

Do People Comprehend Legal Language in Wills?

EDITH GREENE¹*, KETHERA FOGLER² and SHERI C. GIBSON¹

¹Department of Psychology, University of Colorado, Colorado Springs, USA

²James Madison University, USA

Summary: This study assessed the ability of laypeople to understand a document that most have read and signed: a last will and testament. We focused on concepts that are frequently included in wills, examined whether understanding can be enhanced by psycholinguistic revisions, and assessed comprehension as a function of age. Participants ages 32 to 89 years read will-related concepts in (i) their traditional format, (ii) a version revised to increase readability, or (iii) a version in which, in addition to those changes, we explained archaic and legal terms. Results showed that increasing the readability and explaining terms enhanced participants' abilities to apply will-related concepts to novel fact patterns and to explain their reasoning. We found no age-related effects on comprehension, consistent with well-documented findings that processing at the situation level of text comprehension is preserved in older adults. We discuss the implications of these findings and suggest ideas for further research. Copyright © 2012 John Wiley & Sons, Ltd.

There are two things wrong with almost all legal writing. One is its style. The other is its content. That, I think, about covers the ground. (Rodell, 1962)

Legal documents are typically replete with language and ideas that are unfamiliar and inaccessible to laypeople. In this paper, we examine the extent to which people comprehend the legal language and concepts in a document that many of them have read and signed—a last will and testament—and whether comprehension can be enhanced by careful revision involving principles of psycholinguistics. Though social scientists have evaluated non-experts' comprehension of language contained in legal contracts (e.g. Stolle & Slain, 1997), informed consent documents (e.g. Sugarman, McCrory, & Hubal, 1998), *Miranda*-like warnings (e.g. Rogers, Hazlewood, Sewell, Harrison, & Shuman, 2008), and jury instructions (e.g. Reifman, Gusick, & Ellsworth, 1992), to date, no study has assessed comprehension and application of the concepts conveyed in written wills.

Lack of attention to how well people understand the language and concepts in wills is concerning for several reasons. First, fully two-thirds of adults aged 70 years or older in a nationally representative sample of community-dwelling elderly Americans reported having a will (Goetting & Martin, 2001), and 85% of those 80 years and older have a will (AARP, 2000). Second, most individuals who have executed legally valid wills are assisted in this process by attorneys, and although the 'plain-language' movement begun in the 1970s has made some inroads, attorneys in the USA are still (and perhaps reasonably) more concerned about how the Internal Revenue Service or a probate court would interpret the text than about their clients' understanding. In fact, many attorneys rely on 'boilerplate' templates for just these reasons. But these templates can be lengthy and full of legal jargon ('legalese'), including archaic terms and specialized concepts unfamiliar to most laypeople. Third, increasing numbers of people rely on computer-generated wills or do-it-yourself handbooks and forego hiring lawyers altogether,

although many also seek help from lawyers to decipher the material they find online or in bookstores and libraries. According to one client who sought the advice of a lawyer after trying the software, 'I don't know what I don't know' (Bernard, 2010).

There are other reasons for concern about whether people understand their wills. As people are living longer, the incidence of Alzheimer's disease and other dementias is increasing, and it is often difficult to distinguish the early signs of dementia from normal, age-related changes in cognitive and affective functioning. As a result, testamentary capacity—the competence to make a will, including understanding the nature of one's assets, knowing who one's heirs are, and making a reasoned decision about how property should be distributed—may be difficult to assess. As dementia worsens, concerns arise about undue influence in the drafting and revoking of wills (Scalise, 2008). Finally, many people sign legal documents that they have not fully read or understood (Howe & Wogalter, 1994). In fact, one of the most esteemed judges in the USA—7th Circuit Court of Appeals Judge Richard Posner—admitted to signing his home equity loan without reading the accompanying documentation (Lat, 2010). This suggests that large numbers of individuals have, without careful reading, executed a will that contained language they did not fully understand. It is likely that some of them have committed unknowingly to positions they do not desire and to distributions they do not wish to make.

COMPLEXITY OF LEGAL DOCUMENTS

There are various reasons why legal documents have historically been so impenetrable. According to the Law Reform Commission (1987), statutes were written in Latin until the 14th century, and court records were written in Latin until the 18th century. In English-speaking countries, a form of Anglo-French was adopted for legal documents in the 14th century, yet Latin and French terms continued to be used to cover perceived deficiencies in English even after that language became the official language of legal documents in 1731. (Hence, terms such as 'null and void' combine an

*Correspondence to: Edie Greene, Department of Psychology, University of Colorado, 1420 Austin Bluffs Parkway, Colorado Springs, CO 80918, USA. E-mail: egreene@uccs.edu

English word with a foreign word.) In addition, attorneys' legal fees were once calculated on the number of pages they produced, and although that system has long since disappeared, the tradition of lengthy pleadings has not. Some legal documents (e.g. standardized or 'pattern' jury instructions) have been written by committees of judges and attorneys to be broadly applicable and to withstand appellate court review. Finally, attorneys in the USA have learned to leave nothing unclear and, as a result, address every conceivable interpretation of their words with lengthy citations, ample cross-referencing, and voluminous detail. In striving for legal precision, document drafters have largely ignored, at least until recently, laypersons' ability to understand the language contained in those documents.

