).

5.1.1 Constitutional *shall*: Three(?) Readings

Among the 208 occurrences of *shall* in the original text of the Constitution, the modal auxiliary appears to always serve one of three functions: modal expressing legal necessity, future marker, or hypothetical modal.⁷ Of the three, the necessity modal reading of shall

⁷Here “hypothetical modal” refers to a modal operator that abstracts to a set of possible worlds where a hypothetical proposition or set of propositions is true. Functionally, it resembles the antecedent of a conditional.

appears most frequently, but the question remains of how a formal semantic approach to the term might provide a better understanding of its function.

5.1.2 Constitutional *shall* as a Modal Expressing Legal Necessity

Constitutional *shall* can be used to express, and therefore establish legal necessity. In other words, this function of Constitutional *shall* serves to establish the expectation that certain events will occur when the law is followed. Typically, this reading is deontic, though it can also be bouletic. In terms of legal implications, understanding how Constitutional *shall* expresses legal necessity is perhaps the most important task.

While the word contributes little by way of lexical information, the modal force of *shall* lends it a critical importance to the interpretation of the Constitution. As the Constitution is the highest-ranking piece of American law, all other American legislation must cleave to the standards it establishes. If legal obligation can be understood to exist in degrees, there exists no document in the United States with a stronger obligatory force than the United States Constitution. In view of this, it must be asked what role *shall* plays in denoting the presence of legal obligation. Minimally, it appears to be the case that Constitutional *shall* at least sometimes expresses deontic necessity:

(20) *The Vice President of the United States shall be President of the Senate*
(U.S. Const. Art. I, §3.)

(21) *The Congress shall assemble at least once in every Year*
(U.S. Const. Art. I, §4.)

(22) *The executive Power shall be vested in a President of the United States of America.*
(U.S. Const. Art. II, §1.)

5.1.3 Constitutional *shall* as a Modal Expressing Hypotheticality

Perhaps the most puzzling function of Constitutional *shall*, the hypothetical use appears to refer to the potential occurrence of a proposition in universally quantified terms, even when an event cannot be reasonably expected to occur in *every* possible world in the intersected modal base.⁸

(23) *Every Bill which **shall** have passed the House of Representatives and the Senate, shall, before it become a Law, be presented to the President of the United States;*

(U.S. Const. Art. I, §7.)

(24) *If any Bill **shall** not be returned by the President within ten Days (Sundays excepted) after it **shall** have been presented to him, the Same shall be a Law,*

(U.S. Const. Art. I, §7.)

(25) *The Trial of all Crimes, except in Cases of Impeachment; shall be by Jury; and such Trial shall be held in the State where the said Crimes **shall** have been committed;*

(U.S. Const. Art. III, §2.)

In the above examples, especially (the last of the three above), the contribution of *shall* flouts expectations of universally quantifying modals somewhat. It is hardly reasonable to infer that (6) asserts that crimes must be committed in every possible world where the terms of the Constitution hold. Even so, it is difficult to ignore that Constitutional *shall* often appears in contexts where hypothetical events are discussed in universal terms.

5.1.4 Constitutional *shall* as a Modal Expressing Futurity

The future-marking reading of Constitutional *shall* is perhaps the most straightforward of the three. The main contribution of *shall* in these cases is that some proposition will occur in the future after some other proposition(s).

⁸Note that only the occurrence of *shall* under discussion in the example is highlighted, even when it occurs elsewhere in the example.

(26) *The President of the Senate shall, in the Presence of the Senate and House of Representatives, open all the Certificates, and the Votes **shall** then be counted.*

(U.S. Const. Art. II, §1.)

(27) *The President shall have Power to fill up all Vacancies that may happen during the Recess of the Senate, by granting Commissions which **shall** expire at the End of their next Session.*

(U.S. Const. Art. II, §1.)

(28) *He shall from time to time give to the Congress Information of the State of the Union, and recommend to their Consideration such Measures as he **shall** judge necessary and expedient;*

(U.S. Const. Art. II, §3.)

5.1.5 Constitutional *shall* in Embedded Constructions

Finally, it also appears to be the case that the various uses of *shall* in the Constitution can be contained within the scope of each other:

(29) *No Person **shall** be a Representative who **shall** not have attained to the Age of twenty five Years, and been seven Years a Citizen of the United States, and who **shall** not, when elected, be an Inhabitant of that State in which he **shall** be chosen.*

(U.S. Const. Art. I, §2.)

