

# Comprehension May not Occur: Issues of Modal Verb Ambiguity in Arizona and Utah State Jury Instructions

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## Abstract

Jury instructions play a crucial role in the U.S. criminal justice system, yet the complexity of legal language can present comprehension challenges for jurors, who often lack extensive legal knowledge. Previous research within both legal and linguistic communities has highlighted the effectiveness of including linguistic features such as active sentences, reduced legal terminology, and increased use of modal verbs in improving jury instruction comprehension. The present study further investigates modal verb usage in jury instructions. The multiple possible interpretations of modal verbs could result in ambiguous meanings within jury instructions. Utilizing corpus linguistic analyses, the study examines civil jury instructions from Utah and Arizona. Frequency analysis of modal verbs in these instructions was carried out to establish general usage patterns of specific modal verbs within the two sets of jury instructions. Additionally, an investigation into instances of potential ambiguity was conducted using an adapted categorization of modal verb functions based on Biber et al.'s (1999) framework. Results indicate that among the nine primary modal verbs examined, instances of potential ambiguity are limited to the modal verbs *may* and *can* – specifically, the negated forms of these modal verbs. Additionally, a small follow-up comprehension survey shows that lay readers are most likely to diverge in their interpretations of *may*. Based on these findings, we propose recommendations for slight adjustments to Arizona and Utah jury instructions to enhance clarity in modal verb usage. Potential suggestions include replacing ambiguous modal verbs with less ambiguous modal verbs, incorporating clarifying adverbial phrases or clauses, and utilizing more degree adverbs and adjectives to aid juror comprehension.

## Keywords

modal verbs, jury instructions ambiguity, forensic linguistics, corpus linguistics, linguistics and law, plain language movement

Submitted: 02 June 2025, accepted: 12 February 2026, published online: 13 April 2026

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## 1. Introduction

A strong relationship between the legal field and the field of linguistics has only developed in the last few decades (Shuy, 2017) despite the fact that both disciplines study language and language use – in varying manners. A possible reason for this growing collaboration between linguists and the legal community may have been the birth of the “plain English movement” in the legal community in the 1970s. This movement aimed to help ordinary people understand laws, contracts, and jury instructions by simplifying the language that these documents used – from overly complicated legal language to more appropriate “plain English” (Felsenfeld, 1981).

However, determining what is and is not “plain English” can be quite difficult, especially if one wants to rely on empirical evidence to help support their version of it. Because of this difficulty, corpus linguists have increasingly collaborated with legal experts to apply corpus linguistics methods to legal language problems (Solan, 2020; Solan & Gales, 2017; Tobia et al., 2023). These areas of collaborative research have included ordinary meaning in statutory interpretation (Phillips & Egbert, 2022), the comprehensibility of jury instructions for potential jurors (Charrow & Charrow, 1979a), and other legal language issues.

The issue of understandable “plain English” in jury instructions is important for the U.S. justice system as a whole because juries and jurors often decide on the guilt or innocence of a defendant. This fact makes it crucial for jurors to understand the rules of the court and the instructions they are given regarding their particular case. This study aims to continue this pursuit of simplifying jury instructions through corpus linguistic methods with the goal of helping jurors understand their duties and the instructions they are provided with by the court. Several previous studies in this area of jury instruction comprehensibility have investigated a number of linguistic features. This is important for determining which specific features improve or detract from comprehensibility (Charrow & Charrow, 1979a; Randall, 2014; Severance & Loftus, 1984). Due to this approach of examining a combination of multiple linguistic features, specific features that have been identified as either beneficial or problematic in previous research lack comprehensive exploration. Further study into some of these features may reveal nuances regarding their potential benefits or complications in improving jury instruction comprehension.

One specific linguistic feature that has been shown to be beneficial across various studies on jury instruction comprehensibility has been the inclusion of modal verbs (e.g., Charrow & Charrow, 1979a). To date, these studies have not yet investigated specific modal usage or whether or not certain modal verbs are more beneficial/problematic than others. The lack of previous studies investigating specific modal verbs is important because it is not enough to determine that the inclusion of modal verbs improves jury instruction comprehension. Instead, it is essential to investigate whether or not there

are contexts where using certain modal verbs may actually hinder jury instruction comprehension. Due to this lack of in-depth examination of specific modal verbs, this study aims to build on previous work regarding the impact of modal verbs in jury instructions and to determine if certain modal verbs may lead to ambiguous or confusing instructions for jurors.

## 2. Literature Review

### 2.1. A Brief History of the Plain Language Movement for Jury Instructions

Article III of the United States Constitution stipulates that “[t]he Trial of all Crimes, except in Cases of Impeachment, shall be by Jury” (U.S. Const. art. III, § 2). While technical definitions may have slightly changed since the late 18th century, a jury is broadly described as “a group of people who have been chosen to listen to all the facts in a trial in a law court and to decide if a person is guilty or not guilty, or if a claim has been proved” (Cambridge, n.d.). Based on this section of Article III, it is clear that juries are critical to the effectiveness of the United States justice system. Since juries are tasked with deciding the outcome of a trial, it stands to reason that members of the jury should understand various aspects of U.S. laws as well as their expected conduct in the courtroom – especially considering that legal language can be rather complicated.

This notion of expecting juries to understand both the law and their obligations did not become a prominent feature in the U.S. judicial system until 1935 when the Superior Court of Los Angeles, California, created a committee of lawyers and judges to write a book of instructions for jury members for civil cases. These initial instructions often included direct quotes from law statutes (Tiersma, 2001). Since law statutes are written for and by lawyers, it quickly became evident that, despite these instructions, jury members did not necessarily comprehend the instructions that they were given before a trial (Charrow & Charrow, 1979a). This issue of jury comprehension has set in motion numerous studies in numerous fields (e.g., law, linguistics, psychology) seeking to address this problem – especially over the last 50 years.

### 2.2. Previous Linguistic Research Regarding Jury Instruction Comprehension

Only a handful of studies have examined which linguistic features positively and negatively affect jury instruction comprehension, despite its importance in the legal system. Charrow and Charrow (1979a) conducted a seminal psycholinguistic study aiming to assess the comprehension of jury instructions among potential jurors. They investigated

the aspects of ‘legalese’ that might be unclear to jury members and explored whether modifying these linguistic features could significantly enhance jury comprehension. The results of the study revealed linguistic constructions/features that impeded jury instruction comprehension. Features contributing negatively to jury instruction comprehension included nominalizations, certain prepositional phrases, technical vocabulary, negative constructions, and passives, along with a number of other features. Charrow and Charrow (1979a) also discovered a few linguistic features that improved jury instruction comprehension – including features like the usage of modal verbs. Benson (1985) replicated Charrow and Charrow’s (1979a) study with different comprehension assessment tools, reproducing results like those of the original study.

Based on the findings from previous studies which tested juror comprehension using a wide variety of assessment tools, it has become clear that jury instructions are frequently difficult to understand. Some studies have cited the necessity of active sentence structure for improving comprehension (Randall, 2014; Charrow & Charrow, 1979a). Other studies have shown that polysemous words that have a separate legal meaning from an ordinary conversation impact comprehension (Tiersma, 2001; Charrow & Charrow, 1979b). Additionally, technical vocabulary has repeatedly been shown to affect jurors’ comprehension of jury instructions (Randall, 2014; Tiersma, 2001; Charrow & Charrow, 1979a, 1979b). Interestingly, some studies have revealed a mismatch between the jurors’ objective and subjective comprehension scores (McKimmie et.al., 2014); jurors tend to overestimate the degree to which they understand legal language. This is relevant to jury instruction comprehensibility because juror’s personal judgment of the required degree of confidence in instruction comprehension can affect their verdicts.

