How Just Is Justice? Ask a Psycholinguist

Janet Randall

Abstract You are a member of a jury. After the trial, the judge reads you and your fellow jurors a set of instructions. One of them begins: *Failure of recollection is common. Innocent misrecollection is not uncommon…* Confused? Now imagine that your native language is not English or that you never finished high school. Or both. Our justice system depends on jurors making informed decisions to reach a verdict, so when jury instructions are too challenging, jurors not only disengage but return misinformed verdicts. Courtroom practices make jurors' jobs even harder. Many states don't provide copies of the instructions and some don't permit jurors to take notes. Can we make instructions easier for jurors, and in so doing, improve justice? In two studies, we show that jury instruction comprehension significantly improves (a) when subjects read the texts of the instructions while listening to them and (b) when the instructions are rewritten in Plain English, minimizing two linguistic factors: passive verbs and unfamiliar legal expressions, or "legalese". Improvements were even greater for Study 2's MTurk subjects than Study 1's undergraduates. Since these new subjects are closer demographically to jurors, this new data provides even more evidence that current jury instructions need to be rewritten. Taken together, the studies lay the groundwork for reform, psycholinguistics providing judiciaries with the evidence that they need to implement change.

1 Prelude

Recently the Linguistics Society of America began an effort of public outreach, urging its members "to engage the public in learning about linguistics and its broader value to society." And linguists are reaching out at every level: engaging K-12th graders and their teachers, presenting at science fairs, libraries, and museums, working with indigenous communities, creating YouTube videos and even TED talks. The LSA's appeal suggested that we build on our strengths and, as a UMass graduate

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trained in psycholinguistics by Lyn Frazier and Chuck Clifton, I feel privileged to be able to use my training to do just that.

This article outlines a research project that I began a few years ago, which brings linguistics together with law. It has been fueled by a team of very bright and enthusiastic students and has profited from collaborations with a forward-thinking group of judges and lawyers. Our hope is that sharing our insights and results with the legal community will inspire collaborations on new ways to tackle certain challenges in the legal system, challenges that sometimes get in the way of justice.

2 Introduction

You are a member of a jury. The judge is reading you and your fellow jurors a long set of jury instructions. One of them contains the lines:

(1) *Failure of recollection is common. Innocent misrecollection is not uncommon.*

Right. Now imagine that you're not a native speaker of English. Or not highly educated. Jury instructions are notorious for being difficult to understand (Charrow & Charrow, 1979). They are most challenging for those Americans with lower levels of education and non-native English skills, but the rest of us don't find them all that comprehensible either. And since our justice system depends on a jury of one's peers making informed decisions to reach a verdict, these kinds of instructions do not bode well for justice. Confused jurors return misinformed verdicts, which is unjust for litigants (Diamond, Murphy, & Rose, 2012; Marder, 2005; Benson, 1985). And verdicts aside, jurors who are mystified by judicial language simply disengage, which is unfair to *them*. Excluded from understanding, these citizens can't fully participate in trials, and find themselves at a disadvantage relative to the more highly educated, native-speaking members of the jury.

Jury instructions are written by judges and lawyers, who pride themselves on being precise users of language. After all, part of their job is to write contracts, statutes, and opinions that are unambiguous. What can linguists tell **them** about writing the law? A lot, in fact. Though linguists are outsiders when it comes to "legalese," the specialized legal vocabulary that can be so impenetrable to the rest of us, we do sometimes understand language in ways that lawyers don't. As experts in syntax and semantics, we have an insider's view of ambiguity, scope, passives, co-reference, and other complex syntactic structures. This is why we are occasionally asked to interpret contracts and weigh in on trademark issues, plagiarism cases, and ransom notes. And as for jury instructions, since it is these snippets of legal language on which the scales of justice balance, they must be syntactically and semantically transparent to all jurors, whatever their level of education and whichever dialect they speak. In what follows, I will take you on a linguistic tour of jury instructions, to identify the issues and better understand how linguists and legal professionals can work together to make the instructions—and the courtrooms they operate in—more just. It is one

area where linguists can have an impact, where our outreach can make a significant difference.

3 Background

Almost as if they heard the LSA's appeal, a few years ago, the Massachusetts Bar Association (MBA) contacted me. They had a task force whose goal was to rewrite all the Massachusetts Jury Instructions in "plain" English, following the lead of California and some other states.[1] And like California, they wanted a linguist on their team. How could I not agree to help?

One of our first tasks was to look at some of California's instructions—the original versions and the revised ones. (1) above comes from one of California's original instructions. It was revised as (2).

(1) *Failure of recollection is common. Innocent misrecollection is not uncommon.*

> (California Jury instructions Book of Approved Jury Instructions, or BAJI [5th ed. 1969])

(2) *People often forget things or make mistakes in what they remember.*

> (Judicial Council of California Civil Jury Instructions, or CACI [2003, 2018 version now available])

This instruction certainly needed rewriting; the question for Massachusetts is whether our instructions are just as challenging. The MBA thought so, but it was important to establish that jurors really do have problems understanding them, since efforts to rewrite jury instructions have faced many barriers. Besides the cost and outlay of resources, and simple inertia, some are concerned that past decisions will be challenged. Others claim that the problem is not with the instructions but with the jurors, who just don't listen carefully, so no amount of revising will help. Still others feel that jury instructions should inspire awe and respect for the court and should stay as they are. And there are also those who fail to be convinced by the empirical studies about the difficulty jurors have with the instructions. Anticipating push-back, we felt it necessary to demonstrate systematically (a) that the Massachusetts instructions are indeed difficult for jurors to understand and, moreover, (b) that rewriting them will improve comprehension. This was the inauguration of The Plain English Jury Instruction Project at Northeastern University, a research project in which students and faculty across several disciplines focus on issues of linguistics and law.

In this article, I will begin by asking the questions: Are jurors confused? If so, why? In our linguistic tour of Massachusetts jury instructions, we will examine not just

[1] In 1996 the Blue Ribbon Commission on Jury System Improvement stated that "jury instructions as presently given in California and elsewhere are, on occasion, simply impenetrable to the ordinary juror." In response to the commission's recommendation, the Judicial Council created the Task Force on Jury Instructions in 1997.

their unfamiliar legal terminology but also their syntactic and semantic challenges. Along with this, we will survey some problems surrounding how jury instructions are delivered in the courtroom. Though rewriting instructions will not solve these problems, it is important to lay them out to understand the other demands jurors face. In the second half of this article, I present evidence from two experiments that show the linguistic factors that make our current Massachusetts instructions so challenging and demonstrate that comprehension can be improved. The results of these studies provide the linguistic evidence that the MBA needs. It will be up to the judiciary to act on it.

4 Are Jurors Confused? If so, Why?

Are jurors confused? The answer is yes. And the reason, which we explore below, is two-fold. First, there is the language of jury instructions. Second, there is the way that jurors encounter the instructions in the courtroom, usually by listening to a judge read them aloud, one after the other after the other. We look at these issues in turn.

4.1 A Linguistic Look at Jury Instructions: A Preview

We have already seen an excerpt of one instruction in (1) above. Before looking at others, this excerpt, just 10 words long, previews some of the problems we will see in more depth later on.

4.1.1 Vocabulary

Notice that there are no special unfamiliar legal terms in (1).

(1) *Failure of recollection is common. Innocent misrecollection is not uncommon.*

But there are several rather sophisticated terms as compared to the terms in (2). The chart in Fig. 1 shows the N-gram[2] word frequencies of six words in the two instructions: *recollection, misrecollection,* and *uncommon* from the original instruction, (1), and *forget, mistakes,*[3] and *remember* from the new version, (2). The three words from (1) cluster at the bottom of the chart with much lower frequencies than the three words from (2).

[2] An N-gram is a contiguous sequence of *n* items from a given sample of text or speech. The Google Ngram Viewer or Google Books Ngram Viewer is an online search engine that charts frequencies of any set of comma-delimited search strings using a yearly count of n-grams found in sources printed between 1500 and 2008. See https://books.google.com/ngrams.

[3] *Mistakes* is found with the base form *mistake* using the INF function, which provides a combined frequency for a word and its inflected forms.