(30) *The Number of Representatives **shall** not exceed one for every thirty Thousand, but each State **shall** have at Least one Representative; and until such enumeration **shall** be made, the State of New Hampshire **shall** be entitled to chuse three, Massachusetts eight, Rhode-Island and Providence Plantations one, Connecticut five, New-York six, New Jersey four, Pennsylvania eight, Delaware one, Maryland six, Virginia ten, North Carolina five, South Carolina five, and Georgia three.*

(U.S. Const. Art. I, §2.)

(31) *In all criminal prosecutions, the accused **shall** enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime **shall** have been committed, which district **shall** have been previously ascertained by law, and to be informed of the nature and cause of the accusation;*

(U.S. Const. Am. VI)

5.1.6 Proposal: A Unified Account of Constitutional *shall*

In view of the data in the above sections, it may seem unclear how Constitutional *shall* can be accounted for in terms of formal semantics. Is it possible for any one semantic account to address the variation in the uses of Constitutional *shall*?

This paper proposes that the answer to the above question is “Yes” in five parts. First and most significantly, constructions using Constitutional *shall* **always** express legal necessity. Second, Constitutional *shall* inherently bears temporal meaning. Third, presupposition can restrict the intersected modal base over which Constitutional *shall* has scope, producing a hypothetical reading in the surface form while the semantic contribution of *shall* remains the same. Fourth, Craige Roberts’ theory of modal subordination accounts for occurrences of Constitutional *shall* embedded in propositions within the scope of other occurrences of the modal. Fifth and finally, the crucial factor distinguishing Constitutional *shall* from other necessity modals is performativity. Accordingly, the pragmatic contribution of Constitutional *shall* is such that propositions that appear in its scope are not merely incidentally true in any world where the terms of the Constitution are expected to be followed, but rather they are obligatorily true because the Constitution has ordered it so.

5.1.7 Constitutional *shall* Always Denotes Legal Necessity

As they appear in the Constitution, expressions featuring Constitutional *shall* always express legal necessity. This is because the main contention of any occurrence of Constitutional *shall* is that a proposition will hold within a particularized set of worlds and times in which the

terms of the Constitution are followed, or, minimally, expected to be followed. In this way, Constitutional *shall* can be formally represented in terms similar Cleo Condoravdi’s WOLL:⁹

$$\llbracket \textit{shall}^{\mathcal{L}} \rrbracket = \lambda P. \forall w' [w' \in \cap f(w_c) \rightarrow \mathbf{AT}([t_c, \infty), w', P)]$$

(Condoravdi 2002)

Constitutional *shall* refers to the set of propositions such that for any possible world in which the terms of the Constitution are followed, the propositions hold in that world. Where Condoravdi’s account proposes a formalism for the untensed future operator, this paper’s formalism provides an account indexed to the time and framing of the Constitution. In plain terms, Constitutional *shall* denotes the set of propositions which hold at times within the temporal interval beginning with the ratification of the Constitution and going into perpetuity (based off the founders’ assumption that the Constitution’s legal force would last into perpetuity) and in worlds where the terms of the Constitution are adhered to.

The modal base over which Constitutional *shall* scopes consists of the set of sets of possible worlds in which the terms of the Constitution are expected to be followed ($f(w_c)$). The set of worlds where all of the provisions of the Constitution are expected obeyed in each world is the intersection of those sets of sets of possible worlds ($\cap f(w_c)$) (Kratzer 2012). It is in view of these definitions that Constitutional *shall* operates.

5.1.8 The Temporal Contribution of Constitutional *shall*

Although this account proposes that Constitutional *shall* is always a necessity modal, the argument does not require a complete dismissal of the future reading. In keeping with Condoravdi (2002), this paper contends that Constitutional *shall* inherently has futural temporal force. With it in mind that the Constitution has temporal force beginning from ratification into perpetuity, it is not difficult to see that any modal reading of Constitutional

⁹The original is as follows: $\text{WOLL}_{\mathbf{MB}} = \lambda P \lambda w \lambda t. \forall w' [w' \in \mathbf{MB}(w, t) \rightarrow \mathbf{AT}([t, _], w', P)]$ (Condoravdi 2002 : 71)

shall functioning as a necessity operator also necessarily includes temporal force scoping over the future relative to the time of ratification.