While these previous efforts have made steady progress in the improvement of jury instruction comprehension, there are numerous linguistic features that require deeper analysis. For instance, the impact of modal verbs on comprehension remains relatively underexplored beyond the initial discovery that modal verbs are beneficial for jury instruction comprehension. The Charrow and Charrow (1979a) study is one of the most comprehensive jury instruction studies, which explicitly investigates modal verbs. Their study reached the conclusion that modal verbs can be beneficial for jury instruction comprehension. The results showed that constructions with modal verbs resulted in better paraphrasing of jury instructions by potential jurors since the participants produced correct paraphrases at a much higher rate when instructions included modal constructions (57%) compared to non-modal constructions (38%). The explanation for modal verb constructions resulting in more successful paraphrases was “one would expect jurors to interpret as of primary importance those portions of the jury instructions that tell them what to do” (Charrow & Charrow, 1979a: 1324).

However certain modal verbs may inadvertently introduce ambiguity, potentially hindering comprehension. Therefore, investigating possible ambiguity effects of specific modal verbs is essential to ensure that they are used in a way that optimally enhances jury instruction comprehension.

## 2.3. Modal Verbs

Before investigating potential modal verb ambiguity in jury instructions, it is necessary to first establish what constitutes a modal verb in English, how they are classified, and the degree to which modal verbs are polysemous.

### 2.3.1. Definition and Classification of Modal Verbs

Biber et al. (2002) distinguish nine main modal verbs: *can*, *could*, *must*, *might*, *may*, *should*, *will*, *would*, and *shall*, which are commonly used in English language discourse. These modal verbs can be used to express stance meanings (personal or logical), refer to time, or communicate a pragmatic function (e.g., permission/ability). Modal verbs can be classified into two main groups: epistemic (or extrinsic): which are characterized by interpersonal attitudes and expressing a writer's stance, and root (also referred to as intrinsic) modals: which relate an agent to their activity and express obligation, permission, and ability (Biber et al, 1999; Cook, 1978; Karahan, 2022). A commonly used sub-classification system of modal verbs was also proposed by Biber et al. (1999) who identified three more fine-grained categories concerning the meaning of modal verbs: permission/possibility/ability (*can*, *could*, *may*, *might*), obligation/necessity (*must*, *should*), and volition/prediction (*will*, *would*, *shall*). While these categories have been long established in the field of applied linguistics, the distinction between modal verb meanings and their functions is not always straightforward.

Other descriptions of the English grammar have also described and classified modality and modal verbs in English. Quirk et al. (1985) present a broader classification, containing the nine core modal verbs of *can*, *could*, *may*, *might*, *must*, *shall*, *should*, *will*, and *would*. Their framework involves dynamic, deontic, and epistemic meanings of modal verbs. Throughout their description, it is noted that modal verb meaning can shift depending on context. As a result, the interpretation may occasionally be left to the reader or listener – an outcome that contradicts the goal of clarity in U.S. jury instructions. Huddleston and Pullum (2002) offer a more syntactically driven approach to modal description. They differentiate modal verbs based on epistemic and root meanings, noting that the boundaries between these uses are often difficult to pin down in real-world language use.

Complementarily, Carter and McCarthy (2006) discuss modal verbs on a more discourse-level description of modal verb usage. Through examples, they show how modal verbs frequently serve multiple functions in different contexts, especially in terms of stance-taking and interactional alignment. Across these different grammars, semi-modals are also presented at length, but the members of this category are much less standardized than the core set of nine modals discussed above. Given the range of descriptions of modal verbs across various English grammars, particularly in the area of semi-modals, this study will focus exclusively on the nine core modal verbs (*can*, *could*, *may*, *might*, *must*, *shall*, *should*, *will*, and *would*).

### 2.3.2. Polysemy and Ambiguity in Modal Verbs

With the definitions and classification of modal verbs established, it is also necessary to address the nature of modality in English, particularly its inherent flexibility and the subjectivity involved in interpretation. These characteristics make modal verbs highly productive and versatile in English discourse, enabling speakers to express nuanced meanings across various contexts. However, this same flexibility may potentially result in ambiguity, which can cause communication breakdowns – especially in high-stakes situations such as legal settings. The potential for modal verbs to be interpreted in multiple ways is a significant concern in jury instructions, where clarity is paramount.

Multiple studies have investigated the polysemous nature of modal verbs, explaining that their meaning changes depending on the context (Carrió-Pastor, 2014; Gbenga, 2005; Yasumasa, 2010). For example, an investigation into the modal verbs in Nigeria's constitution revealed that *may* can imply permission that involves no compulsion; however, simultaneously, *may* can also be used to express possibility, resulting in potentially ambiguous interpretations (Gbenga, 2005). Mifka-Profozic et al. (2020) found further evidence of polysemy in modal verbs, including meaning overlap and exclusivity in the modal verbs *can* and *may*. Through eye tracking analysis on reading tasks, they were able to discern that in certain contexts modal verbs can be hard to disambiguate, leading to increased reading times. Additionally, *can* and *may* are often both understood by participants to indicate permission, while *may* is often understood to mean possibility and *can* is often used to express ability. In other words, those modal verbs that can serve several meaning functions may hinder text comprehension. On the other hand, several researchers insist that modal verbs are unambiguous and that it is possible to discern a specific meaning of a given word regardless of its context (Johnson-Laird, 1978; Perkins, 1980). Arguably, this lack of agreement on the topic highlights the need for further research on modal verbs, especially, in high-stake situations like court cases relying on the comprehension of jury instructions.

Furthermore, based on the functionalist view of language, it has been hypothesized that people interact with each other differently depending on the situational context to express their attitudes, infer opinions, and influence others (Halliday, 1978). This view implies that the way people express meaning varies depending on the language, dialect, social and cognitive background, and even register (Carrió-Pastor, 2014). Halliday (2014) also argues that interpersonal judgments and assessments go beyond the bounds of English's grammatical system. He specifies that the English modal system is not a binary system; rather, it is a plethora of probabilities between “yes” and “no” and describes it as “notably indeterminate” (Halliday, 2014: 179) because the way an utterance containing a modal verb is interpreted can vary from context to context. As noted previously, this flexibility is extremely productive in English, but this ambiguity can also cause communication breakdown in ambiguous cases. For example, “she must be very careful” can be interpreted both as an order/instruction to be followed or as speculation on her potential

habits. Therefore, it is up to the reader/listener to decide which specific function modal verbs perform based on their contexts – this can result in ambiguous meanings and sometimes lead to unclear instructions/statements.

Over time, the use and frequency of modal verbs in English have undergone notable changes. For example, it has been shown that the modal verbs *must*, *shall*, and *may* have all declined drastically in American English (Leech et al., 2009). These shifts can show changing stylistic preferences, but they can also be seen as changing socio-pragmatic tendencies of directness and explicitness. Of particular note, Leech et al. (2009) also highlighted the fact that regional and dialectal differences in modal verb meanings are prominent across varieties of English. For example, *shall* is rarely used in American English but still remains prominent in British English, particularly in legal contexts. This variation in modal verb meaning and usage further complicates the interpretation of modal verbs in jury instructions, especially because legal language is meant to remain consistent in interpretation across regional English variations.