COGNITIVE ABILITIES AND TEXT COMPREHENSION IN OLDER ADULTS

Because older adults are more likely than younger people to have executed a will, their ability to understand and make decisions about complex legal information is of special concern. But with the exception of informed consent documents (e.g. Barron, Duffey, Byrd, Campbell & Ferrucci, 2004) and advance directives (e.g. Jacobson et al., 1994), we know little about older adults' abilities to understand and apply legal text, and nothing about how they understand the lexicon and concepts conveyed by last wills and testaments.

Some findings in cognitive aging suggest that in comparison with young people, older adults will show deficits in comprehension of legal text. For example, the ability to undertake deliberate or effortful processing peaks early in life and declines steadily thereafter (Craik & Salthouse, 2008). Older adults process information more slowly than young people (Hartley, 2006), impairing their ability to maintain information gleaned from prior sections of a text. Additionally, older adults also have reduced working-memory spans (Waters & Caplan, 2001), which negatively affect their ability to manage large amounts of information. One might suspect that working in concert, these processes would impair older adults' ability to respond to complex text demands and lead inexorably to decrements in text comprehension.

Yet, some cognitive abilities remain largely unchanged or even improve with age. There is evidence, for example, that crystallized intelligence, gist-based processing, and the ability to draw inferences from schema-based knowledge appear to be preserved as one ages (Radvansky, Zwaan, Curiel, & Copeland, 2001).

Of particular relevance to this study is the understanding that text comprehension encompasses a number of subprocesses and that younger and older adults differ in their abilities to perform these cognitive operations. A widely accepted theoretical claim is that text comprehension operates at three levels: a surface representation of the words and grammatical structures used in a text; a textbase representation of the meaning that is extracted from lexical and syntactic information; and a situation representation of the events described in the text that integrates the textbase with prior world

knowledge to create an elaborated representation of the situation. A situation model represents events separate from the language used to describe them (van Dijk & Kintsch, 1983).

Although older adults are compromised at lower levels of processing such as surface and textbase processing, they perform as well or better than younger adults on tasks that require situation-level processing such as determining causal importance, updating in light of new information, and extracting meaning (Stine-Morrow, Gagne, Morrow, & DeWall, 2004). To facilitate text comprehension, older adults apparently rely on situation-level interpretations to compensate for their difficulty with lower levels of processing. But whether they are able to do so in attempting to understand complex legal verbiage and concepts is largely unknown.

In this study, we assess how well participants of varying ages can comprehend a passage of legal text from a will and apply its core content to a novel situation. These tasks undoubtedly encompass all aspects of van Dijk and Kintsch's (1983) model of text comprehension, including decoding words and syntax, extracting meaning, and forming mental simulations of a situation. Assessing whether older adults perform worse than younger people, as research on processing speed and memory span would suggest, or whether their performance is on par with younger adults, as findings on situation-level processing implies, is one objective of this study.

REVISING LEGAL DOCUMENTS

Another objective is to ascertain whether wills can be revised to enhance comprehension in both older and younger adults. In recent years, document drafters have begun to address the inaccessibility of legal language to laypeople. Reforms have included rewriting the language in a way that enhances understanding and changing the manner in which the information is delivered. All of the legal documents mentioned previously (i.e. jury instructions, contracts, *Miranda* warnings, and informed consent forms) have been subjected to some sort of revision process and evaluation, and many other documents have been evaluated by readability analyses.

Studies that tested comprehension of original and revised jury instructions generally show between 20% and 30% improvement in comprehension (Lieberman, 2009), although some changes in the language are obviously more influential than others and some revisions can actually introduce new sources of complexity (Diamond & Levi, 1996).

Research in the UK and elsewhere has assessed the readability of informed consent documents (e.g. Clement & Wales, 2004; Williamson & Martin, 2010), and American researchers have subjected informed consent forms to simplification and revision (Wogalter, Howe, Sifuentes, & Luginbuhl, 1999). The latter compared comprehension of information in a conventional 'legalistic' document and in a revised form that featured larger print, fewer words, shorter sentences, and less technical language. Their data showed that the revised consent form was better able to communicate the risky nature of a task in which respondents were agreeing to participate.

Government efforts to simplify the tax codes in Australia and New Zealand have also been examined empirically, albeit by use of readability statistics rather than by presenting different versions to readers and measuring comprehension. These efforts have been only marginally successful; understanding major portions of Australia's amended tax code still requires a university-level education (Smith & Richardson, 1999).

Finally, in their study of contract comprehension, Masson and Waldron (1994) redrafted the text of several contracts by removing or replacing archaic terms, creating a plain-language version with simpler sentences, using personal pronouns, and defining specialized legal terms. They tested the effectiveness of these revisions by measuring how long it took participants to read the contracts and how well they could paraphrase and answer questions about the information. Comprehension was enhanced by the revisions, although absolute levels of understanding were still quite low.