5.1.9 Context and Constitutional Shall: The Hypothetical Reading Explained

When Constitutional *shall* appears to be functioning to describe a hypothetical, the modal is actually scoping over an additionally restricted modal base. In (32) below, for instance, Constitutional *shall* seems to refer to a subset of worlds within the Constitutional possible worlds in which a crime has been committed. Of course, it is not reasonable to assume that the Constitution requires that crimes be committed. In view of this, it must be considered that the context introduces additional propositions to identify a particular subset of possible worlds within $\cap f(w_c)$ over which the *shall* scopes. Returning to (32), this essay contends that the clause beginning the sentence (“In all criminal prosecutions”), introduces the following proposition to further restrict the set of worlds within the scope of the apparently hypothetical *shall*: $\exists e \exists x \exists y [\text{identified.as.crime}(e) \wedge \text{prosecutes.for}(x, y, e)]$. In plain terms, the proposition means that there exists some event which has been identified as a crime by some prosecutorial body or individual x for which x is prosecuting some y . For every world in the set of worlds where all the terms of the Constitution are followed **and** a criminal prosecution is ongoing, the event in question has been committed in some state and district. In view of this analysis, it is clear that the contribution of Constitutional *shall* here remains aligned with an analysis of it as a necessity modal.

(32) *In all criminal prosecutions, the accused **shall** enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime **shall** have been committed, which district **shall** have been previously ascertained by law, and to be informed of the nature and cause of the accusation;*

(U.S. Const. Am. VI)

5.1.10 Modal Subordination and Constitutional *shall*

Here, Craige Roberts' account of modal subordination (1989, 2020) can resolve the issue of embedded occurrences of Constitutional *shall*. In accordance with Roberts' theory, occurrences of Constitutional shall can be subordinate to other instances of the term. In the case of embedded occurrences of Constitutional shall, the subordinate *shall* scopes over every possible world in a particular subset in order to render its dominant *shall* true. In (33) below, the meaning of the clause is clear; no person may be a member of the House of Representatives if they fail to meet any one of the given conditions. In other words, in order for someone to be forbidden from being a member of the House of Representatives according to Article I, Section 2 of the Constitution, it must be the case that one of the conditions is violated. Semantically, this can be analyzed as follows. For someone to be forbidden from holding office in the House of Representatives according to the provisions of Article I, Section 2 of the Constitution it *must* be the case that they are under twenty five years of age or it *must* be the case that they have not been a U.S. citizen for seven years or it *must* be the case that they were not an inhabitant of the state where they *must* have been elected.¹⁰ In all worlds where someone is forbidden from serving in the House of Representatives on account of this clause of the Constitution, one of the conditions must be fulfilled. In order for the highest *shall* to evaluate as true, and it must do so because the Constitution orders it, the subordinate embedded Constitutional *shall*'s must also be evaluated.

(33) *No Person shall be a Representative who **shall** not have attained to the Age of twenty five Years, and been seven Years a Citizen of the United States, and who **shall** not, when elected, be an Inhabitant of that State in which he **shall** be chosen.*

(U.S. Const. Art. I, §2.)

¹⁰For the final condition in the list, a person must be elected in a state where they are not an inhabitant in order to meet the condition. This is an occurrence of a third layer of Constitutional *shall* embedding.

5.1.11 The Embedded Deonticity Problem of Constitutional *shall*

Another challenge with Constitutional *shall* appears in the form of its embedded occurrences. While it has been observed here and in other literature that *shall* generally serves to impose legal obligation, both negative and positive (Scotto di Carlo (2017); Kone (2020)), data from the Constitution seems to indicate that not every occurrence of *shall* in the document is deontic in nature. Given the example below, for instance, it can hardly be reasonably inferred that the final *shall* in the example is intended to impose a duty to commit crimes.

- (34) *The Trial of all Crimes, except in Cases of Impeachment; shall be by Jury; and such Trial shall be held in the State wherethe **said Crimes shall have been committed.*** (U.S. Const. Art. III, §2.)

In situations such as (34), this essay proposes that propositions involving multiple occurrences of Constitutional *shall*, such that some *shall*'s are syntactically commanded by others, it is only necessary for the highest commanding instantiation of Constitutional *shall* to be deontic in nature. It should be noted that embedded occurrences of Constitutional *shall* are the only examples of the modal appearing in the document without having the appearance of deonticity. Accordingly, this paper posits that propositions containing Constitutional *shall* only need one deontic modal in order to effectively impose legal obligation.