Additionally, this historical and geographical variation supports the view that modality is highly sensitive to social and contextual factors (Carrió-Pastor, 2014; Halliday, 1978). As modal verb meanings differ across time periods and regions, the potential for misinterpretations increases which is dangerous in legal language, where misinterpretations can have high-stakes consequences.

One other important feature associated with modal verbs is their behavior in negation. Depending on the modal verb kind, a negative form can either mean a negation of the proposition or a negation of modality (Palmer, 2003). This problem can be reflected in the following examples: a) She must be in the office; b) She mustn't be in the office; c) She may not be in the office; d) She cannot be in the office. Clearly, the negative forms of the sentences differ from their declarative versions. The appropriateness of the negative options and their choice depend on the context and pragmatic concerns.

Ultimately, the polysemous and context-dependent nature of modal verbs contributes to their versatility in English but also poses significant challenges for clear communication. Such high potential for ambiguity underscores the need for careful consideration of how modal verbs are used in jury instructions.

## 2.4. Aims of this Paper

This study aims to explore and identify potential ambiguities in modal verbs in jury instructions, with the intention of improving juror comprehension and clarity.

## 2.5. Research Questions

- (1) Which modal verbs are utilized most frequently in both Arizona and Utah civil jury instructions?
- (2) Which modal verbs have the potential to be the most ambiguous?

# 3. Methods

## 3.1. Corpora

The current study used two corpora comprising civil jury instructions from two states: Arizona and Utah. The corpora were compiled using the official jury instructions available online<sup>12</sup>. The instructions were later cleaned to remove the parts that were intended for judges and not juries, for example, comment sections, committee notes, and legal precedents. The corpora in this study contain the full population of the target domain of jury instructions since they include all texts that the real jury is exposed to in court in the states of Arizona and Utah. In addition to a corpus-based analysis of modal verbs in Utah and Arizona civil jury instructions, we conducted a small comprehension survey to obtain initial evidence of how lay readers interpret modal constructions that emerged as potentially ambiguous in the corpus analysis.

All judges in Arizona use the Manual of Model Civil Jury Instructions, prepared by the Ninth Circuit Jury Instructions Committee. This study utilized the most recent official version of these instructions, which were last updated in August 2023. Once the jury instructions were cleaned of information that would not be read aloud to jurors, the Arizona jury instructions corpus contained 72,596 lexical tokens that were used for this study.

The Utah Civil Jury Instructions were prepared by the Model Utah Jury Instructions Committee, which is tasked by the state of Utah with making its state jury instructions more understandable for potential jurors. This study attempted to use the most recent version of the Utah Civil Jury Instructions, which was current as of February 2024. After

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<sup>1</sup> Arizona Civil Jury Instructions can be found at [3.ce9.uscourts.gov/jury-instructions/model-civil](https://3.ce9.uscourts.gov/jury-instructions/model-civil) (accessed 02 March 2026).

<sup>2</sup> Utah Civil Jury Instructions can be found at [legacy.utcourts.gov/muji/?cat=1](https://legacy.utcourts.gov/muji/?cat=1) (accessed 02 March 2026).

removing committee notes and other information not read aloud to jurors, the corpus contained 47,836 lexical tokens that were used for this study.

Arizona and Utah were selected because both states have committees tasked with revising their civil jury instructions to be more accessible to lay readers. The Model Utah Civil Jury Instructions (MUJI) committee has been instructed to enact plain-language revisions of their civil jury instructions, and the Arizona civil jury instructions committee is currently tasked with a similar goal. This means that the results of the present analysis can directly inform the ongoing revisions of jury instructions in both states. Additionally, since modal verbs have been shown to improve jury instruction comprehension, it is likely that these two sets of jury instructions will contain more modal verbs than unmodified jury instructions, which is ideal for our research aims

### 3.2. Data Analysis

The Utah and Arizona jury instructions were searched for all instances of modal verbs. The analysis was based on the modal verbs described in Biber et al. (1999): *can*, *could*, *may*, *might*, *must*, *should*, *will*, *would*, and *shall*. All instances of these modal verbs and their surrounding contexts were extracted from each corpus. The Utah corpus contains 1157 instances of the modal verbs discussed previously, while the Arizona corpus contains 1169 instances of modal verbs.

Coding for the function was based on the relationship between the agent and the action of the clause, as shown in the examples below, coming from AZ jury instructions. In example (1), the relationship between the agent (the plaintiff) and the action of the clause (*must prove*) clearly demonstrates obligation.

(1) But while the plaintiff *must* prove that the defendant intended to act, the plaintiff need not prove that the defendant intended to violate the plaintiff's Fourth Amendment rights.

In comparison, example (2) could be interpreted in two different ways: either as a possibility or as permission.

(2) A copyright owner *may* abandon some rights and retain others.

The original extensive version of the coding scheme considered subtle nuances of modal verb meanings, based on a slight variation of Biber et al.'s (1999) functional categories of modal verbs. Biber et al. (1999) discuss how each modal verb has two possible meanings: an intrinsic meaning and an extrinsic meaning. Intrinsic meaning 'refers to actions and events that humans (or other agents) directly control: meanings relating to permission, obligation, or volition (or intention)' (Biber et al., 1999: 485). In comparison, extrinsic meaning 'refers to the logical status of events or states, usually relating to assessments of likelihood; possibility, necessity, or prediction' (Biber et al., 1999: 485). The authors suggest three major categories of modal verbs: 1) permission/possibility/ability, 2) obligation/necessity, and 3) volition/prediction.

In the case of the first group, permission, possibility, and ability, the concepts of permission and ability are often labelled as intrinsic meanings because they relate to the personal judgments of humans (or other agents). Comparatively, possibility is a logical status of events, meaning that it can be seen as the extrinsic meaning of certain modal verbs. Considering our goal, it was important to evaluate whether the potential difference in modal verb meaning can affect the decision of the jury. As seen in example (3), there is a possible difference in meaning between the possibility/ability of abandoning rights compared to having permission to do so.

(3) A copyright owner *may* abandon some rights and retain others.

Additionally, it was decided to keep possibility/ability as a single category in the final coding scheme, not separating them further. This decision was made for two main reasons: firstly, due to the specificities of legal texts in jury instructions, it was difficult to differentiate between the meanings based on the context provided. Secondly, while this challenging separation would lower inter-rater reliability, it would not affect the practical interpretations of the instructions by jurors, meaning that while there is a distinction between possibility and ability, the actions taken by jurors would not differ based on this distinction. As can be seen from example (4), whether we interpret the sentence as “it is possible that” or “people are capable of doing that”, the result of the jury taking either of these interpretations would not result in a different decision or outcome of the case.

(4) The agreement need not be express as long as its existence can be inferred from words, actions, or interdependence of activities and persons involved.

Initially, we planned to separate obligation and necessity, with obligation representing intrinsic meaning and necessity representing extrinsic meaning because of potential differences in semantic meaning. For example, in plain language, (5), *must* could be interpreted in two ways.