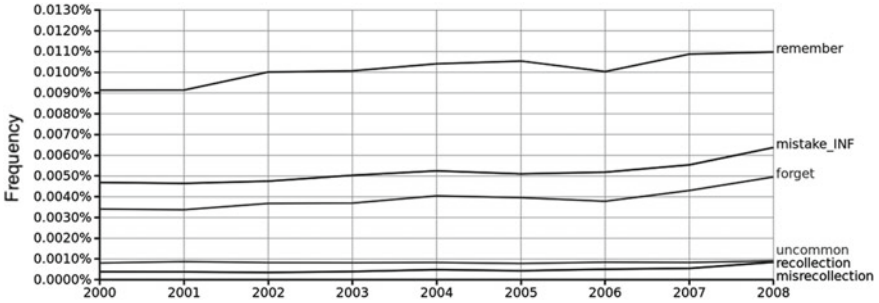


Fig. 1 N-gram frequencies: *remember, mistakes, forget, uncommon recollection, misrecollection*

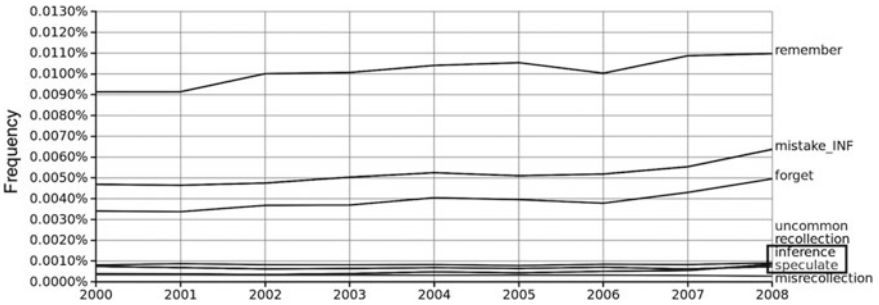


Fig. 2 N-gram frequencies: *remember, mistakes, forget, uncommon recollection, inference, speculate, misrecollection*

This N-gram frequency sample covers the years 2000–2008. What do these numbers mean for comprehension? Certainly, comprehension of a word requires familiarity with it. If familiarity is a function of relative frequency, then we would expect less-familiar words to be low-frequency words, and comprehension to reflect word frequency.

This is supported by research reported in Tiersma (1993). In one study of jurors who had served on a trial, more than 25% could not define *inference* and more than half could not define *speculate.* And it turns out that these words cluster with the low frequency terms at the bottom of the N-gram, as Fig. 2 shows.

Another database, the Corpus of Contemporary American English (COCA)[4] in Fig. 3, confirms the finding.

Tiersma's jurors also had problems with "legalese" terms. More than 25% could not define *admissible evidence, impeach,* or *burden of proof*. And more than 50% thought *a preponderance of the evidence* meant either "a slow, careful, pondering of the evidence" or "looking at the exhibits in the jury room" (Tiersma, 1993. See also Diamond and Levi, 1996; Diamond, 2003; Tiersma, 1999, 2001, 2009). Unsurpris-

[4]The Corpus of Contemporary English database contains more than 560 million words of text (20 million words each year 1990–2017) equally divided among spoken, fiction, popular magazines, newspapers, and academic texts. See https://corpus.byu.edu/coca/.

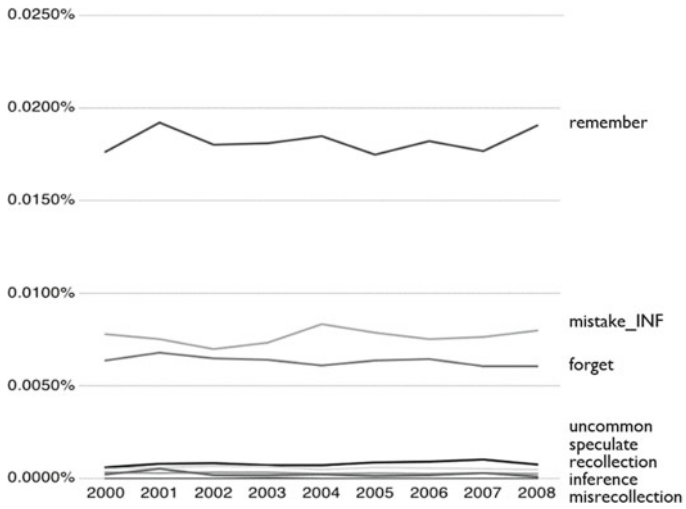


Fig. 3 COCA frequencies: *remember, mistake(s), forget, uncommon, speculate, recollection, inference, misrecollection*

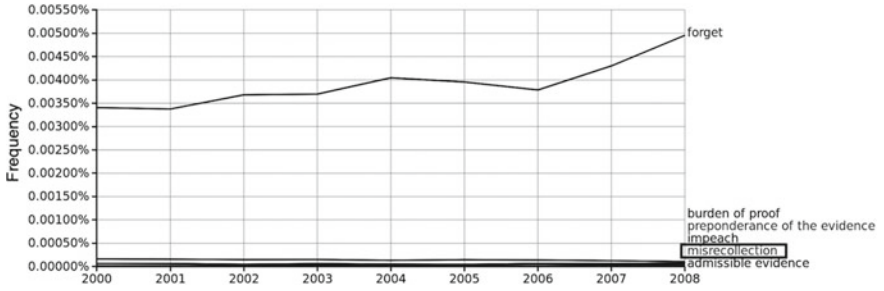


Fig. 4 N-gram frequencies: *forget, burden of proof, preponderance of the evidence, impeach, misrecollection, admissible evidence*

ingly, as shown in Fig. 4, the N-grams for these terms also cluster at the bottom of the chart, with *misrecollection.*

This argument only goes through, of course, if a very high percentage of jurors know the meanings of the frequent words *remember*, *mistake,* and *forget.* But since these vocabulary items are familiar to every elementary school child, it is likely that jurors know them too. We will return to this issue below. First, we finish previewing the problems with the language in (1) and look at two other challenging factors in this small excerpt of 10 words.

4.1.2 Negatives

Strikingly, four of the ten words in (1) are negative expressions, which research has shown are harder to process than positive statements (Wason, 1972, Just & Carpenter, 1976, Just & Clark, 1973). There is one overtly negative word, [not], and two prefixes, [mis-] and [un-], but there is also an "inherent" negative, [failure]. Even more challenging is the expression [**not** [**un**common]] which contains two negatives, one embedded inside the other. The outer negative has scope over the inner one, which makes this string of negatives harder to parse than two negatives whose scopes do not interact.

4.1.3 Nominalizations

A second challenge in these 10 words comes from the heavy use of **nominalizations**. Nominalizations are complex nouns built from verbs and this excerpt contains three: *failure* from *fail*; *recollection* and *misrecollection* from *recollect* and *misrecollect*.

(1) **Fail**ure of **recollect**ion is common. Innocent **misrecollect**ion is not uncommon.

Nominalizations also add a processing cost compared to their underlying verbs, especially for poor readers (Duffelmeyer, 1979; Spyridakis & Isakson, 1998). The reason is that they leave out one or more of the verb's arguments, central pieces of a verb's meaning. *Fail* takes a subject; *recollect* and *misrecollect* each take a subject and an object, shown in (3).

(3) [x] fails (to …)
[x] recollects [y] …
[x] misrecollects [y] …

As we parse sentence (1) and assemble the components into a meaning, we look for these arguments. And when they're missing, we mentally put them back in, an operation that has a cost. Recognizing this, California's rewrite of (1) as (2) replaced the nominalizations with verbs (*forget*, *make, remember*) along with all their subjects and objects, and the result is much more understandable:

(4) [People] often **forget** [things] or **make** [mistakes] in [what] [they] **remember** (CACI, 2003).

5 Courtroom Practices: More Impediments to Comprehension

In addition to the language of the instructions, other kinds of problems confront jurors in the courtroom: how jury instructions are delivered and the lack of additional resources that could help them. Can jurors take notes? Do they each get a copy of

the instructions to read along? Marder (2005) gives an extensive discussion of these issues, which I draw on here.

5.1 Delivery

The timing of jury instructions is one issue. It is standard practice for judges to give all the jury instructions at the end of the trial, which can be a very lengthy process, running from half an hour to several hours.[5] And the effect on jurors can be deadening. Marder notes, "judges can almost predict at which point they will see jurors' eyes glaze over." She quotes one judge,

> I remember starting out as a new judge a lifetime ago, coming to anticipate exactly where, in my recitation of the mass of instructions, jurors' eyes would roll and despair set in. I have known exactly the moment I have lost them. Yet, as part of what I had been taught, I droned on. (Connor, 2004)

Piling up all the instructions at the end of a trial is not just a test of juror tenacity (and there are jurors who have been seen to nod off during the ordeal), it makes no sense, given what we know about human attention, memory and learning.

One well-established research finding is the "spacing effect": spacing instructional materials over time in shorter sessions rather than delivering them in a "massed" format in one long session limits learning fatigue and results in more learning and better long-term retention (Thalheimer, 2006 and references cited). And though the classic experiments on what is also known as "distributed learning" involved verbatim repetition of the same material (e.g., vocabulary words), more recent studies have found that the increase in learning also occurs with non-repeated material. Researchers found that listeners not only had better recall with spaced presentation over massed (Smith & Rothkopf, 1984), but were better able to generalize from the examples they heard to new instances (Vlach & Sandhofer, 2012).