In general, studies involving revision of legal documents have shown moderate improved comprehension and application with increasing simplification and modification of the language. Importantly though, studies that tested actual comprehension levels have tended to use college students as participants. Even with the assistance of simplified language, an older or less well educated population may have comprehension difficulties, be less willing to struggle through reading 'the fine print', and simply gloss over the details of seemingly dense legal language. The present study assesses whether, by using principles of psycholinguistics, we could revise the language in wills to enhance understanding of will-related concepts and application of those concepts to novel fact patterns, even for older adults.

THE PRESENT STUDY

We began with wills included in an American estate planning handbook and selected eight excerpts that deal with frequently used concepts. Revising all the excerpts in two iterations resulted in three, increasingly simplified versions of each. Participants between the ages of 32 and 89 years read all eight excerpts in the same version and applied each concept to a novel fact pattern. We assessed whether people with no formal legal training could apply the concept correctly and whether the explanation of their reasoning was accurate. We hypothesized that comprehension rates would increase with increasing simplification of the language.

METHOD

Participants

Participants were recruited from the jury pool at the local county courthouse and through the Gerontology Participant Registry (a list of adults willing to participate in research studies) at the first author's university. No monetary incentive was offered for taking part in the study.

A total of 155 participants, ranging in age from 32 to 89 years ($M = 60.05$, $SD = 13.75$), participated in the study. Forty-six percent were men. In terms of education, 11% were

high school graduates or less, 24% had completed some college coursework, 29% were college graduates, and 36% reported some graduate work or a graduate degree. Of the total sample, 67% reported having a will. Of these, 64% had met with an attorney who drafted a customized will, 6% met with an attorney who provided a 'boiler-plate' will, 4% took their will from the Internet, 10% wrote their own will, and 16% acquired a will from another source.

Materials

Will excerpts

From *The Orange Book: Estate Planning Forms* (2004), we chose eight excerpts that are commonly used in last wills and testaments: general provisions (i.e. 'by representation'), tax provisions (i.e. 'death taxes'), trusteeship (i.e. 'replacement of trustee'), powers of fiduciaries (i.e. 'grant'), administrative provisions (i.e. 'ancillary fiduciary' and 'protection against perpetuities'), residuary estate (i.e. 'remote contingent disposition'), and specific and general gifts (i.e. 'contingent gift').

In the *Original* version, the excerpts were written in formal legal terminology. In our first set of revisions (i.e. to create the *Increased Readability* version), we were initially attentive to the nature of the lexicon rather than to syntax. We deleted redundant words and phrases and replaced nominalizations with active verbs and lower frequency words with higher frequency synonyms. We then turned to syntactical considerations, dividing lengthy sentences into shorter sentences and, where possible, replacing passive voice with active voice. We intended these changes to reduce information load and the demands on working memory and to improve the readability of the excerpts as measured by traditional readability tests. For example, for the excerpt dealing with 'protections against perpetuities', the *Original* and *Increased Readability* versions were as follows:

(Original) All trusts created hereunder shall in any event terminate no later than 21 years after the death of the last survivor of the group composed of myself, my spouse, and those of my descendants living at my death. The property held in trust shall be discharged of any trust and shall immediately vest in and be distributed to the persons then entitled to the income therefrom in the proportions in which they are beneficiaries of the income, and for this purpose only, any person then eligible to receive discretionary payments of income of a particular trust shall be treated as being entitled to receive the income, and if two or more persons are so treated, the group of such persons shall be treated as being entitled to receive such income as a class, to be distributed among them by representation.

(Increased Readability) All trusts created by this instrument will terminate no later than 21 years after the death of my spouse or my last living descendant, whichever occurs later. The property will then be vested in and distributed to the beneficiaries named by the last surviving descendant in accordance with the specifications of that descendant's will.

In the second set of revisions (i.e. to create the *Increased Readability with Terms Explained* version), in addition to

the changes just mentioned, we explained legal terms in each excerpt by using relatively simpler language. For example, the Increased Readability with Terms Explained version of 'protection against perpetuities' read as follows:

The trusts created by my will must expire no later than 21 years after the death of my spouse or my last living descendant, whichever occurs later. The property will then be provided for and distributed to the heirs named by the last surviving descendent in accordance with the specifications of that descendant's will.

These procedures resulted in three versions of each of eight excerpts: the Original, Increased Readability, and Increased Readability with Terms Explained versions.

We evaluated the complexity of the excerpts by computing the mean number of words per excerpt and per sentence, and the percentage of sentences in passive voice. These data are shown in Table 1. We also used two estimates of reading comprehension. The Flesch Reading Ease measures sentence length and the number of syllables per 100 words and can range from 0 to 100 with lower scores indicating more complex material. According to Flesch (1948), a score below 50 indicates difficult material and a score above 90 indicates easy material. The Flesch score provides a rough estimate of the proportion of the adult English-speaking population that is able to understand each passage. The Flesch–Kincaid Grade Level formula (Flesch, 1950) uses the same measures to provide grade-equivalent reading levels. These two measures are inversely related: higher scores on reading ease and lower scores on grade level correspond to easier material. These data are shown in Table 2. As expected, scores for reading ease increased with successive revisions, and grade level equivalencies dropped.