(5) Students *must* bring their textbooks to class.

Obligation: the sentence implies that it is a requirement or rule set by the teacher or the school, indicating that students are obligated to bring their textbooks to class as per the instructions. Necessity: alternatively, *must* could suggest that bringing textbooks is essential for the students to participate effectively in class or to complete certain tasks, making it a necessity for their academic success. However, it was decided to keep the two meanings under one category because the purpose of this study is to determine modal verb ambiguities that could reasonably affect the meaning that potential jurors derive from an instruction. Such differences stemming from an obligation vs necessity distinction would be unlikely to affect jury members' decisions since they both imply a high level of commitment, regardless of whether the imperative originates from internal or external circumstances.

Similarly to the necessity/obligation distinction previously, it was decided to keep prediction and volition as a single category because the distinctions between the two

would be unlikely to impact the general understanding of a jury instruction by a potential juror. The decision to keep necessity/obligation and prediction/volition as two distinct units instead of four categories aligns with Biber et al.'s (1999) methods of modal categorization. The only category that remained divided was permission compared to possibility/ability. This distinction was kept because the semantic differences between the two are both relatively clear and semantically distinct, which could result in possible confusion and ambiguity in certain jury instructions.

Based on these considerations relating to the potential effects of semantic ambiguity on jury decisions, modal verbs were sorted into four groups: possibility/ability, permission, obligation/ necessity, and volition/prediction. Table 1 visualizes an example of the final coding scheme, with full and final results reported in the results section in Tables 2 and 3. So, every instance of each modal verb was examined and sorted into one of the four categories; if an instance had more than one option, it was labeled as ambiguous.

**Table 1:** Example of the Final Coding Scheme for Arizona Jury Instructions

Modal	Permission	Possibility/ Ability	Obligation/ Necessity	Volition/ Prediction	Potentially Am- biguous
<i>Shall</i>	0	0	10	0	0

Specifically, the procedures followed in this study were to first determine potentially ambiguous usages of modal verbs in the two corpora. To do so, we extracted all the sentences containing modal verbs using AntConc and then transferred them to an Excel Spreadsheet, making sure the concordance lines provided enough context to make it possible to discern the meaning of the modal verbs. The concordance lines were grouped according to the modal verb used in the sentence (all instances of *may*, followed by all instances of *could*, etc.). Then, using the coding scheme (see Table 1), each concordance line was coded for its function by two coders separately. All instances of modal verbs were coded separately by two coders for the four possible usages outlined above. Initial interrater reliability was 94% for Utah and 97% for Arizona jury instructions. All potentially ambiguous cases were re-analyzed during a face-to-face meeting, and the disagreements were resolved through discussion, ultimately leading to a 100% rater agreement.

### 3.3. Comprehension Survey

Seventy-five adult participants completed the comprehension survey. The survey was administered on Qualtrics. The jury instructions (JIs) used in the survey were randomly selected from the ambiguous and non-ambiguous modal verbs identified during the previous stage of analysis. For time purposes, the questions were randomized so that each participant saw four random JIs from the non-ambiguous block and six random JIs from the ambiguous block in the written mode, as well as four random JIs in the spoken mode.

The survey comprised two blocks of questions. The first block included potentially ambiguous modal verbs (*can* and *may*), while the second block included likely unambiguous modal verbs (*would*, *could*, *must*, *should*, *might*, *will*, and *shall*). Each unambiguous modal verb was represented by two jury instructions (one from each state), for a total of 14 JIs. Each JI was followed by four comprehension questions (paraphrasing, multiple choice, or True/False), with each comprehension item followed by a sliding-scale question asking participants to evaluate how confident they were in their answer (1 = not confident, 4 = very confident).

The ambiguous block followed the same format but included more items, as it was the primary focus of the study. In total, it contained 24 JIs (six per modal verb per state). This block also included an additional spoken-mode section consisting of four JIs (two from each state), each followed by a single comprehension question. For each comprehension item, agreement was defined as the proportion of participants selecting the response keyed to the intended legal meaning of the instruction.

## 4. Results

### 4.1. Usage of Modal Verbs Across State Jury Instructions

Before diving into the issue of potentially ambiguous modal verbs in these two sets of jury instructions, it is necessary to first establish general modal verb usage patterns across the Arizona and Utah jury instructions. As can be seen in Tables 2 and 3, the raw counts of modal verbs across the corpora are roughly the same. However, it is important to note that the Arizona jury instructions are nearly twice as long as their Utah counterparts, thus resulting in a significantly higher modal verb usage per thousand words in the Utah jury instructions.

This stark difference in modal verb usage may stem from the Model Utah Jury Instruction (MUJI) committee, who are tasked with adjusting the Utah State Jury Instructions to include more comprehensible and plain language in an effort to improve jury instruction comprehension. Previous studies have suggested some general suggestions

in ways to investigate and improve jury instruction comprehension (Charrow & Charrow, 1979a; 1979b; Randall, 2014; Tiersma, 2001), which, as noted previously, have advocated for more active sentences, less polysemous words, and the inclusion of modal verbs. Regardless of the reasons that prompted the increase of modal verbs compared to the Arizona jury instructions, more modal verbs can lead to potentially more ambiguous instances simply based on the relative frequency of them occurring.

Individual modal verbs are utilized similarly across the two versions of jury instructions, with minor differences. As noted previously, the Utah jury instructions consistently use more modal verbs per 1,000 words. This was also true along the lines of individual modal verbs, with the exception of *shall*, which is used slightly more in the Arizona jury instructions. However, *shall* is the least used modal verb for both groups by a considerable margin. This finding matches previous research, which indicates that *shall* is extremely rare in American English and has been largely replaced by *should* (Biber et. al, 2002: 186). This discrepancy of normalized frequency between the two sets of jury instructions could also potentially signal more modern language in the Utah Jury Instructions in comparison to the Arizona Jury Instructions. Tables 2 and 3 detail the raw and normed frequencies of different modal verbs across the two corpora. Figures are coded on a blue-to-red spectrum, with blue indicating lower frequencies and red indicating higher frequencies.

The order of individual modal verb frequency between the two sets of jury instructions is nearly identical. The only exception is that the frequency of the modal verbs *should* and *would* is swapped, with the Arizona jury instructions using *should* over *would* and the Utah jury instructions utilizing *would* over *should*.

Overall, the two sets of jury instructions utilize individual modal verbs in similar ways, and the only major difference between the two corpora is that the Utah jury instructions use modal verbs in general at a significantly higher rate than the Arizona jury instructions. This increased relative usage of modal verbs, while likely helpful in improving jury instruction comprehension (Charrow & Charrow, 1979a), could potentially also result in higher rates of ambiguous modal verbs that could simultaneously negatively impact jury instruction comprehension.