More specific to jury instructions, research has shown that presenting instructions at the beginning as well as the end of a trial has advantages. It helps jurors (a) focus on and remember relevant evidence (Elwork, Sales, & Alfini, 1982), (b) evaluate the relative importance of evidence and (c) apply the law to the facts (Heuer & Penrod, 1989; Kassin & Wrightsman, 1979), and (d) feel more satisfied with their jury experience (Heuer & Penrod, 1989). Preliminary instructions given before the trial begins also provide jurors with a framework for the trial, including background about the relevant law or standards of proof and other useful information (Dann & Logan, 1996).

Perhaps as a result of this research, courts are beginning to change: in Arizona, judges now break the instructions into groups and give "preliminary" jury instructions at the outset. The American Bar Association's (2005) *Principles for Juries and Jury Trials* goes further, suggesting that instructions be given *whenever* they are necessary

[5]For example, the written version of the jury instructions in the state criminal trial of Michael Jackson spanned ninety-eight pages (Broder, 2005).

for understanding. For example, they suggest that just before a jury hears testimony from a law enforcement officer, they get the instruction that the officer's testimony deserves no more and no less weight than the testimony of any other witness (Marder, 2005 citing Sand et al. 2005).

5.2 Note-Taking

In addition to the length of time that jurors must listen to the judge "droning on," they also face the problem that note-taking during the trial is at the discretion of the trial judge, despite its endorsement by the American Bar Association. But this practice is changing too. In Fig. 5 are state-by-state survey results from 2007 by The Center for Jury Studies.[6] In 2016, according to *US Legal*, note-taking was prohibited by 37% of state court judges; in other words, allowed by state court judges in 32 states.

In a 2014 overview of note-taking, the *Federal Evidence Review* cited the Seventh Circuit's liberal policy,

> … A judge would not try a bench trial without the ability to take notes, even though the trial transcript can be generated post-trial. It is difficult to understand why jurors should not have the same opportunity…

The article goes on to point out the reasons for the resistance. Some courts believe that taking notes may distract jurors from following the evidence at trial. Others contend that the jury's deliberations will be swayed by the juror with the most detailed notes, accurate or not. And some judges are skeptical that notes will be treated as evidence itself (Broda-Bahm, 2016).

The psychological literature clearly favors the note-taking side. In a review article, Williams and Eggert (2002) report many by-now classic studies showing that note-taking aids students' recall of noted information and performance on exams related to that information. For example, Einstein, Morris, and Smith (1985) found that students who took notes during a lecture recalled more of the lecture's "high-importance" information than students who only listened to it. Kiewra (1984) reported that the number of lecture notes students took correlated significantly with their recall of lectures, with *students more than twice as likely to remember recorded than non-recorded points* [emphasis mine]. And students themselves often comment that taking notes helps them stay attentive (Boch & Piolat, 2005, citing van Meter, Yokoi, & Pressley, 1994). Lest one think that these results are peculiar to college students, a recent study using mock-juror subjects (Thorley, 2016) similarly found that (1) taking notes during a trial improved the recall of trial information and (2) reviewing the notes enhanced recall further.

[6]This is a project of the National Center for State Courts. The full data set includes the number of respondents and the percentages for each state. In contrast to the *US Legal* report, there was no state reporting that 0% of jurors said that they could take notes.

State Rankings of Judge & Attorney Survey Results

Center for Jury Studies

Jurors Permitted to Take Notes

Percent of respondents who reported that jurors were permitted to take notes.

% of Respondents	#	States		
over 75%	27	Wyoming	Idaho	DC
		Arkansas	Maryland	Montana
		Arizona	Utah	Wisconsin
		Indiana	Hawaii	Nevada
		Colorado	Iowa	Georgia
		Oregon	New Mexico	South Dakota
		Minnesota	Illinois	Tennessee
		California	Washington	North Dakota
		Alabama	Alaska	Kentucky
50% - 75%	10	Massachusetts	Mississippi	Michigan
		North Carolina	Florida	Oklahoma
		Virginia	Ohio	
		Vermont	Texas	
25% - 50%	11	Connecticut	Missouri	Louisiana
		Delaware	New Jersey	New York
		Pennsylvania	South Carolina	Nebraska
		West Virginia	Kansas	
0% - 25%	3	Maine	New Hampshire	Rhode Island

National Center for State Courts, 2007

Fig. 5 States that permit jurors to take notes

Why is this the case? Researchers suggest that the processing we do while taking notes improves learning and retention. Compared with simply listening to a speaker or reading a document, taking notes requires that our attention be more focused on "accessing, sorting, and coding" the information (Piolat, Olive, & Kellogg, 2004). Moreover, taking notes provides "external storage" for the information, which not only eases the load on our working memory, but gives us another way to review it later (Mueller & Oppenheimer, 2014 and references cited there). Thus, jurors who cannot take notes may forget critical trial information, which can negatively influence their verdicts (Thorley, 2016). And this can have serious repercussions for justice.

5.3 *Copies of the Instructions*

One more challenge that jurors can face is not having a copy of the jury instructions to read along. The situation in 2007 is reported in the same Center for Jury Studies survey, shown in Figs. 6 and 7. The data show in which states jurors report, in Fig. 6, receiving at least one copy of the instructions and, in Fig. 7, receiving a copy for each juror.

Only two states, Arizona and Indiana, supplied the written versions in every jurisdiction in the state, a practice that is written into their civil and criminal procedures. In most states, though, courts provide the jury with only one written copy. And in five states juries did not get even a single written copy of the jury instructions. This practice is unfortunate if courts want jurors to understand them.

State Rankings of Judge & Attorney Survey Results

Center for Jury Studies

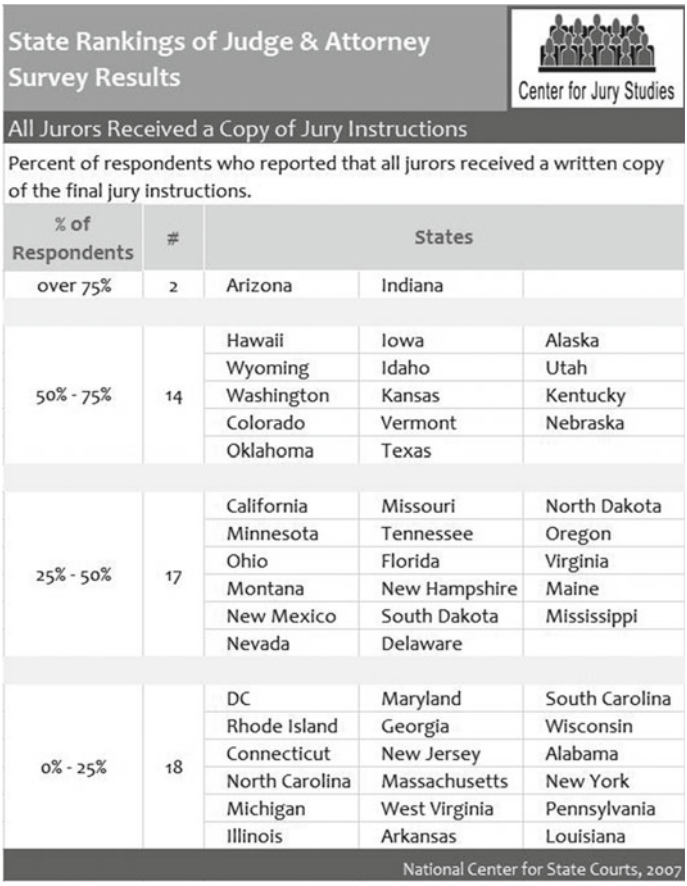
Jurors Received At Least One Copy of Jury Instructions

Percent of respondents who reported that at least one written copy of the final jury instructions was provided to jurors.

% of Respondents	#	States		
over 75%	34	Montana	Missouri	Alaska
		Wyoming	Virginia	Minnesota
		Iowa	Texas	Nevada
		Kentucky	California	New Hampshire
		New Mexico	Hawaii	Vermont
		Idaho	Indiana	DC
		North Dakota	South Dakota	Oklahoma
		Kansas	Washington	Tennessee
		Arizona	Colorado	Ohio
		Illinois	Utah	Mississippi
		Wisconsin	Arkansas	
		Delaware	Nebraska	
50% - 75%	3	Florida	Oregon	West Virginia
25% - 50%	9	Maine	Maryland	Connecticut
		Michigan	North Carolina	Georgia
		Rhode Island	Louisiana	New Jersey
0% - 25%	5	Massachusetts	Alabama	New York
		South Carolina	Pennsylvania	

National Center for State Courts, 2007

Fig. 6 States where the entire jury gets one copy of the instructions



State Rankings of Judge & Attorney Survey Results

Center for Jury Studies

All Jurors Received a Copy of Jury Instructions

Percent of respondents who reported that all jurors received a written copy of the final jury instructions.