Questionnaires

The excerpts were arranged one per page in packets. A one-paragraph vignette followed each excerpt. It applied that particular concept to a novel fact pattern and required participants to determine whether the concept had been applied correctly (a Yes/No question; for five items, the correct answer was 'No', and for the other three items, the correct answer was 'Yes'). An open-ended question followed, asking participants to explain their application of the concept to this novel fact pattern. For example, following the excerpt 'protection against perpetuities' (in one of three formats), participants read the following:

Your granddaughter was 7 years old when you died. She is your last living descendant. She executes a will, leaving the trust she inherited from you to her boyfriend. She dies at age 33. The boyfriend now

claims to be entitled to this trust. Is he? Yes or No? Explain why or why not.¹

Procedure

Participants were randomly assigned to one of the three document complexity conditions: 50 received the Original version, 50 received the Increased Readability version, and 55 received the Increased Readability with Terms Explained version. After reading and signing the informed consent form, participants read through and answered questions in the packet, which took approximately 40 to 50 minutes, depending on the level of language complexity. Finally, they completed a demographic questionnaire that included gender, age, and highest level of education completed. They were also asked whether they had an existing will and, if so, to specify how they obtained their wills. Upon completion, participants were debriefed and were given contact information of the researchers for inquiries pertaining to the study.

Coding

The yes/no concept application questions were followed by a request for a written explanation of the answer. Independent raters blind to the condition of the explanations (i.e. the version of the will on which the explanations were based was unknown to them) double-coded responses to two of the seven excerpts. There was an 80% agreement rate between the double-coded explanations; all disagreements were discussed and resolved.

Raters scored the explanations as correct, incorrect, or missing. Explanations were rated on the basis of the presence of key concepts expressed in each excerpt that would justify the correct application answer. That is, an explanation was rated as correct if at least one of the key concepts in the will excerpt was used to justify the correct answer to the question.² Explanations that did not use any of the key concepts in the will excerpts or otherwise misapplied the idea were deemed incorrect. If *any* part of the explanation was wrong, we scored it as incorrect. Raters were instructed not to make inferences about what the writer might have intended.

¹ An attorney who specializes in wills, trusts, estate planning, and probate reviewed our choice of excerpts, successive revisions, and application of each excerpt to a novel factual situation. In his opinion, the excerpts accurately reflected language he is accustomed to seeing in practice with one exception: the excerpt detailing 'contingent gift' seemed especially verbose. On the basis of this input, we deleted the excerpt 'contingent gift' from further analysis. The attorney stated that our application questions were well crafted and accurately reflected some of the fact patterns that estate planners frequently see in practice. He confirmed our answers to each of the Yes/No questions. The correct answer to the question posed here is 'Yes'.

² Using 'protection against perpetuities' as an example, we scored as correct the explanations that mentioned any of these concepts: the boyfriend is named in the granddaughter's will, the granddaughter is your last living descendant, the trust belongs to the granddaughter, the granddaughter can choose how to distribute the trust, 21 years have not passed since the granddaughter's death.

Table 1. Characteristics of three will versions, in means

Will version	Words/ excerpt	Words/ sentence	% Passive sentences
Original	139.25	49.59	46.43
Increased Readability	78.13	25.96	39.29
Increased Readability with Terms Explained	82.25	25.10	18.44

Table 2. Measures of Flesch Reading Ease and Flesch–Kincaid (F–K) grade level equivalents for three versions of all seven excerpts

	Will version		
	Original	Increased Readability	Increased Readability with Terms Explained
<i>Remote contingent disposition</i>			
Flesch Reading Ease	0.0	31.4	52.0
F–K grade equivalent	42.8	20.3	15.9
<i>Grant</i>			
Flesch Reading Ease	6.1	28.7	28.6
F–K grade equivalent	21.8	14.7	14.6
<i>Replacement of trustee</i>			
Flesch Reading Ease	17.7	34.8	45.4
F–K grade equivalent	18.6	13.4	12.4
<i>Protection against perpetuities</i>			
Flesch Reading Ease	3.4	36.8	46.2
F–K grade equivalent	30.1	14.8	13.5
<i>Ancillary fiduciary</i>			
Flesch Reading Ease	0.0	5.2	31.7
F–K grade equivalent	20.6	16.9	14.4
<i>Death taxes</i>			
Flesch Reading Ease	20.7	28.6	35.3
F–K grade equivalent	19.8	16.4	15.7
<i>By representation</i>			
Flesch Reading Ease	4.1	41.7	67.0
F–K grade equivalent	23.8	10.6	7.0
Mean Flesch Reading Ease	7.43	29.60	43.74
Mean F–K grade equivalent	25.36	15.30	13.36