**Table 2:** Modal verbs in the Utah Jury Instructions

<b>Modal</b>	<b>Raw Count</b>	<b>Normed Freq per 1,000 Words</b>
Total Modals	1157	24.19
<i>Can</i>	89	1.86
<i>May</i>	247	5.16
<i>Might</i>	20	0.42
<i>Must</i>	374	7.82
<i>Could</i>	46	0.96
<i>Should</i>	105	2.19
<i>Would</i>	146	3.05
<i>Will</i>	122	2.55
<i>Shall</i>	1	0.02

**Table 3:** Modal verbs in the Arizona Jury Instructions

<b>Modal</b>	<b>Raw Count</b>	<b>Normed Freq per 1,000 Words</b>
Total Modals	1169	16.1
<i>Can</i>	105	1.45
<i>May</i>	275	3.79
<i>Might</i>	18	0.25
<i>Must</i>	293	4.04
<i>Could</i>	45	0.62
<i>Should</i>	183	2.52
<i>Would</i>	125	1.72
<i>Will</i>	115	1.59
<i>Shall</i>	10	0.14

### 4.2. Modal Verb Ambiguity in Arizona and Utah Civil Jury Instructions

The second research question for this study was to evaluate which of the modal verbs examined had the potential to be the most ambiguous. Ambiguity was treated as a continuous variable due to the fact that the degree of ambiguity can vary in its impact on comprehension rather than creating an either understood or not understood dichotomy. After coding the modal verb instances in both sets of jury instructions, it became clear that among the nine modal verbs found in the sets of jury instructions, only two of them rendered any cases of possible ambiguity based on the coding framework used in this study. Tables 4 and 5 show the classifications of the instances of each modal verb for both the Arizona and Utah jury instructions. The only cases of possible ambiguity were found for *can* and *may*, with the others not only having no occurrences of ambiguity but also having all instances fit within a single classification (e.g., *shall* only being associated with obligation/necessity).

**Table 4:** Modal verbs in the Utah Jury Instructions

Modal Verb	Permission	Possibility/ Ability	Obligation/ Necessity	Volition/ Prediction	Potentially Ambiguous
<i>Can</i> (89)	41	46	0	0	12
<i>May</i> (247)	106	76	0	0	65
<i>Might</i> (20)	0	20	0	0	0
<i>Must</i> (374)	0	0	374	0	0
<i>Could</i> (46)	0	46	0	0	0
<i>Should</i> (105)	0	0	105	0	0
<i>Would</i> (146)	0	0	0	146	0
<i>Will</i> (122)	0	0	0	122	0
<i>Shall</i> (1)	0	0	1	0	0

Note: Coded on a blue to red spectrum. Blue indicates lower frequency and red indicates higher frequency.

**Table 5:** Modal verbs in the Arizona Jury Instructions

Modal Verb	Permission	Possibility/ Ability	Obligation/ Necessity	Volition/ Prediction	Potentially Ambiguous
Can (89)	43	51	0	0	11
May (247)	117	107	0	0	51
Might (20)	0	18	0	0	0
Must (374)	0	0	293	0	0
Could (46)	0	45	0	0	0
Should (105)	0	0	183	0	0
Would (146)	0	0	0	125	0
Will (122)	0	0	0	115	0
Shall (1)	0	0	10	0	0

Note: Coded on a blue to red spectrum. Blue indicates lower frequency and red indicates higher frequency.

#### 4.2.1. *Shall*

The modal verb *shall* is not frequently used in American English, even though it is still commonly found in British English. As a result, it is not unexpected that *shall* was the least commonly used modal verb in both sets of jury instructions. Among the 11 instances of *shall* across the two sets of jury instructions, all of them were coded as utilizing the obligation/necessity function. This can be seen in (6), where the modal verb *shall* is used to demonstrate and instruct the jury members, labeled as *you*, on what they are obligated to do when they consider the monetary amount a plaintiff might be entitled to in a specific scenario.

(6) In determining this amount, you may consider the actual costs incurred by the plaintiff but *shall* not award an amount in excess of that of a seaman living alone in the plaintiff(s) locality. (Arizona)

This consistent usage of *shall* to express obligation/necessity is further exemplified in (7), where the jury is instructed that they are obligated to award damages that fully compensate a plaintiff. The use of *shall*, in this case, signifies that the jury does not have the option to choose an alternative path in this scenario and is, instead, limited by the judge to carry out a specific procedure – in this case, the awarding of damages in a fully compensatory manner.

(7) You *shall* award damages in an amount that fully compensates [name of plaintiff]. (Utah)

Overall, the use of *shall* in both sets of jury instructions remains consistently in the obligation/necessity category regarding its function. As a result, the modal verb *shall* and its

usage in jury instructions is very unlikely to result in ambiguity. With this observed lack of ambiguity, it can be concluded that *shall* is unlikely to result in possible confusion amongst potential jurors. However, it is possible that there are more obscure meanings of *shall* that have dropped completely out of an ordinary person's understanding of *shall* due to its extremely low usage rate in American English. Based on this possibility, it may be beneficial to remove all instances of *shall* in both sets of jury instructions and replace it with more current and higher frequency forms of modal verbs

#### 4.2.2. *Will*

One of the two modal verbs commonly used to express prediction/volition, *will*, was not found to have any ambiguous instances based on the coding framework outlined previously. Usage across both sets of jury instructions was consistent in the expression of actions that are likely to occur in a future setting. In (8), it is evident that *will* is being used to signal that each party in a trial will make an opening statement after the jurors are read the jury instructions. Additionally, the opening statement is made to outline the potential evidence that a party will show after the opening statement is finished. In both instances, the usage of *will* signifies likely future events.

(8) It is simply an outline to help you understand what that party expects the evidence *will* show. A party is not required to make an opening statement. (Arizona)

This utilization of prediction/volition is also demonstrated in (9). In this example, *will* is used to demonstrate something that the judge will do after reading the jury instructions – give additional instructions – and something that the jurors will do after hearing these additional instructions – decide the outcome of the case.

(9) First, I *will* give you additional instructions that you *will* follow in deciding this case. (Utah)

Overall, the modal verb *will* is not expected to be used ambiguously in jury instructions due to its consistency of being used only to signify likely future events – with all instances across both jury sets of jury instructions being coded solely in the prediction/volition category. As a result, *will* was determined to be unlikely to cause confusion in meaning for potential jurors.

#### 4.2.3. *Would*

The other modal verb commonly used to express prediction/volition is *would*. Across the instances in both sets of jury instructions, every instance was coded as functioning in the prediction/volition category (see Tables 3 and 4). In the instances coded in the jury instructions, *would* functions slightly differently than *will*, but both still involve the discussion of possible or likely future events. The biggest distinction between the two is that *would* is used to refer to future events that may be possible under specific conditions compared to *will*, which refers to future events in a more general fashion. Examples of this usage can be found in (10) and (11).

(10) When a self-represented party testifies, you should treat this testimony just as you would the testimony of any other witness. (Arizona)

In (10), *would* is used to signal to jurors that they should treat testimony from one party as the same as any other hypothetical party that they may encounter in their (future) time as a juror. Similarly, (11) exemplifies this same usage of *would*, where the instruction signals to the jurors that reasonable care is defined by the actions of a reasonably careful person in a hypothetical situation they may encounter in the future.

(11) Reasonable care is simply what a reasonably careful person *would* do in a similar situation. (Utah)

Ultimately, of the 271 instances of *would* across the two sets of jury instructions, all of them were coded in the category of prediction/volition. This is due to the fact that despite its tendency to refer to hypothetical situations, *would* is still used to refer to future events. Based on the lack of ambiguous cases in the Arizona and Utah Jury Instructions, it was determined that *would* is unlikely to cause confusion in jury instruction meaning amongst potential jurors.