% of Respondents	#	States		
over 75%	2	Arizona	Indiana	
50% - 75%	14	Hawaii	Iowa	Alaska
		Wyoming	Idaho	Utah
		Washington	Kansas	Kentucky
		Colorado	Vermont	Nebraska
		Oklahoma	Texas	
25% - 50%	17	California	Missouri	North Dakota
		Minnesota	Tennessee	Oregon
		Ohio	Florida	Virginia
		Montana	New Hampshire	Maine
		New Mexico	South Dakota	Mississippi
		Nevada	Delaware	
0% - 25%	18	DC	Maryland	South Carolina
		Rhode Island	Georgia	Wisconsin
		Connecticut	New Jersey	Alabama
		North Carolina	Massachusetts	New York
		Michigan	West Virginia	Pennsylvania
		Illinois	Arkansas	Louisiana

National Center for State Courts, 2007

Fig. 7 States where each juror gets a copy of the instructions

Some judges have tried to convince their colleagues of the merits of supplying instructions. Los Angeles Superior Court Judge Jacqueline Connor (2004, reported in Marder, 2005) described the practice as:

> wildly successful…an inexpensive, effective way to virtually guarantee juror understanding of the law. Every judge I have spoken to who has taken on this technique has reported the same phenomenon: legal questions from jurors during deliberations have stopped.

And since the time of this survey, the situation is improving; the 9th Circuit now recommends that "a written copy of the concluding instructions be given to each juror for deliberations."

Again, research across several disciplines supports change, demonstrating that supplying listeners with a text to read as they listen enhances their understanding. Psychologists Moreno and Mayer (2002) showed in a series of experiments that college students who listened to a technical explanation with a text performed better than those without one, remembering significantly more of the material and showing a deeper understanding of it. They explain their results using a "dual processing theory" of working memory, which has two processors, auditory and visual. Engaging both simultaneously increases processing capacity and allows the two to work together to organize the information into one coherent and enhanced representation (p. 157).

Research on second-language learners shows the same bimodal learning boost. Chang (2009) showed that college students who listened to stories both with and without a text found that those students who had the text not only showed enhanced performance but also reported that they found it easier to listen, they understood more, the stories seemed shorter and more interesting, and they paid much better attention. The same boost from—and preference for—reading while listening has been demonstrated for second-language students acquiring new vocabulary (Brown, Waring, & Donkaewbua, 2008).

Taking all of these research findings together, it is clear that each juror should have a copy of the written instructions. Not only will all jurors understand their task better but those whose native language is not English will also pay better attention and be more engaged. And there is one more reason for giving a copy to each juror; it preserves balance. With only one copy, the juror who holds the copy becomes the authority on the instructions, not a desirable outcome (Marder, 2009).

6 The Plain English Jury Instruction Project: Research at the Linguistics/Law Interface

The next several sections will shift the focus back to language. Our preview of legal language identified three problems with the two-line snippet in (1):

(1) *Failure of recollection is common. Innocent misrecollection is not uncommon.*

Though the sentences are short, the vocabulary is sophisticated, with lots of low-frequency words; the verbs have been nominalized, their subjects and objects deleted, and the message is framed in negative words, including the very challenging "embedded" negative, *not uncommon*. But this is the tip of the iceberg. The instructions that jurors hear are much longer than this snippet. In the next section we turn to one of those instructions and the challenges that it poses. Following that, we look at how those challenges can be overcome, with data from a series of experiments.

6.1 A Current Instruction: Standard of Proof

A common instruction given to jurors is Standard of Proof in (5).

(5) Standard of Proof, Current instruction

The standard of proof in a civil case is that a plaintiff must prove his or her case by a preponderance of the evidence. This is a less stringent standard than is applied in a criminal case, where the prosecution must prove its case beyond a reasonable doubt.

By contrast, in a civil case such as this one, the plaintiff is not required to prove (his or her) case beyond a reasonable doubt. In a civil case, the party bearing the burden of proof meets the burden when he or she shows it to be true by a preponderance of the evidence.

The standard of a preponderance of the evidence means the greater weight of the evidence. A preponderance of the evidence is such evidence which, when considered and compared with any opposed to it, has more convincing force and produces in your minds a belief that what is sought to be proved is more probably true than not true.

A proposition is proved by a preponderance of the evidence if, after you have weighed the evidence, that proposition is made to appear more likely or probable in the sense that there exists in your minds an actual belief in the truth of that proposition derived from the evidence, notwithstanding any doubts that may still linger in your minds.

Simply stated, a matter has been proved by a preponderance of the evidence if you determine, after you have weighed all of the evidence that that matter is more probably true than not true.

Many jurors will not have the written version, so imagine the challenges they face as they try to understand it just by listening. There are two types: syntactic and semantic.

6.1.1 Syntax

Like the snippet in (1), this instruction contains challenging syntactic constructions. We have already discussed the difficulty of **negative** expressions and nominalizations, shown in (6) in boldface type and underlined, respectively (one word, *doubt*, is both a negative and nominalization). But even more problematic is the large number of *passive verbs*—11 total—shown in italics, which are harder to parse than their active counterparts (Olson & Filby, 1972; Ferreira, 2003, among others).

(6) Standard of Proof, Current instruction: **negatives**, nominalizations , *passives*

The standard of proof in a civil case is that a plaintiff must prove (his or her) case by a preponderance of the evidence. This is a **less** stringent standard than *is applied* in a criminal case, where the prosecution must prove its case beyond a reasonable **doubt**.

By contrast, in a civil case such as this one, the plaintiff *is* **not** *required* to prove (his or her) case beyond a reasonable **doubt**. In a civil case, the party bearing the burden of proof meets the burden when (he or she) shows it to be true by a preponderance of the evidence.

The standard of a preponderance of the evidence means the greater weight of the evidence. A preponderance of the evidence is such evidence which, when *considered* and *compared* with any opposed to it, has more convincing force and produces in your minds a belief that what *is sought to be proved* true than **not** true.

A proposition *is proved* by a preponderance of the evidence if, after you have weighed the evidence, that proposition *is made* to appear more likely or probable in the sense that there exists in your minds an actual belief in the truth of that proposition *derived* from the evidence, **notwithstanding** any **doubts** that may still linger in your minds.

Simply *stated*, a matter *has been proved* by a preponderance of the evidence if you determine, after you have weighed all of the evidence that that matter is more probably true than **not** true.

The source of the difficulty is shown in (7). Consider the standard two-argument verb *consider* in (7a). Its arguments are in the standard order, subject – verb – object. In the *passive*, the argument order is disrupted; the object is now in subject position, and the original subject can be eliminated altogether, as in the "truncated passive," (7b), or it can appear optionally in a *by*-phrase, as in (7c).

(7)	a.	Active:	[**The jury**] must consider [all the evidence].
	b.	Truncated Passive:	[All the evidence] must be considered.
	c.	Full Passive:	[All the evidence] must be considered [by [**the jury**]].

What makes passives so difficult is that the parser is thrown off in two ways: first, the verb's arguments are in an unexpected order and second, for truncated passives, the first expected argument of the verb is missing altogether, which makes them more difficult than full passives. In the case of (6), all the passive verbs are truncated passives. And to throw the listener off further, the phrase [by a preponderance of the evidence] is not a passive *by*-phrase, but a PP adjunct that does not contain the original subject. This is clear from the fact that it appears in the first line with an active verb, *prove*: *a plaintiff must prove (his or her) case by a preponderance of*

the evidence. The subject is [a plaintiff], as it is in the subsequent sentences where it appears, since it is always the plaintiff who is the agent.

It is important to bear in mind that however difficult the parsing of passive sentences is for educated native speakers, the standard subject pool of most experimental studies, it is much more challenging for less-educated speakers and non-native English speakers (Dąbrowska & Street, 2006). And since jurors range in their level of education and in their native languages, this construction is an obstacle to comprehension.

But there are other syntactic obstacles in this instruction as well. First, as (8) shows, there are three [interjected phrases], in brackets, that break the flow by splitting their sentences in two. To understand them, we have to mentally reassemble the parts without them.

(8) Standard of Proof, Current instruction: [interjected phrases]

The standard of proof in a civil case is that a plaintiff must prove (his or her) case by a preponderance of the evidence. This is a less stringent standard than is applied in a criminal case, where the prosecution must prove its case beyond a reasonable doubt.

By contrast, in a civil case such as this one, the plaintiff is not required to prove (his/her) case beyond a reasonable doubt. In a civil case, the party bearing the burden of proof meets the burden when (he or she) shows it to be true by a preponderance of the evidence.

The standard of a preponderance of the evidence means the greater weight of the evidence. A preponderance of the evidence is such evidence which, [when considered and compared with any opposed to it], has more convincing force and produces in your minds a belief that what is sought to be proved is more probably true than not true.

A proposition is proved by a preponderance of the evidence if, [after you have weighed the evidence], that proposition is made to appear more likely or probable in the sense that there exists in your minds an actual belief in the truth of that proposition derived from the evidence, notwithstanding any doubts that may still linger in your minds. Simply stated, a matter has been proved by a preponderance of the evidence if you determine, [after you have weighed all of the evidence], that that matter is more probably true than not true.