RESULTS

Results focus on our two main objectives: (i) determining whether increasing the readability of excerpts enhances comprehension of key concepts expressed in those excerpts and (ii) assessing differences in text comprehension as a function of age. Comprehension was measured by accuracy of answers to the seven yes/no concept application questions. Correct responses indicate sufficient comprehension of the concept to apply that information to a novel scenario. Comprehension was also measured by the accuracy of explanations given to support the answers. The effect of age was addressed by dividing the participants into three age groups representing younger ($n = 38$; 32 to 49 years; $M = 42.50$; $SD = 4.48$), middle-aged ($n = 54$; 50 to 64 years; $M = 56.20$; $SD = 4.50$), and older ($n = 63$; 65 to 89 years; $M = 73.92$; $SD = 6.54$) adults.

Concept application questions

The seven concept application questions were analyzed for total percent of correct, incorrect, and missing answers. Means, standard deviations, and F tests are presented in Table 3. The effects of will version and age on each application answer type (percent correct, incorrect, and missing) were analyzed using three 3 (will version) \times 3 (age) between-groups ANOVAs. All follow-up analyses were conducted using Tukey's Honestly Significant Difference test.

For the percent of correct applications, a main effect of version was found. Post-hoc comparisons indicated that the Original version resulted in significantly fewer correct applications as compared with versions with Increased Readability and Increased Readability with Terms Explained. The Increased Readability version resulted in fewer correct applications than did Increased Readability with Terms

Table 3. Mean percentage and standard deviations (in parentheses) of responses by will version

	Will version			F	Partial η^2
	Original	Increased Readability	Increased Readability with Terms Explained		
<i>Application questions</i>					
% Correct	58.57 ^a (20.05)	68.35 ^b (19.44)	78.08 ^c (20.42)	13.24	.15
% Incorrect	28.00 ^a (18.47)	21.85 (16.25)	15.52 ^b (16.12)	7.99	.10
% Missing	13.43 ^a (18.12)	9.80 (11.95)	6.40 ^b (10.76)	3.54	.05
<i>Explanations</i>					
% Correct	41.71 ^a (22.33)	46.78 (24.59)	56.65 ^b (25.80)	6.29	.10
% Incorrect	28.57 (15.27)	29.13 (23.03)	25.12 (18.60)	<i>ns</i>	
% Missing	29.71 ^a (19.96)	24.09 (21.09)	18.23 ^b (22.36)	3.95	.05

Within each row, means with different superscripts differ significantly ($p < .05$); degrees of freedom for F tests: (2, 147).

Table 4. Categories of incorrect explanations, illustrated with examples relevant to the concept 'protection against perpetuities'

Lack of conceptual understanding

'The boyfriend was not entitled to the inheritance because [i]t has been over 21 years since the death of the grandparent so the trust is terminated.' (In fact, the provisions of the will expire 21 years after the death of the last descendent, *not* 21 years after the death of the person who executed the will.)

Incorrect inference

'The trust does not terminate until 21 years *after the granddaughter's death*. Only then can it be distributed to the boyfriend.'

Folk theory

'The statement does not allow for descendants to pass the trust on to anyone not mentioned in the group at the time of the death of the [person who executed the will]', and that '[because] the granddaughter was not married at the time of her death, the boyfriend is not entitled [to the inheritance]'.

Explained. There was no main effect of age found, nor was there an interaction between age and will version.

A main effect of version was also found for the percent of incorrect applications. Post-hoc comparisons indicated that the Original version resulted in significantly more incorrect applications as compared with the Increased Readability with Terms Explained version. There were no effect of age and no interaction between age and version.

There was also a main effect of version found for the percent of missing answers such that the Original version resulted in significantly more missing answers than did the Increased Readability with Terms Explained version. There were no significant age effects or an interaction found.

Explanations of concept application answers

Explanations were also analyzed according to percent correct, percent incorrect, and percent of missing responses. Results are presented in Table 3. The effect of will version and age on the percent of correct, incorrect, and missing explanations was also analyzed using three 3 (will version) \times 3 (age) ANOVAs.

There was a significant effect of will version on the percent of correct explanations. Post-hoc comparisons indicated that the Original version resulted in significantly fewer correct explanations as compared with the Increased Readability with Terms Explained version. There were no significant age effects, nor an interaction found.

An effect of will version was found for the percent of missing explanations such that missing explanations were significantly more likely for the Original version *versus* the Increased Readability with Terms Explained version. For the percent of incorrect explanations, there were no significant effects of version or age, nor was an interaction found.

Nature of incorrect explanations

To determine whether there were commonalities in the incorrect explanations and whether those mistaken interpretations could tell us anything about the ways that people attempt to decipher and apply the complicated language of wills, we categorized all of the incorrect explanations for each of the seven concepts. These incorrect explanations tended to fit into one of three categories (in varying proportions for different excerpts): (i) a clear lack of conceptual understanding (the most frequent error); (ii) an incorrect inference or inferences; or (iii) a commonsensical or folk

theory as to what seemed fair to the participant, with little reference to the wording of the will excerpt. We illustrate these categories by providing some of the incorrect explanations of the concept 'protection against perpetuities' in Table 4. These errors suggest that some respondents grapple unsuccessfully with a complicated concept and that others simply determine what seems fair and commonsensical, with little reference to the text they were asked to apply.