5.2 The Semantics of Constitutional *may*

Unlike Constitutional *shall*, Constitutional *may* displays less surface variation and is relatively straightforward as a modal operator. In each case, the operator serves as an existentially quantifying modal denoting legal licitness or permission. More specifically, the operator often appears in provisions granting a legal power to some body, as in (35)-(37). Though it appears in a variety of forms, the contribution of the modal is relatively uniform.

- (35) *the Congress **may** at any time by Law make or alter such Regulations, except as to the Places of chusing Senators.* (U.S. Const. Art. I, §4.)

(36) *Each House **may** determine the Rules of its Proceedings, punish its Members for disorderly Behaviour, and, with the Concurrence of two thirds, expel a Member.*

(U.S. Const. Art. I, §5.)

(37) *All Bills for raising Revenue shall originate in the House of Representatives; but the Senate **may** propose or concur with Amendments as on other Bills.* (U.S. Const. Art. I, §7.)

Constitutional *may* may be represented in formal terms as follows: $\llbracket \text{may}^c \rrbracket = \lambda P. \exists w' [w' \in \cap f(w_c) \rightarrow \mathbf{AT}([t_c, \infty), w', P)]$, where w_1 is an anchor world where the terms of the law are followed, t_1 is the time the law enters into force, and t_{eof} is the temporal end of a law's force.

In prose, the contribution of Constitutional *may* is the set of propositions that held in at least one out of a particularized set of worlds and times in which the terms of the Constitution are expected to be followed.

5.3 Low Frequency Modals in the United States Constitution

Where Constitutional *shall* and *may* are speech act markers in the style of Zeevat (2003), the contribution of *will*, *can*, and *should* is primarily descriptive. Within the legally binding data, *will*, *can*, and *should* each appear only once and serve primarily to describe the conditions of a situation rather than establish a legal obligation, prohibition, or power.

(38) *No State shall, without the Consent of Congress, ... engage in War, unless actually invaded, or in such imminent Danger as **will** not admit of delay.*

(U.S. Const. Art. I, §10.)

(39) *The United States shall guarantee to every State in this Union a Republican Form of Government, and shall protect each of them against Invasion; and on Application of the Legislature, or of the Executive (when the Legislature **cannot** be convened) against domestic Violence.*

(U.S. Const. Art. IV, §4.)

(40) *But if there **should** remain two or more who have equal Votes, the Senate shall chuse [sic] from them by Ballot the Vice President.*

(U.S. Const. Art. II, §1.)

6 The Pragmatics of Modals in the United States Constitution

Following from Zeevat (2003), it is the position of this thesis that, as they appear in the United States Constitution, the modals *shall* and *may* are speech act markers. Applying Zeevat's three features to the Constitution, it may be considered that the first feature (the conditions allowing for the successful performance of a speech act must exist) is fulfilled by the fact that the Constitution is a set of propositions uttered by a governmental body overseeing a population that has consented to being governed by it. The second and third features (attempted performative utterances propose an addition to the conversational common grounds and successful ones result in the addition of some proposition to the set of things the conversational participants hold to be true), are fulfilled by the relationship between the U.S. Constitution and the population of the nation. Where the set of laws that are expected to be followed is analogous to a conversational common ground, the legal provisions of the Constitution were added to this set of laws when the document was ratified. Accordingly, each proposition that occurs within the scope of either *shall* or *may* may be considered an addition to the common ground assimilated by law-abiders after the ratification of the Constitution.

7 Negation and Modals in the United States Constitution

Finally, the interaction between modality and negation in the United States Constitution is one that is deserving of special attention.

There are two constructions in which negation and modality most frequently co-occur. When the subject X of the negated proposition is not some definitely described entity, but rather part of a category, the negation appears at the front of the proposition.¹¹ Examples (41)-(43) demonstrate this construction. The second construction is different from the first in that its subject is typically some definitely defined (definitely defined in the sense that it appears in a definite description). Sentences (44)-(46) demonstrate this:

1. No X *shall* P

2. Y *shall* not P

(41) *Neither House, during the Session of Congress, shall, without the Consent of the other, adjourn for more than three days*

(U.S. Const. Art. I, §5.)