To see what this requires, consider a simple sentence like (9a) and its interrupted version, (9b), where an embedded clause is interjected between the subject and the main verb. We can feel that (9b) requires more work than (9a). And (9b) also takes more work than (9c) and (9d), which are identical to (9b), except that the embedded clause is positioned before or after the main clause rather than in the middle of it.

(9) a. [The jurors must agree on a decision]
b. [The jurors] **after considering all of the evidence** [must agree on a decision]
c. [**After considering all of the evidence** the jurors must agree on a decision.]
d. [The jurors must agree on a decision **after considering all of the evidence**.]

The problem is even worse for the three interruptions in the instruction, because they are not in simple sentences like (9) but in multiply embedded structures of 4-, 5-, and 3-clauses deep with the interruptions splitting one of the inner clauses. (10) shows the 4-clause sentence.

(10) **[1** A preponderance of the evidence is such evidence
[2 which,
[when considered and compared with any opposed to it],
has more convincing force and produces in your minds a belief
[3 that what is sought
[4 to be proved **4]**
is more probably true than not true **3] 2] 1]**

Even without interruptions, these three sentences—which make up more than half of this instruction—would be extremely challenging to listeners. If there is one solid result in the psycholinguistic (Miller & Chomsky, 1963; Bever, 1970), neurolinguistic (Just, Carpenter, Keller, Eddy, & Thulborn, 1996) and "readability" education literature (Klare, 1963), it is that embedded structures are more difficult to process than flat structures.

6.1.2 Semantics

A separate set of challenges comes from the instruction's words and phrases. As shown in (11), there are four **low-frequency** words and phrases: *stringent, sought, such evidence*, and *notwithstanding*, shown in lower-case bold. We saw above that **low-frequency** words are less familiar and are therefore difficult to comprehend. In addition, there are nineteen instances of "LEGALESE," including *standard of proof, plaintiff*, *civil case*, *criminal case*, the *prosecution*, *beyond a reasonable doubt, party, burden of proof, bear the burden, meet the burden* and *preponderance of the evidence*. It is known that text containing legalese is harder to process than text without it (Diana & Reder, 2006, among others).

(11) Standard of Proof, Current instruction: **LEGALESE** and LOW-FREQUENCY WORDS

The **STANDARD OF PROOF** in a CIVIL CASE is that **A PLAINTIFF** must prove (his/her) case by **A PREPONDERANCE OF THE EVIDENCE**. This is a less **stringent** standard than is applied in A CRIMINAL CASE, where **THE PROSECUTION** must prove its case **BEYOND A REASONABLE DOUBT.**

By contrast, in a CIVIL CASE such as this one, the **PLAINTIFF** is not required to prove (his/her) case **BEYOND A REASONABLE DOUBT.** In a CIVIL CASE, the PARTY BEARING THE BURDEN OF PROOF MEETS THE BURDEN when (he/she) shows it to be true by **A PREPONDERANCE OF THE EVIDENCE.**

The standard of **A PREPONDERANCE OF THE EVIDENCE** means the greater weight of the evidence. **A PREPONDERANCE OF THE EVIDENCE** is **such evidence** which, when considered and compared with any opposed to it, has more convincing force and produces in your minds a belief that what is **sought** to be proved is more probably true than not true.

A **PROPOSITION** is proved by **A PREPONDERANCE OF THE EVIDENCE** if, after you have weighed the evidence, that **PROPOSITION** is made to appear more likely or probable in the sense that there exists in your minds an actual belief in the truth of that **PROPOSITION** derived from the evidence, **notwithstanding** any doubts that may still linger in your minds.

Simply stated, a matter has been proved by **A PREPONDERANCE OF THE EVIDENCE** if you determine, after you have weighed all of the evidence that that matter is more probably true than not true.

Twelve of the nineteen "**LEGALESE**" words, those in **BOLD SMALL CAPS**, are exclusively legal terms, like *plaintiff*, but seven, shown in ORDINARY SMALL CAPS, are familiar words like *meet* that have a specialized meaning in legal expressions, like *meet the burden.* These pose two separate problems. The first problem is that eighteen of these nineteen terms are not defined, so there is no reason for jurors to know what they mean. And the one term that is shown with underlining—A PREPONDERANCE OF THE EVIDENCE,—is defined only after jurors have heard it three times, as shown in (12), too late to be of much help.

(12) Standard of Proof, Current instruction: *a preponderance of the evidence* eventually defined

The standard of proof in a civil case is that a plaintiff must prove (his or her) case by **a preponderance of the evidence**. This is a less stringent standard than is applied in a criminal case, where the prosecution must prove its case beyond a reasonable doubt.

By contrast, in a civil case such as this one, the plaintiff is not required to prove (his or her) case beyond a reasonable doubt. In a civil case, the party bearing the burden of proof meets the burden when he or she shows it to be true by **a preponderance of the evidence.**

The standard of **a preponderance of the evidence** means the greater weight of the evidence. A **preponderance of the evidence** is such evidence which, when considered and compared with any opposed to it, has more convincing force and produces in your minds a belief that what is sought to be proved is more probably true than not true.

A proposition is proved by **a preponderance of the evidence** if, after you have weighed the evidence, that proposition is made to appear more likely or probable in the sense that there exists in your minds an actual belief in the truth of that proposition derived from the evidence, notwithstanding any doubts that may still linger in your minds.

Simply stated, a matter has been proved by **a preponderance of the evidence** if you determine, after you have weighed all of the evidence that that matter is more probably true than not true.

The second problem is that, for the terms with both an ordinary and a legal meaning, a juror could access the word's ordinary meaning, try to apply it, and end up even more confused than with the clearly legal terms. *Meet* does not mean the same thing in *meet the burden of proof* as it does in *meet the new neighbors*. So, whether it's mysterious legal terms or baffling legal uses of familiar terms, their effect will be to confuse the jurors and distract them from listening to the rest of the instruction as it goes by.

6.2 Correcting Some of the Difficulties: Plain English Jury Instructions

Now consider the Plain English version of this instruction in (13), written by a team of lawyers, judges, and linguists.

(13) Standard of Proof, Plain English instruction: **negatives**, nominalizations, *passives*, [interjected phrases], LEGALESE, and LOW-FREQUENCY words

This is a **CIVIL** case. In a civil case, there are two parties, the "**PLAINTIFF**", and the "**DEFENDANT**". The plaintiff is the one who "**BRINGS THE CASE**" against the defendant. And it is the plaintiff who must convince you of his case with stronger, more believable evidence. In other words, it is the plaintiff who bears the "**BURDEN OF PROOF**".

After you hear all the evidence on both sides, if you find that the greater weight of the evidence [– also called "**THE PREPONDERANCE OF THE EVIDENCE**"–] is on the plaintiff's side, then you should decide in favor of the plaintiff.

But if you find that the evidence is stronger on the defendant's side, or the evidence on the two sides is equal, 50/50, then you must decide in favor of the defendant.

Now, you may have heard that in some cases, the evidence must convince you "**BEYOND A REASONABLE DOUBT**". That's only true for CRIMINAL cases. For civil cases like this one, you might still have some **doubts** after hearing the evidence, but even if you do, as long as one side's evidence is stronger [– even slightly stronger --] than the other's, you must decide in favor of that side. Stronger evidence does **not** mean more evidence. It is the quality or strength of the evidence, **not** the quantity or amount, that matters.

This instruction either eliminates or minimizes all of the confusing linguistic challenges in the current instruction, as we will see below.

6.2.1 Syntax

Instead of six **negatives**, there are three, in **bold**. The six nominalizations have been reduced to two. All of the eleven *passive verbs* are gone, and so are the original three deeply embedded [interjected phrases]. The instruction does contain two new [interjected phrases], but they are not inserting a new thought, rather defining or clarifying the phrase that precedes them. And the multiple layers of embedding are reduced, replaced with flatter conjoined structures or separate sentences.

6.2.2 Semantics

All of the LOW-FREQUENCY words and phrases—STRINGENT, SOUGHT, SUCH EVIDENCE, AND NOTWITHSTANDING—are gone, their meanings expressed by more commonplace expressions. And though most of the **LEGALESE** remains—**STANDARD OF PROOF**, **PLAINTIFF**, **BURDEN OF PROOF**, **PREPONDERANCE OF THE EVIDENCE**, **BEYOND A REASONABLE DOUBT**—and two have been added—**BRINGS THE CASE** **and** **DEFENDANT**—each term is defined as soon as it appears, either

explicitly or by appearing in a clear context. The question is, will this revised instruction be easier to understand? The next section presents our findings showing that it is.