Education and the presence of a will

Education was not a significant factor for correct, incorrect, or missing answers on the application questions. However, there was an interaction between education level (i.e. college graduates *versus* non-college graduates) and will version on the percent of correct explanations, $F(2, 149) = 4.04$, $p < .05$, partial $\eta^2 = .05$. After reading the version with Increased Readability and Terms Explained, college graduates produced significantly more correct responses than non-college graduates. There was also an interaction between education level and will version for missing explanations, $F(2, 149) = 4.55$, $p < .05$, partial $\eta^2 = .06$. Again, with the Increased Readability and Terms Explained version, college graduates had significantly fewer missing explanations than non-college graduates. These data are shown in Figure 1. There were no significant differences as a function of education for groups with other versions and no effects of the presence of a will on application questions or explanations (all $ps > .05$).

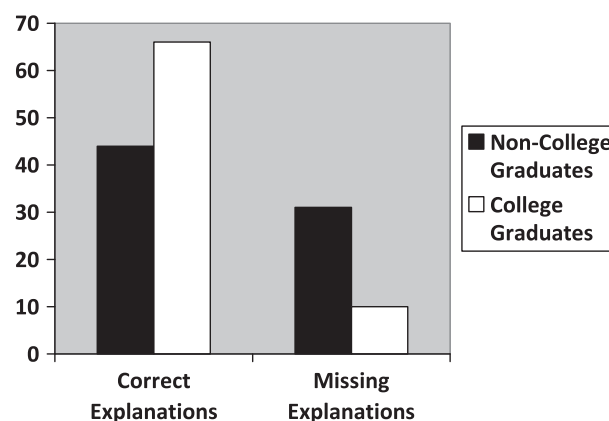


Figure 1. Percent of correct and missing explanations for Increased Readability with Terms Explained version as a function of respondents' education

DISCUSSION

This study showed that people have significant difficulty understanding the concepts described in traditional, boilerplate wills. When asked to apply a will-related concept to a novel fact pattern, participants who read boilerplate excerpts were able to do this correctly less than 60% of the time (when the guessing rate was 50%). Importantly, many attorneys rely on these boilerplate templates when they draft documents and may not explain essential concepts to their clients in language that is accessible to those clients. As a result, sizeable numbers of individuals may have wills that contain language they do not understand.

Results also showed that comprehension can be enhanced by carefully revising the syntax *and* by providing explanations of complex terms. Merely increasing readability by removing archaic terms and simplifying the syntax of will excerpts may be necessary but not sufficient. Like Masson and Waldron (1994), we found that only when readability was increased via syntactic changes *and* when terms were explained did participants show significant improvement in their ability to apply and explain these concepts. Apparently, both syntactic simplification and lexical clarification are prerequisites to enhanced understanding. By shortening sentences and removing passive constructions, we enabled participants to form and maintain a more coherent representation of the core concept in a passage, and by explaining unfamiliar terminology, we made the concepts more accessible to these legally untrained readers.

We did not find age effects on comprehension; older adults were no more apt to misapply or erroneously explain these concepts than were younger people. We suspect that older adults were able to perform on par with younger people because of the nature of the tasks we created and the comprehension measures we used. For example, to mimic what really happens when people execute a will, we gave participants unrestricted time to read and reread each passage. We did not test their memory of individual words or sentences, nor did we test their knowledge of textbase features. Rather, we asked them to undertake tasks that require moving beyond the specific structure of the text to create a mental representation of the circumstances described therein. We suspect that the effect of these procedures was to render well-documented age differences in processing speed and working-memory capacity largely irrelevant.

Extracting the core semantic components from a text and extrapolating them to a novel circumstance correspond to operations at the situation model level of van Dijk and Kintsch's (1983) theory of text comprehension. The ability to coordinate the large amounts of information necessary to create and update a situation model is apparently not dependent on a person's working memory capacity (Radvansky & Dijkstra, 2007). In addition, the range of semantic knowledge available to younger and older adults as they actively process information is approximately the same, allowing them to draw inferences not explicitly provided in the text (Radvansky & Dijkstra, 2007). These processes are important for situation model construction, and indeed, across a wide variety of comprehension tasks, older adults do not differ from younger people on measures

of situation-level processing. This may explain why we found no age-related differences in application and explanation of will-related concepts.

An alternative explanation is that deficits in older adults' abilities to understand and apply the conceptual information in these passages were offset by the fact that they were more likely than younger adults to have wills and perhaps were more familiar with will-related concepts. But there were no effects on comprehension scores of the presence of a will (i.e. people who had wills were no better at applying the will-related concepts to new situations and explaining their reasoning than were people who lacked a will).