#### 4.2.4. *Should*

Across the two corpora, the modal verb *should* appears 283 times, with every instance being coded as functioning in the obligation/necessity category. Similarly to *shall*, it is clear that *should* is used to indicate what jurors are obliged or expected to do within their role as jury members. For example, (12) instructs jurors that they are expected/obliged to listen to all of the jury instructions equally without ignoring or favoring specific parts of any instruction.

(12) You *should* not single out any part of any instruction, including this one, and ignore others. (Arizona)

Likewise, (13) indicates that jurors need/are expected to hand questions to the bailiff when the judge instructs them to. In both cases, the jurors are not given an option or choice to follow the instructions; rather, they are obliged to follow the judge's instructions as part of their obligations or duties as jury members.

(13) You *should* hand your questions to the bailiff when I ask for them. (Utah)

As with the previous modal verbs discussed to this point, *should* was consistent in its coding in the obligation/necessity category. Based on *should*'s lack of ambiguous cases, the coding framework in the present study deemed it unlikely to cause confusion in meaning for potential jury members.

#### 4.2.5. *Could*

*Could* is a relatively low-occurring modal verb across the two corpora, with only 91 instances between the two sets of jury instructions. All these instances were coded as possibility/ability. The analysis of concordance lines revealed that *could* represents actions

that have the possibility to occur, even if it is not likely or probable. Examples of this can be seen in (14) and (15).

(14) In contributing material to the joint work that *could* have been independently copyrighted, each author(s) contribution should be entitled to copyright protection without the contributions by the other author[s]. (Arizona)

In (14), it is made clear the modal verb does not refer to likelihood or even future prediction. Rather, *could* simply indicates the possibility that something may or may not occur. Similarly, in (15), *could* is used to make clear that it is possible testimony may result in a jury member reaching a specific conclusion based on the testimony.

(15) However, based on that testimony someone *could* conclude that the fact in question had occurred. (Utah)

Based on the consistency of *could* being coded as ability/possibility, it was determined that *could* is unlikely to be ambiguous – at least in these two sets of jury instructions. This lack of potential ambiguity indicates that it is very unlikely that *could* would cause confusion of meaning for jury members.

#### 4.2.6. *Must*

For both sets of jury instructions, *must* was the most frequently occurring modal verb. Every instance of *must* in both corpora was coded as obligation/necessity (see Tables 4 and 5). As can be seen in (16) and (17), it is clear that *must* is used to indicate the necessity of what an action needs or is obliged to include before it is considered to be accurate/complete.

(16) To be enforceable, the assignment *must* include the goodwill of the business connected with the mark. (Arizona)

For instance, in (16), *must* is used to make it clear that the assignment needs to include the goodwill of the business connected with the mark. Without this inclusion, the assignment is not complete or recognized. Similarly, (17) uses *must* to instruct the jury members that they need/are obliged to divide any monetary amount between the involved parties when awarding compensation. If jury members fail to fulfil this obligation, they would be considered as failing in their duties as jury members.

(17) Then you *must* divide that amount between/among the [property owner, tenant, easement owner and any other interest holder], according to the interest of each. (Utah)

Despite the high frequency and usage of *must* in both sets of jury instructions, it was consistently coded under the necessity/obligation category in the framework, with zero cases of potential ambiguity throughout its occurrences. As a result of this lack of ambiguity, it was determined that *must* is unlikely to cause confusion of meaning for potential jury members, which is especially important to note because of its high rate of occurrence compared to the other modal verbs discussed in this study.

#### 4.2.7. *Might*

In terms of function, *might* follows a similar pattern to *could*, which was discussed previously, in the sense that both are used to indicate the possibility or ability for something to occur. Of the 38 total occurrences in both corpora, all were coded as functioning in the possibility/ability category. For example, (18) uses *might* to let the jurors know that it is possible that a certain type of test would be appropriate for trade dress. Similarly, (19) exemplifies this possibility interpretation by instructing jurors to consider what may possibly bias their thinking and decision-making.

(18) Such a test *might* be appropriate for trade dress that is product packaging as well. (Arizona)

(19) Second, take the time you need to challenge what *might* be bias in your own thinking. (Utah)

As with *could*, the lack of ambiguity in the instances of *might* led to the decision to consider *might* to be unproblematic and unlikely to cause confusion for potential jurors in their understanding of jury instructions.

#### 4.2.8. *May*

The modal verb *may* was the second most commonly utilized modal verb across the two sets of modal verbs; however, unlike *must*, instances of *may* resulted in a mixed bag of permission and possibility/ability codings. In addition to the mixed category codings, a substantial number of instances were difficult to evaluate based on the initial criteria outlined in the coding framework. As a result, a number of concordance lines involving *may* were labelled as ambiguous.

Examples (20) and (21) are instances of *may* functioning as both a permission and possibility/ability modal verb that were not deemed to be initially ambiguous. In (20), *may* is used to signal the possibility that the judge may or may not restrict the evidence that jury members consider. This revolves around a possible decision that the judge could choose to make, rather than permission for the jurors to do something.

(20) Sometimes I *may* order that evidence be stricken from the record and that you disregard or ignore that evidence. (Arizona)

In (21), the opposite is true. In this case, *may* is used to signify that viewing the property is only allowed to help better understand potential testimony. The inclusion of the first clause helps establish the permission aspect of the second clause, where *may* is used.

(21) Your viewing of the property is not itself evidence of fair market value, and you *may* use it only to help you gain a better understanding of the testimony. (Utah)

Unlike the two previous examples, (22) and (23) are not as clear in their intended function. Surrounding sentences may provide clarity on the intended function for jurors; however, since jury instructions are most commonly read by the judge, it seems potentially problematic for clarifying information to occur too far from the modal verb in question. For example, (22) is completely ambiguous within the concordance line. It is

unclear whether it is a possibility that punitive damages are not awarded or whether punitive damages are not allowed to be awarded.

(22) Punitive damages *may* not be awarded to compensate a plaintiff. (Arizona)

In a similar fashion, it is also difficult to determine the intended function of *may* in example (23). Initially, it is unclear whether or not jurors are not allowed to discount opinions or if they have the possibility of not discounting opinions. However, unlike (22), this occurrence can be disambiguated on closer inspection. The inclusion of the adverb *merely* signals that the discounting of witness opinions is not allowed only because of the medium their testimony was given in. Even though this concordance line can be disambiguated, it is possible that jury members will fail to fill in the blanks and will, erroneously, consider *may* to be serving the possibility function rather than the permission function it is intended to fulfill.

(23) You *may* not discount the opinions of a witness merely because their testimony was given remotely through audio or visual means. (Utah)

Overall, *may* occurs in numerous instances that can be, at least initially, considered ambiguous. Of course, it is necessary to note that this ambiguity occurs on a scale, with some instances being disambiguated by closer examination of specific adverbs or context far away from the usage of *may*. Even with this scale of ambiguity, it is entirely plausible that jurors listening to a judge reading jury instructions aloud may miss the necessary context clues that could disambiguate the intended functions of *may*. As a result, it was determined that *may*, especially the negated form, *may not*, is somewhat likely to cause potential confusion in the intended meaning of certain jury instructions that a juror would be exposed to.