7 Experimental Evidence: Two Studies

To see whether the linguistic changes would make a difference in comprehension, the Plain English Jury Instruction Project has been running a series of studies, and I will describe two of them here. The studies compare comprehension of current jury instructions with plain English versions, focusing on two linguistic factors that contribute to listeners' difficulty: passive verbs and "legalese." In addition, the studies test whether supplying the text of the instructions to jurors to read as they listen will help boost understanding.

7.1 Study 1: Undergraduate Student Subjects

The study tested three hypotheses:

H1. **Plain English** instructions will show better comprehension than **Current** instructions.
H2. Two linguistic factors significantly contribute to comprehension difficulty: **passive verbs** and **legalese**.
H3. **Reading while listening** will improve comprehension over **listening only**.

7.1.1 Subjects, Materials, Design, and Procedure

Four groups, totaling 214 undergraduate students, participated in the 2-by-2 experimental design shown in Table 1.

All subjects listened to a recording of six Current jury instructions or their Plain English versions plus one "warm-up" jury instruction. The speaker for the Current and Plain English instructions was the same. Two of the groups were in the Listening Only condition (CL and PL); the other two were in the Reading + Listening condition and had the texts of the instructions to read as they listened, (CR) and (PR). All subjects

Table 1 Experimental design, Undergraduate subjects

n = 214	**C**urrent	**P**lain English
Listening Only	**CL** n = 43	**PL** n = 86
Reading + Listening	**CR** n = 36	**PR** n = 49

were given a test booklet containing six sets of true-false comprehension questions corresponding to the six instructions. After hearing each instruction, subjects turned to the page containing the corresponding questions and circled their responses. Since our goal was to ensure that subjects understood all of the important points in each instruction, the number of questions varied with the length of the instructions, from 4 for the shortest instruction to 9 for the longest. One sample instruction, Standard of Proof (Instruction 3), along with its questions, appears in the Appendix.

7.1.2 Results

As predicted by **Hypothesis 1**, there was an overall main effect (Figs. 8 and 9) of **Plain English** ($F_{1,197} = 3.937, p = 0.049, \eta^2 = 0.020$): comprehension scores for Plain English instructions (**PL** & **PR**, m = 87.4%) were significantly higher than those for Current instructions (**CL** & **CR**, m = 84.90%). However, further t-tests found that only 2 out of the 6 instructions showed a significant difference (Fig. 9), Instructions 3 and 6. We will return to this below.

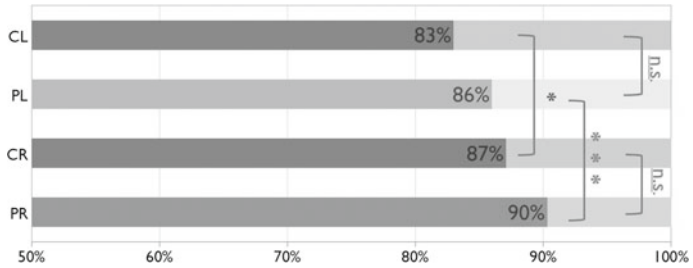


Fig. 8 Overall comprehension rates. Undergraduate subjects

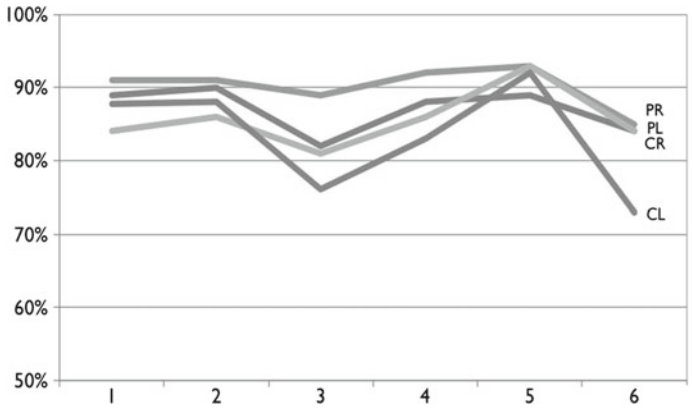


Fig. 9 Comprehension rates. Current and Plain English instructions. Undergraduate subjects

As predicted by **Hypothesis 3**, there was an overall main effect of **Reading**, also shown in Figs. 8 and 9 ($F_{1,197} = 10.980$, $p = 0.001$, $\eta^2 = 0.053$): comprehension scores for Reading + Listening (**CR** & **PR**, m = 89.0%) were significantly higher than for Listening-only (**CL** & **PL**, m = 84.5%).

The results also confirmed **Hypothesis 2**: comprehension accuracy for the six current instructions, in Fig. 10, inversely correlated (r = −0.7) with the rates of two linguistic factors that challenge processing, (a) passive verbs and (b) "legalese" terms, shown in Fig. 11.

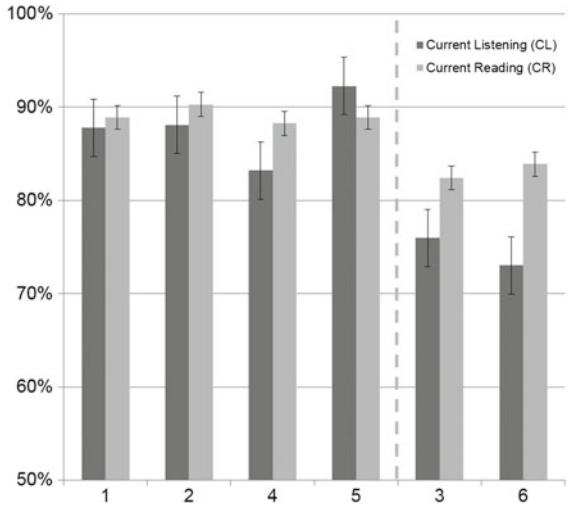


Fig. 10 Comprehension rates. Current instructions

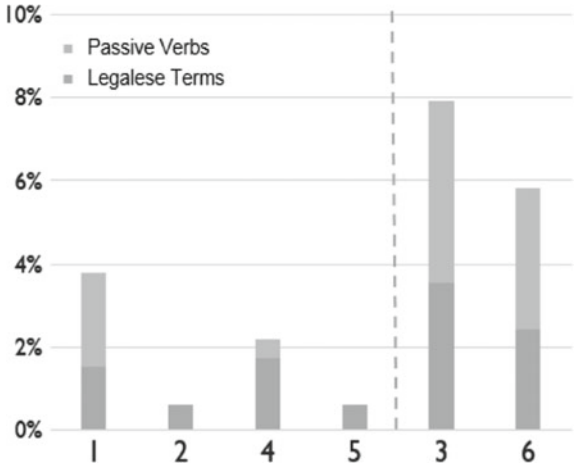


Fig. 11 Rates of passives and legalese terms. Current instructions

The instructions clustered in two groups. The "easy" current instructions (1, 2, 4, 5), to the left of the dashed line in Fig. 10, also fall on the left of the dashed line in Fig. 11, with much lower rates in their combined rates of **passive verbs** and **legalese terms** compared with the "difficult" instructions (3, 6). Figure 10 also shows a difference in the effect of **reading along** on the two groups: it had a negligible effect on the "easy" instructions, but significantly improved comprehension of the "difficult" instructions, 3 and 6 ($p < 0.05$ for both).

Another way to look at the results is shown in Figs. 12 and 13. Figure 12 compares the comprehension of Current and Plain English instructions, collapsing over Listening/Reading + Listening. Figure 13 compares the rates of passives/legalese in the Current and Plain English instructions.

In Fig. 12, only two Current instructions showed significant comprehension boosts from the switch to Plain English, instructions 3 and 6, to the right of the dashed line. These correspond to the two instructions in Fig. 13 whose rates of passives/legalese in Current versus Plain English instructions showed the largest drops.

The difference brings us back to Hypothesis 1; we found a significant main effect of switching to Plain English, but it was these two "difficult" instructions that were responsible for it. What exactly do these instructions look like? Why do they pose such a problem?