Another possibility is that the convenience sample of older adults who participated in this study, all of whom lived in the community and indicated a willingness to take part in research studies, was more capable of understanding these concepts than the population of older adults at large. But these are the very individuals whose comprehension of will-related concepts is of utmost concern, as fund managers, lawyers, judges, and family members would not presume that cognitively impaired or institutionalized older adults could navigate their way through these challenging legal documents. Examining understanding of legal documents as a function of cognitive abilities would require a sample stratified on standardized measures of cognitive abilities—an undertaking that is beyond the scope of our data.

There is undoubtedly more to be done to ensure that people are fully aware of what they agreed to when they signed and filed away their wills. One possibility is that, in their discussions with clients, lawyers consider conveying the information in multiple ways. Some research suggests that comprehension of jury instructions is enhanced in legal neophytes by the use of audiovisual formats involving computer animations and flowcharts (Brewer, Harvey, & Semmler, 2004). Applying these concepts to hypothetical vignettes may also be a useful strategy.

Psycholinguists can be of continued help in suggesting alterations in the content and structure of the language, although revisions should retain the fundamental meaning of these concepts to the extent possible. (In our revision process, we were attentive to the need to retain the essential legal meaning of our chosen concepts because simplifying the syntax and removing legal jargon can introduce uncertainty into documents that had previously been understood, at least by legal professionals.) But even with the meaning retained, trust and estate lawyers and probate judges may not be immediately receptive to novel language.³ We acknowledge that even if clearer language is available, lawyers who draft wills may continue to be more concerned with reducing estate taxes or a probate court's interpretation of the wills' provisions than about their clients' ability to understand what these provisions actually mean, and probate judges may prefer language that is familiar to them, although inaccessible to laypeople.

³ The history of simplifying jury instructions is instructive on this point: trial judges have often hesitated to offer simplified jury instructions out of concern that an appellate court will deem their use a reversible error. As a result, attorneys have tended to shy away from proposing more accessible jury directives.

There are various limitations of our study. It was conducted in only one location. Our design tested participants' comprehension of discrete concepts, devoid of much contextual information or self-relevance. It would be highly interesting to assess the extent to which individuals who have wills are able to understand the provisions of their own wills. An additional limitation is the fact that we did not measure intelligence directly but rather used education level as a proxy for intelligence. Finally, we measured comprehension in the abstract, that is, without involving any discussion or instruction from a lawyer who, one would hope, could explain the concepts in ways that the client could understand. In their study of the comprehensibility of jury instructions, Severance, Greene, and Loftus (1984) showed that jurors' understanding was enhanced when jury instructions were simplified *and* when individual jurors had the opportunity to deliberate as a jury.

If estate lawyers can adequately assess clients' level of comprehension (a difficult task, given that people in early stages of dementia are adroit at concealing its signs) and then modify their interactions to address confusions and misunderstandings, some of the concerns we have raised may be alleviated. It would certainly be instructive to study what typically occurs in these client–attorney interactions. Even with explanation, some will-related principles may be so inherently complex that laypeople simply lack the relevant knowledge schemas to understand them well.

Last wills and testaments indicate how an individual's money, property, and prized possessions will be managed and distributed after death. Given the pervasiveness of family feuds over money that occur in life and the increasing prevalence of contested wills, it is surprising that so little attention has focused on assessing whether people understand what they are giving to whom when they die. To our knowledge, this is the first study to assess comprehensibility of a document that the majority of older adults desire, seek guidance and pay to acquire, presumably read, and then file away. Even with limitations, our findings suggest that laypeople may have difficulty understanding the concepts inherent in that document.