#### 4.2.9. *Can*

The final modal verb examined in this study was *can*. Instances of *can* were coded as a mixture of permission and possibility/ability categories. Like *may*, the functions of some instances were not easy to determine based on the framework used in this study, so they were initially labelled as ambiguous – albeit at a much lower rate than *may*, with only 23 total concordance lines being labelled as potentially ambiguous.

Examples (24) and (25) demonstrate *can* being used both in its positive and negated form in a manner indicating permission. In (24), it is clear that the judge is clarifying that the word *apple* is allowed to be used as a generic name, especially when the word *apple* refers to the fruit of an apple tree.

(24) The word *apple can* be used as a generic name. This occurs when the word is used to identify the fruit of an apple tree. (Arizona)

Similarly, (25) demonstrates *cannot* being used to deny the permission of an action. In this case, it is that a failure of a notification meeting all requirements would result in it

being invalid and not allowed to be used as evidence, thus resulting in the classification in the permission category of the coding scheme.

(25) If the notification does not meet all the above requirements, then it is invalid and *cannot* be used as evidence of the defendant(s) knowledge of specific infringing activity. (Arizona)

Conversely, (26) is an instance of *cannot* falling under the possibility category, where the jury instructions state that it is impossible for some products to be made safe for this intended use. The lack of possibility for safety makes it clear that *cannot* is being used to indicate possibility/ability rather than permission.

(26) Some products *cannot* be made safe for their intended use, but their benefits are great enough to justify their risks of harm. (Utah)

In (27), it is more challenging to establish whether or not *can* is functioning as an example of what an economic relationship is capable of being or if *can* is functioning as a way for the judge to express permission for what an economic relationship is allowed to be within the courtroom and during the trial.

(27) An economic relationship *can* be based upon an existing contract but does not have to be. (Utah)

Likewise, (28) demonstrates another instance of the possibility and permission aspects of the statement regarding the conduct that is either allowed or possible to be included in the scope of a *10b-5 claim*.

(28) Where a defendant does not make a statement but disseminates information that is understood to contain material untruths, such conduct *can* fall within the scope of a *10b-5 claim*. (Arizona)

While both (27) and (28) are challenging to determine the intended semantic function of *can*, these cases are different than the ambiguous cases involving *may* (see (22) & (23)) for at least one major reason. In the ambiguous cases of *may*, particularly in the negative construction of *may not*, it was clear that the two possible interpretations of possibility and obligation were significantly different from each other and that if a juror decided to make a decision on the meaning that differed from the judge's interpretation of the instruction, there would be a strong likelihood of a possible breach of the legal procedures of the courtroom. However, in the cases of (27) and (28), the ambiguity between possibility and permission is less likely to cause a juror to reach a conclusion that would greatly impact their decision-making in the implementation of the instructions. For example, whether or not (28) is instructing the juror that conduct is allowed or possible to fall within the scope of a *10b-5 claim* is not as impactful for a juror's comprehension of the instruction because the juror would be likely to view that conduct as allowed in their consideration regardless, meaning that their decision-making process would not significantly be altered during the course of the trial.

### 4.3. Initial Comprehension Evidence

Initial results from the comprehension survey broadly align with the corpus-based finding that most modal verbs do not pose serious interpretation problems for lay readers. Across the unambiguous modals in written form (*could*, *would*, *must*, *shall*, *should*, *will*, *might*), agreement rates ranged from roughly 80% to over 95%, with confidence ratings clustering around the upper half of the 1 – 4 scale (see Table 6). Written instances of *can* and *may* showed a similar pattern: participants converged on the intended meaning in over four out of five responses, and self-reported confidence was generally in the “somewhat confident” to “very confident” range. Taken together, these results suggest that, in straightforward written settings, jurors are typically able to align with the intended legal meaning of most modal constructions, including many of the potentially ambiguous forms flagged in our corpus analysis.

**Table 6:** Results of the initial comprehension survey

Modal Verb/Mode	Total Responses	Average Confidence Rate	Percentage of Agreement
<i>Could</i>	31	3.16	90.3%
<i>Would</i>	26	2.30	96.2%
<i>Must</i>	26	2.79	80.7%
<i>Shall</i>	24	2.97	83.3%
<i>Should</i>	23	2.98	87.0%
<i>Will</i>	26	3.27	92.3%
<i>Might</i>	25	2.97	92.0%
<i>Can (Written)</i>	164	2.77	86.0%
<i>May (Written)</i>	136	2.60	82.6%
<i>Can (Spoken)</i>	114	3.17	92.1%
<i>May (Spoken)</i>	114	2.30	57.0%

However, the survey also revealed a notable difference in how participants interpreted *may* in the spoken condition. When modal verbs were presented in spoken form, interpretations of *can* remained highly consistent (over 90% agreement with the intended meaning, with high average confidence ratings), but *may* in the spoken condition yielded only about 57% agreement on the intended reading, with noticeably lower confidence ratings. This pattern aligns with our qualitative analysis of *may + not* constructions in the corpora: when listeners have to interpret modal verbs in real time, without the ability to re-read disambiguating material, *may* appears particularly prone to supporting multiple plausible readings. In other words, the ambiguity we identified in the corpus does not remain purely theoretical; it is mirrored in actual comprehension behavior, especially for spoken instances of *may*. This finding is echoed in previous research on jury instruction comprehension being much lower in the spoken modality, which is the most common mode of delivery in real-world jury situations (Grixoni & Demir, 2025).

## 5. Discussion

### 5.1. Ambiguity in *Can* and *May*

Overall, it appears that there are only two modal verbs that can be considered potentially ambiguous within the two sets of jury instructions examined in this study: *can* and *may*. In the case of *may*, the only instances of ambiguity throughout both sets of jury instructions came in the form of *may + not*. The combination of negation and *may* resulted in numerous cases that were difficult to disambiguate between the possibility and obligation function. Upon further scrutiny, it was possible to determine the likely intended meaning of each instance; however, we feel that the *may + not* construction is still at least somewhat likely to cause confusion of meaning for potential jurors – particularly due to the fact that jury instructions are frequently read aloud for jury members without jury members having the ability to either re-hear certain sections of the instructions or re-read them at their own rate. The preliminary comprehension survey broadly echoed these patterns: participants were most divided on sentences with *may* (particularly in the spoken modality, which is the mode most jury instructions are delivered in (Grixoni & Demir, 2025), whereas interpretations of *can/cannot* were comparatively more consistent. Although the survey was small in scale, it offers initial support for treating *may* as the more problematic form.

It is important to note that examination of the instances of ambiguous *can* revealed that the possible interpretations between possibility and permission would be unlikely to significantly affect the decision-making process of potential jurors. Despite this, it is possible that these instances could result in a higher cognitive load on jurors and, therefore, affect their judgment. Even if these situations are less likely to occur with ambiguous cases of *can*, we feel that it is important to note these instances and call for adjustments to further solidify the comprehensibility of these jury instructions.

These two modal verbs, even with differing degrees of ambiguity, are potentially problematic for the comprehension of jury instructions by jury members. As a result of this analysis, we discuss below the possible impacts this could have on jury instructions, along with possible solutions for these issues.