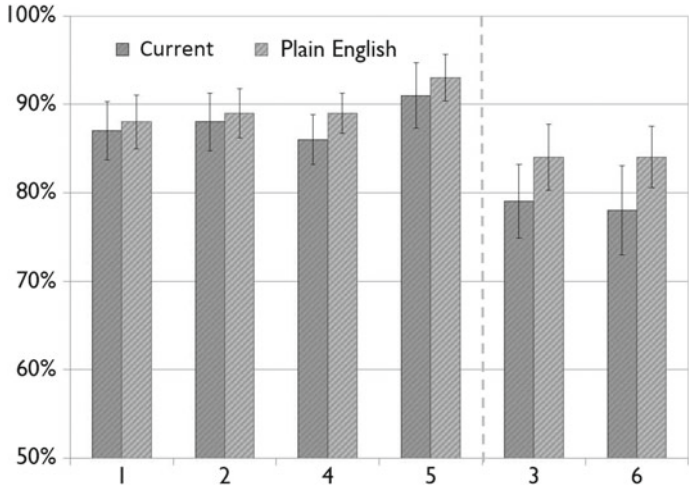


Fig. 12 Comprehension rates. Current versus Plain English instructions

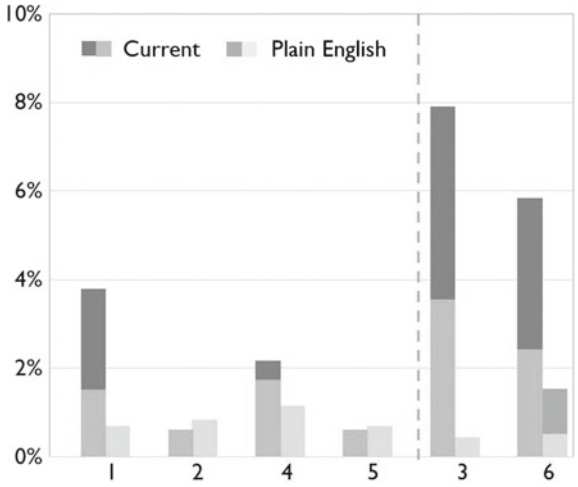


Fig. 13 Rates of passives and legalese terms. Current versus Plain English instructions

7.1.3 A Closer Look: Instruction 3, Standard of Proof

An excerpt of Instruction 3, *Standard of Proof*, is shown in Fig. 14 in both Current and Plain English versions. This instruction has the highest density of passive verbs and legalese of all six instructions. This 161-word, 5-sentence excerpt contains 21 instances (including repetitions), a rate of 9%, which is very close to the 8% rate in the entire 253-word instruction (given in full in the Appendix along with its questions). This amounts to nearly 8 items per sentence.

The Plain English version, by contrast, has none. Active verbs replace passives. The plaintiff's side is not "supported by" the evidence; the evidence "supports" the plaintiff's side. As for legalese, although the Plain English version does contain legal terminology, each term is introduced with its definition, so listeners understand immediately what the term means and can proceed to process the rest of the sentence. Some of these terms appear in quotes in the reading condition, signaling that these are not everyday phrases and that a definition is coming. For example, a "plaintiff" is immediately defined as *the party who brings the case against the defendant* and the one who *"bears" "the burden of proof,"* two more specialized terms that are explained in the very next sentence. As soon as these legal expressions are defined, they don't "count" as legalese, which earns its name by being, essentially, a foreign language, like Japanese or computerese.

Recall the relative comprehension rates for this instruction in Fig. 9. The Current Listening (CL) line shows Instruction 3 as the second lowest of the six. With the switch to Plain English and the addition of reading, it gets a significant boost, the largest boost of all the instructions. This is even clearer in Fig. 15 which shows the results for Instruction 3 alone; compare the first two bars (CL vs. CR) and the second two bars (PL vs. PR). This boost is exactly what we expect, given Hypothesis 2. In

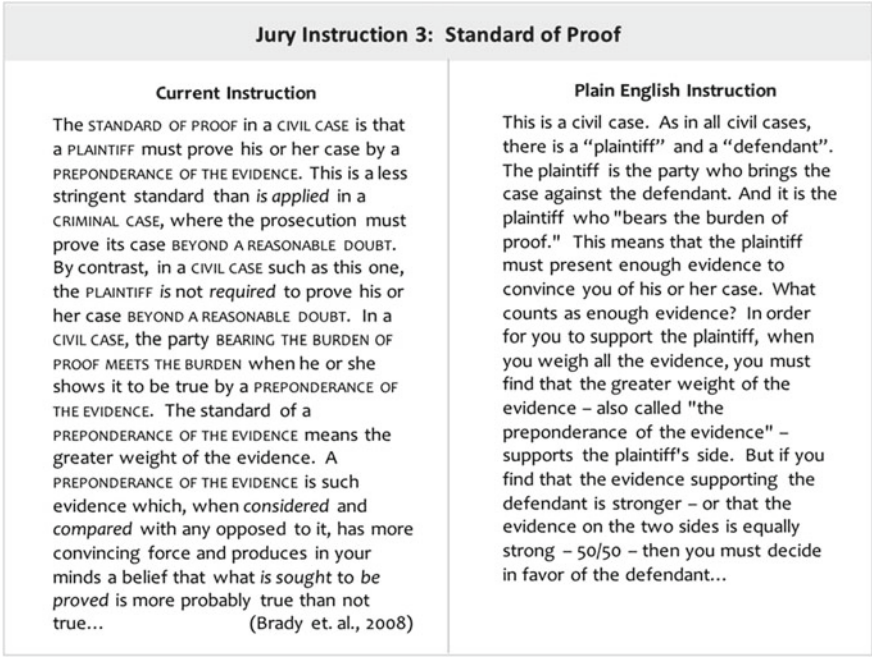


Fig. 14 Instruction 3, Standard of Proof. Current versus Plain English

Fig. 13 it was this instruction that showed the most dramatic change in passive verbs and legalese terms: it had the highest rate in the Current instruction and the lowest in the Plain English version.

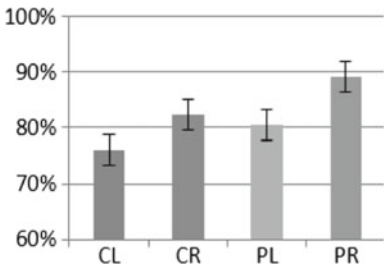


Fig. 15 Comprehension rates Instruction 3 Standard of Proof, Undergraduate subjects

7.1.4 Discussion

The results of Study 1 were not dramatic; although there were significant differences confirming our three hypotheses, the improvements that came from the switch to

Plain English and the addition of reading were only modest. But the reason is clear. Baseline scores for the Current Listening condition were quite high, so there was little room for improvement. Clearly, the subjects in this study did not find the Current instructions all that challenging. And why not? These subjects were bright, literate, college students, accustomed to paying attention to lectures. They have sophisticated vocabularies and a facility with language. But how representative of jurors is this population? It turns out, not very.

Figure 16 shows the education level of the Massachusetts jury pool. Nearly half has not gone beyond high school (40% completed High School and 5% completed only K-8th grade). Moreover, many jurors are not native speakers of English and, unlike university students, do not have to pass an English proficiency exam to serve. Some jurors are more comfortable in a vernacular dialect of English, like African-American English.

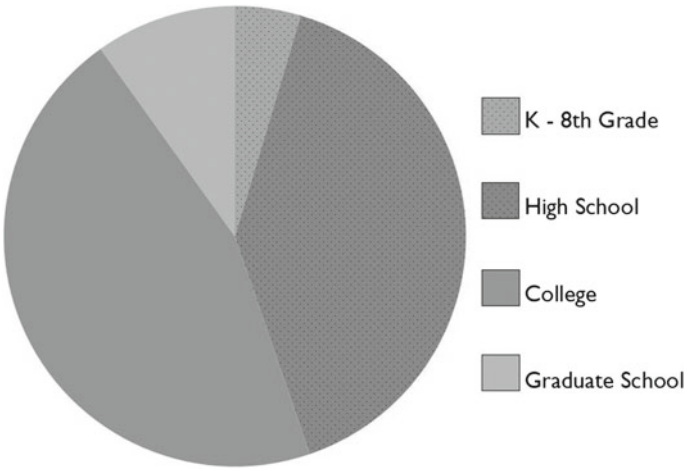


Fig. 16 Educational levels in Massachusetts 2013 Census Data

In order to more closely mirror this population, we designed Study 2 to replicate Study 1, but we drew subjects from a wider range of educational levels via Amazon's MTurk. We expected that subjects who are less proficient with Standard American English would have lower baseline scores and consequently, show greater improvements from Plain English and reading.

7.2 Study 2: MTurk Subjects

Study 2 was intended to test the same three hypotheses as Study 1 using subjects whose educational level more closely resembles that of the Massachusetts jury pool.

H1. **Plain English** instructions will show better comprehension than **Current** instructions.
H2. Two linguistic factors significantly contribute to comprehension difficulty: **passive verbs** and **legalese**.
H3. **Reading while listening** will improve comprehension over **listening only**.

And crucially, Study 2 also tested an additional hypothesis, H4:

H4. The expected comprehension boosts for **Plain English** over **Current instructions** and for **Reading + Listening** over **Listening-Only** will be greater for MTurk subjects than student subjects.

7.2.1 Subjects, Materials, Design and Procedure

Four groups totaling 389 subjects participated in the 2-by-2 experimental design in Table 2. They were recruited and paid ($1–$2) via MTurk, Amazon's online crowd-sourcing platform. All subjects were U.S. citizens over 18, from a variety of educational levels and geographic regions across Massachusetts. Subjects filled out a demographic survey to ensure that they met our criteria. The expected time to complete the survey was 20–35 minutes. Subjects who completed the session in too short or too long a time span were eliminated.