REFERENCES

- American Association of Retired Persons (AARP). (2000). Where there is a will. . Retrieved from <http://assets.aarp.org/rgcenter/econ/will.pdf>
- Barron, J., Duffey, P., Byrd, L., Campbell, R., & Ferrucci, L. (2004). Informed consent for research participation in frail older persons. *Aging Clinical and Experimental Research*, 16, 79–85.
- Bernard, T. (2010, Sept. 10). In using software to write a will, a lawyer is still helpful. Retrieved from <http://www.nytimes.com/2010/09/11/your-money/11money.html>
- Brewer, N., Harvey, S., & Semmler, C. (2004). Improving comprehension of jury instructions with audio-visual presentation. *Applied Cognitive Psychology*, 18, 765–776. DOI: 10.1002/acp.1036
- Clement, W., & Wales, Y. (2004). Readability and content of postoperative tonsillectomy instructions given to patients in Scotland. *Clinical Otolaryngology and Allied Sciences*, 29, 149–152. DOI: 10.1111/j.0307-7772.2004.00757.x
- Craik, F., & Salthouse, T. (2008). *The handbook of aging and cognition* (3rd ed.). New York: Psychology Press.
- Diamond, S., & Levi, J. (1996). Improving decisions on death by revising and testing jury instructions. *Judicature*, 79, 224–232.
- Flesch, R. (1948). A new readability yardstick. *Journal of Applied Psychology*, 32, 221–233. DOI: 10.1037/h0057532
- Flesch, R. (1950). Measuring the level of abstraction. *Journal of Applied Psychology*, 34, 384–390. DOI: 10.1037/h0058980
- Goetting, M., & Martin, P. (2001). Characteristics of older adults with written wills. *Journal of Family and Economic Issues*, 22, 243–264. DOI: 10.1023/A:1016699822855
- Hartley, A. (2006). Changing role of the speed of processing construct in the cognitive psychology of human aging. In J. Birren & W. Schaie (Eds.), *Handbook of the psychology of aging* (pp. 183–207). Amsterdam: Elsevier.
- Howe, J., & Wogalter, M. (1994). The understandability of legal documents: Are they adequate? *Proceedings of the Human Factors and Ergonomics Society 38th Annual Meeting* (pp. 439–442). Santa Monica, CA: Human Factors and Ergonomics Society.
- Jacobson, J., White, B., Battin, M., Francis, L., Green, D., & Kasworm, E. (1994). Patients' understanding and use of advance directives. *The Western Journal of Medicine*, 160, 232–236. DOI: 10.1023/A:1016699822855
- Lat, D. (2010, June 22). Do lawyers actually read boilerplate contracts? Richard Posner and Evan Chesler don't; do you? Retrieved from <http://abovethelaw.com/richard-posner/>
- Law Reform Commission of Australia. (1987). Plain English and the law. Report No. 9. Melbourne: Law Reform Commission.
- Lieberman, J. (2009). The psychology of the jury instruction process. In J. Lieberman & D. Krauss (Eds.), *Jury psychology: Social aspects of the trial process* (pp. 129–155). Burlington, VT: Ashgate.
- Masson, M. E., & Waldron, M. (1994). Comprehension of legal contracts by non-experts: Effectiveness of plain language redrafting. *Applied Cognitive Psychology*, 8, 67–85. DOI: 10.1002/acp.2350080107
- Radvansky, G., & Dijkstra, K. (2007). Aging and situation model processing. *Psychonomic Bulletin & Review*, 14, 1027–1042.
- Radvansky, G., Zwaan, R., Curiel, J., & Copeland, D. (2001). Situation models and aging. *Psychology and Aging*, 16, 145–160.
- Reifman, A., Gusick, S., & Ellsworth, P. (1992). Real jurors' understanding of the law in real cases. *Law and Human Behavior*, 16, 539–554. DOI: 10.1007/BF01044622
- Rodell, F. (1962). Goodbye to law reviews—Revisited. *Virginia Law Review*, 48, 279–290.
- Rogers, R., Hazelwood, L., Sewell, K., Harrison, K., & Shuman, D. (2008). The language of *Miranda* warnings in American jurisdictions: A replication and vocabulary analysis. *Law and Human Behavior*, 32, 124–136. DOI: 10.1007/s10979-007-9091-y
- Scalise, R. (2008). Undue influence and the law of wills: A comparative analysis. *Duke Journal of Comparative and International Law*, 19, 41–106.
- Severance, L., Greene, E., & Loftus, E. (1984). Toward criminal jury instructions that jurors can understand. *The Journal of Criminal Law and Criminology*, 75, 198–233.
- Smith, D., & Richardson, G. (1999). The readability of Australia's taxation laws and supplementary materials: An empirical investigation. *Fiscal Studies*, 20, 321–349.
- Stine-Morrow, E., Gagne, D., Morrow, D., & DeWall, B. (2004). Age differences in rereading. *Memory & Cognition*, 32, 696–710. DOI: 10.3758/BF03195860
- Stolle, D., & Slain, A. (1997). Standard form contracts and contract schemas: A preliminary investigation of the effects of exculpatory clauses on consumers' propensity to sue. *Behavioral Sciences & the Law*, 15, 83–94. DOI: 10.1002/(SICI)1099-0798(199724)15:1<83::AID-BSL261>3.0.CO;2-F
- Sugarman, J., McCrory, D., & Hubal, R. (1998). Getting meaningful informed consent from older adults: A structured literature review of empirical research. *Journal of the American Geriatrics Society*, 46, 517–524.
- van Dijk, T., & Kintsch, W. (1983). *Strategies in discourse comprehension*. New York: Academic Press.
- Waters, G., & Caplan, D. (2001). Age, working memory, and on-line syntactic processing in sentence comprehension. *Psychology and Aging*, 16, 128–144. DOI: 10.1037/0882-7974.16.1.128
- Williamson, J., & Martin, A. (2010). Assessing the readability statistics of national consent forms in the UK. *International Journal of Clinical Practice*, 64, 322–329. DOI: 10.1111/j.1742-1241.2009.02245.x
- Wogalter, M., Howe, J., Sifuentes, A., & Luginbuhl, J. (1999). On the adequacy of legal documents: Factors that influence informed consent. *Ergonomics*, 42, 593–613. DOI: 10.1080/001401399185504

Copyright of Applied Cognitive Psychology is the property of John Wiley & Sons, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.