### 5.2. Implications for the Jury System

Both Utah and Arizona jury instructions extensively rely on the use of modal verbs to convey the functions of obligation, necessity, permission, and prediction. Due to the polysemous nature of modal verbs and their close relationship with the pragmatics of the English language, they are associated with a certain level of ambiguity. In other words, certain meanings of modal verbs can be interpreted differently depending on the context and the listener's/reader's understanding of these functions. This means that reducing the level of am-

biguity in jury instructions can potentially lead to higher levels of comprehension. The comprehension survey data, while preliminary, suggest that these ambiguities are not only theoretical, as lay readers do seem to diverge in interpretations, particularly in the spoken modality, of the same modal construction (especially *may*). This pattern is consistent with previous work showing that jurors' subjective confidence can outstrip their objective comprehension (McKimmie et al., 2014), which is particularly concerning when ambiguous instructions are delivered orally.

Additionally, studies focusing on register differences have proven that modal verbs perform very different functions depending on the type of text and the situational context, i.e., spoken and written texts (Biber, 2006). Typically, jury instructions exist as written texts that are read aloud by the judge. Arguably, this builds the gap between the expected functions of modal verbs and their actual intended use in the perceptions of an ordinary English speaker.

Our investigation of the functions of modal verbs found that certain modals are unambiguous and often efficiently communicate the meanings of obligation, volition/prediction, and possibility, permission, as in the case of the modal verbs *must*, *could*, *might*, and *should*. However, there are some potential variations in the interpretations of the intended meanings of the modal verbs *may* and *can*, especially when they are used in their negative forms. It is often noted in linguistics that avoiding ambiguity and obscurity of expression helps avoid problems with clarity (Grice, 1975). Therefore, we recommend that these ambiguous instances of modal verbs be replaced with their less ambiguous or unambiguous counterparts. Some potential edits might include substituting modal verbs with a clause or adding a clarifying adverbial that serves as a 'disambiguator'. Exemplification of these possible adjustments can be found in the examples (27) through (32).

In (29), the modal verb *may* can be viewed as functioning as either a marker of permission or possibility. While there is a likely intended meaning of possibility, this interpretation is far from certain. To address this potential issue, simply replacing *may* with a clause using an adjective that removes the ambiguity – such as *possible* – drastically reduces the possibility of misinterpretation. An example of this change can be seen in (28).

(29) The expert witnesses *may* disagree as to what the standard of care is and what it requires.

(30) *It is possible that* the expert witnesses will disagree as to what the standard of care is and what it requires.

This adjustment could result in some problems of its own based on the complexity of adding an extraposed subject with a complement clause, as seen in (30), but this change does reduce the possibility of ambiguity in the intended meaning of *may*.

Another possible edit that could be made to ambiguous instances of modal verbs is to simply replace the potentially polysemous modal verb with a more unambiguous option that still fulfils the semantic function needed. In (31), *may* could mean either the possibility of not discounting the opinions or an expression of obligation on what is expected of a juror. Replacing *may* with a less ambiguous modal verb like *must*, as seen in (32), can help to address this ambiguity.

(31) You *may* not discount the opinions of [name of expert] merely because of where [he/she] lives or practices.

(32) You *must* not discount the opinions of [name of expert] merely because of where [he/she] lives or practices.

While this option is the most straightforward and simple, it is not always possible to simply replace a modal verb with another option because the intended meaning cannot always be encapsulated with a simple substitution.

Another potential solution is to add more immediate clarifying adverbials. For example, in (33), *may* again can be interpreted either as an obligation/instruction or as a possibility. This ambiguity can be helped with the inclusion of an adverbial phrase/clause that clarifies the intended meaning of the modal, as seen in (34).

(33) Jurors *may not* decide based on sympathy, passion, and prejudice.

(34) *With no exceptions*, jurors *may not* decide based on sympathy, passion, and prejudice.

This solution is not without its own shortcomings. If there are too many of these adverbial phrase/clauses, it could result in an increased cognitive load for members of the jury. Additionally, if the adverbials are not close enough to the modal verb in question, this could result in more ambiguity rather than the intended function of reducing ambiguity.

While one might argue that these ambiguities are minuscule and not worth attention; nevertheless, we suggest that jury instruction committees consider this empirical evidence that shows that current jury instructions pose challenges to jurors due to both semantic and syntactic factors and that reducing cognitive load by simplifying these instructions improves comprehension (Randall, 2014). Moreover, these edits are simple to incorporate and will not require substantial resources.

### 5.3. Future Research

While this study has investigated and revealed instances of both unproblematic and potentially problematic usages of modal verbs within jury instructions, our empirical evidence remains limited. Our comprehension survey provided only an initial, small-scale assessment of lay readers' interpretations; larger, more ecologically valid comprehension studies with actual jurors are still needed. As such, we feel that it is important to continue this research into modal verb ambiguity in jury instructions – particularly in the areas of assessment and psycholinguistics. For example, conducting surveys using modal verb usage in this study could inform this research regarding the understanding and comprehension of potential jurors and whether or not participants are actually confused by the instructions.

Furthermore, assessments of jury instructions could give valuable insight into the possible interpretations jurors make and help potential jury members better understand the decision-making process regarding these ambiguous modal verbs. Both of these avenues of further research could advance the progress made in the current study by evaluating and

determining the actual likelihood of misunderstanding or confusion of meaning in jury instructions by jurors regarding ambiguity in modal verbs.

Another potential line of research is testing whether the ambiguity of modal verbs affects jurors' overall comprehension power when combined with other factors that have shown to increase the processing load, such as the use of nominals, negatives, and the passive voice (Randall, 2014).

#### 5.4. Limitations

As this study is exploratory in nature, there are a number of limitations that must be acknowledged in order to allow future research to continue to advance the comprehensibility of jury instructions. Due to the flexible nature of modal verbs, it was difficult to develop a coding framework that completely encapsulates the options and intended meanings of modal verbs, so future studies will likely need to enhance and clarify a coding framework to prevent both oversimplification and speaking too broadly on the intended meanings of modal verbs.

In that same vein, it is important to note that coding for this study was carried out entirely by the researchers, which could be problematic regarding the efficacy of the coding framework. Since the users of the framework were also the developers of the framework, it is possible that replication of these results by other raters would be quite different than the ones found in this study. A potential solution to this problem in the current study would be to check intra-rater reliability over a delayed period along with re-checking inter-rater reliability using the delayed coding to ensure more consistent and reliable results from the coding framework.

## 6. Conclusion

This study demonstrated that both Utah and Arizona jury instructions utilize a wide range of modal verbs to express the functions of permission, possibility/ability, obligation/necessity, and volition/prediction. The vast majority of the occurrences of modal verbs seem to be unambiguous and should not pose any comprehension difficulties for jurors. However, the modal verbs *may* and *can* have the potential to have multiple interpretations. Since jury instructions are often only given aurally, the most common situations are when jurors have to rely on their memory and are, therefore, incapable of going back to the part of the text where the possible disambiguating element was located. We propose that these ambiguous instances of modal verb usage should be revised to increase the clarity of jury instructions. Our survey findings, although preliminary, point in the same direction, with *may* in particular being the most likely to result in diverging interpretations. It is important to note that

we do not argue against the inclusion of modal verbs in jury instructions. We realize that modal verbs are important tools that provide hedging and are efficient instruments in conveying epistemic meanings. However, in the case of jury instructions, the stakes of misinterpreting the intended meaning are high; hence, we advise some slight adjustments in modal verb usage to achieve maximum clarity and decrease the possibility of misinterpretations.

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