Table 2 Experimental design, MTurk subjects

n = 239	**C**urrent	**P**lain English
Listening Only	**CL** n = 125	**PL** n = 99
Reading + Listening	**CR** n = 66	**PR** n = 99

The design matched Study 1's, using the same warm-up instruction followed by the same six Massachusetts civil jury instructions and the same four conditions: Current Listening (**CL**), Plain English Listening (**PL**), Current Reading (**CR**), and Plain English Reading (**PR**). Subjects signed on to the MTurk website, listened to the instructions and answered true/false questions after each one. Subjects in the two Reading + Listening conditions (**CR** & **PR**) had the texts to read along. FluidSurveys (later, SurveyMonkey) recorded their responses.

7.2.2 Results and Discussion

Hypotheses 1 and 3 were confirmed. As shown in Fig. 17, comprehension rates for Plain English instructions were significantly higher than for Current instructions for both the Listening-only [**PL** 79% > **CL** 67%] and Reading + Listening conditions [**PR** 85% > **CR** 80%] ($F1,385 = 39.515$, $p < 0.001$, $\eta 2 = 0.093$); comprehension rates for Reading + Listening were significantly higher than for Listening-only for both the

Current [**CR** 80% > **CL** 67%] and Plain English instructions [**PR** 85% > **PL** 79%] ($F1,385 = 50.246$, $p < 0.001$, $\eta 2 = 0.115$).

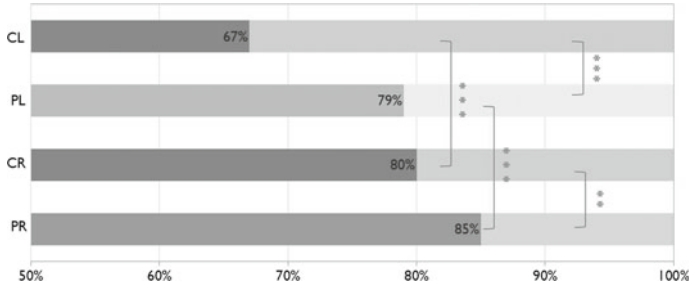


Fig. 17 Overall comprehension rates, MTurk subjects

Hypothesis 2 was also supported: in Fig. 18, the instructions with the lowest baseline (CL) comprehension rates are 3 and 6. These are the same two instructions with the highest rates of passive verbs and legalese in Fig. 13. (In the baseline CL condition, Instruction 4 also grouped with 3 and 6, a result that deserves further investigation.)

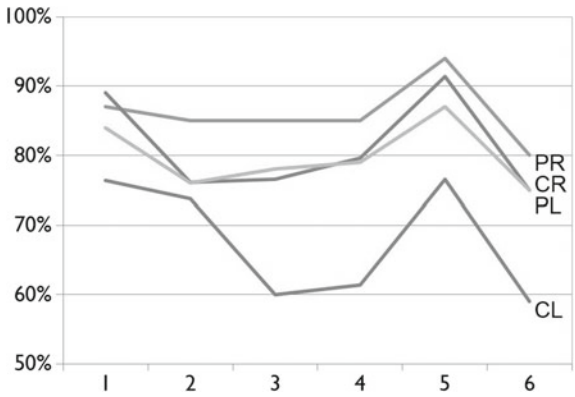


Fig. 18 Comprehension rates. Current and Plain English instructions. MTurk subjects

Finally, Hypothesis 4 was confirmed as well. Comparing Fig. 17 with Fig. 8, the MTurk subjects showed much lower baseline (CL) scores across all the instructions than the student subjects, and consequently showed greater—and significant—gains in comprehension. Specifically, the MTurkers' gains from the switch to plain English was 12% ($p < 0.001$) for Listening-only and 5% ($p < 0.1$) for Reading + Listening, while the students' gains were 3% (n.s.) for both. Further support for Hypothesis 4 comes from comparing Figs. 18 and 9. For MTurk subjects, comprehension of all six Current instructions—not just instructions 3 and 6—rose significantly when they were rewritten in Plain English (**PL** & **PR** > **CL** & **CR**). In other words, the MTurk results were much stronger, overall and for each instruction individually.

7.3 General Discussion and Conclusions

As is clear from comparing Figs. 8 and 9 with Figs. 17 and 18, the results of these two studies showed support for both Hypotheses 1 and 2, pinpointing two linguistic factors, passive verbs and legal terminology, as interfering with comprehension. They also supported Hypothesis 3, confirming that reading while listening makes comprehension easier than listening without a text. The results were stronger for MTurk subjects than college students, as seen by the increased effect sizes in Study 2 over Study 1, supporting Hypothesis 4.

For the purposes of this research, though all the hypotheses were confirmed, the results are actually bad news, in the sense that they confirm how much of a problem jurors have doing their job. They show that a group of educationally diverse subjects have significant trouble understanding Massachusetts jury instructions, with some instructions' average comprehension scores as low as 59% and no instruction's score higher than 77%. Even college students, practiced and proficient as they are in listening to complicated lectures, are confused when listening to certain instructions, with comprehension scores as low as 73 and 76% on the most difficult ones. In other words, even college students miss a quarter of what some instructions are trying to communicate.

But the news is even worse than this, because the MTurk results of Study 2 probably show better comprehension than how actual jurors would perform. Although matched for education with MTurkers, some jurors are non-native speakers of English, and many speak non-standard English dialects. Is this also the case for MTurkers, all of whom use computers and are comfortable taking timed computer surveys in English? Probably not.

Nevertheless, our results are also promising. Since MTurk subjects are demographically closer to the jury pool than students, these new, rather dramatic, results suggest that (a) allowing jurors to read while they listen and (b) rewriting instructions in Plain English, minimizing difficult linguistic factors (specifically, passive verbs and legalese) will boost comprehension, allowing jurors to engage more fully and reach better-informed verdicts. There are a number of other linguistic factors to investigate, of course; we have not yet studied the effect of minimizing embeddings, negatives, or nominalizations, for example. But with our current findings in place, the Massachusetts Bar Association should now have the evidence it needs to present a compelling argument to a skeptical judiciary that it is time to implement change.

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Appendix

Current and Plain English versions of a sample instruction, Standard of Proof, and its corresponding questions

Instruction 3: Standard of Proof

The standard of proof in a civil case is that a plaintiff must prove his or her case by a preponderance of the evidence. This is a less stringent standard than is applied in a criminal case, where the prosecution must prove its case beyond a reasonable doubt.

By contrast, in a civil case such as this one, the plaintiff is not required to prove his or her case beyond a reasonable doubt. In a civil case, the party bearing the burden of proof meets the burden when he or she shows it to be true by a preponderance of the evidence.

The standard of a preponderance of the evidence means the greater weight of the evidence. A preponderance of the evidence is such evidence which, when considered and compared with any opposed to it, has more convincing force and produces in your minds a belief that what is sought to be proved is more probably true than not true.

A proposition is proved by a preponderance of the evidence if, after you have weighed the evidence, that proposition is made to appear more likely or probable in the sense that there exists in your minds an actual belief in the truth of that proposition derived from the evidence, notwithstanding any doubts that may still linger in your minds.

Simply stated, a matter has been proved by a preponderance of the evidence if you determine, after you have weighed all of the evidence that that matter is more probably true than not true.

Instruction 3: Standard of Proof

This is a civil case. As in all civil cases, there is a "plaintiff" and a "defendant". The plaintiff is the party who brings the case against the defendant. And it is the plaintiff who "bears the burden of proof." This means that the plaintiff must present enough evidence to convince you of his or her case.

What counts as enough evidence?

In order for you to support the plaintiff, when you weigh all the evidence, you must find that the greater weight of the evidence — also called "the preponderance of the evidence" — supports the plaintiff's side.

But if you find that the evidence supporting the defendant is stronger — or that the evidence on the two sides is equally strong — 50/50 — then you must decide in favor of the defendant.

The "preponderance of the evidence" is a lower standard than the one for criminal cases, where the jury must be convinced "beyond a reasonable doubt". In civil cases like this one, even if you still have some doubts, you can decide in favor of the plaintiff as long as he or she has met the burden of proof by presenting stronger evidence. Now, keep in mind that stronger evidence does not always mean more evidence. The side with less evidence may be more convincing. So, it is not the amount of evidence but the strength of the evidence that matters.

After reading each question, circle either *T* for *True* or *F* for *False*

		True	False
1.	A "preponderance of the evidence" means a slow, careful pondering of the evidence	T	F
2.	A "preponderance of the evidence" is the standard of proof used in civil cases	T	F
3.	The greater weight of the evidence is all that is meant by a "preponderance of the evidence"	T	F
4.	In a civil case, it is the defendant who must meet the burden of proof	T	F
5.	In a civil case, the burden of proof is met only if there is proof beyond a reasonable doubt	T	F
6.	If you believe that the preponderance of the evidence supports the plaintiff but you still have some doubts, you must decide in favor of the defendant	T	F

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