(42) *no Senator or Representative, or Person holding an Office of Trust or Profit under the United States, shall be appointed an Elector*

(U.S. Const. Art. II, §1.)

(43) *No State shall, without the Consent of the Congress, lay any Imposts or Duties on Imports or Exports*

(U.S. Const. Art. I, §10.)

(44) *The Number of Representatives shall not exceed one for every thirty Thousand*

¹¹There are syntactic reasons, such as structure of conditional expressions and *wh*-islands that might prevent this from being the case. However, such examples are the exception, not the rule, and are out of scope for this essay

(U.S. Const. Art. I, §2.)

(45) *The Privilege of the Writ of Habeas Corpus shall not be suspended*

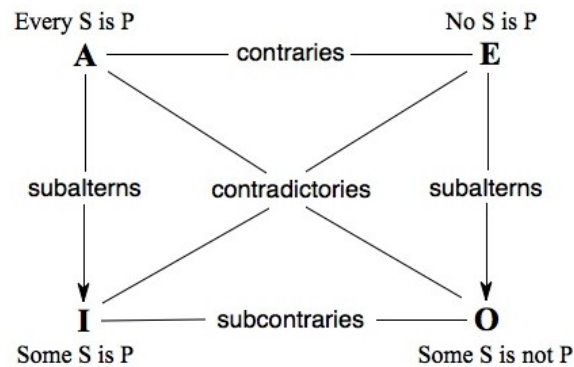
(U.S. Const. Art. I, §9.)

(46) *The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.*

(U.S. Const. Am. 9)

The most frequent situation in which negation interacts with a modal in the Constitution is when a legal prohibition is established. In this context, Though the negated universal ($\forall x\neg P(x)$) is logically equivalent to the negated existential ($\neg\exists xP(x)$), *may* is notably never used to denote legal prohibition. The observed patterns of negation and modality in the document thus recreate the famous “Missing ‘O’” problem from the philosophy of language. In the theory, the relationship between quantification and negation is able to be represented with the square of opposition.

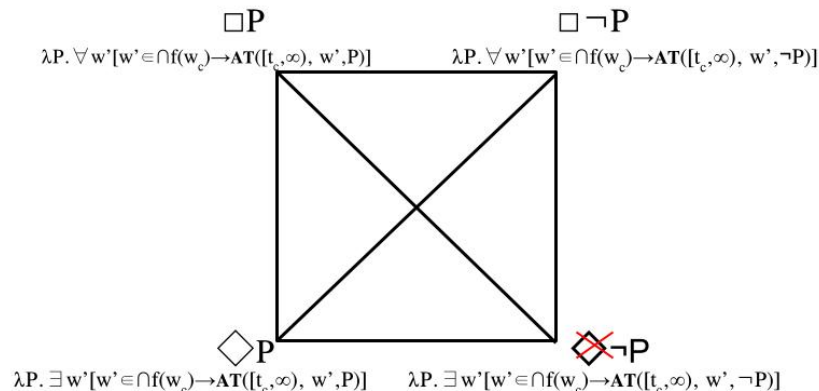
Figure 1: Traditional Square of Opposition; Parsons (2021)



Since the model-theoretic semantics based account of modality is similarly rooted in quantification, a modified square is able to be generated specifically for the document:

Notably, the document is reflective of a famous issue with the square of opposition. If the contribution of the ‘O’ is that some S is not P, or, in the case of the Constitution, the set of propositions such there is some world where the propositions are not true, it strikes as

Figure 2: A Square of Opposition for the Modals of the United States Constitution



somewhat seems vacuous. The debate over how this corner of the square should be handled by linguists is ongoing and should be the topic of further research at the intersection of law and linguistics. For now, however, it is sufficient to say that the Constitution seems to have evaded the issue of the vacuous bottom right corner by only using *shall* for prohibitive clauses, never *may* or any other existentially quantifying modal.

8 Conclusion

As the challenge of statutory interpretation continues to be a major issue in the legal sphere, it is important to develop new ways of approaching old problems. This essay contends that semantics and linguistics more broadly may be an effective approach to legal interpretation. The main contribution of this essay is the demonstration of how a semantics-based analysis of meaning may operate. While several methods for discerning the meaning of legal language already exist, such as statutory definitions (explicit and detailed definitions written directly into legislation) and precedent, formal semantics is yet another powerful interpretative mechanism.

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